

Section 1

Introduction

Hitachi Astemo Americas, Inc. has many requirements to our suppliers from several internal departments. Therefore we have accumulated and summarized these within this handbook as reference for effective compliance. The index categorizes each department's requests and under each topic are both instructions and required forms/documents.

Overall Supplier Management within Astemo is the responsibility of Purchasing. However, we encourage direct communication to ASTEMO individuals according to function such as indicated below:

AREA	RESPONSIBILITY
Quality	Supplier Quality Assurance (SQA)
Delivery	Production Control (PC)
Price/Cost	Purchasing
Other	Purchasing

As of this publication, this handbook is both current and accurate. However, we can expect revisions and additions because of the dynamics of our business activity. Therefore, we have made this handbook versatile enough to accept these revisions. We expect to forward additions/revisions periodically so we ask that you assign a group email when possible to ensure delivery of these notifications

We hope that you will appreciate the value of this handbook as a helpful reference guide and refer to it often.

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Policy

This Supplier Handbook is intended to communicate Hitachi Automotive Systems Americas, Inc., (here in after known as (ASTEMO)AM-HK's) requirements to all production material suppliers. To clarify requirements necessary for the suppliers to implement quality systems necessary to ensure zero defect material (0 PPM) is supplied to (ASTEMO)AM-HK. The supplier shall be required to follow the guidelines on all requirements established in this Supplier Handbook. All correspondences, documentation, and PPAPs must be submitted in English on (ASTEMO)AM-HK's prescribed formats. All documentation must be submitted typed or printed to (ASTEMO)AM-HK's Supplier Quality Assurance representative. No hand written documents will be accepted by (ASTEMO)AM-HK.

IATF 16949 Requirements and Expectations

All current production suppliers to Hitachi Automotive Systems Americas, Inc., USA, shall be at a minimum, third-party registered to IATF 16949 or registered to ISO 9001:2015 with evidence of conformance to IATF 16949 unless otherwise specified in writing by the customer. If currently not compliant to these requirements, supplier must show a documented plan to achieve this certification.

Hitachi Automotive Systems Americas, Inc., USA will not approve any new suppliers for production components that do not meet the above requirements.

Identification and Control of Critical Characteristics

Part or drawing dimensions or features may be identified by ASTEMO or Customer as a Critical Characteristic by drawing requirement or Purchasing Specification.

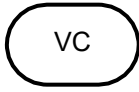
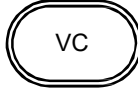




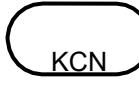





These characteristics may be identified with but not limited to a customer specific symbol, tombstone, SPC symbol, IQP symbol or symbol included in table below (SASG K21-09A). Additional critical characteristics may be identified by SQA.

Critical characteristics as identified on drawing must be identified in all process documentation, including but not limited to Control Plan, PFMEA, Dimensional layouts, Work instructions....etc.

Capability is required to be kept for Critical Characteristics. (see11 Initial Process Capability Study)

Supplier shall pass down all pertinent Critical Characteristics to tiered suppliers affected.

Supplier shall pass down all pertinent statutory and regulatory requirements to tiered suppliers affected. Evidence that all pertinent Critical Characteristics, statutory and regulatory requirements shall be provided on request

Kind of special characteristics	Definition	Symbol & process capability		Application	
		Cpk 1.33	Cpk 1.67	Vital critical parts	Important parts
Vital critical characteristics	Among the quality characteristics in vital critical areas, characteristics that have direct relation to breakage or failure that generate car accidents that are described in the above definition of the vital critical characteristics (air-tightness, screw fastening torque, etc.)			<input type="radio"/>	
Important varying characteristics	Characteristics of vital critical parts or important parts that agreement was made with customer and controlling of manufacturing variation is important in order to keep the target performance/function			<input type="radio"/>	<input type="radio"/>
Functional characteristics	Product/process characteristics that have a possibility to give serious affection against car functions				<input type="radio"/>
Noise characteristics	Among the functional characteristics, product/process characteristics that require to pay attention from the view point of noise				<input type="radio"/>
Fitting characteristics	Among the functional characteristics, product/process characteristics that have a possibility to give serious affection against fitting and/or mounting				<input type="radio"/>
Regulated special characteristics	Among product/parts other than vital critical parts, product/process characteristics that have a possibility to give serious affection against legal restrictions, car safety/product functions (relating to product liability (PL) matters)				<input type="radio"/>

Production Part Approval Process (PPAP) General Overview

Scope

The following requirements outline how to submit and identify PPAP packages and sample submissions, trial part submissions and new production components shipped to (ASTEMO)AM-HK. For Bulk, Raw, Catalog and/or Indirect parts and/or material, it is (ASTEMO)AM-HK's discretion whether PPAP will be required or not and at which level.

(ASTEMO)AM-HK's requirements for part approval consist of following the AIAG PPAP manual and (ASTEMO)AM-HK's guidelines in this Supplier Handbook. Level III PPAP submission is required unless otherwise specified by Supplier Quality Assurance. In response to the Request for Quote (RFQ) besides the cost of the parts, supplier shall submit packaging information, ELV and RoHS compliance information and IMDS information for the said part that is being quoted to (ASTEMO)AM-HK's purchasing representative. Prior to purchase order release, a design review is to take place to outline print requirements, critical dimension designation, control plan development, and other information required for successful approval. Suppliers are also required to initiate an Advanced Product Quality Planning (APQP) Process at this time for submission to (ASTEMO)AM-HK's designated representative, with regular and timely updates until the program is completed and PPAP has been approved. Tooling will be paid for only when warrant is signed after successful PPAP and Trial Run.

(ASTEMO)AM-HK's Supplier Quality Assurance (SQA) representative determines what type of PPAP submission is required. Level III is required unless specifically advised otherwise on the PPAP request.

PPAP's are requested by SQA representative electronically through (ASTEMO)AM-HK's Electronic PPAP Database to the supplier contact via email.

Part submissions required:

1. PPAP submission part(s): One piece required for all commodity types except Chemicals. For Chemical submissions a photo of the container and label is required. For all other commodities, one piece is required for each cavity. For parts with multiple cavities, each cavity must be clearly identified. PPAP parts are to be submitted free of charge and sent to attention of SQA.
2. Trial sample parts: 300 pieces or as described in P.O. These parts will be used for product validation trials.

PPAP sample parts should be clearly identified with PPAP Part tag. Tag can be found in the Forms section.

Definition

Production parts are manufactured at the production site using the production tooling, gauging, process, materials, operations, environment, and process settings, e.g., feeds/speeds/cycle times/pressures/temperatures etc.

Parts for Production Part Approval Process (PPAP) must be taken from a significant production run. This run would typically be from one hour to one shift's production, with the specific production quantity to total 300 parts minimum unless some other quantity has been agreed upon in writing between the supplier and (ASTEMO)AM-HK. Parts from each position of a multiple cavity die; mold, tool or pattern is to be measured and representative parts tested.

All PPAP's are to be submitted to the Hitachi Automotive Systems-Americas, Inc (ASTEMO)AM-HK Electronic PPAP Data Base.

To access this data base:

1. www.hitachi-automotive.us
2. Select supplier tab.
3. Enter user name and password.
4. Choose PPAP feature
5. A list of PPAP numbers will be shown with drawing number, click on PPAP Number to Open to begin submission of required PPAP.

Note: Detailed Guidelines/training on using the PPAP Data Base are listed at the top of the page "HELP Information."

Note*: All PPAP Documentation is to be submitted via electronic data base, unless approved prior to submission by HK SQA Representative.

All documents and data submitted must be in English and not more than 12 months old.

The (ASTEMO)AM Supplier Quality Assurance (SQA) representative will review all PPAP documents to insure they are accurate and complete. The SQA representative should confirm that all the documents marked as required on the Lotus Notes PPAP Request are included. If the PPAP is found accurate and complete, it will be submitted to (ASTEMO)AM-HK's Layout Department for necessary dimensional inspection. If the PPAP submission is not complete, the PPAP will be rejected and notification will be sent via email stating reasons for rejection. Correction to the PPAP is to be made and resubmitted via electronic data base. (ASTEMO)AM-HK's Layout Department will dimensionally layout the parts and forwards the results to the Supplier Quality Assurance for final approval. A Trial Sample Run may be required, and results verified before the approval of PPAP. If parts are rejected, a resubmission may be required. (See PPAP-Trial Run Submission Diagram on page 4 of Section 2). It should be noted that (ASTEMO)AM-HK's Layout Department requires two weeks to complete the Dimensional Layout from the time they receive the PPAP from Supplier Quality Assurance. Incomplete and inaccurate submissions of PPAP packages could cause the supplier to be charged on their Supplier Rating.

The PPAP will not be submitted to (ASTEMO)AM-HK's Layout Department unless it is a complete and accurate package. (ASTEMO)AM-HK will dimensionally check each part 100% if required, for conformance to print specifications. To prevent delays in acceptance of parts, the items listed in the Retention Submission Requirement's on page 7 in section 2 for each of the submission level are to be submitted with each PPAP. The Supplier Quality Assurance section must approve any deviation from these requirements via an SREA or other form of written communication.

Repeated submission of incomplete and inaccurate PPAP packages shall mandate that the supplier visit Hitachi Automotive Systems Americas, Inc. to review PPAP documents. All documents must meet (ASTEMO) AM and AIAG guidelines.

Purpose

The purpose of production part approval process is to determine if all customer engineering design record and specification requirements are properly understood by the supplier and that the process has the potential to produce products meeting these requirements during an actual production run at the quoted production rate.

The main objective for the PPAP requirement is approval of new part numbers and/or approval of any changes that might affect the part and/or the final product and ultimately the customer.

NOTE:

The New Changed Product Delivery Notice (NCPDN) tag is used to identify all new product received prior to being released to production, for the first time on an order class one (1) Purchase Order,

When PPAP approved or changed parts are shipped for the first time under a order class 1 production purchase order the NCPDN Tag must be completed and affixed to the outside of the container/box.

For detailed information and instructions see pages 37 and 38 of section 2 of this handbook.

When Submission Is Required

Production part approval is always required prior to the first production shipment of product in the following situations:

- 1) A new part or product (i.e. a specific part, material, or color not previously supplied to (ASTEMO)AM-HK).
- 2) Correction of a discrepancy on a previously submitted PPAP and/or part.
- 3) Product modified by an engineering change to design records, specifications, or materials.

Additionally, suppliers must notify (ASTEMO)AM-HK and submit for part approval prior to the first production shipment in the following situations unless the responsible Supplier Quality Assurance Contact has specifically waived this requirement for the subject part.

- A. Use of another optional construction or material than used in the previously approved part.
- B. Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling.
- C. Production following refurbishment or rearrangement of existing tooling or equipment.
- D. Production following any change in process or method of manufacture.
- E. Production from tooling and equipment transferred to a different plant location or from an additional plant location.
- F. Change of source for subcontracted parts, materials or services (e.g. heat-treating, plating).
- G. Product re-released after the tooling has been inactive for volume production for twelve months or more.
- H. Following a customer request to suspend shipment due to a supplier quality concern.
- I. Following a Level One Containment due to a supplier quality concern.

The purpose of these requirements is to identify changes that might affect the direct customer or ultimate purchaser of the vehicle or component.

Primary suppliers are responsible for subcontracted materials and services.

If (ASTEMO)AM-HK waives a formal submission, all items in the PPAP file must be reviewed and updated, as necessary to reflect the current process. The PPAP file must contain a written waiver in the form of an SREA or Fax and the name of the responsible Supplier Quality Assurance Representative granting the waiver and the date.

If there are any question and/or concerns regarding the need for Production Part Approval Process, your Supplier Quality Assurance Representative should be consulted for clarifications.

PPAP Submissions level

(ASTEMO)AM-HK will identify the submission level that will be used with each supplier, or supplier and part number combination. (ASTEMO)AM-HK's choice of levels for a supplier will be determined by such factors as:

Supplier compliance with IATF 9001 or IATF 16949 requirements.

Supplier quality recognition/achievement status.

Part criticality and customer requirements.

Supplier's experience with prior part submissions.

Supplier's experience with similar part production.

Supplier's experience with specific commodity.

It is possible that (ASTEMO)AM-HK will assign different submission levels to the same supplier and/or manufacturing location for the same part and/or families of part and/or similar commodity.

Submission levels are:

Level 1 - W arrant only (and designated appearance items, an Appearance Approval Report) submitted to customer.

Level 2 - W arrant with product samples and limited supporting data submitted to customer.

Level 3 - W arrant with product samples and complete supporting data submitted to customer.

Level 4 - W arrant and other requirements as defined by customer.

Level 5 - W arrant with product samples and complete supporting data reviewed at supplier's manufacturing location.

Note-Level III is the default level, to be utilized for all submissions unless specifically advised otherwise by (ASTEMO)AM-HK's designated representative.

Record Retention

Production part approval records regardless of submission level shall be maintained for the length of time that the part is active plus one calendar year.

ACTIVE PART is one currently being supplied to the customer for original equipment or

service application. The part remains active until tooling scrap authorization is given by the appropriate customer activity. For parts with no customer-owned tooling or situations where multiple parts are made from the same tool, written confirmation from the customer Purchasing activity is required to deactivate a part.

The supplier shall ensure that the appropriate **PPAP** records from a superseded part **PPAP** file are included, or referenced in the new part **PPAP** file.

Note: An example of an appropriate document/record that should be carried forward from the old file to the new part file would be material certification from a raw material supplier for a new part that represents only a dimensional change from the old part number. Conducting a PPAP “gap analysis” between the old part numbers should identify this.

Part Submission Status

General

The supplier shall be notified by (ASTEMO)AM-HK of the disposition of the submission. After production part approval, suppliers shall assure that future production continues to meet all customer requirements.

Customer PPAP Status

Full Approval: indicates that the part or material meets all (ASTEMO)AM-HK specification and requirements. The supplier is therefore authorized to ship production quantities of the product subject to releases from the customer.

Interim Approval: permits shipment of material for production requirements on a limited time or piece quantity basis. Interim Approval will only be granted when the supplier has:

Clearly defined the root cause of non-conformities preventing production approval; and,

1. Prepared an interim approval action plan agreed upon by (ASTEMO)AM-HK. Re-submission to obtain “full approval” is required.
2. Material covered by interim approval that fails to meet the agreed-upon action plan either by the expiration date or the shipment of the authorized quantity will be rejected. No additional shipments are authorized unless an extension of the interim approval is granted.

The Interim Approval Authorization (IAA) is a procedure to enable suppliers to meet production part submission dates and plant production requirements for late design changes. In these cases, the supplier will receive authorization from (ASTEMO)AM-HK through the Interim Approval Authorization (IAA) document. Parts to specification are supplied through the use of the IAA process until permanent tool/process parts are approved and available to meet production requirements. Supplier should submit a PSW along with available documentation/data and specify the reason for request, clearly stating the end of interim period.

Once parts are available from permanent tooling/process, a new submission is required.

Rejected means that the submission, the production lot from which it was taken, and accompanying documentation do not meet (ASTEMO)AM-HK requirements. Corrected product and documentation shall be submitted and approved before production quantities may be shipped.

Requirements for Production Part Approval Process (PPAP)

The following documents and items must be completed by the supplier for each part when any of the situations listed on page 5 of Section 2, when submission is required, occurs.

- 1) Design Records of Saleable Product: 1A) Ballooned (ASTEMO)AM-HK's Current Release Drawing and 1B) Ballooned Manufacturer's Current Release Drawing if applicable to match the dimensional results submitted under item 9 of the required documentation as shown on the Lotus Notes PPAP request.
- 2) Engineering Change Documents: Copies of Product Change Notices (PCN) from manufacturer, Product Datasheet, Design Engineering Sheets if applicable.
- 3) Customer Engineering Approval: Supplier Request for Engineering Approval (SREA). Include approved SREA Log Number if applicable.
- 4) Design FMEA: if the supplier is design responsible on (ASTEMO)AM-HK's prescribed format (K1-US-001B) or equivalent AIAG forms.
- 5) Process Flow Diagrams: on (ASTEMO)AM-HK's prescribed format or equivalent AIAG forms.
- 6) Process FMEA: on (ASTEMO)AM-HK's prescribed format (Pro-Form-G2) or equivalent AIAG forms.
- 7) Control Plan: This includes but not limited to the KPC, KCC, IQP, and SPC Dimensions on (ASTEMO)AM-HK's prescribed format. (QA-Form-200) or equivalent AIAG forms.
- 8) Measurement System Analysis Studies: Gage R & R on (ASTEMO)AM-HK's prescribed format (QA-Form-581) or equivalent AIAG forms.
- 9) Dimensional Results: 100% of specifications or as specified on the SREA on (ASTEMO)AM-HK's prescribed format (SQA-Form-018) or equivalent AIAG forms.
- 10) Material, Performance, Functional Results: Material Certifications (include specifications and actual results/readings). Performance and Functional results. Product validation (PV) Design Validation (D/V) Verification Results (100% of specifications or as specified on the SREA) on (ASTEMO)AM-HK's prescribed format (SQA-Form-019) and (SQA-Form-020) or equivalent AIAG forms.
- 11) Initial Process Study: Capability Study on all Critical Dimensions listed on the approval drawing on (ASTEMO)AM-HK's prescribed format (SQA-Form-021) or equivalent AIAG forms.
- 12) Qualified Laboratory Documentation (Lab Scope): Labs must comply with IATF 16949, Element 7.6.3. A copy of ISO/IEC-17025 certificate by a third party should be submitted here or else a complete Lab Scope. Evidence must be submitted to show that the laboratory conducting the testing is qualified and accredited to comply with ISO/IEC-17025 requirements.
- 13) Appearance Approval Report: Appearance Results (for parts with color, grain, and surface finish requirements) on (ASTEMO)AM-HK's prescribed format or equivalent AIAG forms.

- 14) Sample Product: One piece per cavity is a part that has been obtained from PPAP run or the same run as the master sample and that has properties and measurements identical to the master sample. Individually Identified & Packaged and PPAP Part Tag (SQA-Form-024) completed & affixed to the outside of the shipping box.
- 15) Master Sample: This has to be retained by the supplier for the life of the program and/or as long as the part is active plus three years.
- 16) Checking Aids: The supplier shall submit with the PPAP submission any part-specific assembly or component checking aid.
- 17) Records of Compliance: This should include but not limited to the following A) ISO 9001:2015 Certificate, IATF 16949 Certificate, B) Temperature Profile (TP), Oven Profile (OP), C) Packaging Approval Sheet (PAC), End of Life (ELV) requirements documents, D) Restriction on Hazardous Substances (RoHS) requirements documents, E) International Material Data System (IMDS) requirements documents, F) Moisture Sensitivity Level (MSL) for Moisture Sensitive Devices and storage and usage information as well as shelf life of the product: G) Sub Supplier Readiness Status Matrix, PSWs & Drawings H) CQI-9, CQI-11, CQI-12 Compliance and Self Audit. This is an annual requirement after the PPAP is approved. I) Others (Explain):
- 18) Part Submission Warrant: The PSW shall be submitted with every PPAP per (1C) AIAG requirements. PSW shall be complete, legible and accurate. Warrants will not be accepted that does not contain the (ASTEMO)AM-HK part number, drawing number, drawing revision level, STRF number, Purchase Order number, and production rate. In addition to part weight, supplier authorized signature, title and submission date on (ASTEMO)AM-HK's prescribed format SQA-Form-017 or AIAG equivalent PSW .
- 19) Bulk Material Requirements Checklist: Bulk Materials checklist (SQA-Form-023) must be completed and submitted with each PPAP submission by the suppliers who have been designated as Bulk Material Suppliers to (ASTEMO)AM-HK.
- 20) Early Production Containment Plan (GP-12) Enhanced Inspection Plan on all new and modified products.

Primary suppliers are responsible for subcontracted material and services. However, any change to the original design of the subcontracted component drawing must be approved in advance by (ASTEMO)AM-HK. Supplier's drawings for sub-supplier should be an identical reflection of all the components' drawing identified on (ASTEMO)AM's actual part drawing.

Note: All documents submitted must be in English.

1) Design Record of Saleable Product

The supplier shall have all design records for the saleable product, including design records for components or details of saleable product. Where the design record e.g. CAD/CAM math data, part drawing, specifications, is in the electronic format, e.g. math data, the supplier shall produce a hard copy (e. g. pictorial, geometric dimensioning and tolerancing sheets, drawing) to identify measurements taken.

Suppliers shall have all designs and CAD/CAM math data in a format which complies with customer specific requirements, designated by Hitachi.

For any saleable product, part or component, there will only be one design record, regardless of who has the design-responsibility. The design records may reference other documents such as Delivery Specifications, Datasheets, Supplier Request for Engineering Approval (SREA), Product Change Notices (PCN) making them part of the design record until such time the design record has been updated to incorporate any change or modifications approved through the above documents.

Ballooned (ASTEMO)AM-HK Current Release Drawing shall always be included in this section of the PPAP package. If a ballooned Manufacturer's Current Release Drawing is also in existence then that should also be included in this section of the PPAP to match the dimensional data submitted under item 7 of PPAP.

1A) Ballooned (ASTEMO)AM-HK Current Release Drawing:

(ASTEMO)AM release drawing is the official release drawing for a part or component that has been sent to the supplier after award of business. It should have a stamp with the word "released" and a date underneath it.

Ballooned drawing means that the release drawing has been sequentially numbered for all dimensions, performance specifications and notes listed on it so it could correspond with the sequential numbers on the Dimensional or Performance result Sheets.

For example if there is a dimension on the drawing that says the length is 2.5 ± 0.1 and it is the first measurement listed on the dimensional. Then this dimension on the print should be numbered 1. Since the range of this dimension would be 2.4 to 2.6 the dimensional result shown on the dimensional results sheet should be between these values for it to be acceptable.

This could also be explained as if a dimensional result is borderline or in question and the sequential number for that dimension is 23. Then the person looking at the drawing should be able to identify where that dimension 23 is on the drawing to understand the criticality of the dimension in relation to the part.

A common practice for the numbering of a drawing is that the numbers are placed inside a circle or triangle with each view of the part numbered clockwise and the drawing itself is numbered from left to right.

1B) Ballooned Manufacturer's Current Release Drawing:

When the manufacturer or supplier has the design-responsibility they may have a drawing that is a reflection of the (ASTEMO)AM-HK's release drawing. In such a case the manufacturer's drawing shall also be included in the PPAP submission.

This drawing could be a part of the datasheet or delivery specification. If this is the case then only the page containing the drawing should be included here instead of the whole document.

This would provide the opportunity for correlation of both the (ASTEMO)AM-HK as well as manufacturer's drawing to identify any issues or discrepancies.

Any discrepancies observed between the (ASTEMO)AM-HK and manufacturer's drawing should be immediately brought to (ASTEMO)AM-HK's attention. It should be communicated to responsible (ASTEMO)AM-HK SQA representative in the form of an electronic SREA. The SREA should include both the drawings and areas of discrepancies highlighted or marked for quick identification.

2) Engineering Change Documents (PCN/Datasheet/DES)

The supplier shall have any authorized engineering change documents not yet incorporated in the design record but incorporated in the product, part, process, or tooling included in this section of the PPAP Data Base.

Copies of Product Change Notices (PCN) from manufacturer, Product Datasheet, Design Engineering Sheets if applicable should be included in this section. If none are in existence then a note stating this should be included in this section.

3) Customer Engineering Approval (Approved SREA)

The supplier shall have evidence of (ASTEMO)AM-HK's engineering approval for any change to the product, part, process, or components. Supplier Request for Engineering Approval (SREA) is the method for providing communication between the supplier and (ASTEMO)AM-HK. The purpose of the SREA is to have agreement between the supplier and (ASTEMO)AM-HK on all process and design changes. **(ASTEMO)AM-HK approval for an SREA must be obtained prior to implementing any changes.** Once (ASTEMO)AM-HK determines that the change is possible, and a SREA is required, the supplier will submit the SREA, to the responsible Supplier Quality Assurance representative. All SREAs must provide detailed explanation of change and must be accompanied with documents, sketches, drawings, photographs, etc. highlighting the condition before and after change.

SREA approval document is on-line at www.hitachi-automotive.us, access SREA feature to create a new SREA. Follow supplier electronic SREA Database Training, if first time user. This is located on-line under the Supplier PPAP Help Information.

Process Changes

Any process changes that will affect the product in some way are covered here. It is the responsibility of the supplier to determine the risk/benefit of the process change. It is the supplier's responsibility to report this information to (ASTEMO)AM-HK, so that both parties can make an informed decision.

A process change is defined as any change in the process that could affect its capability to meet design requirement or the durability of the product. This includes new, different, relocated, or rebuilt production equipment; any change in sub-supplier, subcontracted products or services, including engineering approved alternate materials. Process change also includes changes in sequence of operations; and changes in chemical compounds such as adhesives, sealers, lubricants, etc., which are used in processing the product.

To further clarify this definition, lists of typical process changes are listed on page 13 under "Change Requirements Matrix". If the supplier is not sure if a process change needs an SREA, then the proper Supplier Quality Assurance representative should be contacted for clarification.

Design Changes

An SREA is required for any proposed design change to dimensional or appearance items. The related Design and Supplier Quality Assurance Engineers can then determine whether the change is functional to the end product or to our process and make a decision based on their findings.

For any proposal of a design change the supplier shall submit complete details of the proposed change as well as a validation plan and design of experiment details along with the completed SREA.

Product Change Notice (PCN)

Submission of a Product Change Notice (PCN) is not enough and does not meet (ASTEMO)AM- HK requirements for notification of a change of any kind. The PCNs does not provide details of several important questions that we need answered on all SREAs. The PCNs might also be several months old and the changeover dates as well as sample availability dates are either in the past or very near to the submission date.

SREA is always required with the submission of a PCN. The questions that need to be answered when submitting an SREA and/or SREA+PCN are as follows.

- 1) Why is the change required?
- 2) If the change is for wafer size, or relocation from US/Europe to Asia then why no cost benefit to (ASTEMO)AM-HK?
- 3) Exact date when the change will take place?
- 4) Is there a dimensional change of any kind incorporated with the proposed changes?
 - o If so submit details with current and proposed dimensional changes.
- 5) Is there a marking change of any kind?
 - o If so submit example of current and proposed marking.
- 6) When will the new parts be available for sample trials at (ASTEMO)AM?
- 7) When will the PPAP be available related to the change?
- 8) How long will the current parts be available for (ASTEMO)AM-HK to use?
- 9) How will the parts from the changed product/process/location be identified?
 - o If so submit example of current and proposed changes.

Description of Request, Reason for Change, and Effect of Change should have comments and not only refer to a document.

However reference to a document such as a PCN and a certain page in the document is acceptable as long as some narrative is present in these lines.

These could be answered either on the SREA itself or attachment that accompanies the SREA and PCN.

For Example:

Description of Request: Change of assembly and testing location from XXXX to XXXX. See page X of the attached PCN for more details

Reason for Change: As part of continuous improvement in terms of quality and service. See page X of the attached PCN for more details

Effect of Change: New assembly and testing site. Current Parts available till XX/XX/XX, PPAP available by XX/XX/XX, Changed Part's Samples available by XX/XX/XX,

The correspondence delivering the SREA should be complete and should include answers to the above questions, Properly completed SREA form, Copies of all PCNs, before and after change data Sheets, and any other reference documents related to the proposed change should be included within the same communication.

All changes (design and process) require that the supplier comply with the Production Part Approval Process (PPAP) and issue a new Part Submission Warrant (PSW) and the proper documentation. (ASTEMO)AM's Supplier Quality Assurance contact will determine when functional approval is required. Examples of Process Changes are as follows:

Change Requirements Matrix

Type of Change	Form of Notice
New Manufacturing location:	
+ New plant with new tool	Issue SREA & PPAP
+ New plant with same tool	Issue SREA & PPAP
+ Move of line inside plant	Issue SREA & PPAP
New mold/die/machine not previously PPAP'ed	Issue SREA & PPAP
Replacement of tooling:	
+ Complete new tool (i.e. die)	Issue PPAP
+ Adding cavities	Issue SREA & PPAP
+ Die rehabilitation	Issue SREA & PPAP
Resource of sub-contracted services (i.e. heat treating, plating, painting, machining)	Issue SREA & PPAP
Resource of material (i.e. raw or purchased)	Issue SREA & PPAP
Processing materials (i.e. oils, cleaning solvents, cutting fluids, etc.)	Notify Supplier Quality Assurance in writing
Change of design (i.e. material, dimensions)	Issue SREA & PPAP
Change of existing process parameters	Notify Supplier Quality Assurance in writing
Equipment rehabilitation (each machine or generic process)	Notify Supplier Quality Assurance in writing
New or modified fixturing	Notify Supplier Quality Assurance in writing
New or modified inspection process	Notify Supplier Quality Assurance in writing
Addition or subtraction of off-line operations	Notify Supplier Quality Assurance in writing
Any addition or change to a 3 rd party packaging supplier or service	Issue SREA & PPAP
Others (any other change not reflected in the previously categories)	Notify Supplier Quality Assurance in writing

4) Design FMEA

Design Failure Mode and Effects Analysis (Design FMEA), if the supplier has design responsibility. See AIAG - Potential Failure Mode and Effects Analysis reference manual.

The supplier shall have a design FMEA developed in accordance with, and compliant to **IATF 9001 or IATF 16949** requirements for parts or materials for which they are design-responsible.

A copy of the design FMEA shall be submitted in this section of the PPAP Submission.

5) Process Flow Diagram

All PPAP submissions require a process flow diagram. The process flow diagram must be typed and printed and should be included in this submission.

The Process Flow Diagram is a visual approach to describing and developing sequential or related work activities. It provides both a means of communication and analysis for planning, development activities and manufacturing processes.


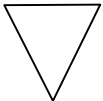
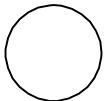
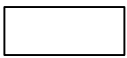
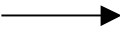
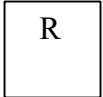
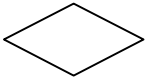
The supplier shall have a process flow diagram in supplier-specified format that clearly describes the production process steps and sequence, as appropriate and meets the specified customer needs, requirements and expectations (see Advance Product Quality Planning and Control Plan reference manual). For bulk material, an equivalent to Process Flow Diagram is a Process Flow Description.

Supplier shall create and maintain a Process flow diagram that represents the manufacturing process.

Ensure there is identification for inspection and rework operations.

- Document all items in the Process flow diagram with the respective nomenclature (store, move, inspect, correct, etc.).
- Standardize the use of symbols on the Process flow diagram.
- Update as changes occur.

Process Flow Diagram Symbols

<p><u>Terminator (Start /End)</u> This indicates where the Process flow Diagram starts or ends</p>		<p><u>Storage</u> May represent 'input' (components/sub assy's or 'output' (sub assy's/finished goods)</p>	
<p><u>Operation / Process</u> Numbered and named as per the PFMEA and Process Control Plan</p>		<p><u>Inspection – Testing</u> An inspection point of test Numbered and named as per the PFMEA and Control Plan</p>	
<p><u>Flow</u> Direction of flow between processes, inspection points/ test decision boxes, start / end terminators & storage</p>		<p><u>Repair</u> Represents a Repair Process. Numbered and named as per the PFMEA and Control Plan</p>	
<p><u>Decision</u> Send to Operation A or B?</p>			

Notes:

The process flow number is a sequential progression in the Process Flow. It is numbered and named as per the PFMEA and Control Plan.

Process flow diagrams for 'families' of similar parts are acceptable if new parts have been reviewed for commonality.

(ASTEMO)AM-HK's Supplier Quality Assurance must approve any deviation from this format prior to submission.

When any type of change or revision is made to the process flow diagram, an updated copy must be sent to the Supplier Quality Assurance representative.

6) Process FMEA

Prior to mass production start-up, the Process Failure Mode and Effect Analysis (PFMEA) must be completed and submitted with the PPAP package. Suppliers are required to submit their PFMEA on the (ASTEMO)AM-HK's prescribed format Pro-Form-G2 provided in Section 14. This requirement will determine whether the production process is capable of producing parts that meet (ASTEMO)AM-HK's requirements.

The purpose of a PFMEA is to try to identify and address as many of the potential failure modes as possible before they occur. The PFMEA is developed based on the past experience and concerns of the team as well as new potential failure modes that are identified by individuals making up the team.

The members that make up the PFMEA team should be from all affected areas. The engineer in charge of the project should actively involve people from design, assembly, manufacturing, materials, quality, service, suppliers, and the area responsible for the next assembly. This will promote teamwork and allow for the free exchange of ideas.

The PFMEA should be initiated before production tooling is started to allow the incorporation of preventive measures into the tooling and the process. Also, please remember that the PFMEA is a living document and must be updated each time a new failure mode is identified. This is important to show how the new failure mode was addressed and to document the problem for use in similar future products. This documentation also allows a quick reference for new members of the team to ensure that past failures are not overlooked.

The PFMEA should not rely on product design changes to correct weaknesses in the process. It should, however, take the product's design characteristics, relative to the manufacturing process, into consideration to ensure that the end product meets the customer's expectations.

For detailed information on the development of a Process FMEA, please refer to the AIAG FMEA manual. A copy of the form Pro-Form-G2 is provided in Section 14.

Note: For bulk materials, Design FMEA rankings (Severity, Occurrence, Detection) as discussed in Appendix F.7 of the AIAG PPAP manual, may be utilized to provide proper differentiation of risk factors.

7) Control Plan

Process control is the identification and planning of all production, validation, durability, testing and installation and servicing processes, which directly affect the product quality. Suppliers shall use systems to control all processes that affect quality where the absence of controls and procedures could adversely affect product quality.

Control Plans are written descriptions of the system for controlling production parts and processes. They are developed by suppliers to address the important characteristics and engineering requirements of the product they manufacture and supply to (ASTEMO)AM-HK. Each part must have a Control Plan utilizing (ASTEMO)AM-HK's prescribed form QA-Form-200 **or equivalent AIAG forms.**

In some cases, a family of products and/or parts produced using a common mold; process, material and location could utilize a common Control Plan for the complete family of parts. (ASTEMO)AM-HK's approval of the Control Plan is required prior to production part submission and the shipment of production intended parts.

Control Plan development should be started right after a design review between the supplier and (ASTEMO)AM-HK prior to purchase order release for prototype and/or production tooling. A prototype control plan should be developed and utilized by the supplier during prototype parts submission. The prototype Control Plan must accompany any prototype part submission to (ASTEMO)AM-HK. A copy of the Control Plan QA-Form-200 is provided in Section 14.

8) Measurement System Study (Gage R & R)

Prior to mass production start-up, the measurement system study should be performed and must be submitted with the PPAP package. Suppliers are required to submit their Gage R&R study on the (ASTEMO)AM-HK's prescribed format on QA-Form-581 provided in Section 14 of this handbook or equivalent AIAG form. This requirement will determine whether the production process is capable of producing parts that meet (ASTEMO)AM-HK's requirements.

It is necessary to conduct a measurement system analysis to understand how measurement error is affecting the measurements. Control charts should be examined for signs of instability. If there are signs of instability, corrective action should be taken. If stability cannot be achieved, contact (ASTEMO)AM-HK and determine appropriate action.

The supplier must perform and submit a Gage R & R study with PPAP. This is to be done on all critical dimensions (as specified on the part print) of all parts supplied to (ASTEMO)AM-HK.

The requirements for a Gage R & R are as follows:

- 1) A 10 piece random sample is to be used. This sample is to be taken from all shifts. Number the parts from 1–10. Each person will measure each part 3 times.
- 2) Inspectors should be people who normally measure the parts and are familiar with the measuring equipment. Use inspectors from all shifts.
- 3) Calibrate all gages before the study begins.
- 4) The recorder of the data can be anyone that is not the inspector.
- 5) A Supplier Quality Assurance auditor is to monitor and offer advice if the need arises in the study.
- 6) The data gathered will be submitted to the Supplier Quality Assurance Department for verification.
- 7) Submit data to the (ASTEMO)AM-HK Supplier Quality Assurance section on QA-Form-581 provided in Section 14 or AIAG equivalent form.

9) Dimensional Results Requirements

Dimensional results shall be provided for every PPAP submission. Initial submissions require 100% layout, one (1) piece per cavity on the Dimensional Test Results (DTR) SQA-Form-018 included in the Handbook, Section 14. For best correlation, (ASTEMO)AM-HK requires the measurement tool/method used to be noted next to the measurement. Actual layout parts shall be provided with the submission. These parts must be numbered so they correlate with the dimensional result page included in the PPAP.

In case of a re-submittal, the supplier needs only to submit dimensional data for critical and changed/affected dimensions, unless otherwise requested by (ASTEMO)AM-HK. Samples are also required for these submissions.

For trial parts submitted with Order Class three (3) purchase orders, that are made from prototype tooling, or before PPAP has been approved, dimensional results are required on critical dimension as specified on the design record and/or SREA/STRF and are to be submitted with samples to (ASTEMO)AM-HK SQA along with the drawing.

A numbered drawing with the dimensional results must be submitted with all dimensional result submission and should be correlated to the DTR page.

The supplier shall provide evidence that dimensional verifications required by the design record and the Control Plan has been completed and results indicate compliance with specified requirements. The supplier shall have dimensional results for each unique manufacturing process, e.g. cells or production lines and all cavities, mold, patterns or dies.

The supplier shall indicate the date of the design record change level, and any authorized engineering change not yet incorporated in the design record to which the part was made.

The supplier shall identify one of the parts as the master sample.

The supplier shall record the change level, drawing date, and supplier name and part number on all auxiliary documents (e.g. supplementary layout results sheets, sketches, tracings, cross sections, CMM inspection point results, geometric dimensioning and tolerance sheets, or other auxiliary drawings used in conjunction with the part drawing). Copies of these auxiliary materials shall accompany the dimensional results according to the Retention/Submission Requirements Table. A tracing shall be included when an optical comparator is necessary for inspection.

Notes:

- + All dimensions must be in metric, as all of (ASTEMO)AM-HK's drawings are dimensioned using the metric system.
- + In the event a submission is submitted with dimensions out of specifications, a pre-approved SREA shall accompany the PPAP submission (See SREA Guidelines).
- + All dimensional reports must use the (ASTEMO)AM-HK Dimensional Test Results (DTR) SQA-Form-018 found in Section 14 of the Handbook or equivalent AIAG forms.
- + (ASTEMO)AM-HK's Design Engineering Department must approve any component drawings that are modified by the supplier for sub-contracted parts and/or sub-suppliers.
- + Any changes to the original design of the sub-component drawing must be approved in advance by (ASTEMO)AM-HK. Supplier's drawings should be an identical reflection of all the components' drawing identified on (ASTEMO)AM's actual part drawing.

10) Material/Performance/Functional Results Requirements

The supplier shall perform tests for all part(s) or product material(s) when the design record or Control Plan specifies performance or functional requirements.

When Material, Validation, performance, Durability, Reliability, or other engineering requirements are on the design record, approval can occur in two ways.

- b) The supplier gets approval prior to PPAP and submits evidence of approval.
- c) The supplier submits the test data or results with the PPAP submission. Note that the procuring division may require an additional drawing.

All Laboratory data shall be less than one-year old at time of submission. Test data shall be updated for engineering changes if the previous data is affected by the engineering change(s).

All laboratories used should be accredited and must comply with ISO/IEC-17025 requirements. See item 12 on page 22 for more detailed explanation.

Material Test Results Requirements

The supplier shall perform tests for all part(s) and product material(s) when chemical, physical, or the design record or Control Plan specifies metallurgical requirements.

Material tests are for the raw material like resin, wires, solder, terminals used in the production of the product or component.

The material test report, SQA-Form-020, found in Section 14 of the Supplier Handbook or equivalent AIAG form shall indicate:

Design record change level of the parts tested, and the number, date, and change level of the specifications for which the part was tested.

Date on which the test took place.

Material subcontractor's name and when required by your customer, their supplier code number for the material from the customer-approved subcontractor list. For products with customer-developed material specification and a customer-approved subcontractor list, the supplier shall procure material and/or services (e.g. painting, plating, heat-treating) from subcontractors on that list.

Material Certification Requirements

The following defines Hitachi's requirements for acceptable statements of quality that identify completely the material of the part being supplied to (ASTEMO)AM-HK.

Material certifications are required to be submitted with each PPAP submission, and as required by (ASTEMO)AM-HK on any changes that affect the material. (Follow SREA guidelines for part changes on page 11 of Section 2.) **(The actual certification, along with form SQA-Form-020 is to be submitted with the PPAP.)** SQA-Form-020 can be located in Section 14 of the Supplier Handbook.

Material certifications are required to be maintained on file at the supplier, and submitted upon request by (ASTEMO)AM-HK personnel. They are to be maintained on file for a minimum of three (3) years. **Material Certification and Material Safety Data Sheets (MSDS) are required with each shipment of chemicals.**

Material Certifications are required for all raw material, sub-components, plating, painting, hardness, etc. associated with the finished product.

In all cases the specifications or drawing are the governing factor and must be reviewed to determine the exact testing or inspection requirements. Some clarifications and examples are as follows. A certification for SAE-4/40 steel must include exact chemical analysis of the steel that is within the limits established by SAE. The practice of stating maximum or minimum limits for a given chemical element or mechanical property is not acceptable. As an example: Carbon 40% maximum or yield strength 62,000 PSI minimum must be exact specifications from that lot, with the **specifications referenced** on all submissions.

Certifications for protective coatings such as E coating or zinc chromate plating must specify the class, type and or grade to which the finished product conforms. In addition to the specification number and any special testing the material must be subjected to, including resistance testing, salt spray and adhesion testing for those coatings which must meet a specified film thickness measurements will be included on the certification.

Performance Test Results Requirements

The supplier shall have records of performance test results for tests specified on the design record or Control Plan.

The test report shall indicate:

The design record change level of the parts tested, the number, date and change level of the specifications to which the part was tested;

Any authorized engineering change documents that have not yet been incorporated in the design record.

The date on which the testing took place.

Results for all tests required by the design to related specifications should be listed in an understandable format and include the quantity tested. All performance reports must use the (ASTEMO)AM-HK Performance Test Results (PTR) SQA-Form-019 or equivalent AIAG forms and can be found in Section 14 of the Handbook or equivalent AIAG forms.

All tests required by the design record and related specification should be listed in a convenient format along with the quantity tested and the actual results of each test. Also indicate any authorized engineering change documents that have not yet been incorporated in the design record.

Functional Test Results Requirements

The supplier shall have records of functional test results for tests specified on the design record or Control Plan The test report shall indicate:

The design record change level of the parts tested, the number, date and change level of the specifications to which the part was tested;

Any authorized engineering change documents that have not yet been incorporated in the design record.

The date on which the testing took place.

Results for all tests required by the design to related specifications should be listed in an understandable format and include the quantity tested. All performance reports must use the (ASTEMO)AM-HK Performance Test Results (PTR) SQA-Form-019 or equivalent AIAG forms and can be found in Section 14 of the Handbook or equivalent AIAG forms.

All tests required by the design record and related specification should be listed in a convenient format along with the quantity tested and the actual results of each test. Also indicate any authorized engineering change documents that have not yet been incorporated in the design record.

Design and Product Validation and Verification

DV/PV PROCEDURES

This validates and verifies that the product design meets the customer's requirements. Design for manufacturability and assembly should be a simultaneous engineering process designed to optimize the relationship between design function, manufacturability, and ease of assembly. The scope of customer needs and expectations will define the extent of supplier's product quality team involvement in this activity.

Design reviews are regularly scheduled meetings led by supplier's design engineering activity and must include other affected areas. The design review is an effective method to prevent problems and misunderstanding. Design reviews are a series of verification activities that are more than an engineering inspection. At a minimum design reviews should include evaluation of:

- Design and functional requirements considerations
- Formal reliability and confidence goals
- Component/subsystem/system duty cycle
- Computer simulation and bench test results
- Review of the design for manufacturability and assembly effort
- Design of experiment (DOE) and assembly build variation results
- Test failures
- Design verification progress

A major function of the design reviews is the tracking of the design verification progress. The supplier should track design verification progress through the use of a plan and report format.

Product and Process Validation and Verification:

Production validation testing refers to engineering tests that validate that products made from production tools and processes meet engineering standards. It is the obligation of all suppliers to meet customer requirements on all characteristics. Special characteristics must meet the indices specified by the customer. Robust controls should be implemented within the process control plans and work instructions to manage pass-through characteristics.

The manufacturing process and products must be validated through an evaluation of production trial run. During a production trial run, the Production Quality Team should validate that the control plan and process flow chart are being followed and that the product meets customer requirements. Additional concerns should be identified for investigation and

resolution prior to regular production run. Production trial runs must be conducted using production tooling, equipment, environment (including production operators who have been trained), and facility and cycle time. Process reviews are a series of verification activities that are more than an engineering inspection. At a minimum process reviews should include evaluation of:

1. Packaging Standards
2. Process Quality Review
3. Process Flow Chart
4. Floor Plan Layout
5. Characteristics Matrix
6. Process Failure Mode and Effect Analysis
7. Pre-Launch Control Plan
8. Work Instructions
9. Measurement System Analysis
10. Preliminary Process Capability Studies

11) Initial Process Capability Study

Prior to mass production start-up, the process capability must be determined. This requirement will determine whether the production process is capable of producing parts that meet (ASTEMO)AM-HK's requirements.

A 125 piece grouped in 25 sets with each set having five data points should be used for each capability study. Capability study is required on critical dimensions and/or dimensions that are decided upon during the design review. The capability study must be performed prior to and submitted with the PPAP documentation. This capability study should show that the process capability is greater than 1.67 ppk.

In the case where acceptable process capability cannot be achieved by the part submission date, an action plan should be submitted detailing either how the process will be improved to achieve 1.67 ppk, or how the parts will be inspected to ensure that defective material does not reach (ASTEMO)AM.

Typical corrective actions include process improvement, tooling changes, etc. Dimensions that require process capability during mass production must be maintained, as referenced on the control plan and data and results must be maintained at the supplier, and made available upon request to (ASTEMO)AM-HK.

Note: Selected suppliers will be required to submit this data, at a minimum, annually. These suppliers will be notified in writing by (ASTEMO)AM Supplier Quality Personnel for submission of this data.

Suppliers are required to submit Process Capability Study including \bar{X} and R charts.

For new parts, a ppk of 1.67 or higher must be maintained on all critical dimensions or the supplier will be required to perform a 100% inspection for that specification until proven capability is achieved.

For existing parts that have been modified or improved or the processes have been changed, a CPK of 1.33 or higher must be maintained or the supplier will be required to perform a 100% inspection for that specification until proven capability is achieved.

Failure to maintain accepted controls and continuous capability could place the supplier under the Supplier Quality Improvement Plan (SQIP).

The CPK is to be calculated for all dimensions that are determined to be SPC dimensions by (ASTEMO)AM Design Engineering. These dimensions will be indicated with an SPC symbol on the (ASTEMO)AM-HK drawing. In the event that there is no SPC symbol, then the supplier should submit data on the dimensions indicated as IQP dimensions. The IQP dimensions will be marked with a tombstone symbol. If neither one of these are present on the print, then the dimensions will be determined by (ASTEMO)AM-HK Design Engineering and Supplier Quality Assurance and relayed to the supplier by the Supplier Quality Assurance representative. The PPK must be 1.67 or higher on all established dimensions.

Preliminary Process Capability Study including \bar{X} and R Charts (PPK of 1.67 or higher must be maintained on all critical dimensions), or supplier will be required to perform a 100% inspection for that specification until proven capability is achieved. For existing parts, a CPK of 1.33 or higher must be maintained on all critical dimensions.

Note: (ASTEMO)AM's Capability Study Summary, SQA-Form-022 located in section 14 or equivalent AIAG form is to be used for the summary submission.

12) Qualified Laboratory Documentation (Lab Accreditation):

In compliance with IATF 16949 requirements all suppliers shall submit their internal as well as external laboratory accreditation in each PAPP submittal to (ASTEMO)AM-HK.

Whenever a PPAP includes material, durability, or performance testing from your internal lab or an external lab, you must submit evidence of the following items. Evidence must be submitted to show that the laboratory conducting the testing is qualified and accredited to comply with ISO/IEC-17025 requirements.

You must include the lab accreditation with each material certificate submitted within the PPAP. Lab scope documentation must also be included with material certificates to show evidence of specific test accreditation. The lab accreditation number and scope should be included on or attached to all test reports.

Internal lab: If you are ISO 9001:2015 or IATF 16949 certified supplier and performing testing on your own products, you must include your laboratory scope that includes its capability to perform the required inspection, test or calibration services. Refer to IATF 16949 7.6.3.1.

External lab: If an external lab is used for inspection, test or calibration services the supplier shall have a defined laboratory scope that includes the capability to perform the required inspection, test or calibration and be accredited to ISO/IEC 17025 or national equivalent. All outside labs require ISO/IEC 17025 accreditation which must also be site specific for that laboratory. Refer to IATF 16949 7.6.3.2.

13) Appearance Approval (AAR)

Appearance Results (for parts with color, grain, and surface finish requirements).

A separate Appearance Approval Report (AAR) must be completed for each part or series of parts for which a submission is required if the product/part has appearance requirements on the design record, (ASTEMO)AM-HK drawing or supplier drawing.

Upon satisfactory completion of all required criteria, the supplier shall record the required information in an understandable manner. SQA-Form-020 Material Test Result could be used for recording of appearance criteria and results.

Note: AAR typically applies only for parts with color, grain, protrusions, texture, stains, flow lines, plating and surface appearance requirements.

14) Sample Product

All PPAP submissions at submissions Levels II, III, and IV require that one piece per cavity actual product samples should be included with the PPAP package. A part that has been obtained from PPAP run or the same run as the master sample and that has properties and measurements identical to the master sample shall be used for the Sample product. All samples must be a true reflection of the production intent part that would be supplied once PPAP approval has been received by the supplier.

These samples should come from an actual PPAP run at the supplier with production intent and approved material, part, tooling, equipment, processes, facility, and environment including production operators who have been properly trained.

All samples submitted with the PPAP should be individually packaged and clearly identified per cavity, tool, product lines, and processes before inclusion in the PPAP submission. An identical sample should be retained by the supplier to be used as a master sample at their facility.

A separate request in the form of a Sample Tool Request Form (STRF) and Purchase Order (PO) could be issued to the suppliers for trial or functional samples for validations of the design, product, equipment, and processes at (ASTEMO)AM-HK. If trial run samples have been ordered at the time of PPAP order a PPAP will not be approved unless the trial run has taken place at (ASTEMO)AM-HK and all parameters of the component has been found to be acceptable as per the specification. After successful completion of the trial run at (ASTEMO)AM-HK and after any additional product or design validation testing the PPAP will be approved and the supplier would be authorized to ship production intent parts.

15) Master Sample

The supplier shall retain a master sample for the same period as a) the production part approval records, or b) at least three years after the part has been phased out by (ASTEMO)AM-HK, or c) at least three years after the part has been changed in any way and a new master sample has been produced.

The supplier shall retain master sample for each position of a multiple cavity die, mold, tool, pattern, equipment, test stand, or production process unless otherwise specified and approved by (ASTEMO)AM-HK's SQA representative in writing.

Note 1: When part size, sheer volume of parts, etc. makes storage of a master sample difficult, the sample retention requirements may be modified or waived in writing by the designated (ASTEMO)AM-HK SQA representative. The purpose of the master sample is to assist in defining the production standard, especially where data is ambiguous or in insufficient detail to fully replicate the part to its original approved state.

Note 2: Many bulk material properties are by their nature time dependent, and if a master sample is required it may consist of the manufacturing record, test results, and certificate of analysis of key ingredients, for the approved submission sample.

16) Checking Aids

If requested by (ASTEMO)AM-HK, the supplier shall submit with the PPAP submission any part-specific assembly or component checking aid.

The supplier shall certify that all aspects of the checking aid agree with part dimensional requirements. The supplier shall document all released engineering design changes that have been incorporated in the checking aid at the time of submission. The supplier shall provide for preventive maintenance of any checking aids for the life of the part

Note: Checking aids can include fixtures, gages, models, templates, Mylars, connectors, test equipment specific to the product.

17) Records of Compliance

The supplier shall have records of compliance to all applicable (ASTEMO)AM-HK specific requirements. All documents and information pertaining to (ASTEMO)AM-HK's specific requirements should be included in this section of the PPAP package.

Information such as the following items should be included here in the order listed.

17A) **ISO 9001:2015** or **IATF 16949** Certificate:

A current copy of the above certifications by a third party registrar should be included here. This should clearly show the company name and address where the parts are being manufactured, tested and packaged. If there are multiple locations then it should list all locations used for the production, testing, and packaging of the part. In case of an electronic part it should show both the Front-end (Wafer & Die) as well as Back-end (Assembly, Testing & Packaging) facilities location

17B) Temperature Profile (TP)/ Oven Profile (OP):

A copy of the temperature profile for the reflow process as well as the oven profile for baking or burn in should be included in this section if applicable to the saleable product.

17C) Packaging Approval Sheet (PAC)/ Packaging Specifications (PS):

Supplier shall submit detailed information about all the packaging options and the preferred method of packaging in which the saleable part will be shipped to (ASTEMO)AM-HK. The packaging approval sheet should be completed and submitted for approval prior to submittal of PPAP. Supplier's packaging specifications should also be included here if applicable to the saleable part.

A completed and approved copy of the packaging Approval Sheet (PM-Form-040) should be included in the PPAP package in this section.

17D) End of Life Vehicles (ELV) directive:

This directive is aimed at increasing recycling content of vehicles manufactured and sold in the European Union. This directive only applies to automotive vehicles and took effect July 1, 2003. In particular, the directive bans or limits the use of lead, mercury, cadmium, and hexavalent chromium.

All suppliers should provide information about ELV Directive compliance in this section of the PPAP package.

Restriction on Hazardous Substances (RoHS) directive:

The other two directives are Restriction on Hazardous Substances (RoHS) and Waste Electrical and Electronic Equipment (WEEE). These directives are aimed at reducing the hazardous materials content in electronic products as well as increasing the recycling efforts for these products and take effect July 1, 2006. RoHS specifically bans or restricts the use of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated biphenyl ethers (PBDE).

All suppliers should provide information about RoHS Directive compliance in this section of the PPAP package.

17E) International Material Data System (IMDS):

The IMDS is the automotive industry material data system. It is a joint development of Audi, BMW, DaimlerChrysler, Ford, Opel, Porsche, VW and the Swedish firm Volvo. Further manufacturers have meanwhile joined the community and talks are being held with others regarding their participation in IMDS.

In the IMDS, all materials used for car manufacture are archived and maintained. Only in this way is it possible to meet the obligations placed on car manufacturers, and thus on their suppliers, by national and international standards, laws and regulations.

All suppliers should provide information about IMDS Directive compliance in this section of the PPAP package along with the product ID and IMDS datasheet.

17F) Moisture Sensitivity Level (MSL) for Moisture Sensitive Devices and storage and usage information as well as shelf life of the product:

Overexposure to uncontrolled room environment can lead to internal component damage during the reflow process due to moisture expansion. This creates invisible cracks in the die, breaks in wire bonds, and delamination (known as "Pop Corning"). The final result can be latent field failures undetectable by testing at the assembly process.

Exposure to higher temperatures needed for lead free processing can increase the potential for defects associated with moisture sensitive devices. This increases the risk of having latent failures caused by poor handling of Moisture Sensitive Devices.

Suppliers shall provide the Moisture Sensitivity Level (MSL) for Moisture Sensitive Devices (MSD) and Chemical Labeling Requirements for Shelf Life

All chemicals that are supplied shall have the (ASTEMO)AM Part Number, Date of Manufacture, Date of Expiration, and recommended Storage Conditions on each individual Container.

The Packing Slip also shall have the (ASTEMO)AM Part Number and Expiration Date. All information on the containers and packing slip shall be in English.

Failure to comply with these requirements will result in lot rejection and (ASTEMO)AM policy for non-conforming material will apply.

Storage and usage information as well as shelf life of the saleable product:

17G) Early Production Containment (GP-12) Procedures

Enhanced Inspection Plan on all new and modified products.

This procedure applies to all suppliers required to use the Production Part Approval Process (PPAP). It is to be used for all pre-production and production requirements that require the Production Part Approval Process.

The purpose of GP- 12 is to document the supplier's efforts to gain control of its processes during start-up and acceleration so that any quality issues that may arise are quickly identified and corrected at the supplier's location and not at the customer's manufacturing location. GP-12 Early Production Containment requires a Pre-Launch Control Plan a significant enhancement to the supplier's production control plan which will raise the confidence level to ensure that all products shipped initially will meet customer's expectations. The pre-launch control plan will also serve to validate the production control plan. The Pre-Launch Control Plan should take into consideration all known critical conditions of the part as well as potential areas of concern identified during the Production Part Approval Process. GP-12 Early Production Containment serves to proceduralize the Pre-Launch Control Plan referred to in section 3.7 of the Chrysler, Ford, GM Advanced Product Quality Planning and Control Plan Reference Manual.

The Supplier must do the following:

A. Establish a containment process that contains the following elements:

- Identification of the person responsible for the containment process.
- Development of a Pre-Launch Control Plan consisting of additional and enhanced controls, inspection audits and testing to identify non-conformances during the production process. Depending on the dominant factor if the production process (set-up, machinery, fixture, tooling, operator, material/components, preventative maintenance, climate) additional controls could include:
 - Increased frequency/sample size of receiving process and or shipping inspections
 - Mandated sub-supplier containment and or sub-supplier support/audits
 - Addition of inspection/control items
 - Increased verification of label accuracy
 - Enhancement of process controls, such as error proofing
 - Error proofing validation through introduction of known defects

- Increased involvement and visibility of top management
 - Prompt implementation of containment/correction when non-conformances are discovered
 - Identification of the measurement equipment and data collection devices/activities to be used where applicable
- B. Document the Pre-Launch Control Plan, including functional testing and error proofing, using the Control Plan format referenced in the Advanced Product Quality Planning and Control Plan Reference Manual. The development and documentation of the Pre-Launch Control Plan are expected to occur during the Advanced Product Quality' Planning process. The Pre-Launch Control Plan is not a substitute for the Production Control Plan but is over and above the Production Control Plan and is used to validate it.
- C. Utilize the Early Production Containment Plan for all pre-production requirements (e.g.. pilot, lead unit build) and for the production ship quantity or duration specified by the procuring division or until the Production Control Plan is validated, whichever occurs later. Typically, the specified production quantity or duration is intended to reflect the customer's acceleration plan to full production rate. If not specified by the procuring division, the production ship quantity is a minimum of 1200 pieces for each customer plant, in addition to any pre-production quantities required.
- D. To indicate compliance with the GP-12 requirements, attach to each shipping label, container, box, package a completed green NCPDN tag (SQA-Form-026), found in Section 14 of the Supplier Handbook, signed by a designated senior management representative along with a contact number. Please see pages 37 & 38 under heading "New Changed Product Delivery Notice" for detailed instructions on how to complete and submit an NCPDN Tag.

Supplier will be eligible to exit Early Production Containment on its own accord after meeting the criterion listed below. If the supplier is unable to meet the exit criteria or the supplier's GP- 1 2 plan continues to identify non-conformances the supplier is expected to continue the necessary containment measures to insulate the Customer Plant up to the time when the quality concerns have been resolved to the satisfaction of both the Supplier and the Customer and the Supplier's Production Control Plan is validated.

- A. Ship the number of pieces or for the duration specified by the procuring division with no discrepancies or customer plant SCARs and supplier can self-exit from the Early Production Containment Process
- B. If supplier does not meet self-exit criteria then to exit GP-12 all SCARs must be closed by the Customer Plant
- C. In the event the self-exit criteria has been met but the GP-12 plan continues to identify non- conformances, the GP-12 plan must be kept in place until process controls and capabilities have proven effective and the Production Control Plan is validated.

Note: This procedure does not provide authorization to ship nor is it a shipping schedule.

17H) Component Supply Chain Matrix (SQA-FORM-033) Sub Supplier Readiness Matrix, PSWs and Drawings

The supplier shall submit a sub-tier component matrix of all their suppliers along with approved PSW s and other supporting documentation as agreed upon by the supplier and (ASTEMO)AM-SQA.

17I) AIAG (Automotive Industry Action Group) Special Process Assessments (CQI)

This directive mandates that all suppliers that supply components to Hitachi Automotive Systems Americas, Inc. meet the requirements of any CQI special process audit deemed necessary such as but not limited to CQI-9 Heat Treat System Assessment, CQI-11 (Plating System Assessment), CQI-12 (Coating System Assessment).

These assessments are used to evaluate an organizations ability to meet the requirements in the assessments, as well as customer, regulatory, and the organization's own requirements. The development of these systems provides for continual improvement, emphasizing defect prevention and the reduction of variation and waste in the supplier's processes. These assessments are intended for automotive production and service part components.

Assessments shall be conducted annually, to re-examine the continuing compliance with the requirements. These assessments shall include a review of the supplier's special process systems. The assessments shall use the process approach to auditing as identified by the requirements of IATF 16949.

This applies to all direct suppliers and sub-tier suppliers that have processes that fall under these categories. All suppliers must also submit these assessments to (ASTEMO)AM, every year, as required. This assessment is also required at the time of PPAP for new component submission.

If, the parts you supply do not involve any of these processes, please include a detailed explanation why the part are not applicable to this directive, when required.

Information can be found at www.aiag.org Forms are also in the Forms section of (ASTEMO)AM Supplier Manual. Any other relevant document that the supplier would like to include.

17J) Bulk Material Requirements

For bulk materials, the Bulk Materials requirements Check sheet shall be completed and jointly agreed between the supplier and (ASTEMO)AM-HK's SQA representative. All specified requirements should be completed unless specifically agreed and indicated as "Not Required" (NR) on the checklist.

Bulk Materials checklist (ASTEMO)AM Form, (SQA-Form-023) must be completed and submitted with each PPAP submission by the suppliers who have been designated as Bulk Material Suppliers to (ASTEMO)AM.

Additional requirements may be specified by (ASTEMO)AM-HK's SQA representative either via SREA, E-Mail or on the checklist itself as deemed necessary due to the nature of product or the nature of the program where the material will be used.

17K) Others

Level 3 PPAPs (and any other PPAP as specified by SQA)submitted by suppliers to HK that ultimately have Nissan as customer shall include form : Pre production quality control index (HK Form number). This shall be required of any part that is not a commodity or standard catalog item.

Any additional documentation or items agreed upon by the supplier and (ASTEMO)AM-SQA.

18) Part Submission Warrant (PSW) SQA-Form-017

Upon satisfactory completion of all required measurements and tests, the supplier shall record the required information on the Part Submission Warrant (PSW).

A separate PSW shall be completed for each (ASTEMO)AM-HK part number unless otherwise agreed by the (ASTEMO)AM-SQA representative in writing. A copy of this written agreement shall also be submitted with the PSW containing multiple part numbers.

The supplier shall verify that all of the measurements and test results show conformance with (ASTEMO)AM-HK's requirements and that all required documentation is available (or for Level II, III, and IV, is included in the submission). A responsible supplier representative shall approve the PSW and in doing so shall certify that all documents, measurements, test results etc. contained in the PPAP is accurate and current, and provide date, title, and contact number.

Instructions for completing Part Submission Warrant

SQA-Form-017 - Numbers below correlate with example form, section 2, page 32

- 1) **Part Name** - Name of the part should be listed here as it appears on Hitachi's drawing or as it is commonly known.
- 2) **Part Number with Suffix** - Hitachi Part Number should be listed here including all suffixes.
- 3) **Drawing Number** - Hitachi Drawing number should be listed here.
- 4) **Engineering Drawing Change Level** - Hitachi Drawing Revision level should be listed here. If original or initial drawing write zero "0".
- 5) **Dated** - Drawing release date by (ASTEMO)AM should be listed here.
- 6) **Additional Engineering Change** - Approved SREA number if any should be listed here.
- 7) **SREA Request Reason** - Reason for which SREA was submitted and approved, example dimensional, functional, other etc.
- 8) **Dated** - SREA approval date should be listed here.
- 9) **Checking Aid Number** - Enter the checking aid number, if one is used for dimensional and/or functional inspection.
- 10) **Engineering Change Level** - Enter the engineering change level of the checking aid, if one is used for dimensional and/or functional inspection
- 11) **Dated** - Checking aid approval date should be listed here, if one is used for inspection.
- 12) **(ASTEMO)AM-HK STRF Number** - (ASTEMO)AM-HK issued STRF number must be included on all PSW for tracking at (ASTEMO)AM. It could be found on the P. O. If none is available supplier to contact responsible (ASTEMO)AM Buyer to receive one.
- 13) **Due Date** - PPAP due date as listed on STRF or P. O. should be included here.
- 14) **Purchase Order Number** - P. O. number must be included on all PSW for tracking at (ASTEMO)AM. If none is available then supplier must contact responsible (ASTEMO)AM Buyer to obtain one.

- 15) **Dated** – P. O. issue date should be listed here.
- 16) **Safety and/or Government Regulations** - “Yes” if so indicated on the part drawing otherwise “No”.
- 17) **Safety and/or Government Regulations** “No” if so indicated on the part drawing otherwise “Yes”.
- 18) **Supplier Reference Number** - This area is for the supplier or manufacturer’s part number and any other reference.
- 19) **Weight** - Enter the actual weight in kilograms to four decimal places for the part.
- 20) **Supplier Name** - Supplier’s name that supplies the part directly to (ASTEMO)AM should be included here regardless of who the manufacturer is of the part. Manufacturer’s name if different from the supplier could be included here after the supplier’s name separated by a slash.
- 21) **Supplier Code** - Supplier code provided by (ASTEMO)AM should be listed here.
- 22) **PPAP Submission Information** - Check appropriate box as it pertains to the submission. Indicate the reason of submission (If other is checked then please explain).
- 23) **Street Address** - Physical street address of the supplier’s facility.
- 24) **Customer Name Division** - This should be Hitachi Automotive Systems Americas, Inc. USA Inc.
- 25) **Application / Product Line** - This should be (ASTEMO)AM OEM product name or production line name where the part is being used.
- 26) **City, State Zip** - Physical street address, city, state, zip code of the supplier’s facility
- 27) **(ASTEMO)AM-SQA** - (ASTEMO)AM Supplier Quality Assurance representative’s name must be included here.
- 28) **(ASTEMO)AM Buyer** - (ASTEMO)AM Procurement representative’s name must be included here.
- 29) **Restricted or Reportable Substances** - Check the appropriate box to indicate if the part contains any restricted or reportable substance and that the part is ELV/RoHS Compliant. If the answer is yes then please explain in detail.
- 30) **IMDS ID No** – Submitted by IMDS or other customer format. Enter the IMDS ID number from the IMDS website.
- 31) **ISO Marking on Plastic Parts** - Check the appropriate box to indicate if the parts are marked with appropriate ISO markings. If the answer is yes then please explain in detail.
- 32) **Reason for Submission** - Check the appropriate box as it pertains to the submission. One or more boxes should be checked. If other is checked then please explain in detail.
- 33) **Requested Submission Level** - Check the appropriate box identifying the requested submission level by (ASTEMO)AM, If PPAP Level IV is checked then also circle or highlight the items 1 through 20 that you are submitting in the PPAP submittal.

- 34) **Submission Results** – Check the appropriate boxes as it pertains to the submission. If the results do not meet the requirements then a brief explanation of why all results do not meet drawing and specification requirements should be included here.
- 35) **Declaration** - Number of parts produced for an 8-hour shift including lunch and breaks should be listed here.
- 36) **Explanation/Comments** - A brief explanation of why a PPAP is being submitted should be included here. Reference to an SRAE or PCN could be mentioned here if the PPAP is being submitted as a result of an approved SREA. If the reason for submission is other then use this area to elaborate.
- 37) **Is each customer tool properly tagged and numbered** – For process with tools.
- 38) **Name** - Name of Supplier representative responsible for submission of PPAP should be listed here.
- 39) **Title** - Job Title of the person submitting this PPAP should be listed here.
- 40) **Fax Number** - Fax number of the person submitting this PPAP should be listed here.
- 41) **E-Mail** - E-mail of the person submitting this PPAP should be listed here.
- 42) **Supplier Authorized Signature** - This PSW must be signed by authorized Supplier QA/Sales Contact responsible for (ASTEMO)AM account
- 43) **Phone Number** - Phone number of the person submitting this PPAP should be listed here.
- 44) **Date** - PPAP submission date to (ASTEMO)AM should be listed here.
- 45) **For Customers Use Only** - Leave blank for use by (ASTEMO)AM-HK's Supplier Quality Assurance Representative.

Incomplete and inaccurate submissions of PPAP packages could cause delay in part approval activity. A complete resubmittal could be required and the supplier could be charged on their Supplier Rating.

Part Name: <input type="text"/>		Part Number with suffix: <input type="text"/>																																					
Shown on Drawing No: <input type="text"/>	Engineering Drawing Change Level: <input type="text"/>	Dated: <input type="text"/>																																					
Additional Engineering Changes (SREA #): <input type="text"/>	SREA request reason: <input type="text"/>	Dated: <input type="text"/>																																					
Checking Aid No: <input type="text"/>	Engineering Change Level: <input type="text"/>	Dated: <input type="text"/>																																					
(HIAMS)AM-HK STRF #: <input type="text"/>	Purchase Order Number: <input type="text"/>	Dated: <input type="text"/>																																					
Safety and/or Government Regulation Yes <input type="checkbox"/> No <input type="checkbox"/>	Supplier Reference No.: <input type="text"/>	Weight (kg): <input type="text"/>																																					
Supplier Manufacturing Information:		PPAP Submission Information:																																					
Supplier Name: <input type="text"/>	Supplier Code: <input type="text"/>	Customer Name / Division: <input type="text"/>																																					
Street Address: <input type="text"/>	Application / Product Line: <input type="text"/>	Hitachi SQA: <input type="text"/>																																					
City: <input type="text"/>	State/Region: <input type="text"/>	Postal Code: <input type="text"/>	Country: <input type="text"/>																																				
Hitachi Buyer: <input type="text"/>			IMDS ID No.: <input type="text"/>																																				
Materials Reporting:																																							
Has customer-required Substances of Concern information been reported? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			Submitted by IMDS or other customer format: <input type="text"/>																																				
Does this part contain any restricted or reportable substances? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			If Yes Explain: <input type="text"/>																																				
Are polymeric parts identified with appropriate ISO marking codes? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			If Yes Explain: <input type="text"/>																																				
Reason For Submission (Check one):																																							
<input type="checkbox"/> Initial Submission	<input type="checkbox"/> Engineering Change (s)	<input type="checkbox"/> Tooling: Transfer, Replacement, Refurbishment, or additional	<input type="checkbox"/> Correction of Discrepancy																																				
<input type="checkbox"/> Tooling Inactive more than 1 year	<input type="checkbox"/> Change to Optional Construction or Material	<input type="checkbox"/> Sub-Supplier or Material Source Change	<input type="checkbox"/> Change in Part Processing																																				
	<input type="checkbox"/> Parts Produced at Additional Location	<input type="checkbox"/> Other specify: <input type="text"/>																																					
Requested Submission Level (Check one):		Reason for Submission: <input type="text"/>																																					
<input type="checkbox"/> Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.	<input type="checkbox"/> Level 2 - Warrant with product samples and limited supporting data submitted to customer.	<input type="checkbox"/> Level 3 - Warrant with product samples and complete supporting data submitted to customer.																																					
<input type="checkbox"/> Level 4 - Warrant and other requirements as defined by customer and identified below:	<table border="0" style="width:100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18																						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																						
<input type="checkbox"/> Level 5 - Warrant with product samples and complete supporting data reviewed at supplier's manufacturing location.																																							
Submission Results (Check appropriate boxes):																																							
The results for: dimensional measurements <input type="checkbox"/> material and functional tests <input type="checkbox"/> appearance criteria <input type="checkbox"/> statistical process package <input type="checkbox"/>																																							
These results meet all design record specification requirements: Yes <input type="checkbox"/> No <input type="checkbox"/> If "NO" Explanation Required: <input type="text"/>																																							
Mold/Cavity/Production Process: <input type="text"/>																																							
Declaration:																																							
I affirm that the samples represented by this warrant are representative of our parts which were made by a process that meets all Production Part Approval Process Manual 4th Edition requirements. I further affirm that these samples were produced at the production rate of <input type="text"/> / <input type="text"/> hours.																																							
I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration here.																																							
Explanation/Comments: <input type="text"/>																																							
Is each customer Tool properly tagged and numbered <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			E-Mail: <input type="text"/>																																				
Name (Print): <input type="text"/>	Title: <input type="text"/>	Fax No.: <input type="text"/>	Phone No.: <input type="text"/>																																				
Supplier Authorized Signature: <input type="text"/>		Date: <input type="text"/>																																					
For Customer Use Only (IF APPLICABLE)																																							
Part Warrant Disposition: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Other: <input type="text"/>																																							
Customer Name: <input type="text"/>		Customer Signature: <input type="text"/>																																					
		Date: <input type="text"/>																																					
March 2006 The original copy of this document and all supporting evidence and data shall remain at the supplier's location while the part remains active. These shall be readily available to (HIAMS)AM-HK's representative upon verbal or written request.			Optional Customer Tracking Number: <input type="text"/>																																				
ISSUE: 2	DATE: 12/13/2010	AUTHORIZATION: Ted Carter	PAGE: 1 of 1																																				
Distribution List: Supplier <input type="checkbox"/> QA-Lab: <input type="checkbox"/> PC: <input type="checkbox"/>		PUR: <input type="checkbox"/>	Other: <input type="checkbox"/>																																				

Figure 1

PPAP Part Tag (Bright Orange)

This TAG (SQA-Form-024) found in Section 14 of the Supplier Handbook, must be used for all PPAP submission packages to (ASTEMO)AM-HK, one piece per cavity, identified on the outside of shipping container and/or package etc. This Tag is for Order Class Seven (7) Purchase Order (PO) only. Tag must be visible on the outside of packaging next to the shipping invoice for proper receiving.

Instructions for completing a (SQA-Form-024) Production Part Approval Process (PPAP) Tag:

1. **Supplier Name** – Indicate the name of the supplier who is submitting the parts.
2. **Supplier Code** – Indicate the supplier code associated with the supplier.
3. **Supplier Contact** – Indicate the name of the supplier contact for (ASTEMO)AM-HK.
4. **Contact Number** – Indicate the phone number for the supplier contact person.
5. **Type of Submission** – Check one box for reason of submission.
6. **Level of Submission** – Check the PPAP level of submission, as required by (ASTEMO)AM-HK Supplier Quality Assurance.
7. **SQA Contact** – Indicate the name of the SQA contact at (ASTEMO)AM-HK who is responsible for the supplier.
8. **Buyer** – Indicate the name of the buyer at (ASTEMO)AM-HK who is responsible for the supplier.
9. **Quantity** – Indicate the quantity of parts being submitted (as required on the SREA, STRF and/or Purchase Order).
10. **Part Name** – Indicate the name of the parts being submitted, as referenced on part approval drawing.
11. **Drawing Number** – Indicate the Hitachi part number of the parts being submitted, including any suffix.
12. **Drawing Level** – Indicate the drawing revision level.
13. **STRF Number** – Indicate the STRF number as provided by (ASTEMO)AM-HK.
14. **PO Number** – Indicate the PO number, as provided by (ASTEMO)AM-HK.
15. **Order Class** – This number must be an order class seven (7) Purchase Order issued only for PPAP.
16. **All PPAP documentation must be submitted prior to receipt of parts**
17. **Remarks** – Any remarks made by the supplier should be mentioned here like the SREA number or PCN number for which the PPAP is being submitted.
18. **Remarks** – Indicate why this PPAP is being submitted? What has changed or is it an initial submission? Are these produced with different equipment, process or location?

Note: The supplier must attach this tag to all PPAP submittal packages and/or parts box, crib or pallet. This Orange Tag would be supplied by (ASTEMO)AM-HK in the event that this tag is not available, suppliers could make a copy of this tag from the master included in this Handbook and also in the accompanying disk on a Bright Orange piece of paper.



PPAP PART TAG

P R O D U C T I O N P A R T A P P R O V A L P R O C E S S

S U P P L I E R T O C O M P L E T E									
SU P P L I E R N A M E: (1)				SU P P L I E R C O D E: (2)					
SU P P L I E R C O N T A C T: (3)				C O N T A C T N U M B E R: (4)					
T Y P E O F S U B M I S S I O N: (5)		I N I T I A L S U B M I S S I O M		R E S U B M I T T A L			E N G N. / D R W G. / P R O C E S S C H A N G E		
L E V E L O F S U B M I S S I O N: (6)		I	II		III		IV		V
S Q A C O N T A C T: (7)			B U Y E R: (8)			Q U A N T I T Y: (9)			
P A R T N A M E: (10)			D R A W I N G N U M B E R: (11)			D R A W I N G L E V E L: (12)			
S T R F N U M B E R: (13)			P. O. N U M B E R: (14)			O R D E R C L A S S: (15)			
T H I S P A C K A G E M U S T B E C O M P L E T E A N D S H O U L D I N C L U D E A L L R E Q U I R E D D O C U M E N T A T I O N S: (16)			C O R R E C T L E V E L O F P P A P			R E M A R K S / C O M M E N T S: (17)			
			I D E N T I F I E D P A R T S / C A V I T Y						
			T W O C O P I E S O F A L L D O C S.						

R E M A R K S / C O M M E N T S
(18)

Issue: 0	Date: 02/17/05	Authorization: Ted Carter	Page: 1 of 1	SQA-Form-024
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This PPAP Part Tag must be printed on Bright Orange color paper.

Sample Packaging and Shipping Requirements:

Samples for initial evaluation, or production, process, design, component, and location changes should only be submitted under an order class 3 sample purchase order. Samples are required to be delivered to (ASTEMO)AM-HK on the due date listed on the purchase order sent by responsible buyers. Only a (ASTEMO)AM-HK purchasing representative can issue a Sample PO. (ASTEMO)AM-HK Production Control does not possess the capability to issue sample PO.

Trial Sample Part Tag (Bright Yellow)

This TAG (SQA-Form-025), found in Section 14 of the Supplier Handbook, must be used for all Sample submission packages to (ASTEMO)AM-HK; This Tag is for Order Class Three (3) Purchase Order (PO) only. Tag must be visible on the outside of packaging next to the shipping invoice for proper receiving.

Instructions for completing (SQA-Form-025) the Trial Sample Part (TSP) Tag:

- 1) **Supplier Name** – Indicate the name of the supplier who is submitting the parts.
- 2) **Supplier Code** – Indicate the supplier code associated with the supplier.
- 3) **Supplier Contact** – Indicate the name of the supplier contact for (ASTEMO)AM-HK.
- 4) **Contact Number** – Indicate the phone number for the supplier contact person.
- 5) **SQA Contact** – Indicate the name of the SQA contact at (ASTEMO)AM-HK responsible for the supplier.
- 6) **Buyer** – Indicate the name of the buyer at (ASTEMO)AM-HK who is responsible for the supplier.
- 7) **Quantity** – Indicate the quantity of parts being submitted (as required on the SREA, STRF and/or Purchase Order).
- 8) **Part Name** – Indicate the name of the parts being submitted, as referenced on the part approval drawing.
- 9) **Drawing Number** – Indicate the Hitachi part number of the parts being submitted, including any suffix.
- 10) **Drawing Level** – Indicate the drawing revision level.
- 11) **STRF Number** – Indicate the STRF number as provided by (ASTEMO)AM-HK.
- 12) **PO Number** – Indicate the PO number, as provided by (ASTEMO)AM-HK.
- 13) **Order Class** – This number must be an order class three (3) Purchase Order issued only for trial samples.
- 14) **Purpose of Samples** – Indicate the purpose of the samples being submitted i.e. trial run, line set up, CPK study etc.
- 15) **Remarks/Comments** – Indicate why these samples are being submitted? What has changed in the part or processes? Are these produced with different equipment, process or location?

Note: The supplier must attach this tag to the outside of the shipping container/box of all sample parts for identification purposes. This Yellow Tag would be supplied by (ASTEMO)AM-HK. In the event that this Tag is not available, suppliers could make a copy of this Tag from the master included in this Handbook and also in the accompanying floppy disk on a Bright Yellow piece of paper.

SUPPLIER TO COMPLETE SUPPLIER		
SUPPLIER NAME: ①		CODE: ②
SUPPLIER CONTACT: ③		CONTACT NUMBER: ④
SQA ⑤	BUYER ⑥	QUANTIT ⑦
PART ⑧	DRAWING ⑨	DRAWING ⑩
STRF ⑪	P. O. ⑫	ORDER ⑬
PURPOSE OF SAMPLES: ⑭		

REMARKS / COMMENTS
⑮

Issue:	Date:	Authorization: Ted	Page: 1 of	SQ -FOR -025
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This TSP Tag must be printed on Bright Yellow color paper.

New Changed Product Delivery Notice (Bright Green)

The New Changed Product Delivery Notice (NCPDN) tag is used to identify all new product received prior to being released to production, for the first time on an order class one (1) Purchase Order, or any product received after any change that are shipped on an Order Class three (3) Purchase Order after a deviation such as an SREA, process change, visual and functional inspection as part of a containment, countermeasure implementation, etc. This includes any new part delivered to (ASTEMO)AM-HK from a supplier with intent of mass production on an Order Class One (1) Purchase Order (PO).

The supplier is to initiate form:

- A) Form to be filled out completely by the supplier.
- B) Supplier must E-Mail or Fax a completed copy of the NCPDN to the designated representatives of (ASTEMO)AM Supplier Quality Assurance (SQA), Purchasing Buyer, and Production Control (PC) sections. This must be done at-least twenty-four hours prior to the arrival of shipment at (ASTEMO)AM-HK or on same day parts ship from supplier, whichever is earlier. It should have the date and time of arrival of the parts at (ASTEMO)AM- HK in the remarks/comments section of the Tag.
- C) The form must be completed and affixed to all the Pallet/Tote/Box/Reel/Tube that are shipped under the same purchase order (P. O.). It should also be affixed near the packing slip.

Instructions for completing the New/Changed Product Delivery Notice:

- 1) **Supplier Name** – Indicate the name of the supplier submitting parts.
- 2) **Supplier Code** – Indicate the supplier code found on the supplier release.
- 3) **Supplier Contact** – Indicate the name of the supplier contact for (ASTEMO)AM-HK.
- 4) **Contact Number** – Indicate the phone number of the person who completed the NPDN tag.
- 5) **SQA Contact** – – Indicate the name of the SQA contact at (ASTEMO)AM-HK responsible for the supplier.
- 6) **Buyer Name** – Indicate the name of the buyer at (ASTEMO)AM-HK who is responsible for the supplier.
- 7) **Quantity** - Indicate the quantity of parts being submitted (as required on the SREA, STRF and/or Purchase Order).
- 8) **Part Name** – Indicate the name of the parts being submitted, as referenced on the part approval drawing.
- 9) **Drawing No.** – If the drawing number has changed indicate the new drawing number.
- 10) **Drawing Level** – Indicate the drawing revision level
- 11) **SREA Number** – Indicate the SREA number if any that was approved authorizing this change.
- 12) **Requirements** – Indicate the requirements listed on the approved SRAE **authorizing this** change.
- 13) **Approval Date** – Indicate the approval date of the SREA.
- 14) **STRF Number** - Indicate the STRF number as provided by (ASTEMO)AM-HK.
- 15) **P.O. Number** – Indicate the P.O. number the parts are shipped against.
- 16) **Order Class** - This number could be an order class one (1) or three (3) Purchase Order issued for production intent or trial samples

- 17) **New/Changed Item Description** – Indicate what has changed for these parts.
- 18) **Changed Approved Through** – Indicate how was the changed approved via an SRAE, STRF, DES, PCN, Audit, result of a countermeasure etc.
- 19) **Remarks/Comments** – Indicate why these samples are being submitted? What has changed in the part or processes? Are these produced with different equipment, process or location?

HITACHI
Inspire the Next

NCPDN TAG
NEW / CHANGED PRODUCT DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME: ①	SUPPLIER CODE: ②	
SUPPLIER CONTACT: ③	CONTACT NUMBER: ④	
SQA CONTACT: ⑤	BUYER: ⑥	QUANTITY: ⑦
PART NAME: ⑧	DRAWING NUMBER: ⑨	DRAWING LEVEL: ⑩
SREA NUMBER: ⑪	REQUIREMENTS: ⑫	APPROVAL DATE: ⑬
STRF NUMBER: ⑭	P. O. NUMBER: ⑮	ORDER CLASS: ⑯
NEW/CHANGED ITEM DESCRIPTION: ⑰		
CHANGED APPROVED THROUGH: ⑱		

REMARKS / COMMENTS
⑲

Issue: 0	Date: 02/17/05	Authorization: Ted Carter	Page: 1 of 1	SQA-FORM-026
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This NCPDN Tag must be printed on Bright Green color paper.

Local Part Certification "Ship to Stock"

The (ASTEMO)AM-HK certification program is based on part number level basis, to enforce supplier process quality controls at the manufacturing source, eliminate (ASTEMO)AM-HK incoming inspection, and improve parts flow for JIT environment. The program is maintained and controlled by Supplier Quality Assurance.

All suppliers are expected to have a quality system in place that will allow them to achieve and maintain "Ship to Stock" certification on all parts supplied to (ASTEMO)AM-HK. Any supplier not capable of maintaining certification status will be evaluated on a case-by-case basis with potential for loss of new or existing business.

In order to obtain certification, (Ship to Stock) status the following requirements must be met by the supplier:

- 1) The part must be from a supplier who is on the approved supplier list.
- 2) A complete Level III PPAP must have been submitted and accepted.
- 3) A minimum of 10 consecutive lots must be received and accepted in incoming, (The incoming check consists of critical dimensions as identified on the print, and a visual inspection using the C=0 AQL standards. Please see AQL table below. And run on the production line with no quality or assembly problems
- 4) A Process Flow Diagram, Process Control Plan, and PFMEA with all critical characteristics identified (as specified on the drawing) must be in the possession of (ASTEMO)AM-HK Supplier Quality Assurance.
- 5) Statistical data must be maintained by the supplier and available to (ASTEMO)AM-HK within 24 hours of request and submitted quarterly.
- 6) Material certification must be kept on file at the supplier facility and made available to

CO Sampling Plans
Associated A Q L S

	0.0 4	0.0 6 5	0.1 0	0.1 5	0.2 5	0.4 0	0.6 5	1.0	1.5	2.5	4.0	6.5	1 0.0
Lot Size	Sample Size												
2 to 90	*	*	*	80	50	32	20	13	8	7	6	5	4
91 to 1 5 0	*	*	1 25	80	50	32	20	13	1 2	11	7	6	5
1 51 to 2 8 0	*	2 00	1 25	80	50	32	20	20	1 9	13	10	7	6
2 81 to 5 0 0	3 15	2 00	1 25	80	50	48	47	29	2 1	16	11	9	7
5 01 to 1 2 0 0	3 15	2 00	1 25	80	75	73	47	34	2 7	19	15	11	8
1 2 0 1 to 32 0 0	3 15	2 00	1 25	1 2 0	11 6	73	53	42	3 5	23	18	13	9
3 2 0 1 to 10 0 0 0	3 15	2 00	1 92	1 8 9	11 6	86	68	50	3 8	29	22	15	9
1 0 0 0 1 to 35 0 0 0	3 15	3 00	2 94	1 8 9	13 5	10 8	77	60	4 6	35	29	15	9
3 5 0 0 1 to 15 0 ,0 0	4 90	4 76	2 94	2 1 8	17 0	12 3	96	74	5 6	40	29	15	9

(ASTEMO)AM-HK within 24 hours of request.

- 7) The part must be listed in the International Material Data System (IMDS). Information and IMDS-ID as well as a copy of the IMDS datasheet for the product must be in the possession of (ASTEMO)AM-HK Supplier Quality Assurance.
- 8) The part must have the Moisture Sensitivity Level (MSL) for Moisture Sensitive Devices listed and storage and usage information as well as shelf life of the product must be in the possession of (ASTEMO)AM-HK Supplier Quality Assurance.

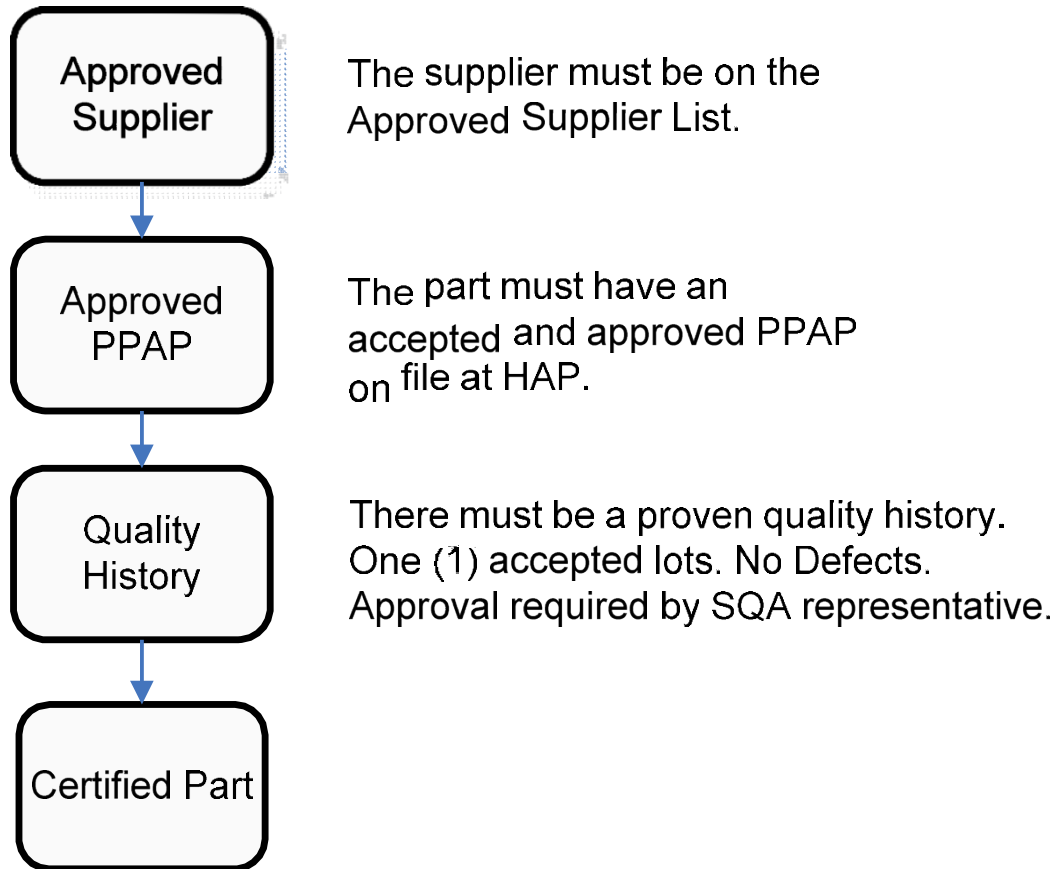
De-Certification occurs when a certified part is determined to be a non-conforming product. At this time, the part will be taken off the certified parts list and incoming inspection will be done for a minimum of 3 lots (longer if deemed necessary by the Supplier Quality Assurance representative). In addition, at this time a corrective action may be issued to the supplier. If the specified number of incoming lots has passed inspection with no defects found, the certified status will be reinstated.

NOTE: Supplier data must be maintained at the supplier for (ASTEMO)AM-HK reference as requested, such as material certification (including raw material, plating, coating,

paint, etc.). This information must be made available to (ASTEMO)AM-HK within 24 hours of request.

NOTE: Selected components manufactured overseas, chemicals, and bulk materials can at (ASTEMO)AM-HK's discretion by-pass the Level III PPAP requirements for Ship to Stock certification.

Certified Part Process Flow Chart



Non-Conforming Product

1) Traceability / FIFO of Supplied Components

The supplier shall have the ability to trace lots of material shipped to (ASTEMO)AM-HK by using (ASTEMO)AM Purchase Order and Delivery Order numbers. For production lots, an Order Class One (1) Purchase Order is used for production order releases. (ASTEMO)AM-HK daily production sheets (DPS) use the P.O. system for all part traceability. Supplier must also be able to trace by (ASTEMO)AM P.O. and receive date at (ASTEMO)AM-HK back to the sub-supplier if required when requested by (ASTEMO)AM.

First in first out (FIFO). Components shipped to (ASTEMO)AM-HK must be shipped in the order as manufactured by Date code/Lot code FIFO.

2) Containment of Non-Conforming Product

If parts are found to be defective (i.e.: do not meet specification, does not fit or function properly on assembly line, cosmetic related, etc.), the supplier will be contacted to provide immediate containment and support to resolve the problem.

The supplier is responsible to immediately contain the problem at their facility, parts in transit, and parts at (ASTEMO)AM. If (ASTEMO)AM must sort supplier parts to keep production assembly line with defect free components the supplier will be charged for the sort. If (ASTEMO)AM must sort finished goods for supplier problems, only (ASTEMO)AM-HK personnel will be used and the cost will be charged back to the supplier. Other charge-back costs may include material shipping or handling, (ASTEMO)AM direct and indirect labor and contract services. See charge-back section page 43 of Section 2.

If production assembly line is shut down due to supplier part quality problem, supplier will be responsible for costs incurred. The total cost involved would depend on the actual time lost, labor cost, loss of revenue, measures needed to make up lost time, inconvenience to production, inconvenience to customer, cost of expedited delivery and any other related costs.

If supplier detects a non-conforming product prior to shipment to (ASTEMO)AM-HK, the supplier must immediately determine the extent of the problem and take action to immediately correct. If suspect material is released to ship, the supplier must notify (ASTEMO)AM-HK's Supplier Quality Assurance representative and identify the material. The supplier is responsible for sorting, rework, or removing parts at (ASTEMO)AM. If the problem cannot be corrected immediately, a deviation may be required from (ASTEMO)AM Supplier Quality Assurance contact.

3) Hold Tag Charge-back

Each MAR/HOLD TAG written at (ASTEMO)AM has an associated cost. The costs associated with the writing, the investigation and the disposition each hold tag has been absorbed by (ASTEMO)AM in the past. (ASTEMO)AM will no longer carry the cost burden of hold tags that are driven by defective product shipped by suppliers. The cost of each hold tag, determined to be supplier responsibility, **will be debited \$150.00 per hold tag.**

4) Supplier Corrective Action Request

The supplier shall be responsible to implement Corrective Action on non-conforming material found at (ASTEMO)AM to prevent recurrence of the problem.

If Supplier Quality Assurance requests a corrective action on a problem, the guidelines to follow are: (1) Documented containment on the SCAR form (SQA-Form-008) within 24 hours, (2) Final 8-D is due 14 days from the issuance of the SCAR form. Late and incomplete responses could result in supplier rating charge.

A 100% containment must stay active until the verification section of the Supplier 8-D is complete and the Supplier 8-D is accepted by (ASTEMO)AM. A corrective action can also be issued for other issues not directly related to part problems, such as low supplier rating, etc.

5) Supplier 8-D Reports

Final response to SCARs should be in Supplier 8-D format, TYPED, with as much detail of the problem and countermeasures as possible. This shall include implementation dates and a verification of the countermeasure (ex: sorting for x number of days after countermeasure to assure it is working). The supplier is responsible for defining the root-cause of the problem, taking corrective action to prevent reoccurrence.

If a supplier continues to ship defective product to (ASTEMO)AM-HK and cannot implement process controls to assure zero defects; (ASTEMO)AM-HK may opt to implement Level I containment of product by sorting, with the supplier being responsible for the costs involved.

Daily Defect Monitoring System

(ASTEMO)AM has instituted a system of tracking all supplier in-process defects. The purpose of this system is to detect potential problems and correct them before they become larger problems. This system will allow (ASTEMO)AM and (ASTEMO)AM suppliers to react more quickly to parts issues and eventually reduce the number of line claims related to supplier parts problems. It will also give more accurate tracking of defect costs and supplier quality.

Parts Tracking Method

As defective components are identified on the (ASTEMO)AM assembly line, a red tag will be placed on the defective component / assembly. This tag will detail the information needed to track the part / assembly back to the supplier of the defective component. Each part that is found by (ASTEMO)AM production will be reviewed by (ASTEMO)AM Supplier Quality Assurance and logged in the defect database. The parts will then be accumulated for shipment back to the supplier or shipped back to the supplier immediately depending on the nature and urgency of the problem. An RMA number will be requested via fax, phone call or e-mail for the defective components. If an RMA number is not issued within 24 hours, the parts will be shipped without the number. It is the responsibility of the supplier to follow-up once the RMA request is issued. Supplier is responsible for all shipping costs. Supplier must provide a Federal Express or UPS account number to be used for shipment of non-conforming parts.

Reporting Requirements

Each defective component is returned for the purpose of investigating the cause of the problem. A full report of the root-cause and countermeasure for the problem is expected in a timely manner. **A corrective action request will not be issued in all cases; however, a Supplier 8D report is always required.**

Supplier Rating

Defects found using this system will be charged to the PPM rating portion of the Supplier Rating. PPM rating is an integral part of the quality portion of the (ASTEMO)AM Supplier Rating. Tracking of daily in-process defects will give a clearer picture of each supplier's true performance using the PPM rating system.

Charge-back of Sort / or Other Related Costs Due to Non-Conforming Material Sort

1) Defective Components Found At (ASTEMO)AM-HK

If defects warrant a MAR/HOLD TAG Supplier Corrective Action Request or complaint from incoming inspection, production assembly line, or customer complaints, and are confirmed to be a supplier quality problem, suppliers will be notified by (ASTEMO)AM-HK personnel, i.e.: Supplier Quality Assurance, Purchasing, Design Engineering, etc.

This will warrant an immediate containment of suspected parts at (ASTEMO)AM-HK, at the supplier, and any parts in transit. Material must be sorted 100% to insure defect free parts, and a continuous supply of parts to (ASTEMO)AM-HK.

Upon contact from (ASTEMO)AM-HK, suppliers will have the option to send representatives to (ASTEMO)AM-HK to sort, or provide replacement parts. Depending upon the availability of defect free material. (ASTEMO)AM-HK may be required to sort material to supply the production assembly line until defect free parts are received. The supplier **will be** responsible for any charges incurred in sorting of the defective material. Material will continue to be sorted until defect free parts are received. **(ASTEMO)AM-HK's current hourly labor rate charge is \$45.00 per hour.** If a supplier defect causes a (ASTEMO)AM-HK finished product sort, (ASTEMO)AM-HK will sort to verify stock and all charges incurred will be the responsibility of the supplier.

(ASTEMO)AM-HK also may opt for supplier charge-backs that include lost production time due to machine downtime, jam-ups, and material handling of defective components. Teardowns, of line defects/assembly returns from customers, expedited delivery from suppliers and to customers, etc.

2) Component / Assembly Charge-back

The cost of defective components found to be the responsibility of the supplier would be debited back to the supplier. The full cost of the assembly, up to the point of detection of the defect, will be debited back to the supplier. If the defect results in a sort, the supplier will be responsible for all costs related to the sorts as covered in the Charge-back Section.

3) Failure to Contain Defective Parts from Suppliers (Level 1 Containment)

If a supplier cannot implement a permanent corrective action to supply zero defects to (ASTEMO)AM-HK and recurring problems continue, (ASTEMO)AM will implement a 100% sort at (ASTEMO)AM of supplier components to ensure no recurring problems. The charges incurred will be the responsibility of the supplier. This may continue until the supplier has demonstrated the ability to ship defect free material on a continuous basis. Level 1 containment would also require implementation of SQIP program and supplier would be banned from quoting any new business.

Debit for Hold Tags Written For Defective Supplier Material

Each hold tag generated for defective supplier material will be debited at a charge of \$150.00 per hold tag. These charges are the result of handling and processing non-conforming product from the supplier.

Guidelines and Policies for In-House Sorts by Suppliers or Subcontractors

When it is necessary for a supplier to sort or rework components at (ASTEMO)AM-HK, they must comply with all safety guidelines and policies established. The Supplier Quality Assurance section will contact and work with the supplier in organizing and setting the

criteria necessary to successfully complete the sort or rework in a timely manner. No parts shall be removed without authorization from (ASTEMO)AM-HK Supplier Quality Assurance personnel.

The supplier must supply all equipment, tools, safety glasses, earplugs, etc. necessary to perform the sort or rework.

Any fixture, gauge or equipment provided or used by supplier must have evidence that it is in supplier calibration system and calibration is current. Use of said equipment must be documented in sort work instruction.

The supplier will be expected to stay until an adequate number of components are sorted or reworked to sustain production. Upon completion of the sort or rework, the parts must be clearly identified with tags supplied by (ASTEMO)AM-HK's Supplier Quality Assurance department to signify the sort is completed.

The supplier is required to maintain a log of all parts sorted and individual non-conformances found per bag, box, tote, pallet, reel, tube or whatever the individual packaging the parts are received in. This should be recorded on forms supplied by (ASTEMO)AM-HK's Supplier Quality Assurance Personnel.

The supplier is required to clean up all trash, dunnage, and any excess material left from sorting and reworking.

When a supplier is at (ASTEMO)AM-HK to sort or rework parts, the dress and safety code requirements are as follows. These must be strictly adhered to with no exceptions.

- 1) NO SHORTS OR DRESSES
- 2) NO OPEN TOE SHOES, SANDALS, OR HIGH HEELS
- 3) NO TORN JEANS, NO TANK TOPS
- 4) NO SHIRTS OR HATS WITH INAPPROPRIATE OR OFFENSIVE WRITING OR LOGOS
- 5) ALCOHOL OR DRUGS WILL NOT BE TOLERATED

Supplier Rating

The Supplier Quality Assurance Section of the supplier rating is a measurement of the conformance of part quality and documentation supplied to (ASTEMO)AM-HK for each period. Please refer to Section 5 for more information about Supplier Rating.

The **Quality Section of the** supplier rating is divided into **three sub** sections:

1) PPM

This section utilizes the method of PPM calculation (Parts Per Million): $(\text{Total Rejected} / \text{Total Received}) \times 1,000,000 = \text{PPM}$

The PPM section uses 25 of the **35** possible points. Suppliers are charged based on number of defects per number of parts supplied.

If PPM is less than or equal to the target level for that commodity, all PPM points are awarded.

If PPM is greater than the target level and less than the Maximum allowable, then a percentage of the PPM points are awarded.

If PPM is greater than the maximum allowable, then zero (0) PPM points will be awarded.

2) Certifications

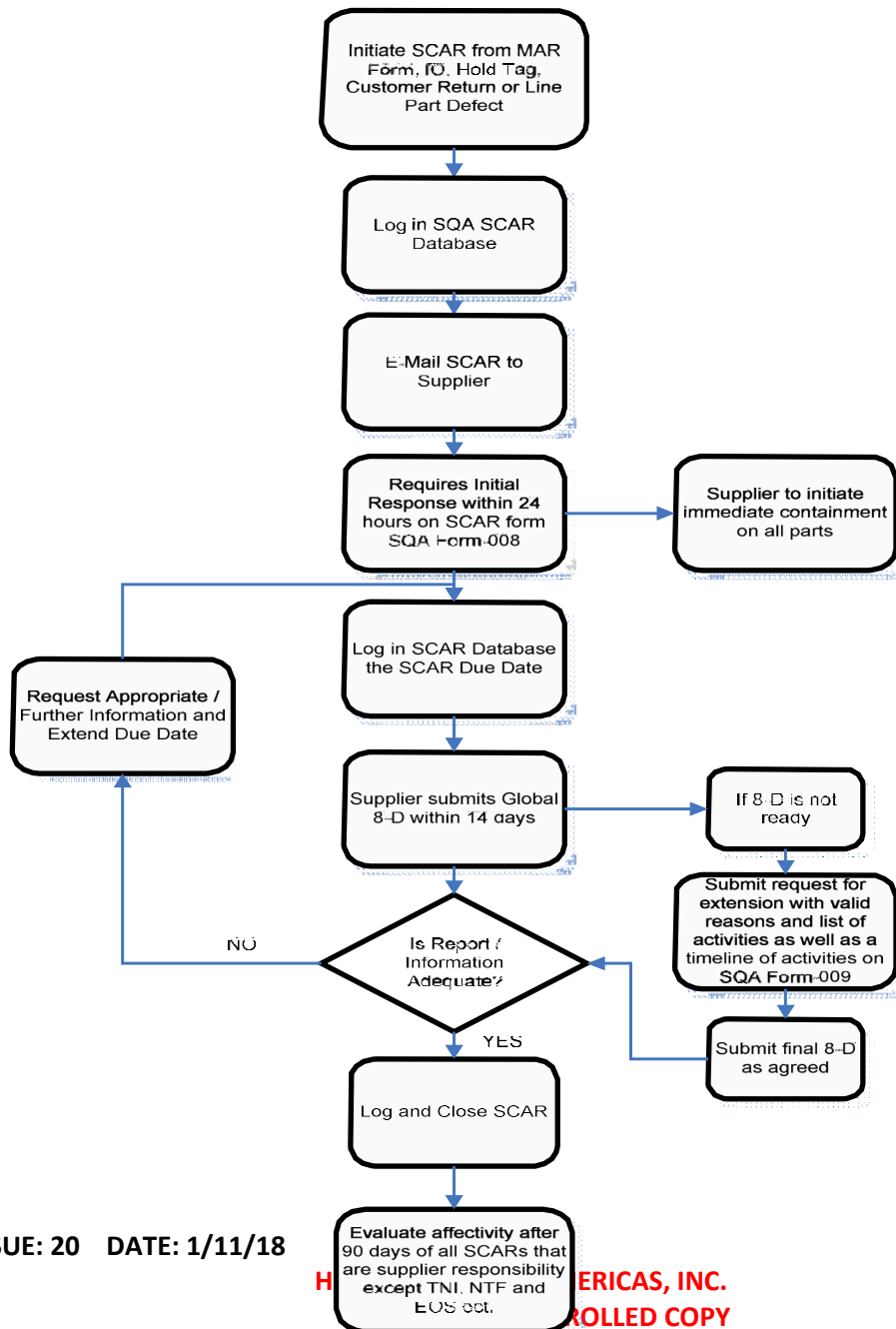
There is a total of 5 points possible for obtaining the needed certifications (IATF 16949 or ISO 9001:2015)

3) Documentation

This section is used to track proper submission of documents, effective communication and supplier responsiveness.

There is a total of 5 points possible, utilizing points off system.

Supplier Corrective Action Request (SCAR) SCAR Flow Chart



SCAR Guidelines

- 1) Initial containment action for parts at (ASTEMO)AM-HK's inventory (Receiving Warehouse, WIP, and Finished Goods).
- 3) Initial containment actions for parts at the supplier to ensure that additional part with this condition are not shipped.
 - 3) Method of conforming material Verification, ID and Tractability on parts and/or packages and/or pallets.
 - 4) Conforming material ship date from manufacturing location.
 - 5) Initial written response is due within 24 hours upon receipt of the SCAR with actual/potential root cause(s), root cause verification, countermeasure(s) implementation dates identified. Note: Immediate containment is required upon any notification by (ASTEMO)AM personnel if prior to receipt of SCAR.
 - 6) Final Supplier 8-D is due within 14 days upon receipt of this SCAR with actual root cause(s), root cause verification, countermeasure(s), countermeasure(s) verification and countermeasure(s) implementation dates identified.

It is expected that the SCAR response shall be submitted by designed dates. Any failure to submit the response and/or the Supplier 8-D's within the above mentioned timeframe could result in a charge to the supplier rating.

In the event that an acceptable and completed Supplier 8-D cannot be submitted by the date, then a request for an extension of the date(s) should be submitted in writing with detailed explanation of why an extension is necessary.

Instructions for completing the Supplier Corrective Action Request form (SQA-Form-008):

This form is to be completed by the Supplier Quality Assurance representative at (ASTEMO)AM-HK and issued to the supplier in the event a non-conforming product is found.

The supplier is responsible to complete sections 20 through 23 and respond accordingly with the guidelines outlined here.

- 1) **SUPPLIER** – The name of the supplier responsible.
- 2) **CONTACT** – The name of the person contacted at the supplier to inform them of the defect found.
- 3) **PHONE NO.** – Phone number of the supplier contact that was notified of the defect.
- 4) **SUPPLIER RMA NUMBER** – Tracking number for parts returned to supplier.
- 5) **CUSTOMER RMA NUMBER** – Tracking number for customer returns.
- 6) **CUSTOMER LOG NUMBER** – Tracking number for customer returns.

- 7) **SCAR NUMBER** – Indicates the SCAR number obtained from the external corrective action database.
- 8) **I/O or CCAR NUMBER** – Internal/external customer CAR number as issued to SQA.
- 9) **DATE OPENED** – Date the SCAR is issued.
- 10) **PART NUMBER** – Indicates the drawing number of the part the SCAR is being issued for, including the suffix.
- 11) **PRODUCT LINE** – Indicates the product line the parts are used on at (ASTEMO)AM-HK.
- 12) **P.O. NUMBER** – Indicates the P.O. number related to the defective parts.
- 13) **PART NAME** – Indicates the name of the part for which the SCAR is being issued.
- 14) **MAR/HOLD TAG NUMBER** – Indicates the hold tag number for the parts the SCAR is issued.
- 15) **DATE RECEIVED** – Indicates the date the parts were received at (ASTEMO)AM-HK.
- 16) **QUANTITY DEFECTIVE** – Indicates the quantity of defective parts.
- 17) **DEFECTED AT** – Indicates where the defect was found.
- 18) **PROBLEM** – Indicates if the problem is new, reoccurring or chronic.
- 19) **NON-CONFORMANCE** – Indicates type of defect.
- 20) **SUPPLIER CONTAINMENT ACTION** – Supplier to describe the containment action taken.
- 21) **CONFORMING MATERIAL VERIFICATION, IDENTIFICATION & TRACEABILITY** – Supplier to indicate method of identification for conforming parts.
- 22) **CONFORMING MATERIAL SHIPPING DATE** – Supplier to indicate the shipment date of conforming parts.
- 23) **SUPPLIER SIGNATURE** – Signature, title and date of the designated supplier representative completing the form.
- 24) **REASON FOR EXTENSION** – Supplier to complete if 8D cannot be submitted by due date. This should be as detailed as possible and the SQA-Form-009 Electronic FAR Timeline should also be completed and submitted showing the complete timeline from SCAR issue date till today. What has (ASTEMO)AM opened as far as investigation, when, where the part has traveled etc.
- 25) **NEEDED UNTIL** – How long is the extension needed for to complete final 8-D.
- 26) **SUPPLIER SIGNATURE** – Signature, title and date of the designated supplier representative completing the extension.
- 27) **APPROVED** – For (ASTEMO)AM-HK use only.
- 28) **COMPLETED FINAL SUPPLIER 8-D DUE ON OR BEFORE** – Indicates the date 8-D is due to (ASTEMO)AM-HK Supplier Quality Assurance.

29) **SIGNATURE** – Indicates the signature of the Supplier Quality Assurance representative.

30) **DATE CLOSED** – Indicates the date SCAR was closed.

Supplier		Supplier RMA No.		SCAR No.	
Contact E-Mail		Customer RMA No.		IO Number	
Phone No.		Customer Log No.		Date Opened	
Part Number:		Product Line:		P.O. No.:	
Part Name:		MAR/HT No.:		Date Rec.:	
Quantity Defective:		Detected at: <input type="checkbox"/> Incoming <input type="checkbox"/>		Product Line <input type="checkbox"/> Customer	
		Problem: <input type="checkbox"/> New <input type="checkbox"/>		Recurring <input type="checkbox"/> Chronic	
Non-Conformance (Describe): (Attach Photos/Sketches as needed to clarify description)					
↓ To be Completed by Supplier and returned to Hitachi SQA contact within 24 hours of SCAR receipt ↓					
Supplier Containment Action:					
Conforming Material Verification, Identification & Traceability			Conforming Material Shipping Date:		
Supplier Signature:		Title:		Date:	
↓ SCAR Extension Request Only ↓					
Reason For Extension:				Needed Until:	
Supplier Signature:		Title:		Date:	
APPROVED					
↓ To be Completed by Hitachi Supplier Quality Assurance Representative ↓					
Supplier Quality Assurance Contact:		Completed Final Global 8-D Due on or Before: 01-30-00			
E-Mail Responses To:		Signature:			
#N/A		Date Closed:			
Effectivity (90 days after closure)		Date Effectivity Checked: _____			
Evaluation Method: _____					
Evaluated By: _____		Title: _____		Date: _____	
Evaluated By: _____		Title: _____		Date: _____	

Supplier 8-D Report

Instructions for completing a Supplier 8-D Report, SQA-Form-011:

This form is to be completed by the supplier when requested by Supplier Quality Assurance for a defect found and returned to (ASTEMO)AM-HK within 30 days.

- 1) **SCAR No.** – Indicate SCAR number for which the 8-D is being submitted.
- 2) **IO Number** – Internal/external customer CAR number as issued to SQA.
- 3) **(ASTEMO)AM-HK Part Number-** Indicate the part number including suffix.
- 4) **Supplier Part Number** – Indicate the manufacturer part number if different from (ASTEMO)AM-HK part number.
- 5) **Part Name-** Indicate the name of the part for which the 8-D is being submitted.
- 6) **Date Opened** – Indicate date 8-D was opened (should be same as the SCAR open date).
- 7) **8D Last Updated** – Indicate date of last update for this 8-D.
- 8) **8D Revision Level** – Indicate revision number for this 8-D (should start at '0').
- 9) **RMA Number** – Tracking number for customer returns as provided in SCAR-Form-008.
- 10) **Log Number** – Tracking number for customer returns as provided in SCAR-Form-008.
- 11) **Number of Part(s) Affected** – Indicate how many total parts are affected due to the issue including actual confirmed failures as well as suspected to fail.
- 12) **Returned Part(s) Date codes** – Indicate the date codes of the actual confirmed failures.
- 13) **Suspect Date code(s) Lot code(s)** – Indicate the date code of parts suspected to fail.
- 14) **Supplier Organization Information** – Indicate the supplier responsible for the 8-D and their address.
- 15) **DØ Symptom(s)** – Describe the symptom(s) of the defect.
- 16) **DØ Emergency Response Action(s)** – Detail any Emergency Response Action(s) taken.
- 17) **Verification / Validation** – Define how the Emergency Response Action(s) was verified and validated.
- 18) **(%) Effective** – Indicate the Emergency Response Action's effectiveness.
- 19) **Date Implemented** – Indicate the implementation date of the Emergency Response Action(s).
- 20) **D1 Team** – Establish a team, pick members of your company who should be involved in solving this defect. Choose a Champion and Team Leader. List names, titles and phone numbers.

- 21) **Department** – Indicate the departments these team members are involved with
- 22) **Phone** – Indicate the contact numbers for the team members.
- 23) **D2 Problem Statement** – Simply state the problem.
- 24) **D2 Problem Description** – Detail and define the boundaries of the problem. What, where, when and how.
- 25) **D3 Interim Containment Action(s)** – Describe your containment action(s). This should be a sort of (ASTEMO)AM and your current inventory. There should also be an additional in process check to contain the problem during production.
- 26) **Verification / Validation** – Define how the Interim Containment Action(s) was verified and validated.
- 27) **(%) Effective** – Indicate the Interim Containment Action(s) effectiveness.
- 28) **Date Implemented** – Indicate the implementation date of the Interim Containment Action(s).
- 29) **D4 Root Causes** – Determine and define the true root cause(s). Be VERY specific.
- 30) **Verification** – Define method and supply data to verify root cause.
- 31) **(%) Contribution** – Indicate the percentage of effect for each root cause.
- 32) **D5 Chosen Permanent Corrective Action(s)** – Define the countermeasure(s) installed to correct the root cause so that there is no longer a possibility of creating this type of defect.
- 33) **Verification** – Define the process and supply data to show the problem has been fixed.
- 34) **(%) Effective** – Indicate the effectiveness of the countermeasure.
- 35) **D6 Implemented Permanent Corrective Action(s)** – Describe what permanent corrective action(s) was implemented.
- 36) **Validation** – Define how the implemented permanent corrective action(s) was validated.
- 37) **Date Implemented** – Indicate the implementation date(s) of the permanent corrective action(s).
- 38) **D7 Preventive Action(s)** – Here you must suggest some type of preventative maintenance to keep this situation and other similar situations from occurring in the future.
- 39) **Verification / Validation** – Define how the prevent action(s) was verified and validated.
- 40) **Date Implemented** – Indicate the implementation date(s) of the prevent action(s).
- 41) **D7 Systemic Prevent Recommendation(s)** – Suggest how systemic problems can be prevented.
- 42) **Documents that needs Updating** – Indicate the names of all the documents that

should be updated as a result of implementing this corrective action including Process Flow, Control Plan, PFMEA, DFMEA, Work Instructions, Check sheets, Visual Aids etc. All documents mentioned should also be attached to the 8-D clearly identifying the changes made to them.

- 43) **Date Implemented** – Indicate the implementation date of the Systemic Prevent Recommendation.
- 44) **D8 Team and Individual Recognition** – Indicate how the individuals and team were recognized.
- 45) **Reported by** – Indicate who the report was written by, including name, department, title and phone number.
- 46) **Contact Number** – Contact number of the person submitting the Supplier 8-D.

NOTE: The initial 8-D as well as subsequent updates and risk analysis, part traceability charts etc. could also be emailed or faxed to the SQA representative as they become available. However if final 8-D and all the attachments are bulky and could not be emailed then it should be sent via overnight mail.

The completed Final 8-D with all documents mentioned in the root cause analysis and all documents that have been updated as a result of the countermeasure implementation should be attached and sent via overnight mail to the attention of your Supplier Quality Assurance Representative.

SUPPLIER 8D REPORT

SCAR No.	IO No.	HAP-KY Part No.	Supplier Part No.	Part Name	Date Opened	Last Updated On	8D Revision
1	2	3	4	5	6	7	8
RMA No.	Log No.	Number of Part(s)	Returned Part(s)	Suspect Datecode(s)	Supplier Organization Information		
9	10	11	12	13	14	1	4
D0 Symptom(s):		15					
D0 Emergency Response Action(s):		16			(%) Effective:	Date Implemented:	
Verification/Validation:		17			18	19	
D1 Team:		20	Dept.	Phone	D2 Problem: Problem Statement:		
Champion:			21	22	23		
Team Leader:							
Team Members:							
Team Members:					24		
Team Members:							
Team Members:							
D3 Interim Containment Action(s):		25				(%) Effective:	Date Implemented:
Verification/Validation:		26				27	28
D4 Root Cause(s):		29					(%) Contribution:
Verification:		30					31
D5 Chosen Permanent Corrective Action(s):		32					(%) Effective:
Verification:		33					34
D6 Implemented Permanent Corrective Action(s):		35					Date Implemented:
Validation:		36					37
D7 Preventive Action(s):		38					Date Implemented:
Verification/Validation:		39					40

All documents mentioned above should be attached. Additional pages should be used for explanations/Diagrams/Pictures etc.

Rev- 1	DATE 12/13/2010	AUTHORIZATION: Ted Carter	PAGE 1 of 1	SQA-FORM-011
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Supplier 8-D Checklist

All suppliers shall verify the Supplier 8-D against the Supplier 8-D Checklist, SQA-Form-012, prior to submittal to ensure that all pertinent questions have been answered. This would improve the quality, content and clarity of the 8-D being submitted by the supplier. Additional information may still be requested if an item is not fully explained or contents are unclear.

ESTABLISH TEAM:	Has team been established?	<table border="1"><tr><td>YES</td><td>NO</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	YES	NO				
	YES	NO						
Does the team possess the correct skills mix?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Are all necessary areas represented?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
DESCRIBE PROBLEM:	Has location where problem was observed been identified?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
	Has the date the problem was reported been identified?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
Has failed part or component been identified (including date and lot code)?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Has the description of the failure mode been included?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Has the customer been notified of the problem, quantity of defects?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
CONTAINMENT ACTIONS:	Has an effective containment action been identified and documented?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
	Have actions been implemented specifically for these concerns?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
Have dates for temporary containment been identified?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Have actions been verified with before and after data?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Have detailed instructions on containment been issued?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
ROOT CAUSE:	Has root cause been established?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
	Has root cause been verified?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
Does the root cause identify what changed and why?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Ask why? 5 times	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
CORRECTIVE ACTIONS:	Have primary and alternative corrective actions been identified & verified?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
Do corrective actions address root causes? NOTE: increased inspection/operator error not acceptable.	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Have possible negative effects of corrective action been considered?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
IMPLEMENT CORRECTIVE ACTIONS:	Have target dates to begin corrective actions been identified?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
	Have corrective actions been proven to eliminate root cause?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
Have FMEA's, control plans, etc. been updated to document any changes to processes?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
When will parts be received with countermeasure date?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
PREVENT RECURRENCE:	Have preventative actions been agreed upon by all affected areas & documented?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						
Have preventative actions been completely documented?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
Do we have plans to implement the preventative action?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>							
CONGRATULATE TEAM:	Has an appropriate method of recognizing the team effort been selected?	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>						

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A SCAR or 8-D should not be considered closed by a supplier upon submittal of the 8-D unless the (ASTEMO)AM-SQA specifically informs the supplier of such closure and date of closure.

Controlled Shipping Procedures and Requirements

(ASTEMO)AM-HK has an ongoing program of continuous improvement. Analysis of our past performance and data and experience has shown that of all areas in need of improvement, our supplier PPM is one that is in most need. (ASTEMO)AM-HK's internal as well as customer PPM goal is less than 1.5 PPM.

(ASTEMO)AM-HK is very appreciative of the improvements each supplier has made. Our aim is to “continuously” improve the quality of the components that our suppliers and partners send to us. In this effort, the **Controlled Shipping** program has been developed to aim assistance in our supplier’s continuous improvement.

Suppliers whose PPM is above the target and who have re-occurring quality issues could be placed under the SQIP program.

Controlled Shipping may include

CONTROLLED SHIPPING 1 (CS1) where selected parts numbers may be required for a defined quantity or time to have additional 100% sort for defined features by supplier or 3rd party before use by HK. Results of sort shall be provided to SQE by day or lot.

CONTROLLED SHIPPING 2 (CS2) where selected part numbers may be required to be sorted 100% either at supplier or HK by independent 3rd party sort company at supplier’s cost. Suppliers must provide plan for exit from CONTROLLED SHIPPING and must receive written approval HK SQA for exit. Results of sort shall be provided to SQE by day or lot. **Suppliers are required to notify their TS registrar of entry into CS2.**

(ASTEMO)AM-HK SQA will monitor the data supplied by the supplier for each part **as requirement is defined.** After analysis, (ASTEMO)AM-HK will notify the supplier of ideas on how to improve the processes or on any needed corrective actions.

Process Audit

The **Process Audit (SASG N31-01A)** is a dynamic tool to help identify areas of concern and to direct efforts at the correct processes to maintain and improve the quality of the parts produced. Suppliers are encouraged to use this tool to identify problem areas and develop appropriate corrective actions to prevent reoccurrence. **Suppliers are required to allow HK SQA access to production processes to complete this audit.**

The **Process Audit may be** part number specific. This could be used when the supplier’s PPM related to the part produced is above the target and/or when numerous quality issues and recurring problems have been associated with a particular part.

(ASTEMO)AM-HK’s Supplier Quality Assurance representative could ask a supplier to do a self-audit when the need is required. This could also be done during a Supplier Quality Assurance representative’s visit to the supplier’s facility.

Corrective action plans may be required if the supplier fails to pass the audit. In severe cases of failure, the supplier could be placed under **CS1** containment necessitating a 100% inspection of the supplier’s product by (ASTEMO)AM-HK or it’s designated representative. If the supplier does not demonstrate a timely improvement, they could be placed under a restricted list where they would be barred from quoting any new products or materials.

Supplier Audit

The supplier audit **N13-02A** is used as a tool to evaluate a potential supplier’s capability to supply parts to Hitachi Automotive Systems Americas, Inc. This audit will be performed before a potential supplier will be added to the approved supplier list. Supplier shall be at a minimum, third- party registered to **IATF 16949** or registered to **ISO 9001:2015** with evidence of conformance to **IATF 16949**

Annual Part Layout Requirements

The supplier shall submit annually **on request** for **any** part number that is supplied to HK, **a level 4 PPAP with minimum** 100% dimensional layout data, (includes 1 part per cavity per multi cavity parts), most recent material certification, and capability data (CPK) to HK Quality Representative.

Hitachi Automotive Systems Americas, Inc.

955 Warwick Road

Harrodsburg, Ky

Phone (859) 734-9451 Fax: (859) 734-6689

March 2, 2020

To All Suppliers:

Effective August 27, 2018, Hitachi Automotive System Americas, Inc. (**ASTEMO**) launched **IL2000** as its 3rd Party Logistics provider. For all suppliers, this means if (**ASTEMO**) responsible for the cost of the freight the invoice must be submitted to **IL2000**, LLC for the following Hitachi locations listed below:

All freight bills should be billed 3rd Party to the following address:

Hitachi Automotive Systems Americas, Inc.

C/O IL2000

PO Box 2545

Virginia Beach, VA 23450

COMPANY	ADDRESS	CITY	STATE	ZIP
Hitachi Automotive Systems Americas, Inc.	955 Warwick Road	Harrodsburg	KY	40330
Hitachi Automotive Systems Americas, Inc.	601 Robinson Drive	Harrodsburg	KY	40330
Hitachi Automotive Systems Americas, Inc.	1150 Mayde Road	Berea	KY	40403
Hitachi Automotive Systems Americas, Inc.	301 Mayde Road	Berea	KY	40403
Hitachi Automotive Systems Americas, Inc.	1000 Unisia Drive	Monroe	GA	30655

For Small Package, Courier & International Invoices:

Submit Invoices to the addresses listed above for respective shipments.

Domestic Freight Shipping Requirements:

Small Package:

Suppliers shipping small package via FedEx or UPS (shipments less than 150 lbs.) do not need to include the billing address information. FedEx and UPS have already been instructed on where to send invoices for payment of freight charges.

Full Truckload (FTL):

Process remains the same

For Less Than Truckload shipment(s) moving collect to Hitachi:

Shipments 150 lbs. or more must be shipped via a less than truckload carrier. The bill of lading must be created, and the carrier selected by accessing the IL2000 website. Failure to follow these procedures will result in the total freight charges being invoiced back to the supplier plus a \$100 administrative fee.

Suppliers must use the IL2000 Vendor Transportation Management System to schedule shipments and generate Bills of Lading and associated labels. The IL2000 website can be accessed by following link: <https://apps.il2000.com>

For any supplier that is not familiar with the IL2000 process there is a training video (VendorTraining) included with the (ASTEMO) Supplier Manual. Any supplier having questions after viewing the video, please contact IL2000 at Clientservices@IL2000.com or 877-373-4525.

Suppliers paying the freight charges may ship via the carrier of their choice.

It is imperative that these instructions are followed. We appreciate the cooperation of all suppliers in supporting these changes to our transportation policy. Please reach out to your contact at our plants if you have questions or concerns.

Domestic Supplier Shipping Requirements

Definition

- 1) Delivery Window is one day and that is the due date showing on the Supplier Release.
- 2) To be considered on time, supplier must ship total quantity due so that it delivers on the due date. Paperwork (packing list, MSDS, etc.) must also be included or the shipment will be considered late and the delivery rating will be affected.
- 3) Number of service days is the transportation time from your shipping point to delivery at Hitachi. The pick-up day, weekends or holidays should not be counted as a service day.
- 4) Packing slip should contain the Purchase Order Number, Part Number(s), and Quantity.

Guidelines

- 1) Shipments that weigh less than 150 lbs. should be shipped via Fed Ex Express Second Day. Suppliers should adjust their shipping date to compensate for any difference in delivery time. Shipments that weigh over 150 lbs. should be shipped by (ASTEMO) AM's designated carrier according to the number of service days so that it arrives on the due date.
- 2) The supplier should calculate their shipping date by subtracting the number of service days from the due date. The pickup day, holidays and weekends are not counted. Example:

Ship Day	Number of Service Days	Delivery Day
Thursday	1	Friday
Tuesday	2	Thursday
Thursday	3	Tuesday

- 3) If the supplier meets these requirements, then shipments will be considered on time. If the trucking company delivers late or early and that is reflected on the Delivery Tracking Report, the supplier is responsible for notifying Production Control Department of any discrepancies. Any trucking related issues will be reviewed if Production Control Department is notified within one month of rating and the delivery rating may be adjusted.
- 4) Any supplier not following correct routing (unless authorized by (ASTEMO)AM) will be charged for the total cost of freight charges plus \$100 administrative fee. This will be debited to the supplier's account. Failure to comply will also affect the supplier's Delivery Rating.
- 5) If the supplier has experienced production problems and chooses to expedite the shipment to make on-time delivery, this should be shipped pre-paid, charged to the supplier, and the US-based company should be listed as the "Importer or Record" (Consignee), and (ASTEMO) AM as the Destination Address only. The supplier may use any carrier they chose when they are paying freight if parts arrive in time to meet PO due date. In the event of a quality issue the supplier should expedite, as normal truck delivery may not be acceptable.
- 6) If (ASTEMO) AM is neither the consignee nor the shipper but responsible for paying the freight charges (3rd party billing), then (ASTEMO) AM's designated carrier must be used. Bill of lading must be created by accessing the IL2000 web site as previously mentioned above.
- 7) Supplier should include correct description or National Motor Freight Classification (NMFC) item number(s) on bill of lading. (Example: Plastic Parts NOI 6 – 12 lb. PCF). This classification determines transportation charges, so it is important that this information is correct.
- 8) Multiple orders with the same shipping dates should be consolidated and shipped under one bill of lading. Refer to the weight guidelines to determine shipping method.
- 9) Suppliers are responsible for documenting pick up numbers, contact names, dates and time when calling carries for pickup. It is also the supplier's responsibility to follow up with the carrier if pick-ups are not made timely.
- 10) Hitachi expects each supplier to meet our requested delivery date. It is the supplier's responsibility to advise the appropriate Production Control Planner as soon as possible if the requested delivery date cannot be met.

INTERNATIONAL FREIGHT REQUIREMENTS

At **Initial Setup**, International Suppliers and (ASTEMO)AM Procurement should reach out to **Import Export Group** to setup logistic lanes and SOP for international documentation requirements. The Import Export Group contact for Logistics and Operations is:

HK/BM/LA: Becky Baker becky.baker@hitachi-automotive.us
 BK: Alexei Tioukalov alexei.tioukalov@hitachi-automotive.us
 GA: Debra Washington debra.washington@hitachi-automotive.us

Foreign Supplier Shipping Requirements

Hitachi must obtain certain documentation from the foreign supplier in order to clear the imported products through U.S. Customs, meet Customs-Trade Partnership Against Terrorism (C-TPAT) best practices, and meet the requirements of U.S. Customs Importer Security Filings (ISF) in order to properly enter the goods into the United States.

Advanced Shipping Notice (ASN) is required by email from each foreign supplier to (ASTEMO)AM Import Export Group when the ordered products are shipped from the overseas supplier location. (ASTEMO)AM must obtain ~~pr~~advise information, including the commercial invoice, packing list, and bill of lading before the products leave supplier's facility and/or foreign port of departure

(ASTEMO)AM has included the Invoice Requirements on the next page to enable each foreign supplier to comply with the above shipping requirements.

Steps for Air/Ocean Shipments

- 1) **(ASTEMO)AM issues PO to Foreign Supplier**
- 2) **Foreign Supplier produces good**
- 3) **Foreign Supplier prepares goods for shipment**
- 4) **Foreign Supplier arranges shipment deliver to port of departure**
- 5) **Supplier contacts their logistics company & broker for inland transportation and export fees**
- 6) **Supplier or broker to contact (ASTEMO)AM Forwarder of Choice to be alerted about shipment**
- 7) **Email Invoice, Packing List & B/L to persons on Invoice Requirement Letter**
- 8) **(ASTEMO)AM Forwarder of Choice ships goods via ~~pr~~arranged Air/Ocean Carrier**

PACKING LIST EXAMPLE

Preferred Method 1 – (same PO- 1 line on invoice still needs to be broken down per case on packing list)

Cases numbered in 3 digits (001-999 then start over)				Sales Div.		
Case No.	Packages	Contents	Quantity	Net Weight	Gross Weight	Measurement
		Description		KGS	KGS	
769	PALLET 1	R135690	PCS 100	588.0	628.0	M3 1.269
770	1	R135690	100	588.0	628.0	1.269
TOTAL :	PALLETS 2		PCS 200	1,176.0	1,256.0	M3 2.538

PO is identified for each case #

Preferred Method 2 – (Multiple PO's in same case - list out all PO's. Do not have to duplicate to identify case again, only PO's within the case)

Shows multiple PO's in the same case #

line item # shown

Invoice No.: H405D576
Page: 1 / 1

Case No.	Packages	Description	Quantity	Net Weight	Gross Weight	Measurement	
	PALLET	P/O NO	ITEM#	PCS	KGS	M3	
750	1	R104268	(1)	2,520	877	697	
751	1	R104268	(1)	2,520	877	697	
752	1	R104268	(1)	2,520	877	697	
753	1	R104268	(1)	2,520	877	697	
754	1	R104268	(1)	2,520	877	697	
755	1	R123042	(8)	576	102	114	
756	1	R123042	(8)	576	102	114	
757	1	R121131	(5)	1,000	43	61	
		R121132	(6)	1,000			
		R121133	(7)	1,500			
771	1	R120878	(4)	800	64	75	
		R118565	(2)	400			
		R118566	(3)	400			
773	1	R120797	(12)	2,160	99	119	
774	1	R120797	(12)	2,160	99	119	
775	1	R120797	(12)	2,160	99	119	
776	1	R120797	(12)	342	99	119	
		R125082	(17)	1,818			
777	1	R120813	(9)	2,880	148	168	
778	1	R120813	(9)	2,880	148	168	
809	1	R122995	(10)	1,864	153	173	
		R125102	(11)	640			
810	1	R122976	(15)	2,560	119	139	
		R126074	(16)	320			
811	1	R120893	(14)	832	134	154	
		R125087	(19)	3,006			
812	1	R120798	(13)	160	121	141	
		R125083	(18)	2,720			
TOTAL :	PALLETS 19			PCS 45,196	KGS 4,906	KGS 5,269	M3 21,593

Invoice Requirements for International Shipments

The commercial invoice submitted to U.S. Customs must contain complete and accurate information. Customs requires the following information on all commercial invoices:

- 1) U.S. Port of entry
- 2) Date of shipment
- 3) Origin of the shipment
- 4) Shipper name
- 5) Buyer name
- 6) Detailed description of the merchandise—with purchase order and drawing number listed for each line item
- 7) Tariff classification number (to at least 6 digits)
- 8) Marks and numbers of the packages/cases/pallets—identified with PO (3 digits only – Ex: 001 – 999)
- 9) Quantities
- 10) Purchase price of each item
- 11) Currency of the purchase
- 12) If costs (such as freight & insurance) are included in the purchase price, then those costs must be itemized by name and amount for the shipment
- 13) Country of origin (if multiple origins, please create separate invoice for each COO or clarify COO per line item on commercial invoice)
- 14) Invoice must be English
- 15) Term of sale on invoice (FOB, FCA, DDP, etc.)

Purchase Order number must be included on the invoice with each line item.

A packing list, including case number, quantity, and purchase order number is also needed for every shipment.

IMPORTANT:

(ASTEMO)AM also requires a copy of the invoice be emailed as soon as the shipment leaves the seller's facility. The invoice MUST be emailed to ALL of the following based on destination location:

HK/BM/LA

becky.baker@hitachi-automotive.us

sarah.reinsmith@hitachi-automotive.us

ashley.dunn@hitachi-automotive.us

ashley.rice@hitachi-automotive.us

GA

ga-materials@hitachi-automotive.us

BK

alexei.tioukalov@hitachi-automotive.us

FA

thomas.bieniek@hitachi.automotive.us

jennifer.dunny@hitachi-automotive.us

Supplier Lot Number Shipping Document Instructions

- 1) Line item number listed on Commercial Invoice
- 2) Number assigned to individual pallets
- 3) Hitachi assigned Purchase Order number
- 4) Hitachi part number (number on Purchase Order)
- 5) Quantity breakdown by Supplier Lot number
- 6) Supplier lot number for traceability- if required

Purpose:

Hitachi Customer Requirement for Traceability

Production Control / Delivery

Planning and Shipping Release

830 Planning Schedule

The 830 Planning Schedule provides each supplier with six (6) month(s) of forecast information. The planning schedule is a tool to be utilized by suppliers for their production and capacity planning. Shipments are not authorized from the 830 Planning Schedule.

Currently, the 830 Planning Schedule is transmitted on a weekly basis and is available on Monday evening. In the event Monday is a Hitachi holiday the schedule will be delayed by one day. Each transmission of the 830 Planning Schedule will override (replace) the prior 830 Planning Schedule.

The 830 Planning Schedule will contain authorization for Fabrication of a product and authorization for the purchase of Material to fabricate a product. The Fabrication Authorization will be represented by a cumulative quantity including cumulative quantity received and all current requirements within the fabrication leadtime window. Fabrication authorization is authorization for parts to be built to be shipped against a future delivery order number (DON). Suppliers should build to the Fabrication Authorization to be able to meet Hitachi's shipping requirements. Hitachi will be responsible for purchasing parts inside the Fabrication Authorization time period.

The Material Authorization will be represented by a cumulative quantity including cumulative quantity received and all current requirements within the material purchasing leadtime window. Material Authorization is authorization for the purchase of material. Hitachi is authorizing the supplier to procure material for quantities inside the Material Authorization time frame.

Suppliers should carefully review their releases and use the Fabrication Authorization and Material Authorization quantities to plan their production and procurement requirements in advance of receipt of shipping order.

PHASE OUT PARTS WILL BE INDICATED ON THE PLANNING SCHEDULE AS A BALANCE OUT PART. This may not be a final release but notification of phase out. The recipient of the release should have a clear understanding of their company's software and take necessary actions to carefully manage phase out parts. Refer to Section 12 EDI – Segment PRS, “B” indicates Balance out or phase out notice.

If a supplier has dead stock as a result of a phase out and they feel (ASTEMO)AM is responsible they must file a claim within 30 days of the phase out with their Production Control contact person.

Segment: **LIN** Item Identification
 Position: 010
 Loop: LIN Mandatory
 Level: Detail:

Data Element Summary

<u>Ref.</u>	<u>Data</u>	<u>Attributes</u>
<u>Des.</u>	<u>Element Name</u>	
LIN09	234 Product/Service ID - Engineering Change Level	X AN 1/48

It is the supplier's responsibility to ensure component parts shipped to Hitachi are the correct revision level.

Each supplier's format varies based on their software, so the below example may not be indicative of the actual release.

Example

Part No. GEXXXXXX X
Blanket Purchase Order No. B12345
Cum Received 500 pcs.

9/22/08	100	D/W
9/29/08	100	D/W
10/6/08	500	D/M
11/1/08	500	D/M
12/1/08	600	D/M
1/1/09	500	D/M
2/1/09	500	D/M
3/1/09	600	D/M

Fabrication Cum 1,300 pcs.
Material Cum 1,800 pcs.

Type D = Planned
Order

The 830 Planning Schedule example identifies the planned production schedule for the next six (6) months. The period identified as the shipping leadtime will be presented in weekly form, with the remaining schedule being reflected in monthly schedules. The first monthly planning number will be reflective of the remaining balance for that month not covered by the weekly requirements. The planning schedule identifies the part number and the blanket order number, as well as the total (cumulative) receipts against the blanket order. The planning schedule will also authorize the fabrication and material cums. These numbers will authorize the production and ordering of material for production. The cumulative quantity will be inclusive of parts received by Hitachi Automotive Systems Americas, Inc., and calculated based on the appropriate leadtimes by accumulating planning quantities through the appropriate date.

862 Shipping Schedule

The 862 Shipping Schedule contains weekly requirements that represent a firm delivery order with identifying dates and quantities. Delivery order numbers will be issued for each shipping schedule. The dates identified within the 862 Shipping Schedule represent delivery dates

(date due at Hitachi Automotive Systems Americas, Inc.). Regardless of purchasing/shipping term the dates on the 862 reflect date parts are due for delivery at (ASTEMO)AM.

Each transmission of the 862 Shipping Schedule will override (replace) the prior 862 Shipping Schedule.

The 862 Shipping Schedule will be released in standard pack quantities. It is the supplier's responsibility to advise Production Control of the correct order multiple. Phase out parts will be an exception and will be released in as needed quantities.

All questions and concerns with shipping schedules and leadtimes should be directed to your Production Control Planner. Refer to Section 13 for PC contact names.

Example

Part No. GEXXXXXX X
Blanket Purchase Order No. B12345-00
Cum Received 1,000 pcs.

C
F
F
F
F

Type C = Firm Order

The 862 Shipping Schedule example represents the firm delivery order. Referenced are the blanket order number, part number and quantity received by Hitachi Automotive Systems Americas, Inc.. The dates and quantities indicate what the supplier is authorized to ship to Hitachi Automotive Systems Americas, Inc.. These parts should be shipped against the delivery order number.

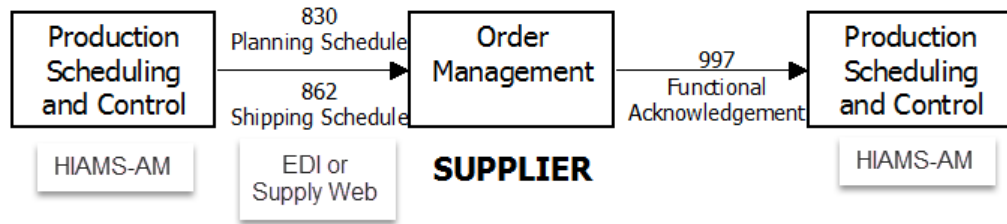
Note: Cum received is the actual receipts of all parts at Hitachi Automotive Systems Americas, Inc. and does not include any shipments in-transit. Therefore, it is the supplier's responsibility to adjust the requirements by the amount in-transit. The amount in- transit can be calculated by taking the Cum received at Hitachi Automotive Systems Americas, Inc. and comparing it to the Cum shipped from the supplier's location. The difference represents the in-transit quantity. Therefore it is imperative that cum be tracked an any differences or disputes be reconciled as they occur.

! 48 hours maximum for discrepancy resolution.

! The Cum quantity will never decrease. When parts are Returned to Vendor (RTV), the quantity will not be subtracted from the Cum. If the RTV parts can be reworked and sent back to (ASTEMO)AM, this quantity will be added again to the Cum.

! Cums are reset each April.

Procedure to Send Release to Suppliers



997 Functional Acknowledgment

The 997 Functional Acknowledgements will be used to acknowledge the receipt of transaction sets. The 997 Functional Acknowledgments is only a syntactical check of the data; it will not verify data content.

For Supply Web suppliers the functional acknowledgement is generated by logging in to Supply Web. Supplier must log in to generate the acknowledgement. Any questions regarding Supply Web please access the training links section.

All transaction sets must be acknowledged within a **24** hour window of receipt. Non-compliance will affect the supplier's delivery rating.

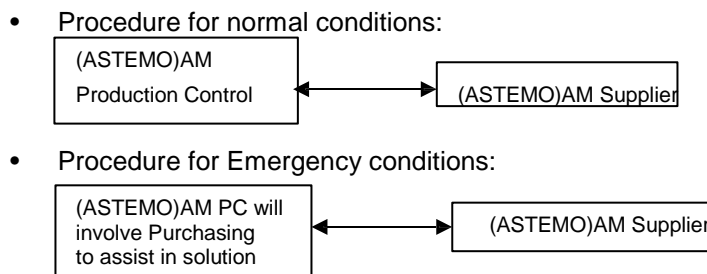
864 Text Document

The 864 Text Document will be used in an information capacity only. Text will NOT be used to convey any information found in the other EDI Documents

Examples of type of information to be found in a text document are as follows:

- ! Plant closings
- ! Holidays
- ! Contact names & numbers
- ! EDI Testing Schedules (future)
- ! EDI Implementation Schedules (future)

Two Way Communication Between (ASTEMO)AM & Supplier Regarding Delivery



- It is very important for new suppliers to meet with (ASTEMO)AM PC Contact person(s). Order multiplies need to be established so that Purchase Orders generated by PC department will be issued in correct shipping quantities. The shipping point is needed to determine the correct shipping method and transit time.

Supplier Rating – Delivery

Supplier Delivery Tracking Report is used to track on-time delivery performance of all Hitachi Automotive Systems , Inc. suppliers. The rating is determined by comparing actual receipts to the 862 Shipping Schedule. Receipts are tracked and rated as early, on time or late. The received date and received quantity must match the 862 Shipping Schedule to be rated on time. The total number of receipts is divided by the number of on-time deliveries to calculate the on-time percentage. **To achieve on time this means zero days late and zero days early.**

The monthly Supplier Delivery Tracking Report provides details of each delivery for the month. The Supplier Delivery Tracking Report is posted on Hitachi’s website, www.hitachi-automotive.us, the (ASTEMO)AM supplier code and supplier password are required to access the report. Please contact your PC Planner for this information. Monthly ratings are also published and reviewed with in Hitachi. This report gives details of each drawing number and delivery order number and a rating for each section code and total vendor rating. (ASTEMO)AM selects trucking company so supplier is not held responsible for late/early deliveries if parts left supplier within trucking service days. (See Transportation/Logistics Section 8.) Any discrepancies in the Delivery Tracking Report must be reported to PC department planner at once. Discrepancies not reported within one month cannot be reviewed. It is the supplier’s responsibility to notify PC department planner of any problems.

PC is also responsible for semiannual delivery rating and is awarded 30 points. Any supplier that falls below 90% rating may be issued a corrective action report and be required to submit a written cause and countermeasure.

Supply Web training – for any questions regarding Supply Web please access the training section.

[Delivery : D]

Keep delivery date	100% on time	> 95% on time	80-94% on time	< 80% on time	# of occurrences of Premium Freight	Zero	1 +	Actual # if 1+	G 20	H 5	G+H 25.0
	20	15	10	0		5	0				

(G) (H)

Attitudes	① Secures appropriate plant capacity, cooperates well and responds quickly to fluctuations in order quantity	1	Applicable=1	I 5
Production control	① Supplier has not caused a customer disruption, including yard holds and stop ships	1		
	② Supplier has not caused Hitachi to receive customer notifications of Special status related to delivery issues	1		
3 points	③ Informs Hitachi quickly when delivery dates cannot be met	1		
EDI	① Standard or alternate EDI is implemented	1	Evaluation points 30.0	
Total points(I)		5		

OBJECTIVE:

1. Sufficient inventory to keep production line running.
2. All suppliers to maintain an acceptable delivery rating (>90%).
3. E.D.I. capable / **Supply Web**

PLAN:

Review all suppliers with ratings below acceptable level.

METHODS:

Identify suppliers with delivery issues. Suppliers with unacceptable ratings may not be considered for new business.

ACTION TAKEN:

1. Advise supplier of Monthly Delivery Performance so they can:
 - a) Evaluate their delivery
 - b) Determine what they need to do to improve.
2. P.C. member will work with supplier on delivery improvement
by: a) Documenting steps taken with notes, phone logs, faxes etc. b) Will target 30 days for improvement.
3. May issue C.A.R.D. (Corrective Action Request-Delivery).
 - a) Supplier provides Recovery Schedule (ship schedule) within 24 hrs. b) Supplier provides Cause and Countermeasure within 7 days.
 - c) Evaluate effectiveness of C.A.R.D.
4. If C.A.R.D is not effective and production/customer line is threatened then:
 - a) Bring problem to upper management inside (ASTEMO)AM. b) Schedule an emergency meeting with the supplier.

Updated.Form

CORRECTIVE ACTION REQUEST – DELIVERY

Hitachi Automotive Systems America, Inc.
955 Wareck Road - P.O. Box 510
Harrodsburg, KY 40330

REFERENCE: PALPC-WI-004

SUPPLIER:	C.A.R.D. #:	DATE:	ISSUED BY:
CUSTOMER:	DRAWING NUMBER:		PHONE/FAX #:
PROBLEM DESCRIPTION:			PART NAME:
I			
RECOVERY SCHEDULE: (TO BE PROVIDED TO HITACHI - PC DEPT CONTACT WITHIN 24 HOURS OF C.A.R.D. RECEIPT)			
ROOT CAUSE:			
CHECKLIST	Yes	No	SUPPLIER'S COMMENTS
IS TOOLING ADEQUATE?			
TRUCKING ISSUES?			
FORECAST PROVIDED?			
EQUIPMENT CAPACITY ISSUES?			
QUALITY OR ENGINEERING ISSUES?			
URGENT MATERIAL REQUIREMENTS?			
IF SO, MATERIAL LEAD TIME?			
HITACHI REQUESTING DISCREPANCY?			
OTHER:			
CORRECTIVE ACTION – LIST DETAILS OF PLANNED CORRECTIVE ACTION/COUNTERMEASURE: (TO BE PROVIDED TO HITACHI - PC CONTACT WITHIN 7 DAYS OF C.A.R.D. RECEIPT)			
PROJECTED IMPLEMENTATION DATE _____			
COUNTERMEASURE REVIEWED FOR GLOBAL IMPLEMENTATION: Yes or No _____			
SUPPLIER SIGNATURE: _____		TITLE: _____ DATE: _____	
DATE CLOSED: _____		SIGNATURE: _____	
EFFECTIVITY: 90 DAYS AFTER CLOSURE _____		DATE EFFECTIVITY CHECKED: _____	
EVALUATED BY: _____		DATE: _____	
METHOD: _____			

PALFORM-132 AUTHORIZATION: B.Cullin PAGE 1 OF 1
ISSUE 3 DATE: 10/13/14

Kanban Guidelines

- ! Kanban suppliers will receive an 830 Planning Schedule as stated in the Planning and Shipping Release Section.
- ! PC Planner will complete Kanban pull per agreement with each supplier. If parts are needed then PC Planner will issue a Purchase Order for quantity needed. PC Planner will then transmit orders by EDI , Supply Web and/or email.
- ! Supplier is responsible to advise PC immediately of any potential shortages.

Training Links

- <https://supplyweb.hitachi-automotive.us/supplyWeb/tutorial/index.html>
- https://supplyweb.hitachi-automotive.us/supplyWeb/ics_files/SupplierDemand.wmv
- https://supplyweb.hitachi-automotive.us/supplyWeb/ics_files/SupplierTrainingPreferences.wmv
- https://supplyweb.hitachi-automotive.us/supplyWeb/ics_files/ShipmentsandASN.wmv
- https://supplyweb.hitachi-automotive.us/supplyWeb/ics_files/IntegrationOptions.wmv

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Hitachi Astemo Americas, Inc.

CMRT Instructions for Suppliers

The Conflict Minerals Reporting Template (CMRT) is the Hitachi Astemo Americas, Inc. (ASTEMO)-AM approved tool for suppliers to document their Conflict Minerals (CM) declaration. The CMRT can be found on the Conflict-Free Sourcing Initiative (CFSI) website:

<http://www.conflictreesourcing.org/conflict-minerals-reporting-template/>. We will accept any CMRT version 6.1 and above.

To accurately complete a CMRT (including Smelter List Tab if applicable), suppliers should already understand / know the Conflict Minerals information from their supply chain.

If further details are needed on the U.S. SEC Dodd-Frank Act, information & webinars are available at www.aiag.org.

The instructions below should be used in conjunction with the instructions located within the CMRT. These instructions are intended to clarify the requirements for a complete CMRT. Use of the “Comments” field(s) located within the CMRT allows the supplier to provide clear explanations which reduce follow up questions from us and other customers that request CMRT data.

Note: If CMRT Submission Scope is at Company Wide level, then only one CMRT listing a manufacturing DUN’s Number is required. This submission will be applied to all in scope manufacturing DUNS locations under that associated (linked) Ultimate DUNS by (ASTEMO)-AM Conflict Minerals Team.

Product and User Defined Scope CMRT submissions will require a separate CMRT for each relevant Manufacturing DUN’s location.

I. Company Information:

Company Name: Enter the legal name of your company at the **Manufacturing DUNS** level. We are requesting a separate response for each **Manufacturing DUNS** number within your company that is shipping products to (ASTEMO)-AM that contain 3TG.

Declaration Scope or Class: Select Company, User defined, or Product (preferred) from the drop down list.

Description of Scope: Type “Manufacturing Site” in this field if User Defined or Product Scope is selected.

Company Unique ID: Enter your Manufacturing Site DUNS number in this field.

Address: Type in your manufacturing site address in this field.

Hitachi Astemo Americas, Inc.

CMRT Instructions for Suppliers

Authorizer: Enter **all contact information** for the person in your company who is authorized to answer Conflict Minerals-related questions on your company's behalf. Include email address and phone number. **The authorizer will be your company's single point of contact. All communications from our team will be directed to your single point of contact (authorizer).**

Effective Date: Enter the submission date of your current CMRT. Each submission requires a new date, which aids traceability.

II. Questions 1 through 7:

Question 1: "Is any 3TG intentionally added or used in the product(s) or in the production process?"

It is expected you will answer "Yes" for each metal (tin, tantalum, tungsten, or gold) that was intentionally added or used in your product(s) or during the production process of products supplied to (ASTEMO)-AM. For each metal you respond "Yes" to, you will be required to answer question 2.

A "No" response should be given for those metals that aren't intentionally added or used in the product(s) or in the production process. Please note that you will be required to enter a comment in the comments field explaining your "No" responses .

Question 2: "Does any 3TG remain in the product(s)?"

It is expected you will answer "Yes" to this question if your product contains any amount of 3TG (Tin, Tungsten, Tantalum, or Gold) at the end of the production process.

Please note that if you answer "No" for any of these metals, then you must enter a specific reason in the comments field as to why you feel this metal no longer remains in the product. We will be validating your response to this question against our IMDS (International Material Data System) information, as well as 3TG part information we receive from our manufacturing facilities. For each metal you respond "Yes" to, you will be required to answer questions 3 through 7, and provide a complete smelter list for those metals within the smelter list tab.

Question 3: "Do any of the smelters in your supply chain source the 3TG from the covered countries?"

Please be advised that all responses for question 3 will require an explanation in the comments field.

If you have a "No" response for any metal, our expectation is that same metal will be yes for question 4 (100% recycled) **or** that metal will have a complete smelter list on the smelter list tab which will support your "No" response for smelters sourcing from the covered countries. A complete smelter list should include: "Metal, Smelter Reference List, Smelter Country, Smelter Identification, **and most importantly** " Location (Country) of mine" for where the metal is coming from (column O)" for all smelter records.

Hitachi Astemo Americas, Inc.

CMRT Instructions for Suppliers

There must not be any covered countries listed in column “O” for this scenario. Additional support for a “No” response to question 3 requires a response to questions 5, 6, and 7.

An “**Unknown**” response should be utilized when your smelter’s source location of their metals cannot be determined, such as: (1) 100% recycled, (2) incomplete smelter list, (3) or entire smelter list is composed of unknown smelters. An incomplete smelter list would be defined as a smelter list that did not have all of column “O” filled out with valid Location of mine information. If your company utilizes this response, our expectation is that you will continue to work with your supply chain to determine smelter’s source of all metals of unknown origin. Additional support for an “Unknown” response to question 3 requires a response to questions 4, 5, 6, and 7.

A “**Yes**” response should be utilized when your smelter’s source of 3TG has been determined to originate from the covered countries. We will require a complete smelter list on the smelter list tab for all metals identified with a yes or no response in question 3. A complete smelter list should include: “Metal, Smelter Reference List, Smelter Country, Smelter Identification, **and most importantly** “Location (Country) of mine” for where the metal is coming from (column O)” for all smelter records. In addition, if you responded “yes” for any metal in question 3, we will be looking in your smelter list tab (comments field) for the smelters that contributed to your “yes” response.

Question 4: “Does 100 percent of the 3TG (necessary to the functionality or production of your products) originate from recycled or scrap sources?”

For “Yes” responses, you should provide evidence that these metals come from recycled or scrap sources. Please input your supporting evidence in the comments field for all metals with a yes response to question 4.

A “No” response should be used if you know your metal does not come from 100% recycle or scrap sources.

An “Unknown” response should be used if you do not know if your metal comes from 100% scrap or recycled sources.

Question 5: “What percentage of relevant suppliers have provided a response to your supply chain survey?”

If you respond with less than a 90% response rate, please input in the comments field when you plan to exceed the 90% threshold on response rates. Our expectation is that all suppliers should have received this data from all of their 3TG suppliers (100%), or be very close (greater than 90%).

Hitachi Astemo Americas, Inc.

CMRT Instructions for Suppliers

Question 6: “Have you identified all of the smelters supplying the 3TG to your supply chain?”

Answer Options:

Yes: Select if you have identified all of the smelters supplying 3TG in your supply chain

Examples:

You have 100% response rate to smelter survey, per question 5

You have received almost all of the responses, and based on commodity representation of your supply chain, you are confident that all known smelters have been identified

No: Select if you have NOT identified all of the smelters supplying 3TG in your supply chain

Example: You are waiting for additional supplier responses and you believe they may contain new smelters

Caution: Some companies may require substantiation if you answer less than 100% to Question 5, and then “Yes” to this question, which should be entered into the Comments Field.

If you answer “Yes,” you must also have a complete smelter list in the smelter list tab. As previously mentioned, a complete smelter list should include: “Metal, Smelter Reference List, Smelter Identification, **and most importantly** “Location (Country) of mine” of where the metal is coming from (column O)”.

If you answer “No”, we ask that you provide comments in the comments field as to when your completed 3TG smelter information will be available. (ASTEMO)-AM expectation is that you would have identified all smelters supplying 3TG within your supply chain and provided this information within your CMRT submission to (ASTEMO)-AM.

Question 7: “Has all applicable smelter information received by your company been reported in this declaration?”

If your answer is “No”, please provide a brief explanation why you did not include all smelter information reported by your supply chain.

III. Questions A through I:

Responses to questions A through I are required for all CMRT submissions. If there are any unique situations that require additional explanations, please use the comments field. The more detail you provide in your CMRT will reduce the amount of follow up questions from (ASTEMO)-AM.

Instructions for certain questions:

Question B: If “Yes”, list the direct web link to your policy in the comments field.

Questions C to F: If “Yes”, briefly state your company’s methodology.

Question G & H: If “Yes”, state your methodology and verification tools.

Hitachi Astemo Americas, Inc.

CMRT Instructions for Suppliers

IV. SMELTER LIST TAB:

- For all metals answered YES to in question 2, a complete Smelter list is required for each metal.
 - (ASTEMO)-AM defines complete Smelter List as having 100% of applicable smelters, and responses for all (ASTEMO)-AM required fields (Metal, Smelter Reference List, Smelter Country, Smelter Identification, and most importantly “Location (Country) of mine” for where the metal is coming from (column O)” for all smelter records. Non country responses (i.e. unknown, N/A, TBD, etc.) for column “O” are considered incomplete responses that will require follow up.
- If you answered “Yes” to any metal in question 3, you must identify all corresponding smelter(s) in your smelter list tab that contributed to your yes response for this question. In the comments field for each of these smelters, simply input information that links this smelter to your question
 - 3 “Yes” response. In addition, the country of mine information in column “O” should have a covered country documented to support your Yes response.
- **COMPLIANT SMELTERS:** Even though the utilization of compliant smelters is not a requirement for the 2017 reporting year, based on the importance we place in sourcing responsibly, our plan is to move in that direction in the future. Feedback to suppliers that do not use compliant smelters is our way of helping our suppliers identify the smelters that should be encouraged to join the Conflict-Free Smelter Program.

V. General:

- The Conflict-Free Sourcing Initiative CMRT form may be revised at any time and is not controlled by (ASTEMO)-AM. Routinely check the CFSI website for the latest version.
- All responses are to be in English.
- Send your completed CMRT’s to your (ASTEMO)-AM Conflict Mineral designee, using the original Microsoft Excel format. (i.e. do not change to Adobe Reader / .PDF format).
- Submit a revised CMRT when there are significant changes to your declaration due to new parts, engineering changes, etc.
- Contact Hitachi Astemo Americas, Inc. with questions prior to your submission: am-purchasing.support@hitachiastemo.com

Hitachi Group Procurement Partners

Hitachi Group Sustainable Procurement Guidelines

July 2021 (4th Edition)

Hitachi, Ltd.

Value Integration Division

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These Guidelines were established based on Hitachi Group's various policies (the Hitachi Group Codes of Conduct (revised in February 2018), etc.), initiatives (including the results of human rights due diligence), widely recognized global standards, and other references.(*)

(*References:

- United Nations Universal Declaration of Human Rights
- <https://www.un.org/en/about-us/universal-declaration-of-human-rights>
- United Nations Guiding Principles on Business and Human Rights
- https://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.31_en.pdf
- OECD Guidelines for Multinational Enterprises
- <http://www.oecd.org/daf/inv/mne/48004323.pdf>
- OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas
- <http://www.oecd.org/corporate/mne/mining.htm>
- ISO 9000 (QUALITY MANAGEMENT)
- <https://www.iso.org/iso-9001-quality-management.html>
- ISO 14001 (ENVIRONMENTAL MANAGEMENT)
- <https://www.iso.org/iso-14001-environmental-management.html>
- ISO 45001 (Occupational health and safety)
- <https://www.iso.org/standard/63787.html>
- RBA (Responsible Business Alliance) Code of Conduct 7.0 (2021)
- <https://www.responsiblebusiness.org/code-of-conduct/>
- JEITA (Japan Electronics and Information Technology Industries Association)
The Guideline (2020) *Currently Japanese only
- <https://www.jeita.or.jp/japanese/pickup/category/2020/200331.html>

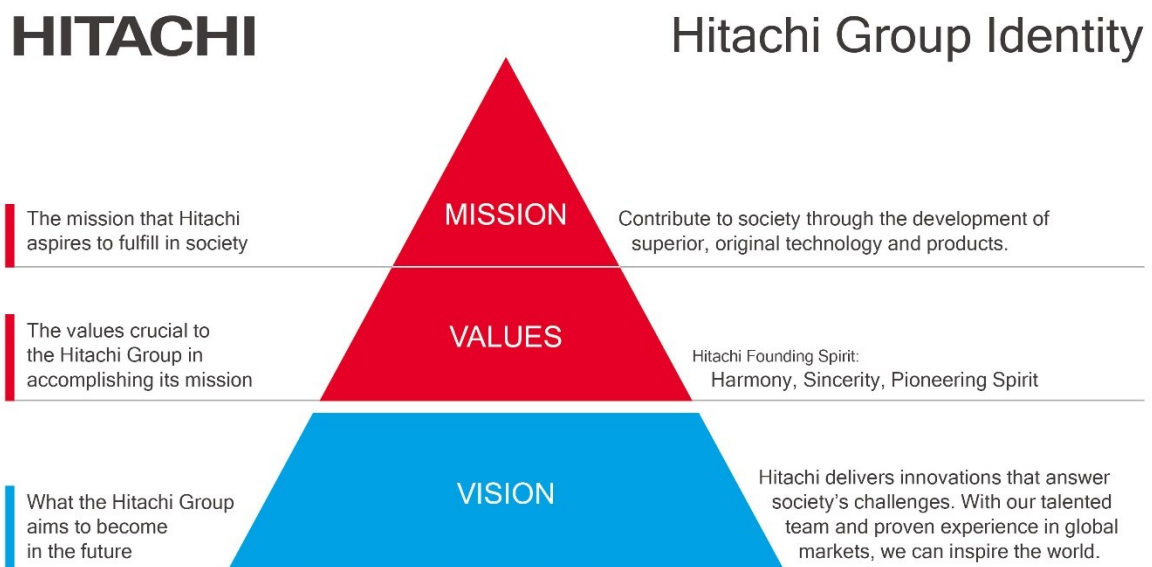
1. Hitachi Group Policies and Initiatives

1-1. Hitachi Group Policies

A. Hitachi Group Corporate-wide Policies

A-1 Hitachi Group Identity

Our Mission is to "contribute to society through the development of superior, original technology and products." In striving to accomplish this, we embrace the values of Hitachi Founding Spirit: Harmony, Sincerity and Pioneering Spirit. Our Vision was created based on our Mission and Values to express what the Hitachi Group aims to become in the future. The Hitachi Group Identity is a simple concept designed to share our Mission, Values, and Vision.



[Hitachi Group Identity: Hitachi \(hitachi.com\)](https://www.hitachi.com)

A-2 Hitachi Group Code of Conduct

The Hitachi Group Codes of Conduct consist of rules and principles intended to assist officers and employees in making decisions and taking actions in accord with the Hitachi Group Identity. All officers and employees of Hitachi Group companies shall understand and follow the Codes of Conduct and act with sincerity and fairness in a highly ethical manner.

1. Toward a Sustainable Society

- (1) We will contribute to resolving social issues by promoting innovative solutions, accelerating collaborative creation with partners and stakeholders, and further integrating social and environmental responsibility into our business activities.
- (2) We will strive to develop technologies that contribute to social development and use them with due consideration of their impact on society.
- (3) We envision a low-carbon society, a resource efficient society, and a harmonized society with nature. To this end, we will endeavor to reduce CO₂ emissions, use water and other resources efficiently, and minimize impacts on natural capital throughout our value chain.
- (4) As a corporate citizen, we will make efforts to build rapport with communities and contribute to their development by working together to resolve social issues.

2. Sincere and Fair Business Activities

2.1 Fair Trading

- (1) To ensure fair and open competition, we will observe the fundamental rules of trade, including domestic and overseas competition laws and regulations, and act in compliance with legislation and sound corporate ethics.
- (2) We will have no relationship whatsoever with antisocial forces anywhere in the world, and resolutely reject involvement in improper or antisocial transactions.
- (3) We will not trade shares using undisclosed information regarding the group, affiliated companies, business partners, or customers that could affect the judgment of investors (insider information).
- (4) We strictly prohibit and will have no involvement in bribery and other corrupt business practices. We will neither give or receive gifts nor extend or accept invitations to business entertainment beyond socially accepted limits, as we recognize that such practices can foster corruption. When working with political entities, we will build and maintain sound and transparent relationships.
- (5) We will help maintain international peace and security through compliance with all applicable laws and regulations concerning import and export, and will operate appropriately according to our internal rules and policies.
- (6) We will comply with applicable laws, respect social cultures and practices, and act sincerely and fairly in countries and regions where we have operations. Furthermore, we will do so guided by international norms and standards even in areas where legislation is not adequately enforced.

2.2 Relationships with Suppliers

- (1) With a global vision, and mindful of the long-term perspective, we will find qualified suppliers and build fair and equal partnerships with them, working together to build mutual understanding and trust.
- (2) In selecting suppliers, we will thoroughly review the quality, reliability, delivery time, and price of the materials they provide as well as their business stability and technological capability. We will give due consideration to their adoption of social

responsibility practices, including areas such as the abolition of unfair discrimination, the elimination of child labor and forced labor, and environmental conservation.

- (3) We will not accept any personal benefits from suppliers in procurement transactions.

2.3 Relationships with Customers

- (1) We will provide products and services that meet the needs and requirements of our customers, complying with relevant laws and standards and ensuring quality and safety by setting additional standards of our own where necessary.
- (2) We will communicate with customers sincerely, address defects and customer complaints quickly and in good faith, and strive to determine causes in order to eliminate them and prevent recurrence.

3. Respect for Human Rights

- (1) We will promote our understanding of internationally recognized human rights, and will respect and not infringe on the human rights of all those involved in our business activities.
- (2) We will implement human rights due diligence appropriate to the social circumstances of the countries and regions where we have operations and the nature of our businesses, products, and services there.
- (3) We will assess and prevent potential violations of human rights. In the event of such a violation, we will promptly take internal and external actions to correct and remedy the situation.
- (4) We will respect individual human rights in the recruitment and treatment of employees and during all other company activities. We will not engage in any acts that may impair individual dignity or discriminate on bases such as sex, sexual orientation, age, nationality, race, ethnicity, ideology, belief, religion, social status, family origin, disease, disability.
- (5) We will hire employees in compliance with the relevant laws and regulations in each country and region, and in accordance with international norms and standards. We will not use child labor that employs children below the minimum working age or forced labor that is against the will of employees.
- (6) We will strive to resolve issues through sincere and constructive discussion between management and employees, in compliance with the laws, regulations, and labor practices of each country and region, and in accordance with international norms and standards.

4. Building a Work Environment That Brings Out Employee Strengths

- (1) Prioritizing health and safety above all else, we will strive to ensure the safety of employees and the workplace. In addition, we will promote the physical and mental health of employees and their families.
- (2) We will support flexible work styles and respect diverse values, creating workplaces that provide employees with a sense of accomplishment and personal growth, and we will promote the sustainable growth of the organization and individuals.

- (3) We will invest in educational programs to help employees expand their capabilities and exercise their strengths. Supervisors will fairly and appropriately support, guide, and educate their employees to develop their abilities.

5. Information Management and Communication

- (1) We will promote the ethical handling of information, so as to ensure respect for human rights and security, through the proper management of personal information based on our Personal Information Protection Policy.
- (2) We will properly manage and protect confidential information related to our business activities in compliance with domestic and international laws and regulations as well as our internal rules and policies.
- (3) In order to maintain and expand our trusting relationship with the Hitachi Group's diverse stakeholders, we will disclose information openly and transparently, and respond to stakeholders responsibly through dialogue and other means of communication.

6. Protection of Intellectual Property and Brand

- (1) We will protect our own intellectual property, respect third-party intellectual property, and use both effectively for smooth business operations.
- (2) We will manage our own and third-party confidential information by importance and manage and handle it appropriately based on this ranking.
- (3) We will protect and enhance the value of the Hitachi Brand, recognizing it as an important management asset.

7. Securing Corporate Assets

We will use all our corporate assets only for business activities and other appropriate purposes, and manage them properly to protect their value.

8. Crisis Management

We will make concerted efforts throughout the Hitachi Group to secure employee safety and business continuity in case of disasters and threats such as earthquakes, tsunamis and floods, cyberattacks, and terrorism.

9. Responsibilities of Employees

Employees shall pledge to comply with the Codes of Conduct. If they become aware of any non-compliant activity, they shall immediately report to their manager or via the internal reporting system.

10. Responsibilities of Top Management

Top managers shall take the initiative in complying with the Codes of Conduct and make their best efforts to conduct business based on corporate ethics and the law. In the event of violation of the Codes of Conduct, top managers shall swiftly take corrective measures and actions to prevent the recurrence of similar incidents, while at the same time strictly disciplining themselves as well as those involved in the violation.

Supplementary Provisions to the Hitachi Group Codes of Conduct

The Hitachi Group Codes of Conduct shall apply to all officers and employees of Hitachi, Ltd. and its consolidated subsidiaries. The subsidiaries shall establish their own codes of conduct by adopting or revising the Hitachi Group Codes of Conduct at a policymaking meeting, ensuring that all their officers and employees fully understand the provisions of the codes.

Each subsidiary shall streamline its organizational structure and systems (e.g. internal reporting system, disciplinary system) to comply with the Hitachi Group Codes of Conduct. In the event of violation, disciplinary action shall be taken in accordance with the related rules and internal procedures.

Subsidiaries may enact their own codes of conduct, incorporating the contents of the Hitachi Group Codes of Conduct. Such codes of conduct may vary by country or region in accordance with legal systems, social customs, or business characteristics, or include stipulations that do not exist in the Hitachi Group Codes of Conduct. Under no circumstances, however, may they contradict the provisions of or weaken the effectiveness of the Hitachi Group Codes of Conduct.

When a subsidiary institutes a revised version of the Hitachi Group Codes of Conduct, it shall expressly stipulate that revisions have been made based on or with reference to the Hitachi Group Codes of Conduct.

[Code of Conduct: Hitachi \(hitachi.com\)](https://www.hitachi.com)

A-3 Hitachi Group Compliance Program (HGCP)

1. Hitachi Group Code of Ethics and Compliance

In April 2020, the Hitachi Group Code of Ethics and Compliance was established to further clarify our basic approach towards corporate ethics and compliance that has been shared on a global Group basis. By each of us putting these guidelines into practice in our daily work, the Hitachi Group will be able to continue to respond to the trust placed in us by society with good faith and sincerity.

For the details concerning Hitachi Group Compliance Program, please visit the following website.

[Hitachi Group Code of Ethics and Compliance \(hitachi.com\)](https://www.hitachi.com)

2. Hitachi Group Compliance Program (HGCP)

The Hitachi Group has established the Hitachi Group Compliance Program (HGCP) based on the spirit of observing the highest level of ethical standards, complying with applicable laws and regulations in all countries and regions where the Group operates its businesses, and respecting fair business practices. Under this program, the Group will make constant efforts to accomplish its mission under the highest standards of ethics and integrity.

A-4 Hitachi Group Human Rights Policy

The Hitachi Group supports the realization of human rights by contributing to society through the development of superior, original technology and products, and delivering innovations that answer society's challenges. As a prerequisite to this, Hitachi seeks to meet its responsibility to respect human rights.

The Responsibility to Respect Human Rights

Hitachi strives to meet its responsibility to respect human rights by not infringing on human rights and addressing negative human rights impacts with which the company may be involved through its operations and business relationships. Hitachi understands human rights to be, at a minimum, those outlined in the International Bill of Human Rights and the International Labour Organization's Declaration on Fundamental Principles and Rights at Work. The responsibility to respect applies to all officers and employees of Hitachi, Ltd. and its consolidated subsidiaries.

Hitachi expects its business partners and other parties whose own impacts may be directly linked to Hitachi's operations, products or services to respect and not infringe upon human rights, and will respond appropriately where they are not respecting human rights.

Relationship to Hitachi's Values and Policies

Hitachi is aware that as a business enterprise it is a member of society and can contribute to creating an environment in which human rights are respected. Meeting the responsibility to respect human rights is key to operating as a responsible business, and is accepted to be a baseline expectation for all companies. It is an expression of Hitachi Group's Mission and Vision. This policy supplements the Hitachi Group Codes of Conduct and CSR policy.

Implementing the Responsibility to Respect Human Rights

Hitachi is committed to meeting the responsibility to respect human rights through implementing the UN Guiding Principles on Business and Human Rights.

Hitachi will develop and implement on going human rights due diligence. Due diligence processes will include identifying and assessing potential and actual human rights impacts, and taking appropriate action to prevent or mitigate risks. The processes will also entail tracking to ensure the effectiveness of Hitachi's actions to address impacts and risks. To account for how Hitachi responds to potential and actual human rights impacts, the group will also develop and implement processes to communicate its findings externally.

Where Hitachi identifies that it has caused or contributed to a negative human rights impact, the company will provide for or cooperate in legitimate processes to provide remediation.

Hitachi adheres to national law and regulation in each market in which it operates. Where

Hitachi faces conflicts between internationally recognised human rights and national laws, the company will follow processes that seek ways to honour the principles of international human rights.

Hitachi will provide appropriate training and capacity building in order to embed this policy commitment throughout the company and to ensure that its consolidated subsidiaries understand and implement human rights due diligence effectively.

Hitachi is committed to engaging in dialogue with and consulting relevant external stakeholders about addressing potential and actual human rights impacts

[Hitachi Group Human Rights Policy \(hitachi.com\)](https://www.hitachi.com/human-rights-policy)

B. Hitachi Group Procurement Policies

B-1 Procurement policy

1. Partnership policy

At Hitachi we fully realize the value of developing trusting relationships with our valued suppliers.

2. Our open-door policy

Regardless of whether a supplier is a domestic or overseas company, we do our utmost to insure free competition.

3. Fair business relationship policy

It is our policy to always maintain a fair business relationship with all of our suppliers.

4. Selection of suppliers policy

We evaluate and select suppliers based upon criteria such as quality, price, lead time, quality of management, technical standards and abilities.

B-2 Guidelines for Procurement Activities

These guidelines define business transaction standards which shall be applied to all Hitachi executives and employees in connection with their activities purchasing necessary materials, products, services, and information from outside sources.

1. Overall procurement activities of Hitachi shall adhere to the Hitachi Group Code of Conduct.
2. HITACHI shall maintain proper partnerships, mutual understanding, and reliable relationships with suppliers with a view to the long term results.
 - (1) HITACHI shall treat all suppliers impartially and be prohibited from favoritism such as giving unfair priority to any specific suppliers.
 - (2) HITACHI respects fair business dealings with suppliers and will avoid any improper act which might cause a loss to a supplier apart from normal and customary business transactions
 - (3) HITACHI shall keep suppliers' trade secrets strictly confidential and prevent them from being revealed or improperly used.
3. HITACHI develops suppliers to maintain competitiveness from a worldwide point of view.
 - (1) HITACHI responds to all suppliers' offers sincerely, and is always willing to offer the information necessary for suppliers to compete on an even playing field.
 - (2) HITACHI shall periodically check and review suppliers' performance and will consider offering more advantageous business opportunities when comparison with other resources allows.
4. Through a designated selection process, suppliers shall be evaluated by product quality, reliability, delivery, price, suppliers' business stability, technical development ability, fair and transparent information release, compliance with societies' rules, regulation compliance, respect for human rights, elimination of discrimination in respect of employment and occupation, elimination of all forms of forced and

compulsory labor, environmental preservation activities, social contributions, good working environment, and recognition of social responsibilities with business partners.

- (1) HITACHI shall not request quotations from suppliers with whom there is no intention to enter into a future business relationship.
 - (2) In accordance with specified internal procedures, the role and responsibility for specifications, terms and conditions, product acceptance and inspection belongs to each Requester, Procurement Department and Inspection Department.
 - (3) Procurement Departments shall be a representative of HITACHI when contracting with suppliers.
5. HITACHI members are prohibited from receiving any personal gifts or offers from suppliers.

B-3 Hitachi Group's policy for Responsible Supply Chain of Minerals

The Hitachi Group is committed to responsible procurement activities as its policy to ensure that the procurement of materials containing conflict minerals (tin, tantalum, tungsten, and gold) and cobalt does not encourage the activities of armed groups, human rights violations including child labor, corruption, and environmental destruction in the conflict and high-risk regions.

The Group also respects the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and conducts more detailed investigations based on the Guidance while understanding social issues and the expected roles of companies in the regions.

For its suppliers, the Group will continue to inquire into their minerals' country of origin and supply chains using the Conflict Minerals Reporting Template (CMRT) issued by the Responsible Minerals Initiative (RMI), and request its suppliers to procure minerals from smelters certified under RMI's Responsible Minerals Assurance Program (RMAP).

1-2. Hitachi Group Procurement Initiatives

Hitachi attaches great importance to sustainability in its value chains. Hitachi Group's procurement division began working on corporate social responsibility (CSR) in supply chain management in the early 2000s and has accelerated and advanced this initiative since February 2009, when the Hitachi Group announced its participation in the United Nations Global Compact.(*). In dealings with its suppliers, the Group commits itself thoroughly to procurement activities based on its policies and codes of conduct introduced in "1-1. Hitachi Group Policies." In addition, the Group has distributed the Supply Chain CSR Procurement Guidelines to roughly 30,000 suppliers to disseminate its Sustainable procurement policies, and asked them to conduct CSR monitoring (completing a check sheet for the Hitachi Group Supply Chain CSR Procurement Guidelines) and auditing with the aim of minimizing procurement risks. The Group has formulated the Hitachi Group's policy for Responsible Supply Chain of Minerals to address the issue of materials containing conflict minerals, and is promoting responsible procurement activities based on international guidelines.

Hitachi is advancing its initiatives with a strong belief that developing business activities with a focus on sustainability will lead to mutual prosperity for the Hitachi Group and its suppliers. Hitachi deeply appreciates its suppliers carefully reading and following these Guidelines with the above purposes in mind.

For the latest information and other details concerning Hitachi Group's sustainability, please visit the following website.

[Hitachi Group Sustainability \(hitachi.com\)](https://www.hitachi.com/sustainability)

(*)The United Nations Global Compact, or UNGC, was proposed by then UN Secretary-General Kofi Annan at the World Economic Forum (Davos Forum) in 1999 and officially launched at the UN Headquarters in New York on July 26, 2000. As of May 2021, the UNGC has been signed by more than 17,000 organizations (including roughly 5,700 businesses) that are undertaking activities based on ten principles in the four areas of human rights, labor, the environment, and anti-corruption.

2. Hitachi Group Supplier Code of Conduct

A. Labor

Your company must uphold the human rights of workers and treat them with dignity and respect as understood by the international community. This applies to all types of workers, including temporary staff, migrant workers, students, and direct employees.

(1) Recruitment and Employment of Workers

Your company must not use forced, bonded (including debt bondage) or indentured labor, involuntary or exploitative prison labor, slavery, or human trafficking. This includes transporting, harboring, recruiting, transferring, or receiving persons by means of threat, force, coercion, abduction, or fraud for labor or services. Unreasonable restrictions must not be imposed on workers entering and exiting company-provided facilities (including, if applicable, worker dormitories and living quarters) and workers' freedom of movement in the facilities. As part of the hiring process, your company must provide all workers with a written employment agreement that includes employment terms and conditions stated in their native language or a language properly understood by them. Foreign migrant workers must receive the employment agreement prior to departure from their home country, and no substitution or changes are permitted in the employment agreement upon arrival in the destination country unless these changes are made to meet local laws and provide equal or better terms. All work must be voluntary, and workers are free to leave work at any time or terminate their employment without penalty or punishment if reasonable notice is given as per their contract.

Your company must not retain or otherwise destroy, conceal, or confiscate workers' identification certificates or immigration documents (government-issued identification, passport, work visa, personal ID card, etc.). Employers are allowed to retain these documents only if such retention is required by law, but even in this case, workers are allowed access to their documents at all times.

Your company must not make workers bear recruitment fees or other expenses related to their employment charged by employers' agents or sub-agents. Any such costs found to have been paid by workers will be refunded to the workers.

(2) Employment of Young Workers

Your company must not use child labor at any stage of manufacturing. The term "child" refers to any person under the age of 15, under the age for completing compulsory education, or under the minimum age for employment in each country, whichever is highest. Your company must have an appropriate mechanism to verify the age of its workers. Legitimate workplace learning programs are approved as long as they comply with all laws and regulations. Workers under the age of 18 (young workers) are not to

engage in work, including night shifts and overtime, that may jeopardize their health or safety.

Your company must ensure appropriate management of student workers by properly maintaining their employment records, conducting rigorous due diligence of educational partners, and protecting student workers' rights in accordance with applicable laws and regulations. Your company must also provide all student workers with appropriate support and training for their tasks. As for student workers' wages, in the absence of local laws, the wage rates for student workers, interns, and apprentices will be at least the same as those for other entry-level workers performing equal or similar tasks.

(3) Working Hours

Studies on business practices have revealed that overwork is clearly linked to lower productivity, higher turnover, and a greater risk of injury and illness. Your company must therefore ensure that working hours do not exceed the limit set by local laws. Further, the total weekly working hours, including overtime, must not exceed 60 hours or the legal working hour limit, except in the case of emergencies or unusual circumstances. All overtime work must be voluntary. Efforts must also be made to prevent workers from being overworked, and workers will be granted appropriate days off (at least one holiday that complies with local laws or 24 consecutive hours of rest in any seven-day period, whichever is longer).

(4) Wages and Benefits

Compensation paid to workers must comply with all applicable wage laws, including those relating to minimum wages, overtime work, and legally mandated benefits. In compliance with local laws, workers must be paid for overtime work at a rate higher than their regular hourly rate. Workers must be timely provided with easy-to-understand pay slips that include sufficient information to verify accurate compensation for the work performed during each payment period. All temporary, dispatch, and outsourced workers are to be used within the limits of local laws.

(5) Humane Treatment of Workers

No workers will be subjected to harsh or inhumane treatment that includes violence, gender-based violence, sexual harassment, sexual abuse, corporal punishment, mental or physical coercion, bullying, public shaming, or verbal abuse; nor will there be the threat of any such treatment. Your company must clearly define and communicate to workers its disciplinary policies and procedures in support of these requirements.

(6) Non-Discrimination/Non-Harassment

Your company must be committed to a workplace free of harassment and unlawful discrimination, and not engage in discrimination or harassment based on race, color, age, gender, sexual orientation, gender identity and expression, ethnicity or national origin, disability, pregnancy, religion, political affiliation, union membership, veteran status, protected genetic information, or marital status in recruitment and employment practices such as wages, promotions, rewards, and access to training opportunities. Workers must be provided with reasonable accommodation for religious practices. In addition, workers or potential workers must not be subjected to medical tests, including pregnancy and virginity tests, or physical exams that could be used in a discriminatory way.

(7) Freedom of Association

Your company must respect the right of all workers to form and join trade unions of their own choosing, bargain collectively, and participate in peaceful assembly as well as the right to refrain from such activities in accordance with local laws. Workers and/or their representatives must be able to openly communicate and share their ideas and concerns with management regarding working conditions and management practices without fear of discrimination, reprisal, intimidation, or harassment.

B. Health and Safety

Your company must recognize that a safe and healthy work environment enhances the quality of products and services, product consistency, and workforce stability and morale, in addition to minimizing the occurrence of work-related injuries and illnesses. Your company must also recognize that continuously providing information and education to workers is essential to identify and resolve health and safety issues in the workplace. Widely recognized management systems, such as ISO 45001 and the ILO Guideline on Occupational Safety and Health Management Systems, may provide useful information to formulate corporate codes.

(1) Occupational Safety

Your company must identify and assess its workers' exposure to potential health and safety hazards (chemical, electrical and other energy sources, fire, vehicles, and falls), and mitigate the hazards using the Hierarchy of Controls. This approach includes eliminating hazards, substituting processes and materials, controlling through proper design, implementing engineering and administrative controls, preventive maintenance, and safety work procedures (including lockout/tagout), and providing ongoing occupational health and safety training. When hazards cannot be controlled properly by these means, workers must be given appropriate, well-maintained personal protective equipment, and education on the risks related to these hazards must be provided effectively in a language properly understood by workers. Appropriate measures must also be taken for pregnant women and nursing mothers, such as work reassignment to avoid serious hazards, eliminating or reducing occupational health and safety risks involving their work assignment, and providing reasonable accommodation for nursing mothers.

(2) Emergency Preparedness

Your company must identify and assess potential emergency situations and events, and minimize the impact by implementing emergency plans and response procedures, including emergency reports, notification to employees, evacuation procedures, and training and drills for workers. Emergency drills must be conducted at least once a year or as required by local laws, whichever is more stringent. Emergency measures include appropriate fire alarm and suppression systems, visible and unobstructed exit routes, facilities with appropriate emergency exits, contact information for emergency responders, and recovery plans. These measures and procedures must focus on minimizing harm to life, the environment, and property.

(3) Occupational injury and illness

Your company must have procedures and systems in place to prevent, control, track, and report occupational injuries and illnesses. These procedures and systems must include provisions to encourage reporting from workers, classify and record injury and illness cases, provide the necessary medical treatment, investigate the cases in detail, implement corrective measures to eliminate the causes, and facilitate the workers' return to work.

(4) Industrial Hygiene

Your company must identify, assess, and control workers' exposure to chemical, biological, and physical agents based on the Hierarchy of Controls. If potential hazards are identified, your company must seek opportunities to eliminate or reduce the hazards. If elimination or reduction is not feasible, the hazards must be controlled through proper design, and engineering and administrative controls. When hazards cannot be controlled properly by these means, workers must be provided with and use appropriate, well-maintained personal protective equipment free of charge. Protection programs must be implemented continuously and include education on the risks associated with these hazards.

(5) Accommodation for Physically Demanding Work

Your company must identify, assess, and control the risk of injury for workers engaged in such work as manual material handling, physically demanding tasks, repetitive heavy lifting, prolonged standing, and forceful assembly tasks in order to prevent problems from occurring.

(6) Machinery Safeguarding Measures

Your company must assess safety hazards of production and other machinery. Physical guards, interlocks, and barriers must be installed and properly managed and maintained where machinery poses an injury risk to workers.

(7) Sanitation, Food, and Housing

Your company must provide workers with ready access to clean toilet facilities, potable water, and sanitary food preparation, storage, and eating facilities. Worker dormitories provided by your company must be maintained in a clean and safe condition, and be equipped with appropriate emergency exits, hot water for bathing and showering, proper lighting, heating, ventilation, individually secured accommodations for storing personal and valuable items, and reasonable personal space with easy access.

(8) Health and Safety Communication

Your company must provide appropriate workplace health and safety information and training on all identified workplace hazards (including, but not limited to, mechanical, electrical, chemical, fire, and physical hazards) to workers in their native language or a language properly understood by them. Health and safety-related information must be clearly posted in facilities or placed in locations identifiable and accessible to workers. Training will be provided to all workers prior to the beginning of work and regularly thereafter. Workers will be encouraged to raise health and safety concerns without retaliation.

C. Environment

Your company must recognize that environmental responsibility is integral to the manufacture of world-class products, and identify the environmental impact of manufacturing activities and minimize the adverse effects on the community, the environment, and natural resources while safeguarding public health and safety. For Hitachi Group's green procurement approaches, please refer to the Hitachi Group Green Procurement Guidelines.

(1) Environmental Permits and Reporting

Your company must obtain, maintain, and update all required environmental permits (e.g. discharge monitoring), approvals, and registrations, and comply with their operational and reporting requirements.

(2) Pollution Prevention and Resource Reduction

Your company must minimize or eliminate pollutant emissions and waste generation at the source by installing additional pollution control equipment, modifying production, maintenance, and facility processes, or implementing other means. The use of natural resources, including water, fossil fuels, minerals, and virgin forest products, must be controlled through modifications of production, maintenance, and facility processes, materials substitution, reuse, conservation, and recycling, or other means.

(3) Environmentally Hazardous Materials

Chemicals, waste, and other materials posing a hazard to humans or the environment must be identified, labeled, and managed to ensure their safe handling, movement, storage, use, recycling or reuse, and disposal.

(4) Solid Waste

Your company must implement a systematic approach to identifying, managing, reducing, and responsibly disposing of or recycling solid waste (non-hazardous).

(5) Air Emissions

Your company must characterize, routinely monitor, and control air emissions of volatile organic chemicals (VOCs), aerosols, corrosives, particulates, ozone depleting substances, and combustion byproducts generated from operations, and treat these substances as required prior to discharge. Ozone depleting substances are to be effectively managed in accordance with the Montreal Protocol and applicable regulations. Your company must routinely monitor its handling of substances emitted into the air and the performance of its air emission treatment systems.

(6) Materials Restrictions

Your company must comply with all applicable laws, regulations, and customer requirements regarding the prohibition or restriction of specific substances in products and during manufacturing, including labeling for recycling and disposal.

(7) Water Management

Your company must implement a water management program that documents, characterizes, and monitors water sources, use, and discharge, while seeking opportunities to conserve water and controlling contamination routes. All wastewater must be characterized, monitored, controlled, and treated as required prior to discharge or disposal. Your company must routinely monitor its wastewater treatment systems and water tanks to ensure optimal performance and regulatory compliance.

(8) Energy Consumption and Greenhouse Gas Emissions

Your company must establish a corporate-wide greenhouse gas reduction goal. Energy consumption and all relevant Scope 1 and 2 greenhouse gas emissions must be tracked and documented, and their comparisons with the reduction goal publicly reported. Your company must seek ways to improve energy efficiency and minimize its energy consumption and greenhouse gas emissions.

(9) Conservation of Biodiversity and Ecosystems

To conserve biodiversity and ecosystems that serve as the foundation for the survival of both humanity and business, your company must procure raw materials and products with an awareness of their impact while keeping the following items in mind.

- Preferential procurement of paper and office supplies confirmed to be produced with consideration given to biodiversity and ecosystems
- Ecologically friendly approaches to mining raw materials and developing, producing, and procuring raw materials, components, and products
- Consideration for the local ecosystem, such as protecting rare species in the region before land acquisition or rebuilding and avoiding habitat fragmentation
- Promotion of nature conservation activities, including growing forests with native species and planting trees to conserve ecosystems
- Pollution prevention from the perspective of ecosystem conservation, 3R (reduce, reuse, and recycle) activities, and continuous improvements of energy conservation activities
- Request for suppliers to promote ecosystem conservation

D. Business Ethics

Your company must uphold the following highest standards of business ethics to meet its social responsibilities and to achieve success in the marketplace.

(1) Continuing Commitment to Business Integrity

Your company must maintain the highest level of integrity to continue its business, and uphold a zero-tolerance policy that prohibits all forms of bribery, corruption, extortion, and embezzlement. All business transactions must be conducted with transparency and accurately reflected in your company's accounting books. Monitoring and procedures must be implemented to ensure compliance with anti-corruption and related laws.

(2) Elimination of Improper Advantages

Your company must not promise, offer, authorize, give, or accept bribes or other means of obtaining undue or improper advantages. This prohibition covers promising, offering, authorizing, giving, or accepting anything of value, either directly or indirectly, through a third party in order to acquire or retain business, assign business to someone else, or otherwise gain improper advantages. Monitoring, record keeping, and procedures must be implemented to ensure compliance with anti-bribery and anti-corruption laws.

(3) Disclosure of Information

All business transactions must be conducted with transparency and accurately reflected in your company's accounting books and records. Your company must disclose information regarding its labor, health and safety, environmental conservation efforts, business activities and structures, financial status, and performance in accordance with applicable regulations and prevailing industry practices. Falsification or misrepresentation of events occurring in your company's supply chains or implemented measures is unacceptable.

(4) Intellectual Property

Your company must respect and protect intellectual property rights. Transfer of technology and knowhow must be conducted in a way that does not infringe on intellectual property rights, and information of customers and suppliers must also be safeguarded.

(5) Compliance with Fair Business, Advertising, and Competition Laws

Your company must conduct its business activities in accordance with fair competition rules, and its activities must comply with all applicable competition laws, such as accuracy and integrity in advertising. Appropriate measures must also be taken to protect customer information.

(6) Protection of Whistleblowers and Elimination of Retaliation

Your company must maintain a program to ensure the protection of supplier and employee whistleblowers, unless prohibited by law, and disseminate and support a process to enable its personnel to raise concerns without fear of retaliation. A system that allows allegations of wrongdoing to be reported must be guaranteed.

(7) Responsible Minerals Procurement

To reasonably assure the procurement of minerals is consistent with the Organization for Economic Co-operation and Development (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas or equivalent due diligence frameworks. Your company must adopt policies and conduct due diligence on the sources and chains of custody for minerals such as tin, tantalum, tungsten, and gold contained within its manufactured products. Please refer to the Hitachi Group's policy for Responsible Supply Chain of Minerals to better understand our procurement approaches.

E. Management System

Your company must adopt or establish a management system with a scope related to the contents of this Code. The management system must be designed to ensure the following:

- a. Compliance with applicable laws, regulations, and customer requirements related to your company's operations and products;
 - b. Conformance with these Guidelines; and
 - c. Identification and mitigation of operational risks related to these Guidelines.
- The management system must also facilitate continual improvements.

The management system must contain the following elements:

(1) Company Commitment

Your company must provide corporate social and environmental responsibility policy statements affirming its commitment to compliance and continual improvements that are endorsed by the executive management and posted in its facilities in the local language.

(2) Management Accountability and Responsibility

Your company must clearly identify the senior executive and company representative(s) responsible for ensuring the implementation of its management system and associated programs. Senior management must review the status of the management system on a regular basis.

(3) Response to Legal and Customer Requirements

Your company must establish a process to identify, monitor, and understand the applicable laws, regulations, and customer requirements, including the items listed in these Guidelines.

(4) Risk Assessment and Management

Your company must establish a process to identify legal compliance, environmental, health and safety risks(*) as well as labor practices and ethical risks associated with its operations. To manage identified risks and ensure regulatory compliance, your company must determine the relative significance of each risk and implement appropriate procedural and physical controls.

(*)Areas to be included in a risk assessment of the environment, health, and safety are production bases, warehouse/storage facilities, plant/facility support equipment, laboratories and test areas, sanitation facilities (toilets), kitchens/cafeterias, and worker housing/dormitories.

(5) Setting of Improvement Objectives

Your company must present written performance goals, targets, and implementation plans to improve its social, environmental, and health and safety performance, including a periodic assessment of your company's performance in achieving these objectives.

(6) Development of Training Programs

Your company must establish training programs for managers and workers to implement its policies, procedures, and improvement objectives and to meet the applicable legal and regulatory requirements.

(7) Communication with Workers, Suppliers, and Customers

Your company must establish a process to communicate clear and accurate information about its policies, practices, expectations, and performance to workers, suppliers, and customers.

(8) Worker Feedback, Participation, and Grievance

Your company must establish ongoing processes, including an effective grievance mechanism, to assess workers' understanding of the practices and conditions covered by these Guidelines and promote continuous improvements after obtaining feedback and identifying violations. A safe environment must be provided for workers to voice grievances and offer feedback without fear of reprisal or retaliation.

(9) Audits and Assessments

Your company must implement periodic self-evaluations to ensure conformity with legal and regulatory requirements, these Guidelines, and customer contract requirements related to social and environmental responsibility.

(10) Corrective Actions

Your company must establish a correction process to respond to the deficiencies identified by internal or external assessments, inspections, investigations, and reviews.

(11) Documentation and Records

Your company must create and maintain documents and records to ensure regulatory compliance, conformity with company requirements, and appropriate confidentiality to protect privacy.

(12) Supplier Responsibility

Your company must establish a process to communicate these Guidelines to suppliers and monitor their compliance.

F. Product Quality and Safety

(1) Product Safety

Your company must ensure sufficient product design safety and sell products with an awareness of its responsibility as a manufacturer. Product safety must be ensured in compliance with laws and regulations, with consideration also given to the safety that should be expected from products. Laws, regulations, and safety and other standards related to product safety (Japan: Act on Product Safety of Electrical Appliances and Materials, Consumer Product Safety Act, Household Goods Quality Labeling Act, detailed rules in various laws and regulations, Japanese Industrial Standards (JIS), etc.; overseas: Underwriters Laboratories (UL), British Standards Institution (BSI), Canadian Standards Association (CSA), etc.) must be observed. Product safety must also include traceability (procurement of parts and materials, manufacturing processes, etc.) and other management methods and prompt response to problem solving.

(2) Promotion of Quality Assurance Activities

Your company must formulate a quality assurance policy and accordingly proceed with quality assurance activities on a daily basis to make continuous improvements through the Plan-Do-Check-Act (PDCA) cycle. To this end, your company will establish and promote a quality management system that develops an organizational structure, outlines an activity plan, and specifies responsibility assignment and procedures. For major quality management systems, please refer to ISO9000, ISO/TS16949, and ISO13485.

G. Prevention of Personal and Confidential Information Leakage

(1) Protection against Threats to Computer Networks Including Cyberattacks

Your company must take measures to prevent threats to computer networks, including cyberattacks, from affecting its internal and external operations. These threats include viruses, worms, spyware, ransomware, social engineering, and targeted attacks. Computers or servers infected with viruses and other malware may leak customer and confidential information or attack other companies' computer networks, causing serious harm due to the stagnation of daily operations and the loss of trust. In addition, careful attention must be paid to targeted attacks and other types of threats by hackers who may break into computer networks and leak or destroy a variety of information, resulting in similar damage.

(2) Privacy Protection

Your company must be committed to effectively protecting personal information and privacy of all people involved in its business, including suppliers, customers, consumers, and workers. Personal information must be collected, stored, processed, transmitted, and

shared in accordance with laws and regulations related to privacy and information security.

(3) Measures to Prevent Personal Information Leakage

Your company must ensure that personal information(*) is not obtained, used, disclosed, or leaked illegally and unfairly by formulating codes and policies to be complied with by workers, while thoroughly managing the information through the PDCA cycle.

(*)Personal information refers to information about a living individual that can be used to distinguish that specific individual's identity, such as name, date of birth, and other descriptions (including anything that easily matches other information to identify a specific individual).

(4) Measures to Prevent Leakage of Customer and Third-party Confidential Information

Your company must ensure that all confidential information(*) of customers and third parties is not obtained, used, disclosed, or leaked illegally and unfairly by thoroughly managing the information through the PDCA cycle.

(*)Confidential information refers to information disclosed in a written form (including electromagnetically or optically recorded data information) that is designated as confidential in an agreement or information orally disclosed after confidentiality is notified.

3. Revision History

Edition	Date	Details
1	January, 2009	Created 1st edition of the Hitachi Supply Chain CSR Promotion Guidebook.
2	June, 2009	In the "Introduction", added/inserted text declaring participation in The United Nations Global Compact.
3	January, 2017	<p>(1) Changed the title to "Hitachi CSR Procurement Guideline".</p> <p>(2) In the "Introduction", added/inserted text related to SDGs and COP21.</p> <p>(3) Deleted the "Hitachi Group CSR Activities Policy" and replaced it with the "Framework of CSR Management".</p> <p>(4) Inserted the "Hitachi Group Human Rights Policy".</p> <p>(5) Inserted the "Hitachi Group Conflict Minerals Procurement Policy".</p> <p>(6) From page 13 on onwards, inserted the "CSR Procurement Guideline" while referring to contents of the "Hitachi Group Code of Conduct", as based on the "EICC Code of Conduct Version 5.1".</p>
4	July, 2021	<p>(1) Changed the title to "Hitachi Group Sustainable Procurement Guidelines".</p> <p>(2) Established based on Hitachi Group's various policies (the Hitachi Group Codes of Conduct (revised in February 2018), etc.), initiatives (including the results of human rights due diligence), widely recognized global standards, and other references.</p>

Hitachi Astemo Americas, Inc.

Inspire The Next

Purchasing Department

Hitachi's Minority Development Program

Minority Business Enterprises (MBE's) are recognized and appreciated as highly capable and reliable sources of goods and services to Hitachi. We realize the value and innovation that they can bring as members of our supply base. As we prepare ourselves to compete effectively in the new millennium, we will focus on tapping into the many talents offered by MBE's.

PLAN: Identify, develop, and grow Hitachi's minority supply base

METHODS TO ACHIEVE PLAN:

Continue to participate in Minority Purchasing and Development Councils – use their services to find appropriately qualified MBE's through their databases, meetings, conferences, and trade fairs. Stay abreast of minority business publications to continually absorb what other corporations are doing for minority development. Thoroughly investigate all recommended MBE's for sourcing opportunities.

Establish a corporate culture in which purchasing personnel view MBE buying programs as an ingrained way of doing business.

GUIDELINES FOR MINORITY SUPPLIER SELECTION:

Capability to manufacture parts
Technology to support manufacturing and design
High quality
Competitive cost

Hitachi is eager to see our minority sourcing grow. We wish to create a climate at Hitachi that supports the building and strengthening of new partnerships within the automotive community. It is by the above methods that we plan on reaching these objectives and help MBE's bring value to the overall supply chain.

Section

4

Purchasing / Cost

Working Together with Suppliers

The Hitachi Group procures raw materials, parts and services from companies around the world, an activity rooted in strong partnerships with suppliers. We are committed to developing harmonious, mutually prosperous relationships with our suppliers.

Basic Policy on Procurement

Hitachi, Ltd. values partnerships and openness with suppliers above all. We are committed to maintaining and improving the mutual understanding and trust of our suppliers over the long term. While providing equal business opportunities, we select suppliers from around the globe based on the principle of open competition.

Hitachi, Ltd. has established the "Guidelines for Procurement Activities" to serve as the basis of all transactions. The basic policies include:

- Respecting the principle of fair competition and guarantee equal business opportunities for companies around the world.
- Choosing suppliers on the basis of appropriate procedures by evaluating the quality of the materials, prices, delivery time, the reliability of management and technical development capacities as well as whether the supplier is fulfilling its corporate social responsibilities.
- Promoting long-term, trust-based relations with suppliers by sharing CSR philosophy and creating positive partnerships.

Fundamental Credo

The basic credo of Hitachi is to further elevate its founding concepts of harmony, sincerity and pioneering spirit, to instill a resolute pride in being a member of Hitachi, and thereby to contribute to society through the development of superior, original technology and products.

Deeply aware that a business enterprise is itself a member of society, Hitachi is also resolved to strive as a good citizen of the community towards the realization of a truly prosperous society and, to this end, to conduct its corporate activities in a fair and open manner, promote harmony with the natural environment, and engage vigorously in activities that contribute to social progress.

(Adopted June 1983, revised September 1996)

Environmentally responsible, sustainable or "green" procurement is the selection of products and services that minimize environmental impacts.

Purchasing Guidelines for Present and Potential Suppliers

Welcome to Hitachi

The purpose of this document is to introduce you to the policies, objectives and values that govern our Purchasing Procedures. Suppliers who share our values, respect our policies and help us meet our objectives will have a greater opportunity for a mutually beneficial relationship.

Appointments

Your first step should be to make an appointment with the correct Purchasing Representative. Purchasing should always be the first contact point for all suppliers of materials and services. Upon entering the facility and obtaining visitor badges from the guard shack, you must register your visit by signing in with the Purchasing Department.

Restricted Access

Due to the nature of our business and proprietary manufacturing techniques, we request you remain in our conference rooms for meetings. When it is necessary to walk to another location in the plant, you must remain on the visitor pathways. All other times, (plant tours, etc.), you must be accompanied by a representative of Hitachi.

Purchasing Policy

We believe that an open, competitive atmosphere is most beneficial to both buyer and seller, and it is our policy to foster this environment. We buy on the basis of definitive specifications, quality of products and service, lowest total price and best delivery practices.

Expectations

- Act ethically and professionally at all times.
- Have a thorough, factual knowledge of the products/services which you sell/represent. Know their limitations as well as their applications.
- Work with and through the appropriate Purchasing Representative for all pricing and quotation issues.
- Maintain open, two-way communications to resolve problems. Keep us informed of changes in materials, processes or methods used for any supplied product/service prior to delivery.
- Report any damages or problems with delivery, invoicing, pricing, etc. to the department(s) in which they affect.
- Deliver only what is ordered, on-time and to the right specifications.
- Accept purchasing commitments only from Purchasing personnel and honor your commitments.

Gifts and Entertainment

Suppliers are prohibited from offering any gift, gratuity, payment or other incentives to an employee under any circumstances. The only exceptions to this are business lunches (on a limited, reciprocal basis) and promotional advertising with company logos (when the value of the item is nominal - under \$25). We prefer that you provide incentives in the form of pricing, quality and/or service in your quotations. Please assist us in this policy.

Confidentiality

Suppliers may be asked to sign a statement of confidentiality. We expect you to handle information of a confidential or proprietary nature with due care and proper consideration of ethical and legal ramifications and governmental regulations.

Safety/Environmental

Suppliers must abide by Hitachi's safety/environmental regulations and conform to all applicable government safety standards. Because of the potential dangers involved, we do require MSDS sheets for all chemicals for which are brought into our facility. NO FREE SAMPLES OF ANY CHEMICALS will be accepted.

Insurance

Comprehensive General Liability Insurance in an amount of \$1,000,000 must be carried for all subcontractors. Evidence of Workman's Compensation and auto liability insurance is also required. The supplier must hold Hitachi harmless for bodily injury or property damage as noted in the Insurance section of the terms and conditions typed on the backside of the Hitachi Purchase Order.

Thank You

We hope you will find these guidelines helpful in establishing and maintaining your relationship with Hitachi Automotive Systems, Inc.. Just as you value our business, we value the service and cooperation your organization can provide. If you have any questions or concerns regarding the content contained herein, please contact one of our Purchasing Representatives.

Request for Quotation

Purpose

HIAMS's formal bidding system by which current or potentially new suppliers are investigated for new business opportunities is via the "Request for Quotation" (RFQ) method.

Responsibilities

LP Suppliers

- 1) Reply to HIAMS Request for Quotation via Electronic RFQ system.
- 2) Provide Cost Breakdown Analysis Worksheet with complete and accurate details.
- 3) Attends drawing review as needed.
- 4) Directs all questions and comments to HIAMS buyer as official contact.

HIAMS Purchasing

- 1) Submits Documents to bidding sources.
 - Via Electronic RFQ
 - Cost Breakdown Analysis Worksheet
 - Blueprint/Drawing
- 2) May schedule a drawing review with sources and HIAMS Engineering for detail explanation.
- 3) Will make a favored supplier recommendation according to supplier's conformance to information request, audit results, supplier rating score, cost competitiveness, etc. via internal "Supplier Selection Form" which requires approval from Design Engineering and Supplier Quality Assurance Departments.

Documents

SASR(AM) M20-01 A FORM A Cost Breakdown Analysis Worksheet

Purchase Order

According to **ISO/IATF** guidelines, HIAMS will only issue mass production purchase orders for direct materials to those whose names appear on the Approved Supplier List. Requirements Contracts will be issued. These Requirements Contracts will represent a contractual agreement for the purchase of identified product(s).

Requirements Contracts will contain part number, pricing and time period. The Requirements Contract will be hard copies faxed, emailed or mailed to the supplier. Delivery

Order numbers will reference the Requirements Contract Number.

Requirements Contracts for new components will be issued throughout the year, staggering and not in one bucket.

Each time a drawing number changes, a new Requirements Contract will be issued (ex: from B123456 to B123457).

When drawings are revised, the Requirements Contract Number will remain the same. For drawing revision level and delivery requirements please refer to your supplier release. Terms and Conditions that apply to all Requirements Contracts are outlined at the end of this section of the handbook.

Supplier Rating - Price/Cost

Responsibilities

HIAMS Purchasing Buyer: *LP Suppliers Only*

- 1) Provide annual CAMPAS Score for Cost in compiling LP total score.
- 2) Issue Corrective Action Request to probationary (total score < 70%) suppliers seeking 8-D response for permanent countermeasures.

Documents

SASR(AM) M50-55A FORM A
PUR-FORM-010
SASR(AM) M20-01 A FORM A
SASR(AM) M50-55A FORM B
SECTION 5

Supplier Rating Worksheet
Supplier VEC Proposal
Cost Breakdown Sheet
Supplier Rating Corrective Action Request (SRCAR)
Supplier Rating (*Located in Supplier Handbook on Supplier Portal*)

Communication

Purpose

To assure the most current supplier contact list is available.

Definitions

- 1) Supplier Contact Sheet—list of contacts who represent the supplier
- 2) Production Control—supplier contacts responsible for forecasts, releases, production planning

- 3) Logistics -- supplier contacts responsible for logistics
- 4) Supplier Quality—supplier contact responsible for quality
- 5) Accounting—supplier contact responsible for Accounts Payable and/or Accounts Receivable
- 6) Executive Management Emergency Contact—Senior to Executive Management, including but not limited to Operations Manager, Production Manager, General Manager, CEO, Owner

Responsibilities

Suppliers

- 1) Complete Supplier Contact Sheet and submit to (HIAMS)AM buyer
- 2) Update and submit Supplier Contact Sheet as supplier personnel changes occur
- 3) Update and submit Supplier Contact Sheet upon request

(HIAMS)AM Procurement

- 1) Submit Supplier Contact Sheet to newly approved supplier
- 2) Will manage Supplier Contact Sheet within (HIAMS)AM systems
- 3) Will periodically request an updated Supplier Contact Sheet from supplier

Supplier Contact Sheet

Supplier Name:					
Supplier Code:					
Mfg Location:					
Production Control					
	Contact Name	Title	Office Email Address	Office Phone Number	24 hr. Cell Phone Number
1					
2					
3					
Logistics					
	Contact Name	Title	Office Email Address	Office Phone Number	24 hr. Cell Phone Number
1					
2					
3					
Quality					
	Contact Name	Title	Office Email Address	Phone number	24 hr. Cell Phone Number
1					
2					
3					
Accounting					
	Contact Name	Title	Office Email Address	Phone number	Cell Phone Number
1					
2					
3					
Executive Management Emergency Contact					
	Contact Name	Title	Office Email Address	Phone number	24 hr. Cell Phone Number
1					
2					
3					

Page 1

Drawing Control

Purpose

To assure that LP parts are manufactured to the most current drawing status that is controlled by revision level.

Definitions

Drawings -- Blueprints

Revision Level – identified in the Revision legend on each drawing and shall reflect the latest dimensional/feature change and the date on which it occurred.

Drawing designations:

Released - shall be used for part manufacture

Quotation - shall be used in association with RFQ from HIAMS and Quote from LP.

Responsibilities

LP Suppliers

- 1) Maintain orderly and properly identified blueprint/drawing file system.
- 2) Mass production parts manufacture utilizing “Released” blueprint only: do not mix or utilize “Quotation” drawing.
- 3) Establish and maintain internal personnel responsibilities for drawing control.
- 4) Acknowledge receipt of drawing by opening drawing provided in the e-mail link sent by HIAMS Purchasing.

HIAMS Purchasing

- 1) Purchasing specialist is main LP contact and administrator for drawing distribution and inquiries/issues to HIAMS for non-technical matters.
- 2) Purchasing specialist will submit Released drawings via E-mail/Internet to LP drawing contact for each revision to blueprint.
- 3) Purchasing specialist will receive confirmation via the E-mail/Internet and update LP Drawing Control database with response date to signify receipt of new drawing.
- 4) Purchasing management will periodically audit via questionnaire or on-site to verify drawing records accuracy to correlating between HIAMS and LP.
- 5) (HIAMS)AM-BK Purchasing specialist will submit release drawings via “Drawing Release Notification”, the drawings should be forward to the appropriate persons within your organization and confirm that the drawings are incorporated into your system as necessary. In addition, please either return, destroy, or clearly markup obsolete drawings (previous revision levels) in your system. The drawing release form must be signed and dated and returned within 3 working days of receipt. The returned form will serve as acknowledgement of drawing receipt from your company.

Documents

Controlled internally at Hitachi through Supplier Drawing Database.

Example One (Japan Made Drawing)

Revision Level Symbol:

This indicates the number of times the drawing has been revised.
The Largest number is the latest revision level.

Revisions:

Explanation of the revisions made to the drawings.

		記号 SYM.		来 歴 REVISIONS				年月日 DATE	訂正 REV.	審査 CHKD.
品名 CODE		形式 TYPE		部番 SHOP		部 品 名		資材コード CODE NO.	材 料 MATERIAL	素材寸法 MATL. SIZE
B	A	作番 GROUP	品番 PT. NO.	部番 SHOP	図 番 DWG. NO.	部 品 名 NAME OF PARTS		資材コード CODE NO.	材 料 MATERIAL	素材寸法 MATL. SIZE
			1	1						
			2	1						
			3	1						

REVISION LEVEL SYMBOL:

THIS INDICATES THE NUMBER OF TIMES THE DRAWING HAS BEEN REVISED.
THE LARGEST NUMBER IS THE LATEST REVISION LEVEL.

REVISIONS:

EXPLANATION OF THE REVISIONS MADE TO THE DRAWING

		3		HAP REVISIONS				4		DATE	REV.	CHKD.	APPD.	RE.DWG.
PT. NO.		CODE NO.		SYM.		HAP REVISIONS		DATE		REV.	CHKD.	APPD.	RE.DWG.	
B	A	GROUP	PT. NO.	SHOP	DRAWING NO.	PART NAME	CODE NO.	MATERIAL	WT. (KG)	MATL.	FIN.	REMARKS		
			1											
			2											
			3											

***NOTE:**

1. IN THE CASE OF AN HAP MADE DRAWING, MOST REVISIONS SHALL HAVE AN "H" IN FRONT OF THE REVISION NUMBER.
2. IF THE REVISION BOX IS COMPLETELY FILLED, AUTOMATICALLY LOOK AROUND ON THE DRAWING'S BORDER FOR ADDITIONAL REVISION SYMBOLS.

Tool & Die Control

Purpose

Tools, dies and equipment that are HIAMS property (asset) and located at LP location must have proper identification, accountability and condition documentation that shall be periodically verified.

Responsibilities

LP Suppliers

- 1) Must identify each tool, die and equipment with HIAMS Production Die Asset (PDA) number supplied by HIAMS.
- 2) Maintain current record/log with accurate details such as condition (number of shots, etc.), status (active, service parts, storage) and submit to HIAMS Purchasing upon demand.

HIAMS Purchasing

- 1) Will issue a **purchase order** to supplier, which includes PDA Number for each additional new tool, die or equipment.
- 2) Will contract with each supplier via Tooling Agreement on a one-time basis. The original will be kept by HIAMS Purchasing.
- 3) Will contract with appropriate supplier via Equipment Agreement for each new or additional equipment/machine.
- 4) Will periodically perform on-site audits as well as survey by written document to verify:
 - Actual condition (active, obsolete, storage, service parts, modification, repair, etc.)
 - Proper identification
 - State of maintenance

Documents

Tooling Agreement

Equipment Agreement

Cost Detail Analysis

Purpose

Purchasing requires from suppliers and keeps on file cost detail analysis for any active production part. The method for documenting all cost details is via Supplier Cost Engineering Piece Cost Breakdown Worksheet, SASR(AM) M20-01 A FORM A. This enables HIAMS Purchasing to scrutinize areas of cost inconsistencies.

Responsibilities

HIAMS Purchasing

- 1) Buyer will require worksheet with each RFQ.
- 2) Suppliers not submitting completed worksheets with quotes may be ineligible for job awards.
- 3) May require explanation or more detail based on supplier's worksheet submission.
- 4) May schedule a meeting between supplier and function HIAMS departments (DE, PE, PC, SQA, etc.) if worksheet reply has extraordinary items.

LP Supplier

- 1) Shall have a completed worksheet on file for any currently active production part.
- 2) Shall fill-out and submit a worksheet along with any quote to be considered as viable candidate for new work.
- 3) May be requested to resubmit worksheet details or clarification if submission is vague, incomplete, or otherwise missing pertinent data.

Documents

SASR(AM) M20-01 A FORM A Supplier Cost Breakdown Worksheet

LP Supplier Value Analysis Ideas

Purpose

HIAMS encourages LP suppliers to aggressively challenge current part design and specifications and offer ideas for improvement according to their knowledge and experience as specialists. HIAMS will investigate and render a final judgment via the Supplier Quality Assurance Section after consultation with Design Engineering, Quality Assurance, Production Engineering and/or others. Just as HIAMS customers require cost improvement on an annual regressive basis, HIAMS must have the cooperation and ideas of suppliers in order to achieve the results expected and remain market competitive to attract new business.

Responsibilities

HIAMS Purchasing

- 1) Buyer is administrator of VA system.
- 2) Buyer submits requests and receives replies from suppliers.
- 3) Buyer forwards VA ideas to HIAMS Supplier Quality Assurance Section via Purchasing clerk after cataloguing.
- 4) Results of each final decision will be communicated to supplier from HIAMS Purchasing.
- 5) Will score "Supplier Rating" points according to LP VA Activity.

HIAMS Supplier Quality Assurance (SQA)

- 1) Will make final decision about acceptance, rejection or need for further investigation.
- 2) Will make a judgment within two (2) weeks of submission by LP to Purchasing buyer.
- 3) Shall consult with functional technical persons in Production Engineering, Design Engineering, Quality Assurance or any other (case-by-case) during the decision making process.

LP Supplier

- 1) Shall submit credible VA ideas to Purchasing buyer.
- 2) Will see evidence of VA activity reflected in the Purchasing (Cost) portion of the Supplier Rating score.

Advance Product Quality Planning (APQP)

Purpose

To provide a standardized method of reviewing and reporting status of any new production part or significant change to an existing part.

Responsibilities

HIAMS Purchasing

- 1) Buyer will require APQP worksheet for all new custom production parts or modifications to existing custom parts where PPAP submittal is required.
- 2) Will require recovery plans when APQP Element status is classified as yellow or red.
- 3) May schedule a supplier meeting at HIAMS to present details of recovery plan when program status is in jeopardy.

LP Supplier

- 1) Shall support HIAMS efforts in implementing APQP process.
- 2) Shall submit accurate and detailed APQP reports for all applicable situations.

Documents

PUR-FORM-061 APQP Report

Principles of Hitachi's CSR Policy

1. Commitment to Corporate Social Responsibility (CSR) - The Hitachi Group, including all its executives and employees, recognizes CSR as a vital part of corporate activity and is therefore committed to a course of social responsibility in accordance with this CSR policy for the sustainable development of society and business.
2. Contribution to Society through our Business -The Hitachi Group will contribute to the building of a prosperous and vibrant society by providing safe, high-quality products and services through business activities based on its excellent research, technology and product development.
3. Disclosure of Information and Stakeholder Engagement - The Hitachi Group will disclose information openly and transparently in order to maintain and develop a relationship of trust with its various stakeholders, and act responsibly towards them through various means of communication.
4. Corporate Ethics and Human Rights -The Hitachi Group will undertake its business based on the principles of fairness and sincerity, act with the utmost respect for human rights and pursue a high sense of corporate ethics in the global business market which encompasses diverse cultures, morals, ethics, and legal systems.
5. Environmental Conservation- The Hitachi Group will strive to minimize environmental effects and utilize resources towards the development of a sustainable society that is in harmony with the environment.
6. Corporate Citizenship Activities- The Hitachi Group will promote social contribution activities as a good corporate citizen in order to realize a better society.
7. Working Environment - The Hitachi Group will make every effort to create a pleasant and motivating working environment for all its employees and to fully support those employees who desire self-fulfillment and self-development through their work.
8. Responsible Partnership with Business Partners - The Hitachi Group will make every effort to promote fair and sound business practices among our business partners by fostering a common awareness of social responsibility.

June 10,2016

Minority Business Enterprises (MBE's) are recognized and appreciated as highly capable and reliable sources of goods and services to Hitachi Automotive Systems Americas, Inc.

We realize the value and Innovation that they can bring as members of our supply base. As we prepare ourselves to compete effectively in this new millennium, we will focus on tapping into the many talents offered by MBE's.

Hitachi Automotive Systems Americas has established a corporate culture in which procurement personnel view MBE buying programs as an ingrained way of doing business. We will continue to participate in Diversity Supplier Development Councils to find appropriately qualified MBE's through their databases, meetings, conferences, and trade fairs.

Hitachi Corporate philosophies of QCDDS (Quality, Cost Delivery Development & Speed) are applied to all activities including selection of suppliers and development of new business partners.

Hitachi Automotive Systems Americas, Inc. is eager to see our minority sourcing activities grow. We wish to create a climate at Hitachi that supports the building and strengthening of new partnerships within the automotive community. It is by the above methods that we plan on reaching these objectives and help MBE's bring value to our overall supply chain.



Paul Carroll
President & CEO

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TERMS AND CONDITIONS OF PURCHASE

1 Relationship

1.1 The Materials. Subject to the exclusive terms and conditions of these Terms and Conditions of Purchase (“T&C”), Seller agrees to sell to or its subsidiary(ies) (“Buyer”) the goods, services, or material identified in the order (“the Material”). As to regular production goods only, this is a requirements contract.

1.2 Acceptance of the Agreement. The T&C shall be deemed an offer by Buyer. Seller accepts the T&C upon its written acceptance or upon commencement of any required work or service. Seller’s acceptance shall be limited to the express written terms of the Agreement. Any new or additional terms contained in Seller’s acceptance documents, or otherwise proposed by Seller, shall be considered nonconforming terms and are unacceptable and expressly rejected by Buyer and shall not become a part of the Agreement. Seller acknowledges that: (i) a request for quotation or similar document issued by Buyer is not an offer by Buyer; and (ii) any response by Buyer to a request for quotation or similar document issued by Buyer is not an offer by Buyer. The Agreement may be modified or amended only as specified in the Agreement.

2 Quality

2.1 Qualification Audit. Prior to start of business with Buyer, if requested by Buyer, Seller shall participate in a Qualification Audit (“Audit”). The Audit shall include an on-site review of Seller’s facilities by member(s) of Buyer’s organization. If there is a determination that an unsatisfactory condition exists with respect to any matter covered by the Audit, then Seller shall receive written notice of the condition and, within fourteen (14) days upon receipt of such notice, shall provide Buyer with a written corrective action plan reasonably satisfactory to Buyer. The parties agree that if Seller fails to timely provide or implement an acceptable corrective action plan to the reasonable satisfaction of Buyer, then Buyer may rescind or terminate the Agreement for cause.

2.2 Compliance to Quality Procedures.

2.2.1 Seller shall comply with Buyer’s Supplier Quality Manual located at the “Supplier” tab at <http://www.hitachi-automotive.us> and additional requirements upon which both parties mutually agree in writing. Seller acknowledges and understands that the Manual and the Standard may be periodically updated, revised and amended and that it is Seller’s obligation to comply with the Manual and the Standard at all times. Seller’s certification regarding the Standard is incorporated by reference into the T&C.

2.2.2 Seller must ensure that its quality assurance system is certified to **ISO 9001:2015** or **IATF 16949**, as modified from time to time, or similar standards applicable to the Materials as specified by Buyer. Seller acknowledges that Buyer is **IATF 16949** certified and agrees to take actions reasonably requested by Buyer to assist Buyer in maintaining its certification. Buyer and its customers shall have the right during reasonable business hours and upon at least two (2) days prior written notice to inspect the Seller’s facilities and to perform quality audits with respect to the Materials provided. Seller agrees to participate in all Buyer supplier quality and development programs and implement recommended outcomes. A positive outcome of a compliance audit or implementation of quality recommendations shall not relieve Seller of any liability under this part.

2.3 Verification. The Buyer's customer or customer's representative shall be afforded the right to verify at the Seller's premises and the Buyer's premises that product and process conforms to specified requirements.

2.4 Inspection and Rejection. Buyer shall have the right to inspect any goods or services after delivery and before acceptance and reject any goods or services which are non-conforming. If goods are rejected, the quantities will automatically be reduced unless Buyer otherwise notifies Seller. Seller shall not replace goods rejected by Buyer as non-conforming unless directed by Buyer to do so. Non-conforming goods will be held by Buyer for disposition in accordance with Seller' instructions, and at its cost, within three (3) days after notification of rejection, or such shorter period as may be commercially reasonable under the circumstances. If Seller fails to provide timely disposition instructions, Buyer may, at its option, charge Seller for storage and handling or dispose of such goods without liability. Payment for non-conforming goods shall not constitute an acceptance, or impair, limit or otherwise restrict Buyer's right to claim any legal or equitable right, nor shall it relieve Seller of any responsibility or liability for defects or breach of warranty that are discovered after delivery, payment or acceptance.

2.5 Corrective Action. In the case of any defective or damaged Material, including but not limited to non-compliance with Seller's Quality System requirements as set forth in this Section 2, Seller agrees: (i) to initiate any required corrective action within 24 hours from the date that Buyer requests such action, (ii) to provide Buyer with a written report explaining the cause of the defect or damage within 5 business days of such date, and (iii) to provide Buyer with a written report identifying the short and long term action being taken by Seller to prevent or avoid similar defects or damage in the future within 15 working days of such date. The short term action is defined as the immediate corrective action to ensure the defective, damaged or otherwise not in conformity Material is contained within 24 hours of the occurrence. The long term action is defined to be the root cause analysis and resulting actions to ensure the occurrence will not reoccur. Notwithstanding anything in the T&C to the contrary, the parties agree that if Buyer is not reasonably satisfied that the short and long term corrective action as set forth above will be sufficient to prevent or avoid similar defects or damage in the future, or if Seller fails to take the short and long term corrective action in the manner and the time period set forth in the submitted report, Buyer may terminate the Purchase Order with respect to the particular part numbers of Material as applicable or the entire Agreement by providing written notice 30 days prior to termination.

3 Specifications, Confidential Information, Intellectual Property

3.1 Confidential Information. The following shall be considered Confidential Information of Buyer: (i) any written specifications for the Material and processing of the Material covered under the T&C which Buyer has or later does provide to with regard to the Materials covered under the T&C ("Purchase Specifications"); (ii) any other business or technical information, including without limitation, all oral or written information relating to the Materials, or information relating to Buyer's customers, suppliers, business practices, products, designs, inventions, or research and development; and (iii) the terms and conditions of the T&C. However, "Confidential Information" shall not include any information that Seller can establish by written documentation was: (i) in the public domain at the time of disclosure or thereafter through no fault of Seller; (ii) independently developed by Seller; or (iii) obtained by Seller without restriction from a third party. Seller agrees to safeguard the Confidential Information by using reasonable efforts, consistent with those used in the protection of its own proprietary information of a similar nature, to prevent its disclosure to third parties. Seller agrees to cause its employees, "contractors", officers, directors, agents and representatives to be bound by and comply with the foregoing restrictions regarding the use or disclosure of such confidential and proprietary information. Seller further agrees not to assert any claims with respect to any technical information which Seller shall have disclosed or may hereafter disclose to Buyer in connection with the Materials.

3.2 Intellectual Property. Buyer remains the owner of Confidential Information and any drawings, models, patterns, tools, dies, jigs, specifications of delivery or other documents (collectively "Intellectual Property") that Buyer provides to Seller. Without Buyer's written consent, such Intellectual Property may not be used for the Seller's own purposes or for any other purpose or made available to third parties and may be used only for the purpose of the delivery of Materials to Buyer. Buyer may request at any time that such Intellectual Property be returned. Seller shall not, without first obtaining the written consent of Buyer, in any manner publish Buyer's name or otherwise indicate that Seller has furnished or contracted Materials to Buyer.

3.3 Production Rights. Buyer does not grant or convey to Seller and Buyer reserves all rights to use tooling, drawings, designs, patterns or materials or other information belonging to Buyer or supplied by or on behalf of Buyer in the production, manufacture or design of goods for third parties or for the manufacture or production of larger quantities than those specified in this order. This, however, does not preclude Seller from producing, manufacturing or designing goods for anyone other than Buyer if such goods are not of Buyer's design or specifications and if tooling is owned by Seller.

3.4 Customer Relationships. Seller agrees that it will not solicit any business from any customer of Buyer where such business has already been sourced to Buyer, nor will it submit quotes to any customer of Buyer regarding any business that has been sourced to Buyer, unless otherwise approved in writing by Buyer. This provision applies to current business of Buyer and to replacement business on programs that were sourced to Buyer. Seller agrees that during the course of the Order, it will have no communication with Buyer's customers that is in any way damaging to Buyer, and further agrees that it will immediately report to Buyer any communication that Seller's representatives have with any of Buyer's customers relating in any way to Buyer.

4 Process Change

4.1 Seller agrees to process and package all Materials in conformity with any purchase specifications supplied. At the request of Buyer and prior to delivery of any new or changed Materials, the Seller shall provide samples to Buyer for the purposes of inspection and testing. Once purchase specifications or a sample has been approved, Seller may not alter the function, appearance, characteristics, material or production method or processes, manufacturing location, subcontractors, or material suppliers without advance written approval from Buyer. For all changes, Seller shall comply with Production Part Approval Process requirements and/or other applicable industry requirements. Buyer's final approval of samples shall not affect the Seller's liability for any defects in the Materials.

5 Delivery

5.1 Delivery Date. The delivery date shall be the date designated by Buyer in written material releases or other writing. The parties agree that in the event that Seller fails to deliver any order/release for Material on the delivery date, Buyer, in addition to other rights or remedies it may have, shall be entitled, at its option, to cancel the order/release for the Material which was not timely delivered without any obligation or liability to Seller and to purchase such Material from a third party.

5.2 Performance Obligation. As time is of the essence, Seller shall deliver all orders for Material 100% "on time." The term "on time" shall mean on the delivery date.

5.3 Corrective Action. Should at any time Seller fail to deliver required Materials per the delivery date, Seller shall incur all costs of expedited delivery and any other reasonable and verifiable cost that may be made necessary to make such a delivery to Buyer and Buyer's customer.

5.4 Material Surplus. Material Surplus is defined to be manufacture by Seller in advance of normal flow time or delivery of any good in advance of Buyer's schedule. Should at any time Seller have a Material Surplus made to Buyer's specification, Seller shall not sell the Material Surplus to anyone but Buyer. If Buyer chooses to not purchase said Material Surplus product, Seller guarantees to destroy Material Surplus within 30 days of Buyer's decision to not purchase. Seller will certify the destruction of the Material Surplus, specifying the quantity of product destroyed and method of destruction, within 3 days of occurrence of destruction. Seller shall be responsible for all costs incurred as a part of said destruction.

5.5 Capacity. Seller represents that the production capacity quoted to Buyer is based on a tooling and production plan capable of supplying goods to support Buyer's peak daily and annual requirements.

6 Forecasts

6.1 From time to time, Buyer may issue forecasts of its anticipated Material Requirements. The parties acknowledge that any forecast is an estimate only and is subject to change at any time. Seller will not manufacture Materials or procure raw materials in excess of that required to fill Buyer's firm releases, unless earlier procurement is agreed to and authorized in writing by Buyer in advance. Subject to this paragraph, at contract end, Buyer agrees to purchase conforming Materials and raw materials in Seller's possession. If authorized by Buyer in writing, however, Seller will use its best efforts to resell this inventory, with the resale price credited against any amount otherwise due under this paragraph. Seller acknowledges that notwithstanding any quantity estimates provided, Buyer's requirements are determined largely by Buyer's Customer and consumer demand, and accordingly, Seller may not rely on any estimates, and instead shall reserve enough production capacity for Buyer's actual requirements, regardless of quantity.

7 Productivity and Price Competitiveness

7.1 Base Price. The base price and any future year over year cost reductions for each part number of Material ordered by Buyer during the term from Seller shall be the price set forth in the Purchase Order. Unless otherwise stated, the purchase price: (i) is a firm fixed price for the duration of the Agreement and not subject to increase for any reason, including increased raw material costs, increased labor or other manufacturing costs, increased development costs, or changes in volumes or program length from those estimated or expected; (ii) is inclusive of all federal, state, provincial, and local taxes and any duties applicable to provision of the Supplies; and (iii) is inclusive of all storage, handling, packaging and all other expenses and charges of Seller.

7.2 Maintaining Price Competitiveness. Seller shall be, at all times, competitive in price, quality, performance and fulfillment of obligations. If Seller is determined by the Buyer not to be competitive, especially on pricing, Buyer shall be entitled to re-source any or all parts to a more competitive source.

7.3 Productivity. Seller agrees to lower its price at the end of each one (1) year period for the term of this contract as specified in the PO or other agreement.

8 Shipment and Payment Terms

8.1 Premium Charges. Seller shall be responsible for any premium freight charges required in order for Seller to deliver an order by the applicable delivery date or remedy a past due situation found to be the responsibility of Seller.

8.2 Invoices. Seller shall invoice Buyer upon shipment of an order unless implementing Evaluating Receipt System (ERS) or other non-invoice process. Invoices and packing lists must be sent to locations identified by Buyer. For shipments that will cross national borders (exports) the required documentation must be provided to parties identified by the Buyer no later than the time of shipment.

8.3 Payment. Buyer shall make payment for conforming Materials at the price stated in the Agreement. Payment terms shall be net 60, unless otherwise agreed between the parties in writing. The price of any releases shall be the limit of the liability of Buyer for the Materials. Any cash discount or payment privilege to Buyer shall be extended until such invoice and compliance certification are received. Unless otherwise stated, all payments are in U.S. Dollars and include all storage, handling, packing, freight, insurance, taxes, duties and any other charge of any nature. Seller represents and warrants that the prices charged to Buyer shall be no less favorable than those which Seller extends to its most-favored-customers for like goods and services. In addition to any other remedy which may be available, Buyer shall have the right of set off with respect to any sums due Seller by Buyer with any sums payable by Seller to Buyer under any agreement between the parties.

9 Warranty

9.1 Warranty. The Seller warrants that the Materials:

- 9.1.1 will conform to drawings, materials, descriptions and specifications designated by Buyer and with all samples approved by Buyer;
- 9.1.2 will be of merchantable quality and fit and sufficient for the particular purposes intended, new, best available technology, safe, of first-class materials and workmanship and free from defects, contamination and rust;
- 9.1.3 will be packaged and marked correctly.
- 9.1.4 if designed by Seller, free from defects in design.
- 9.1.5 will comply with all Laws, in accordance with Section 15.1.
- 9.1.6 will not infringe any patents, copyrights or other proprietary rights of Seller or others, and
- 9.1.7 will be free from all liens and encumbrances.

9.2 Warranty Period. All warranties of Seller extend to future performance of the Materials and are not modified, waived or discharged by delivery, inspection, tests, acceptance and payment. Buyer's approval of any design, drawing, material, process or specifications will not relieve Seller of these warranties. Seller waives any right to notice of breach. The warranty period is the longest of: four years from the date Buyer accepts the Materials, the warranty period provided by applicable law, or the warranty period offered by Buyer or its Customer to end-users for the products into which the Materials are incorporated.

9.3 Non-conformity. In the event that Buyer determines that any Material is defective, damaged or otherwise not in conformity, Buyer may reject the Material and in such case, Buyer shall not be obligated for payment of the purchase price and may cancel the order/release without obligation or liability. Should Seller not make whole on promised goods and services or, if Buyer has already paid for the Material in question, Seller shall, at Buyer's option, either: (i) replace or reprocess the Material; or (ii) reimburse Buyer for the purchase price of the Material. In either case, Seller shall pay for incidental and verifiable costs including but not limited to, Buyer's cost of repackaging,

manufacturing and transporting the defective Material and/or replacement Material to and from Buyer's or Buyer's customer's facility.

9.4 Damages. The Seller is liable for all direct, incidental and consequential damages, losses, costs, and expenses incurred by the Buyer resulting from Seller's failure to deliver conforming and non-defective Materials or to comply with the shipping and delivery or other requirements of the Buyer, even if the Seller has cured the failure. This includes but is not limited to compensating Buyer for:

9.4.1 any amounts charged by Customer(s) to Buyer;

9.4.2 all costs of containment, sorting, repair, replacement, cure, cover, or any other costs incurred by Buyer, determined in such manner and in such amount as reasonably determined by Buyer;

9.4.3 all costs of any recall campaign, corrective service action, or other voluntary or involuntary action in which Buyer or any Customer participates related to the Materials

10 Insurance

10.1 Without limiting Seller's liability, Seller and its subcontractors agree to furnish certificates from their insurance carriers showing that they carry Worker's Compensation, Commercial General Liability, including Products Liability (at a minimum of \$5,000,000 per occurrence), Completed Operations and Contractual Liability, "All Risks" Property (including, but not limited to, coverage for tooling and material maintained by Seller and owned by Buyer), and Comprehensive Automobile insurance coverage within 10 days of Buyer's written request. Certificates must show the amount of coverage, number of policy, and date of expiration, and in respect to Product Liability coverage, must name Buyer as an additional named insured. Seller may not terminate or modify insurance coverage without informing Buyer in advance and showing new equivalent coverage.

11 Bailed Property

11.1 Property Damage. Seller bears all responsibility for loss of and damage to any property owned by Buyer and in Seller's possession or control for use in performing under the T&C, including responsibility for loss and damage which occur despite Seller's exercise of reasonable care. Seller will: (i) Properly house and maintain such property on Seller's premises; (ii) Prominently mark it property of Buyer; (iii) Adequately insure such property against loss or damage; and (iv) Refrain from commingling it with the property of Seller or with that of a third party.

11.2 Liens. Seller affirmatively waives any lien, whether based in statute or common law, that Seller might otherwise have on any Materials or Buyer's property for work done thereon or otherwise. Seller will assign to Buyer any claims against third parties with respect to Buyer's property. Upon request, Seller will immediately deliver such property at Buyer's option F.O.B. Buyer's premises (CIF Buyer Plant/Delivered Buyer Plant), properly packed and marked in accordance with the requirements of the carrier and Buyer. Seller will cooperate with Buyer's removal of the property from Seller's premises. Seller's cooperation with delivery and removal of Buyer's property is not contingent on final payment unless final payment is both undisputed and overdue.

11.3 Tooling. Special dies, jigs, tools and patterns and/or other equipment that is dedicated to the production of Materials (collectively "Tooling") used in connection with the Materials for which Buyer has agreed to pay Seller (whether paid separately or amortized in the price of the Materials)

shall be or become the property of Buyer upon fabrication or acquisition by the Seller, regardless of payment..

12 Indemnification and Products Liability

12.1 General. Seller shall indemnify and hold Buyer and Buyer's customers harmless from and against any and all claims, damages, recall and other costs, liabilities and expenses (including without limitation, reasonable attorneys' fees) incurred by reason of any breach of warranty made by Seller or other obligation by Seller under the T&C or other defect or unsafe condition with respect to any material. If Seller is obligated to indemnify under this Section, then Buyer may at its option participate in the defense of any claim with its own counsel, at Seller's expense.

12.2 Infringement. The Seller shall defend, indemnify and hold Buyer and Buyer's customers harmless against any and all liabilities, damages or expenses (including reasonable attorney fees) which may be incurred in connection with any suit, claim, judgment or demand asserting that any Material purchased by Buyer infringes upon any patent or other intellectual property rights, whether such infringement is caused by the manufacture, purchase, use or disposition of the Material along or in combination with use of the Material with other products except to the extent that such infringement or alleged infringement arises from a design furnished completely by Buyer. Tolerance modifications to Seller's design shall be considered Seller's design for purposes of the T&C. Buyer shall notify the Seller promptly upon receipt of any written claim or notice of any infringement of third party intellectual property rights in connection with the T&C. The Seller shall immediately take all steps to prevent or settle such dispute on its own authority and shall hold the Buyer harmless against all effects whatsoever in respect thereof. Buyer may retain counsel of its choice at its expense to participate in any suit, claim, or proceeding. Seller shall have the right to settle or compromise any suit, claim or proceeding at its discretion, provided that the terms of the settlement or compromise provide for the unconditional release of Buyer, and the settlement or compromise requires the payment of monetary damages only. Seller shall not settle, without Buyer's prior written consent, any suit, claim or proceeding which imposes upon Buyer any obligation, or in any way prejudices the rights of Buyer, other than as set forth herein. Any other settlement or compromise requires prior written approval from Buyer.

13 Term and Termination

13.1 Term. The T&C shall commence upon acceptance under Section 1.2. Subject to Buyer's termination rights, the agreement formed by the Order is binding on the parties for the length of the applicable Original Equipment Manufacturer ("OEM") vehicle program production life (including model refreshes and service part obligations as determined by the applicable OEM customer), and both Buyer and Seller acknowledge the risk of the vehicle program production life being cancelled or extended by the OEM. If the Material is not utilized by Buyer for the production of automotive parts or systems, the agreement formed by the Order will be binding for one year from the date the Order is transmitted to Seller. In such case, subject to Buyer's termination rights, the Order will automatically renew for successive one-year periods after the initial term unless Seller provides written notice at least 180 days prior to the end of the current term of its desire that the Order not be renewed. Notwithstanding the foregoing, if an expiration date is stated in the Order or an Agreement, the term of the Order will continue until that date. Unless specifically waived in writing by an authorized representative of Buyer, Seller's obligations with respect to service and replacement parts will survive the termination or expiration of the Order as set forth below.

13.2 Termination by Buyer. In addition to any other termination right which Buyer has, it may terminate the T&C, or any Purchase Order issued under it:

13.2.1 for convenience, with thirty days advance notice, except that advance notice is not required if Buyer's customer terminates its order with Buyer for any reason, or if Buyer exits the business and/or closes a plant which is the recipient of the Material

13.2.2 for breach by Seller, including if: a) Seller repudiates or defaults on any material term, including Seller's warranty; or b) Seller fails to perform services of deliver goods as specified by Buyer or fails to make progress so as to endanger timely and proper completion of services or delivery of goods. Seller's default shall constitute a breach if, after receipt of notice from Buyer specifying the nature of the default, it does not correct such default to Buyer's satisfaction within 10 days, or such shorter period of time that is commercially reasonable under the circumstances. Declaring a default or breach under this Paragraph 13 shall be in addition to any other remedy available to Buyer and shall not relieve Seller of its obligations under the Agreement or imposed by law.

13.3 Termination by Seller. The Seller may terminate the T&C only for non-payment of the purchase price for Materials which are sixty or more days past due and material in amount, and then only if: (i) Seller first provides Buyer written notice specifying the amounts past due and Seller's intent to terminate if the past due amount is not paid; and (ii) Buyer, within 60 days of such notice, does not either: (x) pay the past due amounts; or (y) notify Seller that the amount claimed to be unpaid are disputed by Buyer. Seller shall terminate under this Section by delivering a Termination Notice to Buyer. Seller may not terminate or cancel for any reason except as permitted under this Section. Seller may not suspend performance for any reason.

13.4 Obligations on Termination. In the event of any termination, unless otherwise agreed by Buyer and Seller, Buyer shall pay to Seller the following amounts, without duplication: a) the Agreement price for all goods or services that have been completed and delivered in conformance with the Agreement and not previously paid for, and b) the actual and reasonable costs of work-in-process and raw materials incurred by Seller, as permitted under Section 6, less, the sum of the reasonable value or costs (whichever is higher) of any goods or materials used or sold by Seller with Buyer's written consent, and the cost of any damaged or destroyed goods or materials. Buyer will make no payment for finished goods, work-in-process or raw materials fabricated or procured by Seller in amounts in excess of those authorized or necessary to meet the then existing delivery schedules nor for any undelivered goods that are in Seller's standard stock or that are readily marketable. Buyer's maximum liability for payments pursuant to this paragraph shall not exceed the total of all required payments under the T&C minus those actually made. In no event shall Buyer be liable for payments owed to Seller's subcontractors or for loss of anticipated profits, unabsorbed overhead, interest, product development or engineering costs, facilities and equipment costs or rental, unrecovered depreciation costs, or general and administrative burden charges. Seller shall submit its claim for payments under this paragraph, with supporting documentation, within 60 days of the effective termination date. Buyer shall have the right to audit the relevant books and records, facilities, work, material, inventories and other items relating to Seller's claim.

13.5 Transition of Materials Following Termination or Expiration. Following expiration or termination of the Agreement by either party for any reason (including termination by Seller) and notwithstanding any claimed or actual breach of any obligation by Buyer, Seller will cooperate in the transition of supply to a successor supplier, including the following, which will collectively be referred to as "Transition Support":

13.5.1 Seller will continue production and delivery of all Materials as ordered by Buyer, at the prices and other terms stated in the Agreement, without premium or other condition, during the entire period reasonably needed by Buyer to complete the transition to the alternate supplier(s), such that Seller's action or inaction causes no interruption in Buyer's ability to obtain Materials as needed;

- 13.5.2 At no cost to Buyer, Seller will promptly provide all requested information and documentation regarding and access to Seller's manufacturing process, including on-site inspections, bill-of-material data, tooling and process detail and samples of Materials and components; and
- 13.5.3 Seller will provide overtime production, storage and/or management of extra inventory of Materials, extraordinary packaging and transportation and other special services as expressly requested by Buyer in writing. If the transition occurs for reasons other than Seller's termination for Default, Buyer will, at the end of the transition period, pay the reasonable, actual cost of the assistance under this Section, provided that Seller has advised Buyer prior to incurring such amounts of its estimate of such costs. If the parties disagree on the cost of Transition Support, Buyer will pay the agreed portion to Seller, and Seller will accept the agreed portion without prejudice to Seller's right to seek to recover any disputed amounts, and complete Transition Support.

14 Remedies

14.1 The rights and remedies reserved to Buyer will be cumulative with and in addition to all other legal or equitable remedies.

14.2 In any action brought by Buyer to enforce Seller's obligations in connection with the production or delivery of Materials or transition support, or for possession of property, the parties agree that Buyer does not have an adequate remedy at law and Buyer is entitled to an immediate order for specific performance of Seller's obligations (including related temporary and preliminary injunctive relief).

14.3 Seller shall reimburse Buyer for all actual attorney's fees (including the cost of in-house counsel) in any action arising out of this Order, unless Seller is the prevailing party.

15 Other Provisions

15.1 Compliance with Laws. Seller and its subcontractors shall comply with all applicable laws, regulations, directives, guidelines, rules, orders, conventions, ordinances and standards of the country(ies) of origin and destination or that relate to the manufacture, labeling, transportation, importation, exportation, licensing, approval or certification of the goods or services, including, but not limited to, those relating to environmental matters, data protection and privacy, wages, hours and conditions of employment, subcontractor selection, discrimination, occupational health/safety and motor vehicle safety (collectively, "Laws"). Seller further represents that neither it nor any of its subcontractors will utilize child, slave, prisoner or any other form of forced or involuntary labor, or engage in abusive worker treatment or corrupt business practices, in the supply of goods or provision of services under the T&C. At Buyer's request, Seller shall certify in writing its and its subcontractors compliance with the foregoing. Seller shall indemnify and hold the Buyer harmless from and against any liability claims, demands or expenses (including attorney's or other professional fees) arising from or relating to Seller or Seller's subcontractor's non-compliance.

15.2 Notice. Whenever written notice is required or permitted to be given hereunder, it shall be deemed given on the date the same is delivered, personally or by Federal Express or comparable commercial service, or sent by facsimile or email with confirmation, or three (3) working days after the mailing thereof, to the party to whom the notice is to be given at its last known address

15.3 Directed Seller. If Buyer's customer directed, recommended, requested, suggested or otherwise identified Seller as a source of the Materials: (a) Buyer will pay Seller for the Materials only following and to the extent of Buyer's actual receipt of payment from that customer for those goods in

which the specific Materials are incorporated; (b) within three business days of any change in price, specifications or other terms negotiated or proposed between Seller and the customer, Seller will notify Buyer in writing and will immediately adjust its invoices to reflect any price reduction, provided that no change will be binding on Buyer without Buyer's specific written consent.

15.4 No Agency. Nothing in the T&C shall constitute or be deemed to constitute an agency relationship between the parties. No party hereto is authorized or empowered to act as an agent for the other.

15.5 Force Majeure. Except as set forth herein, neither party shall be liable for failure to perform or delay in performance hereunder if such failure or delay is due to fire, storm, flood, war, embargo, or any act of God or other cause or contingency beyond such party's reasonable control; provided that, if any act or event described in this Section prevents or will prevent Seller from performing its obligations under the T&C, Buyer shall have the right, without obligation or liability to Seller, to purchase Material from another supplier until Seller is able to resume performance of its obligations hereunder. Under such circumstances Seller shall reimburse Buyer for any premium reasonably and verifiably paid by Buyer for such Material.

15.6 No Assignment. Seller may not assign its rights or obligations under the T&C to any other party without the prior written consent of Buyer.

15.7 Governing Law; Jurisdiction. The T&C shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. The provisions of the United Nations Convention on Contracts for the International Sale of Goods, and any conflict-of-laws provisions that would require application of another choice of law, are excluded. The parties agree and consent to the exclusive jurisdiction of the Circuit Court for Mercer County, Kentucky or the U.S. District Court for the Eastern District of Kentucky, as applicable, provided, however, that Buyer may elect to bring an action against Seller in any court having jurisdiction over Seller.

15.8 Survival. The provision of Sections 3, 9, 11, 12, 13.4, 13.5, 14 and 17 contained in the T&C shall survive the termination of the T&C for any reason. The termination of the T&C shall not affect in any manner the rights and obligations of the parties accruing prior to the date of such termination nor any rights or remedies existing at law or in equity by reason of any breach of any term of the T&C which occurred prior to such termination.

15.9 No Waiver. NO WAIVER OF ANY BREACH OF ANY PROVISION OF THESE TERMS WILL CONSTITUTE A WAIVER OF ANY OTHER BREACH OR OF SUCH PROVISION. THESE TERMS MAY BE MODIFIED ONLY IN WRITING SIGNED BY AUTHORIZED REPRESENTATIVES OF BUYER AND SUPPLIER. HOWEVER, BUYER MAY, AT ANY TIME, BY WRITTEN CHANGE ORDER, MAKE CHANGES IN: (A) QUANTITIES ORDERED; (B) THE DRAWINGS, DESIGNS OR SPECIFICATIONS APPLICABLE TO THE GOODS OR SERVICES COVERED BY THIS ORDER; (C) THE METHOD OF SHIPMENT AND PACKING; AND/OR (D) THE PLACE OF DELIVERY. IF SUCH CHANGES MATERIALLY AFFECT THE TIME FOR PERFORMANCE, THE COST OF MANUFACTURING THE GOODS, OR THE COST OF FURNISHING SERVICES, BUYER WILL MAKE AN EQUITABLE ADJUSTMENT IN THE PURCHASE PRICE OR THE DELIVERY SCHEDULE OR BOTH. ANY DISPUTE WITH RESPECT TO AN EQUITABLE ADJUSTMENT SHALL NOT RELIEVE SELLER OF ITS OBLIGATION TO PERFORM IN ACCORDANCE WITH A WRITTEN CHANGE ORDER.

15.10 Entire Agreement. The T&C is intended as a final expression and a complete and exclusive statement of the agreement between the parties respecting the subject matter hereof and supersedes all prior and contemporaneous agreements, representations and understandings of the parties. No amendment to or modification of the T&C shall be valid or binding upon either party unless it is

made in writing and signed by a duly authorized representative of both parties unless otherwise required by law.

15.11 Severability. In the event that any provision of the T&C is held illegal or invalid for any reason, such illegality or invalidity shall at the option of the party against whom the same is asserted not affect the remaining parts of the T&C but the T&C shall be construed and enforced as if that illegal and invalid provision had never been inserted herein.

15.12 Communication and Technology. When notified of availability by Buyer, the Seller shall be required to connect to Buyer's EDI systems to provide two way electronic communications for items that include, but are not limited to ASNs, invoices, schedules, etc. All costs associated with the connection and use of the systems will be borne by the Seller.

15.13 No License. Nothing in the T&C will be construed as granting any right or license to the Seller, either express or implied, to any Intellectual Property right of the Buyer or any right to use Confidential Information except for the purposes of the T&C. Upon expiration or termination of the T&C, Seller shall immediately cease all use of Buyer's Intellectual Property or Confidential Information. All copies of Buyer's Confidential Information shall be immediately returned to Seller or destroyed at Buyer's discretion.

15.14 Trade Remedy Proceedings. Seller understands that the goods it produces may be, either now or in the future, subject to one or more trade remedy proceedings (e.g., anti-dumping, countervailing duty, safeguard) in the United States or another country, which may result in the imposition of additional duties or other charges on the goods. If such proceedings are initiated, Seller agrees that, at Buyer's request, it will cooperate fully with Buyer and with requests for information from the competent government authorities in the importing country. Seller further understands and agrees that such cooperation may require it to provide confidential sales and cost information to the competent authorities so that they can calculate the amount of the duty or other charge on the goods.

At all times before, during, or after the initiation of a trade remedy proceeding in the United States or another country, Seller agrees to take all available steps necessary to minimize the risk that additional duties or other charges may be imposed on its goods sold to Buyer. Seller also provides Buyer with a warranty of non-applicability of any future additional duties or other charges (e.g., anti-dumping duties) covering the goods sold to Buyer, so long as the goods are: (1) sold before the date of publication of the official government notice that establishes the authority of the competent authorities to impose additional duties or other charges (i.e., the "order"); and (2) exported before the date of publication of the official government notice concluding the investigation phase of the trade remedy proceeding. The purpose of this provision is to comply with U.S. regulation 19 C.F.R. 351.402(f) (2006). Buyer retains the right to terminate the T&C if additional duties or other charges are imposed on the goods produced by Seller.

16 Import Laws

16.1 For Seller's goods to be imported into the United States, Seller shall comply with all applicable recommendations or requirements of the United States Bureau of Customs and Border Protection's Customer-Trade Partnership Against Terrorism ("C-TPAT") initiative (for information go to <http://www.cbp.gov/> and find the link to the C-TPAT section). At the Buyer's or the Bureau of Customs and Border Protection's request, Seller shall certify in writing its compliance with the forgoing. Seller shall indemnify and hold the Buyer harmless from and against any liability, claims, demands or expenses (including attorney's or other professional fees) arising from or relating to Seller's noncompliance.

17 Trademark and Marks

17.1 Trademark Protection: Buyer may require Seller to place Buyer's trademarks (MARKS) on the Material. If Buyer makes such a request, Buyer grants to Seller a limited, revocable, nonexclusive royalty free license for the term of the T&C to use the MARKS on products and packaging materials in connection with the sale of Material to Buyer only. This license grant is limited to sales made to Buyer or at the direction of Buyer. The license granted in the T&C is limited to Material manufactured and/or produced by Seller at the direction of and for Buyer, or Buyer's authorized subsidiaries or affiliates. Seller is not authorized to use the MARKS in connection with the sales, manufacturing or distribution of any products or services unless expressly authorized by Buyer in writing. Upon expiration or termination of the T&C for any reason, Seller will immediately refrain from further use of the MARKS or any further reference to them, direct or indirect, or anything deemed by Buyer to be similar to the MARKS in connection with the manufacture, sale or distribution of any of Seller's products.

17.2 Ownership of Marks

- 17.2.1 Seller recognizes there is significant value and good will associated with the MARKS, and acknowledges that the MARKS and all rights and good will associated with the MARKS belong exclusively to Buyer.
- 17.2.2 Seller's every use of the MARKS shall inure to the benefit of Buyer and Seller shall not at any time acquire any rights in the MARKS by virtue of any use it may make with of the MARKS.
- 17.2.3 Seller shall cooperate fully and in good faith with Buyer for the purpose of securing and preserving Buyer's rights to the MARKS.
- 17.2.4 Upon the termination or expiration of the T&C, Seller will be deemed to have assigned, transferred, and conveyed to Buyer any rights or good will to the MARKS that may have been obtained by Seller. Seller shall cooperate with and do all acts necessary so that Buyer can accomplish or confirm the foregoing. Any such assignment, transfer, or conveyance shall be without other consideration than the mutual covenants and considerations of the T&C.
- 17.2.5 Seller and its parent company, subsidiaries, and divisions, if any, and its subcontractors, agents, and representatives agree not to attempt to register the MARKS on any product or service either during the terms of or after termination of the T&C.

Addendum A

Import Requirements for Tools and Consumable Goods

Tools

1. (HIAMS)AM will require suppliers shipping “Tools” for equipment installation - items that are not Consumable Goods, to be sent to the Engineer in Charge of Project to verify what items HIAMS does not possess and will need to be imported. Once it has been decided what “Tools” will be needed the supplier will send the Commercial Invoice, Packing List, and Explanation Sheet to Hitachi Import/Export (IEG) and will not be allowed to ship until IEG has advised they are ready to handle the Import should Hitachi bare the import responsibility.
2. When Hitachi is the Importer of Record – the shipment terms need to be Delivered Duty Paid (DDP-HIAMS Location) – IEG will instruct the broker for customs clearance but all brokerage and duty costs will need to be billed back to the supplier.
3. If supplier has a US Entity it will be their responsibility to act as the “Consignee” Importer of Record for the shipment and the applicable Hitachi-AM Location will be the deliver to the address on the invoice. Incoterm will also be Delivered Duty Paid (DDP-HIAMS Location)

Consumable Goods

4. If the supplier is shipping consumable goods (example- screws, bolts, sensors, etc.) They will need to be shipped separate from the “Tools”.
5. The same process will follow for consumable goods as mentioned above for “Tools”- IEG must advise when shipment is okay to proceed and incoterm will be Delivery Duty Paid (DDP- HIAMS Location)
6. For all Equipment Imports where Hitachi is responsible for import- an explanation sheet must be provided to Hitachi’s Import/Export Group 2 weeks prior to shipment, and Commercial Invoice/Packing List 1 week prior to shipment. This requirement will be noted on the PO.

Addendum B

Export Requirements for Tools and Consumable goods

1. Companies that do not have a US Entity- Hitachi will provide HTS/ECCN and export paperwork. The incoterm will be EXW (Hitachi Facility). It will be the responsibility of the Supplier to arrange door to door transportation and Export Clearance.
2. Companies that do have a US Entity- They will be responsible for export paperwork and arranging transportation and Export Clearance.

Addendum C

FCC requirements for RF and Digital Devices not directly marketed within the US

(HIAMS)AM requires that suppliers shipping equipment or spare parts containing Digital Devices ensure that those devices are approved by the Federal Communications Commission (“FCC”).

Digital devices emit Radio Frequency (“RF”) energy, which are regulated by the FCC.

Radio frequency (RF) is any of the electromagnetic wave frequencies that lie in the range extending from around 9 kHz to 300 GHz, which include those frequencies used for communications or radar signals.

1) Digital Devices -- A digital device is an electronic device which uses discrete, numerable data and processes for all its operations.

The FCC regulates most digital devices as part of its overall regulation of RF devices. (47 CFR § 2.801). There are four basic classes of RF devices. These are:

1. **Licensed Transmitting Equipment** (e.g., Television and radio transmitters, Tracking Devices, etc.)
2. **Unintentional and Intentional Radiators of Part 15** (Receivers, Cable systems, Personal Computers, Digital Devices, etc.)
3. **Industrial, Scientific and Medical (“ISM”) Equipment of Part 18** (Microwave Ovens, Ultrasonic humidifiers, ISM equipment for heating, ionization of gases, mechanical vibrations, acceleration of charged particles, etc.)
4. **Any part or component** of the above *which in use emits RF energy* by radiation, conduction, or other means

2) RF Device Labeling Requirements

RF devices cannot be marketed in *or imported* into the United States without complying with FCC requirements including equipment authorization and labeling requirements. (47 U.S.C. § 302a(b); 47 CFR § 2.803).

3) Unintentional Radiators of RF

The second category of regulated products includes *digital devices* (like computers, etc.). Digital devices are regulated as unintentional radiators under Part 15 of the FCC’s regulations (47 CFR § 15 *et seq.*). The FCC defines the term “digital device” as: “Devices/systems that generate and use digital timing signals operating at greater than 9000 cycles/second and uses digital techniques

4) Peripheral Devices

Digital Peripheral devices are also regulated by the FCC and must meet FCC (47 CFR § 15.100 (d)).

Examples of Digital Peripheral devices: terminals, printers, video monitors, keyboards, etc.

5) Laser Devices (FDA) Food and Drug Administration

All devices that use a laser need to be approved by Hitachi's Import Export group for both FCC and the Food and Drug Administration ("FDA") (21 CFR §1040.10). All Laser products shipped to the U.S. market must be FDA certified: Information needed prior to the purchase of a laser includes:

- FDA Accession Number
- Manufacturers Name and Address
- Model Number

*The FDA information above should be determined at the time of purchase. If the FDA information is unavailable at the time of purchase, the supplier is responsible for obtaining this information from the FDA at their own expense and cannot ship until FDA compliance is met.

6) FCC Labeling

Devices that require an equipment authorization are also subject to labeling requirements (47 CFR § 15.19).

7) Class A Digital Devices or Peripherals – User Manuals

Class A digital devices or peripherals, which are devices and peripherals that are marketed exclusively for use in business, industrial and commercial environments, must include the following statement in its user manual or instructions furnished the user:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Addendum A

Import Requirements for Tools and Consumable Goods

Tools

1. (ASTEMO)AM will require suppliers shipping “Tools” for equipment installation - items that are not Consumable Goods, to be sent to the Engineer in Charge of Project to verify what items ASTEMO does not possess and will need to be imported. Once it has been decided what “Tools” will be needed the supplier will send the Commercial Invoice, Packing List, and Explanation Sheet to Hitachi Import/Export (IEG) and will not be allowed to ship until IEG has advised they are ready to handle the Import should Hitachi bare the import responsibility.
2. When Hitachi is the Importer of Record – the shipment terms need to be Delivered Duty Paid (DDP-ASTEMO Location) – IEG will instruct the broker for customs clearance but all brokerage and duty costs will need to be billed back to the supplier.
3. If supplier has a US Entity it will be their responsibility to act as the “Consignee” Importer of Record for the shipment and the applicable Hitachi-AM Location will be the deliver to the address on the invoice. Incoterm will also be Delivered Duty Paid (DDP-ASTEMO Location)

Consumable Goods

4. If the supplier is shipping consumable goods (example- screws, bolts, sensors, etc.) They will need to be shipped separate from the “Tools”.
5. The same process will follow for consumable goods as mentioned above for “Tools”- IEG must advise when shipment is okay to proceed and incoterm will be Delivery Duty Paid (DDP-ASTEMO Location)
6. For all Equipment Imports where Hitachi is responsible for import- an explanation sheet must be provided to Hitachi’s Import/Export Group 2 weeks prior to shipment, and Commercial Invoice/Packing List 1 week prior to shipment. This requirement will be noted on the PO.

Addendum B

Export Requirements for Tools and Consumable goods

1. Companies that do not have a US Entity- Hitachi will provide HTS/ECCN and export paperwork. The incoterm will be EXW (Hitachi Facility). It will be the responsibility of the Supplier to arrange door to door transportation and Export Clearance.
2. Companies that do have a US Entity- They will be responsible for export paperwork and arranging transportation and Export Clearance.

Addendum C

FCC requirements for RF and Digital Devices not directly marketed within the US

(ASTEMO)AM requires that suppliers shipping equipment or spare parts containing Digital Devices ensure that those devices are approved by the Federal Communications Commission (“FCC”).

Digital devices emit Radio Frequency (“RF”) energy, which are regulated by the FCC.

Radio frequency (RF) is any of the electromagnetic wave frequencies that lie in the range extending from around 9 kHz to 300 GHz, which include those frequencies used for communications or radar signals.

1) Digital Devices -- A digital device is an electronic device which uses discrete, numerable data and processes for all its operations.

The FCC regulates most digital devices as part of its overall regulation of RF devices. (47 CFR § 2.801). There are four basic classes of RF devices. These are:

1. **Licensed Transmitting Equipment** (e.g., Television and radio transmitters, Tracking Devices, etc.)
2. **Unintentional and Intentional Radiators of Part 15** (Receivers, Cable systems, Personal Computers, Digital Devices, etc.)
3. **Industrial, Scientific and Medical (“ISM”) Equipment of Part 18** (Microwave Ovens, Ultrasonic humidifiers, ISM equipment for heating, ionization of gases, mechanical vibrations, acceleration of charged particles, etc.)
4. **Any part or component** of the above *which in use emits RF energy* by radiation, conduction, or other means

2) RF Device Labeling Requirements

RF devices cannot be marketed in *or imported* into the United States without complying with FCC requirements including equipment authorization and labeling requirements. (47 U.S.C. § 302a(b); 47 CFR § 2.803).

3) Unintentional Radiators of RF

The second category of regulated products includes *digital devices* (like computers, etc.). Digital devices are regulated as unintentional radiators under Part 15 of the FCC’s regulations (47 CFR § 15 *et seq.*). The FCC defines the term “digital device” as: “Devices/systems that generate and use digital timing signals operating at greater than 9000 cycles/second and uses digital techniques

4) Peripheral Devices

Digital Peripheral devices are also regulated by the FCC and must meet FCC (47 CFR § 15.100 (d)). Examples of Digital Peripheral devices: terminals, printers, video monitors, keyboards, etc.

5) Laser Devices (FDA) Food and Drug Administration

All devices that use a laser need to be approved by Hitachi's Import Export group for both FCC and the Food and Drug Administration ("FDA") (21 CFR §1040.10). All Laser products shipped to the U.S. market must be FDA certified: Information needed prior to the purchase of a laser includes:

- FDA Accession Number
- Manufacturers Name and Address
- Model Number

*The FDA information above should be determined at the time of purchase. If the FDA information is unavailable at the time of purchase, the supplier is responsible for obtaining this information from the FDA at their own expense and cannot ship until FDA compliance is met.

6) FCC Labeling

Devices that require an equipment authorization are also subject to labeling requirements (47 CFR § 15.19).

7) Class A Digital Devices or Peripherals – User Manuals

Class A digital devices or peripherals, which are devices and peripherals that are marketed exclusively for use in business, industrial and commercial environments, must include the following statement in its user manual or instructions furnished the user:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Section 5

Supplier Rating Program

I. Application

- A. All LP Suppliers (direct material)
- B. Active only (at least one shipment per 6 months)

II. Scope

- A. 12 month period (annually)
- B. By calendar year (beginning 1/1, ending 12/31)

III. Responsibility

- A. (ASTEMO)AM Purchasing is rating administrator

- Calculates total score
- Communicates to suppliers
- Overall window between (ASTEMO)AM and supplier for problems, which cannot be resolved at the functional/operational level.

- B. (ASTEMO)AM internal customers of LP suppliers for Quality (SQA) and Delivery (PC) matters evaluate in perspective areas (see Rating topic in these categories within this handbook).

C. LP Suppliers

- Should strive for perfect scoring
- Verify accuracy of rating and communicate discrepancies back to (ASTEMO)AM.
- Utilize the rating to benchmark current condition and utilize the evaluation for continuous improvement.

IV. Frequency

Formal annual rating for each eligible supplier.

V. Documentation (Exhibits are attached)

A. Summary page listing scores by Department and Annual total

B. CAMPAS Form

C. Strategic Suitability Evaluation - supplier may receive this form depending on yearly purchased dollar amount.

VI. Performance Factors

A. 70% total score is minimum threshold acceptable level

B. Less than 70% score then supplier:

- Is considered Probation
- May be ineligible for new business opportunity
- May be issued a SRCAR and if so, must submit a corrective action plan
- May be ineligible for RFQ's (buyer's option)
- May be subject to special countermeasures for chronic deficient scoring, including desourcing
 - ✓ Final desourcing according to (ASTEMO)AM Executive Committee (top management of Production, DE, QA & Purchasing).

C. Greater than 70% scores:

- Supplier is eligible for
 - ✓ Performance award and/or
 - ✓ Special achievement award for distinguished customer service.

SUPPLIER NAME HERE TOTAL SCORE: 70/100

■ Your Score ■ Possible Score



**Suppliers with Strategic Suitability status will reflect an additional graphed category*

(HIAMS)Constitutional Assessment Method for Partners of Automotive Systems (CAMPAS) ver.4
 Constitutional Assessment Method for Partners of Automotive Systems

- Subject partners for assessment : Suppliers or subcontractors which supply (HIAMS) with production goods
- Frequency of the assessment : Once per year (Jan-Dec)

Director	Manager	Buyer
Shane Vanwinkle	Bobbie Steinhauer	Amanda Byrd
2/5/2018	2/5/2018	2/5/2018

Supplier code	Official name of supplier	Business field
HA2020		(AM-HK)

*select from a list

1. Assessment Result

Rank	A	B	C	D	<Aggregated points>	
Total points	Over 85	85 ~ 70	70~50	49 or less	Performance	23.0
Content	Strategic partner	Key supplier	Needs development	Below standard	System	12.0
					Total points	35.0

Rank	D
-------------	----------

2. Points Allocation

	Points allocation	Q C D S Evaluation Items			
		Quality	Cost	Delivery	Safety & environment
Performance	23.0	0.0	0.0	20.0	3.0
System	12.0	10.0	0.0	0.0	2.0
Total points	35.0	10.0	0.0	20.0	5.0

<Comments>

3. Evaluation content

<Performance>

(Quality: Q)

	0	<10	10-100	100-1000	>1000
Points	40	30	20	10	0

Certifications	Obtain ISO-9001/TS-16949 (continuously renewing)	Obtained ISO after the year 2000	Does not have ISO or IATF certification
Points	10	8	0

Documentation / Communication / Responsiveness		Points
Submits effective and complete Corrective Actions		5
PPAP submittals are on-time and complete		5
Responds timely to CARs/Initial Containments timely		5
Has no recurring problems		5
Is responsive to general requests		5
SREA/Supporting Documentation is submitted timely		5

5 = Yes, 0 = No

A+B+C	10.0
	(35/80)

A	0	⇒	A	0.0
				(25/40)

B	10	⇒	B	5.0
				(5/10)

C	30	⇒	C	5.0
				(5/30)

(Cost: C)

	Annual cost reduction ratio						
	0%	0-1%	1-2%	2-3%	3-4%	4-5%	5-6%
Points	0	5	8	10	12	15	20

[Performance for VEC proposal]		Points
Submitted one or more VEC proposals		0
One or more VEC proposals are accepted or accepted with some conditions		0
Has a current CR of over 5%/month or has submitted a VEC idea worth 2-5% cr/month		0

[Cost structure evaluation]		Points	Applicable=1
Attitudes	① Proactively responds to HIAMS's needs (targets)	0	0
	② All employees are engaged in improving profitability	0	0
Cost management	① Submits cost breakdown worksheets with new RFQ's	0	0
	② Is aware of overall cost and identifies wastes from purchasing to shipping and reduces cost where necessary	0	0
	③ Proactively submits cost reduction proposals for products and sets high cost reduction goals	0	0
Response	① Submits responses to RFQ's by deadlines	0	0
	② Submits response to CAMPAS corrective action timely (if required)	0	0
	③ Submits timely responses to requests for supplier impacts during potential delivery stoppages (earthquake, strikes, fires, etc.)	0	0
Factory management	① Creates specific improvement plans for reducing internal defects	0	0
	② Responds quickly to Tooling audits and/or Capacity verification requests	0	0
Total points(F)		0	0

Financial Review Completed?

F	0.0
D+E+F	0.0
	(20/30)

(Delivery: D)

	100%	95%	80%	0%
	100% on time	> 95% on time	80-94% on time	< 80% on time
Keep delivery date	20	15	10	0

# of occurrences of Premium Freight	Zero	1 +	Actual # if 1+
	5	0	0

G	20
H	0
G+H	20.0

[Delivery: D]		Points	Applicable=1
Attitudes	① Secures appropriate plant capacity, cooperates well and responds quickly to fluctuations in order quantity	0	0
	② Supplier has not caused a customer disruption, including yard holds and stop ships	0	0
Production control	① Supplier has not caused Hitachi to receive customer notifications of Special status related to delivery issues	0	0
	② Supplier has not caused Hitachi to receive customer notifications of Special status related to delivery issues	0	0

I	0.0
---	-----

3 points	③ Informs Hitachi quickly when delivery dates cannot be met	0	G+H+I Evaluation points
EDI	① Standard or alternate EDI is implemented	0	
Total points(I)		0	20.0

(Safety - Environmental - CSR: SE)

ISO14001 Third-party certificates	Certified	No Cert		J	J
	3	0		3	3.0

Conflict Mineral reporting response	On time	Late	Not Submitted	L	L
	2	1	0	2	2.0

J+K+L Evaluation points	5.0
----------------------------	-----

Compliance violation ▲ 20 points	Troubles such as Environmental pollution, labor issues, cartels, antisocial trading occurred	M	0
			(-20)

[20 points are deducted in cases where a violation has occurred]

Strategic Suitability Form (example)

Strategic suitability evaluation						
NO	Evaluation contents	Evaluation points	point allocation	Individual point	Weight	Evaluation point
1	Advanced technology / Production capability	①Supplier has specific technology required for Hitachi products.	3	3	0.47	1.41
		②Supplier has a plan to obtain latest technologies.	3	3	0.47	1.41
		③ Is supplier investing in equipment to support Hitachi for new products and technologies.	3	3	0.47	1.41
		④Supplier has advantage for development and technology capability in comparison with other companies in the same business.	3	3	0.47	1.41
		⑤Supplier has advantage for production speed (lead time) in comparison with other companies in the same business.	3	3	0.47	1.41
		Total		15		
2	Technology attitude / development	①Supplier initiates a spec change or production improvement idea.	5	5	0.6	3
3	Communication / support	①Supplier has a team in place to support our needs	5	5	0.6	3
4	Global capability	①Supplier has provided their products to our oversea plant.	5	5	0.6	3
		(If supplier has not yet) ①Supplier has global production plant but hasn't provided to our oversea plant yet.	3			
5	Sourcing plan	①Supplier is necessary partner for our company.	4	4	1	4
Total			34			20

CPRC-FORM-006

Issue: 0

Date: 2/14/17

Page: 1 of 1

Authorization: Kelly True

Supplier Quality History (Example)

Reporting YEAR								Date
Supplier Name								
ID	Tag Date	Drawing No.	Part Name	Reason	Disposition	Tag Number	PPM	Charge
Defects								
Date: 2/14/2017 Issue: 9 Authorization: Steve Meadows Page 1 of 1								
PUR-FORM-040								

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Section

6

* Quality Management System Policy

Message to Supplier

IATF 16949 Element 8.4.2.3 mandates, 'Unless otherwise authorized by the customer, suppliers to the organization shall be third party registered to ISO 9001:2015 by an accredited third-party certification body. All current production suppliers to **Hitachi Astemo Americas, Inc.** shall be at a minimum, third-party registered to ISO/IATF 16949 or registered to ISO 9001:2015 with evidence of conformance to IATF 16949 unless otherwise specified in writing by the customer. If currently not compliant to these requirements, supplier must show a documented plan to achieve this certification.

(ASTEMO)AM is committed to working with its suppliers to ensure customer satisfaction, as well as compliance to the IATF 16949 standard.

The goal of IATF 16949 is the development of a quality management system that provides for continual improvement, emphasizing defect prevention and the reduction of variation and waste in the supply chain.

Quality Policy

"We deliver Global industry leading Quality and exceed customer expectations with our products, services thanks to our people."

As the company strategy foundation, our commitment is executed by:

- Identifying and understanding requirements from our customers and other relevant stake holders;
- Monitoring and continuously improving our processes and management system to support our value chain from innovation through delivery to customer;
- Assessing and mitigating risks for safe, reliable and effective products and services;
- Building a strong partnership with our customers, employees and suppliers based on cooperation and accountability.

Each employee is accountable to deploy this Quality Policy through its relevant responsibilities and authorities.

Brice Koch
President & CEO
Hitachi Astemo, Ltd.

Environmental Management System Policy

The graphic features a world map in the background. At the top right is the Hitachi logo with the tagline "Inspire the Next". The main title "Hitachi Astemo Americas, Inc. Environmental Policy" is centered. Below it are four green boxes, each with a letter in a circle and a corresponding policy point. At the bottom left is a signature of Paul Carroll. At the bottom center is a green globe with a recycling symbol and leaves. To the right of the globe is the acronym "C.A.R.E." in large green letters with leaves. The Astemo logo is at the bottom right. The text "Rev. 4/1/2021" is at the bottom left of the graphic area.

HITACHI
Inspire the Next

Hitachi Astemo Americas, Inc. Environmental Policy

- C** Committed – Hitachi is committed to the prevention of pollution and strives for continual improvement in order to minimize impact on the environment.
- A** Awareness – Hitachi’s environmental commitment is communicated to all persons working for or on behalf of our Company.
- R** Requirements – As a responsible corporate citizen, Hitachi is committed to comply with all applicable environmental requirements.
- E** Environmental Objectives and Targets – Hitachi Management will provide the framework for setting and reviewing environmental objectives and targets to support ISO 14001.

Paul Carroll
Mr. Paul Carroll

Rev. 4/1/2021

C.A.R.E.

Astemo

CARE Environmental Policy 2021.pdf

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Material Safety Data Sheets (MSDS)

Purpose

To assure (ASTEMO)AM's compliance with all applicable regulations by securing proper and accurate MSDS documentation from LP suppliers.

Responsibilities

- 1) LP Suppliers
 - a) Prior to purchase or shipment of any chemical to (ASTEMO)AM, LP suppliers must send MSDS to (ASTEMO)AM. The MSDS is to be reviewed, and approved by the Health Safety and Environmental Department (HSE). Once HSE has approved the chemical, it can then be purchased and shipped.
 - b) Provide Material Safety Data Sheet (MSDS) for:
 - All chemicals,
 - With every shipment.
- 2) Hitachi Automotive Systems, Inc.
 - a) Purchasing Buyer
 - Verifies on all Purchase Orders that MSDS is requested with each shipment before issue to suppliers.
 - Communication contact between supplier and (ASTEMO)AM or any environmental issues.
 - May issue Corrective Action Request requiring 8-D countermeasure for supplier non-conformance (No MSDS with any shipment).
 - b) Administration (HSE)
 - Main authority within (ASTEMO)AM for MSDS (monitors LP compliance).
 - Periodically audits for compliance.
 - Catalogues all: Original MSDS documents and Chemical Abstract numbers (CAS) for all purchased chemicals on database.

- c) Production Control (receiving clerk)
 - Verifies that each shipment of chemical is accompanied by MSDS
 - Takes Corrective Action for any chemical delivery to (ASTEMO)AM without any MSDS document.
 - Transfer to quarantine.
 - Contact (ASTEMO)AM buyer

Documents

- PUR-FORM-035 Purchase Order
- EMS-E-WI-010 Work Instruction for Chemical Approval Process
- EMS-E-FORM-012 Chemical Request Form
- EMS-E-FORM-013 Chemical Evaluation
- MSDS (Sample)
- MSDS instructions (FR regulators)

Material Safety Data Sheets (MSDS)

FULL TEXT OF REGULATION: 29cfr1910.120029cfr1910.1200(29 CFR 1910.1200(g))

FULL TEXT OF REGULATION: 29cfr1910.1200(g)29cfr1910.1200(g)

Chemical manufacturers and importers must obtain or develop a material safety data sheet for each hazardous chemical they produce or import and must forward these to the employer at the time of initial shipment. Employers are required to obtain and maintain an MSDS for each hazardous chemical which they use in their workplace.

New information must be incorporated on the MSDS within three months following the manufacturer's receipt of the information, and the new MSDS must be transmitted to the employer with the next shipment of the chemical.

Information must be in English, and include identity used on the label and the chemical and common names for the hazardous chemical. Mixtures are to receive special treatment as described in Hazard Determination. One MSDS may be used for similar mixtures with essentially the same hazards and contents.

An MSDS also must include information on physical and chemical characteristics of the hazardous chemical, known acute and chronic health effects, and related information; information on exposure limits, and whether OSHA, the International Agency for Research on Cancer, or the National Toxicology Program consider the chemical a carcinogen; precautionary measures; emergency and first aid procedures; date of preparation; and identification of the party responsible for the MSDS. No blank spaces are permitted — spaces should be marked when information is not found or is not applicable.

Material safety data sheets may be kept in any form, including operational procedures and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals.

The employer, however, must ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work areas.

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- ❖ **For Environmental Management System support, Hitachi Automotive Products is requiring that all chemicals be accompanied by an Material Safety Data Sheet (MSDS).**

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Hitachi Automotive Systems Americas, Inc.
955 Warwick Road
Harrodsburg, Ky
Phone (859) 734-9451 Fax: (859) 734-6689



To: All Suppliers:

Effective August 27, 2018, all invoices for domestic freight bills where Hitachi Automotive Systems Americas, Inc. is responsible for the cost of the freight must be submitted to IL2000, LLC for the following Hitachi locations listed below:

All freight bills should be billed 3rd Party to the following address:

Hitachi Automotive Systems Americas, Inc.
C/O IL2000
PO Box 2545
Virginia Beach, VA 23450

COMPANY	ADDRESS	CITY	STATE	ZIP
Hitachi Automotive Systems Americas, Inc.	955 Warwick Road	Harrodsburg	KY	40330
Hitachi Automotive Systems Americas, Inc.	601 Robinson Drive	Harrodsburg	KY	40330
Hitachi Automotive Systems Americas, Inc.	1150 Mayde Road	Berea	KY	40403
Hitachi Automotive Systems Americas, Inc.	301 Mayde Road	Berea	KY	40403
Hitachi Automotive Systems Americas, Inc.	1000 Unisia Drive	Monroe	GA	30655

For Small Package, Courier & International Invoices:

Submit Invoices to the addresses listed above for shipments that pertained to their location.

Domestic Freight Shipping Requirements

Small Package:

If you are shipping small package via FedEx or UPS (shipments less than 150 lbs.) then you do not need to include the billing address information. FedEx and UPS have already been instructed on where to send their invoices for payment of freight charges.

Full Truckload (FTL):

Process remains the same

For Less Than Truckload shipment(s) moving collect to Hitachi.

Shipments 150 lbs. or more must be shipped via a less than truckload carrier. The bill of lading must be created, and the carrier selected by accessing the IL2000 website. Failure to follow these procedures will result in the total freight charges being invoiced back to the supplier plus a \$100 administrative fee.

You must use the **IL2000 Vendor Transportation Management System** to schedule shipments and generate Bills of Lading and associated labels. The IL2000 website can be accessed by following link: <https://apps.il2000.com>.

You will receive a calendar invitation to participate in the IL2000 Supplier Training Sessions. Once you participate in one of their 6 training sessions offered on the following dates: August 20th, 21st, and 22nd at either 10:00 a.m. or 1:00 pm est. time, IL2000 will provide you with a username and password to access your account along with a user manual.

Training is **MANDATORY**. If you cannot make it to one of 6 training sessions offered, please email IL2000 at Clientservices@il2000.com or by phone 877-373-4525.

There will also be a tutorial on how to use the IL2000 Supplier Suite. Link to be provided on 8/20/18.

If you are paying the freight charges, then you may ship via the carrier of your choice.

It is imperative that these instructions are followed. We appreciate your cooperation in supporting these changes to our transportation policy. Should you have any questions, please do not hesitate to call me.

Regards,

Karen Trial,
Corporate PC&L Director,
Hitachi Automotive Systems America, Inc.

Domestic Supplier Shipping Requirements

Definition

- 1) Delivery Window is one day and that is the due date showing on the Supplier Release.
- 2) To be considered on time, supplier must ship total quantity due so that it delivers on the due date. Paperwork (packing list, MSDS, etc.) must also be included or the shipment will be considered late and the delivery rating will be affected.
- 3) Number of service days is the transportation time from your shipping point to delivery at Hitachi. The pick-up day, weekends or holidays should not be counted as a service day.
- 4) Packing slip should contain the Purchase Order Number, Part Number(s), and Quantity.

Guidelines

- 1) Shipments that weigh less than 150 lbs. should be shipped via Fed Ex Express Second Day. Suppliers should adjust their shipping date to compensate for any difference in delivery time. Shipments that weigh over 150 lbs. should be shipped by (ASTEMO) AM's designated carrier according to the number of service days so that it arrives on the due date.
- 2) The supplier should calculate their shipping date by subtracting the number of service days from the due date. The pickup day, holidays and weekends are not counted. Example:

Ship Day	Number of Service Days	Delivery Day
Thursday	1	Friday
Tuesday	2	Thursday
Thursday	3	Tuesday

- 3) As long as the supplier meets these requirements then shipments will be considered on time. If the trucking company delivers late or early and that is reflected on the Delivery Tracking Report, the supplier is responsible for notifying Production Control Department of any discrepancies. Any trucking related issues will be reviewed if Production Control Department is notified within one month of rating and the delivery rating may be adjusted.
- 4) Any supplier not following correct routing (unless authorized by (ASTEMO)AM) will be charged for the total cost of freight charges plus \$100 administrative fee. This will be debited to the supplier's account. Failure to comply will also affect the supplier's Delivery Rating.
- 5) If the supplier has experienced production problems and chooses to expedite the shipment to make on-time delivery, this should be shipped pre-paid, charged to the supplier, and the US-based company should be listed as the "Importer or Record" (Consignee), and (ASTEMO) AM as the Destination Address only. The supplier may use any carrier they chose when they are paying freight if parts arrive in time to meet PO due date. In the event of a quality issue the supplier should expedite, as normal truck delivery may not be acceptable.
- 6) If (ASTEMO) AM is neither the consignee nor the shipper but responsible for paying the freight charges (3rd party billing), then (ASTEMO) AM's designated carrier must be used. Bill of lading must be created by accessing the IL2000 web site as previously mentioned above.
- 7) Supplier should include correct description or National Motor Freight Classification (NMFC) item number(s) on bill of lading. (Example: Plastic Parts NOI 6 – 12 lb. PCF). This classification determines transportation charges, so it is important that this information is correct.
- 8) Multiple orders with the same shipping dates should be consolidated and shipped under one bill of lading. Refer to the weight guidelines to determine shipping method.
- 9) Suppliers are responsible for documenting pick up numbers, contact names, dates and time when calling carries for pickup. It is also the supplier's responsibility to follow up with the carrier if pick-ups are not made timely.
- 10) Hitachi expects each supplier to meet our requested delivery date. It is the supplier's responsibility to advise the appropriate Production Control Planner as soon as possible if the requested delivery date cannot be met.

INTERNATIONAL FREIGHT REQUIREMENTS

At **Initial Setup**, International Suppliers and (ASTEMO)AM Procurement should reach out to **Import Export Group** to setup logistic lanes and SOP for international documentation requirements. The Import Export Group contact for Logistics and Operations is:

- HK/BM/LA: Becky Baker – becky.baker@hitachi-automotive.us
- BK: Alexei Tioukalov – alexei.tioukalov@hitachi-automotive.us
- GA: Debra Washington – debra.washington@hitachi-automotive.us

Foreign Supplier Shipping Requirements

Hitachi must obtain certain documentation from the foreign supplier in order to clear the imported products through U.S. Customs, meet Customs-Trade Partnership Against Terrorism (C-TPAT) best practices, and meet the requirements of U.S. Customs Importer Security Filings (ISF) in order to properly enter the goods into the United States.

Advanced Shipping Notice (ASN) is required by email from each foreign supplier to (ASTEMO)AM Import Export Group when the ordered products are shipped from the overseas supplier location. (ASTEMO)AM must obtain pre-advise information, including the commercial invoice, packing list, and bill of lading before the products leave supplier’s facility and/or foreign port of departure

(ASTEMO)AM has included the Invoice Requirements on the next page to enable each foreign supplier to comply with the above shipping requirements:

Steps for Air/Ocean Shipments

- 1.) **(ASTEMO)AM issues PO to Foreign Supplier**
- 2.) **Foreign Supplier produces good**
- 3.) **Foreign Supplier prepares goods for shipment**
- 4.) **Foreign Supplier arranges shipment deliver to port of departure**
- 5.) **Supplier contacts their logistics company & broker for inland transportation and export fees**
- 6.) **Supplier or broker to contact (ASTEMO)AM Forwarder of Choice to be alerted about shipment**
- 7.) **Email Invoice, Packing List & B/L to persons on Invoice Requirement Letter**
- 8.) **(ASTEMO)AM Forwarder of Choice ships goods via pre-arranged Air/Ocean Carrier**

PACKING LIST EXAMPLE

Preferred Method 1 – (same PO- 1 line on invoice still needs to be broken down per case on packing list)

Cases numbered in 3 digits (001-999 then start over)

				Sales Div.		
Case No.	Packages	Contents		Net Weight	Gross Weight	Measurement
		Description	Quantity			
769	PALLET 1	R135690	PCS 100	KGS 588.0	KGS 628.0	M3 1.269
770	PALLET 1	R135690	PCS 100	KGS 588.0	KGS 628.0	M3 1.269
TOTAL :	PALLETS 2		PCS 200	KGS 1,176.0	KGS 1,256.0	M3 2.538

PO is identified for each case #

Preferred Method 2 – (Multiple PO's in same case - list out all PO's. Do not have to duplicate to identify case again, only PO's within the case)

Shows multiple PO's in the same case #

line item # shown

Invoice No.: IH050576
Page: 1 / 1

Case No.	Packages	Description	Quantity	Net Weight	Gross Weight	Measurement	
	PALLET	P/O NO	ITEM	PCS	KGS	KGS	M3
750	1	R104268	(1)	2,520	877	897	0.912
751	1	R104268	(1)	2,520	877	897	0.912
752	1	R104268	(1)	2,520	877	897	0.912
753	1	R104268	(1)	2,520	877	897	0.912
754	1	R104268	(1)	2,520	877	897	0.912
755	1	R123042	(8)	576	102	114	1.035
756	1	R123042	(8)	576	102	114	1.035
757	1	R121131	(5)	1,000	43	61	0.265
		R121132	(6)	1,000			
		R121133	(7)	1,500			
771	1	R120878	(4)	800	64	75	0.599
		R118565	(2)	400			
		R118566	(3)	400			
773	1	R120797	(12)	2,160	99	119	1.520
774	1	R120797	(12)	2,160	99	119	1.520
775	1	R120797	(12)	2,160	99	119	1.520
776	1	R120797	(12)	342	99	119	1.520
		R125082	(17)	1,818			
777	1	R120813	(9)	2,880	148	168	1.382
778	1	R120813	(9)	2,880	148	168	1.382
809	1	R122995	(10)	1,664	153	173	1.071
		R125102	(11)	640			
810	1	R122976	(15)	2,560	119	139	1.441
		R125074	(16)	320			
811	1	R120803	(14)	832	134	154	1.382
		R125087	(19)	3,008			
812	1	R120798	(19)	160	121	141	1.441
		R125083	(18)	2,720			
TOTAL :	PALLETS 19			PCS 45,156	KGS 4,905	KGS 5,269	M3 21.593

Invoice Requirements for International Shipments

The commercial invoice submitted to U.S. Customs must contain complete and accurate information. Customs requires the following information on all commercial invoices:

- 1) U.S. port of entry
- 2) Date of shipment
- 3) Origin of the shipment
- 4) Shipper name
- 5) Buyer name
- 6) Detailed description of the merchandise – with purchase order and drawing number listed for each line item
- 7) Tariff classification number (to at least 6 digits)
- 8) Marks and numbers of the packages/cases/pallets – identified with PO
- 9) Quantities
- 10) Purchase price of each item
- 11) Currency of the purchase
- 12) If costs (such as freight & insurance) are included in the purchase price then those costs must be itemized by name and amount for the shipment.
- 13) Country of origin (if multiple origins, please clarify on invoice)
- 14) Invoice must be English
- 15) Terms of sale on invoice (FOB, FCA, DDP, etc.)

Purchase Order #: Must be included on the invoice with each line item.

A packing list, including case number, quantity, and purchase order number, is also needed for every shipment.

IMPORTANT:

(ASTEMO)AM also requires a copy of the invoice be emailed as soon as the shipment leaves the seller's facility. The invoice **MUST** be emailed to **ALL** of the following:

HK/BM/LA

becky.baker@hitachi-automotive.us

sarah.reinsmith@hitachi-automotive.us

tyler.dunaway@hitachi-automotive.us

ashey.dunn@hitachi-automotive.us

GA

ga-materials@hitachi-automotive.us

BK

alexei.tioukalov@hitachi-automotive.us

FA

thomas.bieniek@hitachi.automotive.us

jennifer.dunny@hitachi-automotive.us

Supplier Lot Number Shipping Document Instructions

1. Line item number listed on Commercial Invoice
2. Number assigned to individual pallets
3. Hitachi assigned Purchase Order number
4. Hitachi part number (number on Purchase Order)
5. Quantity breakdown by Supplier Lot number
6. Supplier lot number for traceability- if required

Purpose:

Hitachi Customer Requirement for Traceability

Section
9

Country of Origin Requirements

(ASTEMO)AM is required to report Country of Origin on their products, and is required to comply with the American Automobile Labeling Act (AALA) and Corporate Average Fuel Economy (CAFÉ) regulations. To do this, we require information from the supplier so we can provide our customers and US Governing Bodies with correct documentation. (ASTEMO)AM also utilizes Free-Trade Agreements (referred to as FTA) for preferential duty treatment with certain countries, should goods qualify. It is highly recommended that suppliers have a staff member who is competent in all areas of 9.1 thru 9.4.

[9.1 – Country of Origin Reporting](#)

[9.2 – Free Trade Agreements](#)

[9.3 – American Automobile Labeling Act \(AALA\)](#)

[9.4 – Corporate Average Fuel Economy \(CAFÉ\)](#)

[9.5 – \(ASTEMO\)AM Import Export Group Contacts](#)

9.1 - Country of Origin Reporting

- (ASTEMO)AM will send requests for Supplier Country of Origin Certificates (PM-Form-232) to **ALL** suppliers annually, and all foreign suppliers are required to list Country of Origin on Commercial Invoices to (ASTEMO)AM. For Suppliers within Free-Trade Agreement regions, it is **REQUIRED** the supplier provide a Free-Trade Agreement Form ~~in lieu of~~ in lieu of Supplier Country of Origin Certificate (PM-Form-232) if their products qualify for preferential treatment.
- Additionally, supplier is required to provide (ASTEMO)AM a Supplier Country of Origin Certificate (or FTA form) for all parts during PPAP. ~~It is expected supplier~~ Suppliers are required to alert (ASTEMO)AM Import/Export contacts below if there is a Country of Origin change.
- Should a Country of Origin change occur within the goods ordered, ~~it is expected for the~~ supplier is required to provide an updated Supplier Country of Origin Certificate (or FTA Form) to (ASTEMO)AM Import Export Group as soon as possible.
- Failure to comply with the conditions above may adversely effect supplier ratings.

9.2 - Free Trade Agreements (FTA)

The United States of America has free trade agreements with 20 countries, in addition to Generalized System of Preference (GSP). What this does is allow the United States to import items from many different locations across the world to help grow their economies and provide competitive pricing for the US Consumer, therefore increasing the US Economy and the value of the US Dollar. Some of the commonly used FTAs are USMCA, CAFTA, US-Australia FTA, and US-Korea FTA. For more detailed information on FTAs to see if you qualify, please see the following links:

- <https://ustr.gov/trade-agreements/free-trade-agreements>
- <https://ustr.gov/issue-areas/trade-development/preference-programs/generalized-system-preference-gsp>
- <http://www.usitc.gov/publications/docs/tata/hts/bychapter/1501gn.pdf>

How Do FTAs Affect You: The Supplier?

- A good you import might be eligible for preferential treatment under the particular rules of that FTA.
- (ASTEMO)AM could need information from you to determine your regions FTA eligibility for their goods.
- (ASTEMO)AM might have to report content to their customer and must rely on you, the supplier, to provide information based upon your supply chain.
- OEM's may cut cost by eliminating duties. A FTA qualifying part could be more competitive.
- Content information can be crucial and will become more important in the selection of suppliers.

How Do FTAs Work?

- FTA Rules of Origin are used to determine if a good crossing a border between two FTA countries is eligible for preferential duty treatment.
- The Harmonized Tariff System of the United States (HTSUS) is the basis for utilizing the Rules of Origin for all FTAs. It is the responsibility of the supplier to ensure proper classification for their parts under the HTSUS. This may be accomplished through internal review or consultation with a Customs Broker, Trade Attorney, etc.
- Regional Value Content (RVC) is used in the Rules of Origin to establish the percentage of domestic value that must be achieved as imported / or domestic materials are processed into goods in a FTA country.

9.3 - American Automobile Labeling Act (AALA)

- Effective on October 1, 1994.
- Administered by National Highway Traffic Safety Administration (NHTSA).
- Requires a window sticker on new cars sold in the United States detailing content and origin of components.
- Requires passenger cars and other light vehicles to be labeled with information about domestic and foreign content.
- Provides the ultimate purchaser with information on the US/CA and foreign parts content of passenger cars sold in the United States.

What Does (ASTEMO)AM Need From You, The Supplier, For AALA?

- Value by country code for all components / materials of your good.
- Completed and signed (ASTEMO)AM Content Reporting Form.

For AALA, How Do You Determine the Value by Country of the Components/ Materials Used In Your Good?

- Obtain vendor content information for your files.
- Value is the price paid by the supplier to the customer.
- Use a 12-quarter average exchange rate for foreign currency values.
- "Generic Part" value is attributed to the country in which it is used.

- Import value includes the value of the imported good **plus** ocean freight, insurance, duties and customs brokerage fees.
- Overhead, general and administrative expenses, profit and inland freight should be included as value under the country where the manufacturing process takes place.

9.4 - Corporate Average Fuel Economy (CAFÉ)

- Regulated by the United States Environmental Protection Agency (EPA).
- Requires automobile manufacturer's fleets of passenger cars to meet an average fuel economy level on a model year basis.
- Local content calculations are used to classify carlines sold in the United States as "domestic" or "import". Local content of 75% or greater will classify a carline as "domestic".

For CAFÉ, How Do You Determine the Value By Country of the Component / Materials Used In Your Good?

- Total value is the sales price.
- Determine the value of all imported components (FOB value plus ocean freight and insurance).
- Determine any Canadian value added.
- United States Content = sales price – imported parts values – Canadian value added.

9.5 – (ASTEMO)AM Import Export Group Contacts

- Harrodsburg, KY Facilities: Ashley Rice 859-734-8924
(Including BM, SDC, & LA) ashley.rice@hitachi-automotive.us
Kevin Charles 859-734-6402
kevin.charles@hitachi-automotive.us
- Berea (BK), KY Facility: Alexei Tioukalov 859-985-2159
alexei.tioukalov@hitachi-automotive.us
- Monroe, GA Facility: Deyatae Willingham 770-207-0050
Deyatae.willingham@hitachi-automotive.us

Field Code Changed

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Section
10

Accounts Payable

(ASTEMO)AM will issue payments on the Thursday that falls on the 5th or before. Payments will be made on all invoices dated the 21st of the prior month through the 20th of the current month.

July 2000						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August 2000						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September 2000						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October 2000						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November 2000						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December 2000						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

LEGEND

5 Checks printed.

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Packaging

- 1) In regards to packaging, the main focus of (ASTEMO)AM is to ensure that all parts will be protected against damage and contamination during transportation and storage at the most economic value possible. Returnable packaging shall be used where applicable. (ASTEMO)AM may assist with the packaging design and development, but (ASTEMO)AM is not responsible or liable for the performance of the final pack except when (ASTEMO)AM supplied packaging is selected.

For packaging testing standards, refer to ASTM standard D4169-05

WWW.ASTM.ORG

- 2) The first PPAP shipment shall be shipped to (ASTEMO)AM in mass production style packaging. A completed (ASTEMO)AM "Packaging Approval Sheet" (PFORM- 40) must be attached to the package. The complete form shall also be sent to the Supplier's Supplier Quality Assurance (SQA) contact at (ASTEMO)AM noting the Estimated Time of Arrival (ETA). When the packaging is received at (ASTEMO)AM, it will be evaluated by all involved departments for approval. If the package design is rejected, the packaging design must be improved, based on mutual agreement between (ASTEMO)AM and the supplier. If the supplier is unable to ship in mass production style packaging for the first PPAP shipment, they must obtain a deviation from the SQA contact.
- 3) Any hand-held container must weigh under 35 pounds.
- 4) Approved returnable packaging must be hot stamped with the owner's name and address and be equipped to meet (ASTEMO) AM labelling requirements. Any damaged returnable packaged shall be returned to the owner by the regular freight route and labeled as "Damaged".
- 5) All returnable pallets (plastic) shall be 48 in. x 45 in. 4 entry and contain the name and address of the company that owns the pallet by either hot stamp or metal plate.
- 6) The maximum allowable height of any pack (pallet/boxes/containers, etc.) shall be 48 inches. The maximum width is 48 inches and the maximum length is 45 inches unless a larger than specified pack is approved by (ASTEMO) SQA contact.
- 7) All pallets shall be labeled with a master pallet label. See master label example #1 on page 3.
- 8) All boxes on a pallet shall be labeled with the complete (ASTEMO)AM drawing number, quantity, and lot code data from the manufacturer. The serial/lot code number provided should be comprised of data needed by the manufacturer for lot traceability in the event of a quality issue. This serial/lot code should also be included on the packing list. (See packing list example #4 on page 5.)
- 9) For electronic parts each reel, pack, sealed or ESQA bag, stick, etc. shall be labeled with (ASTEMO)AM drawing number, quantity, and manufacturer lot data as outlined in #8 above.
- 10) A pallet containing more than one part shall be labeled with a "Mixed Load" label and a label showing the quantity of each part number on the pallet.
- 11) All parts shipped on a pallet must be stacked and shipped in a full layer (no pyramiding) to allow double-stacking for the most efficient use of space. If the packaging cannot be double-stacked, it is the responsibility of the supplier to place "DO NOT STACK" labels on the top and all four sides of the pallet.
- 12) If there is to be any type of packaging change made, a revised (ASTEMO)AM "Packaging Approval Sheet" must be submitted by the Supplier to the (ASTEMO)AM SQA contact along with a sample pack for inspection. The new submission will be inspected and approved by the same process as the original. (Refer to #2 above)

(ASTEMO)AM Alternative Packaging Requirements

Alternative (Expendable) Containers

Any time returnable packaging is chosen, there must be an approved expendable alternative. If the approved returnable package is not available at the vendor's location, this alternative packaging must be used. A lack of returnable packaging is not a legitimate reason to miss shipment.

Alternative Pallet

The size and style of wooden pallets may vary and will depend on the size and weight of the parts. If pallet is full size, it shall be 48" W x 45" L x 5" H and be 4-way entry, notched stringer style.

(ASTEMO)AM Package Label Requirements

Bar Coding

Label Format

Bar code shall be Code 39 symbology and based on the AIAG Standard.

Bar codes shall be directly below all human readable characters.

No check digits shall be used with bar codes or human readable data

No identifiers should be included in bar codes.

Required Dimensions for Master Label (see example #1 on page 3)

- human readable heights
 - part number height shall be 0.5 inch (13 mm)
 - D.O. (delivery order) # shall be 0.5 inch (13 mm)
 - vendor number height shall be 0.2 inch (5 mm)
 - serial number height shall be 0.2 inch (5 mm)
 - vendor name height shall be 0.1 inch (2.5 mm)
- bar heights
 - all bar heights shall be 0.5 inch (13 mm)
- average bar width
 - narrow elements shall conform to range of .013 to .017 inch (0.33 to .043 mm)
 - ratio of wide to narrow elements shall be 3:1, with acceptable range of 2.81:1 to 3.2:1
- quiet zone
 - leading and trail zones should be at least 0.25 inch (6.4 mm)
- interchange gap
 - width should be same as average narrow element bar width.
- label size
 - 4 inches (102 mm) high by 6 inches wide (153 mm)

Required Dimensions for Container Label (see example #1 on page 4)

- Label size should be 4 inches (102mm) high by 6 inches (153mm) wide unless container is too small to accommodate 4 by 6. In that case, Supplier should submit sample to (ASTEMO)AM for approval.

Required Dimensions for Electronic Parts (see example #2 on page 4)

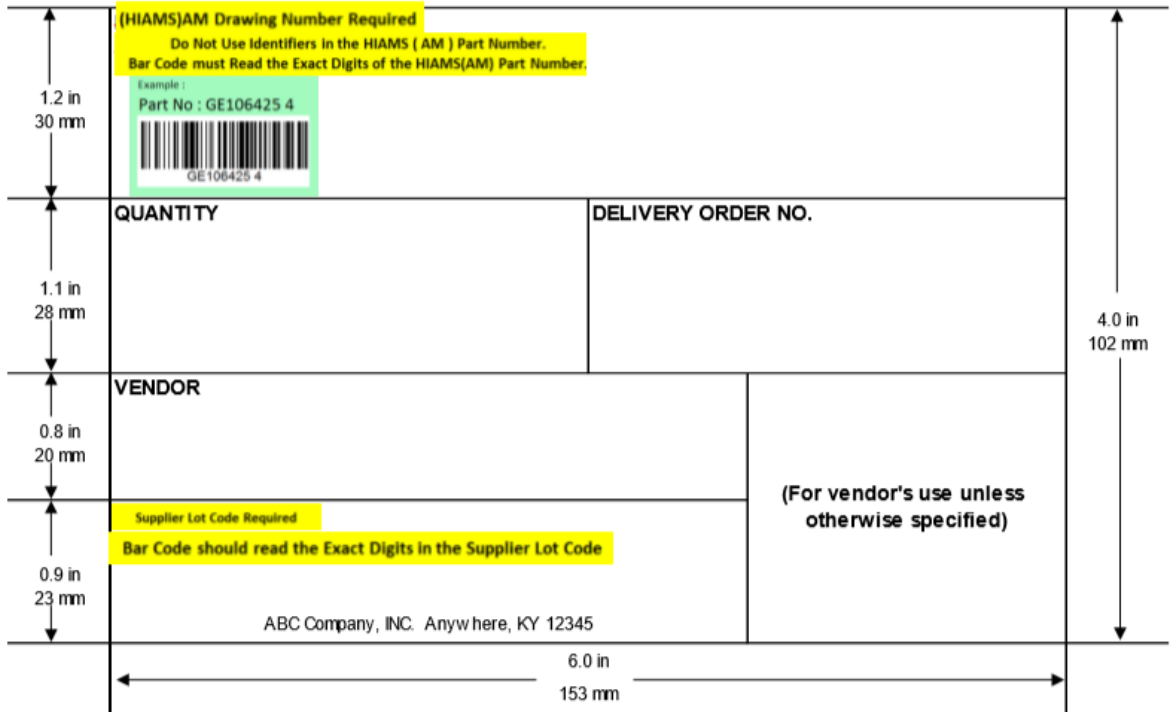
- Label size should be 4 inches (102mm) high by 6 inches (153mm) wide unless available space on reel/pack/bag/stick will not accommodate 4 by 6. In that case, Supplier should submit sample to (ASTEMO)AM for approval.

(ASTEMO)AM Package Label Requirements—continued

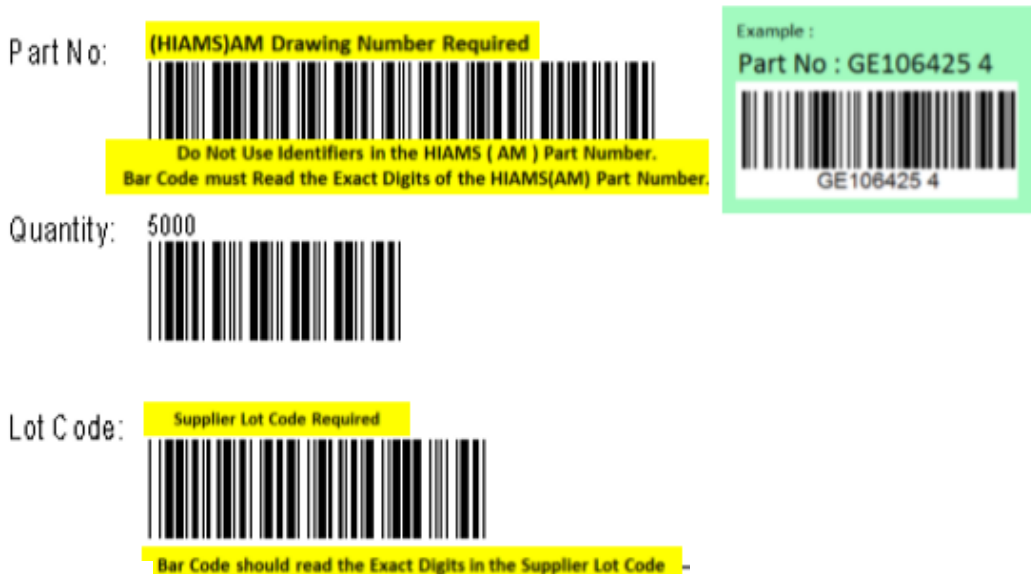
Instructions:

- There must be one master label per pallet/container/ropack
- Multiple parts included on one pallet/container/ropack requires multiple master labels on the same pallet/container/ropack.
- Use full (ASTEMO)AM part number as transmitted via EDI 830 & 862. Do not deviate from the (ASTEMO)AM part number.

Master Pallet/Container/Ropack/Box Label (Example #1)



Master Pallet/Container/Ropack/Box Label (Example #2)



Electronic Parts Special Requirements (example #3)
Place on each reel/sealed or ESQA bag/pack/stick.

Hitachi Electronic Parts Label

Part No: (HIAMS)AM Drawing Number Required
 Do Not Use Identifiers in the HIAMS (AM) Part Number.
 Bar Code must Read the Exact Digits of the HIAMS(AM) Part Number.



Quantity: 5000

Lot Code: Supplier Lot Code Required
 Bar Code should read the Exact Digits in the Supplier Lot Code

Optional 2D Master Label Requirement

Some (ASTEMO) facilities have a 2D scan requirement for the Master Label. In that case, all specs stay the same except for the bar code requirement. Please check with the SQA contact of the (ASTEMO) site for which packaging is being supplied to ascertain if the 2D option is required.



Packing List Example

Vendor Name
Vendor Address

PACK LIST

DATE	DOCUMENT NUMBER
28-JUN-17	1021057105

SHIP TO

HITACHI AUTOMOTIVE PRODUCTS
955 WARWICK ROAD, DOCK 4
HARRODSBURG, KY 40330 USA

CCN: 102 ML: 01 PACKLIST: 1021057105



ECT1

267787 01

CUSTOMER ORDER	CARRIER	DELIVERY TERMS	BILL OF LADING NUMBER	
R444167	FedEx 2 Day Economy - Collect	FOB SHIPPING		
ITEM/DESCRIPTION		UOM	SHIPPED QTY	REFERENCE
FED-EX#: ***** RACHEL RILEY TEL:859 734- FAX:859 734- RACHEL.RILEY@HITACHI-AUTOMOTIVE.US ***** MANDI JONES TEL:859 734- FAX:859 734- MANDI.JONES@HITACHI-AUTOMOTIVE.US ***** CC: ALL ORDER CONFIRMATIONS TO: CHARLOTTE.ALLEN@HITACHI-AUTOMOTIVE.US ***** INVOICES AUTO-EMAIL TO: RACHEL.RILEY@HITACHI-AUTOMOTIVE.US 0001 BMP-1 A 2500200 001 BRD MKR PRB&RECP PROMISE DATE: 28-JUN-17 SO LINE: 0001 LOCATION: STOCK BIN: LOT NUMBER: 256790300010001 Vendor lot number		EACH	1.00	1
ULTIMATE DESTINATION: USA PRINTED BY SERGIO MURGUIA 28-JUN-17 17:21:14		SO: 2141287		

PL

2141287

Hitachi Packaging Data Sheet

Hitachi Automotive Systems Americas, Inc.
Packaging Data Sheet (PDS)

Part Number:	Supplier Name:
Part Name:	Contact Name:
Program Name:	Address:
Hitachi Contact:	City, State, Zip Code:
Phone:	Phone:
E-mail:	E-mail:

Ship Method:	Packaging Design/Purchase Responsibility:	Estimated SOP Date:
Land(Truck) <input checked="" type="radio"/> Sea <input type="radio"/> Air <input type="radio"/>	Hitachi: <input type="checkbox"/> Supplier: <input type="checkbox"/>	

Packaging Information	Outside Packaging Dimensions						Weight(kg/lbs)						Standard Number of Pieces/Pack (SNP)	
	Length		Width		Height		Net		Tare		Gross		Per Box	Per Pallet
	in	mm	in	mm	in	mm	lbs	kg	lbs	kg	lbs	kg		

Hand Held Container													
---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

Component Dimensions (in and mm)	Length	Width	Height	Weight	Supplier Outside Process	No <input type="checkbox"/> Yes <input type="checkbox"/>
	in mm	in mm	in mm	lbs kg	If yes, how many days in the process?	
					What is the quantity of packaging?	

Pallet specifications						Packaging Components		Container / Box Label Information							
Material Type: plastic Heat Treatment: no Banded: no Wrapped: yes						Bag <input type="checkbox"/>	<input type="checkbox"/> Polifoam	Box Label Information							
Pallet dimensions (inches & millimeters)						Dividers <input type="checkbox"/>	<input type="checkbox"/> Silica Gel								
Length in _____ Length mm 0						Bubble Wrap <input type="checkbox"/>	Traceability method:								
Width in _____ Width mm 0						Blister/Tray <input type="checkbox"/>									
Height in _____ Height mm 0						ESD Protection <input type="checkbox"/>	Date <input type="checkbox"/>	Shift <input type="checkbox"/>							
Pallet weight						Corner Support <input type="checkbox"/>	Production line <input type="checkbox"/>			Mfg. Location <input type="checkbox"/>					
Tare (lbs): _____ Tare (kgs): 0						Other (Specify below) <input type="checkbox"/>	Julian date <input type="checkbox"/>								
Net (lbs): _____ Net (kgs): 0						VCI Paper <input type="checkbox"/>	Other examples: VCI paper, Temperature Indicator, Humidity Indicator, Reel Diameter								
Gross (lbs): 0 Gross (kgs): 0						<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Packaging Type</th> </tr> <tr> <td>Container</td> <td>Internal Dunnage</td> </tr> <tr> <td>Expendable <input type="checkbox"/></td> <td>Expendable <input type="checkbox"/></td> </tr> <tr> <td>Returnable <input type="checkbox"/></td> <td>Returnable <input type="checkbox"/></td> </tr> </table>			Packaging Type		Container	Internal Dunnage	Expendable <input type="checkbox"/>	Expendable <input type="checkbox"/>	Returnable <input type="checkbox"/>
Packaging Type															
Container	Internal Dunnage														
Expendable <input type="checkbox"/>	Expendable <input type="checkbox"/>														
Returnable <input type="checkbox"/>	Returnable <input type="checkbox"/>														

Comments:

Notes:

Packaging Contingency Plan for returnable packaging: Supplier to propose alternate packaging or provide additional details on separate form. Refer to section 11 of the Supplier Handbook for additional packing and label instructions

Internal Use Only:

Procurement	Pkg Engineer	SQA	DE	PC	Whse/Logistics	Production	QA PLT

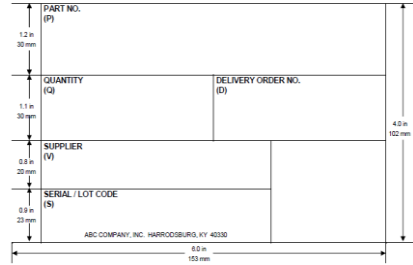
Hitachi Packaging Data Sheet

Photos (Tab 2 on data sheet)

Hitachi Automotive Systems Americas, Inc.
Packaging Photos

Part Picture

Label Picture



Container Photo (or sketch)

Interior Design Photo (or sketch)



Container Photo (or sketch)

Interior Design Photo (or sketch)



Pallet (requires 4 way entry, clearance high 5" (120 mm))

Packaging Description: Pallet holds 24 boxes and 96 parts

Notes:

This is the second tab. Please make sure this it is completed.

Hitachi Automotive Systems Americas, Inc.

Packaging Data Sheet (PDS)

Part Number:		Supplier Name:	
Part Name:		Contact Name:	
Program Name:		Address:	
Hitachi Contact:		City, State, Zip Code:	
Phone:		Phone:	
E-mail:		E-mail:	

Ship Method:	Packaging Design/Purchase Responsibility:	Estimated SOP Date:
Land(Truck) <input checked="" type="radio"/> Sea <input type="radio"/> Air <input type="radio"/>	Hitachi: <input type="checkbox"/> Supplier: <input type="checkbox"/>	

Packaging Information	Outside Packaging Dimensions						Weight(kg/lbs)						Standard Number of Pieces/Pack (SNP)	
	Length		Width		Height		Net		Tare		Gross		Per Box	Per Pallet
	in	mm	in	mm	in	mm	lbs	kg	lbs	kg	lbs	kg		
Hand Held Container														

Component Dimensions (in and mm)	Length		Width		Height		Weight		Supplier Outside Process		No <input type="checkbox"/> Yes <input type="checkbox"/>
	in	mm	in	mm	in	mm	lbs	kg	If yes, how many days in the process?		
									What is the quantity of packaging?		

Pallet specifications						Packaging Components			Container / Box Label Information	
Material Type: plastic	Heat Treatment: no	Banded: no	Wrapped: yes			Bag <input type="checkbox"/>	<input type="checkbox"/>	Polifoam	Box Label Information	
Pallet dimensions (inches & millimeters)	Length in _____	Length mm 0	Width in _____	Width mm 0	Max Stack Factor	N/A		Dividers <input type="checkbox"/>		
	Height in _____	Height mm 0					Bubble Wrap <input type="checkbox"/>	Traceability method:		
Pallet weight					Packaging Type		Blister/Tray <input type="checkbox"/>	Date <input type="checkbox"/>		
Tare (lbs): _____	Tare (kgs): 0			Container	Internal Dunnage	ESD Protection <input type="checkbox"/>	Shift <input type="checkbox"/>			
Net (lbs): _____	Net (kgs): 0	Expendable <input type="checkbox"/>	Expendable <input type="checkbox"/>	Returnable <input type="checkbox"/>	Returnable <input type="checkbox"/>	Corner Support <input type="checkbox"/>	Production line <input type="checkbox"/>			
Gross (lbs): 0	Gross (kgs): 0					Other (Specify below) <input type="checkbox"/>	Mfg. Location <input type="checkbox"/>			
						VCI Paper			Julian date <input type="checkbox"/>	
						<i>Other' examples: VCI paper, Temperature Indicator, Humidity Indicator, Reel Diameter</i>				

Comments:

Notes:

Packaging Contingency Plan for returnable packaging: Supplier to propose alternate packaging or provide additional details on separate form.

Refer to section 11 of the Supplier Handbook for additional packing and label instructions

Internal Use Only:

Procurement	Pkg Engineer	SQA	DE	PC	Whse/Logistics	Production	QA PLT

Hitachi Automotive Systems Americas, Inc.

Packaging Photos

Part Picture	Label Picture
Container Photo (or sketch)	Interior Design Photo (or sketch)
Container Photo (or sketch)	Interior Design Photo (or sketch)
Pallet (requires 4 way entry, clearance high 5" (120 mm))	
Packaging Description: Pallet holds 24 boxes and 96 parts	
Notes:	

Hitachi Automotive Systems Americas, Inc.

Packaging Data Sheet (PDS)

Part Number:	C35D300003	Supplier Name:	Metal Industries
Part Name:	Spring	Contact Name:	Rob Smith
Program Name:	AZ222	Address:	1123 Creeksville Lane
Hitachi Contact:	Jim Doe	City, State, Zip Code:	Toledo, AL 78243
Phone:	123-456-7890	Phone:	123-456-7890
E-mail:	Jim.Doe@hitachi-automotive.us	E-mail:	Robs@gmail.com

Ship Method:	Packaging Design/Purchase Responsibility:	Estimated SOP Date:
Land(Truck) <input checked="" type="radio"/> Sea <input type="radio"/> Air <input type="radio"/>	Hitachi: <input type="checkbox"/> Supplier: <input checked="" type="checkbox"/>	1/15/2020

Packaging Information	Outside Packaging Dimensions						Weight(kg/lbs)						Standard Number of Pieces/Pack (SNP)	
	Length		Width		Height		Net		Tare		Gross		Per Box	Per Pallet
	in	mm	in	mm	in	mm	lbs	kg	lbs	kg	lbs	kg		
Hand Held Container	8	203.2	4	101.6	4	101.6	12	5.45	2	0.91	14	6.36	4	96

Component Dimensions (in and mm)	Length		Width		Height		Weight		Supplier Outside Process		No <input type="checkbox"/> Yes <input checked="" type="checkbox"/>
	in	mm	in	mm	in	mm	lbs	kg	If yes, how many days in the process?		3
	8	203.2	4	101.6	4	101.6	3	1.37	What is the quantity of packaging?		120

Pallet specifications						Packaging Components			Container / Box Label Information				
Material Type:	plastic	Heat Treatment:	no	Banded:	no	Wrapped:	yes	Bag	<input type="checkbox"/>	Polifoam	Box Label Information		
Pallet dimensions (inches & millimeters)	Length in 45	Length mm	1143	Max Stack Factor		N/A		Dividers	<input checked="" type="checkbox"/>	Silica Gel			Traceability method:
	Width in 48	Width mm	1219.2					Bubble Wrap	<input type="checkbox"/>		Date	<input type="checkbox"/>	
Pallet weight	Height in 42	Height mm	1066.8					Blister/Tray	<input type="checkbox"/>		Shift	<input checked="" type="checkbox"/>	
	Tare (lbs): 30	Tare (kgs): 13.65							ESD Protection	<input type="checkbox"/>	Production line	<input type="checkbox"/>	
	Net (lbs): 336	Net (kgs): 152.88							Corner Support	<input type="checkbox"/>	Mfg. Location	<input checked="" type="checkbox"/>	
	Gross (lbs): 366	Gross (kgs): 166.53							Other (Specify below)	<input checked="" type="checkbox"/>	Julian date	<input checked="" type="checkbox"/>	
						VCI Paper			Other' examples: VCI paper, Temperature Indicator, Humidity Indicator, Reel Diameter				

Comments:

Notes:

Packaging Contingency Plan for returnable packaging: Supplier to propose alternate packaging or provide additional details on separate form.

Refer to section 11 of the Supplier Handbook for additional packing and label instructions

Internal Use Only:

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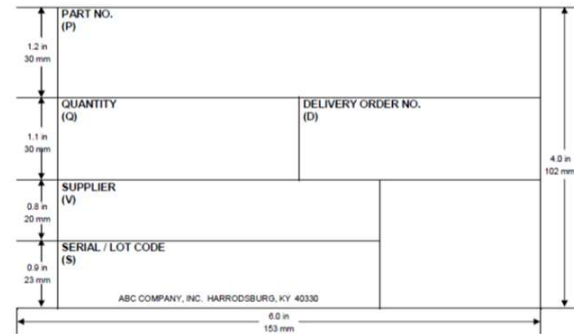
Hitachi Automotive Systems Americas, Inc.

Packaging Photos

Part Picture



Label Picture



Container Photo (or sketch)



Interior Design Photo (or sketch)



Container Photo (or sketch)



Interior Design Photo (or sketch)



Pallet (requires 4 way entry, clearance high 5" (120 mm))

Packaging Description: Pallet holds 24 boxes and 96 parts

Notes:



RFQ ONLY

Hitachi Automotive Systems Americas, Inc
Packaging Date Sheet

Complete All Fields Below Highlighted in Green

PACKAGING MUST COMPLY WITH THE HITACHI AUTOMOTIVE SYSTEMS PACKAGING MANUAL.

PART NO.		PART NAME			ANNUAL VOLUME		DAILY VOLUME
VEHICLE/MODEL				SUPPLIER'S CONTACT NAME			
SUPPLIER'S NAME & SHIPPING LOCATION				E-MAIL ADDRESS:			
NAME:							
ADDRESS:				SUPPLIER CODE:		PHONE NUMBER:	
CITY:		CTRY./ST.:					
SHIP POINT ZIP CODE:							
HANDLING METHOD	OUTSIDE DIMENSIONS (INCHES)			WEIGHT (POUNDS)			NO. OF
HAND HELD CONTAINER	LENGTH	WIDTH/DIA.	HEIGHT	NET	TARE	GROSS	PARTS
				0		0	
PALLET/RACK LOAD	LENGTH	WIDTH/DIA.	HEIGHT	NET	TARE	GROSS	PARTS
				0		0	
PART DATA				PACKAGING SPECIFICATIONS			
LENGTH (inches)				CHOOSE CONTAINER	CHOOSE DUNNAGE	CHOOSE	
WIDTH (inches)				SELECT CONTAINER TYPE	SELECT DUNNAGE TYPE	SELECT PA	
HEIGHT (inches)				SELECT CONTAINER RETURN MODE	SELECT DUNNAGE STYLE		
PIECE WEIGHT (lbs)							
FLEET SIZE CALCULATION							
		Days				Days	
Shipping Frequency				Full Containers at Hitachi			
Two Way Transit Time				Empty Containers at Hitachi			
Full Containers at Supplier				Container Wash			
Empty Containers at Supplier				Total Days in Fleet		0	
Fleet calculator does not need to be filled out if expendable is being used. It should only be used when using returnables.							
COST DETAIL							
PACKAGING COST CALCULATIONS				EXPENDABLE PACKAGING COST CALCULA			
#DIV/0!	NUMBER OF INDIVIDUAL CONTAINERS NEEDED			PACK QTY	COST EACH	PROGRAM TOTAL	
	COST PER INDIVIDUAL CONTAINER					\$	-
	COST OF RETURNABLE DUNNAGE FOR ONE CONTAINER					\$	-
#DIV/0!	NUMBER OF PALLETS NEEDED (IF APPLICABLE)					\$	-
	COST PER PALLET (INCLUDE COVER OR MIRROR PALLET COST)					\$	-
				\$	-	EXPENDABLE ITEMS(Explain)(Total Program Cost) X (Pr	
#DIV/0!	PER PIECE PRICE			NOTES-			



0



EXT.

NO. OF BOXES

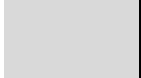
PER LAYER

PER PALLET



PALLET

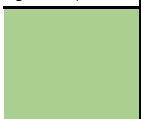
PALLET STYLE



ATIONS

- Cell Dividers
- Poly Bag
- Label
- All Other

rogram Life)



Hitachi Astemo Americas, Inc.
Trading Partnership Setup for X12 EDI Communication

Please have your EDI Coordinator complete the following information:

1. *Supplier Name* _____
Company _____
Address _____

2. *Ship From Address* _____
(if different from Main Address) _____

3. *Primary EDI Contact* _____
(Name, Email Address, Phone Number) _____

4. *Business Contact* _____
(Name, Email Address, Phone Number) _____

5. *EDI Trading Partner Info*

Testing ISA Qualifier _____

Testing ISA ID _____

Testing GS ID _____

Live ISA Qualifier _____

LIVE ISA ID _____

LIVE GS ID _____

6. *EDI Value Added Network* _____

Transactions:

830 Material Release
862 Shipping Schedule

The Supplier is expected to send the following transactions:

997 Functional Acknowledgement 856 Advanced Ship Notification

Hitachi Astemo Americas, Inc. VAN: Covisint

EDI Trading Partner Information

Hitachi Astemo America sites will each utilize a distinct trading partner identification and qualifier.

Test transactions will be further divided from live transactions using distinct Ids.

Berea, KY

Harrodsburg, KY

TEST		LIVE		TEST		LIVE	
ISA Qualifier	ZZ	ISA Qualifier	ZZ	ISA Qualifier	ZZ	ISA Qualifier	ZZ
ISA ID	HBKTEST	ISA ID	HBKLIVE	ISA ID	HHKTEST	ISA ID	HHKLIVE
GS ID	HBKTEST	GS ID	HBKLIVE	GS ID	HHKTEST	GS ID	HHKLIVE

Monroe, GA

TEST		LIVE	
ISA Qualifier	ZZ	ISA Qualifier	ZZ
ISA ID	HGATEST	ISA ID	HGALIVE
GS ID	HGATEST	GS ID	HGALIVE

Hitachi Astemo Americas, Inc.
Trading Partnership Setup for X12 EDI Communication

830 Infor Supplier Exchange – Generic Planning Schedule with Release Capability / Version 004010

Functional Group ID=**PS**

Introduction

This Draft Standard for Trial Use contains the format and establishes the data contents of the Planning Schedule with Release Capability Transaction Set (830) for use within the context of an Electronic Data Interchange (EDI) environment. The transaction set can be used to provide for customary and established business practice relative to the transfer of forecasting/material release information between organizations. The planning schedule transaction may be used in various ways or in a combination of ways, such as: (1) a simple forecast; (2) a forecast with the buyer's authorization for the seller to commit to resources, such as labor or material; (3) a forecast that is also used as an order release mechanism, containing such elements as resource authorizations, period-to-date cumulative quantities, and specific ship/delivery patterns for requirements that have been represented in "buckets," such as weekly, monthly, or quarterly. The order release forecast may also contain all data related to purchase orders, as required, because the order release capability eliminates the need for discrete generation of purchase orders.

Heading:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Req. Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
M	010	ST	Transaction Set Header			M	1
M	020	BFR	Beginning Segment for Planning Schedule			M	1
			LOOP ID - N1				200
	230	N1	Name			O	1

Detail:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Req. Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>	
			LOOP ID - LIN				>1	
M	010	LIN	Item Identification			M	1	
	020	UIT	Unit Detail			O	1	
	140	REF	Reference Identification			O	12	
	150	PER	Administrative Communications Contact			O	3	
	230	ATH	Resource Authorization			O	20	
			LOOP ID - FST				>1	
	410	FST	Forecast Schedule			O	1	n1

		LOOP ID - SHP	25
470	SHP	Shipped/Received Information	O 1
480	REF	Reference Identification	O 5

Summary:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
	010	CTT	Transaction Totals		O 1	n2
M	020	SE	Transaction Set Trailer		M 1	

Transaction Set Notes

1. At least one occurrence of segment FST is required, either in the FST loop or within the SDP loop. These two loops are mutually exclusive.
2. Number of line items (CTT01) is the accumulation of the number of LIN segments. If used, hash total (CTT02) is the sum of the values of the quantities (FST01) for each FST segment.

Segment: **ST Transaction Set Header**

Position: 010

Loop:

Level: Heading

Usage: Mandatory

Max Use: 1

Purpose: To indicate the start of a transaction set and to assign a control number

Syntax Notes:

Semantic Notes: The transaction set identifier (ST01) is used by the translation routines of the interchange partners to select the appropriate transaction set definition (e.g., 810 selects the Invoice Transaction Set).

Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	ST01	143	Transaction Set Identifier Code		M ID 3/3
			Code uniquely identifying a Transaction Set		
			830	Planning Schedule with Release Capability	
M	ST02	329	Transaction Set Control Number		M AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set		

Segment: BFR Beginning Segment for Planning Schedule

Position: 020

Loop:

Level: Heading

Usage: Mandatory

Max Use: 1

Purpose: To indicate the beginning of a planning schedule transaction set; whether a ship or delivery based forecast; and related forecast envelope dates

Syntax Notes: At least one of BFR02 or BFR03 is required.

Semantic Notes:

1. If BFR01 contains the value "04" (Net Change), BFR09 is required.
2. BFR02 is the identifying number for a forecast assigned by the orderer/purchaser.
3. BFR06 is the forecast horizon start date: The date when the forecast horizon (envelope) begins.
4. BFR07 is the forecast horizon end date: The date when the forecast horizon (envelope) ends.
5. BFR08 is the date forecast generated: The date the forecast data was generated.
6. BFR09 is the date forecast updated: The date the forecast was updated with "net change" data. (Used only when data element 353 in BFR01 contains the value "04", meaning net change.)

Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	BFR01	353	Transaction Set Purpose Code		M	ID 2/2
			Code identifying purpose of transaction set			
			00	Original		
			04	Change		
			05	Replace		
	BFR03	328	Release Number		X	AN 1/30
			Number identifying a release against a Purchase Order previously placed by the parties involved in the transaction			
M	BFR04	675	Schedule Type Qualifier		M	ID 2/2
			Code identifying the type of dates used when defining a shipping or delivery time in a schedule or forecast			
			DL	Delivery Based		
			SH	Shipment Based		
M	BFR05	676	Schedule Quantity Qualifier		M	ID 1/1
			Code identifying the type of quantities used when defining a schedule or forecast			

A Actual Discrete Quantities

BFR06 373 Release Date O DT 8/8

Date expressed as CCYMMDD

This is for the outbound 830.

BFR08 373 Release Date O DT 8/8

Date expressed as CCYMMDD

This is for the inbound 830.

BFR11 324 Purchase Order Number O AN 1/22

Identifying number for Purchase Order assigned by the orderer/purchaser

Segment: N1 Name
Position: 230
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: 1
Purpose: To identify a party by type of organization, name, and code
Syntax Notes: 1 At least one of N102 or N103 is required.
 2 If either N103 or N104 is present, then the other is required.
Semantic Notes:
Comments: 1 This segment, used alone, provides the most efficient method of providing organizational identification. To obtain this efficiency the "ID Code" (N104) must provide a key to the table maintained by the transaction processing party.
 2 N105 and N106 further define the type of entity in N101.

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
M	N101	98	Entity Identifier Code		M ID 2/3
			Code identifying an organizational entity, a physical location, property or an individual		
			MI Planning Schedule/Material Release Issuer		
			ST Ship To		
			SU Supplier/Manufacturer		
	N102	93	Name		X AN 1/60
			Free-form name		
	N103	66	Identification Code Qualifier		X ID 1/2
			Code designating the system/method of code structure used for Identification Code (67)		
			1 D-U-N-S Number, Dun & Bradstreet		
			92 Assigned by Buyer or Buyer's Agent		
	N104	67	Identification Code		X AN 2/80
			Code identifying a party or other code		

Segment: **LIN** Item Identification
Position: 010
Loop: LIN Mandatory
Level: Detail
Usage: Mandatory
Max Use: 1
Purpose: To specify basic item identification data
Syntax Notes: 1 If either LIN04 or LIN05 is present, then the other is required.
2 If either LIN06 or LIN07 is present, then the other is required.
3 If either LIN08 or LIN09 is present, then the other is required.
4 If either LIN10 or LIN11 is present, then the other is required.
5 If either LIN12 or LIN13 is present, then the other is required.
Semantic Notes: 1 LIN01 is the line item identification
Comments: 1 See the Data Dictionary for a complete list of IDs.
2 LIN02 through LIN31 provide for fifteen different product/service IDs for each item. For example: Case, Color, Drawing No., U.P.C. No., ISBN No., Model No., or SKU.

Data Element Summary

<u>Ref.</u>	<u>Data</u>	<u>Element</u>	<u>Name</u>	<u>Attributes</u>
	LIN01	350	Assigned Identification	O AN 1/20
			Alphanumeric characters assigned for differentiation within a transaction set	
M	LIN02	235	Product/Service ID Qualifier	M ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			BP	Buyer's Part Number
M	LIN03	234	Product/Service ID	M AN 1/48
			Buyer's Part Number	
	LIN04	235	Product/Service ID Qualifier	X ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			PO	Purchase Order Number
	LIN05	234	Product/Service ID	X AN 1/48
			Purchase Order Number (when applicable)	
	LIN06	235	Product/Service ID Qualifier	X ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			PL	Purchaser's Order Line Number

LIN07	234	Product/Service ID	X	AN 1/48
		Purchase Order Line Number (when applicable)		
LIN08	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		EC Engineering Change Level		
LIN09	234	Product/Service ID	X	AN 1/48
		Engineering Change Level (when applicable)		
LIN10	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		RY Record Keeping or Model Year		
LIN11	234	Product/Service ID	X	AN 1/48
		Model Year (when applicable)		
LIN12	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		PD Part Number Description		
LIN13	234	Product/Service ID	X	AN 1/48
		Buyer's Part Description (when applicable)		

Segment: **UIT** Unit Detail
Position: 020
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify item unit data
Syntax Notes: 1 If UIT03 is present, then UIT02 is required.
Semantic Notes:
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	UIT01	C001	Composite Unit of Measure		M
			To identify a composite unit of measure (See Figures Appendix for examples of use)		
M	C00101	355	Unit or Basis for Measurement Code		M ID 2/2
			Code specifying the units in which a value is being expressed, or manner in which a measurement has been taken		
			EA	Each	
			PC	Piece	

Segment: **REF** Reference Identification
Position: 140
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 12
Purpose: To specify identifying information
Syntax Notes: 1 At least one of REF02 or REF03 is required.
2 If either C04003 or C04004 is present, then the other is required.
3 If either C04005 or C04006 is present, then the other is required.
Semantic Notes: 1 REF04 contains data relating to the value cited in REF02.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	REF01	128	Reference Identification Qualifier		M ID 2/3
			Code qualifying the Reference Identification		

		DK	Dock Number	
REF02	127	Reference Identification		X AN 1/30
		Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier		

Segment: **PER Administrative Communications Contact**
Position: 150
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 3
Purpose: To identify a person or office to whom administrative communications should be directed
Syntax Notes: 1 If either PER03 or PER04 is present, then the other is required.
 2 If either PER05 or PER06 is present, then the other is required.
 3 If either PER07 or PER08 is present, then the other is required.
Semantic Notes:
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	PER01	366	Contact Function Code	M ID 2/2
			Code identifying the major duty or responsibility of the person or group named	
			IC Information Contact	
	PER02	93	Name	O AN 1/60
			Free-form name	
	PER03	365	Communication Number Qualifier	X ID 2/2
			Code identifying the type of communication number	
			TE Telephone	
	PER04	364	Communication Number	X AN 1/80
			Complete communications number including country or area code when applicable	
	PER05	365	Communication Number Qualifier	X ID 2/2
			Code identifying the type of communication number	
			FX Facsimile	
	PER06	364	Communication Number	X AN 1/80
			Complete Facsimile number including country or area code when applicable	
	PER07	365	Communication Number Qualifier	X ID 2/2
			Code identifying the type of communication number	

		EM	Electronic Mail		
PER08	364	Communication Number		X	AN 1/80
		Complete Email address when applicable			

Segment: ATH Resource Authorization
Position: 230
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 20
Purpose: To specify resource authorizations (i.e., finished labor, material, etc.) in the planning schedule

Syntax Notes: 1 At least one of ATH02 or ATH03 is required.
 2 If ATH03 is present, then ATH05 is required.
 3 If ATH04 is present, then ATH05 is required.

Semantic Notes: 1 ATH02 is the resource authorization through date: The date through which the buyer authorizes the seller to commit the resource defined in element ATH01.
 2 ATH03 is the current cumulative requirements quantity: The cumulative quantity that has been authorized to date from the cumulative start date (ATH05) through the resource authorization through date (ATH02).
 3 ATH05 is the cumulative start date: The date where the cumulative quantity count starts. This date might be the start date of a contract period, a calendar or fiscal year, or other.

Comments: 1 It is imperative that negotiations defining financial commitment have previously occurred and are agreed to by both buyer and seller.
 2 ATH04 is the maximum cumulative requirements quantity: The maximum cumulative quantity that has been authorized to date from the cumulative start date (ATH05) through the resource authorization through date (ATH02). This is a high water mark. If the forecast decreases, the current cumulative requirements quantity also decreases, but the maximum cumulative requirements quantity does not decrease.

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
M	ATH01	672	Resource Authorization Code		M ID 2/2
			Code identifying the resource which the buyer is authorizing the seller to commit to		
			FI	Finished (Labor, Material, and Overhead/Burden)	
			MT	Material	
			PQ	Cumulative Quantity Required Prior to First Schedule Period	
	ATH03	380	Quantity		X R 1/15
			Numeric value of quantity		
	ATH05	373	Date		X DT 8/8
			Date expressed as CCYYMMDD		

Segment: **FST Forecast Schedule**
Position: 410
Loop: FST Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify the forecasted dates and quantities
Syntax Notes: **1** If either FST06 or FST07 is present, then the other is required.
2 If either FST08 or FST09 is present, then the other is required.
Semantic Notes: **1** If FST03 equals "F" (indicating flexible interval), then FST04 and FST05 are required. FST04 would be used for the start date of the flexible interval and FST05 would be used for the end date of the flexible interval.
Comments: **1** As qualified by FST02 and FST03, FST04 represents either a discrete forecast date, the first date of a forecasted bucket (weekly, monthly, quarterly, etc.) or the start date of a flexible interval.
2 FST06 qualifies the time in FST07. The purpose of the FST07 element is to express the specific time of day in a 24-hour clock to satisfy "just-in-time" requirements. As an alternative, the ship/delivery pattern segment (SDP) may be used to define an approximate time, such as a.m. or p.m.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	FST01	380	Quantity		M R 1/15
			Numeric value of quantity		
M	FST02	680	Forecast Qualifier		M ID 1/1
			Code specifying the sender's confidence level of the forecast data or an action associated with a forecast		
			C	Firm	
			D	Planning	
M	FST03	681	Forecast Timing Qualifier		M ID 1/1
			Code specifying interval grouping of the forecast		
			C	Daily	
			D	Discrete	
			M	Monthly Bucket (Calendar Months)	
			W	Weekly Bucket (Monday through Sunday)	
M	FST04	373	Requirement Date		M DT 8/8
			Date expressed as CCYYMMDD		
	FST07	337	Time		X TM 4/8

Time expressed in 24-hour clock time as follows: HHMMSSD, where H = hours (00-23), M = minutes (00-59) and S = integer seconds (00-59)

FST08 **128** **Reference Identification Qualifier** **X** **ID 2/3**

Code qualifying the Reference Identification

DO Delivery Order Number

This qualifier will be used for inbound and outbound files.

KB Beginning Kanban Serial Number

This qualifier will be used with inbound files only.

FST09 **127** **Reference Identification** **X** **AN 1/30**

Dealer Order Number or Pull Signal (when applicable)

Segment: **SH**P Shipped/Received Information
Position: 470
Loop: SHP Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify shipment and/or receipt information
Syntax Notes: **1** If SHP01 is present, then SHP02 is required.
2 If SHP03 is present, then at least one of SHP04 or SHP05 is required.
3 If SHP04 is present, then SHP03 is required.
4 If SHP05 is present, then SHP03 is required.
Semantic Notes: **1** SHP04 is the date shipped, delivered, received, or the cumulative quantity start date (as qualified by SHP03).
2 SHP06 is the cumulative quantity end date.
Comments: **1** The SHP segment is used to communicate shipment, delivery, or receipt information and may include discrete or cumulative quantities, dates, and times.
2 If SHP01 equals "02", "07", "08", "09", or "10" (indicating cumulative quantities), then SHP04 and SHP06 are required to identify the start and end dates of the quantity count.

Data Element Summary

<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
SHP01	673	Quantity Qualifier	O ID 2/2
		Code specifying the type of quantity	
		01 Discrete Quantity	
		02 Cumulative Quantity	
		12 Ship Notice Quantity	
SHP02	380	Quantity	X R 1/15
		Numeric value of quantity	
SHP03	374	Date/Time Qualifier	X ID 3/3
		Code specifying type of date or time, or both date and time	
		011 Shipped	
		050 Received	
		051 Cumulative Quantity Start	
SHP04	373	Date	X DT 8/8
		Date expressed as CCYYMMDD	

Segment: REF Reference Identification
Position: 480
Loop: SHP Optional
Level: Detail
Usage: Optional
Max Use: 5
Purpose: To specify identifying information
Syntax Notes: 1 At least one of REF02 or REF03 is required.
 2 If either C04003 or C04004 is present, then the other is required.
 3 If either C04005 or C04006 is present, then the other is required.
Semantic Notes: 1 REF04 contains data relating to the value cited in REF02.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	REF01	128	Reference Identification Qualifier		M ID 2/3
			Code qualifying the Reference Identification		
			SI	Shipper's Identifying Number for Shipment (SID)	
				A unique number (to the shipper) assigned by the shipper to identify the shipment	
	REF02	127	Reference Identification		X AN 1/30
			Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier		

Segment: CTT Transaction Totals
Position: 010
Loop:
Level: Summary
Usage: Optional
Max Use: 1
Purpose: To transmit a hash total for a specific element in the transaction set
Syntax Notes: 1 If either CTT03 or CTT04 is present, then the other is required.
 2 If either CTT05 or CTT06 is present, then the other is required.
Semantic Notes:
Comments: 1 This segment is intended to provide hash totals to validate transaction completeness and correctness.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	CTT01	354	Number of Line Items		M NO 1/6
			Total number of line items in the transaction set		
	CTT02	347	Hash Total		O R 1/10
			Sum of values of the specified data element. All values in the data element will be summed without regard to decimal points (explicit or implicit) or signs. Truncation will occur on the left most digits if the sum is greater than the maximum size of the hash total of the data element. Example: -.0018 First occurrence of value being hashed. .18 Second occurrence of value being hashed. 1.8 Third occurrence of value being hashed. 18.01 Fourth occurrence of value being hashed. ----- 1855 Hash total prior to truncation. 855 Hash total after truncation to three-digit field.		

Segment: SE Transaction Set Trailer
Position: 020
Loop:
Level: Summary
Usage: Mandatory
Max Use: 1
Purpose: To indicate the end of the transaction set and provide the count of the transmitted segments (including the beginning (ST) and ending (SE) segments)
Syntax Notes:
Semantic Notes:
Comments: 1 SE is the last segment of each transaction set.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	SE01	96	Number of Included Segments		M NO 1/10
			Total number of segments included in a transaction set including ST and SE segments		

Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set

Generic Planning Schedule Example

```

ISA*00*                *00*                *ZZ*KARENSCUST      *ZZ*X12SUPPLIER
*040728*1446*U*00400*000000021*0~P~
GS*PS*KARENSCUST*X12SUPPLIER*20040728*1446*21*X*004010
ST*830*0001
BFR*00**Rel-X12*DL*A***20040715
N1*ST*Ship To 10*ZZ*10
N1*SU*X12 Supplier*ZZ*X12SUPPLIER
N1*MI*FACILITY ID: 10*ZZ*10
LIN*1*BP*X12-Part01*****EC*ECL***PD*X12-Part01 Description
UIT*EA
PER*SC*ContactName*TE*ContactPhone*EM*Contact@email.com*FX*ContactFax
ATH*PQ**1000**20040701
ATH*FI**200000**20040701
ATH*MT**175000**20040701
FST*11000*D*M*20040801
FST*26000*D*W*20040901
FST*41000*D*W*20041001
FST*81000*D*W*20041101
FST*121000*D*W*20041201
FST*161000*D*W*20050101
SHP*02*1000*011*20040715
SHP*02*1000*050*20040715
LIN*2*BP*X12-Part02*****EC*ECL***PD*X12-Part02 Description
UIT*EA
PER*SC*ContactName*TE*ContactPhone*EM*Contact@email.com*FX*ContactFax
ATH*PQ**1000**20040701
ATH*FI**200000**20040701
ATH*MT**175000**20040701
FST*11000*D*M*20040801
FST*26000*D*W*20040901
FST*41000*D*W*20041001
FST*81000*D*W*20041101
FST*121000*D*W*20041201
FST*161000*D*W*20050101
SHP*02*1000*011*20040715
SHP*02*1000*050*20040715
LIN*3*BP*X12-Part03*****EC*ECL***PD*X12-Part03 Description
UIT*EA
PER*SC*ContactName*TE*ContactPhone*EM*Contact@email.com*FX*ContactFax
ATH*PQ**1000**20040701
ATH*FI**200000**20040701
ATH*MT**175000**20040701
FST*11000*D*M*20040801
FST*26000*D*W*20040901
FST*41000*D*W*20041001
FST*81000*D*W*20041101
FST*121000*D*W*20041201
FST*161000*D*W*20050101
SHP*02*1000*011*
SHP*02*1000*050*20040715
LIN*4*BP*Kanban-01*****EC*ECL***PD*Kanban-01 Description
UIT*EA
PER*SC*ContactName*TE*ContactPhone*EM*Contact@email.com*FX*ContactFax
ATH*PQ**1000**20040701
ATH*FI**100000**20040701
ATH*MT**150000**20040701
FST*11000*D*M*20040801
FST*26000*D*W*20040901
    
```


FST*41000*D*W*20041001
SHP*02*1000*011*
SHP*02*1000*050*20040715
LIN*5*BP*Kanban-02*****EC*ECL***PD*Kanban-02 Description
UIT*EA
PER*SC*ContactName*TE*ContactPhone*EM*Contact@email.com*FX*ContactFax
ATH*PQ**1000**20040701
ATH*FI**100000**20040701
ATH*MT**150000**20040701
FST*11000*D*M*20040801
FST*26000*D*W*20040901
FST*41000*D*W*20041001
SHP*02*1000*011*
SHP*02*1000*050*20040715
LIN*6*BP*Kanban-03*****EC*ECL***PD*Kanban-03 Description
UIT*EA
PER*SC*ContactName*TE*ContactPhone*EM*Contact@email.com*FX*ContactFax
ATH*PQ**1000**20040701
ATH*FI**100000**20040701
ATH*MT**150000**20040701
FST*11000*D*M*20040801
FST*26000*D*W*20040901
FST*41000*D*W*20041001
SHP*02*1000*011*
SHP*02*1000*050*20040715
CTT*6
SE*76*0001
GE*1*21
IEA*1*000000021

862 Infor Supplier Exchange - Generic Shipping Schedule / Version 004010

Functional Group ID=**SS**

Introduction

This Draft Standard for Trial Use contains the format and establishes the data contents of the Shipping Schedule Transaction Set (862) for use within the context of an Electronic Data Interchange (EDI) environment. The transaction set can be used by a customer to convey precise shipping schedule requirements to a supplier, and is intended to supplement the planning schedule transaction set (830). The shipping schedule transaction set will supersede certain shipping and delivery information transmitted in a previous planning schedule transaction, but it does not replace the 830 transaction set. The shipping schedule transaction set shall not be used to authorize labor, materials or other resources. The use of this transaction set will facilitate the practice of Just-In-Time (JIT) manufacturing by providing the customer with a mechanism to issue precise shipping schedule requirements on a more frequent basis than with the issuance of a planning schedule transaction, e.g., daily shipping schedules versus weekly planning schedules. The shipping schedule transaction also provides the ability for a customer location to issue shipping requirements independent of other customer locations when planning schedule transactions are issued by a consolidated scheduling organization.

Heading:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Req. Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
M	010	ST	Transaction Set Header			M	1
M	020	BSS	Beginning Segment for Shipping Schedule/Production Sequence			M	1
			LOOP ID - N1				200
	050	N1	Name			O	1

Detail:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Req. Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
			LOOP ID - LIN				10000
M	010	LIN	Item Identification			M	1
M	020	UIT	Unit Detail			M	1
	045	PRS	Part Release Status			O	1
	050	REF	Reference Identification			O	12
	060	PER	Administrative Communications			O	1

Contact

		LOOP ID - FST		100
080	FST	Forecast Schedule	O	1
		LOOP ID - SHP		10
140	SHP	Shipped/Received Information	O	1
150	REF	Reference Identification	O	12

Summary:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Des.</u>	<u>Max.Use</u>	<u>Loop</u>	<u>Notes and Repeat</u>	<u>Comments</u>
	010	CTT	Transaction Totals			O	1	n1
M	020	SE	Transaction Set Trailer			M	1	

Transaction Set Notes

1. The number of lines items (CTT01) is the accumulation of number of LIN segments. If used, hash total (CTT02) is the sum of the value of the quantities (FST01) for each FST segment.

Segment: **ST** Transaction Set Header

Position: 010

Loop:

Level: Heading

Usage: Mandatory

Max Use: 1

Purpose: To indicate the start of a transaction set and to assign a control number

Syntax Notes:

Semantic Notes: 1 The transaction set identifier (ST01) is used by the translation routines of the interchange partners to select the appropriate transaction set definition (e.g., 810 selects the Invoice Transaction Set).

Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	ST01	143	Transaction Set Identifier Code		M ID 3/3
			Code uniquely identifying a Transaction Set		
			862	Shipping Schedule	
M	ST02	329	Transaction Set Control Number		M AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set		

Segment: **BSS** Beginning Segment for Shipping Schedule/Production Sequence

Position: 020

Loop:

Level: Heading

Usage: Mandatory

Max Use: 1

Purpose: To transmit identifying numbers, dates, and other basic data relating to the transaction set

Syntax Notes: 1 At least one of BSS07 or BSS08 is required.

Semantic Notes: 1 Use BSS02 to indicate a document number.

2 Use BSS03 to indicate the date of this document.

3 Use BSS05 to indicate the schedule horizon start date (the date when the schedule begins).

4 Use BSS06 to indicate the schedule horizon end date (the date when the schedule ends).

5 BSS08 is the identifying number for a forecast assigned by the orderer/purchaser.

Comments:

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
M	BSS01	353	Transaction Set Purpose Code		M ID 2/2
			Code identifying purpose of transaction set		
			00	Original	
			04	Change	
			05	Replace	
	BSS02	127	Release Number		O AN 1/30
			Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier		
			Used in the outbound file only.		
	BSS03	373	Release Date		O DT 8/8
			Date expressed as CCYYMMDD		
M	BSS04	675	Schedule Type Qualifier		M ID 2/2
			Code identifying the type of dates used when defining a shipping or delivery time in a schedule or forecast		
			DL	Delivery Based	
			SH	Shipment Based	
	BSS05	373	Release Date		O DT 8/8

Date expressed as CCYYMMDD

Used in the outbound file only.

M	BSS07	328	Release Number	M	AN 1/20
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Number identifying a release against a Purchase Order previously placed by the parties involved in the transaction

Used on the inbound 862 only.

	BSS10	324	Purchase Order Number	O	AN 1/22
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Identifying number for Purchase Order assigned by the orderer/purchaser

	BSS11	676	Schedule Quantity Qualifier	O	ID 1/1
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Code identifying the type of quantities used when defining a schedule or forecast

A	Actual Discrete Quantities
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Segment: N1 Name
Position: 050
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: 1
Purpose: To identify a party by type of organization, name, and code
Syntax Notes: 1 At least one of N102 or N103 is required.
 2 If either N103 or N104 is present, then the other is required.
Semantic Notes:
Comments: 1 This segment, used alone, provides the most efficient method of providing organizational identification. To obtain this efficiency the "ID Code" (N104) must provide a key to the table maintained by the transaction processing party.
 2 N105 and N106 further define the type of entity in N101.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	N101	98	Entity Identifier Code		M	ID 2/3
			Code identifying an organizational entity, a physical location, property or an individual			
			MI	Planning Schedule/Material Release Issuer		
			ST	Ship To		
			SU	Supplier/Manufacturer		
	N102	93	Name		X	AN 1/50
			Free-form name			
	N103	66	Identification Code Qualifier		X	ID 1/2
			Code designating the system/method of code structure used for Identification Code (67)			
			1	D-U-N-S Number, Dun & Bradstreet		
			92	Assigned by Buyer or Buyer's Agent		
	N104	67	Identification Code		X	AN 2/30
			Code identifying a party or other code			

Segment: **LIN** Item Identification
Position: 010
Loop: LIN Mandatory
Level: Detail
Usage: Mandatory
Max Use: 1
Purpose: To specify basic item identification data
Syntax Notes:

- 1 If either LIN04 or LIN05 is present, then the other is required.
- 2 If either LIN06 or LIN07 is present, then the other is required.
- 3 If either LIN08 or LIN09 is present, then the other is required.
- 4 If either LIN10 or LIN11 is present, then the other is required.
- 5 If either LIN12 or LIN13 is present, then the other is required.
- 6 If either LIN14 or LIN15 is present, then the other is required.
- 7 If either LIN16 or LIN17 is present, then the other is required.
- 8 If either LIN18 or LIN19 is present, then the other is required.
- 9 If either LIN20 or LIN21 is present, then the other is required.
- 10 If either LIN22 or LIN23 is present, then the other is required.
- 11 If either LIN24 or LIN25 is present, then the other is required.
- 12 If either LIN26 or LIN27 is present, then the other is required.
- 13 If either LIN28 or LIN29 is present, then the other is required.
- 14 If either LIN30 or LIN31 is present, then the other is required.

Semantic Notes:

- 1 LIN01 is the line item identification

Comments:

- 1 See the Data Dictionary for a complete list of IDs.
- 2 LIN02 through LIN31 provide for fifteen different product/service IDs for each item. For example: Case, Color, Drawing No., U.P.C. No., ISBN No., Model No., or SKU.

Data Element Summary

<u>Ref.</u>	<u>Data</u>		<u>Name</u>	<u>Attributes</u>
<u>Des.</u>	<u>Element</u>			
	LIN01	350	Assigned Identification	O AN 1/20
			Alphanumeric characters assigned for differentiation within a transaction set	
M	LIN02	235	Product/Service ID Qualifier	M ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			BP	Buyer's Part Number
M	LIN03	234	Product/Service ID	M AN 1/30
			Buyer's Part Number	
	LIN04	235	Product/Service ID Qualifier	X ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			PO	Purchase Order Number

LIN05	234	Product/Service ID	X	AN 1/40
		Purchase Order Number (when applicable)		
LIN06	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		PL Purchaser's Order Line Number		
LIN07	234	Product/Service ID	X	AN 1/40
		Purchase Order Line Number (when applicable)		
LIN08	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		EC Engineering Change Level		
LIN09	234	Product/Service ID	X	AN 1/48
		Identifying number for a product or service		
LIN10	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		RY Record Keeping or Model Year		
LIN11	234	Product/Service ID	X	AN 1/20
		Model Year (when applicable)		
LIN12	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		PD Part Number Description		
LIN13	234	Product/Service ID	X	AN 1/50
		Buyer's Part Description (when applicable)		

Segment: UIT Unit Detail
Position: 020
Loop: LIN Mandatory
Level: Detail
Usage: Mandatory
Max Use: 1
Purpose: To specify item unit data
Syntax Notes: 1 If UIT03 is present, then UIT02 is required.
Semantic Notes:
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	UIT01	C001	Composite Unit of Measure	M
			To identify a composite unit of measure (See Figures Appendix for examples of use)	
M	C00101	355	Unit or Basis for Measurement Code	M ID 2/4
			Code specifying the units in which a value is being expressed, or manner in which a measurement has been taken	
			Refer to 004010 Data Element Dictionary for acceptable code values.	

Segment: PRS Part Release Status
Position: 045
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To indicate the status of the part being ordered or forecast with respect to this material release or planning document
Syntax Notes:
Semantic Notes:
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	PRS01	682	Part Release Status Code	M ID 1/2
			Code identifying the status of the specific part number being released or forecast or being used in an engineering change	
			Refer to 004010 Data Element Dictionary for acceptable code values.	
	PRS02	352	Description	O AN 1/80
			A free-form description to clarify the related data elements and their content	

Segment: REF Reference Identification
Position: 050
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 12
Purpose: To specify identifying information
Syntax Notes: 1 At least one of REF02 or REF03 is required.
 2 If either C04003 or C04004 is present, then the other is required.
 3 If either C04005 or C04006 is present, then the other is required.
Semantic Notes: 1 REF04 contains data relating to the value cited in REF02.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	REF01	128	Reference Identification Qualifier		M ID 2/30
			Dock Number (when applicable)		
			DK	Dock Number	
	REF02	127	Reference Identification		X AN 1/30
			Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier		

Segment: PER Administrative Communications Contact
Position: 060
Loop: LIN Mandatory
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To identify a person or office to whom administrative communications should be directed
Syntax Notes: 1 If either PER03 or PER04 is present, then the other is required.
 2 If either PER05 or PER06 is present, then the other is required.
 3 If either PER07 or PER08 is present, then the other is required.
Semantic Notes:
Comments:

Data Element Summary

Ref.	Data		<u>Name</u>	<u>Attributes</u>
<u>Des.</u>	<u>Element</u>			
M	PER01	366	Contact Function Code	M ID 2/2
			Code identifying the major duty or responsibility of the person or group named	
			IC Information Contact	
	PER02	93	Name	O AN 1/35
			Free-form name	
	PER03	365	Communication Number Qualifier	X ID 2/2
			Code identifying the type of communication number	
			TE Telephone	
	PER04	364	Communication Number	X AN 1/30
			Complete communications number including country or area code when applicable	
	PER05	365	Communication Number Qualifier	X ID 2/2
			Code identifying the type of communication number	
			FX Facsimile	
	PER06	364	Communication Number	X AN 1/80
			Complete email address when applicable	
	PER07	365	Communication Number Qualifier	X ID 2/2
			Code identifying the type of communication number	

EM Electronic Mail

PER09 443 Contact Inquiry Reference O AN 1/20

Additional reference number or description to clarify a contact number

Segment: FST Forecast Schedule
Position: 080
Loop: FST Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify the forecasted dates and quantities
Syntax Notes: 1 If either FST06 or FST07 is present, then the other is required.
 2 If either FST08 or FST09 is present, then the other is required.
Semantic Notes: 1 If FST03 equals "F" (indicating flexible interval), then FST04 and FST05 are required. FST04 would be used for the start date of the flexible interval and FST05 would be used for the end date of the flexible interval.
Comments: 1 As qualified by FST02 and FST03, FST04 represents either a discrete forecast date, the first date of a forecasted bucket (weekly, monthly, quarterly, etc.) or the start date of a flexible interval.
 2 FST06 qualifies the time in FST07. The purpose of the FST07 element is to express the specific time of day in a 24-hour clock to satisfy "just-in-time" requirements. As an alternative, the ship/delivery pattern segment (SDP) may be used to define an approximate time, such as a.m. or p.m.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	FST01	380	Quantity		M	R 1/10
			Numeric value of quantity			
M	FST02	680	Forecast Qualifier		M	ID 1/1
			Code specifying the sender's confidence level of the forecast data or an action associated with a forecast			
			C	Firm		
			D	Planning		
M	FST03	681	Forecast Timing Qualifier		M	ID 1/1
			Code specifying interval grouping of the forecast			
			D	Discrete		
			M	Monthly Bucket (Calendar Months)		
			W	Weekly Bucket (Monday through Sunday)		
M	FST04	373	Date		M	DT 8/8
			Date expressed as CCYYMMDD			
	FST06	374	Date/Time Qualifier		X	ID 3/3
			Code specifying type of date or time, or both date and time			

		002	Delivery Requested		
		010	Requested Ship		
FST07	337	Time		X	TM 4/8
			Time expressed in 24-hour clock time as follows: HHMMSS, where H = hours (00-23), M = minutes (00-59) and S = integer seconds (00-59)		
FST08	128	Reference Identification Qualifier		X	ID 2/3
			Code qualifying the Reference Identification		
		DO	Delivery Order Number		
			This qualifier will be used for inbound and outbound files.		
		KB	Beginning Kanban Serial Number		
			This qualifier will be used for inbound files only.		
FST09	127	Reference Identification		X	AN 1/30
			Dealer Order Number or Pull Signal (when applicable)		

Segment: **SHP** Shipped/Received Information
Position: 140
Loop: SHP Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify shipment and/or receipt information
Syntax Notes: **1** If SHP01 is present, then SHP02 is required.
2 If SHP03 is present, then at least one of SHP04 or SHP05 is required.
3 If SHP04 is present, then SHP03 is required.
4 If SHP05 is present, then SHP03 is required.
Semantic Notes: **1** SHP04 is the date shipped, delivered, received, or the cumulative quantity start date (as qualified by SHP03).
2 SHP06 is the cumulative quantity end date.
Comments: **1** The SHP segment is used to communicate shipment, delivery, or receipt information and may include discrete or cumulative quantities, dates, and times.
2 If SHP01 equals "02", "07", "08", "09", or "10" (indicating cumulative quantities), then SHP04 and SHP06 are required to identify the start and end dates of the quantity count.

Data Element Summary

<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
SHP01	673	Quantity Qualifier	O ID 2/2
		Code specifying the type of quantity	
		02 Cumulative Quantity	
		12 Ship Notice Quantity	
SHP02	380	Quantity	X R 1/10
		Numeric value of quantity	
SHP03	374	Date/Time Qualifier	X ID 3/3
		Code specifying type of date or time, or both date and time	
		011 Shipped	
		051 Cumulative Quantity Start	
SHP04	373	Date	X DT 8/10
		Date expressed as CCYYMMDD	

Segment: REF Reference Identification
Position: 150
Loop: SHP Optional
Level: Detail
Usage: Optional
Max Use: 12
Purpose: To specify identifying information
Syntax Notes: 1 At least one of REF02 or REF03 is required.
 2 If either C04003 or C04004 is present, then the other is required.
 3 If either C04005 or C04006 is present, then the other is required.
Semantic Notes: 1 REF04 contains data relating to the value cited in REF02.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	REF01	128	Reference Identification Qualifier		M ID 2/3
			Code qualifying the Reference Identification		
			SI	Shipper's Identifying Number for Shipment (SID)	
				A unique number (to the shipper) assigned by the shipper to identify the shipment	
	REF02	127	Reference Identification		X AN 1/30
			Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier		

Segment: CTT Transaction Totals

Position: 010

Loop:

Level: Summary

Usage: Optional

Max Use: 1

Purpose: To transmit a hash total for a specific element in the transaction set

Syntax Notes: 1 If either CTT03 or CTT04 is present, then the other is required.

2 If either CTT05 or CTT06 is present, then the other is required.

Semantic Notes:

Comments: 1 This segment is intended to provide hash totals to validate transaction completeness and correctness.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	CTT01	354	Number of Line Items		M N0 1/6
			Total number of line items in the transaction set		
	CTT02	347	Hash Total		O R 1/10
			Sum of values of the specified data element. All values in the data element will be summed without regard to decimal points (explicit or implicit) or signs. Truncation will occur on the left most digits if the sum is greater than the maximum size of the hash total of the data element. Example: -.0018 First occurrence of value being hashed. .18 Second occurrence of value being hashed. 1.8 Third occurrence of value being hashed. 18.01 Fourth occurrence of value being hashed. ----- 1855 Hash total prior to truncation. 855 Hash total after truncation to three-digit field.		

Segment: SE Transaction Set Trailer

Position: 020

Loop:

Level: Summary

Usage: Mandatory

Max Use: 1

Purpose: To indicate the end of the transaction set and provide the count of the transmitted segments (including the beginning (ST) and ending (SE) segments)

Syntax Notes:

Semantic Notes:

Comments: 1 SE is the last segment of each transaction set.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	SE01	96	Number of Included Segments		M NO 1/10
			Total number of segments included in a transaction set including ST and SE segments		
M	SE02	329	Transaction Set Control Number		M AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set		

Generic Shipping Schedule Example

```
ISA*00*                *00*                *ZZ*KARENSCUST        *ZZ*X12SUPPLIER
*040727*0642*U*00400*000000017*0*P~
GS*SS*KARENSCUST*X12SUPPLIER*20040727*0642*17*X*004010
ST*862*0001
BSS*00*Rel-X12*20040722*DL*20040722*****A
N1*ST*Ship To 02*ZZ*02
N1*SU*X12 Supplier*ZZ*X12SUPPLIER
N1*MI*FACILITY ID: 10*ZZ*10
LIN*1*BP*X12-Part01*PO*PONumber-01***EC*ECL*RY**PD*X12-Part01 Description
UIT*EA
PRS*B
PER*IC*ContactName*TE*ContactPhone*FX*ContactFax*EM*Contact@email.com
FST*000013000*C*D*20040726
FST*000014500*C*D*20040728
FST*000016000*C*D*20040802
FST*000017500*C*D*20040804
FST*000019500*C*D*20040809
FST*000021000*C*D*20040814
FST*000022500*C*D*20040816
FST*000024000*C*D*20040821
SHP**051*20040701
LIN*2*BP*X12-Part02*PO*PONumber-01***EC*ECL*RY**PD*X12-Part02 Description
UIT*EA
PRS*B
PER*IC*ContactName*TE*ContactPhone*FX*ContactFax*EM*Contact@email.com
FST*000013000*C*D*20040726
FST*000014500*C*D*20040728
FST*000016000*C*D*20040802
FST*000017500*C*D*20040804
FST*000019500*C*D*20040809
FST*000021000*C*D*20040814
FST*000022500*C*D*20040816
FST*000024000*C*D*20040821
SHP**051*20040701
LIN*3*BP*X12-Part03*PO*PONumber-01***EC*ECL*RY**PD*X12-Part03 Description
UIT*EA
PRS*B
PER*IC*ContactName*TE*ContactPhone*FX*ContactFax*EM*Contact@email.com
FST*000013000*C*D*20040726
FST*000014500*C*D*20040728
FST*000016000*C*D*20040802
FST*000017500*C*D*20040804
FST*000019500*C*D*20040809
FST*000021000*C*D*20040814
FST*000022500*C*D*20040816
FST*000024000*C*D*20040821
SHP**051*20040701
CTT*3
SE*40*0001
GE*1*17
IEA*1*000000017
```

997 Infor Supplier Exchange - Generic Functional Acknowledgment / Version 004010

Functional Group ID=FA

Introduction

This Draft Standard for Trial Use contains the format and establishes the data contents of the Functional Acknowledgment Transaction Set (997) for use within the context of an Electronic Data Interchange (EDI) environment. The transaction set can be used to define the control structures for a set of acknowledgments to indicate the results of the syntactical analysis of the electronically encoded documents. The encoded documents are the transaction sets, which are grouped in functional groups, used in defining transactions for business data interchange. This standard does not cover the semantic meaning of the information encoded in the transaction sets.

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
M	010	ST	Transaction Set Header			M 1	n1
M	020	AK1	Functional Group Response Header			M 1	n2
			LOOP ID - AK2				999999
	030	AK2	Transaction Set Response Header			O 1	n3
M	060	AK5	Transaction Set Response Trailer			M 1	
M	070	AK9	Functional Group Response Trailer			M 1	
M	080	SE	Transaction Set Trailer			M 1	

Transaction Set Notes

- These acknowledgments shall not be acknowledged, thereby preventing an endless cycle of acknowledgments of acknowledgments. Nor shall a Functional Acknowledgment be sent to report errors in a previous Functional Acknowledgment.
The Functional Group Header Segment (GS) is used to start the envelope for the Functional Acknowledgment Transaction Sets. In preparing the functional group of acknowledgments, the application sender's code and the application receiver's code, taken from the functional group being acknowledged, are exchanged; therefore, one acknowledgment functional group responds to only those functional groups from one application receiver's code to one application sender's code.
There is only one Functional Acknowledgment Transaction Set per acknowledged functional group.
- AK1 is used to respond to the functional group header and to start the acknowledgement for a functional group. There shall be one AK1 segment for the functional group that is being acknowledged.
- AK2 is used to start the acknowledgement of a transaction set within the received functional group. The AK2 segments shall appear in the same order as the transaction sets in the functional group that has been received and is being acknowledged.

Segment: **ST** Transaction Set Header
Position: 010
Loop:
Level:
Usage: Mandatory
Max Use: 1
Purpose: To indicate the start of a transaction set and to assign a control number
Syntax Notes:
Semantic Notes: 1 The transaction set identifier (ST01) is used by the translation routines of the interchange partners to select the appropriate transaction set definition (e.g., 810 selects the Invoice Transaction Set).
Comments:

Data Element Summary

Ref.	Data Des.	Data Element	Name	Attributes
M	ST01	143	Transaction Set Identifier Code	M ID 3/3
			Code uniquely identifying a Transaction Set	
			997	Functional Acknowledgment
M	ST02	329	Transaction Set Control Number	M AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set	

Segment: **AK1** Functional Group Response Header
Position: 020
Loop:
Level:
Usage: Mandatory
Max Use: 1
Purpose: To start acknowledgment of a functional group
Syntax Notes:
Semantic Notes: 1 AK101 is the functional ID found in the GS segment (GS01) in the functional group being acknowledged.
2 AK102 is the functional group control number found in the GS segment in the functional group being acknowledged.
Comments:

Data Element Summary

Ref.	Data Des.	Data Element	Name	Attributes
M	AK101	479	Functional Identifier Code	M ID 2/2
			Code identifying a group of application related transaction sets	
			Refer to 004010 Data Element Dictionary for acceptable code values.	

M

AK102

28

Group Control Number

M N0 1/9

Assigned number originated and maintained by the sender

Segment: **AK2** Transaction Set Response Header
Position: 030
Loop: AK2 Optional
Level:
Usage: Optional
Max Use: 1
Purpose: To start acknowledgment of a single transaction set
Syntax Notes:
Semantic Notes: 1 AK201 is the transaction set ID found in the ST segment (ST01) in the transaction set being acknowledged.
2 AK202 is the transaction set control number found in the ST segment in the transaction set being acknowledged.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	AK201	143	Transaction Set Identifier Code		M ID 3/3
			Code uniquely identifying a Transaction Set		
			856	Ship Notice/Manifest	
M	AK202	329	Transaction Set Control Number		M AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set		

Segment: **AK5** Transaction Set Response Trailer
Position: 060
Loop: AK2 Optional
Level:
Usage: Mandatory
Max Use: 1
Purpose: To acknowledge acceptance or rejection and report errors in a transaction set
Syntax Notes:
Semantic Notes:
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>	
M	AK501	717	Transaction Set Acknowledgment Code		M ID 1/1
			Code indicating accept or reject condition based on the syntax editing of the transaction set		
			A	Accepted	

R

Rejected

Segment: **AK9** Functional Group Response Trailer
Position: 070
Loop:
Level:
Usage: Mandatory
Max Use: 1
Purpose: To acknowledge acceptance or rejection of a functional group and report the number of included transaction sets from the original trailer, the accepted sets, and the received sets in this functional group
Syntax Notes:
Semantic Notes:
Comments: If AK901 contains the value "A" or "E", then the transmitted functional group is accepted.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	AK901	715	Functional Group Acknowledge Code	M ID 1/1
			Code indicating accept or reject condition based on the syntax editing of the functional group	
			A	Accepted
			R	Rejected
M	AK902	97	Number of Transaction Sets Included	M NO 1/6
			Total number of transaction sets included in the functional group or interchange (transmission) group terminated by the trailer containing this data element	
M	AK903	123	Number of Received Transaction Sets	M NO 1/6
			Number of Transaction Sets received	
M	AK904	2	Number of Accepted Transaction Sets	M NO 1/6
			Number of accepted Transaction Sets in a Functional Group	

Segment: **SE** Transaction Set Trailer
Position: 080
Loop:
Level:
Usage: Mandatory
Max Use: 1
Purpose: To indicate the end of the transaction set and provide the count of the transmitted segments (including the beginning (ST) and ending (SE) segments)
Syntax Notes:
Semantic Notes:
Comments: 1 SE is the last segment of each transaction set.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	SE01	96	Number of Included Segments	M N0 1/10
			Total number of segments included in a transaction set including ST and SE segments	
M	SE02	329	Transaction Set Control Number	M AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set	

Generic Functional Acknowledgement Example

ISA*00* *00* *ZZ*174080838CORP *01*119076131
*040811*1430*U*00204*000000256*0*P*~
GS*FA*174080838CORP*119076131*040811*1430*256*X*004010
ST*997*0001
AK1*SH*100
AK2*856*1000001
AK9*A*1*1*1
SE*5*0001
GE*1*256
IEA*1*000000256

856 Infor Supplier Exchange – Generic Ship Notice – Manifest / Version 004010 (published into Infor Supplier Exchange)

Functional Group ID=**SH**

Introduction

This Draft Standard for Trial Use contains the format and establishes the data contents of the Ship Notice/Manifest Transaction Set (856) for use within the context of an Electronic Data Interchange (EDI) environment. The transaction set can be used to list the contents of a shipment of goods as well as additional information relating to the shipment, such as order information, product description, physical characteristics, type of packaging, marking, carrier information, and configuration of goods within the transportation equipment. The transaction set enables the sender to describe the contents and configuration of a shipment in various levels of detail and provides an ordered flexibility to convey information. The sender of this transaction is the organization responsible for detailing and communicating the contents of a shipment, or shipments, to one or more receivers of the transaction set. The receiver of this transaction set can be any organization having an interest in the contents of a shipment or information about the contents of a shipment.

Heading:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
M	010	ST	Transaction Set Header			M	1
M	020	BSN	Beginning Segment for Ship Notice			M	1
	040	DTM	Date/Time Reference			O	10

Detail:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
			LOOP ID – HL – Shipment				200000
M	010	HL	Hierarchical Level			M	1
	080	MEA	Measurements			O	40
	120	TD5	Carrier Details (Routing Sequence/Transit Time)			O	12
	130	TD3	Carrier Details (Equipment)			O	12
	150	REF	Reference Information			O	>1
			LOOP ID - N1				200
	220	N1	Name			O	1

M	010	HL	Hierarchical Level	M	1
	020	LIN	Item Identification	O	1
	030	SN1	Item Detail (Shipment)	O	1
	050	PRF	Purchase Order Reference	O	1
	080	MEA	Measurements	O	>1
	150	REF	Reference Identification	O	>1
			LOOP ID - CLD	200	
	170	CLD	Load Detail	O	>1
	180	REF	Reference Information	O	>1
	300	ETD	Excess Transportation Detail	O	1

Summary:

	<u>Pos. No.</u>	<u>Seg. ID</u>	<u>Req. Name</u>	<u>Des.</u>	<u>Loop Max.Use</u>	<u>Notes and Repeat</u>	<u>Comments</u>
	010	CTT	Transaction Totals			O 1	n1
M	020	SE	Transaction Set Trailer			M 1	

Transaction Set Notes

1. Number of line items (CTT01) is the accumulation of the number of HL segments. If used, hash total (CTT02) is the sum of the value of units shipped (SN102) for each SN1 segment.

Transaction Set Comments

1. The HL segment is the only mandatory segment within the HL loop, and by itself, the HL segment has no meaning.

The 856 ASN is the electronic representation of the supplier's physical shipment. The 856 uses hierarchal loops (HLS) to represent the physical shipment in electronic form. Hierarchal loops can be designated with a function by assigning the HL segment hierarchal level code HL03 to a specific value. The HL03 values used in the Infor Supplier Exchange implementation are S, O, T, and I.

HL03 Explanations:

- S = HL Shipment (only one HLS per 856)
- O = HL Order (as Orders on the shipment, the HLO loops would repeat as children of the HLS). The HLO level represents the actual item being shipped and is required when containers are being used.
- T = HL Tare (Pallet/Master container level, the HLT loops would repeat as children of the HLO)

- I = HL Line Item (The HLI level represents a detail container of a pallet/master (child of HLT) or a loose/single container of the order (child of HLO). If no containers are being used, the HLI can be a child of the Shipment, to indicate the actual item being shipped.

The HL loops can be sent in the following nested combinations:

S-O: shipment header, shipped item

S-O-I: shipment header, shipped item, loose container

S-O-T-I: shipment header, shipped item, master container, detail container of master

S-O-I-T-I: shipment header, shipped item, loose container, master container, detail container of master

S-I: shipment header, shipped item

Segment: **ST** Transaction Set Header

Position: 010

Loop:

Level: Heading

Usage: Mandatory

Max Use: 1

Purpose: To indicate the start of a transaction set and to assign a control number

Syntax Notes:

Semantic Notes: The transaction set identifier (ST01) is used by the translation routines of the interchange partners to select the appropriate transaction set definition (e.g., 810 selects the Invoice Transaction Set).

Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	ST01	143	Transaction Set Identifier Code		M	ID 3/3
			Code uniquely identifying a Transaction Set			
			856	Ship Notice/Manifest		
M	ST02	329	Transaction Set Control Number		M	AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set			

Segment: **BSN** Beginning Segment for Ship Notice

Position: 020

Loop:

Level: Heading

Usage: Mandatory

Max Use: 1

Purpose: To transmit identifying numbers, dates, and other basic data relating to the transaction set

Semantic Notes: 1 BSN03 is the date the shipment transaction set is created.
2 BSN04 is the time the shipment transaction set is created.
3 BSN06 is limited to shipment related codes.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	BSN01	353	Transaction Set Purpose Code		M	ID 2/2
			Code identifying purpose of transaction set			
			00	Original		
			01	Cancellation		

M	BSN02	396	Shipment Identification	M AN 2/30
			A unique control number assigned by the original shipper to identify a specific shipment	
M	BSN03	373	Date	M DT 8/8
			Date expressed as CCYYMMDD	
M	BSN04	337	Time	M TM 4/8
			Time expressed in 24-hour clock time as follows: HHMMSS, where H = hours (00-23), M = minutes (00-59) and S = integer seconds (00-59)	

Segment: **DTM** Date/Time Reference
Position: 040
Level: Heading
Usage: Optional
Max Use: 10
Purpose: To specify pertinent dates and times
Syntax Notes: 1 At least one of DTM02 DTM03 or DTM05 is required.
 2 If DTM04 is present, then DTM03 is required.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	DTM01	374	Date/Time Qualifier		M	ID 3/3
			Code specifying type of date or time, or both date and time			
			011	Shipped		
			017	Estimated Delivery		
	DTM02	373	Date		X	DT 8/8
			Date expressed as CCYYMMDD			
	DTM03	337	Time		X	TM 4/8
			Time expressed in 24-hour clock time as follows: HHMMSS, where H = hours (00-23), M = minutes (00-59) and S = integer seconds (00-59)			

Segment: HL Hierarchical Level - Shipment

Position: 010

Loop: HL Mandatory

Level: Detail

Usage: Mandatory

Max Use: 1

Purpose: To identify dependencies among and the content of hierarchically related groups of data segments

Comments:

1. The HL segment is used to identify levels of detail information using a hierarchical structure, such as relating line-item data to shipment data, and packaging data to line-item data.
The HL segment defines a top-down/left-right ordered structure.
2. HL01 shall contain a unique alphanumeric number for each occurrence of the HL segment in the transaction set. For example, HL01 could be used to indicate the number of occurrences of the HL segment, in which case the value of HL01 would be "1" for the initial HL segment and would be incremented by one in each subsequent HL segment within the transaction.
3. HL02 identifies the hierarchical ID number of the HL segment to which the current HL segment is subordinate.
4. HL03 indicates the context of the series of segments following the current HL segment up to the next occurrence of an HL segment in the transaction. For example, HL03 is used to indicate that subsequent segments in the HL loop form a logical grouping of data referring to shipment, order, tare, or item-level information.
5. HL04 indicates whether or not there are subordinate (or child) HL segments related to the current HL segment.

Data Element Summary

<u>Ref.</u>	<u>Data</u>		<u>Name</u>	<u>Attributes</u>
<u>Des.</u>	<u>Element</u>			
M	HL01	628	Hierarchical ID Number	M AN 1/12
			A unique number assigned by the sender to identify a particular data segment in a hierarchical structure	
	HL02	734	Hierarchical Parent ID Number	O AN 1/12
			Identification number of the next higher hierarchical data segment that the data segment being described is subordinate to	
M	HL03	735	Hierarchical Level Code	M ID 1/2
			Code defining the characteristic of a level in a hierarchical structure	
			S	Shipment

Segment: MEA Measurements

Position: 080

Loop: HL Mandatory

Level: Detail

Usage: Optional

Max Use: 40

Purpose: To specify physical measurements or counts, including dimensions, tolerances, variances, and weights (See Figures Appendix for example of use of C001)

Syntax Notes: At least one of MEA03 MEA05 MEA06 or MEA08 is required.

Semantic Notes: MEA04 defines the unit of measure for MEA03, MEA05, and MEA06.

Comments: When citing dimensional tolerances, any measurement requiring a sign (+ or -), or any measurement where a positive (+) value cannot be assumed, use MEA05 as the negative (-) value and MEA06 as the positive (+) value.

Data Element Summary

<u>Ref.</u>	<u>Data</u>	<u>Data Element Summary</u>	
<u>Des.</u>	<u>Element</u>	<u>Name</u>	<u>Attributes</u>
MEA01	737	Measurement Reference ID Code	O ID 2/2
		Code identifying the broad category to which a measurement applies	
		PD Physical Dimensions	
MEA02	738	Measurement Qualifier	O ID 1/3
		Code identifying a specific product or process characteristic to which a measurement applies	
		G Gross Weight	
		N Actual Net Weight	
		T Tare Weight	
MEA03	739	Measurement Value	X R 1/20
		The value of the measurement	
MEA04	C001	Composite Unit of Measure	X
		To identify a composite unit of measure (See Figures Appendix for examples of use)	
M	C00101	355 Unit or Basis for Measurement Code	M ID 2/2
		Code specifying the units in which a value is being expressed, or manner in which a measurement has been taken	
		KG Kilogram	
		LB Pound	

Segment: TD5 Carrier Details (Routing Sequence/Transit Time)
Position: 120
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: 12
Purpose: To specify the carrier and sequence of routing and provide transit time information
Syntax Notes:

1. At least one of TD502 TD504 TD505 TD506 or TD512 is required.
2. If TD502 is present, then TD503 is required.

Semantic Notes: TD515 is the country where the service is to be performed.

Comments: When specifying a routing sequence to be used for the shipment movement in lieu of specifying each carrier within the movement, use TD502 to identify the party responsible for defining the routing sequence, and use TD503 to identify the actual routing sequence, specified by the party identified in TD502.

Data Element Summary					
Ref. Des.	Data Element	Name	Attributes		
TD501	133	Routing Sequence Code		O	ID 1/2
		Code describing the relationship of a carrier to a specific shipment movement			
		B	Origin/Delivery Carrier (Any Mode)		
TD502	66	Identification Code Qualifier		X	ID 1/2
		Code designating the system/method of code structure used for Identification Code (67)			
		2	Standard Carrier Alpha Code (SCAC)		
TD503	67	Identification Code		X	AN 2/4
		Code identifying a party or other code			
TD504	91	Transportation Method/Type Code		X	ID 1/2
		Code specifying the method or type of transportation for the shipment			
		A	Air		
		AC	Air Charter		
		AE	Air Express		
		C	Consolidation		
		CE	Customer Pickup / Customer's Expense		

E	Expedited Truck
L	Contract Carrier
LT	Less Than Trailer Load (LTL)
M	Motor (Common Carrier)
MP	Motor (Package Carrier)
P	Private Carrier
PT	Pooled Truck
R	Rail
RR	Roadrailer
	Used for shipments that travel by roadrailer, i.e., a multimodal rail/highway trailer
S	Ocean
SR	Supplier Truck
W	Inland Waterway

Segment: **TD3 Carrier Details (Equipment)**
Position: 130
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: 12
Purpose: To specify transportation details relating to the equipment used by the carrier
Syntax Notes: **1** Only one of TD301 or TD310 may be present.
2 If TD302 is present, then TD303 is required.
3 If TD304 is present, then TD305 is required.
4 If either TD305 or TD306 is present, then the other is required.
Semantic Notes:
Comments:

Data Element Summary

<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
TD301	40	Equipment Description Code	X ID 2/2
		Code identifying type of equipment used for shipment	
		AP	Aircraft
		RR	Rail Car
		TL	Trailer (not otherwise specified)
		VE	Vessel, Ocean
		VL	Vessel, Lake
TD302	206	Equipment Initial	O AN 1/4
		Prefix or alphabetic part of an equipment unit's identifying number	
TD303	207	Equipment Number	X AN 1/10
		Sequencing or serial part of an equipment unit's identifying number (pure numeric form for equipment number is preferred)	

Segment: REF Reference Identification
Position: 260
Loop: N1 Optional
Level: Detail
Usage: Optional
Max Use: 12
Purpose: To specify identifying information

Data Element Summary

Ref. Des.	Data Element	Name	Attributes
M	REF01 128	Reference Identification Qualifier	M ID 2/3
		Code qualifying the Reference Identification	
		BM	Bill of Lading Number
		CN	Carrier's Reference Number (PRO/Invoice)
		RC	Rail Routing Code
		DK	Dock
		SI	Shipment Number
		OL	Shipment Number
		PK	Shipment Number
		MB	Shipment Number
	REF02 127	Reference Identification	X AN 1/30
		The value of the indicated qualifier	

****Only one of the 'SI', 'OL', 'PK', or 'MB' qualifiers is expected****

Segment: N1 Name
Position: 220
Loop: N1 Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To identify a party by type of organization, name, and code
Syntax Notes: 1 At least one of N102 or N103 is required.
 2 If either N103 or N104 is present, then the other is required.
Comments: 1 The "ID Code" (N104) must provide a key to the table maintained by the transaction processing party.

Data Element Summary

Ref. Data

<u>Des.</u>	<u>Element</u>	<u>Name</u>	<u>Attributes</u>
M	N101	98	Entity Identifier Code
			M ID 4/4
			Code identifying an organizational entity, a physical location, property or an individual
		MI	Planning Schedule/Material Release Issuer
		SF	Ship From
		ST	Ship To
		SU	Supplier/Manufacturer
	N102	93	Name
			X AN 1/30
			Free-form name
	N103	66	Identification Code Qualifier
			X ID 1/2
			Code designating the system/method of code structure used for Identification Code (67)
		1	D-U-N-S Number, Dun & Bradstreet
		92	Assigned by Buyer or Buyer's Agent
	N104	67	Identification Code
			X AN 2/30
			Code identifying a party or other code

An N1 segment must be provided for each 'MI', 'ST', and 'SU'. Only the 'SF' Supplier Ship From N1 segment is optional.

Segment: HL Hierarchical Level – Order/Tare/Item Level

Position: 010

Loop: HL Mandatory

Level: Detail

Usage: Mandatory

Max Use: 1

Purpose: To identify dependencies among and the content of hierarchically related groups of data segments

Syntax Notes:

Semantic Notes:

Comments: 1 The HL segment is used to identify levels of detail information using a hierarchical structure, such as relating line-item data to shipment data, and packaging data to line-item data.

2 The HL segment defines a top-down/left-right ordered structure. HL01 shall contain a unique alphanumeric number for each occurrence of the HL segment in the transaction set. For example, HL01 could be used to indicate the number of occurrences of the HL segment, in which case the value of HL01 would be "1" for the initial HL segment and would be incremented by one in each subsequent HL segment within the transaction.

3 HL02 identifies the hierarchical ID number of the HL segment to which the current HL segment is subordinate.

4 HL03 indicates the context of the series of segments following the current HL segment up to the next occurrence of an HL segment in the transaction. For example, HL03 is used to indicate that subsequent segments in the HL loop form a logical grouping of data referring to shipment, order, or item-level information.

5 HL04 indicates whether or not there are subordinate (or child) HL segments related to the current HL segment.

Data Element Summary

Ref.	Data	Data	<u>Name</u>	<u>Attributes</u>
<u>Des.</u>	<u>Element</u>	<u>Number</u>		
M	HL01	628	Hierarchical ID Number	M AN 1/12
			A unique number assigned by the sender to identify a particular data segment in a hierarchical structure	
	HL02	734	Hierarchical Parent ID Number	O AN 1/12
			Identification number of the next higher hierarchical data segment that the data segment being described is subordinate to	
M	HL03	735	Hierarchical Level Code	M ID 1/2
			Code defining the characteristic of a level in a hierarchical structure	
			I	Item (loose and detail container level)
			O	Order level
			T	Tare (master container)

Examples:

Detail ASN With master and detail containers:

HL*1**S (shipment)
HL*2*1*O (order)
HL*3*2*T (first master container linked to order level)
HL*4*3*I (detail container linked to first pallet)
HL*5*2*T (second master container linked to order level)
HL*6*5*I (detail container linked to second master)
HL*7*5*I (detail container linked to second master)

Detail ASN With loose containers, master, and detail:

HL*1**S (shipment)
HL*2*1*O (order)
HL*3*2*I (first loose container linked to order level)
HL*4*2*I (second loose container linked to order level)
*****HL with 'I' for loose containers always come before master/detail containers*****

HL*5*3*T (first master container linked to order level)
HL*6*5*I (detail container linked to first master)
HL*7*5*I (detail container linked to first master)

Detail ASN With only loose containers:

HL*1**S (shipment)
HL*2*1*O (order)
HL*3*2*I (first loose container linked to order level)
HL*4*2*I (second loose container linked to order level)

Detail ASN With no containers, order level only:

HL*1**S (shipment)
HL*2*1*O (order)

Detail ASN With no containers, item level only:

HL*1**S (shipment)
HL*2*1*I (item)

The X12 segments available for the Order, Tare, and Item levels are all the same, but their usage may differ.

Segment: LIN Item Identification

Position: 020

Loop: HL Mandatory

Level: Detail

Usage: Optional

Max Use: 1

Purpose: To specify basic item identification data

Syntax Notes: 1 If either LIN04 or LIN05 is present, then the other is required.

2 If either LIN06 or LIN07 is present, then the other is required.

3 If either LIN08 or LIN09 is present, then the other is required.

4 If either LIN10 or LIN11 is present, then the other is required.

5 If either LIN12 or LIN13 is present, then the other is required.

Semantic Notes: LIN01 is the line item identification

Comments: This segment will be required for HL-O, HL-T, and HL-I loops. The indicator that this segment is for identifying the customer part and item properties will be when LIN02 = 'BP'.

Any other value in LIN02 will indicate a loose, master, or detail container. If this LIN is for the buyer part, then elements LIN03 – LIN13 will be used.

Data Element Summary

<u>Ref.</u>	<u>Data</u>	<u>Name</u>	<u>Attributes</u>	
<u>Des.</u>	<u>Element</u>			
	LIN01	350	Assigned Identification	O AN 1/20
			Alphanumeric characters assigned for differentiation within a transaction set	
M	LIN02	235	Product/Service ID Qualifier	M ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			BP Buyer's Part Number	
M	LIN03	234	Product/Service ID	M AN 1/30
			Buyer's Part Number	
	LIN04	235	Product/Service ID Qualifier	X ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			PO Purchase Order Number	
	LIN05	234	Product/Service ID	X AN 1/20
			Purchase Order Number (when applicable)	
	LIN06	235	Product/Service ID Qualifier	X ID 2/2
			Code identifying the type/source of the descriptive number used in Product/Service ID (234)	
			EC Engineering Change Level	

LIN07	234	Product/Service ID	X	AN 1/20
		Engineering Change Level (when applicable)		
LIN08	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		RY Record Keeping or Model Year		
LIN09	234	Product/Service ID	X	AN 1/20
		Model Year (if applicable)		
LIN12	235	Product/Service ID Qualifier	X	ID 2/2
		Code identifying the type/source of the descriptive number used in Product/Service ID (234)		
		KB Data Category Code		
		KP Kanban Plan Number		
LIN13	234	Product/Service ID	X	AN 1/30
		Pull Signal (when applicable)		

Segment: **SN1** Item Detail (Shipment)
Position: 030
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify line-item detail relative to shipment
Syntax Notes: 1 If either SN105 or SN106 is present, then the other is required.
Semantic Notes: 1 SN101 is the ship notice line-item identification.
Comments: 1 SN103 defines the unit of measurement for both SN102 and SN104.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	SN102	382	Number of Units Shipped	M R 1/10
			Numeric value of units shipped in manufacturer's shipping units for a line item or transaction set	
M	SN103	355	Unit or Basis for Measurement Code	M ID 2/2
			Code specifying the units in which a value is being expressed, or manner in which a measurement has been taken	
			Refer to 004010 Data Element Dictionary for acceptable code values.	
	SN104	646	Number of Units Shipped to Date	M R 1/10
			Numeric value of units shipped in manufacturer's shipping units for a line item or transaction set – a CUM shipped quantity	

Segment: **PRF** Purchase Order Reference
Position: 050
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To provide reference to a specific purchase order
Syntax Notes:
Semantic Notes: 1 PRF04 is the date assigned by the purchaser to purchase order.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	PRF01	324	Purchase Order Number	M AN 1/20
			Identifying number for Purchase Order assigned by the orderer/purchaser	
	PRF02	328	Release Number	O AN 1/20

Number identifying a release against a Purchase Order previously placed by the parties involved in the transaction

Segment: MEA Measurements

Position: 080

Loop: HL

Level: Detail

Usage: Optional

Max Use: 40

Purpose: To specify physical measurements or counts, including dimensions, tolerances, variances, and weights (See Figures Appendix for example of use of C001)

Syntax Notes: At least one of MEA03 MEA05 MEA06 or MEA08 is required.

Semantic Notes: MEA04 defines the unit of measure for MEA03, MEA05, and MEA06.

Comments: When citing dimensional tolerances, any measurement requiring a sign (+ or -), or any measurement where a positive (+) value cannot be assumed, use MEA05 as the negative (-) value and MEA06 as the positive (+) value.

Data Element Summary

<u>Ref.</u>	<u>Data</u>		<u>Name</u>	<u>Attributes</u>
<u>Des.</u>	<u>Element</u>			
	MEA01	737	Measurement Reference ID Code	O ID 2/2
			Code identifying the broad category to which a measurement applies	
			PD Physical Dimensions	
	MEA02	738	Measurement Qualifier	O ID 1/3
			Code identifying a specific product or process characteristic to which a measurement applies	
			G Gross Weight	
			N Actual Net Weight	
			T Tare Weight	
	MEA03	739	Measurement Value	X R 1/20
			The value of the measurement	
	MEA04	C001	Composite Unit of Measure	X
			To identify a composite unit of measure (See Figures Appendix for examples of use)	
M	C00101	355	Unit or Basis for Measurement Code	M ID 2/2
			Code specifying the units in which a value is being expressed, or manner in which a measurement has been taken	
			KG Kilogram	
			LB Pound	

****This segment is used to indicate weight properties of the buyer part only****

Segment: REF Reference Identification
Position: 150
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To specify identifying information
Syntax Notes: 1 At least one of REF02 or REF03 is required.
 2 If either C04003 or C04004 is present, then the other is required.
 3 If either C04005 or C04006 is present, then the other is required.
Semantic Notes: 1 REF04 contains data relating to the value cited in REF02.
Comments:

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>		
M	REF01	128	Reference Identification Qualifier		M	ID 2/3
			Code qualifying the Reference Identification			
			KB	Beginning Kanban Serial Number		
			KP			
				This qualifier is used for Kanban Number.		
			LT	Lot Number		
	REF02	127	Reference Identification		X	AN 1/30
			Dock Number, Line Feed and/or Reserve Line Feed (when applicable)			

****This segment is used to reference either Kanban pull signals or lot numbers for the buyer part only****

SEGMENT: CLD Load Detail

LEVEL: Detail - Item

LOOP: HL/CLD **Repeat: 1**

USAGE: Optional

MAX USE: 1

PURPOSE: To specify the number and type of a container

COMMENT:

EXAMPLE: CLD*1*700* BIN52

Data Element Summary

<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
M	CLD01	622 Number of Loads	M NO 1/5 Number of customer-defined loads shipped by the supplier. This is the number of containers for this type.
	CLD02	382 Number of Units Shipped	M R 1/10 Numeric value of units shipped in manufacturer's shipping units for a line item or transaction set. Total item/part quantity per container.
	CLD03	103 Packaging Code	M AN 3/5 Code identifying the type of packaging; Part 1: Packaging Form, Part 2: Packaging Material; if the Data Element is used, then Part 1 is always required. Any valid X12 code value except mutually defined. This is the container code.

SEGMENT: REF Reference Identification

LEVEL: Detail - Item

LOOP: HL/CLD

USAGE: Optional

MAX USE: 200

PURPOSE: To specify identifying information

COMMENT:

<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u>	<u>Attributes</u>
REF01	128	Reference Identification Qualifier Code qualifying the Reference Identification Either "LS" for serial number or "LT" for lot number	M ID 2/3
REF02	127	Reference Identification. The serial number or lot number value.	X AN 1/20

Segment: ETD Excess Transportation Detail
Position: 300
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify information relating to premium transportation
Syntax Notes: 1 If either ETD03 or ETD04 is present, then the other is required.
Semantic Notes: 1 ETD03 qualifies the authorization number given in EDT04.
Comments:

Data Element Summary

Ref. Des.	Data Element	Name	Attributes
M	ETD01	626	Excess Transportation Reason Code M ID 1/2
			Code identifying the reason for shipment via premium transportation rather than the normal mode of transportation
		ZZ	Mutually Defined
M	ETD02	627	Excess Transportation Responsibility Code M ID 1/1
			Code identifying the organization responsible for paying the premium transportation costs
		Z	Mutually Defined
	ETD03	128	Reference Identification Qualifier X ID 2/3
			Code qualifying the Reference Identification
		ZZ	Mutually Defined
	ETD04	127	Reference Identification X AN 1/30
			Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier. This is the AETC number.

Segment: **CTT** Transaction Totals
Position: 010
Loop:
Level: Summary
Usage: Optional
Max Use: 1
Purpose: To transmit a hash total for a specific element in the transaction set
Semantic Notes:
Comments: 1 This segment is intended to provide hash totals to validate transaction completeness and correctness.

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u> <u>Attributes</u>		
M	CTT01	354	Number of HL segments	M	N0 1/6
			Total number of line items in the transaction set		
	CTT02	347	Hash Total	O	R 1/10
			Sum of values of the specified data element. All values in the data element will be summed without regard to decimal points (explicit or implicit) or signs. Truncation will occur on the left most digits if the sum is greater than the maximum size of the hash total of the data element. Example: -.0018 First occurrence of value being hashed. .18 Second occurrence of value being hashed. 1.8 Third occurrence of value being hashed. 18.01 Fourth occurrence of value being hashed. ----- 1855 Hash total prior to truncation. 855 Hash total after truncation to three-digit field.		

Segment: **SE** Transaction Set Trailer
Position: 020
Loop:
Level: Summary
Usage: Mandatory
Max Use: 1
Purpose: To indicate the end of the transaction set and provide the count of the transmitted segments (including the beginning (ST) and ending (SE) segments)

Data Element Summary

	<u>Ref. Des.</u>	<u>Data Element</u>	<u>Name</u> <u>Attributes</u>		
M	SE01	96	Number of Included Segments	M	N0 1/10
			Total number of segments included in a transaction set including ST and SE segments		
M	SE02	329	Transaction Set Control Number	M	AN 4/9
			Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set		

Generic Ship Notice Example

No containers being used

ISA*00* *00* *01*SWTESTSUPP5 *01*SWTESTCUST
*060608*1352*U*00401*000000041*0*T~
GS*SH*SWTESTSUPP5*SWTESTCUST*20060608*1352*41*X*004010
ST*856*0001
BSN*00*77001363*20060608*1352
DTM*011*20060608*1256
DTM*017*20060608*1256
HL*1**S
MEA*PD*G*1504*LB
MEA*PD*N*1500*LB
TD5*B*2*SCAC
TD5***E
TD3*RR**RailCarNo
REF*BM*billOfLadingNo
REF*PK*shipperNo
REF*DK*dock1
N1*SU**1*supplierId
N1*ST**1*shipToId
N1*MI**92*facilityId
N1*SF**92*shipFromId
HL*2*1*O
LIN**BP*buyerPartNo*PO*poNumber1*EC*engineeringChg*RY*modelYear2012***KB*kbanPullSignalNo
SN1**800*EA*325200**EA
PRF*poNumber1*releaseNo
MEA*PD*N*1000*LB
MEA*PD*G*1100*LB
REF*KB*PullSignal1
REF*LT*LotNo1
ETD*ZZ*Z*ZZ*AetcNo
CTT*1*800
SE*44*0001
GE*1*41
IEA*1*000000041

Line Item with only Loose container

ISA*00* *00* *01*SWTESTSUPP5 *01*SWTESTCUST
*060608*1352*U*00401*000000041*0*T~
GS*SH*SWTESTSUPP5*SWTESTCUST*20060608*1352*41*X*004010
ST*856*0001
BSN*00*77001363*20060608*1352
DTM*011*20060608*1256
DTM*017*20060608*1256
HL*1**S
MEA*PD*G*1504*LB
MEA*PD*N*1500*LB
TD5*B*2*SCAC
TD5***E
TD3*RR**RailCarNo
REF*BM*billOfLadingNo
REF*PK*shipperNo
REF*DK*dock1
N1*SU**1*supplierId
N1*ST**1*shipToId
N1*MI**92*facilityId
N1*SF**92*shipFromId
HL*2*1*O
LIN**BP*buyerPartNo*PO*poNumber1*EC*engineeringChg*RY*modelYear2012***KB*kbanPullSignalNo
SN1**800*EA*325200**EA
PRF*poNumber1*releaseNo
MEA*PD*N*1000*LB
MEA*PD*G*1100*LB
REF*KB*PullSignal1

REF*LT*LotNo1
ETD*ZZ*Z*ZZ*AetcNo
HL*3*2*I
LIN**LS*LOOSE CONTAINER
CLD*2*200*RTCXX
REF*LS*serialNo1
CTT*1*800
SE*44*0001
GE*1*41
IEA*1*000000041

Line Item with only Loose container

Master and Detail Container example

ISA*00* *00* *01*SWTESTSUPP5 *01*SWTESTCUST
*060608*1352*U*00401*000000041*0*T~
GS*SH*SWTESTSUPP5*SWTESTCUST*20060608*1352*41*X*004010
ST*856*0001
BSN*00*77001363*20060608*1352
DTM*011*20060608*1256
DTM*017*20060608*1256
HL*1**S
MEA*PD*G*1504*LB
MEA*PD*N*1500*LB
TD5*B*2*SCAC
TD5***E
TD3*RR**RailCarNo
REF*BM*billOfLadingNo
REF*PK*shipperNo
N1*SU**1*supplierId
N1*ST**1*shipToId
N1*MI**92*facilityId
N1*SF**92*shipFromId
HL*2*1*O
LIN**BP*buyerPartNo*PO*poNumber1*EC*engineeringChg*RY*modelYear2012***KB*kbanPullSignalNo
SN1**800*EA*325200**EA
PRF*C1
MEA*PD*N*1000*LB
MEA*PD*G*1100*LB
REF*KB*PullSignal1
REF*LT*LotNo1
ETD*ZZ*Z*ZZ*AetcNo
HL*3*2*T
LIN**RC*RETURNABLE CONTAINER
CLD*2*200*RTC25
REF*LS*CJ1000009
HL*4*3*I
LIN**DT*DETAIL CONTAINER
CLD*2*200*RTCXX
REF*LS*CJ1000010
CTT*4*800
SE*44*0001
GE*1*41
IEA*1*000000041

DOCUMENT CONTROL LIST

DEPARTMENT: PROCUREMENT-QA

DOCUMENT TYPE: FORMS

Corresponding WI/SASR	Form #	Title	Revision	No. of Pages	Revision Date
M00-00A	FORM A	Purchasing Exception Request	0	1	9/5/19
M20-20A	FORM A	NDA	0	3	6/14/19
M50-01A	FORM A	Supplier Handbook Format	0	2	6/13/19
M50-01A	FORM B	Supplier Handbook Update Request Form	0	1	6/13/19
M50-01A	FORM C	Supplier Handbook Approval List	0	1	6/13/19
M50-55A	FORM A	Supplier Rating Worksheet	0	2	9/24/19
M50-55A	FORM B	Supplier Rating Corrective Action Request	0	1	9/24/19
M50-55A	FORM C	Strategic Suitability Evaluation	0	1	9/24/19
M50-02A	FORM D	Supplier Maintenance Form	1	2	5/26/20
M50-02A	FORM B	Approved Supplier List	0	1	9/24/19
M50-02A	FORM C	Supplier Self Assessment Form	0	5	9/26/19
M50-02A	FORM E	Supplier Contact Sheet	0	1	9/24/19
M52-01A	FORM A	Tooling Agreement	0	4	9/13/19
M52-01A	FORM B	Tool Order Process Sheet	0	2	9/13/19
M52-01A	FORM C	Tooling Audit	0	2	10/15/19
M20-01A	FORM A	Supplier Cost Breakdown Sheet	0	1	10/10/19
M23-01A	FORM A	Request for Quotation	0	1	1/13/20
PUR-FORM-010		VEC Proposal Form	3	N/A	
PUR-FORM-013		Internal Purchase Requisition	N/A	N/A	
PUR-FORM-039		Request for Quotation (Japan)	N/A	N/A	
PUR-FORM-061		Advanced Production Quality Planning Status Report	N/A	N/A	
PUR-FORM-080		Hitachi Purchasing Card Program	N/A	N/A	
PUR-FORM-092		Supplier Capacity Self Assessment	N/A	N/A	
PUR-FORM-093		Internal Supplier Capacity Audit	N/A	N/A	
QA-Form-200		(HIAMS) Control Plan	5	N/A	
QA-Form-581		MSA and Gauge R & R	2	N/A	
SQA-Form-001		Supplier Audit	3	N/A	
SQA-Form-002		Control Plan Audit	0	N/A	
SQA-Form-007		Supplier Corrective Action Request Fax	1	N/A	
SQA-Form-008		Supplier Corrective Action Request	2	N/A	
SQA-Form-009		Electronic FAR Timeline	2	N/A	
SQA-Form-010		Supplier Corrective Action Request Follow-up	0	N/A	
SQA-Form-011		Supplier 8-D Report	1	N/A	
SQA-Form-012		Supplier 8-D Checklist	0	N/A	

SQA-Form-013		Supplier Quality Improvement Program	1	N/A	
SQA-Form-014		Supplier Quality Improvement Program Evaluation	0	N/A	
SQA-Form-017		PPAP Part Submission Warrant	3	N/A	
SQA-Form-018		Dimensional Test Results Form	1	N/A	
SQA-Form-019		Performance Test Results Form	1	N/A	
SQA-Form-020		Material Test Results	1	N/A	
SQA-Form-021		Capability Study Summary	1	N/A	
SQA-Form-022		Supplier Capability Summary Data	0	N/A	
SQA-Form-023		Bulk Material Check sheet	1	N/A	
SQA-Form-024		PPAP Part Tag	0	N/A	
SQA-Form-025		Sample Trail Part Tag	0	N/A	
SQA-Form-026		NCPDN Tag	0	N/A	
SQA-Form-027		Supplier Process Review	1	N/A	
SQA-Form-028		Questionnaire	3	N/A	
SQA-Form-033		Supply Chain	0	N/A	
SQA-Form-039		Pre-Production Quality Control Index List	0	N/A	
SQA-Form-041		SCAR PK for Electronics	0	N/A	

(ASTEMO)AM-HK and Support Sites Acronyms, Terms & Definitions

Please note: This document is for reference only and is not intended to be all-inclusive of Acronyms and Terms used by (ASTEMO)AM-HK and support sites. Acronyms and Terms needing to be added should be reported to QMS.

1PP	1 st Production Prove-out (Ford): The First Production Prove-Out units built at the assembly plant approximately 4 months before Job #1 (MBJ1). Considered Pre-Launch units.
2V	Two Valve Engine Configuration
2WD	2-Wheel Drive
3D	Three Dimensional
3-D	Three Discipline Report (first 3 steps of a 8-D Report) BorgWarner
3P's	People / Processes / Products
3R	Reduce, Reuse and Recycle
3S	Seiri / Seiton / Seiketu
4V	Four Valve Engine Configuration
4WD	Four Wheel Drive
4WDCU	Four Wheel Drive Control Unit
4ΦVDP	Four Phase Vehicle Development Program
5-D	Five Discipline Report (first 5 steps of a 8-D Report) BorgWarner
5-P	Honda Problem Solving Report
5P	<u>P</u> re- <u>P</u> roduction <u>P</u> art <u>P</u> rove-out <u>P</u> rogram (Ford)
5S	5S is the Japanese concept for House Keeping. 1. Sort (Seiri) 2. Set in order (Seiton) 3. Shine (Seiso) 4. Standardize (Seiketsu) 5. Sustain (Shitsuke)
5 Whys	The 5 why's typically refers to the practice of asking, five times, why the failure has occurred in order to get to the root cause/causes of the problem. There can be more than one cause to a problem as well. In an organizational context, generally root-cause analysis is carried out by a team of persons related to the problem. No special technique is required.
8-D Process	The 8-D Process is a problem solving method for product and process improvement. It is structured into 8 steps (the D's) and emphasizes team. This is often required in automotive industries. The 8 basic steps are: Define the problem and prepare for process improvement, establish a team, describe the problem, develop interim containment, define & verify root cause, choose permanent corrective action, implement corrective action, prevent recurrence, recognize and reward the contributors.
A-SAMS	ACH - Supplier APQP Management System (See ACH)
A/D/V	Analysis/ Development/ Validation
A/D/V P&R	Analysis/ Development/ Validation - Plan and Report (NOTE: GM form used to summarize the plan and results for validation testing. Additional information can be found in the GP-11 procedure.)
A/F	<ul style="list-style-type: none"> • Air Flow, • Air Fuel Ratio
A/M/S	Automatic, Manual, Semi-automatic (Used to describe a process on a FMEA)
A/P	Account Payable
A/T	Automatic Transmission
AA	Automotive Association
AAA	American Automotive Association
AAL	APQ Activity Level (Daimler)
AALA	<ul style="list-style-type: none"> • American Association for Laboratory Accreditation,

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	<ul style="list-style-type: none"> American Automobile Labeling Act 		
AAM	American Axle & Manufacturing		
AAR	Appearance Approval Report		
AAS	Assignment Action Sheet (GM) - used to documents issues that come up at the daily VS or weekly PPSR meeting, any assignments given are captured here and reviewed at next meeting.		
ABC	ABC Air Management Systems		
ABF	Arkansas Best Freight (Trucking)		
ABI	Automated Brokerage Interface (FTZ)		
ABMA	American Bearing Manufacturer's Association		
ABS	<ul style="list-style-type: none"> Anti-lock Braking System, Absent/Absence 		
ABV	Air Bypass Valve		
AC	Alternating Current		
Acceleration Days	The number of days required for a plant to reach its straight time operating rate for launch of a new model or option. Normally start-up at Job #1 of new model year. (Chrysler)		
Accessories	Parts not included within the original specification of the vehicle		
Accreditation	Certification by a duly recognized body of the facilities, capability, objectivity, competence, and integrity of an agency, service or operational group or individual to provide the specific service(s) or operation(s) needed.		
Accredited Registrars	Qualified organizations certified by a national body (e.g., the Registrar Accreditation Board in the US.) to perform audits to the ISO-9000 standard and to register the audited facility as meeting these requirements for a given commodity.		
Acct	Accounting		
ACE	Associate Chief Engineer		
ACH	<ul style="list-style-type: none"> Automotive Components Holdings, LLC. (Visteon) Automatic Clearing House (FTZ) 		
ACM	Assembly Concern Memo (Nissan)		
Actions Taken	The section of an FMEA in which a description of the action(s) taken and corresponding effective date(s) are recorded.		
aCVE	Assistant Chief Vehicle Engineer (Nissan)		
ADA	Americans with Disabilities Act		
AD&D	Accidental Death & Dismemberment		
ADJ	Adjust		
ADM, ADMIN	Administration Department		
ADV P & R	Analysis/ Development/ Validation Plan & Report (Delphi)		
AEI	Agrément des Echantillons Initiaux (Renault-Nissan)		
AEMCLRP	Automotive Electromagnetic Compatibility Laboratory Accreditation Recognition Program		
AEP	<ul style="list-style-type: none"> Anna (OH) Engine Plant (Honda), Actual Effective Point (Chrysler): Actual point where usage changed on an existing part or a part was cancelled or a new part introduced. 		
AETC	Authorization for Excess Transportation Code		
AFC	Air Flow Control		
AFCQA	Air Flow Control Quality Assurance		
AFM	Air Flow Meter		
AFM-SDI	Air Flow Meter - Slotted Drop-In		
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AFS	<ul style="list-style-type: none"> • Air Flow Sensor, • Adaptive Front-Lighting System
AFSD	Air Flow Sensing Devices
AG	Air gauge
AHS	<p>Advanced Hybrid System</p> <ul style="list-style-type: none"> • AHS2 - GM platform and also a shared technology development with Daimler and BMW. • AHS-C - hybrid transmissions (luxury cars) • AHS-R - hybrid transmissions (rear wheel drive cars) • AHS-T - hybrid transmissions (trucks)
AIAM	Association of International Automotive Manufacturers
AIAG	Automotive Industry Action Group is an industry organization that, among other responsibilities, provides administrative support to the Automotive, Truck and Heavy Equipment industries for supplier quality requirements, and distributes related manuals and publications.
AIEE	American Institute of Electrical Engineers
AIF	Annual Improvement Factor (BorgWarner)
AIM or AIMS	<ul style="list-style-type: none"> • Automated Issues Management (Ford) • Automated Issues Management System (Nissan)
AIPP	Advance Initial Production Part Approval
AIPPAAR	Advance Initial Production Part Approval/ Acceptance Request (Honda)
AL	Aluminum
ALARA	As Low As Reasonably Achievable - Making every reasonable effort to maintain exposures to radiation as far below the dose limits in 902 KAR 100-019 as practical, consistent with the purpose for which the licensed activity is undertaken. ALARA shall take into account the state of technology, the economics of improvement in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, in relation to the utilization of nuclear energy and radioactive materials in the public interest.
ALB	Anti-lock Brakes
Alert	Issued in the WERS system by Visteon Product Engineering to specify the time period or quantity for which a non-conforming product can be used.
All-Time Run	The final run of service parts or assemblies. After such items have been received or approved by the ordering division, supplier may dispose of special tools not used to produce other shipping items. (Chrysler)
ALT	Alternator
AM or A/M	Aftermarket
AMA	American Management Association
AMDEC	Analyse Modes de Défaillance, leurs Effets et leur Criticité (Renault-Nissan - FMEA)
AME	Association for Manufacturing Excellence, Advance Manufacturing Engineering (Daimler)
AM or A/M	After Market or Aftermarket
AMPS	Accord Montage Pré Série (Renault-Nissan)
AMRP	Approved Manufacturing Rework Process
AMS	Assembly Material Systems: Entire set of systems/ processes used within an assembly plant to operate the plant.
ANEMS	All Nissan Engineering Management System
ANPQP	Alliance New Product Quality Procedure (Renault-Nissan)
ANS	American National Standard
ANSI	American National Standard Association

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ANX	Automotive Network Exchange
AO	Accredited Organization
AOI	Automated Optical Inspection
AP	Advanced Purchasing
A/P	Accounts Payable (F&A)
APPS	Assigned Practical Problem Solving (GM)
APEI	Assembly Plant End Item (Chrysler): Parts purchased from suppliers which are installed directly on vehicles at the assembly plant.
API	Application Programming Interfaces
APICS	American Production & Inventory Control Society
APIS	Advance Part Information System (Chrysler): System used to disclose part activity before the entire change process is complete.
APOX	Automobile Power Operating Multiplexing
APM	Accessory Power Module
APQP	Advanced Product Quality Planning. A structured process for producing a quality plan, which supports the development and production of a product that will satisfy the customer. Reference the AIAG manual (<i>Advanced Product Quality Planning and Control Plan - APQP[®]</i>) for a complete description.
APS	Automotive Products Group Procedural Standard
AQC	Attribute Quality Characteristics (GM)
AQF	Assurance Qualité Fournisseur (Renault-Nissan - SQA)
AQL	Acceptable Quality Level
AQP	Advanced Quality Planning
AQPP	Assurance Qualité Produit Processus (Renault-Nissan)
A/R	Account Receivable (F&A)
A.S.	Automotive Systems (Hitachi Ltd.)
AS-400	IBM'S Mainframe Computer System
ASA	Application Sheet for Approval (Toyota)
ASAP	<ul style="list-style-type: none"> • As Soon As Possible, • Automatic Stock and Pick
ASCD	Automatic Speed Control Device
ASD	Airflow Sensing Device
ASDE	Advance Supplier Development Engineer - Visteon Supplier Performance engineer managing parts from initial sourcing to SOP + 90 days.
ASL	Approved Supplier List
ASME	American Society of Mechanical Engineers
ASN	Advanced Shipping Notice: An EDI transaction (856); that contains various information regarding the shipment of parts/ materials.
ASP	Application-Service-Provider
ASQ	American Society of Quality
ASQP	Advance Supplier Product Quality Planning (Daimler)
Assembly Variation	Differences in product characteristics caused by the inherent assembly process variability.
Assessment	An evaluation process including a document review, an on-site audit and an analysis and report. (See Quality audit)
Assignable cause	See Special Cause.
Assy	Assembly

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ASTM	American Society for Testing and Materials
AT	Automatic Transmission
ATCU	Automatic Transmission Control Unit
ATCV	Automatic Transmission Control Valve
ATT	Actual TAKT Time - The planned time available to produce a product or service after accounting for system losses. (See TAKT Time)
Attachments	A software feature that allows you to store notes and files directly in the FMEA. These attachments stay with the FMEA, but do not appear on the standard FMEA printout.
Attributes	Qualitative data that can be counted for recording and analysis. Examples include characteristics such as the presence of a required label and the installation of all required fasteners.
ATTS	Active Torque Transfer System
Audit	An onsite verification activity used to determine the effective implementation of the quality management system.
Audit client	Organization or person requesting an audit.
Audit conclusion	Outcome of an audit provided by the audit team after consideration of the audit objectives and all audit findings.
Audit criteria	Set of policies, procedures or requirements used as a reference (while conducting an audit).
Auditee	Organization/ individual being audited.
Audit evidence	Records, statements of fact or other information, which are relevant to the audit criteria and verifiable.
Audit findings	Results of the evaluation of the collected audit evidence against audit criteria.
Auditor	Person with the competence to conduct an audit.
Audit Program	Set of one or more audits planned for a specific time frame and directed towards a specific purpose.
Audit team	One or more auditors conducting an audit.
AUP	Automotive Products (HAL)
AUTECS	Automotive Electronic Control Systems
AUTRANS	Autrans Corporation
Average or mean	The most common expression of the centering of a distribution. It is calculated by totaling the observed values and dividing by the number of observations.
AVSQ	Associazione nazionale dei Valutatori di Sistemi Qualità (Italy)
AWD	All-Wheel Drive
AWT	Actual Working Time (Used to calculate Efficiency)
AWS	Analytical Warranty System (Ford)
B&A	Body & Assembly
BAM	Bundesanstalt fur Materialprufung (Daimler)
BAS	Belted Alternator/ Starter
BBB	Better Business Bureau
BBSS	Body Build Sequence Schedule
BCM	Body Control Module
Benchmark Data	The results of an investigation to determine how competitors and/or best-in-class companies achieve their level of performance.
BEP	Break Even Point
BET	Business Expansion Team
Bimodal Distribution	A distribution with two identifiable curves within it, indicating a mixing of two populations such as different shifts, machines, workers,

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	etc.
BIW	Body in White
B/L	Bill of Lading
Black Box	An assembly purchased by Ford. The Supplier is responsible for the design of the components, but Ford Product Engineering is responsible for providing design or material specifications. All aspects of the assembly's function are directed by a Ford engineering specification.
Block Diagram	Now known as Boundary Diagram. An illustration that represents the scope of the FMEA, including interfaces. It is usually used in a Design FMEA.
BMP	Best Management Practices
BO	Blanket Order
Boilerplate	Template
BOL	Bill of Lading
BOM	Bill of Material
BOP	Bill of Process
BorgWarner or BWA	BorgWarner Automotive
BOSS	Blanket Order Selection System (Ford)
Bottleneck	A process constraint which limits the throughput of the total facility
Boundary Diagram	Formerly known as a Block Diagram. An illustration that represents the scope of the FMEA, including interfaces. It is usually used in a Design FMEA.
Boundary Sample	Mass Production representative parts, which establish a sensory standard when the characteristic is difficult to define or communicate by any other method. They may be temporary or permanent, and must define the acceptable limits. (Toyota)
BPS	Boost Pressure Sensor
BRIC	BRIC is a term used to refer to the combination of emerging markets of Brazil, Russia, India and China.
Break Point	The Break Point is the point at which all subsequent parts are known to be good due to containment and/or corrective action having taken place.
BS	British Standard
BSD	Business Systems Development
BSI	British Standard Institute
BSR	<ul style="list-style-type: none"> • Board of Standards Review • Buzz - Squeak - Rattle: objectionable vehicle attributes. (Daimler)
BU	Business Unit
Buyer	The person responsible for planning and executing the purchase order process.
BWA	BorgWarner Automotive
BWTTS	BorgWarner Torq Transfer Systems
C-TPAT	Customs-Trade Partnership Against Terrorism
C/F	Checking Fixture: A device used to verify the dimensional integrity of a finished product. (Toyota)
C/M	Countermeasure
C/S	Central Stores
C/U	Control Unit
C of C	See Classification of Characteristics
CA	<ul style="list-style-type: none"> • Corporate Approval, • Corrective Action
CAA	Clean Air Act

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CAC	Community Action Committee
CAD	Computer-Aided (Assisted) Design
CAE	Computer-Aided (Assisted) Engineering
CAFE	Corporate Average Fuel Economy - Government mandated target of Average MPG for automotive OEMs. The target is the corporate average for all vehicles sold in the US, in a model year.
CAI	Computer-Aided (Assisted) Inspection
CALI	Calibration
CAM	Computer-Aided (Assisted) Manufacturing
Campaign	<p>Ford - Campaign is another term for Vehicle recall. Before an automotive manufacturer engages in a campaign, there has been thorough investigation and analysis of the issue. Often this analysis begins with a Global 8D where the root cause which generated the in field defect to occur is determined. Additionally, the "escape" root cause is determined. In other words, how did the product testing miss this defect?</p> <p>Corrective actions are targeted at both items and implemented as part of the correction to the vehicles in question. When an issue is raised to a recall, the Global 8D will have additional information added, and it will become a 14D. In your FMEA, indicate any applicable historic recall numbers in the "campaign" field in the header. Also clearly indicate the control(s) that was/were implemented to "detect" the defect in the detection portion of the controls column preceded with: "Control initiated / revised due to vehicle campaign:" followed by the control(s).</p>
CAP	Customer Approval Package
CAPA	Corrective and Preventive Actions
Capability	<ul style="list-style-type: none"> • The total range of inherent variation in a stable process. (See Process Capability) • The ability of an organization, system or process to realize a product that will fulfill the requirements for that product. • The ability of a process to produce product within specification. The capability of a process may be measured by indices, such as, Cp, Cpk, Z score etc.
Capability Index	Ratios that show the ability of a process to produce products that conform to a given specification. These indices provide a convenient way to refer to the capabilities of a process after the process has been verified to be in a state of statistical control. (See also Cp, Cpk, Pp and Ppk.)
Capacity Verification	A verification methodology to demonstrate that a supplier can meet the capacity planning volume requirements as defined in the purchasing Request for Quote (RFQ).
CAPE	Computer-Aided (Assisted) Production Engineering
CAPP	Computer-Aided (Assisted) Process Planning
CAPS	Combine Active & Passive Safety Systems
CAPTIN	Canadian Autoparts Toyota, Inc.
CAR	Corrective Action Request
CARB	California Air Resource Board
CARD	<ul style="list-style-type: none"> • Corrective Action Request-Delivery • Claims and Reporting Database (GM)
C.A.R.E.	Customer Acceptance Review & Evaluation (GM) - Protects your customer from non-conforming product, discrepancies and labeling errors.
CARP	Component Approved Rework Process
CAS	Compliance Assurance System
CASCO	ISO Committee on Conformity Assessment

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CASE	<ul style="list-style-type: none"> • Computer-Aided (Assisted) Software Engineering, • Conformity Assessment Systems Evaluation (see NVCASE)
CAS NO.	Chemical Abstract Service Registry Number
Cause	<p>The "How" or "Why" that leads to the Failure Mode.</p> <ul style="list-style-type: none"> • In a Design FMEA and Design Concept FMEA, Cause is a description of the factor(s) contributing to the Failure Mode. These include design deficiencies that prevent performance to specification, create incorrect inputs, or result in adverse interactions between elements in a system. It is the manifestation of a design weakness, the consequence(s) of which is a Failure Mode. <p>In a Process FMEA and Process Concept FMEA, Cause is a manufacturing or assembly deficit that impacts the functionality of the item or the process and results in an unacceptable condition.</p>
Cause and Effect Diagram	A diagram that depicts the relationship between an effect and all the possible causes. Often referred to as an Ishikawa "Fishbone" Diagram. See also Ishikawa "Fishbone" Diagram.
CBC	Corner Brake Control
CBF	Common Business Forms
CBU	Complete Built-up Unit
<CC>	Change Cutoff (Ford FPDS Milestone)
CC	<ul style="list-style-type: none"> • Component Code (Daimler) • Continuing Conformance (Tests): Tests and evaluations performed during production to monitor the effects of processing and to assure continued conformance to engineering requirements. (DaimlerChrysler) • Critical Characteristic: Production requirements (dimensions, performance tests) or process parameters that can affect compliance with government regulations or safe vehicle/ production function, and which require Special Controls, i.e. specific supplier, assembly, shipping or monitoring actions to be included on Control Plans.
CCAP	Customer Concern Action Procedure
CCAPS	Corporate Centralized Accounts Payable System (Ford)
CCAR	Concern and Corrective Action Report (Nissan)
CCD	Commercial Commitment Document (Nissan), Charge Coupled Device
CCF	Customer Concern Form
CCMP	Control of Changes in Manufacturing Process
CCMR	8-D Concern & Countermeasure Reply (Renault-Nissan)
CCP	Collaborative Criteria Process (GM)
CCR	<ul style="list-style-type: none"> • Concern & Countermeasure Request (Renault-Nissan - 8D), • Central Control Room
CCT	<ul style="list-style-type: none"> • Cross Company Team
CD	<ul style="list-style-type: none"> • Control Datum, • Compact Disc, • Committee Draft
CDC	<ul style="list-style-type: none"> • Cahier Des Charges (Renault-Nissan - Spec Tender), • Center of Disease Control
CDLS	Common Datum Locating Strategy
CDP	Concerns Detection Process
CDSS	Cost Down Summary Sheet
CED	Consolidated Emission Directive
CEE	Central Eastern Europe
CEO	Chief Executive Officer

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CE Mark	Conformité Européenne Mark of approval (used by the European Union). European Union product safety certification symbol. This is a product certification mark required on certain products to be sold in Europe.		
CE	Cost Engineering		
CEN	European Committee for Standardization		
CENELEC	European Committee for Electro-technical Standardization Certificate of compliance. <i>A document signed by an authorized party affirming that the supplier of a product or service has met the requirements of the relevant specifications, contract, or regulation.</i>		
CEPF	(Toyota) Countermeasure Execution Promotion Function: A function within the exporting region that assumes responsibility to perform quality problem handling, including promotion of countermeasures for nonconforming parts.		
Certificate	Awarded following recommendation after the initial assessment, and maintained through continuing assessments.		
Certificate of conformance	(Certificate of conformity) A document signed by an authorized party affirming that a product or service has met the requirements of the relevant specifications, contract, or regulation.		
CFC	Chlorofluorocarbons		
CFM	Coil Focus Meeting		
CFT	<ul style="list-style-type: none"> • Customer Focus Team, • Cross Functional Team 		
Characteristic	<ul style="list-style-type: none"> • Distinguishing feature 		
CGM	Computer Graphics Metafile		
CGMT	Core Group Management Team		
CIDR	Compartment Integration Design Engineer (GM)		
CIF	Cost, Insurance & Freight		
CIM	Computer Integrated Manufacturing		
CIT	Compartment Integration Team (GM)		
CKD	<ul style="list-style-type: none"> • Complete Knock Down (Local assembly with Japan parts), • A term indicating pieces are shipped individually rather than together in assembly. (Chrysler) 		
CKFD	Control Plan Key Feature Diagram (Nissan)		
CKQA	Commonwealth of Kentucky Quality Award		
CKV	Complete Knock-Down Vehicle (Toyota)		
Classification of Characteristics (C of C)	<p>The process of classifying product and process characteristics for the optimum utilization of engineering, manufacturing, and supply base resources. In TS16949 terms these are Customer Designated Special Characteristics. C of C has four types of characteristic:</p> <ol style="list-style-type: none"> a) Critical Characteristic - A dimension, material property, physical feature, etc. which, if not to specification could be a safety risk, or will certainly cause operational failure or a loss of performance. b) Major Characteristic - A dimension, material property, physical feature, etc. which if not to specification will probably cause operational failure, loss of performance, increased service cost or disruption to manufacturing. c) Minor Characteristic - A dimension, material property, physical feature, etc. which has not been classified as Key, Critical or Major. It exists only as a general class to describe characteristics that do not fit other classifications. Although not classified as Critical, Major, or Key the supplier is responsible for ensuring these characteristics meet the print specification. Holset calls these Standard Characteristics d) Key Characteristic - A dimension, material property, physical 		
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	<p>feature, etc. that has been identified as being key to subsequent manufacturing or assembly operations. Key characteristics may be identified by the SQI Engineer. Key characteristics apply predominantly to minor characteristics.</p> <p>Classification of Characteristics is intended to serve as a guide for the development of supplier process quality plans - not to relieve suppliers of the responsibility to produce all features to specification.</p>
CLP	Chrysler Laboratory Procedures
CM	<ul style="list-style-type: none"> • Countermeasure • Corrective Maintenance - Any task performed to restore operation of a unit of equipment.
CMC	Change Management Checklist (BorgWarner)
CMM	Coordinate Measuring Machine
CMMS3	Common Material Management System (Ford)
CCMD	Control of Monitoring & Measuring Devices
CMT	Certified Medical Technician
CMVSS	Canadian Motor Vehicle Safety Standards
CN	Change Notice: System used to control the activity of processing changes to parts.
CNC	Computer Numerical Control
COC	Chamber of Commerce
COCUM	Coordinating Committee for Export Control to Communist Area
COD	Collect on Delivery
COE	<ul style="list-style-type: none"> • Center of Expertise (GM), • Corporate Office Environment
Common Cause	A source of variation that is always present as part of the random variation inherent in the process itself. Its origin can usually be traced to an element of the system which only management can correct.
COMMWIP	GM memory aid for the 7 Types of Waste: Correction, Over-production, Motion, Material Movement or Conveyance, Waiting, Inventory, Processing.
Compatibility	How well things work together. (Organizations, people, processes, products, services, etc.)
Competence	Demonstrated ability to apply knowledge skills.
Compliance	An affirmative indication or judgment that the supplier of a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements.
Component	Any raw material, substance, piece, part, software, firmware, labeling, or assembly; which is intended to be included as part of the finished, packaged, and labeled device.
Concession	See Waiver Permission to use or release a product that does not conform to specified requirements.
Confidentiality/ Non Disclosure Agreement (NDA)	Contracts entered into by two or more parties in which some or all of the parties agree that certain types of information that pass from one party to the other or that are created by one of the parties will remain confidential.
Conformance	An affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation; also the state of meeting the requirements.
Conformity	<ul style="list-style-type: none"> • The fulfilling by an item or service of specification requirements. • Fulfillment of a requirement. <p>Does the product or service meet all the specifications and requirements agreed upon by both the customer and the supplier? If it does, it is in</p>

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	conformity. If not, it is non-conformant.
CONSULT	Computerized Onboard System Universal Tester
Continual Improvement	Recurring activity to increase the ability to fulfill requirements.
Contract review	This is a verification done by the supplier, with or without the customer's help, of any contract between the two parties. It allows the supplier to make sure that they know exactly what it is the customer expects from the product or service being supplied. It also gives the supplier the opportunity to see whether they are capable of providing the product or service in question.
Contractor	Whoever is providing the product or service. This is the same as a supplier, but used when a contract of some kind is involved.
Control Chart	A graphic representation of a characteristic of a process, showing plotted values of some statistic gathered from that characteristic, and one or two control limits.
Control Limit	A line (or lines) on a control chart used as a basis for judging the significance of the variation from subgroup to subgroup. Variation beyond a control limit is evidence that special causes are affecting the process. Control limits are calculated from process data and are not to be confused with engineering specifications.
Control Plan (CP)	<ul style="list-style-type: none"> • Documented description of the systems for controlling product (parts and processes). • Written description of the system of controlling product, material, and processes. It addresses the important characteristics for engineering requirements of the product.
Component	The individual parts that are linked or integrated into a vehicle, system or subsystem.
COO	<ul style="list-style-type: none"> • Chief Operating Officer, • Country of Origin - is the country of the manufacture or production where a part or product is produced.
COP	Career Opportunity Posting
COPQ	Cost of Poor Quality
COQ	Cost of Quality
Coordinating Manufacturer:	The designated Toyota Manufacturing company responsible to facilitate supplier Quality Assurance activities when that supplier provides a common part to more than one Toyota company.
Component marking (Renault-Nissan)	Component marking includes any marking that is made on the product to aid identification of the product. Typically this includes part number, Renault and / or Nissan symbol, Material type, traceability identification. For Renault refer to the Renault Standard Q0002C200. Marking to be made to the tooling should also be included.
Correction	Action to eliminate a detected nonconformity.
Corrective Action	<ul style="list-style-type: none"> • Action to eliminate the cause of a detected nonconformity or other undesirable situation. • Some action taken to correct the process or procedure after a specification or requirement has not been met, so that it doesn't happen again.
Correction Action Plan	A plan for correcting a process or part quality issue.
Countermeasure	The set of actions to analyze, identify and permanently eliminate the root cause(s) of a non-compliance or nonconformance.
Covisint	A web-based system that grants qualified Supplier users access to selected portions of the DaimlerChrysler, Delphi, Ford & Visteon Networks.
CP	<ul style="list-style-type: none"> • Control Plan • Confirmation Prototype (Ford), • Computer Planned Order
CPARS	Corporate Procurement And Receiving System (Ford)

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Cp	<ul style="list-style-type: none"> Process Potential Index - a measure of variation compared to the tolerance (uses R bar over d2 as an estimator of sigma) <p>A capability index is the ratio of the part specification tolerance to the Six-Sigma process spread without regard to the location of the data. It is calculated after verifying that the process is in a state of statistical control</p>
CPIT	Current Product Improvement Team (GM)
Cpk	Process Capability Index - a measure of variation and targeting compared to the tolerance (uses R bar over d2 as an estimator of sigma)
CPM	<ul style="list-style-type: none"> Complaint On Purchased Material (BorgWarner), Cockpit Module (Renault-Nissan)
CPN	Chrysler Plastic Number
CPO	Complementary Parts Order
CPQSS	Chrysler Part Quality and Supply System: Common tracking & reporting of key quality and timing milestone events in support of product development, pilot and launch across all process owners with maximum flexibility.
CPR	Cardio-Pulmonary Resuscitation
CPS	<ul style="list-style-type: none"> Centralized Purchasing System (Toyota), Chief Product Specialist (Nissan), Cylinder Pressure Sensor
CPSC	Corporate Product System Codes - A six-digit number that divides the vehicle into systems, subsystems, and features. This information is placed in the header of a DFMEA or a CFMEA Design. (Ford)
CTPS	Component Parts Traceability System (Daimler)
CPU	Central Processing Unit
CPV	Cost per Vehicle - A common measure for statistical comparison is the cost of warranty claims per vehicle. Weekly Production Volume (Nissan)
CQA	Certified Quality Auditor
CQD	Cost, Quality, Delivery (Nissan)
CQE	Certified Quality Engineer
CQMgr	Certified Quality Manager
CQR	Certified Quality Rating
CQT	Certified Quality Technician,
CR	<ul style="list-style-type: none"> Customer Return, Cost Review, Cost Reduction
CRE	Certified Reliability Engineer
CREWS	Corporate Reporting of Emission Related Warranty System (GM)
CRF	Countermeasure Request Form (Honda)
CRFC	Carbon fiber reinforced ceramic composite material
Critical Characteristic (∇ or CC)	<p><u>Ford</u> - It is a product requirement (dimension, specification, test) or process parameter that can affect compliance with government regulations or safe vehicle or product function. It requires special actions for manufacturing, assembly, shipping, or monitoring. Critical Characteristics must be included in Control Plans. When all producers require special controls, they are identified on Ford drawings and specifications with the Inverted Delta (∇) symbol (sometimes also referred to as CC). The "Potential" for a Critical Characteristic is determined in a DFMEA. The Critical Characteristic is confirmed in the PFMEA.</p>
Criticality (C)	A relative measure of the combined influence of the consequences of a failure mode (Severity) and its frequency (Occurrence). The product of

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	Severity times Occurrence. See FMEA.
CRM	Customer Relationship (Relational) Management
CRP	Centre de Réalisation de Prototype (Renault-Nissan - Z Plant)
CRRA	Compliance Report Random Audit: An audit performed during a PSO On-Site Visit to determine whether arbitrarily selected characteristic(s) of a part or process meet their specification requirements. The part or process samples shall be randomly selected. (Daimler)
CS	<ul style="list-style-type: none"> • Customer Satisfaction, • Characteristic Standard • Customer Service
CSCC	Component Supply Chain Chart (Renault-Nissan)
CSE	Customer Service Engineer
CSI	Customer Satisfaction Index
CSR	<ul style="list-style-type: none"> • Customer Specific Requirement, • Customer Service Representative, • Corporate Social Responsibility, • Component Special Request Caractéristique Sécurité Réglementation (Safety & Regulatory Characteristic) [Renault-Nissan - Important Part]
CST	<ul style="list-style-type: none"> • Constant Standard Time, • Central Standard Time
CTD	Cumulative Trauma Disorders
CTQ	CTQs (Critical to Quality) are the key measurable characteristics of a product or process whose performance standards or specification limits must be met in order to satisfy the customer.
CTR	<ul style="list-style-type: none"> • Center, • Component Technical Requirement
CTS	<ul style="list-style-type: none"> • Component Technical Specification
CU	<ul style="list-style-type: none"> • Copper, • Control Unit
CUM	Cumulative
Cummins	Cummins Engine Company
Cummins Seven Step Problem Solving	<p>A disciplined method for problem solving which emphasizes analysis for the true root cause and verification that the corrective action is effective in eliminating the root cause. The Seven Steps in the process are:</p> <ol style="list-style-type: none"> 1. Identify the Problem 2. Determine and Rank Potential Causes 3. Take Short Term Action and Containment 4. Gather Data and/or Design Test 5. Conduct Tests, Analyze Data, Identify Root Cause(s), Select Solution 6. Plan and Implement Permanent Solution 7. Measure, Evaluate and Recognize the Team. <p>This process has been adopted by the AIAG Truck & Heavy Equipment Group as its preferred approach to problem solving.</p>
Current Controls	Refers to those controls associated with standard commercial practice and includes the normal and customary methods, practices, techniques, and tests used by a producer for a given product. These controls would typically be found on historic DVP&Rs for a DFMEA and on historic Control Plans for a PFMEA.
CUS	Come Up System (Renault-Nissan),
CUSUM	Cumulative Sum charting
Customer	The next operation, department, person or company, whether internal or external, that receives or purchases products or services.

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CUV	<ul style="list-style-type: none"> • Crossover Utility Vehicle, • Clean Urban Vehicle 		
CV	Concept Verification		
CV-DS	Commercial Vehicle Development System		
CVE	Chief Vehicle Engineer (Nissan)		
CVIS	Completed Vehicle Inspection Standard (Toyota)		
CV	Capacity Verification (Nissan), Constant Velocity		
CVT	Continuously Variable Transmission (waterproof)		
CY	Calendar Year		
CYA	Cover Your Area		
D	<ul style="list-style-type: none"> • Detection or Detectability <ul style="list-style-type: none"> ➤ Design FMEA: a rating of the ability of the proposed design control to detect a potential Failure Mode or Cause before engineering release. ➤ Process FMEA: a rating of the ability of the current process control(s) to detect a Failure Mode or Cause before the item leaves the manufacturing or assembly facility. 		
D/T	Down Time		
DMAX	DMAX Ltd. (Moraine, Ohio), a U.S. joint venture between General Motors and Isuzu Motors, a manufacturer of Diesel engines for trucks		
D-Note	Design Note (Nissan)		
DAP	Design Assurance Plan (This is a requirement of ANPQP (Item 2.13) and applies specifically to one individual new product development program of the supplier)		
DBR	Diode Brush Regulator, Distributor		
DBMS	Database Management Systems		
DBW	Drive by Wire		
DC	DaimlerChrysler, Direct Current		
DCC	<ul style="list-style-type: none"> • Design Change Control, • DaimlerChrysler Corporation <obsolete term> 		
DCL	<ul style="list-style-type: none"> • Document Control List, • Definition Conditionnement Logistique (Renault-Nissan - LVPM) • Drawing Change Level: is the latest design level of the released drawing. (Daimler) 		
DCL/ROH	<ul style="list-style-type: none"> • Document Control List/ Register of Holders 		
DCN	Design Change Notice		
DCP	<ul style="list-style-type: none"> • Dynamic Control Plan: A methodology that ensures that customer expectations in the form of product design requirements are understood, deployed and controlled in the manufacturing and assembly processes. A team approach is used for the step-wise understanding and control of manufacturing process and products. • Dynamic Control Planning - A process that links quality tools to build robust control plans. It strategically uses elements like flowcharts, FMEAs, and Control Plans together with the in-depth knowledge of process experts to seek to indirectly controlling many product and process characteristics by linking and directly controlling a few characteristics. 		
DCO	Design Correction Order (Nissan)		
DCR	Design Change Request		
DCS	<ul style="list-style-type: none"> • Document Change Summary, 		
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	<ul style="list-style-type: none"> Data Creation Standards (GM)
DCV	Drain Cut Valve
DCX	DaimlerChrysler <obsolete term>
DDA	Design & Development Administration (Nissan)
DDC	Detroit Diesel Corporation
DDD	Day of Year (Daimler)
DDL	Direct Data Link - Provides the capability to exchange electronic information with input/output functionality. (Ford)
DDM	Dimensional Data Measurement
DE	<ul style="list-style-type: none"> Design Engineering Delco Electronics
Defect	<ul style="list-style-type: none"> The non-fulfillment of intended usage requirements. Non-fulfillment of a requirement related to an intended or specified use. A defect is any specification or requirement that is not met in a product or service. Sometimes defects can be reworked and sometimes they must be scrapped. A procedure looking after defects is an integral part of any quality-management system.
Degree of demonstration	<ul style="list-style-type: none"> How much evidence is produced to show that a specification or requirement has or has not been met.
DELPHI	<ul style="list-style-type: none"> Delphi Automotive Systems, Delphi Delco Electronics System
Dependability	<ul style="list-style-type: none"> The state of being counted on or trusted. Collective term used to describe the availability performance and its influencing factors; reliability performance, maintainability performance and maintenance support performance. Does the product or service work when needed? This is a general term used to describe how much an organization can count on this product or service when they need it.
DEPT	Department
DES	Design Engineering Sheet
Design Assurance Plan	This is a requirement of ANPQP (Item 2.13) and applies specifically to one individual new product development program of the supplier (Renault-Nissan)
Design and development	Set of processes that transform requirements into specified characteristics or into the specification of a product, process or system.
Design Classification	A symbol that reflects Special Characteristics identified against a potential Cause.
Design Controls	A description of the engineering tools, methods, calculations, reviews, tests, etc. intended to detect the identified potential Failure Modes prior to engineering release. These methods can include DV tests. (See Design Verification.)
Design Failure Mode	The failure of a function to meet design intent completely and correctly. There are four Thought-starter Failure Mode categories that can be seen on the Working Model.
Design Failure Mode and Effects Analysis (DFMEA)	An analytical technique used by a design responsible engineer/team as a means to assure, to the extent possible, that potential failure modes and, their associated causes/mechanisms have been considered and addressed.
Design for Manufacturability and Assembly	A simultaneous engineering process designed to optimize the relationship between design function, manufacturability, and ease of assembly.
Design Freeze	A point in time determined by the Program Management when the design must be completed to support a prototype test program. Changes following the frozen design are not accepted without agreement from the Program's Chief Engineer and Program Manager.

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Design Input	The physical and performance requirements of a device that are used as a basis for device design.
Design Intent	A description of what a given component/subsystem/ system is expected to do or not to do.
Design Life	The period for which the design is intended to perform its requirements. (The durability target of the item.) After the target period, the item is expected to be discarded because it ceases to function, or the item becomes too expensive to repair. Design life can be expressed in terms of kilometers, time (months or years), cycles, or a combination thereof.
Design responsible organization	Organization with authority to establish a new, or change an existing, product specification. NOTE: This responsibility includes testing and verification of design performance within the customer's specified application
Design Review	<ul style="list-style-type: none"> • A proactive process to prevent problems and misunderstandings. • A formal, documented, comprehensive, and systematic examination of a design to evaluate the design requirements and the capability of the design to meet these requirements and to identify problems and propose solutions. • A documented, comprehensive, systematic examination of a design to evaluate the adequacy of the design requirements, to evaluate the capability of the design to meet these requirements, and to identify problems.
Design Validation	<ul style="list-style-type: none"> • Testing to ensure that product conforms to defined user needs and/or requirements. Design validation follows successful design verification and is normally performed on the final product under defined operating conditions. Multiple validations may be performed if there are different intended uses. • Establishing by objective evidence that device specifications conform with user needs and intended use(s).
Design Verification	<p>Testing to ensure that all design outputs meet design input requirements. Design verification may include activities such as:</p> <ul style="list-style-type: none"> • Design review, • Performing alternate calculations, • Understanding tests and demonstrations, • Review of design stage documents before release
Design Weakness	A design deficiency such as wrong geometry, incorrect material, sensitivity to the environment, design life less than service life, apparent part symmetry where correct orientation is required, etc. In an FMEA, these are typically the Causes of failure.
Detection or inspection	A past-oriented strategy that attempts to identify unacceptable output after it has been produced and separates it from the good output. (See Prevention and Nonconforming)
DETC	Disputed Excess Transportation Charges System (Ford)
Deviation permit	<p>Written authorization, prior to production or provision of a service, to depart from specified requirements for a specified quantity or for a specified time.</p> <p>Permission to depart from the originally specified requirements of a product prior to realization.</p>
DEWS	Design Engineering Work Standards
DFA	Design for Assembly - When comprehensively applied, this discipline seeks to reduce assembly variability and assembly costs while improving product quality. The intended outcome is improvement in the design to reduce assembly difficulties or potential defects. For example, analysis of attaching and fastening schemes may lead to a redesign to eliminate some fasteners. DFA might be seen in the controls column of a Design FMEA. If DFA is not performed or not well performed, the remaining issues will often appear in the Cause column of the FMEA as Second Assumption of Causes type issues.
DFM	Design for Manufacturing - When comprehensively applied, this discipline seeks to reduce manufacturing variability and manufacturing costs while improving product quality. The intended outcome is improvement in the

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	design to reduce manufacturing difficulties or potential defects. For example, analysis of fixturing and holding schemes may lead to a redesign to improve a clamping detail to improve machining operations. DFM might be seen in the controls column of a Design FMEA. If DFM is not performed or not well performed, the remaining issues will often appear in the Cause column of the FMEA as Second Assumption of Causes issues.		
DFM/A	Design for Manufacture and Assembly		
DFMEA	Design Failure Mode & Effect Analysis - An analytical technique used by a design responsible engineer / team as a means to ensure, to the extent possible, that potential failure modes their associated causes / mechanisms have been considered and addressed.		
DFR	Design for Recycling - When comprehensively applied, this discipline seeks to improve recycling and reusability for Ford products. Sometimes this is also called Design for the Environment. See the Ford FMEA Handbook for additional insight on this topic.		
DFS	Design for Service - When comprehensively applied, this discipline seeks to reduce service related issues. The intended outcome is improvement in the design to reduce service costs, frequency or time for the ultimate customer or eliminate the need for special tools for the Service customer. DFS might be seen in the controls column of a Design FMEA, most often as a "Service sign-off" or "FCSD review".		
DFSS	Design for Six Sigma can be accomplished using any one of many methodologies. IDOV is one popular methodology for designing products and services to meet six sigma standards IDOV: Identify, Design, Optimize, Validate. This is a methodology used in DfSS for design and product optimization. Some recipes used in each stage are: <ul style="list-style-type: none"> • Identify: VOC, CTQ, Technical requirements and quality targets • Design: Evaluate system concepts, CTQs, develop transfer functions, relate CTQs to design • Optimize: Robust design, DFM, Predict Reliability, Optimize 6 sigma, predict quality level. Validate: Test and validate prototypes, assess performance and reliability, iterate design if necessary.		
DGSM	<ul style="list-style-type: none"> • Delphi Global Supply Management (Purchasing) 		
DHR	Device History Record - Compilation of records (or references to the locations of records) documenting dates and quantities of manufacture, quantity released for distribution, acceptance records demonstrating that the device was manufactured in accordance with the Device Master Record, the primary identification label and labeling used for each finished goods unit and any identification(s) and control number(s) used.		
'DI'	Data: Symbol or designation used to denote a data submission requirement, typically associated with Japan export inspection items (denoted by...). Toyota		
DIG	Direct Injection - Gasoline (System)		
Dimension	A measurement between designated points		
DIN	Deutsches Institut für Normung e.v. (German Institute for Standardization; similar to US 'ANSI')		
Direct Material	Components and assemblies used in production processes that become part of the salable product. They are typically included as a Bill of Material item.		
DIS	<ul style="list-style-type: none"> • Distributor • Distributor-less Ignition System, • Direct Injection System, • Draft International Standard 		
Disposition of nonconformity	The procedure for the product or service that does not meet the specifications and requirements of the customer. This might mean repairing, redoing or scrapping the product or service, or even selling at a discount, depending on the situation.		
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<i>DIST</i>	Distributor
Distribution (SPC)	The population (universe) from which observations are drawn, categorized into cells, and form identifiable patterns. It is based on the concept of variation that states that anything measured repeatedly will arrive at different results. These results will fall into statistically predictable patterns. A bell-shaped curve (normal distribution) is an example of a distribution in which, the greatest number of observations occur in the center with fewer and fewer observations falling evenly on either side of the average.
DL	<ul style="list-style-type: none"> • Digital Lot (Nissan), • Delta Airlines
DLS	Design-Level Suffix
DM	Debit Memo
DMCM	Drive Motor Control Module
DMR	<ul style="list-style-type: none"> • Defective Material Report, • Discrepancy Material Report (Eaton)
DMS	Direct Material Supplier
DNS	Domain Name System - The unique name of a collection of computers connected to networks such as the Internet. A general-purpose, replicated, distributed data query service or looking up host IP addresses based on host names. On the Internet, domain names typically end with .com, .net, .org, .edu, .gov, etc...
DOB	Date of Birth
DOC	Diesel Oxidation Catalyst (Detroit Diesel)
Document	Information and its supporting medium
Documentation	Written material defining the process to be followed (e.g. test procedure, quality manual, operation sheets).
DOE	Design of Experiments - A set of statistical techniques for laying out an experimental plan, data acquisition, data analysis and drawing conclusions.
DOH	Date of Hire
DOHC	Dual Over Head Cam
DON	Delivery Order Number
DOS	Date of Service
DOT	<ul style="list-style-type: none"> • Department of Transportation, • Date of Termination
DP	<ul style="list-style-type: none"> • Department Procedure, • Digital Protractor
DPF	Diesel Particulate Filter (Detroit Diesel)
DPMO	Defects Per Million Opportunities (Six Sigma)
DPPM	Defective Parts Per Million
DPS	Daily Production Sheet
DPSS	Delphi Product & Service Solutions
DPTV	Defects Per Thousand Vehicles
DPV	<ul style="list-style-type: none"> • Defects per Vehicle, • Daily Production Volume (Nissan)
DQES	Delivery Quality Evaluation System
DQ&V	Design Quality and Verification
DR	Documentation Required (GM)
Drawing	A representation of specifications by collective dimensions for a part, subsystem, or system

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Drawing Change	Specification change represented on a drawing
DRBFM	Design Review Based on Failure Mode
DRE	<ul style="list-style-type: none"> Design Release Engineer, Design Responsible Engineer - Engineers responsible for designing components - interested in tracking quality at the piece part level. Reports to EGM. (GM)
DDW	<p><u>Drill Deep & Wide:</u> GM Problem-solving methodology. 5 Whys - Ask why until actual root cause is determined Predict - Why did the planning process not predict the failure? Prevent - Why did the manufacturing process not prevent the defect? Protect - Why did the quality process not protect the customer (GM) from the defect?</p> <p>Drill Wide Matrix - analysis of system deficiencies and corrective actions that encompass all GM parts, manufacturing processes, and other plant locations.</p> <ul style="list-style-type: none"> Integration to living documents - Process Flow, PFMEA's, Process Control Plans, Standard Work Instructions, and Layered Audits.
DS	Design Study (GM)
DT	Digital Thermometer
DTL	Direct to Line
DTR	Delivery Trouble Report
DTS	<ul style="list-style-type: none"> Detail Test Stand, Dimensional Technical Specification
Durability	The probability that an item will continue to function at customer expectation levels, at the useful life without requiring overhaul or rebuild due to wear.
DV	<ul style="list-style-type: none"> Design Validation, Design Verification
DVD	Digital Video Disc
DVPR	Design Verification Plan and Report - The formalized testing performed on a product to assure the product's compliance with all requirements. On successful completion the design is signed off and released. Alternately deviations are secured and the design is released. The elements of the DVP&R are found in the Current Control column of a DFMEA and in the Recommended Actions that modify that plan. Also known as Design Verification Plan, Sign Off Report (DVPSOR).
DVPSOR	Design Verification Plan, Signoff Report - See DVP&R.
DWG	Drawing
E/L/O	Early / Late / On Time
EA	Each
EACR	Enhancement & Anomaly Change Record (GM)
EAI	Enterprise Application Integration
EAP	Employee Assistance Program
EAPA	Engineering Approved Product Authorization
EAPG	Electrical Architecture Planning Group (GM)
EAQF	Evaluation, Aptitude, Quality and Supplier (ISO 9001-based French automotive requirement)
EARP	Emergency Action & Response Plan
EASL	Engineering Approved Source List (Daimler)
EBD	Electronic Brake force Distribution (Nissan)

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EBFD	Electronic Brake Force Distribution
EBMS	Electronic-Based Management Systems
EBOM	Electronic Bill of Material
EBS	Eaton Business System
EC	<ul style="list-style-type: none"> • Electronic Controller, • European Community
ECA	Energy Conservation Award
ECE	Economic Commission for Europe
ECI	Engineering Change Instruction (Toyota)
ECM	<ul style="list-style-type: none"> • Electronic Control Module, • Engine Control Module (obsolete term, see PCM) GM Enterprise Commodity Manager
ECQA	Electronic Controller Quality Assurance
ECR	Engineering Change Request
ECU	Electronic Control Unit
ED	Equipment Development
EDC&V	Engine Development Calibration & Verification (GM)
EDI	Electronic Data Interface: Method of communicating information by using computers to transmit coded data.
EEE	Electrical & Electronic Equipment
eFDVS	electronic Ford Design Verification System
Effect	A description of the impact of a Failure Mode on the operation, function, or status of the part, assembly, subsystem, system, vehicle, customer, manufacturing operations, manufacturing operators, manufacturing tooling and equipment, or government regulations.
Effectiveness	Extent to which planned activities are realized and planned results achieved.
Effective dose equivalent	Means the sum of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the whole body organs or tissues that are irradiated.
Efficacy	(See effectiveness)
Efficiency	Relationship between the result achieved and the resources used.
EFHD	Electronic Fuel Handling Division (Ford)
EFTA	European Free Trade Association
EGI	Electronic Gasoline Injection
EGM	Engineering Group Manager. Reports to a PMT. (GM)
EGR	Exhaust Gas Recirculation
EI&S	Electronics Integration and Software
EIC	Extraterritorial Income Exclusion
EL	Electroluminescent
ELD	Electronics Division (Ford)
Element	<ul style="list-style-type: none"> • Specific documents, tasks and disciplines which must be completed to support the customer's program. • A general term used to refer to a subset of a system, subsystem, assembly, or subassembly. A part or group of parts comprising a system.
ELS	Eaton Lean System
ELV	End of Life Vehicle
E-MAIL	Electronic Mail

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EMP	GMPT Engineering Math Processes Organization		
EMC	Electromagnetic Compatibility		
EMDS	Engine Management Drive System		
EMI	<ul style="list-style-type: none"> • Electromagnetic Interference, • Electromagnetic Immunity 		
EMPG	Electro-Mechanical Product Group		
EMS	<ul style="list-style-type: none"> • Environmental Management System, • Engine Management Systems, Emergency Medical Services 		
EMT	<ul style="list-style-type: none"> • Emergency Medical Technician 		
EN	European Standard		
ECN	Engineering Change Notice		
Encryption	The application of a specific algorithm to data so as to alter the appearance of the data. This alteration of the data will appear incomprehensible to those who are not authorized to see the information.		
ENGR	Engineer		
Entity	Anything that can be discussed on its own as a whole. This includes companies, products, services, and systems. It can also mean all of the above together.		
ENVU	Entrée de Nouveau Vehicule en Usine (Renault-Nissan)		
E & O	Excess and Obsolete Material: Excess Material: Usable current model production material which is on hand in excess of production requirements at a specific location. Obsolete Material -Usable or unusable production material which is no longer a current part due to an Engineering Change or a model change. (Chrysler)		
EO	Executive Order		
EOB	Explanation of Benefits		
EOL	<ul style="list-style-type: none"> • End of Line, • End of Life 		
EOM	End of Month		
EOT	End of Test		
EPA	Environmental Protection Agency		
EPC	Early Production Containment		
EPE	European Procurement Excellence		
EPICS	Electronic Productive Inventory Counting System: The ability to count parts electronically on a daily basis and be inputted into the system for use by plant personnel. (Chrysler)		
EPR	Early Program Review (Nissan)		
EPROM	Eraseable & Programmable Read-Only Memory		
EQS	European Committee for Quality System Assessment and Certification, Establish, Define, document (in writing or electronically), and implement.		
eRFQ	Electronic Request for Quotation		
ERP	Employee Resource Planning, Enterprise Resource Planning		
Error Occurrence Prevention	A phrase used in the Supplier Quality Statement of Requirements that refers to poke yoke or error-proofing devices used to prevent errors in the manufacturing process from occurring.		
Error proofing	Product and manufacturing process design and development to prevent manufacture of nonconforming products.		
Error State	The undesirable output of the engineering system, including variation and/or degradation of the ideal function, or loss of the intended function or the presence of undesirable conditions.		
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ERS	Evaluated Receipts Settlement: The process of electronically matching the receipt of materials to the price, terms and conditions as indicated on a purchase order and paying the supplier accordingly. (Chrysler)
ES	<ul style="list-style-type: none">• Engineering Specification (Ford),• Employee Satisfaction
ESD	Electrostatic Discharge
ESER	Engineering Sample Evaluation Report - terminology / form used for Engineering (Design) Approval (Ford)
ESG	Environmental & Safety Group
ESP	Electronic Stability Program
ESSD	Engineering Standards Supplier Distribution (Daimler)
ESS	Energy Storage System
EST	Electronic Spark Timing
ET	Engineering Trial
ETA	Estimated Time of Arrival
ETB	Electronic Throttle Body
ETC	<ul style="list-style-type: none">• Electronic Throttle Control,• Electronic Transmission Control
ETPR	European Top Priority Report
ETR	Engine Test Request
EU	European Union
EUN	Engine Unit Number (GM)
EuP	EU Directive on Eco-Design of Energy-using Products
EVP	Executive Vice-President
EU	European Union
EWO	Engineering Work Order (GM)
EXCELL	Excell, USA
EXEC	Executive
EXEMPT	Salaried Employee
Expendable Containers	All shipping devices such as drums, skids, pallets, reels, boxes, cylinders, racks, bags, etc., not requested to be returned, which are received on a no-charge basis (the value of same being included in the cost of the materials.)
EZEV	Equivalent Zero Emission Vehicle
F&A	Finance & Accounting
F/CM/VSS	Federal/ Canadian Motor Vehicle Safety Standard (Nissan)
F/U	Follow-Up
FA	<ul style="list-style-type: none">• Final Approval (Toyota - Acknowledgment that supplier has provided acceptable quality parts under Mass Production conditions.)• Fabrication Authorization, Factory Automation
FAI	First Article Inspection (Eaton)
Failure Mechanism	<ul style="list-style-type: none">• The process that results in failure. These processes can include chemical, electrical, physical, thermal, and informational.• The process of degradation, or a chain of events, leading to and resulting in a particular Failure Mode.
Failure Mode	A design failure is the manner in which a system, subsystem, or part fails to meet its intended purpose or function. A process failure is the manner in which a process fails to meet its intended purpose.

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Failure Rate	The probability that the product will fail in the next unit measure of life (such as cycles, time, miles, etc.) given that it has survived up to that life.
FAIR	First Article Inspection Report
FAO	Ford Automotive Operations
FAP	Ford Automotive Procedure
FAQ	Frequently Asked Questions
Fast Response system	Fast Response is a system that: a) Standardizes reaction to significant External/Internal Quality failures. b) Promotes communication and discipline through daily meetings. c) Utilizes a visual method of displaying important information.
Fault Tree Analysis (FTA)	A deductive analytical technique that uses a graphical tree to show cause and effect relationships between a single undesired event (failure) and the various contributing causes.
FBRR	First Build Readiness Review (Nissan)
FC	Functional Check - The process by which Visteon Manufacturing Facilities approve functionality of incoming samples prior to first production shipments.
FCP	Final Control Plan
FCR	Functional Check Report. Form completed by the manufacturing process engineer stating that a change is approved through a successful trial production run. (ACH)
FCSD	Ford Customer Service Division - The organization within Ford responsible for reviewing designs for the ease of service and assisting in determining service procedures and maintenance schedules.
FCV	Fuel Cell Vehicle
FDIS	Final Draft International Standard
FDVS	Ford Design Verification System - Software system that houses the Design Verification Plan (DVP).
FE	Functional Evaluation
FEA	Finite Element Analysis
Feature	A product characteristic (e.g., radius, hardness) or a process characteristic (e.g., insertion force, temperature).
FEM	<ul style="list-style-type: none"> • Finite Element Method, Front End Module - see Module (Renault-Nissan)
FEU	<ul style="list-style-type: none"> • Field Evaluation Unit (Ford)
FFFDP	Form, Fit, Function, Durability & Performance
FG	<ul style="list-style-type: none"> • Finished Goods, Function Group
FHI	<ul style="list-style-type: none"> • Fuji Heavy Industry (Subaru/ Isuzu)
FI	Fuel Injector/ Injection
FIÉV	Fédération des Industries des Equipements pour Véhicules (French Vehicle Equipment Industries Association)
FIFO	First In - First Out (Inventory)
FIG	Figure
Firewalls	Special computers that are set up on a network to prevent intruders from stealing or destroying confidential files.
First Article Inspection	The inspection plan for the first piece received of material (need to define manufacturer vs. supplier).
First Tier Supplier	Term used for a Supplier who is responsible for providing components, services, or raw material directly to Customer.
Fishbone Diagram	See Ishikawa "Fishbone" Diagram.
FIV	Future Inspiration Value - Hitachi's economic value-added evaluation index in which the cost of capital is deducted from after-tax operating

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	profit. After-tax operating profit must exceed the cost of capital to achieve a positive FIV.
FLT	Frontline Leadership Team
FM	Front Midship design (Nissan)
FMA	Failure Mode Analysis - A disciplined approach to identify the Failure Modes, Failure Rates, and Root Causes of known failures.
FMEA	Failure Mode & Effects Analysis, See AMDEC (Renault-Nissan)
FMEA method (FMECA)	Failure Mode and Effect (and Criticality) Analysis: a powerful method of risk assessment and failure analysis for use in risk management and product liability control.
FMEA Review	Ford - A feature that generates an on-screen analysis of simple deficiencies like blank FMEA header and data fields or missing Recommended Actions under conditions that require one, and so forth. This report can be printed using the icon at the top of its panel.
FMEI	Fuel Metering Emissions & Ignition (Ford)
FMLA	Family Medical Leave Act
FMS	Flexible Manufacturing Systems
FMVSS	Federal Motor Vehicle Safety Standard (USA)
FNA	Functional Name Address
FOB	Free on Board (Customer pays freight.)
FORD	Ford Motor Company
FPCD	Final Process Control Documentation
FPDS	Ford Product Development System
FPNP	First Piece - New Product
FPSC	First Production Shipment Certification (Daimler)
FQPR	Field Quality Problem Report: A written notice issued to the supplier upon discovery of non-conforming parts on vehicles already shipped. (Toyota)
FREQ	Frequency
Frequency distribution	A statistical table that presents a large volume of data in such a way that the central tendency (average/mean/median) and distribution are clearly displayed.
FPRMPAS	Final Process Review - Mass Production Authorization Sheet
FQPR	Field Quality Problem Report (Toyota)
FRACAS	Failure Reporting Analysis And Corrective Action System
FRT	Freight
FRTB	Fast Response Tracking Board (GM)
FSN	Ford Supplier Network
FSP	Ford Supplier Portal - Location on the Covisint web site where suppliers find Ford supplier related information and instruction.
Ft ²	Square Feet
FTA	<ul style="list-style-type: none"> • Free Trade Agreement, Fault Tree Analysis - A deductive analytical technique that uses a graphical tree to show cause-effect relationships between a single undesired event (failure) and the various contributing causes.
FTIR	<ul style="list-style-type: none"> • Foyer Transformed Infrared (Test performed by Reliability)
FTQ	First Time Quality (FTQ) is defined as a measure of the number of pieces rejected in a manufacturing process versus the total number of pieces attempted. First Time Quality can be measured at any step in the manufacturing process where parts are rejected. First Time Quality is reported in parts per million (PPM) defective.

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FTS	Final Test Stand		
FTT	First Time Through		
FTZ	Foreign Trade Zone		
Function	The intended purpose or characteristic action of a system, subsystem, or part. A primary function is the specific purpose or action for which a product is designed. There may be more than one primary function. A secondary function is another function the product performs that is subordinate to, but supports, the primary function.		
Functional Verification	Testing to ensure the part conforms to all customer and supplier engineering performance and material requirements.		
FY	Fiscal Year (April - March)		
FYI	For Your Information		
G	General		
G/NG	Go/ No-Go		
Gantt Timing Chart	A bar chart used to describe timing of elements, events, and milestones in a visual manner.		
GART	Global Analysis Reporting Tools (GM) - Provides a Global Reporting system to support GM analysis of warranty claims, vehicles, dealers and other warning quality data.		
GASE	General Administration & Sales Expenses		
GATT	General Agreement of Tariffs & Trade		
GD&T	Geometric Dimensional & Tolerance		
GEA	Global Environment Award		
GED	General Education Degree		
GELT	Global Engineering Leadership Team (GM)		
Gemba	Gemba means discussing an issue at the location where the problem is happening. For example: assembly line, warehouse, etc...)		
Genchi genbutsu	Understand the situation		
Generally implied	Custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.		
GFE	Group Fonction Elémentaire (Renault-Nissan)		
GFS	<ul style="list-style-type: none"> Gas Flow Sensor, Group Fonction Series (Renault-Nissan) 		
GIP	<ul style="list-style-type: none"> Global Integrated Purchasing 		
GLOBAL-8D	<ul style="list-style-type: none"> Global Eight Discipline Approach - An orderly, team-oriented approach to problem solving. Formerly referred to as TOPS (Team Oriented Problem Solving). See 8D Process		
Global warming	<ul style="list-style-type: none"> The earth's temperature rise resulting from such decreases in the heat radiation to the stratosphere. 		
GLOCAL	Globalization & Localization Meeting		
GM	General Motors Corporation		
GM-4WDCU	General Motors 4-Wheel Drive Control Unit		
GM 9000	A document provided through Boise Cascade that houses GM specific requirements (General Procedures - GPs) that was referenced in QS 9000.		
GM-APO	General Motors - Asian Pacific Operations		
GM-CAN	General Motors - Canada		
GMCCA	General Motors Customer Care and Aftersales		
GMDAT	General Motors - Daewoo Auto & Technology		
GME	General Motors Europe		
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GMNA	General Motors North America		
GM-NAO	General Motors - North American Operations		
GM GEC	General Motors Global Enterprise Collaboration		
GN	General		
GMP	Good Manufacturing Practice		
GMPT	General Motors Powertrain		
GMPT Design Standard	Design process or procedure written and used universally by Powertrain Engineering		
GMTG	General Motors Truck Group		
GND	Ground (Electrical)		
GP	General Procedure (GM)		
GPCS	Global Production Control System		
GPDP	Global Powertrain Development Process		
GPDS	<ul style="list-style-type: none"> • Global Product Description System (GM), • Global Product Development System (Ford) 		
GPPC	Global Product & Process Center		
GPS	Global Purchasing System used to help track the location of Earth based units. This technology is used currently with "On Star."		
GQA	Global Quality Analysis (Ford)		
GQBR	Global Quality Base Requirements (GM)		
GQLT	Global Quality Lead Team (Nissan)		
GQP	Gestion Qualité Part (Renault-Nissan)		
GQTS	Global Quality Tracking System (GM) - Tracks supplier quality information, issues and status.		
GR	Gram		
Graphics	Ford - Drawings, diagrams, etc. created or revised in an FMEA session to assure that all the interfaces have been considered.		
Gray Box	Ford - An assembly purchased by Ford, for which the supplier has design, development, and engineering drawing responsibility. Ford Product Engineering has responsibility to provide design or material specifications. All aspects of the assembly's function are specified by a Ford Engineering Specification.		
GR&R, GRR	Gauge Repeatability and Reproducibility		
GRN	Goods Received Note		
GROWTTH	Get Rid Of Waste Through Team Harmony (lean manufacturing)		
GS	General Specification		
GSDB	Global Supplier Database		
GSM	<ul style="list-style-type: none"> • Global Supply Management, • Gantry Service Mount 		
G-SQIDS	<ul style="list-style-type: none"> • Global Supplier Quality Improvement Delivery System (Toyota) 		
GT	Glass Thermometer		
GW	Ground Water		
GYR	Green - Yellow - Red Status (Status OF APQP)		
H/W	Hot/ Wire (Air Flow Meters)		
HAL	Hitachi America Ltd.		
HAM	Honda of America Manufacturing, Inc. (Hamtramc Assembly Plant)		
Hardware	<ul style="list-style-type: none"> • Tangible, discrete product with distinctive form 		
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	• A term used to describe a physical part, assembly, or system (Ford).
HAZCOM	Hazardous Communication
HCPP	Hierarchisation Caracteristiques Produit Processus (Renault-Nissan)
HDC	Hill Descent Control (Nissan)
HDEP	Heavy Duty Engine Platform (Daimler)
HEF	Hitachi Employee Fund
Heijunka	Workload
HEL	Hitachi Europe, Ltd.
HEV	Hybrid Electric Vehicle
HI	High Impact - A designation in the PFMEA that denotes a characteristic to be controlled in the process because of its importance to an operation. This designation may also be given to Yss or Ycs identified in the DFMEA. It does not require special controls but is still deemed operationally important to the process and will be listed on the Control Plan. (Ford)
ASTEMO	Hitachi Automotive Systems
(ASTEMO)AM	Hitachi Automotive Systems Americas
(ASTEMO)AM-BK	Hitachi Automotive Systems Berea KY (Former Tokico)
(ASTEMO)AM-FA	Hitachi Automotive Systems Farmington Hills (Michigan)
(ASTEMO)AM-GA	Hitachi Automotive Systems Georgia (Former UGC)
(ASTEMO)AM-HK	Hitachi Automotive Systems Harrodsburg KY
(ASTEMO)AM-LA	Hitachi Automotive Systems Los Angeles (Cypress CA.)
(ASTEMO)AM-BM	Hitachi Automotive Systems Berea Motor
HIC	Hybrid Integrated Circuit
HID	High Intensity Discharge
HIKE	High Impact Kaizen Event
Histogram	(See Frequency distribution)
HITAC	Hitachi Mainframe Computer
HIVIPS	Hitachi Research Visit Program
H-JIT	Hitachi-Just in Time (Method)
HL-APD	Hitachi Limited Automotive Products Division (Japan)
HMI	Human-Machine Interface
Hold point	A point in a process or procedure where authorization must be received before the process or procedure may continue. This may mean an inspection, customer authorization, measurement, etc., whatever the case may be.
Home Line	Supplier's assembly line located in the manufacturing facility where volume production of the part(s) takes place using production tooling and processes. (Daimler)
HOTTS	Hot Trailer Tracking System: A priority trailer unloading system that loads part number in "RUN OUT" time sequence and is programmatic and updates automatically. (Chrysler)
HP	Horse Power
HPDC	High Pressure Diecasting
HR	Hour, Human Resources
HRIS	Human Resources Information System
HRSS	Hitachi Request for Sawa Shipment
H/R	Human Resources

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HS	Hazardous Substance
HSE	Health, Safety & Environmental
HSF	Hazardous-Substance-Free
HSPM	Hazardous Substance Process Management
HSRR	Hitachi Supplier Release Report
HTC	Hitachi Technical Center (Farmington Hills, Detroit/ HFTC)
HTFB	Hard Tooled Functional Build (Ford)
HTS	Harmonized Tariff System
HTS	Hitachi Transport Systems
HTTP	Hyper Text Transfer Protocol - The client-server protocol upon which the World Wide Web is based.
HURT	Hitachi Urgent Response Team (
HV	High Voltage (Terminal)
HVIL	High Voltage Inter Lock (Safety feature so Hybrid user doesn't get 300 volt surge from TPIM)
HVPT	High Volume Production Trial (Toyota)
HYBRID-EV	Hybrid Electronic Vehicle
HYBRID-IC	Hybrid Integrated Circuit
I/S	Inspection Standard (Toyota)
IAA	Interim Approval Authorization: documentation and approval to temporarily use a part that does not meet PPAP approval requirements for Pilot builds or launch. (Daimler)
IAC	Idle Air Control (Valve)
IAFM	Integrated Air Fuel Module
IAOB	International Automotive Oversight Bureau
IASG	International Automotive Sector Group
IAT	Integrated Air & Temperature (AFM)
IATA	International Air Transportation Association
IATCA	International Auditor and Training Certification Association
IATF	International Automotive Task Force
IB	Information Bulletin is issued to document standard procedure for handling certain situations and/or the operation of processes. (Chrysler)
IBT	Integrated Bypass Type (AFM)
IC	<ul style="list-style-type: none"> • Integrated Circuit, • Ignition Coil
ICAR	Incoming - Corrective Action Request
ICD	<ul style="list-style-type: none"> • Integrated Driver (Ignition Coil), • Interface Control Document
ICE	Internal Combustion Engine
ICF	Inspection Control Function (Toyota)
ID	Inner Dimension
IDEAS	Innovation Drives Excellence, Achievement and Savings (Eaton)
IDSR	Integration Driven Subsystem Requirement
IE	<ul style="list-style-type: none"> • Industrial Engineering • Immediate Export Entry Form (FTZ)
IEC	International Electrotechnical Commission

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IEEE	Institute of Electrical & Electronic Engineers		
IEG	Import/ Export Group		
I/EPD	Import/ Export Department		
IG	Ignition Coil		
IG COIL	Ignition Coil		
IGC	Ignition Coil		
IGN	Ignitor		
IGR	Ignitor		
Inc	Incoming		
ILEV	Inherently Low Emission Vehicle		
ILO	International Labor Organization		
IM	<ul style="list-style-type: none"> • Injection Molding, • Integrated Manifold 		
IMA	Integrated Manifold Assembly		
IMAGE Ranking	A formal documented evaluation process used to assess and measure supplier performance levels within the areas of: 1) Purchasing, 2) Logistics and 3) Innovation (Engineering). Final scores will be calculated for each IMAGE ranking performance category (by assigned responsibility) and totaled for an overall IMAGE ranking performance score.		
IMDS	International Material Data System - Comprehensive database in which material information is stored. This system is used to submit reportable substances by national and international standards, laws and regulations.		
IMS	<ul style="list-style-type: none"> • Integrated Manifold System, • Indirect Material Supplier 		
IMPACS	Inbound Materials Planning Analysis and Control System. A system used to maintain all transportation related information. (Chrysler)		
In-plant Defect PPM	The number of parts with supplier-caused defects found within a Cummins facility versus the number of parts received from that supplier by the Cummins facility, reported as parts per million (PPM) on a monthly basis. NOTE: For suppliers with multiple producing locations, each producing location will be considered separately.		
In-Process Check Fixture	a. (Gauge): Similar to check fixture, but typically used during manufacturing (e.g. used to check subassembly vs. final assembly). Toyota		
In-Process Test	Functional or durability test required to monitor a particular design requirement on a continuing basis during production. Sampling and reaction plans for an in-process test must be included in the control plan.		
INC	Incoming (Inspection)		
INJM	Injection Molding		
Information	Meaningful data		
Infrastructure (of an organization)	System of facilities, equipment and services needed for the operation of an organization.		
Initial Sample	Small quantity of products taken from a significant production run made with production tooling, processes and cycle times. An initial sample is checked by the supplier for conformance to every product requirement on applicable drawings and/or specifications.		
INS	Institute		
Interaction	The effect of one part, element, subsystem, or system on another.		
Interchangeability	Making a substitution. What will be the difference between making the substitution and not making it? If there is no difference, there is a high degree of interchangeability.		
Interface	The common boundary between the system, subsystem, and/or parts being		
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	analyzed. This information should be displayed as part of the Boundary Diagram created in DFMEA pre-work. The Boundary Diagram should be included in the software FMEA as a Note/Attachment.		
Interface Matrix	A robustness tool that identifies and quantifies the strength of system interactions. It shows whether the relationship is necessary or adverse. It also identifies the type of relationship (e.g., energy transfer and information exchange).		
INV	<ul style="list-style-type: none"> • Inventory, • Power Inverter (Eaton) 		
IO or IO-CAR	Improvement Opportunity (Corrective Action Request)		
IOD	Issue Outillage Définitif (Renault-Nissan)		
IP	<ul style="list-style-type: none"> • In-Process, • International Procurement 		
IPO	Individual Parts Order		
IPP	Initial Production Parts (Honda)		
IPPAAR	Initial Production Parts Advanced Approval Request (Honda)		
IPS	International Procurement Services (DaimlerChrysler)		
IPSR	Internal Problem Solving Report		
IPTV	Incidents Per Thousand Vehicles - A common measure for statistical comparison is the incidents of warranty claims per vehicle. (GM)		
IQP	Incoming Quality Procedure		
IQS	Initial Quality Survey (Nissan)		
IR	Issue Report		
IRCA	International Register of Certificated Auditors		
ISC	Idle Speed Control		
iSCM	Cummins website which is used to communicate with suppliers. EBU Suppliers are required to register in iSCM. (Cummins)		
ISCV	Idle Speed Control Valve		
ISDN	Integrated Services Digital Network		
Ishikawa "Fishbone" Diagram	An Ishikawa "Fishbone" Diagram is a deductive analytical technique. It is used to brainstorm causes of failure. The Failure Mode would typically be entered into the "head" of the fish, and the "bones" would be used to list the causes. Refer to Appendix B for an example Ishikawa diagram.		
ISIR	Initial Sample Inspection Report		
ISMOS	Internal Sample Making Order Sheet		
IS	<ul style="list-style-type: none"> • International Standard • Inspection Standard 		
ISM	Institute of Supply Management		
ISO	International Standards Organization		
ISO 9001	The ISO quality management system standard, and the minimum requirement for any direct material supplier to a ISO registered Customer.		
ISO-14000	International Standards Organization - Environmental		
ISO/TS 16949	<ul style="list-style-type: none"> • ISO/TS 16949 is a 'globally accepted' and harmonized Quality management system requirements document for automotive production & service parts organizations. • ISO/TS 16949 was prepared by the International Automotive Task Force (IATF). • ISO/TS 16949 has been aligned with the requirements of ISO 9001: 2000, which means that organizations no longer need (2) two separate certificates. 		
ISR	Initial Submission Report (Subaru/ Isuzu)		
ISW	Initial Sample Warrant		
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IT	<ul style="list-style-type: none"> Information Technology Immediate Transportation Entry Form (FTZ) 		
Item	A generic term used to designate a system, subsystem, assembly, part or component, which is the scope of the analysis of the FMEA.		
ITS	Intelligent Transport Systems		
IVMS	In-Vehicle Multiplexing System		
(J1)	Job # 1 Achieved (Ford FPDS Event)		
JAL	Japan Airlines		
JAPIA	Japan Auto Parts Industries Association		
JATCO	<u>J</u> apanese <u>A</u> utomatic <u>T</u> ransmission <u>C</u> ompany (subsidiary of Nissan)		
JBA	Software Package used by Hitachi		
JES	Job Element Sheet (GM) - A user-friendly document that provides detailed information on a specific element of work to ensure the successful execution of that element.		
JIEHON	Japan Domestic Sales Group		
J-JIT	Japan - Just-In-Time (Method)		
JIKI	Japan Pricing Group		
JIS	Japanese Industrial Standard		
JIT	Just-In-Time (Method)		
JPEG	Joint Photographic Experts Group		
JPN	Japan		
JR	Japan Railways		
JUSE	Japanese Union of Scientists and Engineers		
JX	International Sales (Japan)		
K	Thousand		
K\$	Thousand Dollars		
KAMI	First Budget Period (April - September)		
Kaizen	Taken from the Japanese words 'kai' and 'zen', where 'kai' means change and 'zen' means good. The popular meaning is continual improvement of all areas of a company, not just quality.		
KBD	Key Business Drivers		
KCC	Key Control Characteristic (GM 1805)		
KCDS	Key Characteristic Designation System (GM 1805)		
KD	Knock Down		
Key Features	<ul style="list-style-type: none"> Features, which have significant effects upon Fit, Function, Performance and Reliability in the vehicle. Features which require assurance or control during production with regard to Fit, Function, Performance, Reliability, Appearance, and Serviceability. Key features are quite different from, and should not be confused with, Special Characteristics <p>These features can be identified by the supplier and/or Renault-Nissan.</p>		
KFD	Key Features Diagram (Nissan)		
KG	Kilograms		
KM	Kilometers		
(KO)	Kick-Off (Ford FPDS Milestone)		
KPC - Key Product Characteristic	<ul style="list-style-type: none"> Key Product Characteristic: Product characteristic for which 		
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	<p>reasonably anticipated variation could significantly affect safety, compliance to governmental regulations, or customer satisfaction.</p> <ul style="list-style-type: none"> • A Key Product Characteristic (KPC) is a special characteristic where the loss function shows that reasonably anticipated variation within specification could significantly affect customer satisfaction with a product. (GM 1805) <p>Maintaining/controlling the process within the target zone can optimize customer satisfaction.</p>
KPH	Kilometers per Hour
KPI	Key Performance Indicator (Toyota)
KPIT	Key Performance Indicator Tracking (Toyota)
KQC	Kentucky Quality Council
KV	Kilovolts
KW	Kilowatts
L	Long Lead Release Part (Nissan)
LL	Long-Long Lead Release Part (Nissan)
LA	Los Angeles (California)
Lab Scope	<p>Controlled document containing:</p> <ul style="list-style-type: none"> • specific tests, evaluations and calibrations that a laboratory is qualified to perform, • list of the equipment which it uses to perform the above, and list of methods and standards to which it performs the above.
LAN	<ul style="list-style-type: none"> • Local Area Network
LAT	Lot Acceptance Testing
LAX	Los Angeles Airport
LAY	Layout
Layered Process Audit (LPA)	A standardized audit performed on a regular, frequent basis by all layers of the organization that verifies adherence to operational standards, 4 C and safety.
LCA	Life Cycle Analysis or assessment
LCD	Liquid Crystal Display
LCL	<ul style="list-style-type: none"> • Lower Control Limit, • Less than Container Load
LCR	Lean Capacity rate (GM daily capacity requirement)
LCU	Local Control Unit
Lead Time	An allotted amount of time between certain phases of the design, procurement and production cycle. As an example, the planned time between Engineering release and submission on an Initial Sample for a part incorporates a planned amount of lead time.
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design
LEV	Low Emissions Vehicle
Lessons Learned	Problems, mistakes, things gone right/ wrong (TGR, TGW) learned from reviewing similar part data. Information is gathered from government regulations, safety information, in-plant manufacturing data, G8D's, ES test data, user plant data, warranty data, field data, service data, campaigns, recalls or other sources of information
LF	Linear Feet
LFV	Linear Flow Valve
LH	Left Hand

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Life of the Part	From the start of new vehicle production, through OEM build-out requirements, including service parts requirements (Toyota)
LOA	Leave of Absence
LOG	Logistics
LOI	Letter of Intent
LOPC	Last Off Part Comparison
Loss of Function	Degraded performance or operation outside the design specification limits. Loss of Function is usually the anti-function or the "no function" type of Failure Mode.
Lot or batch	One or more components or finished devices that consist of a single type, model, class, size, composition, or software version that are manufactured under essentially the same conditions and that are intended to have uniform characteristics and quality within specified limits.
LP	<ul style="list-style-type: none"> • Local Production, • Local Procurement
LPA	Layered Process Audi
LPMS	Lean Process Management System
<LR>	Launch Readiness (Ford FPDS Milestone)
LRP	Long Range Plan: Plan which details changes to current products and introduction of new products for future model/calendar years. (Chrysler)
LRR	Launch Readiness Review (Nissan)
<LS>	Launch Signoff (Ford FPDS Milestone)
LSI	Large Scale Integrated Circuit
LSL	Lower Specification Limit (See Specification)
LTCA	Long Term Contractual Agreement
LTD	<ul style="list-style-type: none"> • Limited Company, • Long Term Disability
LTL	Less than Truckload: A description for shipping, defining a partially filled trailer.
LUP	Liste Unique Problemes (Renault-Nissan)
LVPM	Local Vendor Packaging Method
M	Medium Lead Release Part (Nissan)
/M	Per Month
M/C	Machining Center
MA	Material Authorization
MAFS	Mass Air Flow Sensor
Maintainability	The probability that a failed system can be made operable in a specified interval or downtime. Ability of an item under stated conditions of use to be retained in, or restored to, within a given period of time, a specified state in which it can perform its required functions when maintenance is performed under stated conditions and while using prescribed procedures and resources.
Management review	A review, done by senior management, of the quality system to see if the organization is living up to the written quality policy. Usually done annually, but should be done more often if the situation calls for it.
Management system	System to establish policy and objectives and to achieve those objectives.
Manufacturing	<ul style="list-style-type: none"> • production materials, • production or service parts, or assemblies
Manufacturing Variation	<ul style="list-style-type: none"> • Differences in product characteristic caused by the inherent manufacturing process variability.

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Manufacturing Site	A site which manufactures product or, for some special commodities like electronics, the site that has quality and PPAP ownership for product.		
MAP	<ul style="list-style-type: none"> • Manifold Absolute Pressure, • Mise Au Point (Renault-Nissan - Clarification) 		
MAR	<ul style="list-style-type: none"> • Material Accept/ Reject • Material Authorization Return 		
MARS	Measurement Analysis and Reporting System		
MAS	Material Authorization System generates Daimler's material forecast.		
Mass Production	Parts made that are used for Toyota's volume start of production (SOP), that use Mass Production method, machine, materials, and personnel that have achieved both PA and PRC approvals.		
Material	Any item purchased from a supplier that becomes a part of a product and sold to a customer		
Material Results	The supplier shall perform tests for all parts and product materials when chemical, physical, or metallurgical requirements are specified by the design record or Control Plan.		
MAX	Maximum		
MB	Megabyte		
MBE	Minority Business Enterprise development program		
MBNQA	Malcolm Baldrige National Quality Award		
MC	Machining Center		
MCC	Micro Compact Car (Daimler-Benz)		
MCG/P	Mercedes Car Group/ Powertrain (Daimler)		
MCR	Maximum Capacity Rate (GM Maximum capacity requirement)		
MDC	Material Distribution Center		
ME	Manufacturing Engineering		
Measurement control system	Set of interrelated or interacting elements necessary to achieve metrological confirmation and continual control of measurement processes		
Measurement process	Set of operations to determine the value of a quantity.		
Measuring equipment	Measuring instrument, software, measurement standard, reference material or auxiliary apparatus or combination thereof necessary to realize a measurement process.		
Measurement Uncertainty	The range assigned to a measurement result that describes, within a defined level of confidence, the range expected to contain the true measurement result. It is a quantified expression of measurement reliability.		
MECM	Multi-port Electronic Control Module		
MEDDS	<p>Manufacturing Equipment Development Description System: A Daimler Advance Manufacturing application which supports the process of tracking items such as dies and tools used in the build of a vehicle program.</p> <p>Supplier MCN Communication - an application which allows Daimler Advance Manufacturing suppliers to view changes to specifications for items such as dies and tools. Supplier Progress Communication - an application which allows Daimler Advance Manufacturing Suppliers to communicate with Daimler regarding the status of their progress on design or construction of items such as dies and tools.</p> <p>Supplier Specification Communication - an application which allows Daimler Advance Manufacturing suppliers to view, create, and modify specifications for items such as dies and tools.</p>		
MEETS	Manufacturing Engineering Equipment and Tooling Systems (Ford)		
Method	The technique employed to perform an operation.		
Metrological characteristic	Distinguishing feature, which can influence the results of measurement.		
Metrological confirmation	Set of operations required to ensure that measuring equipment conforms to the requirements for its intended use.		
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Metrological function	Function with organizational responsibility for defining and implementing the measurement control system.		
MF	Mainframe		
MFG	Manufacturing		
MFT#	Material Forwarding Ticket Number: A five digit numeric, material forwarding ticket which is a document affixed to material in the plant to facilitate inventory tracking. (Chrysler)		
MGA	Marvin Gottlieb & Associates (Delco Representative)		
MGR	Manager		
MGT	Management		
MGU	Motor Generator Unit		
MIL	Malfunction Indicator Light		
MIL-SPEC	Military Specifications and Standards		
Milestone	Major point of reference on the project timeline at which the supplier status is assessed		
MIN	Minimum		
MIS	Management Information Systems Section		
MISC	Miscellaneous		
Mistake Proofing	Techniques that use simple and inexpensive devices to prevent errors before they occur or detect errors and defects that have occurred.		
Mix (Renault-Nissan)	Ref item 4.8. The actual quantity of each individual part number that will be delivered.		
Mm	Millimeter		
MMC	Maximum Material Condition		
MMOG	Materials Management Operations Guidelines (AIAG)		
MMP	Maximum Material Principle		
MN	Magnesium		
Module	An electronic control module used on the vehicle to monitor and control vehicle performance.		
MOPAR	Contains basic information pertaining to all packaged products received by the Chrysler Mopar Parts Division.		
MOQ	Minimum Order Quantity		
MPA	Motor Parts of America		
MPM	Motor Parts of Mexico		
MP&L	Material Planning and Logistics (Ford)		
MPC	Material Production Control		
MPCD	Manufacturing Process Control Documentation		
MPCE	Material Production Control - Europe		
MPEG	Motion Picture Export Group		
MPG	Miles per Gallon		
MPH	Miles per hour		
MPL	Master Packing List		
MPO	Mass Production Order		
MPP	Master Process Plan, Modified Production Part (Nissan Form)		
MPR	Minimum Process Requirements (Honda)		
MPS	Master Production Schedule		
MPU	Micro Processing Unit		
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MQC / CP	Manufacturing Quality Chart / Control Plan: A document which follows the process flow, and details the parameters and characteristics, which must be controlled, and the means of controlling them to assure output quality. (Toyota)		
MQO	Manufacturing Quality Organization (Daimler)		
MRB	Material Review Board		
MRC	Management Review Committee		
MRD	Material Required Date		
MRE	Manufacturing Responsible Engineer		
MRO	<ul style="list-style-type: none"> • Machine Repair Operations Material & Repair Operations 		
MRP	<ul style="list-style-type: none"> • Manufacturing / Materials Resource Planning 		
MS	Material Standard		
MSA	<ul style="list-style-type: none"> • Measurement System Analysis - The analysis of the complete process and assumptions used to quantify a unit of measure or fix assessment to the feature characteristic being measured. • Motor Shift Actuator 		
MS-9000	Material System-9000		
MSDS	Material Safety Data Sheet		
MSQE	Module Supplier Quality Engineer (Lead SQE for the Tier 1 supplier of the modular assembly.)		
MTBF	Mean Time Between Failure		
MTF	Master Transfer Function		
MTNA	Mahle Tennex of North America, Inc.		
MTOS	Mechanized Tool Order System (Ford)		
MTTF	Mean Time To Failure		
Muda	<p>Muda is traditional general Japanese term for activity that is wasteful and doesn't add value or is unproductive. It is also a key concept in the <u>Toyota Production System</u> and is one of the three types of waste (<u>Muda</u> - Waste, <u>Mura</u> - Unevenness), <u>Muri</u> - Overburden) that it identifies. Waste reduction is an effective way to increase profitability.</p> <p>The seven wastes (COMMWIP)</p> <ol style="list-style-type: none"> 1) Correction - Doing something over which requires additional motion, additional processing, additional inventory and/or waiting. All repair activities are opportunities to eliminate waste. 2) Overproduction - Generating excess parts, information, etc., too soon or too fast in a process. The waste of overproduction often causes other forms of waste. 3) Motion - Unnecessary work movements by a team member or machine which is not necessary in adding value to the product. 4) Material movement or conveyance - Unnecessary transporting, storing or rearranging of items, parts, equipment, etc. which is not required for production. 5) Waiting - To remain in one place while doing something other than what is related to the task at hand. It is an unproductive use of time as it adds no value to the process. 6) Inventory - Too much of anything which may take up space, lead to obsolescence, impact safety, cause waste of motion or waste of material movement <p>Processing - Doing something the customer does not perceive as adding value to the product</p>		
MVSS	7) Motor Vehicle Safety Standard		
MY	Model Year - The model year assigned to the vehicle.		
N/A	<ul style="list-style-type: none"> • Not Applicable, 		
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	<ul style="list-style-type: none"> • Not Available
NACCB	National Accreditation Council for Certification Bodies (UK)
NAFTA	North American Free Trade Agreement
NAFTZ	National Association of Foreign Trade Zones
NAIAS	North American International Auto Show
NAIT	National Institute of Industrial Technology
NAM	North American Market (Nissan)
NAMC	North American Manufacturing Company - QC/QE Department: This is the group that is responsible for implementing and administering SQAM requirements to the suppliers, and includes quality personnel (engineering and inspection) at the vehicle and unit plants. (Toyota)
NAO	North American Operations
NBH	New Business Hold
NC	<ul style="list-style-type: none"> • Numerical Control • Nonconformance (Nonconforming Part): Product, method or material that does not meet specified requirements.
NCDR	Nonconforming Delivery Report
NCMAR	Non-Conforming Material Action Report (Renault-Nissan)
NCMR	Nonconforming Material Report (BorgWarner)
NCT	Non-Conformance Tracking System. (Chrysler)
NCT Illustration	NCT Illustration: The creator of an NCT Ticket has the ability to attach a photograph of the material in question. This photo/ illustration is attached to the Ticket and is viewable from a NCT Workstation or the Web.
NCT Number	The NCT Number is assigned by the NCT Application. It is constructed using the next number in secession for the creating plant. The NCT Ticket is numbered using a two digit prefix, an NCT number, and Plant Code. The Two Digit Prefix can consist of the model year, (05, 06, 07...), or QC, QA, VA, ST, DR, DP, MS, IA, IC, PA, OR PC... (Chrysler)
NCT Ticket	Non-Conformance Ticket: An issue is created when Non-Conforming material is received. When determined that the material is in fact defective, a NCT is created to recover lost dollars, update inventory systems, access shipper systems, and to ensure that material within the supply pipeline is within conformance criteria as soon as possible. (Chrysler)
NCX	Nissan CAD Exchange
NDA	<ul style="list-style-type: none"> • Nissan Design America, • Non Disclosure Agreement
NDE	Non-destructive Evaluation
NDF	No Defect Found
NDS	Nissan Design Specification
NDT	Non-destructive Testing
NENV	Nissan Europe NV
NEPSI	National Electronic Products Stewardship Initiative
NES	Nissan Engineering Standard
NG	No Good (Rejected)
NGES	Next Generation Electronic Shift
NHTSA	National Highway and Transportation Safety Administration - U.S. Government agency which governs the regulatory requirements for the transportation industry.
NI	Nickel
NiMH	Nickel-Metal Hydride (Battery)

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NIEM	Nissan Industrial Engine Manufacturing
NiSAMS	Nissan Supplier APQP Management System
NISMEX	Nissan Motor Manufacturing Corporation Mexico
NISMO	Nissan Motorsports
NIST	National Institute of Standards & Technology
Noise Factors	<p>Ford - Uncontrollable factors which disrupt ideal function and cause error states. The noise factors are listed according to the five basic sources of noise:</p> <ul style="list-style-type: none"> • Piece to Piece Variation • Changes Over Time/Mileage (e.g. wear) • Customer Usage • External Environment (e.g. road type, weather) • System Interactions <p>The five noise factors, if not identified and addressed, cause vehicle campaigns.</p>
Normal Controls	Refers to those controls associated with standard commercial practice and includes the normal and customary methods, practices, techniques, and tests used by a producer for a given product. These controls would typically be found on historic DVP&Rs for a DFMEA and on historic Control Plans for a PFMEA.
NMC	Nissan Motor Company (U.S. Sales)
NMFC	National Motor Freight Classification
NML	Nissan Motor Ltd. (Japan)
NMEX AGS	Nissan Mexicana Agusacalientes
NMEX	Nissan Manufacturing Plants, Nissan Design and Nissan headquarters in Mexico
NMISA	Nissan Motor Iberica SA
NML	Nissan Motor Ltd.
NMM	Nissan Motor Manufacturing (USA)
NMMC	Nissan Motor Manufacturing Company (TN)
NMPC	Nissan Motor Parts Centre
NMPR	New Model Progress Report: System which tracks sample dates for new/changed parts. (Chrysler)
NMR	New Model Report (Honda)
NMUK	Nissan Motor Manufacturing UK Ltd.
NMX	Nissan (Mexicana S.A.DE C.V.)
NNA	Nissan North America
NNA-C	Nissan North America - Canton
NNA-CP	Nissan North America - Canton Plant
NNA-FH	Nissan North America - Farmington Hills
NNA-S	Nissan North America - Smyrna
NOA	Notice of Action
Nonconformance	Product, method or material that does not meet specified requirements.
Nonconforming Part	Product or material that does not meet specified requirements.
Nonconformities	Specific occurrences of a condition that does not conform to specifications or other inspection standards; sometimes called discrepancies or defects.
Nonconformity	<ul style="list-style-type: none"> • The non-fulfillment of specified requirements. • A process, which does not conform to a quality system requirement.

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	<ul style="list-style-type: none"> • Non-fulfillment of a requirement. One or more of the specifications or requirements for the product or service has not been met.
NOCR	New or Changed Route
NOD	Notice of Decision
Non-exempt	Hourly Employees
Non-production materials	Non-production materials are consumed in operation and/or used in maintenance, but do not become a tangible part of the finished product.
Normal Distribution	(See Distribution)
Nox	Nitrogen Oxides
NPC	Notice of (Service) Parts Change (Toyota)
NPIS	New Product Information Sheet
NPDN	New Product Delivery Notice
N/R	Not Required
NRD	Nissan Research & Development
NRT	Narita Airport (Tokyo)
NSA	Nissei Sangyo America
NST	Nissei Sangyo Tokyo
NTC	Nissan Technical Center
NTCE	Nissan Technical Center - Europe
NTCNA	Nissan Technical Center North America
NTCNA-FH	Nissan Technical Center North America - Farmington Hills
NTCNA-VPM	Nissan Technical Center North America - Vehicle Program Management Dept.
NTF	No Trouble Found - Complaint from a Customer which cannot be identified or duplicated by the technician.
NTI	Notice of Technical Information (Nissan)
Numerical reliability	The probability that an item will perform a required function under stated conditions for a stated period of time.
NUMMI	New United Motor Manufacturing, Inc. (Toyota)
NVCASE	National Voluntary Conformity Assessment System Evaluation
NVH	Noise - Vibration - Harshness are measurable perceptions of vehicle attributes.
NW	Northwest Airlines
NW-CVT	Non Waterproof - Continuous Variable Transmission
O	<p>Occurrence (ranking for DFMEA & PFMEA)</p> <ul style="list-style-type: none"> • Design FMEA and Concept-Design FMEA: a rating corresponding to the cumulative number of failures that could occur for a given Cause over the design life of a system or part. • Process FMEA and Concept-Process FMEA: a rating corresponding to the estimated number of cumulative failures that could occur for a given Cause over a given quantity of elements produced with the current controls.
OBD	On-Board Diagnostic System
Objective evidence	Data supporting the existence or verity of something. Something that can be proven to be correct, by whatever means necessary, such as measurement, testing, etc. An independent third party would be able to confirm it.
OD	<ul style="list-style-type: none"> • Outer Dimension
OEE	Operating Equipment Effectiveness: A combined analysis (or estimate) of Equipment Availability, Performance Efficiency, and Quality Rate, which

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	is meant to be used as a tool to track machine improvement progress. Included in the analysis are Total Available Time, Planned Downtime, Unplanned Downtime, and Ideal Cycle Time.
OEM	Original Equipment Manufacturer: Another name for automobile manufacturers.
OEM Defect PPM-Supplier	The number of Supplier Caused OEM defects divided by the number of engines shipped expressed in parts per million (PPM). NOTE: For suppliers with multiple producing locations, each producing location will be considered separately. (Cummins)
OES/AM	a. Original Equipment Service and AfterMarket
OH	Overhead
O/H	Overhead (Expense)
OHC	Over Head Camshaft
OHP	Over Head Projector sheet
OJT	On-The-Job (Training)
OLED	Organic Light-Emitting Diode
OM	<ul style="list-style-type: none"> • Operation Manual, • Orifice Master
OMC	Overseas Management Course (Hitachi)
OOD	Overseas Operations Department
OP	<ul style="list-style-type: none"> • Operator, • Operation Plan (GM)
OPP	Off-Production Process: A part made from a production process that is based on all Mass Production level inputs, including man (personnel), material, method, and machine. (Toyota)
OPR	Outside Plant Requirements: Method by which plants can add additional requirement to part releases over and above normal usage. (Chrysler)
OR	Operational Reserve: Amount of finished material present between final point of manufacturer and installation point at assembly plant. (Chrysler)
Organization	<ul style="list-style-type: none"> • Group of people and facilities with an arrangement of responsibilities, authorities and relationships.
Organizational structure	<ul style="list-style-type: none"> • Arrangement of responsibilities, authorities and relationships between people. • How the organization is set up, how it operates internally and deals with the outside world.
OS	<ul style="list-style-type: none"> • Operator Safety - The designation for Operator Safety items in a PFMEA. These are Failure Modes with a severity rating of 9 or 10, and affect the process only.
OSE	On site evaluation - supplier evaluation/self-assessment to determine compliance and effectiveness of supplier's manufacturing process
OSHA	Occupational Safety & Health Administration
OT	Overtime
OTP	One Time Programmable Memory
Overburden	Overburden occurs when Team Members, machines, or equipment are pushed beyond the natural limit of their capacity. (GM)
OVP	Official Vehicle Program: Program which the Corporation plans production to and which is used to procure material against. It's approved by DaimlerChrysler's Operation Planning Committee. (Chrysler)
OZ	Ounce
P-Diagram	A schematic representation of the relationship among the signal factors, control factors, noise factors, responses, and error states of an engineering system.
<PH>	Proportions & Hardpoints (Ford FPDS Milestone)

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P/C/M	Permanent Countermeasure
P/L	<ul style="list-style-type: none"> • Profit/ Loss, • Packing List, Project Leader
<PA>	<ul style="list-style-type: none"> • Program Approval (Ford FPDS Milestone)
PA	<ul style="list-style-type: none"> • Part Approval: A document signifying that the supplier has demonstrated capability to produce limited volume parts produced from off-tool and mass production equivalent process, which meet specified quality requirements. (Toyota) • Parts Arrangement (Nissan), • Preventive Action, Provisional Approval
PAA	Production Action Authorization (An official document used to authorize a temporary substitution, try out new parts or materials, rework existing parts, or use up excess or obsolete-stock that will be good for a limited number of pieces or a specific time period.)(GMPT, GMPT, GVDP, ENG)
PAB	Pay as Built: System of sequenced parts in which supplier is paid based upon individual vehicles reaching built status. (Chrysler)
Packing Slip	Usually a copy of the supplier's billing or invoice which is included or attached to one of the packages contained in a supplier's shipment of material.
PADS	Production Assembly Documents (GM)
PAF	Personnel Action Form
PAP	Product Assurance Plan: is a structured method of defining and establishing the required steps necessary to assure that a product satisfies the customer. (DaimlerChrysler)
PAQF	Plante Ameliorisation Qualite Fournisseur (Renault-Nissan)
PAR	Preventive Action Request
Pareto Chart	A simple tool for problem solving that involves ranking all potential problem areas.
Part	Ford - Any physical hardware of the vehicle that is considered a single replaceable piece with respect to field service. The least subdivision before assembly into a subsystem or system, e.g., a shock absorber, a switch, or a radio. An end item.
Part Characteristics	See Product Characteristic.
PASS	Procurement Analysis and Strategy System: an application to create reports summarizing purchasing and supply data by supplier, commodity, Daimler plant or vehicle line.
PBL	Product Balance List
PBP	Production Based Pricing (Nissan)
PCA	Product Change Authorization
Pc	A symbol appearing on an Inspection Standard, denoting a designated control characteristic identified as requiring process control measures. (Toyota)
PC	Production Control
PCB	Printed Circuit Board
PCE	Product Change Evaluation
PC&L	Production Control & Logistics
PCL	Part Change level: is the latest design level of the part, not necessarily the drawing. (Daimler)
PCM	Powertrain Control Module - Electronic module used to monitor and control the performance of the vehicles engine and transmission. (GM)
PCM/VPCR	Product Change Management is the system through which Cummins typically controls changes to existing product.

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PCMSDS	Powertrain Control Module System Design Specification (Ford)
PCP	Process Control Plan
PCPA	Process Control Plan Audit (GM)
PCR	Process Change Request A written supplier request, to make any change to their manufacturing process, or sub-supplier, after achievement of Quality Readiness Check sheet (QRC). Toyota
PCS	Production Confirmation Stage (Toyota)
PCT (IE)	Product Core Team (Industrial Engineering)
PCV	Positive Crankcase Ventilation (Valve)
PD	<ul style="list-style-type: none"> Product Development - generic term used for all production development/ engineering activities. Program Director (Nissan)
PDA	<ul style="list-style-type: none"> Personal Digital Assistant - Commonly known as the Palm devices. Allows the user to have an electronic organizer. Property Die Asset
PDC	Process Documentation Change
PDCA	Plan - Do - Check - Act: This model forms the basis for much of the strategy embodied in ISO 9000. A fairly common sense process of planning, doing, checking and then acting to continually improve the quality system.
PDCR	Plan Date/ Tooling Change Request (Nissan)
PDCT	Part Design Cost Tracking (Nissan)
PDL	Product Design Letter
PDS	Product Description System
PDT	Product Development Team - Cross-functional team used for product development functions.
PDV	Proposal Drawing Verification (Nissan)
PDX	Portland Airport (Oregon)
PE	Production Engineering
PE-QA	Production Engineering - Quality Assurance (Nissan)
PEB	Power Electronics Box
PEDA	Power Electronics Dressed Assembly
PED-CA	Panasonic Electronics Division -
PEECB	Production Engineering Equipment Change Bulletin
PEI	Production Engineering Investigations
PEM	Proton Exchange Membrane
PEO	Production Engineering Office (Ford)
PEP	Part Evaluation Plan: The Supplier's plan for testing and verifying parts/components meet all drawing and inspection standard requirements. (Toyota)
PERFORMANCE	Performance Assembly Solutions
Performance Results	The supplier shall perform tests for all parts or product material when performance or functional requirements are specified by the design record or Control Plan.
PERT	Program Evaluation and Review Technique
PET	Program Execution Team (GM)
PF	Performance Standard (Daimler)
PFA	Premium Freight Authorization (BorgWarner)

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PFMEA	<ul style="list-style-type: none"> • Process Failure Mode & Effects Analysis: An analytical technique used by a manufacturing responsible engineer/team as a means to assure that, to the extent possible, potential failure modes and their associated causes/mechanisms have been considered and addressed. • Process Failure Mode and Effects Analysis (PFMEA) is a systematic group of activities that recognizes and evaluates the potential failure of a process and the effects of that failure. Identifies actions that could eliminate or reduce the chance of potential failure occurring. • An FMEA used to analyze manufacturing and assembly processes and output Control Plans.
PFS	Problem Follow Sheet: A record of quality and/or design problems, countermeasures, and follow-up items. (Toyota)
PFT	Project (Production) Focus Team
PG	Plug Gauge)
Phased PSW	A process associated with the Production Part Approval Process (PPAP), where the supplier demonstrates they can produce quality parts at the required volumes
PHC	Plug Hole Coil
PHS	Part History Sheet (Toyota)
PIA	Purchased in Assembly: Part is not purchased directly as an end item, but is combined with other part(s) and purchased as an assembly. (Chrysler)
PICS	Parts Inventory Control System (Honda)
PIPC	Percent Indices, which are Process Capable: The number of characteristics, which are process capable, divided by the total number of characteristics being checked, multiplied by 100. (Ford)
PIS	Process Inspection Standard (Honda)
PIST	Percent Inspection Points which Satisfy Tolerance: The number of conforming inspection checks divided by the total number of checks made, times 100. (Ford)
PIT	Product Inspection Team
PL	<ul style="list-style-type: none"> • Product Liability, • Program Leader
PLC	Programmable Logic Controller
PLCC	Plastic Leaded Chip Carrier (LSI)
PLD	Products Liability Defense
PLE	Product Line Engineer (QA)
PLM	<ul style="list-style-type: none"> • Premium Logistics Management (DDL-Ford), • Product Lifecycle Management
PLP	Products Liability Prevention
PLT	Product Line Technician (QA)
PLS	<ul style="list-style-type: none"> • Please, • Process-Level Suffix, Places
PM	<ul style="list-style-type: none"> • Production Management • Preventive Maintenance
PGM	Program
PMT	Product Management Team (GM) - Responsible for the horizontal focus, across families of components (such as accessory drive). Consists of an Engineering Group Manager and Design and Release Engineers.
PMT&T	Process Mean Time To Failure - A supplier-led team defines and monitors the status of key metrics used throughout the APQP process. Metrics may include cost, weight, quality targets, mean time to failure (MTTF), reliability growth curves, 8D status, CR/CR status and functional performance.

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PND	Program Need Date
PO	Purchase Order
POA	Part of Assembly
PoE	Process of Engineering
POE	Piece Ouvre Exterieur (Renault-Nissan - Bought-out Part)
POI	Piece Ouvre Interieur (Renault-Nissan - In-house Part)
Poka-yoke	A device or piece of equipment that does "mistake proofing". It does not allow a part to proceed on the assembly line or production line unless the error is removed. Fool-proof device.
POP3	Post Office Protocol - Method of access to e-mail service that enables access from a non-dedicated connection.
POU	Piece Ouvre Usine (Renault-Nissan - In-house Part)
Population	The universe of data under investigation from which a sample will be taken.
Potential Critical Characteristics	A symbol generated in a DFMEA classification that may become a designated Critical Characteristic after a PFMEA is completed. Severity ranking is 9 or 10.
PP	Production Planning Product Planning
Pp	<ul style="list-style-type: none"> Process Potential Index - a measure of variation compared to the tolerance (uses Sigma of the population) An index similar to Cp but based on data from early, short-term studies of new processes. Pp can be calculated only when the data from the study indicate that process stability has been achieved. (Pp = Process Capability).
Ppk	<ul style="list-style-type: none"> Process Capability Index - a measure of variation and targeting compared to the tolerance (uses Sigma of the population) An index similar to Cpk but based on data from early, short-term studies of new processes. Data from at least 20 subgroups are required for preliminary assessments. Ppk can be calculated only when the data from the studies indicate that stability has been achieved. (Ppk = Preliminary Process Capability).
PPA	<ul style="list-style-type: none"> Product and Process Approval Potential Problem Analysis (Honda)
PPAP	<ul style="list-style-type: none"> Production Part Approval Process - purpose is to provide the evidence that all customer engineering design record and specification requirements are understood by the supplier and that the manufacturing process has the potential to produce product consistently during actual production run. Production Part Approval Process - The AIAG process for suppliers to document that parts are "to print" per engineering specifications. Production Preparation Approval Process (Renault-Nissan)
PPD	<ul style="list-style-type: none"> Part Plant Development: The working relationship with outside suppliers to Daimler, on parts to the assembly plants, from the supplier's back door to the Daimler operator.
PPE	Personal Protection Equipment
PPH	<ul style="list-style-type: none"> Problems per Hundred (GM) - Performance Metric calculated by totaling the number of events dividing it by the number of vehicles in the population, then multiplying the number by 100. Past Problem History (Honda)
PPHU	<ul style="list-style-type: none"> Problems per Hundred Units (Honda)
PPM	<ul style="list-style-type: none"> Parts per Million is a way of stating the performance of a process in terms of actual or projected defective material. Program Purchasing Manager
PPMM (Renault-Nissan)	Production Preparation Monitoring Meeting - The meeting at which Renault and / or Nissan will confirm the Supplier status against the Supplier Plan. See items 2.19, 3.11 & 4.9.

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PPO	Preferred Provider Organization		
PPS	Practical Problem Solving		
PPSR	<ul style="list-style-type: none"> • Production Preparation Status Report • Practical Problem Solving Report (GM) - used in the Fast Response system. Pre-Production Sample Report: is a dimensional and performance verification document, submitted with all part samples used prior to S1 build. (Daimler)		
PQ	Perceived Quality (Nissan)		
PQA	Process Quality Assurance		
PQC	Product Quality Characteristic (GM)		
PQCT	Process Quality Control Table (Honda)		
PQE	Program Quality Engineer (GM) - Engineers that track and address quality issues. Manage quality at the engine or transmission level (at the assembly versus part piece). Reports to a PQM.		
PQM	Program Quality Manager (GM) - Managers that track and manage quality at the engine or transmission level (at the assembly versus part piece). The manager for the program that helps ensure the program meets all quality deliverables.		
PQT	Product Quality Team		
PQTP	Parts Quality Tracking Plan: A supplier initiated plan that supports all elements of the APQP process. This plan includes supplier tasks, assignments, events, and timing required to ensure that system, subsystem or component meets customer expectations.		
PQTS	Parts Quality Tracking System (Honda)		
<PR>	Product Readiness (Ford FPDS Milestone)		
PR	Pressure Regulator		
PR&R	Problem Reporting & Resolution		
PRC	Production Readiness Confirmation sheet (Toyota)		
Predictive maintenance	Activities based on process data aimed at the avoidance of maintenance problems by prediction of likely failure modes		
Preliminary BOM	A list of component parts and materials required to make the product being provided by the supplier to Renault-Nissan.		
Premium freight	Extra costs or charges incurred additional to contracted delivery. NOTE: This can be caused by method, quantity, unscheduled or late deliveries, etc.		
PRES	President		
Prevention	A future-oriented strategy that improves quality by directing analysis and action toward correcting the production process. Prevention is consistent with a philosophy of never-ending improvement.		
Preventive action	Action to eliminate the cause of a potential nonconformity or other undesirable potential situation.		
Preventive maintenance	Planned action to eliminate causes of equipment failure and unscheduled interruptions to production, as an output of the manufacturing process design		
Primary Function	See Function.		
PRO	<ul style="list-style-type: none"> • Process, • Products, • Production 		
Problem Case	Problem Case - also referred to as Problem Report & Resolution (PR&R) - A tracked supplier quality performance issue that impacts a supplier's scorecard including, such as: # of quality problem cases, # of customer satisfaction problem cases, # of shipping problem cases, # of packaging problem cases, # of customer impact problem cases		
Problem Solving	A structured process that identifies, analyzes, and eliminates the discrepancy between the current situation and an existing standard or		
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	expectation, and prevents recurrence of the root cause.
Procedure	<p>Specified way to carry out an activity or a process. (Note: Procedures can be documented or not)</p> <p>A procedure outlines what you do to complete a task, a flow of activity that describes who does what, in what order and to what standard. Collectively the procedures make up your quality system. Your procedures will describe how you operate and control your business and meet the requirements of the quality standard.</p>
Process	<ul style="list-style-type: none"> • A set of interrelated or interacting activities which transforms inputs into outputs. The inputs of a process are the outputs from other processes. And, processes are planned and carried out under controlled conditions to add value. • The combination of people, machine and equipment, raw materials, methods, and environment that produces a given product or service.
Process Capability	The level of conformity a process is capable of producing for a specified characteristic (e.g. dimension, color, weight, etc.) The measured, built-in reproducibility (consistency) of the product turned out by the process. Such a determination is made using statistical methods, not wishful thinking. The statistically determined pattern or distribution can only then be compared to specification limits to decide if a process can consistently deliver product within those parameters.
Process Change	A change in a process that could alter the capability of the process to meet the design requirements or durability of the product.
Process Characteristic	<ul style="list-style-type: none"> • A Process Characteristic is a Process Parameter for which variation must be reduced or maintained/controlled around a target value to ensure that customer requirements are met. (GM 1805) • Measurable characteristics of process inputs and their interactions that affect the process output. Examples of process parameters include speeds, feeds, temperatures, chemical concentrations, pressures, and voltages.
Process Control	<ul style="list-style-type: none"> • Preventing the manufacturing of nonconforming products through data collection, analysis and feedback to the process. • See Statistical Process Control (SPC).
Process Failure Mode	The failure of a manufacturing or assembly process to meet the requirements of the intended process function.
Process Flow Diagram/ Chart	A diagram that depicts the flow of materials through the process, including any rework, repair and audit operations.
Process Owner	A person who is given the responsibility and authority for managing a particular process. Most organizations find it useful to appoint individual process owners and define their responsibilities as ensuring the implementation, maintenance, and improvement of their specific process and its interactions with other processes.
Process Parameters	See Process Characteristic.
Process Quality Audit	An analysis of elements of a process and appraisal of completeness, correctness of conditions, and probable effectiveness.
Process Validation	<p>Establishing by objective evidence that a process consistently produces a result or product meeting its predetermined specifications.</p> <p>Process variation is represented by a normal distribution curve that shows the characteristic variation expected or measured during a manufacturing or assembly operation.</p>
Procurement Time	<ul style="list-style-type: none"> • The standard time required to source, tool, and sample a certain category of part (example: Die Cast Moldings normally require 24 weeks).
PROD	Production
Producer	A Ford manufacturing or assembly plant or outside Supplier providing products or services to Ford.
Product	<ul style="list-style-type: none"> • Result of a process. (May be services, software, hardware or processed materials, or a combination thereof.) • Anything created through the processes of an organization. Products, services, waste, pollution, noise, garbage, etc. If something results from the process, it is a product. (Less desirable products are

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	sometimes called by-products) A general term that refers to a component, part, assembly, subsystem, or system.		
Product Certification	A process of confirming that a product has been manufactured to a product standard and has been independently tested and certified. This differs from management system certification because the product performance is assessed not just the system through which it was produced.		
Product Characteristic	<ul style="list-style-type: none"> • A Product Characteristic is a feature of a part, sub-system or system (such as dimension, property, function, chemistry, appearance, or finish) on engineering documentation. The characteristic is classified as Special or Standard and can be measured. (GM1805) • Quantifiable/measurable features such as dimension, size, form, location, orientation, texture, hardness, tensile strength, coating, reflectivity, finish, color, or chemistry. 		
Product liability or Service liability	<ul style="list-style-type: none"> • A generic term used to describe the onus on a producer or others to make restitution for loss related to personal injury, property damage, or other harm caused by a product or service. • The responsibility of whomever supplied the product or service to the customer. If there is injury or damage caused by use of the product, the supplier is responsible for compensation. 		
Product Quality Audit	A quantitative assessment of conformance to required product characteristics.		
Product Quality Characteristic (PQC)	A Product Quality Characteristic (PQC) is a special characteristic in which the customer is equally satisfied across the entire specification, but the loss function is steep just outside of the specification limits. (GM 1805) Variation within the tolerance does not significantly affect customer satisfaction, whereas variation outside the tolerance may significantly impact customer satisfaction.		
Production Permit	<ul style="list-style-type: none"> • A written authorization for a product, prior to its production, to depart from originally specified requirements; also known as deviation. 		
Production Preparation - Initial	<ul style="list-style-type: none"> • Nissan - PT1 • Renault - PPP3 		
Production Preparation - Final	<ul style="list-style-type: none"> • Nissan - PT2 • Renault - PP 		
Product to Process Characteristic Linkages	A statistical relationship between product characteristics and key process characteristics. These relationships are found by using tools such as scatter plots and designed experiments.		
Program Need Date (PND)	The last possible date the elements can be completed and not adversely affect quality or timing of a program.		
Project	Unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources.		
PROlaunch	This process requires that suppliers become involved in the design process early to ensure consideration of advances in technology and specific knowledge of our suppliers. (Eaton)		
PROTO	Prototype		
Prototype	An initial or original model from which subsequent copies are made or improved models are developed.		
PR&R	Problem Report & Resolution		
PRP	Procurement Renewal Project		
PR/REG	Pressure Regulator		
PRTR	Pollutant Release and Transfer Register		
PRTS	Problem Resolution Tracking System (GM) - Global issue tracking system to manage issues related to the development and production of General Motors (GM) components, sub-systems, and vehicles		
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PRV	Premium V
PRW	Power Switch (Module)
PS	<ul style="list-style-type: none"> • Process Standard, • Pressure Sensor, • Plan de Surveillance (Renault-Nissan - Control Plan)
P&S	Procurement and Supply
P/S	Pressure Sensor
PSA	Potential Supplier Assessment (a subset of the Quality System Assessment (QSA))
PSI	Pounds per Square Inch
PSN	Product Serial Number
PSO	Process Sign-Off (On-Site Visit): is a systematic and sequential review of the Supplier's manufacturing process conducted by a PSO Team at the Supplier's production facilities. Supplier Quality is responsible for team leadership. (Daimler)
PSSC	Project Sourcing Sub Committee (Nissan)
PST	Problem Solving Techniques: are methods used to identify the "root cause" of a problem. (Daimler)
PSW	Part Submission Warrant - An Industry-standard document required for all newly-tooled or revised products in which the supplier confirms that inspections and tests on production parts show conformance to customer requirements.
PT	Pass Thru (Finished good made in Japan)
PT1	Production Trial One
PT2	Production Trial Two
PTC	Problem Tracking Chart (Honda), Pass-Through Characteristic (Nissan)
PTE	Prototype Engineering
PTO	Paid Time Off
PTP	Pass Thru Part (Sold as a finished good)
PTPD	Plastic Trim Products Division (Ford)
PTR	<ul style="list-style-type: none"> • Plant Trial Run (GM), • Production Trial Run (Nissan)
PTSW	Pass Through Sort Work
PUP	Parts Usage Projection: Part usage against vehicle build detailing hourly part usage. (Chrysler)
PUR	Purchasing
PURC	Purchasing
Purchaser	<ul style="list-style-type: none"> • The customer • Whoever is buying the product or service. This is the same as a customer, but used when a contract of some kind is involved.
PV	Product Validation
PVS	Part Volume System: Corporate system for calculating and displaying up to five (5) model years of FPV/ CPV's at a part number level by vehicle line and purchase responsibility. (Chrysler)
Q1	Quality One Status (Ford)
QA	Quality Assurance
QAS	Quality Assurance Schedule (Toyota)
QAV	Quality Assurance Visit (Honda)
QBC	Quality Build Concern

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QbD	Quality by Design
QC	Quality Control
QCDDSM	Quality, Cost, Development, Delivery, Speed & Morale
QCI	Quality Communications Improvement Team (SIA)
QCMS	Quality Chain Management System (Toyota)
QCPC	Quality Control Process Chart
QCS	Quality Confirmation Stage (Toyota)
QCT	<ul style="list-style-type: none"> Quality Cost Tracking (database) Quality Communications Team
QE	<ul style="list-style-type: none"> Quality Engineering
QF	Quality First
QFD	Quality Function Deployment - A structured method in which customer requirements are translated into appropriate technical requirements for each stage of product development and production.
QFP	Quad Flat Package (LSI)
QFT	Quality Feedback Team
QFTT	Quality Functional Task Team
QG	Quality Gate
QIP	Quality In each Process
QIR	<ul style="list-style-type: none"> Quality Improvement Report, Quality Improvement Request - The method used to communicate non-conformances that do not meet QPR criteria or to request investigation of a problem when the responsibility is unclear. (Toyota)
QIS	Quality Improvement System - For customer or internal issues with Hitachi Group Companies pass thru or component, the QIS may be used instead of the Improvement Opportunity Corrective Action Request (IO) system to document the issue.
QIS2	GM's Quality Information System 2 (QIS2) is a multidimensional web-based system which provides combined analysis capabilities across production, sales, warranty, and diagnostic trouble information.
QM	<ul style="list-style-type: none"> Quality Management, Quality Manual
QMS	Quality Management System
QMSA	<p>Quality Management System Alignment (Daimler) This analysis closely examines all process flows at suppliers, with the objectives of a long-term increase in parts quality and of closing specific gaps in quality management.</p> <p>The alignment is based on the five pillars of quality management:</p> <ol style="list-style-type: none"> 1) planning, 2) quality of supplied parts, 3) system/ process, 4) quality of product/ process, and 5) failure analysis/ management.
QOS	5) Quality Operating System (Ford)
Q/P	Quality Per Person
QPL	<ul style="list-style-type: none"> Quality Profitability Leadership, Quality Project Leader (Honda)
QPS	Quality Problem Information (Toyota)
QPR	Quality Problem Report: The method used for reporting significant quality non-conformance and requesting immediate countermeasure information from suppliers. (Toyota)
QRC	Quality Readiness Check sheet (Toyota)

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QRE	Quality Resident Engineer: A supplier's technical representative assigned to work at the NAMC. (Toyota)
QRs	Quality Rejects (Ford)
QRSOW	Ford Quality and Reliability Statement of Work
QS	<ul style="list-style-type: none"> • Quality System, • Quality Standard
QSA	Quality System Assessment
QSB	Quality System Basics
QSM	Quality System Metrics
QSP	Quality Service Performance (award from GM-North America Operations)
QSR	Quality System Requirements
QTC	Quoted Tool Capacity
QTR	Quality Tuning Request: The method used for communicating to the supplier a request for any change, which will improve the fit, function, or workability of the part. This applies in those situations where the supplier is meeting specification or where the Inspection Standard is unclear. (Toyota)
QTY	Quantity
Qualification	<ul style="list-style-type: none"> • A documented determination that a product (and its associated software), component, packaging or labeling, meets all prescribed design and performance requirements. • The ability of an organization to show that it can meet the specifications and requirements of its customers for a given product or service.
Qualification process	Process to demonstrate the ability to fulfill specified requirements.
Qualified	A qualified organization has proven that it can meet or exceed the specifications or requirements of its customers for a given product or service.
Quality Characteristic	Inherent characteristic of a product, process or system related to a requirement.
Quality Control	<ul style="list-style-type: none"> • The operational techniques and the activities used to fulfill requirements of quality. • Part of quality management focused on fulfilling quality requirements. • The system that makes sure that the product or service supplied to the customer meets all specifications and requirements. It includes inspection, verification and any other function that may be necessary. <p>Quality control involves operational techniques and activities aimed both at monitoring a process and at eliminating causes of unsatisfactory performance at all stages of the organization's operation in order to result in economic effectiveness.</p>
Quality Document	A document that contains either requirements for quality system elements for products or services. The results of activities such as inspections or quality audits.
Quality Engineering	That branch of engineering which deals with the principles and practice of product and service quality assurance and control.
Quality Evaluation	<ul style="list-style-type: none"> • A systematic examination of the extent to which an entity (part, product, service or organization) is capable of meeting specified requirements. A quality evaluation may be used to determine supplier quality capability. In this case, the result of quality evaluation may be used for qualification, approval, and registration or accreditation purposes. A quality evaluation examines potential quality capability, whereas, a quality audit additionally examines effective implementation. <p>A verification of an organization's quality system. This is similar to an audit, in that the quality system is being examined, but for a different purpose. An example of an evaluation may be to determine whether a potential supplier is capable of meeting the needs of the organization.</p>

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Quality Feedback	The communication of quality expectations and results between customers and suppliers through standardized communication pathways.		
Quality Improvement	<ul style="list-style-type: none"> The actions taken to increase the value to the customer by improving the effectiveness and efficiency of processes and activities throughout the organizational structure. Part of quality management focused on increasing the ability to fulfill quality requirements. <p>An important part of any quality management program is the systems that are put into place to improve quality. We hear about "continuous improvement." This means that any time the product or service being supplied to the customer does not meet the specifications or requirements that were previously agreed upon, there is a system that looks at why this happened. This system then tries to find out what must be changed so that this particular problem does not happen again at some later date.</p>		
Quality Management	<ul style="list-style-type: none"> The aspect of the overall business management function that determines and implements the quality policy. Coordinated activities to direct and control an organization with regard to quality. This literally means managing the quality system. Everything from making the initial decision to implement a quality-management system and drawing up the quality policy, to seeing that the various parts of the system are implemented and adhered to. All activities of the overall management function that determine the quality policy, objectives and responsibilities, and implements them by means such as quality planning, quality control, quality assurance and quality improvement. The responsibility for quality management belongs to all levels of management but must be driven by top management. Its implementation involves all members of the organization. 		
Quality Management System	Management system to direct and control an organization with regard to quality. (See QMS)		
Quality Manual	A Quality Manual will normally contain, or refer to, the Quality Policy, the responsibilities, authorities and interrelationships of personnel who manage, perform, verify or review work affecting quality, the quality system procedures and instruction, a statement for reviewing, updating and controlling the manual.		
Quality Measure	A quantitative measure of the features and characteristics of a product or service.		
Quality Objective	Something sought, or aimed for, related to quality.		
Quality Plan	<ul style="list-style-type: none"> This is a requirement of ISO/TS16949 (4.2.3) and applies to all of the supplier's activities. A document setting out the specific quality practices, resources, and activities relevant to a particular product, process, service, contract, or project. Document specifying which procedures and associated resources shall be applied by whom and when to a specific project, product, process or contract. A set of instructions that explains how the organization will supply the customer with a particular product or service. 		
Quality Policy	<ul style="list-style-type: none"> The overall intentions and direction of an organization as regards quality as formally expressed by top management. Overall intentions and direction of an organization related to quality as formally expressed by top management. The organization's policy with regard to quality. Organizations have policies with regard to many subjects, such as vacations, theft, hiring practices, etc. In most quality-management systems this written policy is posted and endorsed by the highest levels of management so that everyone knows what the objectives are. This goes to clarity and avoiding confusion. 		
Quality	A translation of customer needs into a set of quantitatively or		
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Requirements	<p>qualitatively stated requirements for the characteristics of a product or service to enable its realization and examination. The requirements for quality should be initially expressed in functional terms and documented.</p>
Quality System	<ul style="list-style-type: none"> • The organizational structure, responsibilities, procedures, processes, and resources for implementing quality management. • The whole system. All the systems, processes and procedures and everything that is needed to make them function correctly. <p>The quality system should only be as comprehensive as needed to meet the quality objectives.</p> <p>The quality system of an organization is designed primarily to satisfy the internal requirements of the organization and is not limited to the quality assurance requirements of a particular customer.</p> <p>For contractual or mandatory quality assessment purposes, demonstration of the implementation of identified elements of the quality system may be required.</p>
Quality System Audit	A documented activity performed to verify, by examination and evaluation of objective evidence, that applicable elements of the quality system are suitable and have been developed, documented, and effectively implemented in accordance with specified requirements.
Quality System Review	A formal evaluation by management of the status and adequacy of the quality system in relation to quality policy and/or new objectives resulting from changing circumstances.
Quality System - Third Party Registration	Certification by an independent registrar which is qualified by a national accreditation body to perform audits to an accepted standard such as ISO/TS 16949:2002 and ISO 9001: 2000 and to register the audited facility for a given scope.
QV	<ul style="list-style-type: none"> • Quantity Versus Air Flow (Test Stand), • Quality Validation, Quality Verification
QVCC	Quality Variance Characteristics Chart (Nissan)
QWIK	Quality With Information and Knowledge (GM)- Claims analysis system used by GMNA.
R	Resistor (Electrical)
R&D	Research & Development
R&R	Repeatability & Reproducibility
R/C	Returnable Container
RAB	Registrar Accreditation Board
RACF	Resource Access Control Facility (Ford)
RAN	Release Authorization Number (Nissan)
RAM	Random Access Memory
RAMP UP	The period from start of production to the achievement of full volume condition
Range	A measure of the variation in a set of data. It is calculated by subtracting the lowest value in the data set from the highest value in that same set. (See SPC)
RAO	Regulatory Affairs Office
RAS	Rear Active Steer (Nissan)
RASIC	Responsible - Approve - Support - Inform - Consult
RC	Report Card - Visteon Supplier Report Card, supplier quality and delivery performance database that is available to all Visteon personnel and suppliers
RCRA	Resource Conservation and Recovery Act - LAW that gave the environmental protection agency the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation,

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	treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes.
RCV	Receiving
RD	Revised Detection - A value entered in the Action Results Detection field when the Recommended Action is completed and the action has improved the Detection of the Failure Mode or Cause.
RDDP	Request for Design & Development of Parts (Toyota)
RDR	Receiving Discrepancy Report: Document used to report back to supplier that material received did not match packing slip either in terms of part number or quantity received.
RDS	Review Daily Sequence
Reaction Plan	The action specified by a Control Plan when nonconforming product or process instability is identified.
Realization	The carrying out of an action or process to completion
REC	Receiving (Warehouse)
Record	<ul style="list-style-type: none"> • A document stating results achieved or providing evidence of activities performed. • A document that furnishes objective evidence of activities performed or of results achieved. • A document that contains the results of some test, measurement, process or procedure. These records are kept so that it may be proved that a specification or requirement was met (or not met) at some point in time. It also allows for problems to be traced back to their source, or to help in developing changes to the system in the "Continuous improvement" cycle. • A quality record provides objective evidence of the extent of the fulfillment of the requirement for quality or the effectiveness of the operation of a quality system element. • Some of the purposes of quality records are demonstration, traceability and corrective actions. A record can be written or stored on any data medium.
REDPEPR	Robust Engineering Design Product Enhancement Process (Ford)
REF	Reference
Registrar	A company that conducts quality system assessments to the Quality System Requirements.
Registration	Formal verification by an accredited body that an organization has been audited and shown to comply with ISO 9000:2000.
Regrade	Alteration of the grade of a nonconforming product in order to make it conform to requirements differing from the original ones
REJ	Reject
Relative quality	Degree of excellence of a product or service.
Release	Permission to proceed to the next stage of a process.
Reliability	<p>The probability that an item will continue to function at customer expectation levels at a measurement point, under specified environmental and duty cycle conditions.</p> <p>The ability of an item to perform a required function under stated conditions.</p>
Reliability Assessment	A quantitative assessment of the reliability of a product, system or portion thereof. Such assessments usually employ mathematical modeling, directly applicable results of tests on the product, failure data, estimated reliability figures, and non-statistical engineering estimates.
Reliability engineering (RE)	That engineering function dealing with the principles and practices related to the design, specification, assessment, and achievement of product or system reliability requirements and involving aspects of prediction, evaluation, production, and demonstration.
Remote location	Location that supports sites and at which non-production processes occur. Example: (ASTEMO)AM-FA

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REP	Repair Area		
Repair	<ul style="list-style-type: none"> Action taken on nonconforming product so that the product will fulfill the intended usage although the product may not conform to the original requirements. Action on a nonconforming product to make it acceptable for the intended use. 		
Req	Requisition		
Requirement	Need or expectation that is stated, generally implied or obligatory		
Requirements of society	These are ALL the requirements that an organization must meet to comply with all manner of laws, regulations and codes for their location.		
RESP	Responsible, Responsibility		
Response	Measured characteristics representing the desired function performance.		
RET	Returnable (Packaging)		
REV	Revision		
Review	Activity undertaken to determine the suitability, adequacy and effectiveness of the subject matter to achieve established objectives.		
Revision Column	Reserved section of a drawing, which documents legacy of specification change and release on the drawing		
Rework	<ul style="list-style-type: none"> Action taken on a nonconforming product so that it will fulfill the specified requirements before it is released for distribution. Action taken on nonconforming product so that it will meet the specified requirements. Action on a nonconforming product to make it conform to the requirements. 		
RF	Radio Frequency		
RFD	Refuse Derived Fuel		
RFI	<ul style="list-style-type: none"> Request for Improvement, Recommendation for Improvement, Radio Frequency Interference 		
RFQ	Request for Quotation - Document from a Buyer to supplier requesting information on a new part which includes piece price/ tooling cost and capacity/ manufacture location/ packaging cost/ weight.		
RG	Ring Gauge		
RH	Relative Humidity Right Hand		
RHD	Right Hand Drive		
RIS	Reject Improvement Sheet		
RKD	Reverse Knock Down		
RLQ	Receiving Lot Quantity		
RLY	Relay Box (Eaton)		
RM	Raw Material		
RMA	Returned Material Authorization		
RMI	Repetitive Motion Injuries		
RMO	Return Material Order: Return Material Authorization (Chrysler)		
RMS	Root Mean Squared		
RMX	Rider Express		
RO	Revised Occurrence - A value entered in the Action Results Occurrence field when the Recommended Action is completed and the action had reduced the likelihood that this Cause will occur and generate the Failure Mode.		
Robust Design	Ford - A producer's capability to manufacture and/or assemble with a low sensitivity to manufacturing and/or assembly process variation. A robust		
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	design assumes there are no design weaknesses. If a design is not robust, sensitivity to process variation is high and this implies special process controls may be necessary.
Robustness Checklist	Ford - Summarizes key robustness attributes and design controls. It is an input into the Design Verification Plan (DVP). It is a key element for review in the Design Review Process.
ROC	Rate of Climb
ROE	Return on Equity
RoHS	Restriction of the Use of Hazardous Substances
ROI	Return on Investment
ROM	Read Only Memory
Root Cause	The assignable source of variation that affects all the individual values of the process output/phenomenon being studied. Root cause is the reason for the primary nonconformance, which has induced other failures and for which effective permanent corrective action can be implemented.
ROP	<ul style="list-style-type: none"> • Re-order Point, • Réalisation Outillage Pièce (Renault-Nissan - Tooling Release)
RPIM	Abbreviated designation for RWD TPIM (Torque Power Integrator Module)
RPL	Registered Parts List
RPM	Revolutions Per Minute
RPN	Risk Priority Number (RPN = S x O x D rankings for DFMEA & PFMEA) The Risk Priority Number is the product of the Severity, Occurrence, and Detection ratings (S x O x D). It is a value from 1 to 1000.
RPR	Regular Production
RR	Rear
RRCL	Reliability & Robustness Checklist (Ford)
RRDM	Reliability & Robustness Demonstration Matrix (Ford)
RRPN	Revised RPN - The generated product of the Revised Severity (RS) x Revised Occurrence (RO) x and Revised Detection (RD) ratings. It is a value from 1 to 1000 and is calculated and entered in the Action Results RPN field of the PFMEA form when the ratings are entered.
RS	<ul style="list-style-type: none"> • Revolution Sensor • Revised Severity - A value entered in the Action Results Severity field when the Recommended Action is completed and the action had reduced the Severity of the Failure Mode. This can only occur when there is a change in design.
RSS	<ul style="list-style-type: none"> • Root Sum Squared, • A family of web feed formats used to publish frequently updated pages, such as blogs or news feeds.
RSAQF	<ul style="list-style-type: none"> • Revue Structurée Amélioration Qualité Fournissier (Renault-Nissan)
RSC	Revised Monthly Schedule
RTECS	Registry of Toxic Effects of Chemical Substances
RTM	Resin-Transfer Molded
RTO	Required to Operate
RTP&R	Reliability Test Plan & Request
RTV	Return-To-Vendor
Runs	The patterns in a Control Chart within which a number of points line up on only one side of the central line.
RvC	Raad voor de Certificatie (Dutch Council for Certification)
RWD	Rear Wheel Drive
S	<ul style="list-style-type: none"> • Short Lead Release Part (Nissan), • Severity (ranking for DFMEA & PFMEA)

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SASG	Standards of Hitachi Automotive Systems for Global Use
S&M	Sales & Marketing
S/D	Support and Development
S/E/N	Characteristic that will affect compliance with DaimlerChrysler Corporation and/or Governmental Vehicle Safety/ Emissions/ Noise requirements.
S/L	Sick Leave
S/M	Sales & Marketing
S/R	Shipping Release
S/S	Start/Stop
SA	Situation Analysis (Honda)
SaaS	Software as a Service
SAE	<ul style="list-style-type: none"> • Society of Automotive Engineers, • Suspension Assembly
SAF	Safety
Safety	This is talking about the danger to people, or damage to something. Another VERY important component of quality.
Safety Critical Part	A part, the failure of which will result in serious injury or death.
SAIS	Supplier Assessment & Improvement System, Renault-Nissan - Tooling Release
SAM	Sampling
Sample	One or more individual events or measurements selected from the output of a process for purposes of identifying characteristics and performance of the whole.
SAP	<ul style="list-style-type: none"> • Specified Action Plan (Honda), • Systems Applications and Products - This is a specific brand of Enterprise Resource Planning software designed to standardize business processes and give employees access to information across an organization.
SAS	Standards of Hitachi Automotive Systems
SC&L	Supply Chain & Logistics - function for DPSS
<SC>	Strategic Confirmation (Ford FPDS Milestone)
SC	<ul style="list-style-type: none"> • Special Characteristic, • Significant Characteristic, • Shift Change, • Sound Calibrator
SCC	Standards Council of Canada
SCAR	Supplier - Corrective Action Request
SCIF	Special Characteristics Identification Form - Document for recording agreement of Visteon Critical and Significant Characteristics.
SCL	Special Characteristic Lists (BorgWarner)
Scope of registration	A precise definition of a client's activities that are the subject of assessment.
SCOPE	Supply Chain Order-entry Process Empowerment: A project provides supplier support in meeting DaimlerChrysler's Supply-Chain EDI Requirements. The vision of SCOPE is to gain complete electronic data transmission and system integration through-out supply chain.
SCORE	Supplier Cost Reduction Effort: Program to encourage identification and reduction of costs associated with parts. (Chrysler)
Scorecard	Supplier Quality Database (ACH)
SCR	Supplier Change Request - Process/ Form to be used by suppliers for formally requesting permission for a change proposal.

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SCP	Scheduled Production
Scrap	Action on a nonconforming product to preclude its originally intended use.
SCSP	Supplier Cost Savings Proposal (Nissan)
SCT	Supplier Certification Transmittal (Nissan)
SD	Supplier Development
SDC	Hitachi Service Distribution Center
SDE	Supplier Development Engineer - Visteon Supplier Performance engineer managing current production parts.
SDI	See AFM-SDI
SDM	Sensing Diagnostic Meter/ Module
SDPM	Supplier Development Progress Meeting (Nissan)
SDP	Supplier Delivery Program: A specific type of SDS route wherein the carrier will pick up material from multiple suppliers in an effort to get a full truckload. The truck is then brought in to one plant. (Daimler)
SDR	Supplier Deviation Request
SDS	<ul style="list-style-type: none"> • System Design Specification (Ford), • Supplier Direct Ship (Ford) • Supplier Daily Schedule: Daimler's daily material requirements to be shipped from its suppliers. This data is sent to them in an 862 EDI transaction.
SDTR	Supplier Delivery Trouble Report (Mahle Tennex)
SE	<ul style="list-style-type: none"> • Staff Engineer, • Simultaneous Engineering (Toyota)
SEC	<ul style="list-style-type: none"> • Section
Second Tier Supplier	Term used for a Supplier who is responsible for providing components, services, or raw material directly to the Tier 1 Supplier.
SECT	Section
SED	<ul style="list-style-type: none"> • Shipper's Export Declaration, • Sales Engineering Development
SEECS	<ul style="list-style-type: none"> • Supplier Extended Enterprise Claims System: System that allows the supplier to enter a part claim on-line that is transferred to a client server application accessible by several areas of Daimler.
Self-Inspection	<ul style="list-style-type: none"> • Inspection of the work performed, by the performer of that work, according to specified rules. • Self-inspection is used for process control by the operator. • This just means that the person or machine (robot) doing the job, checks his own work. There are predetermined rules that explain how this is done for each case.
SEM	<ul style="list-style-type: none"> • Scanning Electron Microscope, • Seminar
SEPG	Software Engineering Project Group
SE-PM	Supplier Enhancement Project Management (Toyota)
SER	<ul style="list-style-type: none"> • Service Parts (Honda), Sample Evaluation Report (Toyota)
SERV	<ul style="list-style-type: none"> • Service
Server	Node or software program that provides services to clients.
Service	<ul style="list-style-type: none"> • The results generated by activities at the interface between the supplier and the customer and by supplier internal activities, to meet the customer requirements. • Delivery or use of tangible products may form part of the service. A service may be linked with the manufacture and supply of tangible products.

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	<ul style="list-style-type: none"> What a supplier gives to a customer to try and fulfill the customer's needs. It includes anything agreed upon between the two parties at the time of the transaction. (Specifications, delivery, etc.)
Service delivery	Whatever the supplier has to do in order provide the service to the customer.
Service Parts	Replacement parts required for after-sales support
Setup	The preparation of a workstation or work center to accomplish an operation or a series of operations.
Severity	The consequences of a failure mode. Severity considers the worst potential consequences of a failure, determined by the degree of injury.
SFAF	Software First Article Form (DE-Form-43)
SFMEA	System Failure Mode & Effect Analysis
SH	Sheet
SH-AWD	Super Handling-All Wheel Drive
Shall	The word "shall" indicates a mandatory requirement.
SHIMO	Second Budget Period (October-March)
Should	The word "should" indicates a recommendation.
SHP	Shipping
<SI>	Strategic Intent (Ford FPDS Milestone)
SI	Sanctioned Interpretation (IAOB), Silicone
SIA	<ul style="list-style-type: none"> Subaru - Indiana of America, System Interface Analyzer (Ford - A tool for analyzing the system interfaces, developing the system Boundary Diagram and Interface Matrix has been briefly introduced. For more information, please visit: http://www.quality.ford.com/cpar/sia/
SIC	Standard Industrial Code
SIDI	Spark Ignition Direct Injection Fuel Rail w/ pump
σ Sigma	The Greek letter used to designate the estimated standard deviation.
Significant Characteristic	Product, process, and test requirements which are important for customer satisfaction and for which Quality Planning actions must be addressed, in a Control Plan.
Silas	Single Image Logon Administration System (Ford)
SIM	Supplier Improvement Metrics (Ford).
Simulation	The practice of mimicking some or all of the behavior of one system with a different, dissimilar system.
Simultaneous Engineering	A way of simultaneously designing products, and the processes for manufacturing those products, through the use of cross-functional teams to assure manufacturability and to reduce cycle time.
SIP	<p>Special Inspection Plan (Toyota): The Special Inspection Plan defines the activities to monitor and control the quality and productivity of a new model Mass Production during the initial Mass Production stage (from SQCS to full production). The plan should focus on special inspection points in the process:</p> <ul style="list-style-type: none"> To monitor and confirm countermeasures to problems and concerns found during Pilot Production Trials. To confirm any late ECI's. <p>To detect new problems which might occur due to sustained volume production</p>
SIR	Sample Inspection Report
SIS	Supplier Information System: Keeps track of supplier locations/address/contacts/union contract dates. (Chrysler)
Site	Location at which value-added manufacturing processes occur. Example: (ASTEMO)AM-HK

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Six Sigma	<ul style="list-style-type: none"> A disciplined, data-driven approach and methodology for eliminating defects (driving towards six standard deviations between the mean and the nearest specification limit) in any process -- from manufacturing to transactional and from product to service. Quality process, developed at Motorola, focused on reducing defects to a 'six sigma' level (3.4 defects per million parts; 0.00034%), for all practical purposes zero defects. 		
Six Sigma DMADV process	Define, Measure, Analyze, Design, Verify		
Six Sigma DMAIC process	Define, Measure, Analyze, Improve, Control		
SLP	Safe Launch Plan (Ford)		
SM	<ul style="list-style-type: none"> Staff Meeting Starter Motors, Sales & Marketing, SuperMole		
SMART	Supplier Material Requirements Tracking System: System receives part shortage information from assembly, manufacturing, pilot, MOPAR and CKD operations. The suppliers are required to view and answer the part shortages on-line. (Chrysler)		
SME	<ul style="list-style-type: none"> Society of Manufacturing Engineers, Subject Matter Expert (Ford) 		
SMMT	SMMT - Society of Motor Manufacturers and Traders		
SMOS	Sample Making Order Sheet		
SMT	Simultaneous Management Team		
SMTP	Simple Mail Transfer Protocol - Internet protocol providing electronic mail services.		
SMS	Suspension Material Services		
SMWT	Self-managed Work Teams		
SNC	Supplier Nonconformance Report (Mahle Tennex)		
SNP	<ul style="list-style-type: none"> Standard Number of Pieces, Standard Number of Parts, Standard Number per Pallet 		
SOA	<ul style="list-style-type: none"> Start of Acceleration 		
SOD	<ul style="list-style-type: none"> Severity - Occurrence - Detectability (rankings for DFMEA & PFMEA), Support Other Departments 		
SOFC	Solid Oxide Fuel Cell		
Software	An intellectual creation consisting of information expressed through supporting medium.		
SOL	Simply Out of Luck		
SOP	<ul style="list-style-type: none"> Start of Production - Start date of serial production - sometimes referred to as 'Job 1' Standard Operating Procedure, Small Outline Package 		
SOR	Product Statement of Requirements		
SORP	Start of Regular Production		
SOS	Standard Operation Sheet (GM)		
SOSP	Start of Serial Production (BorgWarner)		
SOW	Statement Of Work		
SP	<ul style="list-style-type: none"> Set Plug Special Projects 		
SPACE	<ul style="list-style-type: none"> Supplier Performance and Capability Evaluation System (GM) - Reports supplier quality performance during the pre-production phases of the vehicle development process, including functions such as a prototype 		
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	supplier capability database, supplier performance reporting, and on-line guidelines and requirements for prototype materials submissions.
SPAN	Service & Accessory Parts Approval Notice
SPC	<ul style="list-style-type: none"> Statistical Process Control - The use of statistical techniques such as Control Charts to analyze a process or its output to take appropriate actions to achieve and maintain a state of statistical control and to improve the capability of the process. Supplier Progress Communication: An application which allows DaimlerChrysler Advance Manufacturing Suppliers to communicate with DaimlerChrysler regarding the status of their progress on design or construction of items such as dies and tools.
SPC Special Cause	A source of variation that is intermittent, unpredictable, unstable; sometimes called an assignable cause.
SPDP	Supplier Performance Development Process - DPSS process for supplier selection, development, and assessment.
SPE	Supplier Performance Engineer - Visteon Supplier Performance engineer managing both current and new program parts.
SPECLA	Specification Clarification (Honda)
Specification (Spec)	<ul style="list-style-type: none"> Physical requirement describing part, subsystem, or system The document that prescribes the requirements with which the product or service has to conform. The engineering requirement for judging acceptability of a particular characteristic. Chosen with respect to functional or customer requirements for the product, a specification may or may not be consistent with the demonstrated capability of the process (if it is not, out-of-specification parts are certain to be made). A specification should never be confused with a control limit. A document stating requirements. One criteria of the product or service being supplied to the customer. It can mean anything from the delivery date to the error tolerance of a particular measurement.
Special Characteristic	Product characteristic or manufacturing process parameter, which can affect safety or compliance with regulations, fit, function, performance or subsequent processing of product.
Special Characteristic (Renault-Nissan)	<p>Nissan - important A or B part or an OBD part Renault - CSR part</p> <ul style="list-style-type: none"> It is important to note that these characteristics are specified by Renault and / or Nissan and the Supplier must ensure conformance to the Renault and / or Nissan Special Characteristics requirements identified in the ANPQP Appendix A (ANPQP Company Specific Requirements). Special characteristics are quite different from, and should not be confused with, Key Features
SPD	Sequence Parts Delivery: A process under which a supplier sends Daimler its material in the exact order that the plant will be building its vehicles. This data is communicated either via a live lease line or in an 866 EDI transaction.
SPFU	Supply Performance Follow Up (Ford)
SPG	Strategic Planning Group
SPIR	Service Part Improvement Request (Toyota)
SPL	Section Project Leader
SPO	<ul style="list-style-type: none"> Service Parts Operations, Service Parts Organizations (GM)
SPPC	Strategic Product Planning Committee
SPMP	Supplier Parts Master Plan (Toyota)
SPMS	Supplier Performance Measuring System
SPOC	Single Point of Control: This is known as the Premium Transportation

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	System; AETC's numbers are assigned by this system to track the responsibility for premium shipping charges when a shipment deviates from the Supplier Routing Instructions. (Chrysler)
SPR	Supplier Performance Report
SPRT	Supplier Performance Review Team (BorgWarner)
SPS	<ul style="list-style-type: none"> • Supplier Part Schedule (Honda) • Statistical Problem Solving: is the organized use of special problem solving tools (e.g. Fishbone Diagrams, Pareto Charts, ANOVA, etc.), to better understand problems, their causes and determine solutions.
SQ	Supplier Quality
SQA	<ul style="list-style-type: none"> • Supplier Quality Assurance, • Supplier Quality Activity (Westbrook) • Renault-Nissan - AQF
SQAI	Supplier Quality Assurance Inspection)
SQAM	Supplier Quality Assurance Manual (Toyota)
SQAP	Supplier Quality Assurance Process (Daimler)
SQC	The application of statistical techniques to the control of quality. (See SPC)
SQCS	Supplier Quality Confirmation Stage (Toyota)
SQCDM	Safety-Quality-Cost-Delivery-Morale (Honda)
SQD	Supplier Quality Development
SQE	<ul style="list-style-type: none"> • Supplier Quality Engineer, • Significant Quality Event - A discretionary demerit applied to a supplier quality rating based on SPE / SDE / ASDE evaluation. (Visteon)
SQIDS	Supplier Quality Improvement Delivery System (Toyota)
SQIE	Supplier Quality Improvement Engineer is the person(s) at Cummins responsible for the ensuring suppliers execute various elements of the SQIP such as APQP, PPAP and SCAR's.
SQIP	Supplier Quality Improvement Program
SQPR	Service (Part) Quality Problem Report (Toyota)
SQR	Supplier Quality Rating
SQRTF	Supplier Quality Requirements Task Force
SQS	Supplier Quality System
SR	<ul style="list-style-type: none"> • Supplier Release, • Soft Review, • Support Repair
SR-CAR	Supplier Rating-Corrective Action Request
SRE	Supplier Readiness Evaluation
SREA	<ul style="list-style-type: none"> • Supplier Request for Engineering Approval
SRI	Socially Responsible Investment, Instructions issued by Daimler Logistics to suppliers on how material is to be routed to the final destination which includes what carriers are to be used.
SROLL	Supplier Recall Lessons Learned (Ford)
SRM	Supplier Resource Management (Eaton)
SRDWP	<ul style="list-style-type: none"> • Supplier Request for Deviation-Waiver-Process Change
SRPC	Supplier Request for Product Change: Process by which suppliers request minor part changes which do not entail pricing action. (Chrysler)
SrPP	Self-reinforcing Polypropylene
SRS	<ul style="list-style-type: none"> • Safety Restraint System

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	<ul style="list-style-type: none"> Supplier Rating System: System which uses input from various Corporate disciplines to rate supplier performance. 		
SR MGR	Senior Manager		
SS	Stock Status: System used by plants to track usage of parts against build requirements.		
SSA	Senior Staff Administrator		
SSe	Supplier Seminar enhanced (Nissan)		
SSC	Supplier Specification Communication: An application which allows Daimler Advance Manufacturing suppliers to view, create, and modify specifications for items such as dies and tools.		
SSF	Start of System Fill		
SSE	Senior Staff Engineer		
SSG	Support Service Group		
SSI	Supplier Satisfaction Index		
SSRI	Secure Storage and Retrieval of Information		
SST	Supplier Support Team (Honda)		
SSTS	Sub-System Technical Specifications		
(ST)	Surface Transfer (Ford FPDS Event)		
ST	<ul style="list-style-type: none"> Standard Time Starter Spring Tester 		
STA	<ul style="list-style-type: none"> Supplier Technical Assistance, Stator 		
Standard Control Characteristic	A Standard Control Characteristic is a process parameter that controls or affects one or more product characteristics. (GM 1805)		
Standard Deviation	<ul style="list-style-type: none"> A measure of the spread of the process output or the spread of a sampling statistic from the process (e.g., of subgroup averages), denoted by the Greek letter (σ sigma) for the estimated standard deviation. (See Sigma) 		
Standard Method	<ul style="list-style-type: none"> Written record of work techniques with descriptive information that permits precise reproduction of the technique and the predicted performance times. 		
Standard Product Characteristic	<ul style="list-style-type: none"> A Standard Product Characteristic is a characteristic where the loss function shows no incremental economic or customer satisfaction loss inside the tolerance. The customer is equally satisfied across the tolerance. (GM 1805) A characteristic where reasonably anticipated variation is unlikely to significantly affect function or performance of the product Variation within the tolerance does not significantly affect customer satisfaction. 		
Standardized Work	The document of work functions performed in a repeatable sequence, which are agreed to, developed, followed, and maintained by the functional organization.		
STAP	Supplier Technical Approval Plan - used by SQD & engineering to request specific data, and technical documentation and/or samples to the supplier during the supplier selection process. (Delphi)		
Statistical Control	<ul style="list-style-type: none"> The condition describing a process from which all special causes have been removed, evidenced on a control chart by the absence of points beyond the control limits and by the absence of non-random patterns or trends within the control limits. (See SPC) 		
ST	<ul style="list-style-type: none"> Surface Transfer (Ford), Standard Time, 		
STCR	Supplier Temporary Change Request (BorgWarner)		
STD	<ul style="list-style-type: none"> Standard, 		
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	<ul style="list-style-type: none"> • Short Term Disability
STEP	Sourcing Team Evaluation Process (a supplier assessment focused on a specific technology or process at a supplier's facility.)
STG	Service Technology Group
Stratification	<ul style="list-style-type: none"> • The process of classifying data into subgroups based on characteristics or categories.
STR	Supplier Test Report (Renault-Nissan)
STRF	Sample Tool Request Form
STRS	Supplier Test Report System
STV	Specify the Vehicle: System used to detail model offerings within vehicle shells and the relationships of trims/ powertrain and options to the various models. (Chrysler)
STW	School to Work Program
SU	Start-Up
SUB	Sub-assembly
Subcontractor	<ul style="list-style-type: none"> • Provider of production materials, or production or service parts, directly to an 'organization' complying with ISO/TS16949. • Whoever is providing a product or service to either the contractor or supplier. For example, when a general contractor builds a house, subcontractors, such as electricians, plumbers, etc. work on different parts of the house. Anyone who supplies anything to the organization that is producing the product or service is a subcontractor to that organization. <p>Same as sub-supplier.</p>
Subsite	A logical subset of a site that can be viewed as an independent entity from its aggregate site.
SUL	Sport Utility Line (4 Wheel Drive Control Unit)
SUPERS	Supplier Performance Evaluation Rating System: System that rates the supplier on delivery performance in the following categories: ASN timeliness, RDR's, AETC's, SMART and Over/Under Shipment. (Chrysler)
Supplier MCN Communication	An application which allows Daimler Advance Manufacturing suppliers to view changes to specifications for items such as dies and tools.
Supplier Scorecard	A purchasing system that rates the supplier in the categories of Price/Cost, Quality, Delivery, Technology, and Attitude/Administration.
SUV	Sport Utility Vehicle
SV	<ul style="list-style-type: none"> • Solenoid Valve • Supplier Visualization (Eaton) • Supplier Visit
SVP	Senior Vice President
SWCS	Supplier Warranty/ Customer Satisfaction (Toyota)
SWW	Shifted Work Week
SYS-1	System 1
T&E	Transportation & Export Entry (FTZ)
T-COMS	Total Cost of Ownership Management System (Daimler)
T/A	<ul style="list-style-type: none"> • Technical Agreement • Tooling Amortization
T/C/M	<ul style="list-style-type: none"> • Temporary Countermeasure (Honda)
T/M	Team Member
T/M/E	Test Measurement Equipment
TA	Technical Advisor
TAC	Throttle Actuator Control

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TACM	Throttle Actuator Control Module
TAG	<ul style="list-style-type: none"> • Technical Advisory Group, • Test Aptitude Graphique (Renault-Nissan)
TAKT Time	<ul style="list-style-type: none"> • The maximum time available to produce a product or service based on customer demand. • The speed at which parts must be manufactured in order to satisfy demand; it is the heartbeat of any LEAN system.
TAS	Technical Assistance System
TB	Throttle Body
TBD	To be determined
TBDN	TBDN TENNESSEE COMPANY - a joint venture between Toyota Boshoku Corp. & DENSO Corp
TBM	Throttle Body - Machined
TBR	Trouble Report
TC	<ul style="list-style-type: none"> • Throttle Chamber • Throttle Control • Technical Center • Technical Committee • Temperature Controller • Technical Collaboration
TCP/IP	Transmission Control Protocol & Internet Protocol - Common name for the suite of protocols developed by the U.S. DoD in the 1970's to support the construction of worldwide inter-networks. TCP and IP are the two best-known protocols in the suite.
TCM	<ul style="list-style-type: none"> • Transmission Control Module, • Throttle Control Module
TCO	Total Cost of Ownership (Daimler)
TCRA	Total Cost Reduction Activity
TCS	Throttle Control Section
TCQA	Throttle Control Quality Assurance
TDD	Telephone Device for the Deaf
TDM	<ul style="list-style-type: none"> • Toledo Molding & Die • Team Data Manager (Nissan) • Torque Distribution Management (4-Wheel Drive Control Uni))
TDP	Technical Development Project
TDS	Technical Data Sheet (Honda)
Team Cell	Cross Functional Meeting
Team Feasibility Commitment	A form that is provided with the Request for Quotation. It is the supplier's concerns with the feasibility of manufacturing the part as specified.
Tech	Technician
Technical expert	(In an audit) Person who provides specific knowledge of or expertise on the subject to be audited.
TEL	Telephone
Telematics	Telemetry information delivered straight from or to the vehicle through a satellite or other remote sensing network.
TEMA	Toyota Motor Engineering & Manufacturing North America, Inc.
Ten To One Rule	(10 to 1, for gauge construction): Allowance of 10% of the part characteristic's tolerance for gauge construction accuracy (i.e. part tolerance = 0.4mm, gauge construction tolerance = 0.04mm).
TEP	Temporary Substitution Authorization: Used to allow one part to be substituted for another. (Chrysler)

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Test	Determination of one or more characteristics according to a procedure.
Test Equipment	Hardware used to validate material performance characteristics to customer specifications.
Testing	A means of determining the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating actions and conditions.
TG	Thread Gauge
TGR	Things Gone Right (Ford)
TGW	Things Gone Wrong (Ford)
TH	Temperature/ Humidity
TIC-Berea	Tokiko-Berea (KY)
Tier 2 Supplier	A supplier under direct contract to the Tier 1 Supplier.
TIR	<ul style="list-style-type: none"> • Test Incident Report, • Trailer Inspection Report
TIS	<ul style="list-style-type: none"> • Tooling Report & Instruction Sheet (Nissan) • Toyota Inspection Standard
TJC	Trim Joint Check (Nissan)
TL	<ul style="list-style-type: none"> • Truckload, • Team Leader
TLC	<ul style="list-style-type: none"> • Total Life-cycle Costs
TLM	Team Leader Meeting
TLV	Threshold Limit Value
TM	<ul style="list-style-type: none"> • Team Member • Tension Meter
TMC	Toyota Motor Corporation (Japan)
TMC-SPAD	Toyota Motor Corporation Service Parts Administration Division is the department in Japan that determines and inspects service parts.
TMMAL	Toyota Motor Manufacturing, Alabama, Inc.
TMMBC	Toyota Motor Manufacturing de Baja California, S. de R. L. de C. V.
TMMI	Toyota Motor Manufacturing Indiana, Inc.
TMMK	Toyota Motor Manufacturing Kentucky, Inc.
TMMNA	Toyota Motor Manufacturing North America, Inc.
TMS-NAPCC	Toyota Motor Sales - North American Parts Center, California inspects North America supplied service parts.
TMS-NAPCK	Toyota Motor Sales - North American Parts Center, Kentucky inspects North American supplied service parts.
TMS-NAPO	The Toyota Motor Sales - North American Parts Operations physically receives Service Parts from suppliers and distributes them to Toyota dealers worldwide
TNC	Taux de Non-Conformité (Renault-Nissan - Reject Rate)
TNI	Trouble Not Identified
TOC	Toyota Operations Center
TOD	Torque On Demand (4-Wheel Drive Control Unit)
Top management	Person or group of people, who direct and control an organization at the highest level.
TOPS	Team Oriented Problem Solving - See Global Eight Discipline Approach (Global 8D)
TPC	Toyota Planning Center
TPCS	Total Powertrain Control System
TPE	Thermoplastic Elastomer

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TPIM	<ul style="list-style-type: none"> • Traction Power Integration Module, • Torque Power Integrator Module
TPM	Total Preventive Maintenance
TPE	Thermoplastic Olefin
TPMS	<ul style="list-style-type: none"> • Toyota Part Master Schedule, • Tire Pressure Monitoring System
TPPD	Temporary Process/ Product Deviation
TPR	<ul style="list-style-type: none"> • Tool Progress Report (Toyota) Technical Part Review
TPS	<ul style="list-style-type: none"> • Throttle Position Sensor, • Toyota Production System
TPT	Total Process Time
TQC	<ul style="list-style-type: none"> • Total Quality Control, • Total Quality Circles
TQE	Total Quality Engineering
TQM	Total Quality Management
TQRP	Total Quality Rating Points (Visteon)
TR	<ul style="list-style-type: none"> • Technical Report, • Test Request
TREAD	Transportation Recall Enhancement, Accountability and Documentation system - A government mandated reporting requirement of certain vehicle recall events.
TRG	Threaded Ring Gauge
TRIZ	Theory of Inventive Problem Solving
TRK	Tracking
TS 16949	See ISO/TS 16949
TS	<ul style="list-style-type: none"> • Technical Standard, • Toyota Engineering Standard
TSA	<ul style="list-style-type: none"> • Temporary Substitution Authorization: Used to allow one part to be substituted for another. (Chrysler) • Transport Systems America (HTS America)
TSC	<ul style="list-style-type: none"> • Technical Service Center, • Transmission System Characterization
TSCA	Toxic Substances Control Act
TSCM	Total Supply Chain Management
TSCS	Test Status Check Sheet (Nissan)
TSS	<ul style="list-style-type: none"> • Technical Support Section, • Tool Summary Sheet
TST	Test Status Transmittal (Nissan)
TSW	Test Software
TTC	Toyota Technical Center, USA, Inc.
TTDS	Toyota Technical Drawing Standards
TTIM	Toyota Technical Information Manual
TTO	Tool Try-Out (Ford)
TTS	TorqTransfer System (BorgWarner)
TUN	Transmission Unit Number (GM)
TVM	Team Value Management (Ford)
TW	Torque Wrench

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(ASTEMO)AM-HK and Support Sites Acronyms, Terms & Definitions

U %	Profit Ratio Percentage
UA	United Airlines
UAI	Use-As-Is
UCL	Upper Control Limit (See Control limit)
UG	Unigraphics
UGC	Unisia of Georgia Corporation
ULEV	Ultra Low Emissions Vehicle
ULSD	Ultra Low Sulfur Diesel
UN	United Nations
UNAI	Unisia of North America, Inc.
UNA-USA	United Nations Association of USA
UNESCO	United Nation Educational Scientific and Organization
UOM	Unit of Measure
UPC	Uniform Parts Classification
UPDI	Unique Pack Development Instruction (Renault-Nissan)
UPR	Unscheduled Production
Upside Protection	Material provided in release in excess of a plant's official schedule to protect the possibility of extra production.
URL	Universal Resource Locator: Standardized addressing scheme for accessing hypertext documents and other services using a WWW browser.
U.S. DOT	U.S. Department of Transportation
USL	Upper specification limit (See Specification)
UT	Utility Team
UUT	Unit Under Test
V-3P	Value-up Innovation of Product Process Program: project to reduce the the lead-time between development and production. (Renault-Nissan)
VA	<ul style="list-style-type: none"> • Value-Added, • Value Analysis
VAC	Vacation
VAI	Vehicle Architecture and Integration (GM)
Validation	Almost the same as verification, but it has more to do with the intended use of the product. A product is verified to meet a certain specification or requirement, but is validated as to whether it is suitable for a particular use.
VAM	Vehicle Architecture Manager (GM)
VAN	Value Aided Network
Vanned Parts	A term used for parts that are directly shipped to a North American based Customer from AS or from the Customer's Japanese based affiliate. (ASTEMO)AM-HK has no involvement with these parts.
VC	Visteon Critical (Special Characteristics), Vacation Coverage
VCD	Vehicle Chief Designer
VCM	Variable Cylinder Management
VCRI	Validation Cross Reference Index
VDA	Verband Der Automobilindustrie E.V. (German Automobile Industry Association)
VDC	Vehicle Dynamic Control (Nissan)
VDP	Vehicle Development Process

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(ASTEMO)AM-HK and Support Sites Acronyms, Terms & Definitions

VDS	Ford Vehicle Design Specification
VDSO	Visteon Direct Ship Operations
VE	<ul style="list-style-type: none"> • Vehicle Evaluation (Nissan), • Value Engineering
VEC	Value Engineering for Customer
VEP	Voluntary Expansion Plan
VER	Voluntary Export Restriction
Verification	<ul style="list-style-type: none"> • The act of reviewing, inspecting, testing, checking, auditing, or otherwise establishing and documenting whether items, processes, services, or documents conform to specified requirements. • Confirmation by examination and provision of objective evidence that specified requirements has been fulfilled. • Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.
Verification Station (VS)	<ul style="list-style-type: none"> • The system of building quality in station through prevention, detection, and containment of abnormalities. • A Verification Station is a process that keeps us focused on Building In Quality in Station
VES	Vehicle Evaluation System (Renault-Nissan - AQR)
VET	Vehicle Emissions Test
VICS	Vehicle Information and Communication System
VIN	Vehicle Identification Number
VIP	Value Improvement Process System (BorgWarner), Voluntary Involvement Program
VIP-U or VIPU	Vehicle Innovation Program - Unit (Nissan)
VISTEON	Visteon Corporation
VLC	Vehicle Launch Center
VLE	Vehicle Line Executive
VM	Visteon Major Characteristic
VMI	Vendor Managed Inventory (Eaton)
VMPB	Trial Sample Inspection Report (Daimler)
VOC	Volatile Organic Compound
Voice of the Process	Statistical data that is feedback to the people in the process to make decisions about the process stability and/or capability as a tool for continual improvement. (See Statistical Process Control)
Volume Variance System	Compares part number tool capacities against best available volume information and identifies those parts where tool capacities are insufficient given production requirements for buyer resolution. (Chrysler)
VP	Vice President
VPCR	A <u>V</u> alue <u>P</u> ackage <u>C</u> hange <u>R</u> equest is the Cummins document that details the specifics of and approvals for the individual changes.
VPI	Value Package Introduction is the Cummins process for new product introduction. This process is the vehicle through which Cummins satisfies the requirements of APQP.
VPP	Vehicle Parts Progress (Ford)
VPCM	Vehicle Profit & Cost Management (Nissan)
VPDS	Visteon Product Development System
VSAMS	Visteon Supplier APQP Management System
VQA	Vehicle Quality Assurance

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(ASTEMO)AM-HK and Support Sites Acronyms, Terms & Definitions

VQD	<ul style="list-style-type: none"> • Vehicle Quality Department (Honda), • Visual Quality Document
VRA	Voluntary Restraint Agreement
VS	Visteon Significant (Special Characteristics)
VSA	Vehicle Stability Assist
VSAS	Vehicle Simulation Analysis and Synthesis
VSIL	Vehicle Service Integration Leader
VSLA	Vehicle Specification List A
VSLB	Vehicle Specification List B
VSM	Variation Simulation Modeling
VSP	Visteon Supplier Portal - Location on the Covisint web site where suppliers find Visteon supplier related information and instruction.
VTM	Variable Torque Management
VTR	Vehicle Test Request
VTS	Vehicle Technical Specification
VV	Vendor Visits
VVT	Variable Valve Technology
VW	Volkswagen
W-CVT	Water-proof Continuous Variable Transmission
W/B	White Body
W/L	Water Leak
Waiver	Written authorization to use or release a quantity of material, components, or stores already manufactured but not conforming to the specified requirements.
Waiver concession	This is similar to a deviation permit, but is with regards to the final product or service being supplied to the customer.
Warrant	An industry-standard document required for all newly-tooled or revised products in which the Supplier confirms that inspections and tests on production parts show conformance to customer requirements.
Warranty Return Parts	The actual parts returned by the (customer) dealer in a warranty claim.
WBS	White Body Store
WBVP	Weeks Before Volume Production: Number of weeks before Job # 1 at a plant. (Chrysler)
W/C	Workers' Compensation
WE	Weld Department
WEEE	Waste Electrical and Electronic Equipment
WERS	<ul style="list-style-type: none"> • Worldwide Engineering Release System (Ford), • Visteon Engineering Change Management IT system.
WIP	Work In Process
WFM	Work Flow Management
WIPO	World Intellectual Property Organization
WIPS	Worldwide-Integrated Purchasing System (Ford)
WISPER	Worldwide Interactive Supplier Performance Evaluation Resource (system Eaton)
WLC	Weighing Load Cell
WON	Work Order Number
Work environment	Set of conditions under which work is performed.

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(ASTEMO)AM-HK and Support Sites Acronyms, Terms & Definitions

Work station	The area where the worker performs the elements of work in a specific operation.
World-Class Quality	A term used to indicate a standard of excellence: best of the best.
WOW	War On Waste
WPL	Work-Order Parts List
WPN	Wireless Personal Area Network
WRP	<ul style="list-style-type: none"> • Warranty Recovery Program (Honda), • Warranty Repair Part
WS	<ul style="list-style-type: none"> • Weigh Scale • Weld Support
WTC	Weld Tip Change
WTO	World Trade Organization
WVTA	Whole Vehicle Type Approval
WW	Waste Water
WWP	World-Wide Purchasing (GM)
XJ	Previously used for International Sales (See JX)
Xp	Cp for Normal stable processes or Pp for others
Xpk	Cpk for Normal stable processes or Ppk for others
Y	Yen (Japanese Currency)
YTD	Year-to-Date
Z	Zener Diode (Electrical)
ZD	Zero Defects (The quality concept of zero tolerance for defects (see Six Sigma)
ZEV	Zero Emissions Vehicle
ZN	Zinc

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Packaging

- 1) In regards to packaging, the main focus of (ASTEMO)BK is to ensure that all parts will be protected against damage and contamination during transportation and storage at the most economic value possible. Returnable packaging shall be used where applicable. (ASTEMO)BK may assist with the packaging design and development, but (ASTEMO)BK is not responsible or liable for the performance of the final pack except when (ASTEMO)BK supplied packaging is selected.

For packaging testing standards, refer to ASTM standard D4169-05

WWW.ASTM.ORG

- 2) The first PPAP shipment shall be shipped to (ASTEMO)BK in mass production style packaging. A completed (ASTEMO)BK "Packaging Approval Sheet" (PM-FORM- 40) (last two pages of this document) must be attached to the package. The complete form shall also be sent to the Supplier's Supplier Quality Assurance (SQA) contact at (ASTEMO)BK noting the Estimated Time of Arrival (ETA). When the packaging is received at (ASTEMO)BK, it will be evaluated by all involved departments for approval. If the package design is rejected, the packaging design must be improved, based on mutual agreement between (ASTEMO)BK and the supplier. If the supplier is unable to ship in mass production style packaging for the first PPAP shipment, they must obtain a deviation from the SQA contact.
- 3) Any hand-held container must weigh under 35 pounds.
- 4) Approved returnable packaging must be hot stamped with the owners name and address and be equipped to meet (ASTEMO)BK labelling requirements. Any damaged returnable packaged shall be returned to the owner by the regular freight route and labeled as "Damaged".
- 5) All returnable pallets (plastic) shall be 48 in. x 45 in. 4 entry and contain the name and address of the company that owns the pallet by either hot stamp or metal plate.
- 6) The maximum allowable height of any pack (pallet/boxes/containers, etc.) shall be 48 inches. The maximum width is 48 inches and the maximum length is 45 inches unless a larger than specified pack is approved by (ASTEMO) SQA contact.
- 7) All pallets shall be labeled with a master pallet label. See master label example #1 on page 3.
- 8) All boxes on a pallet shall be labeled with the complete scannable (ASTEMO)BK drawing number (Part Number), Delivery order number, quantity, and lot code data from the manufacturer. The serial/lot code number provided should be comprised of data needed by the manufacturer for lot traceability in the event of a quality issue. This serial/lot code should also be included on the packing list. (See packing list example #4 on page 5.)
- 9) For electronic parts each reel, pack, sealed or ESQA bag, stick, etc. shall be labeled with (ASTEMO)BK drawing number, quantity, and manufacturer lot data as outlined in #8 above.
- 10) A pallet containing more than one part shall be labeled with a "Mixed Load" label and a label showing the quantity of each part number on the pallet.
- 11) All parts shipped on a pallet must be stacked and shipped in a full layer (no pyramiding) to allow double-stacking for the most efficient use of space. If the packaging cannot be double-stacked, it is the responsibility of the supplier to place "DO NOT STACK" labels on the top and all four sides of the pallet.
- 12) If there is to be any type of packaging change made, a revised (ASTEMO)BK "Packaging Approval Sheet" must be submitted by the Supplier to the (ASTEMO)BK SQA contact along with a sample pack for inspection. The new submission will be inspected and approved by the same process as the original. (Refer to #2 above)
- 13) It is the supplier's responsibility to transmit an accurate ASN (Advanced Shipping Notice) no later than 30 minutes after every shipment leaves the supplier's facility. All suppliers have the capability to transmit an ASN either by EDI or by Hitachi's SupplyWeb. Any shipment arriving at BK without an ASN will result in a delivery score deduction which will negatively affect the supplier rating. All deductions will require corrective action stating cause and countermeasure. Any issues must be escalated to Hitachi-BK PC&L before the shipment arrives.

(ASTEMO)BK Alternative Packaging Requirements

Alternative (Expendable) Containers

Any time returnable packaging is chosen, there must be an approved expendable alternative. If the approved returnable package is not available at the vendor's location, this alternative packaging must be used. A lack of returnable packaging is not a legitimate reason to miss shipment.

Alternative Pallet

The size and style of wooden pallets may vary and will depend on the size and weight of the parts. If pallet is full size, it shall be 48" W x 45" L x 5" H and be 4 way entry, notched stringer style.

(ASTEMO)BK Package Label Requirements

Bar Coding

Label Format

Bar code shall be Code 39 symbology and based on the AIAG Standard.

Bar codes shall be directly below all human readable characters.

No check digits shall be used with bar codes or human readable data

Data identifiers shall be included in bar codes.

Valid Data Identifiers

- part number (P)
- quantity (Q)
- vendor number (V)
- delivery order number (D)
- serial number/lot code
 - individual pack (S)
 - master load (4S)
 - mixed load (5S)

Required Dimensions for Master Label (see example #1 on page 3)

- human readable heights
 - part number height shall be 0.5 inch (13 mm)
 - D.O. (Delivery Order Number) shall be 0.5 inch (13 mm)
 - vendor number height shall be 0.2 inch (5 mm)
 - serial number height shall be 0.2 inch (5 mm)
 - vendor name height shall be 0.1 inch (2.5 mm)
- bar heights
 - all bar heights shall be 0.5 inch (13 mm)
- average bar width
 - narrow elements shall conform to range of .013 to .017 inch (0.33 to .043 mm)
 - ratio of wide to narrow elements shall be 3:1, with acceptable range of 2.81:1 to 3.2:1
- quiet zone
 - leading and trail zones should be at least 0.25 inch (6.4 mm)
- interchange gap
 - width should be same as average narrow element bar width.
- label size
 - 4 inches (102 mm) high by 6 inches wide (153 mm)

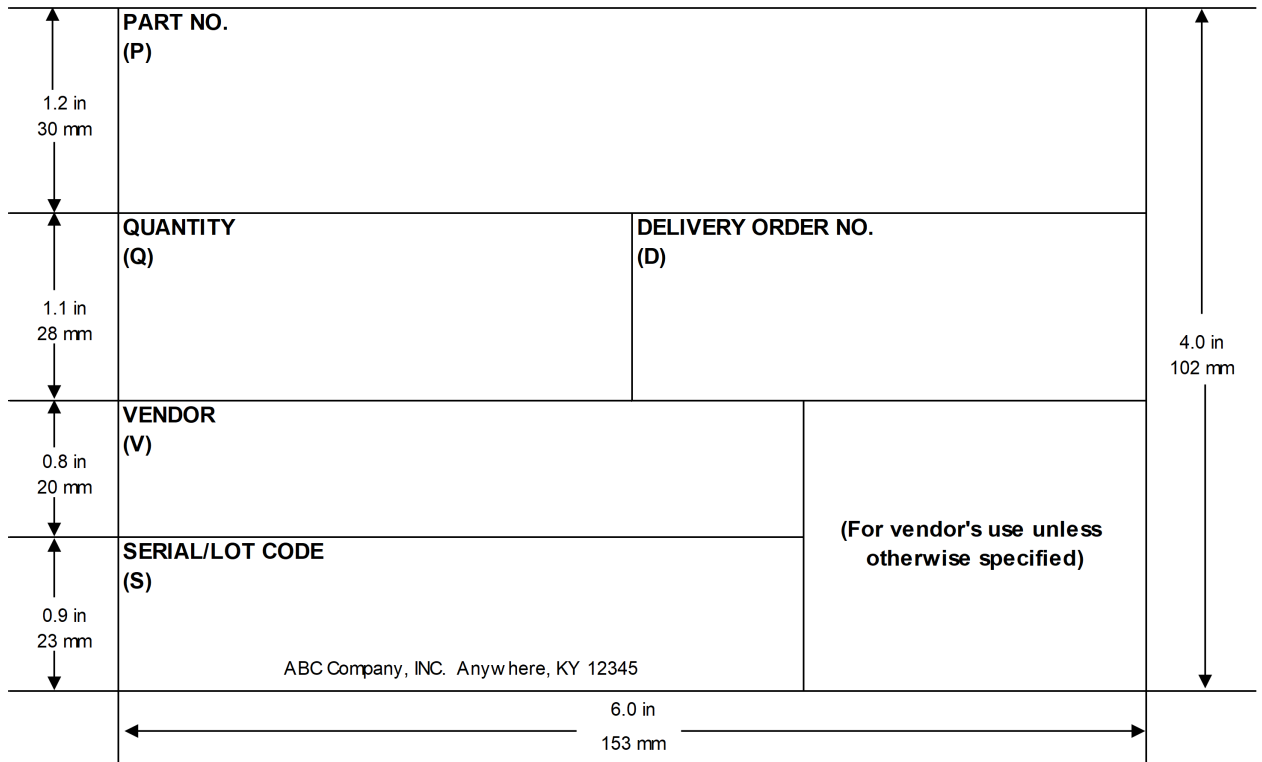
Required Dimensions for Container Label (see example #1 below)

- Label size should be 4 inches (102mm) high by 6 inches (153mm) wide unless container is too small to accommodate 4 by 6. In that case, Supplier should submit sample to (ASTEMO)BK for approval.

Instructions:

- There must be one master label per pallet/container/ropack
- Multiple parts included on one pallet/container/ropack requires multiple master labels on the same pallet/container/ropack.**
- If you ship multiple Delivery Order numbers on a pallet a Master Label is required for each D.O. and it must be affixed to the outside of the wrapped pallet.**
- Use full (ASTEMO)BK part number as transmitted via EDI 830 & 862. Do not deviate from the (ASTEMO)BK part number.
- All labels must be affixed to the outside of the container. They can not be laying inside the totes or on top of the material.**
- Suppliers are responsible for the removal of all old labels from returnable containers.**

Master Pallet/Container/Ropack/Box Label (Example #1)



PART NO.
(P)

12345678



QUANTITY
(Q)

1000



DELIVERY ORDER NUMBER
(D)

A012345



VENDOR
(V)

123456



SERIAL/LOT CODE
(S)

123456

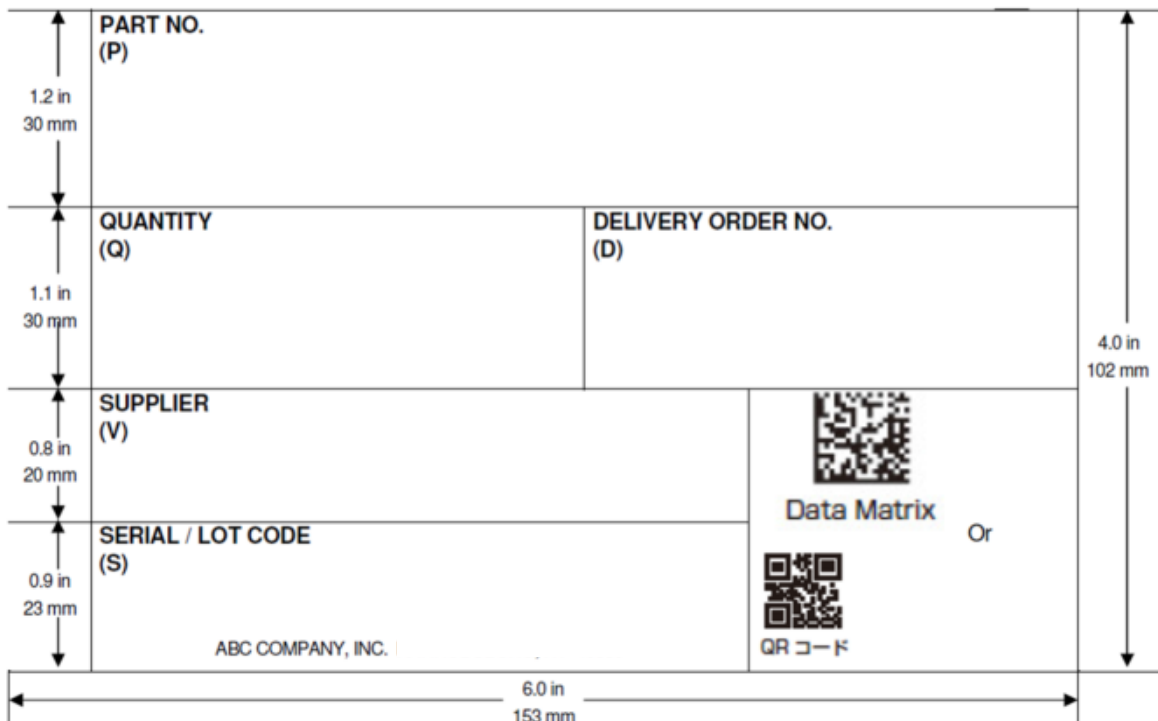


ABC Company, Inc. Anywhere, KY 12345

VENDOR USE

Optional 2D Master Label Requirement

Some (ASTEMO) facilities have a 2D scan requirement for the Master Label. In that case, all specs stay the same except for the bar code requirement. Please check with the SQA contact of the (ASTEMO) site for which packaging is being supplied to ascertain if the 2D option is required.



Vendor Name Vendor Address

PACK LIST

DATE	DOCUMENT NUMBER
28-JUN-17	1021057105

SHIP TO

HITACHI AUTOMOTIVE PRODUCTS
955 WARWICK ROAD, DOCK 4
HARRODSBURG, KY 40330 USA

CCN: 102 ML: 01 PACKLIST: 1021057105



ECT1

267787 01

CUSTOMER ORDER	CARRIER	DELIVERY TERMS	BILL OF LADING NUMBER	
R444167	FedEx 2 Day Economy - Collect	FOB SHIPPING		
ITEM/DESCRIPTION		UOM	SHIPPED QTY	REFERENCE
FED-EX#: ***** RACHEL RILEY TEL:859 734- FAX:859 734- RACHEL.RILEY@HITACHI-AUTOMOTIVE.US ***** MANDI JONES TEL:859 734- FAX:859 734- MANDI.JONES@HITACHI-AUTOMOTIVE.US ***** CC: ALL ORDER CONFIRMATIONS TO: CHARLOTTE.ALLEN@HITACHI-AUTOMOTIVE.US ***** INVOICES AUTO-EMAIL TO: RACHEL.RILEY@HITACHI-AUTOMOTIVE.US 0001 BMP-1 A 2500200 001 BRD MKR PRB&RECP PROMISE DATE: 28-JUN-17 SO LINE: 0001 LOCATION: STOCK BIN: LOT NUMBER: 256790300010001 ULTIMATE DESTINATION: USA		EACH	1.00	1
PRINTED BY SERGIO MURGUIA 28-JUN-17 17:21:14 SO: 2141287				

D.O. number must be barcoded also.

Vendor lot number

PL

2141287


Upcoming Changes for Packing List




- Hitachi-BK will require all Suppliers to print the required packing list from SupplyWeb. All Suppliers have access. Please use the link provided from our homepage or this URL <https://supplyweb.hitachi-automotive.us/supplyWeb/account/login>
- Hitachi-BK will use this packing list to scan all receipts into the system for payment. This will ensure accurate up to date information is input in our system and ensure timely payment per the terms.
- The date of implementation will be January 2nd, 2019. If you have any questions or concerns please do not wait until the last minute. Any issues after January 2nd 2019 will result in a delivery performance issue

Packing List

Page 1 of 2

Ship Notice			
Sold To	Ship To	Ship From	Supplier ID (V)
Hitachi Automotive Systems Americas, Inc. 955 Warwick Road Harrodsburg, KY 40330 UNITED STATES	(HIAMS) Berea South 993 301 Mayde Road Berea, KY 40403 UNITED STATES	Seymour Tubing, Inc. 1515 E. Fourth Street Seymour, IN 47274 UNITED STATES	 HA0020

Shipper Details					
Shipper ID (2S)				Creation Date	Ship Date
 B91098				09-13-2018	09-13-2018
Route Code	AETC	SCAC	Vehicle Type	Vehicle Number	Transport
		L&G	M		Motor Carrier
Dock	AETC Responsibility		Pro Number	Bill Of Lading Number	
				B91098	
Remarks					

Line Items					
Line No.	UoM (3Q)	Model Year	PO Number	Eng. Lvl.	Lot Number
	Customer Part (P)		Ship Qtys. (Q)	Pull Signals (15K)	
1	EA		B005693		
	 7A16124-4510		 270	 A285332	
Remarks :					

Hitachi Packaging Data Sheet

Hitachi Automotive Systems Americas, Inc.
Packaging Data Sheet (PDS)

Part Number:		Supplier Name:	
Part Name:		Contact Name:	
Program Name:		Address:	
Hitachi Contact:		City, State, Zip Code:	
Phone:		Phone:	
E-mail:		E-mail:	

Ship Method:	Packaging Design/Purchase Responsibility:	Estimated SOP Date:
Land(Truck) <input checked="" type="radio"/> Sea <input type="radio"/> Air <input type="radio"/>	Hitachi: <input type="checkbox"/> Supplier: <input type="checkbox"/>	

Packaging Information	Outside Packaging Dimensions						Weight(kg/lbs)						Standard Number of Pieces/Pack (SNP)	
	Length		Width		Height		Net		Tare		Gross		Per Box	Per Pallet
	in	mm	in	mm	in	mm	lbs	kg	lbs	kg	lbs	kg		
Hand Held Container														

Component Dimensions (in and mm)	Length		Width		Height		Weight		Supplier Outside Process		No <input type="checkbox"/> Yes <input type="checkbox"/>
	in	mm	in	mm	in	mm	lbs	kg	If yes, how many days in the process?		
									What is the quantity of packaging?		

Pallet specifications						Packaging Components			Container / Box Label Information	
Material Type: <u>plastic</u> Heat Treatment: <u>no</u> Banded: <u>no</u> Wrapped: <u>yes</u>						Bag <input type="checkbox"/> Polifoam <input type="checkbox"/>			Box Label Information	
Pallet dimensions (inches & millimeters)						Dividers <input type="checkbox"/> Silica Gel <input type="checkbox"/>				
Length <u>in</u> _____ Length <u>mm</u> <u>0</u>						Bubble Wrap <input type="checkbox"/>			Traceability method:	
Width <u>in</u> _____ Width <u>mm</u> <u>0</u>										
Height <u>in</u> _____ Height <u>mm</u> <u>0</u>						Blister/Tray <input type="checkbox"/>			Date <input type="checkbox"/>	
Pallet weight									ESD Protection <input type="checkbox"/>	
Tare (lbs): _____ Tare (kgs): <u>0</u>						Corner Support <input type="checkbox"/>			Production line <input type="checkbox"/>	
Net (lbs): _____ Net (kgs): <u>0</u>									Other (Specify below) <input type="checkbox"/>	
Gross (lbs): <u>0</u> Gross (kgs): <u>0</u>						VCI Paper <input type="checkbox"/>			Julian date <input type="checkbox"/>	
						Other examples: VCI paper, Temperature Indicator, Humidity Indicator, Reel Diameter				

Comments:

Notes:

Packaging Contingency Plan for returnable packaging: Supplier to propose alternate packaging or provide additional details on separate form.

Refer to section 11 of the Supplier Handbook for additional packing and label instructions

Internal Use Only:

Procurement	Pkg Engineer	SQA	DE	PC	Whse/Logistics	Production	QA PLT

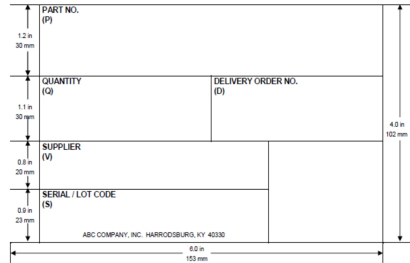
Hitachi Packaging Data Sheet

Photos (Tab 2 on data sheet)

Hitachi Automotive Systems Americas, Inc.
Packaging Photos

Part Picture

Label Picture



Container Photo (or sketch)

Interior Design Photo (or sketch)



Container Photo (or sketch)

Interior Design Photo (or sketch)



Pallet (requires 4 way entry, clearance high 5" (120 mm))

Packaging Description: Pallet holds 24 boxes and 96 parts

Notes:

This is the second tab. Please make sure this is completed.

TEAM FEASIBILITY COMMITMENT

Customer: Hitachi Automotive Systems Americas Supplier Name: _____

Part Number: _____ Part Name: _____

Feasibility Considerations

Manufacturing and Assembly Feasibility Evaluations are a series of reviews by Project Engineering, Manufacturing Engineering and Assembly Activities. The purpose of the evaluations is to ascertain whether a proposed design can be manufactured, assembled, tested, packaged, and shipped at acceptable levels. A feasible design must show the ability to meet production volumes and schedules. This must be consistent with the ability of meeting engineering requirements, quality, reliability, investment cost, unit cost, and timing objectives.

The results of a process FMEA and feasibility statement should be reviewed to identify machines, tools, and facilities that require special features to control significant/critical characteristics (identified as "VC," "CC," "SC," or "KEY" on Hitachi Automotive Systems Americas drawings) and quality concerns that have been identified.

Our product quality planning team has considered the following questions, not intended to be all-inclusive, in performing a feasibility evaluation. The drawings and/or specifications provided have been used as a basis for analyzing the ability to meet all specified requirements. All "no" answers are supported with attached comments identifying our concerns and/or proposed changes to enable us to meet the specified requirements.

YES	NO	CONSIDERATION
		Is product adequately defined (application requirements, etc.) to enable feasibility evaluation?
		Can Engineering Performance Specifications be met as written?
		Can product be manufactured to tolerances specified on drawing?
		Can product be manufactured with Cpk's of 1.33 or greater and Ppk's of 1.67 or greater?
		Is there adequate capacity to produce product at projected volume levels?
		Does the design allow the use of efficient material handling techniques?
		Can the product be manufactured without incurring any unusual:
		● Costs for capital equipment?
		● Costs for tooling?
		● Alternative manufacturing methods?
		Is statistical process control required on product?
		Is statistical process control presently used on similar products?
		Where statistical process control is used on similar products:
		● Are the processes in control and stable?
		● Are Cpk's greater than 1.33?
		If statistical process control is not currently used on similar products are you committed to using it for this product if awarded the business?

Conclusion:

<input type="checkbox"/>	Feasible	Product can be produced as specified with no revisions.
<input type="checkbox"/>	Feasible	Changes recommended (see attached).
<input type="checkbox"/>	Not Feasible	Design revision required to produce product within the specified requirements.

Team Member/Title/Date

Team Member/Title/Date

Team Member/Title/Date

Team Member/Title/Date

PPAP Submission Agreement

=SQA to Complete
=Purchasing to Complete

(HIAMS)AM Part Number:	Part Name:	P. O. NO.:
Supplier Part Number:	Manufacturer:	Dwg. Rev.:
Manufacturing Location:	Warehouse:	Phone No.:
Name of Supplier:	Submitter:	Supplier Code:

[Detailed information including forms can be found on the supplier portal. More information on the Details tab in this worksheet.](#) PPAP Due Date

NO.	ITEM DESCRIPTIONS	SUBMISSION LEVELS					OK	NG	COMMENTS
		1	2	3	4	5			
	Submission Level Requested	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1	Design Records of Saleable Product	R	S	S	S	R	<input type="checkbox"/>	<input type="checkbox"/>	
1A	Ballooned (HIAMS)AM-BK Current Release Drawing	R	S	S	S	R	<input type="checkbox"/>	<input type="checkbox"/>	
1B	Ballooned Manufacturer's Current Release Drawing *	R	S	S	S	R	<input type="checkbox"/>	<input type="checkbox"/>	
2	Engineering Change Documents (ECR/EDCN) *	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
3	Customer Eng. Approval (App. SREA/PCE/PCA/PCR/CN/IR) *	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
4	Design FMEA *	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
5	Process Flow Diagrams	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
6	Process FMEA	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
7	Control Plan	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
8	Measurement System Analysis Studies (Gage R&R)	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
9	Dimensional Results	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
10	Material, Performance, Functional, DVP&R Test Results	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
11	Initial Process Study (Capability Study)	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
12	Qualified Laboratory Documentation (Lab Scope)	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
13	Appearance Approval Report (AAR) *	S	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
14	Sample Product	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
15	Master Sample	R	R	R	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
16	Checking Aids	R	R	R	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
17	Records of Compliance	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
A	IATF 16949, ISO-9001 Certificates (current editions)	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
B	ELV, RoHs, MSL, Temperature Profile, Lead Free Docs *	R	R	R	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
C	International Material Data System (IMDS)	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
D	Early Production Containment (GP-12) Procedures	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
E	Sub-Supplier Supply Chain Matrix	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
F	AIAG CQI-9,11,12,15,17,23 Compliance Audit *	R	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
G	Bulk Material Requirements, including MSDS *	S	S	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
H	Team Feasibility Statement (FM-7.2.2-001)	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
I	Packaging Specifications/Approval Sheet	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
J	Run at Rate/ Capacity Studies, CAR (OEE), etc.	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
K	Others (Explain): SASB, Purchasing Specifications, etc. *	R	R	S	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	
18	Part Submission Warrant (PSW)	S	S	S	S	R	<input type="checkbox"/>	<input type="checkbox"/>	
19	PPAP Submission Agreement completed and included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20	System Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* = Only if applicable for the particular part or component.

S = Supplier shall submit to Hitachi and retain a copy at appropriate locations.

R = Supplier shall retain at appropriate locations and make available to Hitachi upon request.

Please provide a reason in the comments box for any item that is required but not available for submission.

All documents submitted as part of PPAP package must be in English and not more than a year old.

I, the undersigned representative of the above mentioned supplier, agree to submit a PPAP with the items above.

Buyer: _____

Date: _____

SQA: _____

Date: _____

Print Submitter's Name: _____ Print Submitter's Title: _____

Submitter's Signature: _____ Date of Submission: _____

Additional Comments: _____

HIAMS(AM)-BK PPAP Re

1	Design Records of Saleable Product
	A. Ballooned (HIAMS) AM-BK Current Release Drawing. Ballooned drawings must be sequential numbers on the dimensional or performance results sheets.
	B. Ballooned Manufacturers Current Release Drawing. (If supplier is design responsible).
2	Engineering Change Documents (Datasheets/PCN/DES). Request for Engineering/Process currently approved product).
3	Customer Engineering Approval (Approved SREA/PCE/PCA/CN/IR). Customer engineer PPAP and/or ECR submission.
4	Design FMEA. If the supplier is design responsible (as determined by the Resident Engineer)
5	Process Flow Diagrams. Must reference (HIAMS) AM-BK part number, the part revision level
6	PFMEA. Must follow same sequence as the Process Flow Chart and the Control Plan. It must and/or plans for addressing high RPN issues per the Current Revision of the AIAG FMEA Manual
7	Control Plan. Must follow sequence of the Flow Chart and PFMEA. Must include all Special important to processing/assembly to have special controls. Please reference the AIAG or APQ
8	Gage R&R. Must have Gage R&R for all control methods listed in the Suppliers Control Plan raw data to be included. Variable Gage R&R must have 3 operators, 3 trials, with 10 readings.
9	Dimensional Layout. Supplier must submit data on a minimum of 6 sample pieces. All dimensions are to include all specifications with all actual data and measurement methods. High/Low resin cavity/mold. Out of tolerance dimensions must be corrected or a Request for Engineering/Process
10	Material Certifications. Must show the (HIAMS) AM-BK Part Number and the material name, composition, physical and mechanical properties, and must show their actual values. Results required
	A) Material Specification-To be included with the Material Certification. A copy of the specification
11	Capability Data for Special/VC Items. Must have data for 125 pieces off a continuous 300 piece run. Characteristics require evidence of normality and stability (histogram and SPC charting) along
12	Qualified Lab Documentation. If a supplier submits any Functional/ES laboratory testing results, they must be attached.
13	Appearance Approval Report. Not normally applicable to (HIAMS) AM-BK components.
14	Sample Product. Samples needed to do evaluation and/or testing. These parts must be supplied (see 009).
15	Master Samples Supplier is required to retain at least one master sample of the currently approved product.
16	Checking Aids This refers to special check fixtures that the supplier is using to verify their product.
17	Records of Compliance
	A. ISO 9001 and/or IATF 16949 Certificates (Current Editions).
	B. ELV, RoHs, MSL, Temperature Profile, Lead Free Documents.
	C. International Material Data System (IMDS). Suppliers should provide information about IMDS available to Hitachi company ID [3818].

	D. Early Production Containment (GP-12) Procedures.
	E. Sub-Supplier Supply Chain Matrix
	F. AIAG CQI-9, 11, 12, 15, 17, 23 Compliance Audit. This applies to any part that is heat treated. These audits are an annual requirement by the supplier. Also to be submitted with A:
	G. Bulk Material Requirements, including MSDS
	H. Team Feasibility Statement (FM-7.2.2.2-001). Complete, sign and submit. If any NO's are
	I. Packaging Specifications/ Approval Sheet
	J. Run at Rate/ Capacity Studies, CAR (OEE), etc.
	K. Others: SASB, Purchasing Specifications, etc.
18	Part Submission Warrant
19	PPAP Submission Agreement (FM-7.4.1-009) must be completed and included with submission
20	System Survey Report Not normally applicable to (HIAMS) AM-BK components.

Requirements Details (per TS-WI-7.3.6.3-001)

Sequentially numbered for all dimensions, performance specifications, and notes listed to correspond with the

Change or Deviation (FM-7.1.4-006) as required, depending on the condition of the submission (changes to
Engineering approval as needed for Engineering/Process Change or Deviation and is normally based on the results of the
a DFMEA is required.

el, and must be in sequence with the Control Plan and the PFMEA.

include severity level, occurrence, detection, RPN, and must be fully completed including documented action
annual.

l characteristics, VC items, and specific Testing/Processes. (HIAMS) AM-BK may require additional dimensions
PP Manuals

1. All Gage R&R information must be in ANOVA format with NDC greater than 5 and %SV less than 10%. All
. See the current Revision of the AIAG MSA for acceptance criteria and required action

nsions and notes must be addressed on the layout with a matching numbered (HIAMS) AM-BK drawing. Layouts
ults will not be accepted. If a multi cavity/mold is used, (HIAMS) AM-BK requires a 1-piece layout per
cess Change or Deviation Form(FM-7.1.4-006) must be submitted.

ne callout as noted on the (HIAMS) AM-BK Drawing. Certifications must show the specified chemical
must not be older than 12 months. Blanket statements of conformance are not acceptable

ification to which the material must conform

iece production run. Initial submissions require a PPK of 1.67. Annuals must have a CPK of 1.33. Special
with the capability index

ing an outside lab, it must be approved by a Nationally Accredited Body (ISO/IEC 17025) and documentation

ied with the PPAP by the supplier and are requested via PPAP Submission Agreement Form (SAF)(FM-7.4.1-

roved product.

roduct. Supplier checking fixtures must have an annual layout and data available

MDS directive compliance in this section along with the product ID and IMDS datasheet. Data must be made

ated, plated, painted, welded, soldered, or plastic molded. These specifications can be obtained through the AIAG
annual PPAP.

e marked, the supplier must include an attached written statement with a reason for exception

sion.

(ASTEMO)AM-BK

SUPPLIER MANUAL

Revision Level	Changes	Revision Date
10	Changed ECR form to electronic SREA	5-12-21

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Introduction

This manual is provided to all (ASTEMO)AM-BK suppliers. The purpose of this manual is to communicate (ASTEMO)AM-BK quality system requirements. (ASTEMO)AM-BK requires all suppliers to abide by the provisions of this manual.

It is the supplier's responsibility to notify the (ASTEMO)AM-BK Purchasing Department with any questions regarding the requirements of this manual.

All (ASTEMO)AM-BK suppliers must be 3rd party registered to the ISO 9001:2015 quality standards, or registered to ISO/IATF 16949:2016, unless a waiver is granted in accordance with the requirements of the standard. (ASTEMO)AM-BK goal is for all suppliers to be registered to the ISO/IATF 16949/ISO 9001 standard.

Message to Suppliers

(ASTEMO)AM-BK commits itself to comply with all requirements – either statutory, customer driven, or arising from the ISO/IATF-16949 Standard, to ensure customer satisfaction. It shall be the policy of (ASTEMO)AM-BK to continuously support all suppliers to the maximum extent possible thereby assuring a lasting and successful partnership. Such support will include quality systems development to the IATF 16949 Standard. Emphasis will be placed on quality at the source and continuous improvement. Supplier's performance will be continuously monitored and records will be available to each supplier via the (ASTEMO)AM-BK Website (www.hitachi-automotive.us).

Quality Objectives

- Continuous Improvement of Products and Processes
- Achievement of zero defects
- Competitive Pricing For All Products
- 100% On-Time Delivery of Goods

Environmental Policy

(ASTEMO-AM) BK is registered to ISO 14001 Environmental Standard and recognizes that preservation of the environment and ecosystem is vitally important to the world community. The Company will consider preservation of the global environment in all aspects of its business activities and encourages its suppliers to pursue ISO 14001 registration.

It is the policy of (ASTEMO-AM) BK to:

- Always recognize the influence on the environment resulting from activities, products, and services of the Company.
- Obey all environmental-related laws, regulations and other customer requirements.
- Reduce and prevent negative environmental impact through the practice of eliminating, reducing, reusing and recycling resources when appropriate and practicable.

- Establishing goals, objectives and targets in order to ensure continuous improvement to the environment.

Suppliers to (ASTEMO)AM-BK are required to provide chemical composition data to the Hitachi A'Gree'Net Environment Management System and IMDS (www.mdsystem.com). Supplier shall submit Restriction of Hazardous Substances (RoHS) compliant documents when required.

1.0 Quality System Requirements

1.1 The supplier, as a fundamental principle of its quality system, shall;

- 1.1.1 Establish, document, and implement an effective quality system, with the goal of compliance to all applicable requirements of ISO 9001:2015 or ISO/IATF 16949:2016.
- 1.1.2 Incorporate all requirements of the (ASTEMO)AM-BK Supplier Quality Manual into the supplier's quality system.
- 1.1.3 Prepare a Quality Manual that addresses all requirements of ISO 9001:2015/IATF 16949 2016. The manual must include or reference documented procedures to support the specified requirements within the quality manual.
- 1.1.4 If a change in the supplier's ISO-9001:2015/IATF16949 2016 status occurs, the supplier shall Notify (ASTEMO)AM-BK Purchasing and Quality Engineering in writing within 10 days.
- 1.1.5 (ASTEMO)AM-BK shall be afforded the right to verify, at the supplier's premises, that product, material and tooling conforms to specified requirements. This right shall also be afforded to (ASTEMO)AM-BK customers. Such verification shall not be used as evidence of effective control of quality by the supplier.

2.0 Supplier Quality Requirements

2.1 Certified Products Requirement

- 2.1.1 All material suppliers shall certify their products to meet or exceed acceptance established at Production Part Approval Process (PPAP) by the supplier. This shall include all parts and materials supplied to (ASTEMO-AM) BK. If the quality level falls below the established quality standard, parts and materials shall be considered non-conforming. The supplier shall take immediate containment action and provide permanent corrective actions to BK supplier quality. A PPAP may be requested to re-establish certification. The requested level will be determined by the SQA.

2.2 Special Characteristics (Mass Production)

- 2.2.1 Some products will have special features which are designated as critical characteristics. (VC, KC, KCC, KEY, etc.). These requirements may be identified by (ASTEMO)AM-BK or a (ASTEMO)AM-BK Customer. For these characteristics, 125

piece SPC data verifying a minimum 1.33 Cpk value or greater process capability, shall be furnished annually. Supplier must maintain ongoing SPC for all product dimensions designated as special characteristics. BK supplier quality may request a minimum of 30 pieces Cpk for non-critical dimensions when necessary. When a (ASTEMO)AM-BK customer's special characteristic is shown on the part drawing or referenced in the specification, the supplier is required to comply with the (ASTEMO)AM-BK customer requirements.

2.3 O.E.M Customer Specific Requirements

It is the responsibility of all suppliers to (ASTEMO)AM-BK to be aware of and comply with all applicable OEM Customer Specific Requirements. These OEM Customer Specific Requirements include, but are not necessarily limited to, the following: SPC, MSA, FEMA, PPAP, APQP, Supply Chain Matrix, and Special Process Audits (current revisions).

2.4 Process Certification (Mass Production)

- 2.4.1 The supplier has the responsibility to ensure that production processes related to special characteristics are in compliance with all material specifications shown on the drawing and / or purchase order. Process certification containing actual measured results with a minimum of 1.33 Cpk index is required for all processes associated with special characteristics. (ASTEMO)AM-BK shall determine the need for process certification verification.
- 2.4.2 Should the actual measured results fall below 1.33 Cpk, a support plan will be required and must be 100% verified and an action plan must be established. If the Cpk drops below 1.00 then BK supplier quality must be notified.

2.5 Zero Defects Acceptance

- 2.5.1 The supplier shall adopt acceptance criteria of zero defects on parts, materials, products and services supplied to (ASTEMO-AM) BK.
- 2.5.2 Supplier shall maintain internal KPI, such as scrap data and root cause analysis on top defects. BK supplier quality may ask to review this information if necessary.

2.6 Product Sorting

- 2.6.1 In the event defective supplied product or material is discovered at (ASTEMO)AM-BK and/or the (ASTEMO)AM-BK customer location, it is the supplier's responsibility to replace or sort the defective material in accordance with the guidance given by (ASTEMO-AM) BK. (ASTEMO)AM-BK reserves the right to sort/rework supplied product or material at any time to ensure the customer's requirements are not compromised. The supplier shall be responsible for all expenses including, but not limited to, (ASTEMO)AM-BK administration fee, hourly rate charges, travel expenses, and containment costs.

2.7 Restricted Material ISO 14001

- 2.7.1 The supplier shall comply with all current governmental and safety restraints on restricted, toxic and hazardous materials; as well as environmental, electrical, and electromagnetic considerations applicable to the country of manufacture and sale.

2.8 Lot Traceability

2.8.1 The supplier is responsible for maintaining lot traceability. Mixed lots are acceptable but MUST be identified as such.

2.9 Domestic and Foreign Content

2.9.1 Suppliers to (ASTEMO)AM-BK shall provide, upon request, the domestic and foreign content of any parts and materials purchased by (ASTEMO-AM) BK, as required by US laws and regulations (i.e. NAFTA, etc.) and/or OEM customer specific requirements.

2.10 Requests for Temporary Deviations

2.10.1 Process deviations are requests to use a different or modified manufacturing method; example, changing a sonic welding process to a heat staking process or adding a top coat process.

2.10.2 Material or design deviations are requests to use material that does not meet a particular specification or requirement.

2.10.3 Any Supplier can request a deviation. Supplier requests for deviations must be initiated through the supplier portal and (ASTEMO)AM-BK SQA.

2.10.3.1 The supplier may be requested to provide samples to perform a trial to assure fit and function and other requirements as determined by (ASTEMO)AM-BK

2.10.4 It is the responsibility of the Supplier to ensure that the deviation request is properly completed and outlines exactly all specifics related to the deviated part number, process, material, number of parts, specification, etc.

2.10.5 The Supplier must use the (ASTEMO)AM-BK SREA form for material/process deviation. This form is available through the (ASTEMO)AM-BK website (www.hitachi-automotive.us).

2.10.6 Once the request is received and logged, (ASTEMO)AM-BK SQA, Purchasing, Design Engineering and Quality Assurance must review the deviation for approval.

2.10.7 Deviations shall be for a specified length of time, a specified quantity of material, or until a specified date.

2.10.8 (ASTEMO)AM-BK Pre-Shipment Approval MUST be obtained for any deviation that affects the final product fit, finish, function or reliability. The approval must be documented on the deviation.

2.10.8.1 NOTE: Blanket, undated or open-ended deviations will not be permitted.

2.11 Requests for Permanent Changes

2.11.1 In certain situations, a Supplier may wish to request a specification to be changed on a print for various reasons (i.e. cannot meet specification, material, etc)

- 2.11.2 Any Supplier can request an engineering change. Supplier requests for engineering changes must be initiated through the **the supplier portal and (ASTEMO)AM-BK SQA.**
- 2.11.2.1 Generally, **samples** must be provided by the Supplier to perform a trial to assure fit and function and other requirements as determined by (ASTEMO)AM-BK
- 2.11.3 It is the responsibility of the Supplier to ensure that the engineering change request is properly completed and outlines exactly all specifics related to the part number, process, material, number of parts, specification, etc.
- 2.11.4 The Supplier must use (ASTEMO)AM-BK **SREA** form for engineering changes. The **SREA** form is available through the (ASTEMO)AM-BK website (www.hitachi-automotive.us).
- 2.11.5 Once the request is received and logged, (ASTEMO)AM-BK **SQA, Purchasing, Design Engineering and Quality Assurance** must review and sign the deviation for approval.

2.12 Engineering Change and Deviated Product Labeling

- 2.12.1 Supplier shall implement the following items in order to facilitate the smooth control of initial parts deliveries during initial production of engineering changes and/or deviated parts.
- 2.12.2 If requested, BK supplier quality must be notified of all lots shipped under the **SREA**, including lot numbers and shipping information.
- 2.12.3 Parts shipped under an **SREA** shall be clearly identified with the "**SREA Parts Delivery Notice**" label (see Appendix 1) printed in YELLOW or on yellow paper.
- 2.12.4 In the event a supplier fails to provide proper material identification or labeling as stated within this document, product cannot go directly to warehouse. A dock charge may be assessed to the supplier. Product will be considered non-conforming and corrective action may be required.

2.13 Supplier Quality Performance

- 2.13.1 (ASTEMO)AM-BK requires 100% defect free parts from our suppliers. (ASTEMO)AM BK IATF 16949 Work Instruction TS-WI-7.4.3.2-001, Supplier Monitoring and Development, states in part that (ASTEMO)AM-BK Quality Management will conduct a quarterly review of our supplier's PPM's, and that a "worst five" list will be generated based on the five suppliers with the highest average PPM for the quarter.
- 2.13.2 If a supplier is placed on the "worst five" list and has not improved their PPM by the end of the next (following) quarter, the supplier will be placed on **probation** at which time they may not be considered for new business without special approval from (ASTEMO)AM-BK Plant Manager. Any supplier placed on probation will also be selected for special supplier development which may include system, process, and product audits and/or other improvement activities. Removal from probation status may be accomplished when the supplier has performed one evaluation

quarter at a level higher than the original quarter (the quarter that caused them to be placed on (ASTEMO)AM-BK five worst supplier list). If after two consecutive quarters the supplier fails to improve their PPM, the business may be permanently removed. Suppliers may view their performance records, including delivery and quality data, by contacting the appropriate Buyer.

- 2.13.3 BK supplier quality may decide to monitor Top 5 worst suppliers based on number of quality incidents and annual recertification status. Supplier will be required to attend a Top Supplier meeting until completion of all corrective actions, followed by defect-free product shipped for 90 days since last quality incident. BK supplier quality may review corrective actions on site and/or perform complete audit of supplier's quality management system.

3.0 Advanced Product Quality Planning (APQP) / Production Part Approval Process (PPAP)

- 3.1 The new model process at (ASTEMO)AM-BK includes several trial events leading up to mass production. Suppliers will have access to a (ASTEMO)AM-BK Engineer who will work with them from the time business is awarded.
- 3.2 (ASTEMO)AM-BK will determine whether a supplier will be considered a "Critical" or "Non-Critical" parts supplier. Once this has been determined a Kick-Off meeting will be scheduled between the supplier and (ASTEMO-AM) BK. At this time, schedules, quality requirements, required documentation, mass production requirements, packaging requirements, and contact information will be discussed at this meeting.
 - 3.2.1 Critical suppliers may be required to submit a Launch Readiness Review document monthly to (ASTEMO)AM-BK outlining the status of the launch.
- 3.3 (ASTEMO)AM Engineering may schedule a design review meeting with the supplier. At this meeting critical characteristics, past problem history, control datum's, drawing reviews, design for manufacturing, any testing requirements and the timing schedule will be discussed and reviewed. The supplier should bring up any concerns of the design, what type of assembly equipment will need to be used to control the part, and any other concerns that they may have in this meeting.
- 3.4 Trial requirements will be negotiated between the Engineer and the supplier. Suppliers are required to submit data and sample parts as requested throughout the trial event process. Suppliers are responsible to guarantee that all parts submitted as trial parts meet the requirements that have been established between (ASTEMO)AM-BK Engineer and the Supplier, and ensure that each part number and container is identified with a "**Trial Parts Delivery Notice**" label (see Appendix 2) printed in ORANGE or on orange paper.
 - 3.4.1 In the event a supplier fails to provide proper material identification or labeling as stated within this document, a dock charge may be assessed to the supplier. Product will be considered non-conforming and corrective action may be required.
 - 3.4.2 Sample data shall be supplied for all dimensions affecting form, fit, and function with each shipment of PSW and/or Prototype parts. This data should be submitted to the appropriate Quality Assurance Engineer.

- 3.5** (ASTEMO)AM-BK may schedule a process review meeting with the supplier. At this meeting inspection gages and standards, MSA plan, process capability, quality documentation, trial event schedules and requirements, PV testing requirements and Run at Rates will be discussed and reviewed. The supplier should review process flow and over manufacturability of the part during the meeting.
- 3.6** The supplier should notify the Engineer of all scheduled trials to allow sufficient time for the Engineer to make plans to attend. If the Engineer is not notified of the trial, the supplier may be required to run the trial again at an agreed time.
- 3.7** (ASTEMO)AM-BK will schedule Run at Rate to be performed on the actual mass production process. The trial parameters will be established between the supplier and (ASTEMO-AM) BK. The supplier shall demonstrate process capability, meeting capability targets, quality documentation, and all open issues have been closed.
- 3.8 (ASTEMO)AM-BK will approve the supplier for mass production after:**
- 3.8.1 Supplier has closed out all open items for new model
 - 3.8.2 Passed the Run at Rate with no pending open issues
 - 3.8.3 Approved Part Submission Warrant (PSW)
- 3.9 Special Characteristics (PPAP)**
- 3.9.1 Some products will have features which are designated as special characteristics (See Section 2.2.1). These requirements may be identified by (ASTEMO)AM-BK or a (ASTEMO)AM-BK Customer. For these characteristics, 125 piece SPC data verifying a minimum 1.67 Cpk/Ppk value or greater process capability, shall be furnished with each shipment, unless waived in writing by (ASTEMO-AM) BK. When a (ASTEMO)AM-BK customer's special characteristic is shown on the part drawing or referenced in the specification, the supplier is required to comply with the (ASTEMO)AM-BK customer requirement.
 - 3.9.2 Should the actual measured results fall below 1.67 Ppk, a support plan will be required stating containment, interim and permanent corrective actions. 100% inspection shall be performed until improvements are made.
- 3.10 Process Capability (PPAP)**
- 3.10.1 The supplier has the responsibility to ensure that production processes related to special characteristics are in compliance with all material specifications shown on the drawing and / or purchase order. Process certification containing actual measured results with a minimum of 1.67 Cpk/Ppk index is required for all processes associated with special characteristics. (ASTEMO)AM-BK shall determine the need for process certification verification.
 - 3.10.2 Should the actual measured results fall below 1.67 Cpk/Ppk, a support plan will be required stating containment, interim and permanent corrective actions. 100% inspection shall be performed until improvements are made.
- 3.11 Production Part Approval Process**

- 3.11.1 PPAP is always required prior to the first production shipment of a product in situations as outlined in the AIAG PPAP Manual. The AIAG format shall be used unless otherwise specified by (ASTEMO-AM) BK. A Level 3 submission is required for component parts, unless otherwise specified. For detailed information regarding PPAP requirements, see the ASTEMO Supplier Quality Manual at (www.hitachi-automotive.us).
- 3.11.2 (ASTEMO)AM-BK Purchasing Department will inform the supplier of the specific PPAP requirements via a PPAP Submission Agreement Form (FM-7.4.1-009) that has been filled out by the SQA. (ASTEMO)AM-BK Quality Department will review and approve the PPAP submission.
- 3.11.3 The supplier shall submit the PPAP package (parts and documentation) to the appropriate (ASTEMO)AM-BK Buyer. The PPAP package must be shipped via traceable shipping carrier. PPAPs must be identified with a “**PPAP Samples Delivery Notice**” label (see appendix 3) printed in RED or on red paper.
 - 3.11.3.1 No PPAP will be accepted without sample parts. Conversely, no PPAP will be accepted with parts only. All required documentation and sample parts are required before the PPAP will be processed.
 - 3.11.3.2 PPAP may be accepted via electronic mail, although the preferred method is a hard copy sent to the appropriate (ASTEMO)AM-BK Buyer.
- 3.11.4 The supplier will be required to demonstrate that they can sufficiently produce product using the Run at Rate requirements. Run at Rate capability shall be required before (ASTEMO)AM-BK gives PPAP approval.
- 3.11.5 Initial shipments, as determined by SQA, shall be identified with “**New Product Delivery Notice**” label (see appendix 5) printed in BLUE or on blue paper.

3.12 Annual Component Part Re-certification

- 3.12.1 The supplier has the responsibility to ensure that purchased production parts and material supplied to (ASTEMO)AM-BK shall be in compliance with all material specifications shown on the Hitachi drawing.
- 3.12.2 The supplier shall submit a Level 4 PPAP package including a signed warrant, material specification, 6 pc. 100% layout, 125 pc. capability studies for critical (or requested) dimensions, and special process assessments (CQI-9, 11, 12, 15, 17, & 23).
- 3.12.3 Annual recertification is due one year from Initial PSW submission, and every year thereafter. It is the responsibility of the supplier to ensure that these packages are presented to (ASTEMO)AM-BK on time and complete. Documents may be submitted via email to the SQA.

4.0 Receipt of Non-Conforming Product/Material

4.1 Material Inspection Report (MIR)

- 4.1.1 Immediate action shall be taken in the event that a supplier has reason to believe that non-conforming product condition exists. Contact shall be made by a

telephone call and/or electronic mail to or from the (ASTEMO)AM-BK Quality Associate, or the Quality Manager.

- 4.1.2 Notification to (ASTEMO)AM-BK shall be followed by:
 - 4.1.2.1 Immediate containment, until disposition is completed of all suspect material at: supplier, (ASTEMO-AM) BK, in-transit and at customers' facilities. Disposition can include, but is not limited to, replacement with new material, sorting, priority delivery as agreed.
 - 4.1.2.2 A Material Inspection Report (MIR) will be issued by (ASTEMO)AM-BK Quality Associate via electronic mail to the supplier quality contact and/or production controller. This report will serve as documentation of the non-conforming condition and charges.
 - 4.1.2.3 (ASTEMO)AM-BK shall charge the supplier a \$180.00 administrative charge to cover the cost of processing all MIRs (Material Inspection Report)/Debit Memos that are issued due to defective material being received at Tokico from the Supplier. This charge shall be applied to each non-conformance occurrence. Additional charges may be incurred, such as assembly line downtime, labor, shipping costs, etc.
- 4.1.3 All suspect and/or contained material at (ASTEMO)AM-BK should be dispositioned by a (ASTEMO)AM-BK Quality Associate within 5 calendar days of notification.
- 4.1.4 The supplier has 3 working days to submit a Return Material Authorization for the non-conforming material. If a RMA is not received within this allotted time the material will be returned to the supplier without approval and billed back accordingly.
- 4.1.5 Non-conforming material shall always be returned at the supplier's expense.
- 4.1.6 Permanent corrective action and preventative action will be requested for the supplier to eliminate the possibility of future shipments on non-conforming material.

4.2 Sorting Requirements

- 4.2.1 If sorting is required at (ASTEMO)AM-BK facilities, the supplier shall be contacted by a (ASTEMO)AM-BK Quality Associate.
- 4.2.2 The supplier must provide trained associates. All suppliers must contact the (ASTEMO)AM-BK Quality Associate prior to entering (ASTEMO)AM-BK manufacturing facilities.
- 4.2.3 Safety equipment such as steel toes, glasses, and ear plugs must be worn at all times in the manufacturing areas.
- 4.2.4 The supplier shall have full responsibility of training either their associates or hired sorting companies to ensure (ASTEMO)AM-BK quality requirements are being met. (ASTEMO)AM-BK expects the supplier to supervise the sorting and inspection activities during a sort. However, if the supplier fails to respond or in their absence (ASTEMO)AM-BK representation is required for sorting and inspection, the following charges will apply.

- 4.2.4.1 Suppliers may be held responsible for direct or indirect costs incurred as a result of defective parts deliveries.
- 4.2.4.2 (ASTEMO)AM-BK appointed associates will only perform sorting activities at (ASTEMO)AM-BK or a customer's facility to maintain immediate production requirements, resulting costs will be suppliers' responsibility.
- 4.2.4.3 Travel time and expenses will be charged to the supplier.
- 4.2.4.4 (ASTEMO)AM-BK reserves the right to determine the support required for the containment activities.

4.3 Permanent Corrective and Preventative Action

- 4.3.1 Temporary corrective actions must be documented and forwarded to the (ASTEMO)AM-BK Quality Associate within 24 hours of receipt of the MIR by fax and/or electronic mail in the G8D format showing as a minimum: containment activities, and/or interim corrective actions, material disposition, sort results, and investigating team with primary contact information.
- 4.3.2 A comprehensive corrective action report is required within 5 days. As a minimum the report shall have identified in G8D format: root cause (both system failure and non-detection), permanent and irreversible corrective actions to be taken with commitment dates and the associates responsible for the activity/action.
- 4.3.3 Updated corrective action reports are required when all permanent corrective actions are in place. Validation of permanent corrective action taken will be documented and submitted before the MIR is closed.
- 4.3.4 A (ASTEMO)AM-BK Quality associate may require on-site verification of permanent corrective actions.
- 4.3.5 The supplier may be required to present corrective actions and evidence of effectiveness to (ASTEMO)AM-BK Quality Manager or other management.

4.4 Permanent Corrective and Preventative Action Parts Labeling

- 4.4.1 Supplier shall implement the following items in order to facilitate the smooth control of initial parts deliveries during initial production of permanent corrective and preventative action parts.
- 4.4.2 Initial shipments of permanent countermeasure parts shall be identified with the **"Permanent Countermeasure Parts Delivery Notice"** (see Appendix 4) printed in GREEN or on green paper.
- 4.4.3 In the event a supplier fails to provide proper material identification or labeling as stated within this document, product cannot go directly to warehouse. A dock charge may be assessed to the supplier. Product will be considered non-conforming and corrective action may be required.

5.0 Supplier Delivery Performance

5.1 On-time Delivery Requirement

5.1.1 100% on time delivery is required of all suppliers. Appropriate planning information and purchase commitments to enable suppliers to meet this expectation are provided by (ASTEMO)AM-BK Production Control.

5.2 Delivery Performance Monitoring

5.2.1 Supplier delivery performance is monitored and is an element of the supplier performance rating system. Appropriate corrective actions shall be required in the event of failure to meet these delivery requirements.

5.2.2 (ASTEMO)AM-BK IATF 16949 Work Instruction TS-WI-7.4.3.2-001, Supplier Monitoring and Development, states in part that (ASTEMO)AM-BK will conduct a quarterly review of supplier's on-time delivery performance. This Work Instruction further states that five suppliers will be selected for delivery development each quarter. The criteria for selecting the five suppliers is as follows: (1) supplier delivery performance is less than 100% on-time delivery, and (2) supplier has one of the five highest number of incidents of off-schedule deliveries compared to all other (ASTEMO)AM-BK suppliers. Further, if the supplier has not improved their delivery performance by the end of the next (following) quarter, the supplier will be placed on **probation** at which time they may not be considered for new business without special approval from (ASTEMO)AM-BK Plant Manager. If after two consecutive quarters the supplier fails to improve their PPM, the business may be permanently removed. Removal from probation status may be accomplished when the supplier has performed one evaluation quarter at a level higher than the original quarter (the quarter that caused them to be placed on (ASTEMO)AM-BK five worst supplier list for delivery performance development). You may view your company's performance records, including delivery and quality data, by visiting (ASTEMO)AM-BK website at www.hitachi-automotive.us. Click on the "supplier" link, enter your (ASTEMO)AM-BK assigned user name and password, and click on "Supplier Performance."

5.3 Premium Freight Cost

5.3.1 The supplier shall be held responsible for excess freight cost incurred because of lack of supplier performance. This includes premium freight charges from the supplier facility to the (ASTEMO)AM-BK facility as well as any applicable premium freight charges incurred by the customer.

6.0 Labeling and Packaging Requirements

6.1 All products shall be identified and labeled in accordance with (ASTEMO)AM-BK specifications and AIAG standards.

6.2 Packaging method/style shall be determined at the time of inception of the business. However, in the interest of environmental control, (ASTEMO)AM-BK may implement the use

of returnable containers at any point in time. (ASTEMO)AM-BK expects each supplier to cooperate with this requirement.

7.0 Electronic Order Transmission System

- 7.1** All suppliers to (ASTEMO)AM-BK must have capability of receiving firm order and forecast information electronically via EDI or Supply Web. Suppliers must send ASNs (Advance Shipping Notices) to (ASTEMO)AM-BK within one hour after shipment of product.
- 7.2** All suppliers to (ASTEMO)AM-BK must have an internal work instruction (documentation) on how to support and plan EDI transmissions. This will also include how suppliers to (ASTEMO)AM-BK verify if the releases/requirements are downloaded and how the suppliers confirm with sub suppliers on supportability.

8.0 Contingency Plans

- 8.1** All suppliers to (ASTEMO)AM-BK must have contingency plans for EDI, transportation, packaging, equipment failures and natural disasters. Contingency plans must be tested annually with results, action items etc. The annual results must be made available to (ASTEMO)AM-BK purchasing manager.

9.0 MMOG/LE

- 9.1** All suppliers to (ASTEMO)AM-BK must adhere to MMOG/LE or equivalent. Suppliers to (ASTEMO)AM-BK are required to record an explanation for their assessment response and provide direction on how to retrieve the documented evidence for all 197 criteria recorded as compliant in the "Current State and Supporting Evidence" section of the "assessment" worksheet in their MMOG/LE Assessment. Any criteria marked as non-compliant should have an action plan noting the actions for becoming fully compliant.

10.0 Sub Supplier Mapping

- 10.1** All suppliers to (ASTEMO)AM-BK will have a documented procedure on sub supplier mapping showing geographic locations and potential failures. All suppliers to (ASTEMO)AM-BK should have a "sub sub-supplier" risk assessment process.

Appendix 1:

SREA PARTS DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
SREA NUMBER:	APPROVAL DATE:	P.O. NUMBER:
CHANGED ITEM DESCRIPTION:		
REMARKS/ COMMENTS:		

**Electronic versions of these forms are available from (ASTEMO)AM-BK SQA.*

Appendix 2:

TRIAL PARTS DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
P.O. NUMBER:	REQUESTOR:	
PURPOSE OF SAMPLES:		

**Electronic versions of these forms are available from (ASTEMO)AM-BK SQA.*

PPAP SAMPLES DELIVERY NOTICE

SUPPLIER TO COMPLETE											
SUPPLIER NAME:						SUPPLIER CODE:					
SUPPLIER CONTACT:						CONTACT NUMBER:					
TYPE OF SUBMISSION:		INITIAL SUBMISSION		RESUBMISSION		ENG. / DESIGN / PROCESS CHANGE					
LEVEL OF SUBMISSION:		I	II	III	IV	V					
SQA CONTACT:				BUYER:				QUANTITY:			
PART NAME:				DRAWING NUMBER:				DRAWING LEVEL:			
SREA NUMBER:				P. O. NUMBER:							
REMARKS/COMMENTS:											

**Electronic versions of these forms are available from (ASTEMO)AM-BK SQA.*

Appendix 4:

PERMANENT COUNTERMEASURE PARTS DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
MIR NUMBER:	SHIP DATE:	P.O. NUMBER:
CLEAN DATE:	LOT NUMBER:	
085REMARKS/ COMMENTS:		

NEW PRODUCT DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
EARLY PRODUCTION CONTAINMENT BEGIN DATE:		EARLY PRODUCTION CONTAINMENT END DATE:
NEW ITEM DESCRIPTION:		
REMARKS/ COMMENTS:		

ECR PARTS DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
ECR NUMBER:	APPROVAL DATE:	P.O. NUMBER:
CHANGED ITEM DESCRIPTION:		
REMARKS/ COMMENTS:		

NEW PRODUCT DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
EARLY PRODUCTION CONTAINMENT BEGIN DATE:		EARLY PRODUCTION CONTAINMENT END DATE:
NEW ITEM DESCRIPTION:		
REMARKS/ COMMENTS:		

PERMANENT COUNTERMEASURE PARTS DELIVERY NOTICE












SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
MIR NUMBER:	SHIP DATE:	P.O. NUMBER:
CLEAN DATE:	LOT NUMBER:	
REMARKS/ COMMENTS:		

PPAP SAMPLES DELIVERY NOTICE

SUPPLIER TO COMPLETE									
SUPPLIER NAME:					SUPPLIER CODE:				
SUPPLIER CONTACT:					CONTACT NUMBER:				
TYPE OF SUBMISSION:		INITIAL SUBMISSION			RESUBMISSION			ENG. / DESIGN / PROCESS CHANGE	
LEVEL OF SUBMISSION:		I	II	III	IV	V			
SQA CONTACT:				BUYER:			QUANTITY:		
PART NAME:				DRAWING NUMBER:			DRAWING LEVEL:		
ECR NUMBER:				P. O. NUMBER:					
REMARKS/COMMENTS:									

TRIAL PARTS DELIVERY NOTICE

SUPPLIER TO COMPLETE		
SUPPLIER NAME:		SUPPLIER CODE:
SUPPLIER CONTACT:		CONTACT NUMBER:
SQA CONTACT:	BUYER:	QUANTITY:
PART NAME:	PART NUMBER:	REVISION LEVEL:
P.O. NUMBER:	REQUESTOR:	
PURPOSE OF SAMPLES:		

Topics	Other Items	Quoting New Business	If Business is Awarded
Hitachi Forms	1. GA Specific Requirements Section 17 	1. RFQ PDF (receive via email from buyer)	1. Receive Notice from HIAMS-GA
	2. Invoice and ISF Requirements 	2. RFQ Requirements 	2. Start completing APQP Workbook 
	3. GA Packaging Requirement, Section 11 (2D Barcode added) 	3. Prototype Drawing (on supply portal under drawings)	
	4. Label Template for Samples, PPAP Trials, & First Shipment 	4. Component Quote Form 	
		5. Financial Info. Form 	
Additional Forms		1. Non Disclosure Agreement	1. Set Up New Account Forms   
		2. Investigation and General Information	2. Supply Portal Login (receive from buyer)

NEW Supplier

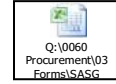
3. Qualification Audit


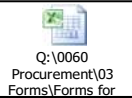
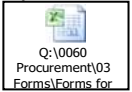
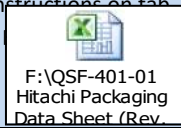






3. Supply Web Login
(receive from buyer)

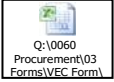



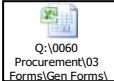


4. Qualification Audit



If Hitachi/ Customer Paid Tooling	Prototype Trials	PPAP Trials
1. Tooling Purchase Order (receive via email from buyer)	1. Prototype Purchase Order (receive via email from buyer)	1. PPAP Purchase Order (HIAMS-GA Production Control Department issues to Supply Web)
2. Tooling Agreement (receive via email from buyer) Note: PSW signed from Hitachi, signed Tooling agreement, & pictures of the tooling with assets numbers are needed before payment of invoice	2. Label for Samples (see other items #4)	2. PPAP 18 Requirement Letter 
	*Send Updated APQP sheet at each event	3. PPAP 18 Requirement Checklist 
		4. Capacity Verification Sheet 
		5. Packaging Data Sheet (Follow ALL instructions on tab and return in 
		6. Certificate of Origin  
		7. Mass Production Pricing Contract (receive via email from buyer)
		8. Letter of Non Conformance and Non Using 
		**Remember to use Sample label to ship and send updated APQP Sheet
		1. PPAP Process Audit 

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After SOP	Obsolescence Cost
1. VEC Proposal Form  <p>Q:\0060 Procurement\03 Forms\VEC Form\</p>	1. Tooling Disposal Form  <p>Q:\0060 Procurement\01 Log\03 Tooling\</p>
2. PCR Form  <p>Q:\0060 Procurement\03 Forms\Process</p>	2. Obsolecense Authorization Clause  <p>Q:\0060 Procurement\03 Forms\Gen Forms\</p>
** Remember to use label on shipment (see other items #4)	3. Obsolescence Claim Form  <p>Q:\0060 Procurement\03 Forms\Gen Forms\</p>

PDS(Packaging Data Sheet) has been updated on 9/11/2017



