SUPPLIER QUALITY MANUAL

Revision Date: 3/19/2018

Purpose: The purpose of this Supplier Quality Manual is to communicate to suppliers HFI's expectations and requirements to assure the quality of supplied parts.

Scope: This manual applies to all suppliers (including customer directed suppliers) providing products or services to HFI.

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1 PURCHASING

1.1 Production Material Supplier Approval

Each potential new supplier is required to complete and submit HFI's Supplier Quality System Survey, provide supporting documentation as requested on survey, and signed acknowledgement of HFI's Supplier Quality Manual.

HFI utilizes suppliers that are ISO 9001 certified. Exceptions to this may occur when the supplier is customer mandated, or at the discretion of HFI's Corporate Purchasing.

HFI will require an on-site document and process review to approve suppliers as deemed necessary. Suppliers will be placed on probation until on-site review is complete with favorable results. Suppliers will be required to complete the approval process over if HFI hasn't purchased production materials in more than 12 months.

1.2 Request for Quote

HFI utilizes a Request for Quote (RFQ) package for the sourcing of new business. Accompanying the RFQ will be HFI's Supplier Quality Manual, Supplier Quality System Survey, material specifications, HFI's Packaging Sketch Form, VA/VE expectations, and a signed letter of confidentiality agreement if required by HFI's customer. The quotation must include two options: 1. FOB supplier dock (HFI arranges transportation), and 2. FOB HFI's dock (supplier arranges product delivery).

1.3 VA/VE Expectations

Production material suppliers are required to submit VA/VE proposals annually (see definition in Appendix A). HFI Corporate Purchasing will establish annual targets for each supplier at the start of each program in the RFQ. A supplier's participation in VA/VE initiatives will be a consideration when determining future business.

1.4 Continual Improvement

As a condition of doing business, it is expected that suppliers will participate in continual improvement, VA/VE, and annual price reduction requirements.

1.5 Schedule Fluctuations

On occasion HFI's customers may have a fluctuation in their schedules. Therefore, HFI's suppliers are expected to be able to handle a 20% fluctuation in HFI's release schedule.

1.6 EDI Capability

It is preferred that suppliers are EDI capable. Suppliers that do not have EDI capability must at a minimum submit a plan to HFI Corporate Purchasing of when they will be capable.

1.7 Statement of Requirements (SOR)

The Statement of Requirements (SOR) and referenced HFI documents, describe the processes, tasks, and deliverables required of the Tier Two Supplier (further referenced as "Supplier") to provide parts and tooling for the program.

The SOR will address items not covered during the quoting process. These are additional requirements that HFI expects of suppliers.

SORs are issued typically as soon as it is known that a supplier has been awarded business. Upon receipt of the SOR the supplier has 1 week to evaluate the content of the document and submit back a signed statement of acceptance as well as the bailment agreement.

1.8 Customs-Trade Partnership Against Terrorism (CTPAT)

C-TPAT is a voluntary government-business initiative to build cooperative relationships that strengthen and improve overall international supply chain and U.S. border security. C-TPAT recognizes that U.S. Customs and Border Protection (CBP) can provide the highest level of cargo security only through close cooperation with the ultimate owners of the international supply chain such as importers, carriers, consolidators, licensed customs brokers, and manufacturers. Through this initiative, CBP is asking businesses to ensure the integrity of their security practices and communicate and verify the security guidelines of their business partners within the supply chain.

C-TPAT offers trade-related businesses an opportunity to play an active role in the war against terrorism. By participating in this first worldwide supply chain security initiative, companies will ensure a more secure and expeditious supply chain for their employees, suppliers and customers. Beyond these essential security benefits, CBP will offer benefits to certain certified C-TPAT member categories, including:

1. A reduced number of CBP inspections (reduced border delay times)
2. Priority processing for CBP inspections. (Front of the Line processing for inspections when possible.)
3. Assignment of a C-TPAT Supply Chain Security Specialist (SCSS) who will work with the company to validate and enhance security throughout the company's international supply chain.
4. Potential eligibility for CBP Importer Self-Assessment program (ISA) with an emphasis on self-policing, not CBP audits.
5. Eligibility to attend C-TPAT supply chain security training seminars.

At this time HFI does not require our suppliers to be CTPAT certified however, if the supplier is certified we need to know the supplier's certificate number (SVI).

2 QUALITY REQUIREMENTS

2.1 HFI's Quality Policy

To "Meet our customer expectations by producing defect-free product, on time, at a competitive cost through a culture of continuous improvement", this is also our expectations for all of our suppliers and sub-suppliers, regardless of size, location or how critical the product they supply.

2.2 Production Part Approval Process

All suppliers shall comply with the Production Part Approval Process (PPAP) required by HFI. HFI will submit a requirement sheet (Supplier PPAP Checklist and Workbook) to the supplier enlisting details of what is required to be submitted in the initial PPAP submission.
Any HFI's customer specific PPAP requirements will be passed down to suppliers via the Supplier PPAP Checklist and Workbook. PPAP level III is the default requirement for new program launches, unless otherwise specified by HFI. HFI requires a minimum Level II PPAP submission for any changes to the design, process or site (see Table 3.1 of the PPAP manual). All PPAP documentation must be submitted in English, and comply with the requirements of AIAG's PPAP 4th Edition manual.

All suppliers will be required to submit a PPAP Plan to HFI's manufacturing location once they are awarded business. The plan must identify the agreed upon submission date, as well as dates identifying when the various PPAP activities will be completed. Suppliers will be held accountable for submitting PPAP on-time, unless otherwise agreed to by HFI.

All Suppliers are required to perform a Run @ Rate prior to PPAP to verify that the supplier's actual production process is capable of meeting quoted program volumes at an acceptable quality level. The default Run @ Rate standard is minimum 4 hours of run time, unless otherwise specified by HFI. Run @ Rate is to be performed using production tooling and/or equipment within the actual manufacturing site and process. Run @ Rate documentation is to be included in the PPAP submission.

All suppliers are required to ensure they have received interim/full PPAP approval prior to their first shipment of new/changed production materials.

Acceptance criteria for process capability studies (Cpk) must comply per current AIAG guidelines. Unless otherwise approved by HFI, all capability studies must meet >1.67 Cpk Index for all critical characteristics and >1.33 Cpk index for all special characteristics for both short and long term process capability. Supplier must implement any necessary containment and corrective and/or preventative actions in order to maintain process in statistical control and to prevent shipping bad product to HFI.

2.3 Change Request Form (CRF)

2.3.1 Purpose

Over the life of a Product, changes in design, specification or process will occur. The Change Request Form is a tool used at HFI to formally track proposed changes to current mass production parts being requested by the supplier.

2.3.2 Scope

This procedure applies to all products that are supplied to HFI which are ultimately part of the finished product.

2.3.3 Requirement

HFI Suppliers are required to submit a Change Request Form (CRF) minimum 150 days in advance prior implementing changes either initiated by the supplier or their sub-supplier(s). Suppliers shall not implement changes without first having advance approval by HFI via PSW signoff. Any changes implemented by the supplier or your sub-supplier(s) prior written approval by HFI will result in the supplier being held responsible for all associated financial costs; these costs are not limited to: replacement of product, shutdown costs, warranty costs, containment, expedites, return expenses. Should changes be requested to the supplier by other than HFI (e.g. OEM/ Tier 1) the supplier shall contact HFI Quality immediately and follow CRF process. Supplier's Quality Department is responsible for understanding the contents of any change and to ensure that the change has no negative effect on the overall Product quality – either directly or indirectly.

Possible reasons for issuing a CRF are as follows:

a. Design Change
b. Die/fixture/Mold Change
c. Inspection Method Change
d. Jig/Tool Change
e. Machine Change
f. Manufacturing Method Change
g. Manufacturing Process Order Change
h. Material Change
i. New Supplier or new manufacturing location
j. Significant Manpower/Production Schedule Changes
k. Transportation/Packaging change

2.3.4 Procedure

a. Supplier issues Change Request Form to HFI quality representative. The Supplier portion of the CRF must be completely filled and a detailed explanation with a picture or sketch must be shown of the current and proposed change. The Supplier must also sign off on the CRF.

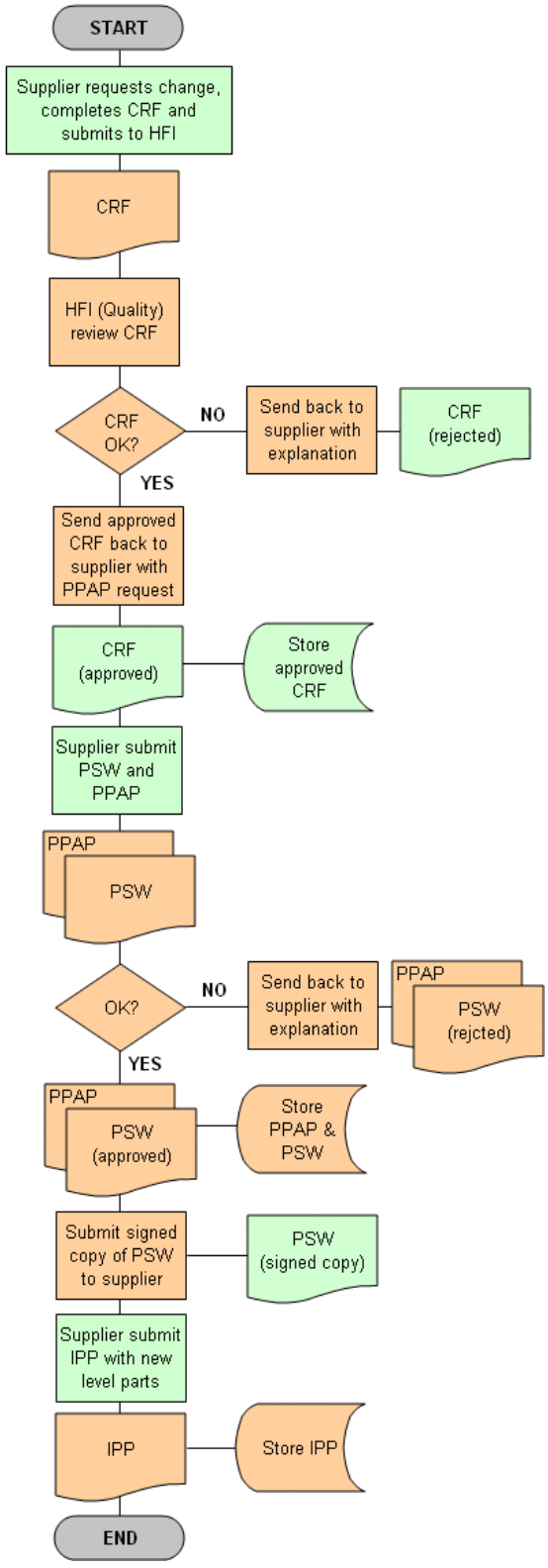
b. HFI quality rep. reviews CRF and circulates CRF to all relevant parties within HFI.
c. Upon internal approval at HFI, HFI quality rep. will indicate on the CRF what level PPAP is expected from the supplier or any other requirements. A CRF reference number will also be issued at this time for tracking purposes. And, HFI will sign off on the CRF.

   If the CRF is rejected, HFI will return document to the supplier with an explanation of denied request or request for additional information.

d. The supplier must submit PPAP to HFI minimum 30 days prior to the intended mass production start date of the proposed change, unless otherwise the specific PPAP due date is directed by HFI contact.

All IPP procedures must be followed once mass production starts with the new change. Please refer to the PPAP/IPP section of this manual for instructions regarding our IPP process.

The following flow chart outlines the steps involved at the supplier and HFI when submitting a CRF.



The following is the form and instructions for filling out the CRF:

Change Request Form Procedure		
Item #	**Item Name**	**Details of Item**
1	ECN #	Number is to be issued by HFI when supplier submits CRF
2	Date	Date that CRF was submitted to HFI
3	Supplier Contact Name & e-mail	Contact person at supplier, please enter First and Last name and e-mail address of supplier contact person.
4	Supplier name	Supplier submitting CRF
5	Supplier Approval/Date	Indicate the date the change point was approved internally at the supplier
6	Proposed MP Ship Date	Indicate when the proposed change will take effect at mass production
7	HFI Plan Affected	Which HFI Plant will the proposed change affect? (Alabama, Columbus, Monclova, Obregon)
8	Supplier Change Tracking Number	Enter Tracking Number or reference number used for traceability purposes of the change point made by the supplier.
9	HFI to respond due date	Enter the drop dead date HFI is to submit PPAP requirements to the supplier issuing the change.
10	Component Part Name	Name of component
11	Component Part Number	HFI part number
12	Quality Documents Revised	Indicate which documents are being revised to facilitate the change
13	Change Type	Indicate the type of change being made
14	Current	Describe the current process, dimensions or attributes of the product. Include picture or sketch.
15	Proposed Change	Describe the change to the process, dimensions or attributes of the product. Include picture or sketch.
16	PPAP Requirements	HFI will fill out this section and send back to the supplier indicating PPAP level expected from the supplier before new parts or process is approved for mass production
17	Additional/Other Requirements	HFI will fill out this section and indicate any additional or other requirements needed
18	Quality Approval of Requirements	HFI Quality Dept. for location receiving changed product signs approval of requirements
19	PPAP Due date	HFI Quality to entered PPAP due date

CHANGE REQUEST FORM

Supplier Information		Change Tracking Number Information	
Date (2)		Supplier Change Tracking Number (8)	
Supplier Contact name & e-mail (3)		HFI to respond due date (9)	
Supplier Name (4)		Change type (13) (Enter "X" in appropiate box)	
Supplier Approval/Date (5)		1 Design Change	
Proposed MP Ship Date (6)		2 Die/Mold Change	
HFI Plant(s) Affected (7)		3 Inspection Method Change	
Part Information		4 Jig/Tool Change	
Component Part Name (10)		5 Machine Change	
Component Part Number		6 Manufacturing Method Change	
(12) **Quality Documents Revised** (circle one or more)		7 Manufacturing Process Order Change	
Control Plan / FMEA / Quality Standard		8 Material Change	
Process Flow Chart / Operation Standard		9 New Supplier or new manufacturing location	
		10 Significant Manpower/Production Schedule Changes	
		11 Transportation/Packaging Change	
		12 Other:	

X All Applicable

Current (show sketch or picture) (14)	Proposed Change (show sketch or picture) (15)
	Items in GREEN to be filled out by Supplier

pplier to ensure this section is complete

Change is NOT to be shipped for mass production until the supplier has received an APPROVED PSW

HFI use only

HFI PPAP Requirements (16)

Design Records and IMDS	Control Plan	Appearance Approval Report
Engineering Change documents	MSA Studies	Sample Parts
Customer Engineering Approval	Dimensional Results	Master Sample
Design FMEA	Material / Performance Test results	Checking Aids
Process Flow Diagram	Initial Process Studies	Customer Specific Requirements
Process FMEA	Qualified Laboratory Documentation	Part Submission Warrant (PSW)

X All Applicable

Additional or other requirements (17)

Items in BLUE to be filled out by HFI Quality

(18) **HFI Quality Approval of Requirements**

Name	Title	Signature	Date	PPAP Due Date (19)	Enter ECN# (list all that apply) (1)

HFI Distribution List

Facility Supplier QE		If change affects more than 1 HFI location, also cc:	
Corporate Purchasing Buyer		Corporate Supplier Development Specialist	
Facility Quality Manager		Corporate Purchasing Manager	
Facility Materials Manager		Corporate Planning Manager	
Facility Engineering Manager		Corporate Quality Manager	

1. When submitting this request the Supplier must include a quality confirmation plan and a schedule. Request MUST be a minimum of **150 days** prior to change. **PPAP packaged is due minimum 30 days prior Mass Production start of proposed change; unless otherwised it specified in the PPAP Due date field of this CRF form.**

2. Any parts received by HFI that require PPAP approval but have not been approved, may be judged as non-conforming and may be charged back to the supplier. IPP process must be followed after PPAP approval.

2.4 Engineering Change Requirements

There are three levels of changes (A, B, or C) in the engineering change process. They are depicted in the chart below. If unsure which level to use, contact your HFI Quality Representative.

Change Level	Procedure	Control Method
A – PSW	• The supplier initiating the change must obtain approval from HFI quality prior to use in mass production (submit PSW). • **A minimum Level II PPAP** submitted to HFI manufacturing facility Quality Dept. • IPP tag must accompany the first IPP parts for mass production and the parts must be properly labeled.	• IPP delivery must be done on first-in first-out (FIFO) basis and must not be mixed with other lots • The following quality records must be kept, according to terms described in the regulation: a) content of IPP tag b) date of IPP production c) date of delivery d) quality confirmation data such as inspection or testing data
B – IPP Tag	• IPP tag must be attached to first IPP parts shipped • Alert material planner in writing *before* IPP product ships.	same steps as level A
C – Supplier	Internal	The supplier tracks these changes. Information should be available to HFI upon request.

It is necessary to Re-PPAP and identify with IPP tags when there are changes to parts or processes that make those parts. The table below explains each change type, lists some example changes and how to determine the level of control (A, B, or C).

Note: Change types are not limited to the examples provided below.

Item	Explanation/Examples	A	B	C
Design Change	When the part drawing changes, altering the physical structure or number of the part. A Design Change is only done by the supplier when a new part drawing or an Engineering Change Order (ECO) is issued.			
	• Newly designed part.	**X**		
	• Design change that affects the physical structure or makeup of the part.	**X**		
	• Design change that does not affect the part itself (e.g. part number or name change only).		**X**	
New Supplier/New manufacturing location	When a supplier or sub-supplier, who has never produced this particular part or component, begins manufacturing this part for HFI.			
	• Adding a new supplier or sub-supplier (including plant addition at the supplier or sub-supplier).	**X**		
	• Changing the supplier or sub-supplier (including the change of plant at supplier or sub-supplier).	**X**		
	• New delivery location.	**X**		

	• Change from in-house production to outside supplier (or vice versa). • Transfer to another factory location.	X X		
Material Change	When any of the material(s) used to manufacture the part is changed. • Change in material supplier. • Change from material being supplied to using materials provided by oneself. • Change in material itself (including anti-rust oil or lubrication oil).	 X X X		
Manufacturing Method Change	When any process method, setting or condition used in manufacturing the part is changed or modified. This includes any change which affects the way the parts are produced as reflected in the Control Plan. Casting or forging method change. Heat treatment condition change. Rubber or plastic molding condition change. Welding condition change. Plating or coating condition change. Machining or cutting condition change. Process standards or setting method change. **Note: Example changes above could be A, B, or C level changes. For clarification contact your Quality Representative.** • Associate change on a critical process.			X
Item	**Explanation/Examples**	**A**	**B**	**C**
Process Order Change	Any time the order of the manufacturing process is changed or deviates from the Control Plan. • Change from temporary process to permanent process (or vice versa). Note: If the PPAP process cannot be completed before parts are to be shipped (e.g. a welding robot breaks down and the process is done by hand) contact the Quality department immediately. Quality will provide instructions and requirements to suppliers in this situation. • Change in sequence of the process.	X	X	
Machine Change	When the machine initially used to produce the parts during the approval process has been changed or replaced by another machine. (Machine examples: stamping press, assembly line, injection or blow molding, forge press, etc.) • Initial use of new machine. • Modification or major repair of machine. • Move equipment to new location (within same plant).	X	X	X
Significant Manpower/Produc	When there are planned or sudden significant changes to manpower and/or production schedule that can impact on time			

tion Schedule Changes	delivery and product quality. Examples where this may apply include but not limited to: Production line operator maturation level is abnormally reduced below acceptable standards due to changes in addition/subtraction of operators; primary production scheduling system failure, which it may require additional manpower to perform related tasks manually; addition of a union. **Note: These could be A, B, o C level changes. Call your Quality Control Representative to confirm.**	**See Note**		
Jig/Fixture/Tool Change	Applies when any of the primary or secondary tooling or jigs is changed in a manner that could potentially affect the quality, function, appearance, or reliability of the product. (Jig and tool examples: welding or assembly fixtures used in manufacturing process, cooling fixtures, sonic or heat welding, etc.) • Change in machining master for the product. • New or modified jigs and tools. **Note: These could be A or B level changes. Call your Quality Control Representative to confirm.** **Note: For all tooling preventative maintenance, modifications, etc. please ensure that the signed HFI Change Request Form is followed** **Note: In the event that tooling will leave supplier's facility for preventative maintenance, modifications, etc., supplier is to fill out Change Request Form and submit to all affected HFI facilities.**	**See Note**		
Die/Mold Change	When any die or mold which is utilized in manufacturing process is new or changed. Modification or touch-up of the die affecting part design dimensions or appearance. Die renewal or new die. **Note: These could be A or B level changes. Call your Quality Control Representative to confirm.** **Note: For all tooling preventative maintenance, modifications, etc. please ensure that the signed HFI Change Request Form is followed** **Note: In the event that tooling will leave supplier's facility for preventative maintenance, modifications, etc., supplier is to fill out Change Request Form and submit to all affected HFI facilities.**	**See Note**		
Inspection Method Change	When inspection methods of the part are changed, potentially resulting in either an improvement or changes in the part's quality performance. This may require a revision to the Control Plan. • New or modified inspection jigs or equipment. • Change in measuring tools or measuring method.	**X** **X**		
Transportation/	When the method of transporting the part to HFI, or the			

Packaging Change	packaging of the part, deviates from the initially approved method. The change could adversely affect the quality of part. • Change in location – such as location for storage • Change in delivery method, packaging method, containers, bins, pallets, etc.	X	X	
Item	**Explanation/Examples**	**A**	**B**	**C**
Sort	To be used at the direction of HFI for parts that are sorted or re-inspected outside the Control Plan.		**X**	
Other	Only to be used as directed by HFI's Quality Department. For example: identification of new model parts (that are not design changed) which should be inspected by the Quality department. Or other reasons as directed by HFI (not limited to this example). Note: If #12 is used an explanation must be written in the area provided on the IPP tag.		**X**	

Note: A PSW is to be completed (and approved) for all A level changes prior to shipment of the changed part. All A level changes also require an IPP tag on the first production shipment to HFI.

In addition, if material or parts are being IPP'd due to an engineering change, the supplier is required to identify all boxes for three consecutive shipments with HFI's ECN # and a brief description of the change.

2.5 Temporary Deviation

If product must temporarily deviate from specifications, agreed upon standards, and/or from what was PPAP approved, the supplier must obtain HFI approval by submitting a written deviation request to the appropriate HFI Quality Manager. Every container of deviated product must be identified with a sign stating that it contains deviated product, or as agreed upon by HFI.

2.6 Nonconforming Product

Product found not to conform to the print specifications, and/or agreed standards (approved master samples, limit samples, etc) will be deemed nonconforming or rejected.

When a nonconformance is detected at HFI; immediate containment by the supplier will be required at HFI and at the supplier's location. When a nonconformance is detected at an HFI customer, immediate evaluation of suspect product will be made by HFI and could warrant the need for replacement product, on-site sorting and quarantining of finished goods at HFI and/or in-transit. Any and all costs incurred by HFI for a supplier's defective product will be debited to the responsible supplier. Such examples of these charges include but are not limited to:

- Customer sorting and containment
- Sorting at all associated HFI locations
- Line downtime

- HFI associate travel time & mileage to customer
- Assist at customer's location
- Lot changes
- Warranty claim
- Third Party sorting cost required either at customer or HFI Location.
- Expedites costs incurred due to replacement of rejected material

The rate of HFI sort/customer support at U.S. facilities is**:** $45.00 per person per hour. For Mexico facilities the rate is $15/hour.

Any and all costs from an HFI customer will be passed on.

Any rejected parts will be placed on a Return Material Authorization (RMA) report. HFI requires suppliers to respond within 5 days; the assessed charges will consist of part value and/or mating component value and a $45 administrative fee.

RMA approval does not apply to lead time of the replacement of rejected material. After any material is rejected it cannot be used for production and therefore it automatically becomes product overdue for delivery at HFI. Normal agreed lead time per RFQ does not apply to replacement of rejected material. The replacement material must be defect free; any replacement material found to be defective will be rejected and will be required to be replaced immediately. Suppliers are required to replace 100% of rejected material as needed basis in order to maintain HFI's production requirements; this may include not limited to daily expedite shipments through normal or approved third party delivery services at the cost of the supplier. Third party delivery service includes supplier's hand-carry services. Supplier must acquire HFI's approval of any third party delivery services before shipment of any replacement material.

HFI's policy will allow five days to respond with RMA. Any supplier that does not respond to an RMA within the requested timeframe will be subject to the following actions taken against them:

- If the product value is less than $2,000 then the product is scrapped and the supplier is debited the full amount plus the administration and disposal fee.
- If the product value is $2,000 or more then the product will be returned, freight collect, to the supplier and then debited for the product amount and administration fee.

2.6.1 Long term In-house Sort & Inspection

HFI has a limited amount of floor space designated for production, warehousing and non-conforming material hold. While we expect our suppliers to delivery 100% defect free material sometimes we understand that the supplier cannot meet our needs and must perform an in-house sort.

HFI, on a case by case basis, agrees to provide a limited amount of floor space for the supplier to conduct inspection or sorting activities for up to 30 days. Should the supplier need longer than 30 days, a fee of $50 / 100ft^2 per day shall be assessed.

It is not our intention to make money off of this fee but rather to motivate the supplier to close this action so we highly encourage the supplier to complete all sorting activity within the 30 day period to avoid this fee.

2.7 Inspection & Containment Vendor

Suppliers are to use HFI's approved inspection, containment and sorting company. Please refer to HFI's website http://www.hfi-inc.com then click on Supplier Resources and then click on Terms & Conditions under downloadable Supplier Documents for more information.

2.8 Lot Control/Traceability

All suppliers and sub-suppliers shall have an acceptable lot control/traceability system in place. System will need to track all main components, materials, and chemicals to their origin. The supplier's lot control/traceability system must be included in the PPAP to HFI, using HFI's LNDD form or supplier equivalent, a copy of the LNDD form can be downloaded at HFI's website http://www.hfi-inc.com Then click on Supplier Resources and then click on LNDD under downloadable document reference forms for a copy.

2.9 Verification of Job Setups

Suppliers are required to perform first and last piece verification and document the results. Records of verification of product functionality, compliance and test results must be maintained for 20 years.

2.10 IMDS (International Material Data System)

HFI suppliers and sub-suppliers are required to comply with the End of Life Vehicle (ELV) Directives as part of the PPAP process. Material data is to be submitted using the International Materials Data System (IMDS). HFI's IMDS company ID # is 35656. **PPAP approval will not be given if IMDS is not completed when required.**

IMDS is a collective, computer-based material data system used by automotive OEMs to manage environmentally relevant aspects of the different parts used in vehicles. Through this system, the automotive industry is able to reconstruct the complete material flow.

The adoption of IMDS relies above all on a legislative background, namely:

- Laws & regulations on hazardous substances: OEMs must eliminate these substances from the supply chain.
- End-Of-Life Vehicles Directive (ELV): If forces car manufacturers to improve their recycling rates. Therefore all suppliers must deliver accurate material information.

The base of the system are the black and gray lists of prohibited and declarable substances. These substances, when used in materials and components for the automotive industry, are of concern to human health, environmental safety and recycling. Prohibited substances, like hexavalent chromium, are forbidden due to legal or internal regulations. Declarable substances should not be construed to mean that the substance is prohibited from being used in a vehicle part, or is to be de-selected from use. Until now, most OEMs had their own list of prohibited and declarable substances.

All material information in IMDS is based on a list of basic substances. GADSL (Global Automotive Declarable Substance List) is currently used by IMDS as the default substance list. Please reference this list for any questionable substances.

REACh SVHC (Substance of Very High Concern) in IMDS Under article 33 of EU REACh regulation (EC) 1907/2006, the producers of articles ("components" in IMDS terms) have to fulfill special duties. Information on "substances of very high concern" (SVHCs) added to the REACh Candidate List must be automatically reported to the recipient of the article if the substance is contained in a concentration higher than 0.1% based on the article weight.

For more information on IMDS please visit www.mdsystem.com

2.11 Zero Defect Policy

HFI expects all suppliers to commit to providing product free of any defect. Please ensure that all material leaving your facility meets the required specification. Failure to meet the specification will result in a corrective action.

2.12 Customer Specific Requirements (CSR's)

All HFI suppliers and sub-suppliers are required to comply with all applicable HFI's Customer Specific Requirements from (not limited to) Tier 1 & OEM customers. HFI upon request will provide a copy of the HFI's customer Supplier Quality Manual (SQM) that is applicable to the product provided to HFI or provided directly to HFI's customer as pass through product. Suppliers are responsible for obtaining the Customer Specific Requirements pertaining to the applicable product from HFI's customer SQM. When unsure of which CSR's apply to the product/service being supplied please contact your HFI purchasing/quality representative.

2.13 Suppliers of automotive products with embedded software requirements

Suppliers of automotive product-related software, or automotive products with embedded software, are required to implement and maintain a process for software quality assurance for their products. Suppliers are required to retain documented information of a software development capability self-assessment, and may be required to share the self-assessment results with HFI upon request. Automotive SPICE process assessment and process reference model is an example that would meet HFI's requirements. For more details please visit http://www.automotivespice.com/ . To develop internal self-assessment capabilities please visit http://aiag.org/ and investigate options for Automotive SPICE assessors.

3 INSPECTION FIXTURE DESIGN GUIDELINES

3.1 Purpose

This guideline is intended as a reference for all fixtures used to assure the quality of Products purchased by HFI. It is intended to produce accurate and consistent quality inspections of HFI Products, regardless of the fixture, Supplier or manufacturing method.

3.2 Scope

The fixture types addressed here are:

- Holding (CMM, Height gauge, etc.)
- Attribute (Go/No Go)
- Variable

3.3 Requirement (Fixture Types)

3.3.1 Holding Fixture

A holding fixture is a simple fixture with little or no complex math data that holds and locates a part using the part's datum and nets. Measurements cannot be conducted without the use of measurement equipment (CMM, Height Gauge, etc.)

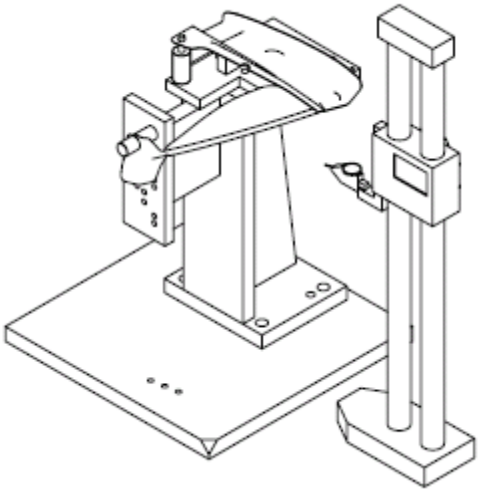


Figure 1

3.3.2 Attribute (Go/No Go) Fixture

A fixture designed by using complex math data. The material is undercut to allow for gap and flushness checks. Datum and net surfaces are used to control part fit and location. Data is collected using

various measurement devices (stab pins, scales, taper gauges, and go/no go pins). (See Figure 2)
All lines and surfaces used for part measurement are clearly identified and painted accordingly.

- 0 (Zero) gap or flushness – Red
- 1mm gap or flushness – Green
- 2mm gap or flushness – Blue
- 3mm gap or flushness – Yellow
- 5mm gap or flushness – White

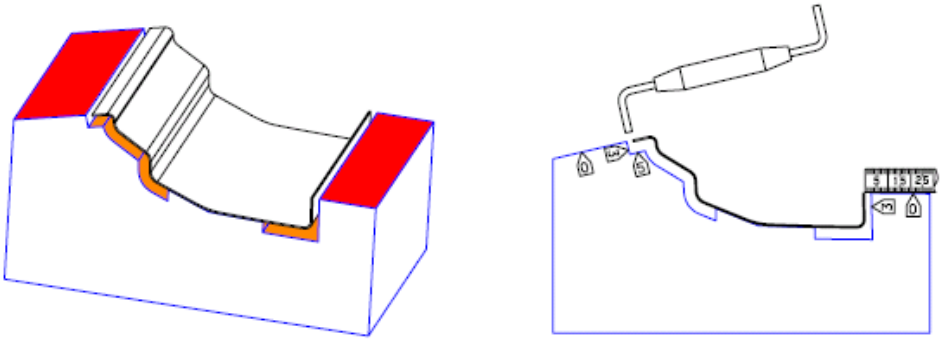


Figure 2

3.3.3 Variable Fixture

A fixture designed using complex math data. The material is undercut to allow for gap and flushness checks. Datum and net surfaces are used to control part fit and location. Data is collected using various electronic measurement devices.

Example – Gap and flushness check using L.M.I.770 and 200 gauges. (See Figure 3)

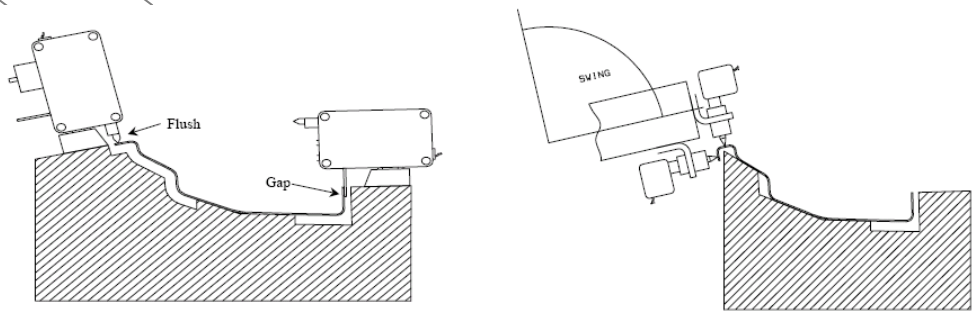


Figure 3

Example – Surface check using L.M.I. 200 gauge and digital indicator.

(See Figure 4)

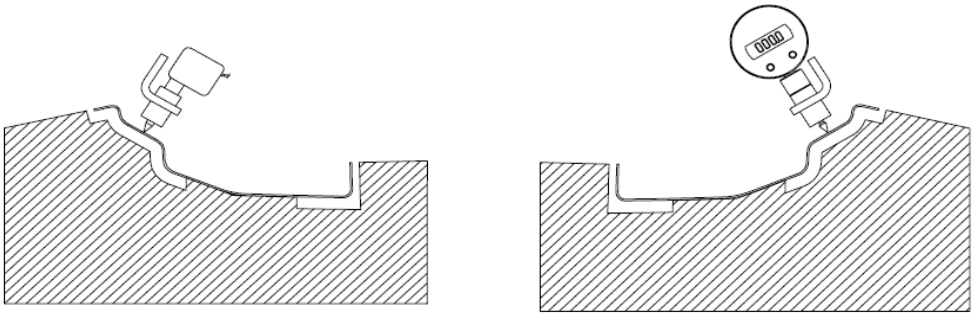


Figure 4

Example – SPC two axis check (hole) – True-position probe and mounting block.
(See Figure 5)

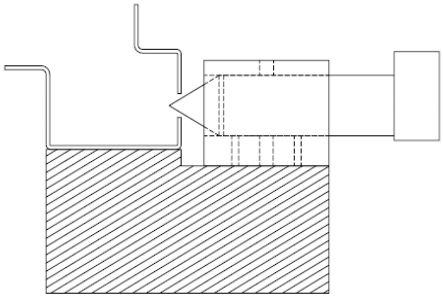


Figure 5

Example – SPC third axis check (hole) – True-position probe block with third axis gauge and L.M.I.200.
(See Figure 6)

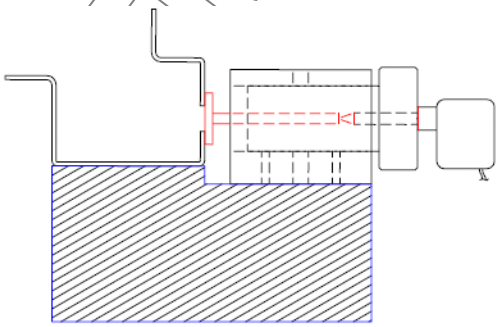


Figure 6

3.4 Design Layout Requirements

The Design layout requirements are listed below:

- Data sheets and the HFI issued drawing shall be used for the determination of all datum, nets, and check points.

- The fixture base will be parallel to the X-T, Y-B or Z-H plane of the part. The lead engineer determines the base orientation.
- Recommended materials:
  - Steel – Any non-datum surface shall be painted or rust proofed. Datum surfaces must be oxidized.
  - Aluminum – Any non-datum surface shall be painted or anodized. Datum surfaces must be anodized.
  - Planking material (e.g. DP-1051) or equivalent.
  - Any other material must be approved by HFI and/or the Supplier.
- All contour template checks specified shall be 6.35mm stock.
- All sharp edges shall be removed.
- Locating points must be clearly identified (i.e. datum, locating holes or nets).
- All fixtures are required to have datum labels clearly identified. Labels must show T (X), B (Y) and H (Z) direction values. If datum features cannot be labeled directly, the values may appear on a plaque affixed to the fixture base.

(See Figure 7)

Datum Identified by Plaque

TBH	Fixture Datum
T	100
B	100
H	100

Datum Identified Directly

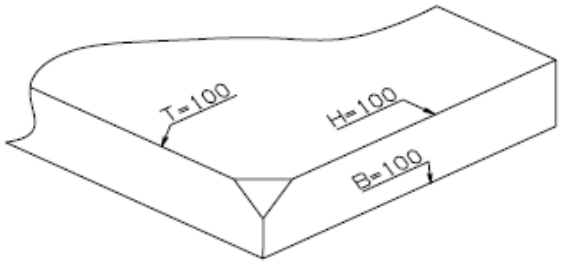


Figure 7

- All sight checks shall be a minimum of 3.0mm and a maximum of 5.0mm clear from the Product's surface with a minimum depth of 3.0mm. Sight checks shall be made to virtual nominal with scribe.

(See Figure 8)

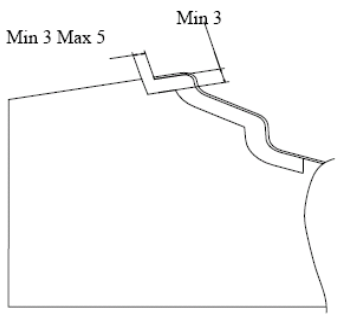


Figure 8

- All holes with a positional tolerance of ±0.5mm or less shall be pin checked for location unless otherwise specified.

• For a threaded hole pin, use the minor diameter of thread minus location tolerance for the pin size. The length of the pin shall be equal to the projected tolerance zone specified on the part model.
(See Figure 9)

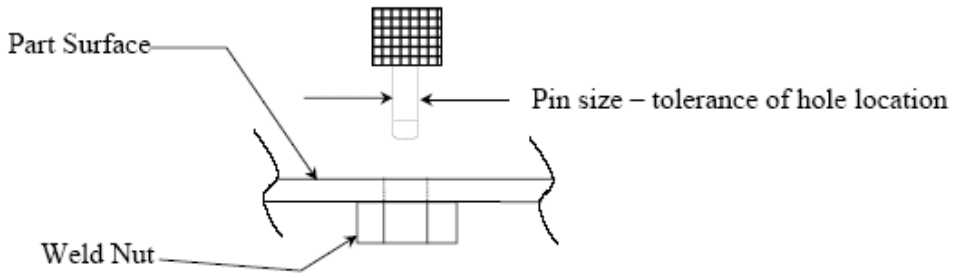


Figure 9

• Hand gauges shall be designed as small and light as possible. Weight for hand gauges shall not exceed 25 pounds for one operator and 60 pounds for two operators. The total weight shall be calculated and indicated on the stock list.
• For hole measurements required on the bottom side of the Product, the Products shall be a minimum of 175mm above the base when using the True-Position probe.
(See Figure 10)

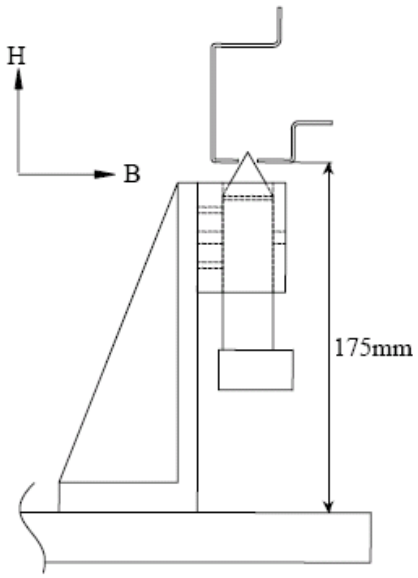


Figure 10

• Keep brackets below checking area whenever possible.
• SPC bushings shall be verified to math data.
• SPC bushings shall have heads on press fit, unless specified otherwise.
• LMI flush and feeler blocks shall be mounted normal/parallel to all features

checked.
(See Figure 11)

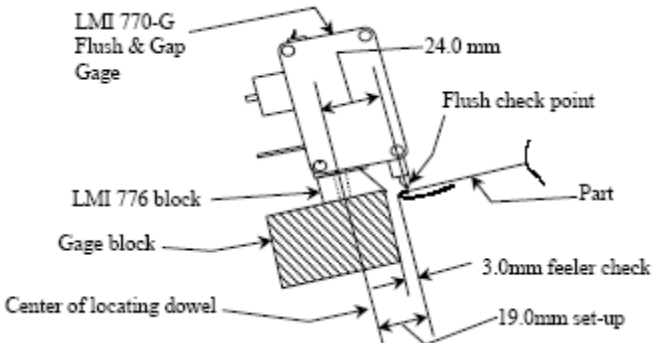


Figure 11

• Flush checks shall have a minimum of 25.0mm flush surface where possible.
(See Figure 12)

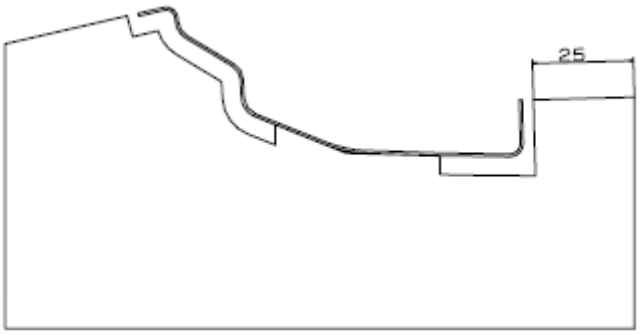


Figure 12

• Adequate protective safety devices shall be provided for protection of personnel and equipment, including stops for drop assemblies and clamps.
• Add scribe lines with values as specified. All scribe lines are to be used only as reference features not as datum features.
• Fastening and storage shall be provided and required for all loose details when not in use on the gauge.
• Large fabrications shall be made with welded tubing that has a minimum wall thickness of 1/8" (3.175mm), unless otherwise specified, and shall be normalized.
• All removable details shall be secured to the gauge and stamped with the tool number.
• Paint the model identification color on all unfinished areas excluding base plate surface.
• Black oxide all steel check details (i.e. nets and pins). All lettering on black oxide details shall be white.
• Paint all non-check elements on hand apply fixtures.

• All lines and surfaces used for part measurement shall be clearly identified and painted accordingly (see below). The identification code shall be stamped on all gauges.

- 0 (zero) gap or flushness – Red
- 1mm gap or flushness – Green
- 2mm gap or flushness – Blue
- 3mm gap or flushness – Yellow
- 5mm gap or flushness – White

• All gauges which have multiple model check features shall be clearly identified by model color, per HFI Specifications.
• Stamp gauge pin diameter on all gauge pins.

3.5 Operation Description Sheets

Operation Description Sheets (ODS) describe the initial set-up of the checking fixture, the loading of the part, the sequence of the clamping operation and the clear instructions for all feature inspections. ODS requirements are listed below.

• The ODS shall be plastic laminated and attached to the base.
• The ODS will have the correct clamping sequence as determined by the gauge repeatability study. Clamps shall be stamped or labeled and fastened with screws, sequentially in the order of the closing sequence.
• All transducer checks and their number are shown.
• Usage of any removable details is clarified.

3.6 Design Status

Design status reports are required on a weekly basis. The required reporting percentage is listed below:

• 10% - Order placed – Supplier has part information and job has been started.
• 25% - Design ready for review and approval – job is laid out and material is being ordered.
• 50% - Design is ready for final review, complete buy-off and ship to build source.
• 100% - Construction is complete including any build/design changes and HFI has signed off for mass production use.

3.7 Base Plates

Base plate requirements are listed below:

• Stamp body coordinates on the base per start dimension (i.e. line, grooves, blocks and tooling balls).
• The base shall be sized so that all clamps and targets do not overhang the periphery of the base when in the open position. Also, there shall be sufficient surface provided on the base for mounting interchangeable tooling and inspection equipment.
• The base height surface shall be 30” from the floor unless specified otherwise.
• Machined surfaces of bases shall be rustproof.

- Floor bases shall have provisions for leveling (base pads or leveling screws).
- All bases shall be machined on two adjacent edges.
- All steel bases shall be stress relieved.
- All aluminum bases shall be normalized.
- Bases shall be flat within ±0.13mm per square foot of area with a maximum of ±0.10mm total in any length.
- The Supplier shall provide swivel clevis type eyebolts at the four corners if the fixture is heavier than 60 pounds.
- Eyebolts must have the load capacity to lift the maximum weight of the fixture, plus 25%. Eyebolt size shall be determined by maximum load of eyebolt at a 60 degree pull.
- Use heli-coil screw locks for aluminum bases.

3.8 Fixture Datum

The fixture datum requirements are listed below:

- Tooling balls (3) required for fixture alignment.
- The tooling ball shall be 12.0mm in diameter with a 6.00mm diameter shaft, press fit with a cover.

(See Figure 13)

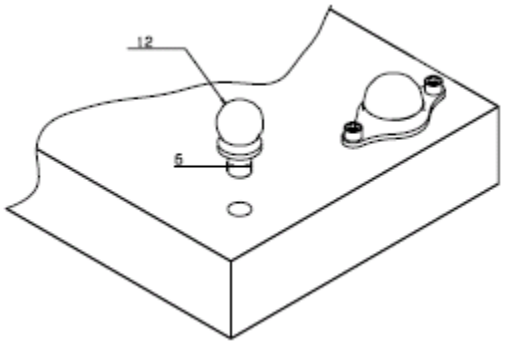


Figure 13

- The center line of the tooling ball (T-X, B-Y, H-Z locations) shall be stamped on the base.
- Three planes shall be clearly identified on the base.

(See Figure 14)

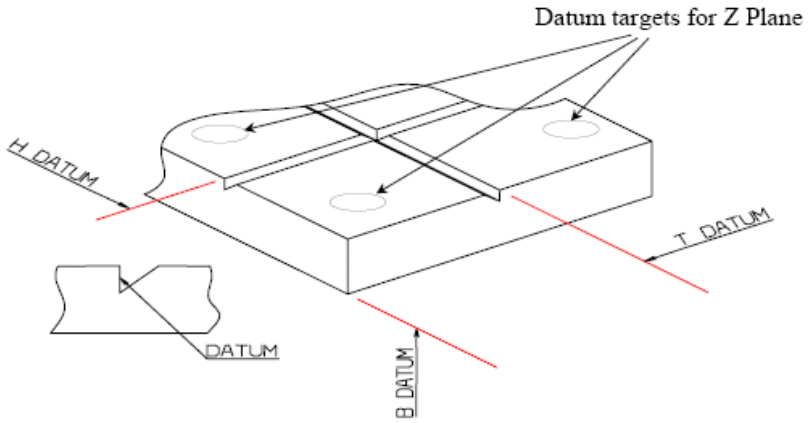


Figure 14

• Intersection corner shall be chamfered at 45 degrees (See Figure 15).

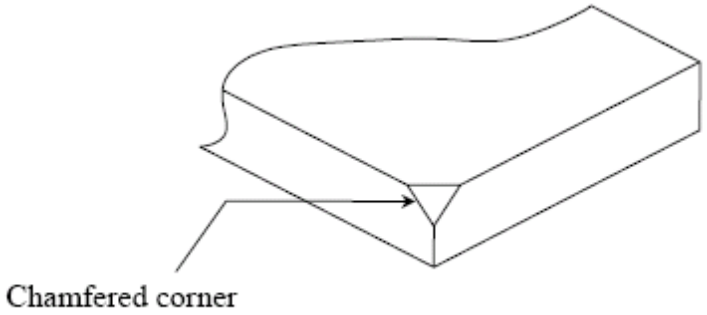


Figure 15

3.9 Part Location Datum and Nets

The part location datum and net requirements are listed below:

• All four-way and two-way location pins shall use RFS pin locators, unless otherwise specified.
(See Figure 16)

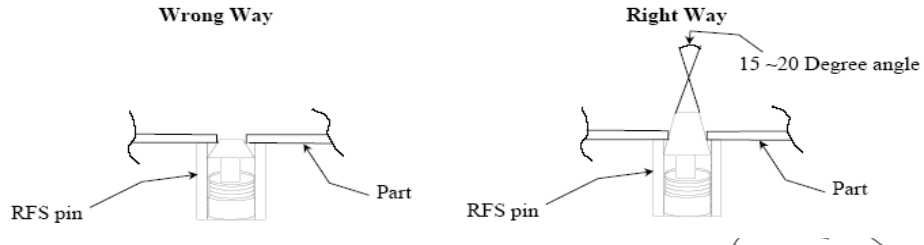


Figure 16

- All location pins shall have a hardness level that is approved by HFI.
- All datum net surfaces shall have a steel grade that is approved by HFI.
- All two-way locators shall have RFS locators on slide units, unless otherwise specified.

Feature	Shape	Location Tolerance
Part Datum's	Spring loaded	Location (±0.05) Pitch (±0.1)
Net Surfaces	Flat	Surface Tolerance (±0.05)
Surface Templates	Surface profile	Location (±0.1)
Stab Pins		Location (±0.1)
True-Position Blocks		Blocks Location (±0.1) (X,Y,Z) (T,B,H)
SPC Port		Check location (±0.08) (Position location ±0.2)
770 Block		Check location (±0.08) (Position location ±0.2)
Tru-Position Block 2 and 4 way locators		Pin Diameter (±0.1)

3.10 Clamping

The clamping requirements are listed below:

- Toggle clamping shall be 90 degrees to surface of material and attached to the datum unit.

(See Figure 17)

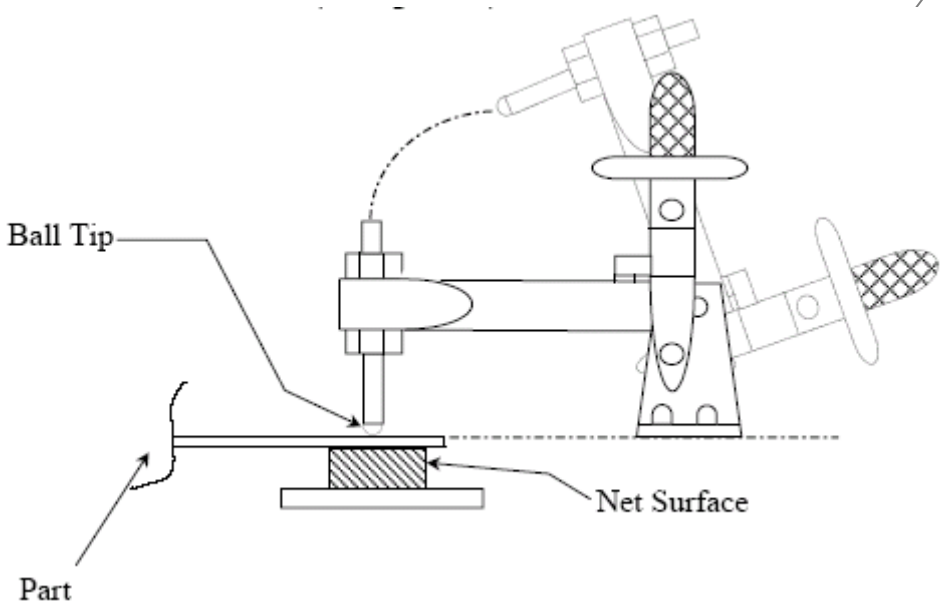


Figure 17

- All clamps shall be inside the edge of the base when in the open position. To minimize base size, if clamp does overhang the base in full open position provide a stop pin.
- The clamp contact point shall be centered to the net block.
- Stops shall be added when required to prevent pinch points.
- All clamps shall have ball spring plunger or steel swivel stops. No rubber stops unless otherwise specified.

3.11 Hinge Drops and Swings

The hinge drop and swing requirements are listed below:

- All hinged dropped templates shall use steel T pins with bushing, unless otherwise specified.

3.12 Slides

The slide requirements are listed below:

- The gauge Supplier shall determine slide type and style that will meet the requirements for detail, including:
  - Straight line accuracy
  - Load
  - Gauge life
  - Acting force
  - Axial play
- The gauge Supplier shall review slide rail specifications with HFI or the Supplier prior to final design completion.
- The gauge shall place slide unit as close to the detail as possible. (See Figure 18)

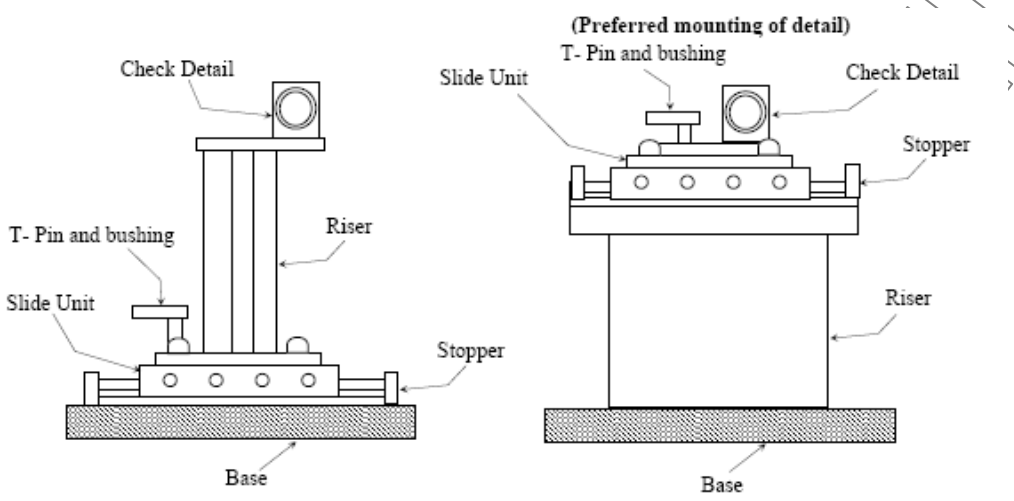


Figure 18

3.13 Certification

The certification requirements are listed below:

- The inspector will certify that the gauge has been built dimensionally correct within acceptable tolerances and design change levels.
- The Supplier shall have the following information available upon certification:
  - Supplier Inspection Fixture Approval form completed and signed
  - Inspection data
  - A road map showing the location of the inspection points
  - Identification numbers on the gauge correlating to certification data
- The certification inspection data and the road map will be included in the gauge history book and shipped with the gauge.
- All gauges shall have a tag with the required information mounted to the base plate (gauge supplier name, part number/name, design change level and certification date).

3.14 Gauge Repeatability (GR) Study

A GR study is an expedient method of demonstrating a measure of gauge repeatability. It shall be performed at the gauge construction source. In a GR study, one operator measures the same part ten (10) times. Calculations for repeatability are then performed and analyzed.

HFI and/or the Supplier shall provide the part/assembly to the gauge build Supplier to conduct the GR Study. The gauge build Supplier shall notify HFI and/or the Supplier prior to conduction the study.

3.14.1 Gauge Repeatability (GR) Requirements

The gauge repeatability requirements are listed below:

- All gauges shall be inspected and the data must be verified and certified prior to a GR study.
- The GR study shall be performed by the gauge Supplier and approved by HFI and/or the Supplier prior to shipment to the user plant.
- Inspection points used in the GR study are to be approved/supplied by HFI or the Supplier.
- Clamping sequence shall be determined and documented on the ODS.
- The Gauge Repeatability procedure is:
  - Load part according to the ODS. The Products shall rest on all net blocks. Adjust points of interference. Note and eliminate.
  - The clamping sequence is noted and followed according to the ODS. Optional clamp sequence requires experimentation and may differ depending on the application. The clamping sequence shall be the same for all ten measurements.
  - The measurement process is repeated ten (10) times.

3.14.2 Buy Off

Upon completion of the gauge, the following must be presented:

- Certification data
- GR study results
- ODS sheets

4 NEW MODEL DEVELOPMEMT PROCESS

4.1 Purpose

To confirm Supplier new model project development progress and status.

4.2 Scope

All Suppliers who have new model activity during the model change.

4.3 Requirement

All suppliers must develop an action plan to achieve the project goals and targets. Top Management must evaluate project and ensure team is meeting expected timelines.

4.3.1 High Risk Suppliers

HFI considers some suppliers High Risk. To ensure a smooth launch and to make sure that all requirements are met, high risk suppliers will be given more special attention. The following decision matrix summarizes the criteria for selecting a high risk supplier. Following this decision matrix is a chart showing the activities HFI will perform with a high risk supplier and what is expected from the supplier.

HIGH RISK	Type of Supplier
A-Rank part that may affect safety if it fails	New / Existing
Part impacts fit and/or function or has functional requirement	New / Existing
Supplier with a process that is new or unfamiliar to HFI	New / Existing
Top 5 Worst Supplier - In at least 1 quarter of the past year	Existing

SUPPLIER MANAGEMENT ACTIVITIES	HIGH Risk	ALL SUPPLIERS
Self-assessment Supplier Readiness Assessment Audit & onsite QAV2 (Minimum 1 onsite QAV, 1 GoTo Meeting)	√	
Quality Inspection Standard	√	
Supplier Data Submission After MP Start	√	
Onsite Supplier Support During MP Launch	√	
Supplier Event Data Submission		√
PPAP Submission & Approval		√
AAR Submission & Approval (As Needed)		√

4.3.2 Capability Self-assessment Requirements

General Requirements

All suppliers and sub-suppliers are required to complete a capability self-assessment as a control method to validate that the quoted product can be manufactured to meet 100% of product engineering drawing requirements and/or specified OEM standards

Retention of Records

All suppliers and sub-suppliers are require to retain completed record(s) of capability self-assessments not limited to product development; product

manufacturing, including development of automotive products with embedded software.

4.3.3 Quality Document Requirements

Control Plan
Draft needs to be issued to HFI New Model department by the first trial event involving mass production tooling. The final copy needs to be submitted with PPAP. HFI should be able to confirm by this time.

PFMEA
Draft needs to be issued to HFI New Model department by the first trial event involving mass production tooling. The final copy needs to be submitted with PPAP. HFI should be able to confirm by this time.

All past problems need to be listed and countermeasure prior to PFMEA development to ensure that corrective actions are implemented into the PFMEA/Control plans.

Inspection Fixtures
Major components will require inspection fixtures. Development of these fixtures is very important to the quality of the product, therefore a concept with a sign-off review for HFI must be supplied to HFI Engineering as well as the Purchasing department. These concepts must be at HFI no later than 90 days prior to the first on line trial event.

Quality/Inspection standards
Drafts of the forms must be issued and approved by HFI New Model Quality department prior to the first on line mass production trial event. This is to ensure that all critical dimensions and special characteristics per the drawing are being addressed during the development and planning of the production of the Products**.**

LNDD
A LNDD sheet must be completed and submitted to HFI Quality department 90 days prior to the first on line mass production trial event. This must show both the part details and the label details. Once reviewed the LNDD will be returned to Supplier either approved or needing more data. It is critical that this step be followed.

Master Sample Part
A minimum of two master samples must be submitted to each HFI plant that the supplier produces parts. The supplier must also retain a set of their own master samples for reference.

Minimum Process Requirements (MPR)
Supplier must assess their process to ensure that minimum process requirements meet HFI expectations. MPRs are to be assessed with each new model launch. At this time HFI needs the supplier to conform to MPRs for the following processes:

General Requirements
Welding (Projection, MIG & Resistance)
Injection Molding
Stamping
Painting
Labeling
Machining
Torque
Error Proofing

Please refer to the Appendix for descriptions of each type of MPR.

4.3.4 Part Validation & Material Testing

Part Measurement Capability & Capacity Requirements

All partner suppliers must have access to capacity and capability to be able to measure parts against all features of size called out per the drawing (2D and/or 3D); in the absence of a drawing or when HFI determines the drawing is not sufficient to validate parts effectively, HFI will provide an additional list of features of size and dimensions (including tolerances) to be measured along with roadmap. All partner suppliers must have access to appropriate measuring equipment that meets calibration requirements against the ISO/IEC 17025 standard or National Equivalent. If a checking fixture or holding fixture is required in order to properly validate parts and in the event that the mass production intended checking fixture(s) is NOT available, the supplier must have capability to (or be able to source at own expense) planning and implementation of design & build of a temporary self-build CMM capable checking fixture. In addition partner suppliers must have capacity to measure parts to the accepted methods from the start to the end of the program in order to cover for problem solving as part of root cause analysis when reported internally or by HFI; the requirement is that after parts are conditioned (when applicable), it must not take more than 24hrs to measure the parts when special equipment is required (such CMM machine); during at any time measurement cannot be completed within 24hrs, HFI must be contacted for alternative solution. Supplier must have means to source external services to complete the measurements when internal capacity is not sufficient to complete measurements by the due date given at the time of the request.

6 Piece Sample

A minimum of 6 pieces sample inspection report for each part number, for every event shipment prior PPAP must be provided to HFI. The quality Inspection report is to include variable data and attribute data pertaining to validation checks for all special and critical characteristics per drawing and/or known to affect fit/form/function and appearance. Dimensional data (variable data) must correspond and include all measurement points of feature of size that have been agreed; if unknown, supplier is to submit ballooned drawing and/or proposed road map along with the list of measurement points of feature size with called out dimensions including tolerances. Quality Inspection reports must be submitted **PRIOR** to the Products being shipped to HFI. These products are to be numbered to correspond with the Quality

/Inspection Reports. (EX. Data sheet #1 need to be for the Product labeled sample #1.)

Copy of Data
A copy of the data must accompany the Products when shipped. An electronic copy must also be forwarded to your quality contact at HFI. If a problem is detected and out of spec data is identified Supplier must attempt to make corrections.

Capability Study
If the issue cannot be corrected to meet spec then a Capability Study is to be performed and VE/VA sheets are to be submitted. This gives HFI advanced notice of Specification issues that might occur during the assembly.

MP Start Data
After MP starts data must be collected every month and available for review. HFI may request data on problem Products to be sent automatically for review until the production of the Product stabilizes. **It is a requirement to maintain monthly data.**

Critical Parts Data
For critical parts suppliers, 6 piece sample data must be collected and submitted to HFI during the first 90 days of mass production or the first 10 shipments of product, whichever comes first.

Gauge R&R
During MP if Supplier is going to use the inspection fixture for part confirmation, a complete GAUGE R & R Study will have to be completed for each fixture and approved by HFI.

Capability Study for Unstable Conditions
If unstable conditions are identified thru event data review, HFI reserves the right to request a Capability Study of any process pertaining to any finished product that is provided to HFI.

Material Testing
Event data also needs to have the material testing results attached. This is any testing requirements per OEM's requirements.): e.g. Material hardness, flammability; melt flow; thermal cycle, heat resistance; peel strength, travel distance; function ranges; etc.

4.3.5 Shipment of Event Products

Identification

All Products for each event are to be identified CLEARLY for which event Supplier is shipping. EX: QC EVENT. All containers need to be labeled with the tag on all 4 sides of the bin and visible from at least 3 feet away. HFI will provide label format. The label must be printed on yellow paper.

PSW
The signed PSW must accompany the packing slip.

Packing Slip
A packing slip must be included with each shipment. A copy of the packing slip must also be emailed to the New Model Buyer.

SCAR
Failure to follow these requests can result in HFI Supplier Corrective Action Request (SCAR) being issued.

4.3.6 Summary: Document requirements- ALL MUST BE APPROVED

Control plan
PFMEA
Inspection fixture concept
LNDD
Quality/Inspection standards
Event data (must be provided for every event until part is at MP)
PSW

5 CONTROLLED SHIPPING STATUS

HFI will initiate written documentation to notify a supplier of Controlled Shipping Status CS level I or CS level II. Requirements of CS level 1 and CS level II may vary at the discretion of HFI or HFI's customer. Failure to comply with CS I or CS II requirements will result in HFI hiring a 3rd party sort service and charging sort back to supplier.

5.1 Controlled Shipping – Level I (CS I)

CS I is initiated when failures or major discrepancies have been detected by HFI or by HFI's customer (i.e. recurring failures, safety concerns, functional issues, etc). CS I requires the supplier to implement extraordinary inspection of product to contain a specific failure.

The supplier is required to complete the below actions:

- Immediately establish a containment process at their location. Containment can be placed in line after final inspection or may be located off line in a separate area.
- Verify that the actions taken meet HFI's requirements/agreed upon standards. Inspections and methods must be approved by HFI.
- Ensure understanding of the nonconformance.
- Confirm receipt of HFI's request for CS I containment within 24 hours.
- Provide adequate trained resources to CS I inspection.
- Purge pipeline of suspect material.

- Commence the sort activities.
- Track and report clean point of nonconforming material.
- Identify certified parts/containers as agreed upon with HFI.
- Perform corrective actions and review for effectiveness.
- Report containment results and findings to HFI on a daily basis.
- Meet defined exit criteria.

HFI will notify the supplier in writing when they are released from CS I containment. A supplier will be released when HFI receives 3 consecutive defect free shipments.

5.2 Controlled Shipping – Level II (CS II)

CS II is initiated if the supplier has failed to contain non-conforming product in CS I status. CS II requires the supplier to provide an independent 3rd party to inspect product off line in a separate area away from the normal production process prior to release for shipment to HFI. Regardless of the introduction of CS II containment by a 3rd party inspection service, the supplier will be required to continue with CS I activities.
The supplier is required to complete the below actions in addition to the CS I actions:

- Contact a 3rd party inspection service for the inspection.
- Issue a PO to the 3rd party inspection service within 24 hours of receiving CS II notification from HFI. Forward a copy of the PO for the 3rd party inspection service to HFI.
- Confirm receipt of HFI's request for CS II containment within 24 hours.
- Verify that the actions taken by the 3rd party inspection service meet HFI's requirements/agreed upon standards. Inspections and methods must be approved by HFI.
- Commence the sort activities.
- Track and report clean point of nonconforming material.
- Identify certified parts/containers as agreed upon with HFI.
- Report 3rd party inspection service containment results and findings.
- Meet defined exit criteria.

HFI will notify the supplier in writing when they are released from CS II containment. A supplier will be released when HFI receives 3 consecutive defect free shipments.

6 SUPPLIER CORRECTIVE ACTION REQUEST (SCAR)

6.1 Purpose

Supplier Corrective Action Request forms (SCAR) are used to notify suppliers of product's problems attributed to the Supplier's process. These problems bring the product out of standard or render it unusable by HFI. The purpose of the SCAR is to notify Supplier and to provide information to enable Supplier to perform an analysis of the problem cause and to countermeasure the problem immediately.

6.2 Scope

This procedure applies to SCAR issued (Quality or Delivery) to Suppliers for A, B, C, & Z rank problems.

6.3 Requirement

Suppliers are expected to respond with containment actions within 24 hours of receiving a SCAR. Suppliers are expected to respond with corrective actions within 3 – 5 days of receiving SCAR depending on the Index points issued.

PART 1 (DEFINITION): HFI will complete PART 1 of the SCAR form and submit to Supplier.

PART 2 (RESPONSE): Supplier will complete PART 2 of the SCAR, and the 5 Principles for Problem Solving worksheet (5P), if applicable, and return it to HFI by the due date provided. **(**Sample format of the SCAR is included in Attachment 1.)

Additional indexing may occur as a result of no response or no attempt to countermeasure and communicate with HFI.

PART 3 (VERIFICATION): HFI will complete PART 3.
After implementation of the corrective action, HFI confirms the effectiveness of the corrective action by inspecting or testing counter measured Products. HFI may request objective evidence to ensure that countermeasure was fully implemented and that process is effective.

6.3.1 Delinquent SCAR Policy

Accompanying each SCAR will be a copy of HFI's Delinquent SCAR Policy. HFI's delinquent response policy states that any supplier not responding to a SCAR by the due date will have their accounts debited $500.00/calendar day for each day the response is late. Any amount refunded from the total debit is at the discretion of HFI's General Manager. HFI will also institute this policy for poorly written and incomplete SCAR responses in an effort to ensure acceptable countermeasures are implemented to eliminate problem recurrence.

If unacceptable performance continues/recurs the supplier may be subjected to the following but not limited to:

- 5P presentation to HFI facility management
- Performing a document and process review of own facility.
- On-site document and process review by HFI.
- Quality improvement plan presentation

If the corrective action is not effective, a new SCAR will be issued to Supplier. A Quality Assurance Visit (QAV) may be scheduled to confirm the countermeasure or work with Supplier for effective countermeasures.

6.4 Re-index Points

In the event that Supplier does not submit their corrective action by the due date indicated, the original SCAR index may be reapplied.

If the due date for the response cannot be met, Supplier must contact the HFI Quality Control Representative prior to the due date. **A new due date may be**

arranged provided Supplier is making a good faith effort to resolve the problem.

6.5 Cost of Quality (COQ) / Repair Work Order

When a SCAR is issued to a supplier there are certain costs associated with the defect that must be recovered by HFI. The file containing the SCAR form on the third tab (COQ), will be used by HFI to keep track of these costs.

Below are some of the costs related to quality and delivery issues that HFI will keep track of and charge back to the supplier:

- An automatic $150 administration fee for each SCAR issued intended to cover the costs of supervision and analysis of any instance(s) of non-conformity (Non-Negotiable)
- HFI sorting costs before 3rd party containment
- Travel expenses
- Sorting Materials
- Reimbursement of initial shipping and replacement expedite fees.
- Internal assembly line downtown, over time, and/or Changeover relating directly to poor quality or late delivery required to meet customer requirements.
- HFI associates time spent to rework product to be deemed acceptable for production.
- Reimbursement of all charges from end customer
- Lost sales due to quality or delivery
- Follow up actions and assessments, as appropriate
- Administrative, corporate, and management support fees
- All partial hours occurred in any of the above related activities will be charged as a full hour.
- Final costs will be delivered to the Supplier after successful closure of the SCAR by HFI. Once accepted the completed SCAR Cost of Quality form will be forwarded back to the Supplier encompassing all related fees.

6.6 Procedure

PROBLEM DEFINITION – COMPLETED BY HFI		
Item #	**Item Name**	**Details of Item**
1	SCAR #	Reference numbers issued by HFI
2	HFI Plant	Location at HFI that problem occurred (Alabama, Columbus, Obregon, Monclova)
3	Notification Only	HFI may issue a notification only SCAR if issue is very minor and does not have any detrimental impact to production
4	5P	A 5P may be required depending on the Total Index points issued. For total index points greater than or equal to 50 an automatic 5P is required. For all other instances a 5P may be required depending on the seriousness or extent of the problem
5	Supplier	Company providing N/G products or deliveries
6	Attention	The person who will receive the SCAR
7	Type of	This is where it is determined whether the issue is for a quality

	Issue	problem or a delivery problem
8	Severity	See Appendix for appropriate number
9	Nuisance	See Appendix for appropriate number
10	Total Index	Severity + Nuisance = Total Index
11	Rank	Based on Severity points. (Z = 0, C = 0, B = 0, A = 100)
PROBLEM DEFINITION – COMPLETED BY HFI		
Item #	**Item Name**	**Details of Item**
12	Part Name	The name of the part per drawing
13	Picture	Visual evidence of defect
14	Part Number	Part Number per drawing
15	Quantity	How many defective parts were found
16	Lot Number	Which lot defective part(s) was found
17	Issue Date	When defective part was discovered
18	Due Date	Date SCAR is due back to HFI
19	Originator	HFI associate responsible for issuing SCAR
20	Problem Description	List a detailed description of the problem

RESPONSE – COMPLETED BY SUPPLIER		
Item #	**Item Name**	**Details of Item**
21	Team Members	List Supplier associates involved in the problem solving process for this SCAR or 5P
22	Root Cause	Details of the ACTUAL cause of the problem (details on page 2 of SCAR). Must also identify why the problem was not detected before leaving supplier
23	Containment Actions	Actions Immediate response to occurrence to prevent and stop nonconformance to HFI. If possible include label details, initial shipment information, effective lot number, and dates. This will be the TEMP C/M for the issue.
24	Corrective Action	This is to list the permanent C/M to prevent re-occurrence. Must identify WHO will implement the C/M and WHEN.
25	Feed Forward	Other areas that the C/M was applied to including similar models, similar product lines or sister plants

RESOLUTION – COMPLETED BY HFI		
Item #	**Item Name**	**Details of Item**
26	Verification / Resolution	Details of actual situation during verification whether written or on site at suppliers. Identify WHO verified the C/M and WHEN. Answer if C/M was effective. Is the issue now closed? Has the management reviewed the C/M.
27	Verifier	HFI associate who completed resolution section
28	Authorization	HFI manager (or Designee) who approved the resolution

ROOT CAUSE ANALYSIS TOOLS – COMPLETED BY SUPPLIER		
Supplier to choose method for root cause analysis. The 2 most important questions to be answered are: 1. Why was it made and 2. Why was defective part not detected.		
Item #	**Item Name**	**Details of Item**
29	Prepared / Checked / Approved	Persons (supplier) who prepared, checked and approved the document must sign the form.
30	5 WHYS	A question-asking method used to explore the cause/effect relationships underlying a particular problem. The following example demonstrates the basic process: My car will not start. (the problem) 1.Why? – The battery is dead. (first why) 2.Why? – The alternator is not functioning. (second why) 3.Why? – The alternator belt has broken. (third why) 4.Why? – The alternator belt was well beyond its useful service life and has never been replaced. (fourth why) 5.Why? – I have not been maintaining my car according to the recommended service schedule. (fifth why, root cause)
31	CAUSE & EFFECT DIAGRAM – FISHBONE	Diagrams that show the causes of a certain event. Causes in a typical diagram are normally arranged into categories, the main ones of which are: The 6 M's; Machine, Method, Materials, Maintenance, Man and Mother Nature (Environment) (recommended for manufacturing industry).
32	MIND MAPPING	A diagram used to represent words, ideas, tasks, or other items linked to and arranged radially around a central key word or idea. Mind maps are used to generate, visualize, structure, and classify ideas, and as an aid in study, organization, problem solving, de

HFI

Supplier Corrective Action Request

PART 1 - DEFINITION

SCAR # (1)		HFI PLANT (2)		NOTIFICATION ONLY (No response required) ☐ (3)	5P REQUI
SUPPLIER: *(Proveedor)* (5)		TYPE OF ISSUE	SEVERITY (0, 3, 10, 100)	NUISANCE (0, 5, 15, 25, 50)	TOTAL INDEX
ATTENTION: (Atención) (6)		(7)	(8)	(9)	(10)
PART NAME: *(Nombre de pieza)* (12)		Picture (13)			
PART NUMBER: *(Número de parte)* (14)					
QUANTITY: *(Cantidad)* (15)					
LOT NUMBER: *(Número de lote)* (16)					
ISSUE DATE: (Fecha de inicio) (17)					
DUE DATE: (Fecha vencimiento) (18)					
ORIGINATOR: (Originador) (19)					

PROBLEM DESCRIPTION (20)
DESCRIPCION DEL PROBLEMA

WHAT: is the problem? Describe the problem.		
WHY: is this a problem?		
WHEN: was problem first found (date, time)?	**WHERE:** was the problem first discovered?	**WHO:** discovered the problem?

SUPPLIER TEAM MEMBERS: (21)
MIEMBROS DEL EQUIPO:

PART 2 - RESPONSE

ROOT CAUSE: Supplier must use problem solving tools on page 2 (22)
CAUSA RAIZ: *Supplier DEBE usar las herramientas de solución de problemas descritas en la Pagina 2*

HOW / WHY: made? **Por que se hizo ?**	
WHY: shipped? **Porque se embarco?**	

CONTAINMENT ACTIONS (What will be the immediate fix? Provide short term action to HFI within 24 hours.)
ACCIONES CONTENEDORAS *(Que se arreglará inmediatamente ? Proveer a HFI acciones a corto plazo dentro de 24 hrs.)*

(23)

CORRECTIVE ACTION (Permanent Countermeasure. Include c/m to WHY made and Why shipped) — Wh
Medidas Correctivas *(Contramedida Permanente. Incluya c / m para Por qué hizo y enviados y Por qué embarco)*

1	(24)	
2		
3		
4		
5		

FEED FORWARD (What other areas can Corrective Actions be applied…i.e. other assembly line or model?)
Alimentar Adelante *(¿Qué otras zonas de Acciones Correctivas puede ser aplicado...otra línea de producción o modelo)*

(25)

PART 3 - RESOLUTION

VERIFICATION / RESOLUTION (FOR HFI USE ONLY) — Wh
VERIFICACIÓN / RESOLUCIÓN

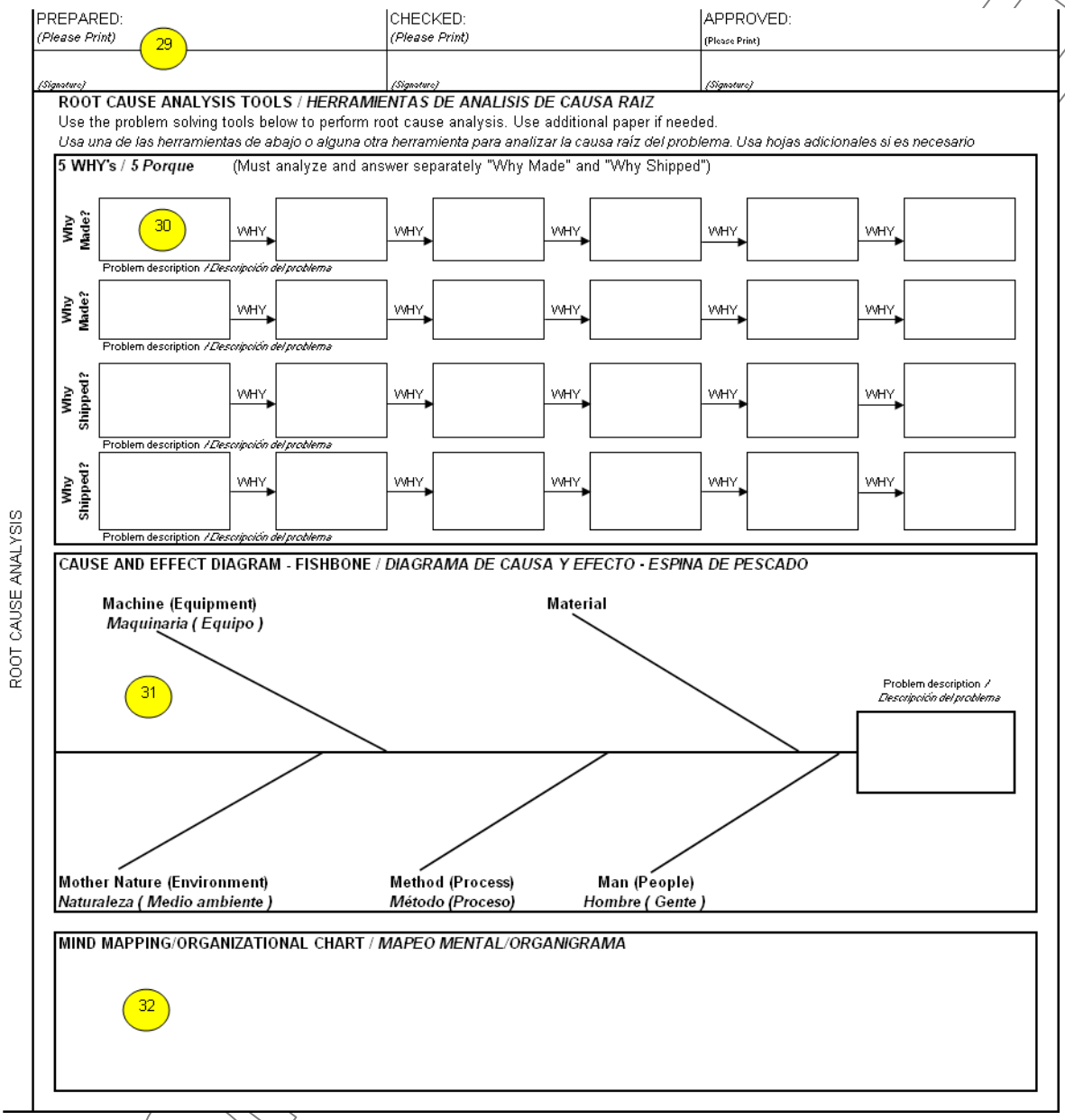
DESCRIBE ACTUAL FINDING DURING VERIFICATION OF COUNTERMEASURE IMPLEMENTED:
Describir la búsqueda durante la verificación de las contramedidas aplicadas:

(26)

		YES
	C/M EFFECTIVE	
	CLOSED	
	MGMT. REVIEW	

VERIFIER (27) AUTHORIZATION (28)

cision making, and writing.



NON-CONFORMANCE INDEX RATING (QUALITY ISSUES)

Severity Rank	Index Points	Definition
A	100	Defects which could affect safety, pollution or compliance to a government regulation. Potential for a sudden loss of function.
B	10	Non-safety defects which could impair the performance of product
C	3	Appearance items and non-functional dimensions
Z	0	Non conformances which do not affect production. Pre-notification of a problem. Supplier gives advance notice to HFI of potential problem and comes to HFI to sort before any NG products are used on line.

Nuisance	
Points	**Definition**
100	Production line shut down at HFI or HFI's customer OR if S-CPR is issued due to a Customer complaint
75	Repeat occurrence of same non-conformance after countermeasure was put in place
35	Sorting by HFI necessary to maintain production
25	Sorting by Supplier necessary to maintain production
0	No effect to HFI or customer

NON-CONFORMANCE INDEX RATING (DELIVERY ISSUES)

Rank	Index	Definition
A	100	"HFI or HFI's customer production effected by either of the below items. **And, requires expedited shipment**: 1. Missing shipment or 2. Short shipment or 3. Wrong label 4. Missing label 5. Wrong part number
B	10	HFI production effected by either of the below items. **And, no expedited shipment required.** 1. Missing shipment or 2. Short shipment or 3. Wrong label 4. Missing label 5. Wrong part number
C	3	**HFI production not effected by neither of the below items.** 1. Missing shipment or 2. Short shipment or 3. Wrong label 4. Missing label 5. Wrong part number
Z	0	**Prior notice of delivery problem. Must not effect customer production.** 1. Missing shipment or 2. Short shipment or 3. Wrong label 4. Missing label 5. Wrong part number

Note: Nuisance points will not be calculated for Delivery issues.

Severity Points + Nuisance Points = Index Points

6.7 Corrective Action Response Standard

This is a general standard for response timing. However, depending on the impact to the customer, it may be at HFI's Quality Department's discretion to reduce the timing.

Index Points	Response Method	Timing
50 +	5P	3 Days
6 – 49	SCAR (or 5P)	5 Days
1- 5	SCAR (or 5P)	5 Days
0	As Directed	As Directed

*An extension may be approved (per plant side) if Supplier is making good faith effort to resolve the issue. This will not incur charges for COQ if approved. However non approved delays will accrue additional charges due to HFI continuing to track activity for resolution.

7 SUPPLIER PERFORMANCE REPORT (SPR)

Supplier performance evaluation is made based upon the Quality performance and the Delivery performance results of the specified supplier. A Supplier performance report (SPR) is issued each month by each HFI plant that Supplier supplies. Note, only certain suppliers determined by HFI will receive a monthly SPR. However, all Suppliers will be expected to maintain a high level of quality and delivery. HFI will continue to issue SCARs to all suppliers for quality and delivery issues.

7.1 PPM

Production material suppliers are expected to deliver defect-free product to HFI. HFI will calculate a suppliers monthly PPM in the following manner:
PPM = (total defects / production usage) X 1,000,000.

- The product received into our facilities (including product returned from our customer) that does not conform to the print, specifications, and agreed standards will be counted against a supplier's PPM. If the supplier identifies, communicates, and takes appropriate containment action for a potential problem before the problem is identified at HFI then product will not be counted against PPM.
- Product that must be reworked to be usable in our process is counted against PPM.

Product which does not meet spec or doesn't function properly and cannot be used in our process is counted against PPM.

7.4 Top Focus Suppliers

Each month HFI's Corporate SQA Engineer reviews supplier's PPM's & Total Quality Index Points and establishes a report that includes worst performing suppliers. Other performance indicators that may be reviewed at any time will include (not limited to): responsiveness, IRs/RMA returns, customer notifications due to supplier quality issues, and repeat issues, which may not necessarily be

reported via SPR's. Based on the impact that the supplied parts have to HFI's process and to the quality of finished good products, HFI will required worst performing suppliers to submit a Quality Improvement Plan (QIP), to be presented in person at corporate office. Details of QIP expectations and contact information will be included in the QIP request letter notification.

8 CALIBRATION SERVICES

8.1 Approval of Calibration Service Providers

Calibration service providers must be approved by the Facilities Manager or management designee prior to providing service. Calibration service provider is required to complete and submit HFI's Supplier Quality System Survey, supporting documentation as requested on survey, and signed acknowledgement of HFI's Supplier Quality Manual.

Calibration service providers must be accredited to ISO/IEC 17025 or a national equivalent.

8.2 Calibration Service Provider Performance

Calibration service providers will be evaluated annually on cost, service and timeliness of calibration. Within these categories, ratings of "above average", "average", and "below average" are possible. Calibration service providers are expected to maintain an "average" or "above average" rating in the three categories. When a calibration service provider ranks "below average" on service and/or timeliness of calibration, a Supplier Corrective Action Request (SCAR) will be initiated.

9 LOGISTICS

9.1 Packaging Specifications

Packaging is to be designed by the supplier to ensure that product integrity is protected from damage or contamination during transportation to the HFI manufacturing facility. Packaging design considerations need to include international shipment (i.e. Mexico) and maximum transportation efficiency.

Packaging that is manually handled shall not exceed 30 lbs. (13.6 kg). There are to be no mixed parts in packaging or pallets unless otherwise specified and approved by HFI.

HFI's standard pallet sizes are 32 x 48 (inches) or 48 x 48 (inches) ; the stacked pallet maximum height must not exceed 50" (including the pallet). If a deviation from these sizes is needed, it must be declared in the packaging sketch.

If packaging is expendable, corrugated materials shall be uncoated whenever feasible. Unnecessary inserts and packaging should be avoided.

If packaging is returnable it must be clean and damage free at all times. Any returnable packaging that presents an unsafe condition or may cause quality issues must be removed for repair or replacement. The supplier is responsible for ensuring that all old labels are removed from returnable packaging.

9.2 Packaging Approval

The supplier must complete and submit HFI's Packaging Sketch Form to HFI corporate purchasing with the quotation. A packaging trial shipment may be requested by HFI's Materials Manager to validate concept. Packaging must be approved by HFI corporate purchasing, Program Manager, location materials manager, location engineering, location quality, and location manufacturing prior to mass production. After HFI has approved packaging, HFI will not permit unauthorized packaging or changes without written approval.

9.3 Documentation

These specifications section of the manual includes the documentation associated with shipments and invoices to improve supplier and customer productivity by allowing effective and efficient capture of data for production counts, warehouse input/output, cycle checking, shipping generation, forwarding, freight transfer control, receiving and other inventory controls.

IT IS THE RESPONSIBILITY OF THE SUPPLIER TO PROVIDE DOCUMENTATION THAT MEET THESE SPECIFICATIONS.

Labels must follow the European or American standard (ODETTE/VDA/AIAG) in terms of format and required fields. All the information must be clearly legible in both human readable and barcoded form when applicable. Supplier must guarantee the readability of the bar-codes.

Identification shall permit traceability back to the specific supplier raw material lot numbers, as well as the manufacturing, inspection and test records. The supplier should also be able to trace where products made under similar conditions (same raw material lot, same manufacturing line/batch, etc.) were shipped. Safety related identification criteria shall conform to all government regulatory requirements.

9.3.1 Prototype/Engineering Trials Labeling

All prototype or engineering trial parts are to be identified with the below label. See HFI supplier website for details on how to complete. Each part must be in a separate container and there should be no mixing of multiple parts in one container unless otherwise agreed upon by HFI.

TRIAL EVENT MATERIAL

Trial Event Name:

_____

Supplier info

SUPPLIER NAME: **ADDRESS:**

CONTACT: **PHONE:**

P.O. # :

PART NUMBER	PART NAME	DESIGN CHANGE LEVEL	QUANTITY

**UPON RECEIVING MATERIAL NOTIFY TRIAL ENGINEERING MANAGER **

** USE YELLOW PAPER **

9.3.2 Production Labels

- The size of the standard label shall be 4.0 in. (102 mm) high by 6.5 in. (165 mm) wide.
- The label paper shall be white in color with black printing.
- All label information shall be displayed in both human readable characters and bar code symbols unless otherwise noted.
- HFI requires suppliers to provide a standard AIAG barcode label with each product identified.
- Packaging label must be included in the PPAP submission.
- Suppliers will be required to ship all material / boxes with labels facing outward on the pallet.
- There should be no boxes on the pallet which do not have outward label visibility to HFI receiving personnel.
- Suppliers must use bar code 128. Please refer to AIAG's "Trading Partner Labels Implementation Guidelines B10" for more information. www.aiag.org
- Two labels should be affixed to opposite sides of the container. Strapping and taping shall not obstruct the label. If the specified label cannot be affixed to the package/container because of container size or design, special arrangements will be required by customer and supplier.
- Label protection against moisture, weathering, abrasion, etc., may be required in harsh environments and is encouraged wherever practical. Laminates, sprays, window envelopes, and clear plastic pouches are examples of possible protection methods.

9.3.2.1 Box Labels

Box labels must contain the following information. The Data Identifiers should not be included in the human readable portion. See Figure X for an example. The vendor may use any available space on the label once HFI requirements are met.

Area Title	Field	Barcoded	Data Identifier	Notes
Part	HFI Part Number	Yes	P	
Description	Description	No	NA	

Quantity	Quantity	Yes	Q	Box Quantity
UOM	Unit of Measure	No	NA	
Supplier	Supplier	Yes	V	
PO	Purchase Order-Release	Yes	K	A hyphen (ASCII 45 or Hex 2D) between the Purchase Order and Release number. The Release number must be 2 characters with a leading zero (0) if needed.
Serial	Serial Number	Yes	S	Up to 12 characters that is not repeated in a calendar year.
CoO	Country of Origin	No	NA	
Mfg. Date	Manufacturing Date	No	NA	

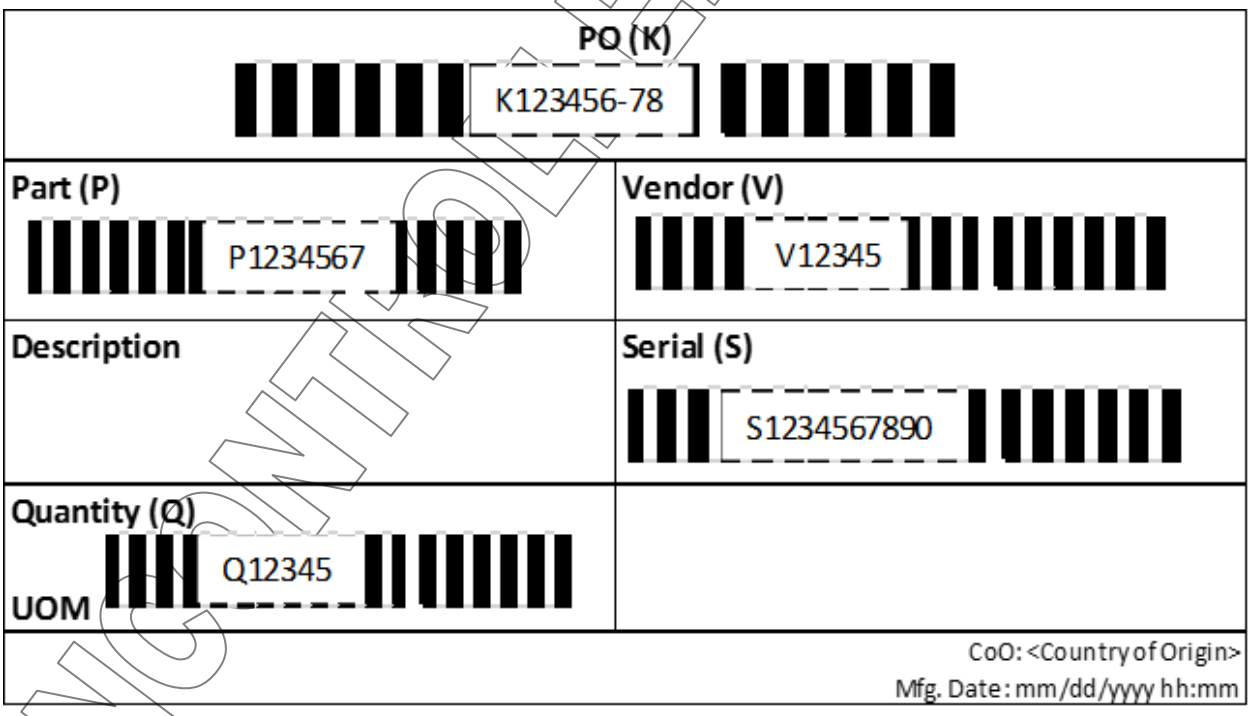


Figure 1: HFI Box Label Example

9.3.2.2 Master Labels

There must be a Master Label for each unique item on a pallet or in a tote and must contain the information shown in the table. If there are multiple Purchase Order/Releases or mixed parts, the Master Label must indicate a Mixed Load. The Data Identifiers should not be included in the human readable portion. See Figure Y & Z for examples. The vendor may use any available space on the label once HFI requirements are met.

Area Title	Field	Barcoded	Data Identifier	Notes
Type	Type	No	NA	Master or Mixed Load
Part	HFI Part Number	Yes	P	
Description	Description	No	NA	
Quantity	Quantity	Yes	Q	Total Pallet Quantity of the HFI Part
UOM	Unit of Measure	No	NA	
Supplier	Supplier	Yes	V	
PO	Purchase Order-Release	Yes	K	A hyphen (ASCII 45 or Hex 2D) between the Purchase Order and Release number. The Release number must be 2 characters with a leading zero (0) if needed.
Serial	Serial Number	Yes	S	Up to 12 characters that is not repeated in a calendar year.

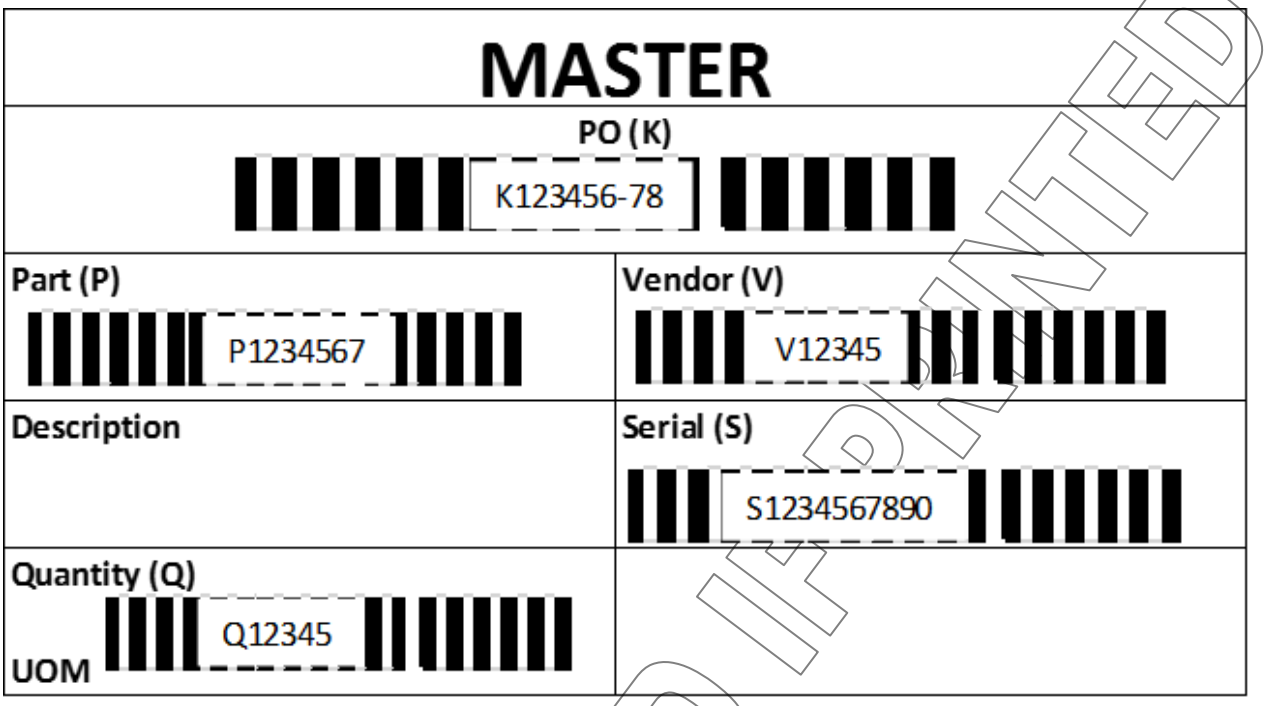


Figure 2: HFI Master Label Example

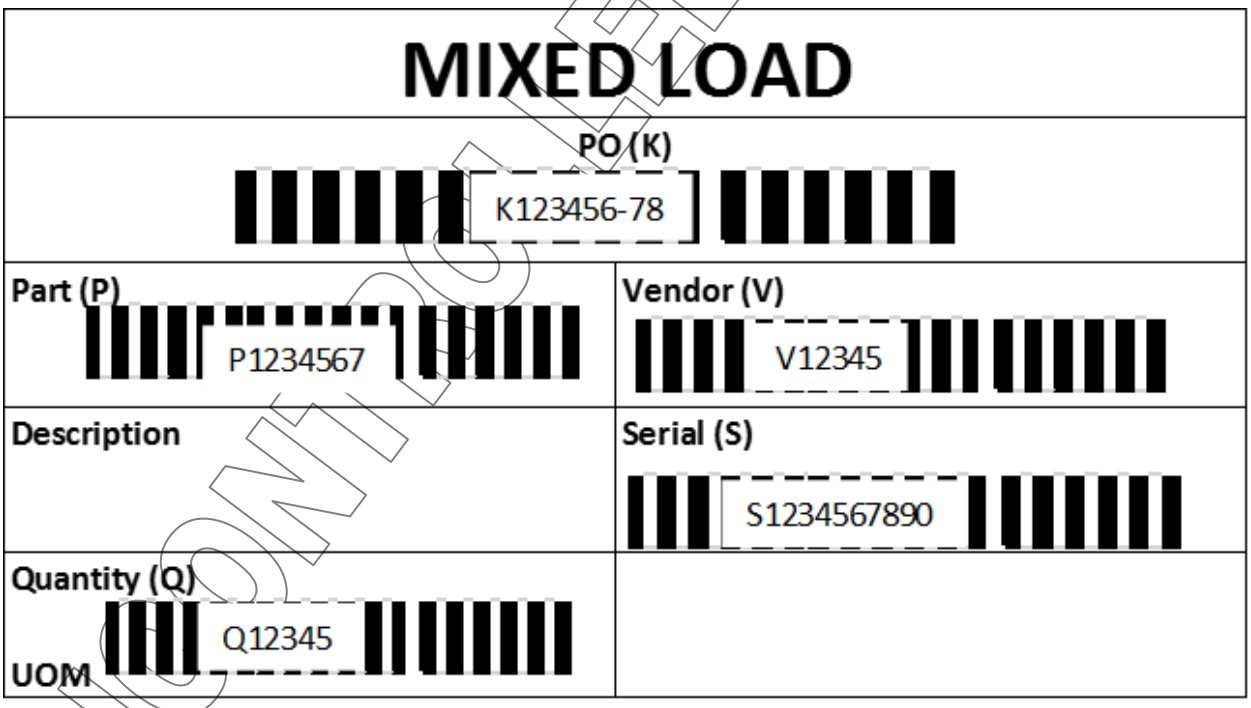


Figure 3: HFI Mixed Load Example

9.3.3 Shipment Documentation

- All shipments must come with a Packing List that contains the Purchase Order and Release for each line item.
- All shipments must come with a complete Bill of Lading.

9.3.4 Invoice Documentation

- Invoices must contain the Purchase Order and Release with each line item.
- Separate lines are required if an item is fulfilling multiple Purchase Order/Releases.

9.4 HFI Paid Carriers

HFI paid carrier suppliers must be approved by the Corporate Logistics Coordinator, Shipping/Receiving Supervisors, or management designee prior to providing service. HFI paid carrier is required to complete and submit HFI's Supplier Quality System Survey, supporting documentation as requested on survey, and signed acknowledgement of HFI's Supplier Quality Manual.

Production material suppliers shipping to HFI via HFI hired carriers will be required to ship in compliance on the ship day(s) and window time(s) as agreed upon with HFI's Corporate Logistics Coordinator. Failure to do so will result in either the production material supplier paying detention time or the supplier setting up and paying for the shipment to HFI in order to be considered on time. Freight which is signed for as in good condition upon pick up at HFI's supplier and damaged in transit will result in a freight claim against the carrier.

Production material suppliers shipping via LTL carriers at HFI cost will be responsible for documenting the correct freight classes and weights on the bill of lading. Any discrepancies which result in extra costs to HFI by the carrier will be debited back to the raw material supplier.

Transportation service providers (carriers) are expected to deliver 100% on-time with zero carrier claims for damaged product issues. HFI will evaluate transportation service providers on quality and delivery performance quarterly, and will send copy of the evaluation report to the provider. When a transportation service provider rating is other than zero, a Supplier Corrective Action Request (SCAR) will be initiated.

9.5 Supplier Paid Carriers

Suppliers shipping to HFI via a truck paid for by the supplier will be required to deliver product to HFI on required delivery date. Dropped trailers need to be agreed upon between the supplier and HFI.

Suppliers delivering goods on company owned transportation will be responsible for any freight damage found upon receiving inspection at HFI.

9.6 Documentation

Suppliers are responsible for forwarding Certificates of Origin to HFI corporate purchasing for all NAFTA originating materials covering the required blanket period. Certificates are to include HFI part numbers.

Suppliers are required to send Advanced Shipment Notices (ASN's) to HFI within an hour of the shipment departing the suppliers dock via email. ASN's are to be sent to the material planner at the receiving facility.

All production materials shipped to HFI must have the appropriate HFI Purchase Order number on the packing slip. All invoices must include the HFI PO number associated with it.

Suppliers are responsible to participate in the Customs Trade Partnership Against Terrorism (CTPAT).

9.7 Expedited Shipping Expectations

Suppliers are responsible for costs to expedite production materials when parts are not ready for normal shipment, or when quality issues occur that prevent the supplier from shipping on-time. If HFI has to expedite product to one of its affiliated locations or to a customer due to a supplier failure, the supplier is responsible for HFI's cost to expedite.

9.8 Delivery

Material ordered by HFI must be delivered on the day that it is due. **HFI will not accept early shipments.** All early shipments will be declined from entering HFI premises.

Early and/or late shipments may result in a SCAR being issued to the supplier requiring a corrective action response to be generated.

10 SAFETY

In an effort to provide a safe working environment for our associates and suppliers, HFI has the following requests and requirements for suppliers. They are as follows:

- Suppliers shipping chemicals, production, cleaning, and maintenance chemicals to an HFI facility in the United States are required to submit a Material Safety Data Sheet (MSDS) in English with the first shipment, including trials. A request for a production material MSDS will appear as a line item on the purchase order. A request for maintenance chemicals and cleaning supplies MSDS will appear as a line item on the requisition. HFI's Safety Coordinator is responsible for ensuring that MSDS is on file.

- Suppliers shipping adhesives or industrial solvents to an HFI facility in Mexico are required to submit MSDS in Spanish with every shipment. HFI Mexico's Safety Coordinator is responsible for ensuring MSDS is on file.

- Any supplier requested to supply sort support, must ensure they are formally signed into the facility. Suppliers with associates in an HFI facility must ensure safety glasses and any other equipment (such as knives, tools, etc.) meet OSHA standards. Failure to comply with these requirements will limit the visitors to the lobby only.

- Any cleaning or rework chemicals/agents that a supplier brings to an HFI facility will require a copy of the MSDS for HFI to keep on file.

11 APPENDIX A (DEFINITIONS)

IPP: Initial Production Parts; a method used to notify and identify new or changed material or parts.

On-time Delivery: +/- zero days from promise date.

Receiving Discrepancies: Labeling errors, no HFI part number on label, quantity errors, packing slip errors, etc.

VA/VE: Use Value Analysis to analyze and understand the detail of specific situations. Use it to find a focus on key areas for innovation. Use it in reverse (called Value Engineering) to identify specific solutions to detail problems. It is particularly suited to physical and mechanical problems, but can also be used in other areas. Value Analysis (and its design partner, Value Engineering) is used to increase the value of products or services to all concerned by considering the function of individual items and the benefit of this function and balancing this against the costs incurred in delivering it. The task then becomes to increase the value or decrease the cost.

12 APPENDIX C (PROCESS FLOW CHART & CONTROL PLAN)

12.1 Purpose

The Process Flow Chart and Control Plan or equivalent outline the overall control plan for producing the specified Products. It is intended to affirm the precept that consistent quality comes from a consistent (i.e. controlled) process.

12.2 Scope

Each final assembly Products supplied to HFI requires a Process Flow Chart and Control Plan. A Process Flow and Control plan may be required for component parts as well.

If two or more part numbers have identical processes:
One Process Flow Chart / Control Plan may cover all part numbers. List each applicable part number (e.g. left side and right side Products)

If two or more part numbers have substantially similar processes and component Products:
One Process Flow Chart / Control Plan may cover all part numbers. List each applicable part number indicating differences within the appropriate section(s) of the Process Flow Chart / Control Plan.

12.3 Requirement

Supplier must create and maintain a Process Flow Chart / Control Plan as described in this procedure for each Product supplied to HFI. This document shall be submitted to HFI for review. HFI shall be permitted to keep a copy of each Process Flow Chart / Control Table for reference.

12.4 Procedure

12.4.1 Contents & Format

1. Use the AIAG Blue Books or go to AIAG.org for format and how to complete the Process Flow chart(s) & Control Plan(s).

2. This document should be laid out in order of occurrence (i.e. receiving inspection, process checks, testing). Every quality control aspect of Supplier processes should be included in this table including, but not limited to, the following:

2.1 Where the quality of the Product is checked.
2.2 What the check is.
2.3 Who performs the check.
2.4 How the check is performed.
2.5 How frequently the check is done.
2.6 Where the check is recorded.
2.7 How the results are communicated.

3. NOTE: When the Quality Standards or Supplier processes change, the Process Flow Chart & Control Plan may also require changes. This is a quality plan to ensure that Products remain in standard to the current revision number.

12.4.2 Approval

1. Before any Process Flow Chart / Control Plan is submitted to HFI for review, it must be approved per the Supplier's internal approval procedure. It is expected that this approval be the Quality Manager or equivalent. This applies to both new and revised documents. Draft or preliminary documents may be requested by or submitted to HFI for comment or discussion purposes.

12.4.3 Revisions

1. Supplier is responsible to maintain Process Flow Chart and Control Plan as an accurate description of the current process. When a change occurs in the process flow, component or material source, quality characteristic control, or manufacturing condition control, notification of a revised

Process Flow Chart and Control Plan must be communicated to HFI as per the IPPAAR/IPP procedure. HFI may, at any time, request a copy of the most recent revision for review.

13 APPENDIX D (PROCESS FAILURE MODE & EFFECTIVE ANALYSIS)

13.1 Purpose

The Process Failure Mode and Effect Analysis (PFMEA) systematically examines the production process for a Product, determines potential problems that could arise from the process and establishes priorities for instituting preventative actions to avoid or detect these problems. It is intended to affirm the precept that quality is a direct result of the production process and cannot be effectively achieved by inspection.

The PFMEA is an analysis tool started in the initial stage of process development to prevent potential failures from occurring in mass production.

13.2 Requirement

Supplier must submit for review and maintain a PFMEA for each Product as required in this procedure. HFI shall be permitted to keep a copy of each PFMEA for reference.

Characteristics that may cause a Product to require a PFMEA include
• ALL “A” rank Products
• Potential problem Products as determined by project leader
• High Warranty occurrences and recall Products as determined by project leader.
• Products related to safety or regulatory issues.
• Critical design/change point items require process control to prevent non conformance to the drawing or specification.

13.3 Scope

Each final assembly Products supplied to HFI requires a PFMEA.
Component of PFMEA’s may also be required.

If two or more part numbers have identical processes:
One PFMEA may cover all part numbers. List each applicable part number on the PFMEA. (E.g. left side and right side Products).

13.4 Procedure

13.4.1 Contents and Format

Use the AIAG Blue Books or go to AIAG.org for format and how to complete PFMEA.

13.4.2 Benefits of a PFMEA

Evaluate the severity of a potential process failure that reaches the customer.

Assign priorities for implementing countermeasures and corrective actions.

After completing a PFMEA, this data should be used for modifying the production process, equipment design, and manufacturing method for controlling important characteristics. These should be incorporated into the Control Plan.

PFMEA can be used to analyze counter measured warranty Claims

13.4.3 Key Points of Creating a PFMEA

The most important point is identifying past problems and getting knowledge of field complaints and quality problems.

In order to avoid missing key characteristics, the following five items should be used systematically.

1. Failure Mode
2. Cause of Failure
3. Effect of Failure
4. Failure Evaluation
5. Action

When making a PFMEA chart, the investigator should list all steps in each process; and then identify all potential failure modes for each step in each process.

When developing a PFMEA, representatives from all related departments should be included (ex. Production, Quality, Design and Engineering). With all departments working together, weak points can be picked out of the process or design and corrected.

13.5 Approval

Before any PFMEA is submitted to HFI for review, it must be approved per the Supplier's internal approval procedure. It is expected that this approval be the Quality Manager or equivalent. This applies to both new and revised documents. Draft or preliminary documents may be requested by or submitted to HFI for comments or discussion purposes.

13.6 Revisions

Supplier is responsible to maintain the PFMEA as an accurate description of the current process. When a change occurs that renders all or part of a PFMEA obsolete, the document must be revised. Notification of a revised PFMEA must

be communicated to HFI. HFI may, at any time, request a copy of the most recent revision for review.

14 APPENDIX E (QUALITY STANDARD / INSPECTION DATA SHEET)

14.1 Purpose

The Quality Standard/ Inspection Standard Data Sheet is used to clarify unclear conditions and call out other critical characteristics not included on the drawing including but not limited to: test or checking frequencies, unspecified tolerances or conflicting tolerances, and critical mating surfaces.

14.2 Scope

A Quality/Inspection Standard applies to Products supplied to HFI.

14.3 Requirement

Anytime a drawing changes or an unclear characteristic has been identified between HFI and the Supplier, a Quality/Inspection Standard must be submitted by Supplier and approved by HFI.
This will include but not limited to; color control, gloss control, weld penetration (min 10% required), burrs, weld "effective length" not overall weld length, and any other item that could potentially affect the integrity of the part.

It is preferred that Supplier use the Quality/Inspection Standard format included; however, a substitute format may be submitted provided the data content is consistent as described in this procedure (ref. section 4.2).

HFI shall be permitted to keep a copy of each Quality/Inspection Standards for reference. Supplier will control Quality/Inspection Standards in the same manner as a drawing. The contents of a Quality/Inspection Standards are binding on Supplier and Products received by HFI that do not conform to such specifications may be rejected.

The Quality/Inspection Standards can be completed in two ways. The method, submittal and approval dates will be decided on a case by case basis between the HFI Quality Control representative and Supplier.

Supplier will generate and submit to HFI's Quality Control Department for review and approval (typically for those Suppliers that have past experience with developing).

HFI will generate, approve, and issue to Supplier (typically for new Suppliers that do not have experience with developing).

14.4 Procedure

Procedure for Completing a Quality Standard		
Item #	**Item Name**	**Details of Item**
1	Supplier	The name of the company supplying the Product.
2	Part Name	The part name from the applicable drawing.
3	Part Number	The part number from the applicable drawing.
4	Quality / Inspection Standards Supplier Approval	Supplier's signatures; include department/position.
5	Quality Inspection Standards HFI Approval	HFI signatures including department/position.
6	Date Issue / Approval	When the form is being used to report data, the issuer, Supplier and HFI will sign.
7	Revision Box	Revision number, date, reason for issue, design change level (from drawing) and who initiated the issue.
8	Data Purpose	When the form is being used to report data, indicate the reason for the inspection by checking the appropriate box.
9	Report	Legend of reporting frequency to be used when completing Items 22 and 25 on page 2 of the form.
10	Results of Inspection	The number of points taken during inspection that fell into the different categories. The percentage is calculated by dividing the number of points that fell into each category divided by the total number of points measured.
11	Judgment	Check the corresponding box if the Product passed or failed the inspection. If all data is within tolerances, the Product passes and may be shipped to HFI. If Product failed the inspection, they are substandard and cannot be shipped to HFI without written request and approval of temporary acceptance.
12	Handwork	Indicate if the Products received handwork/repair prior to shipment to HFI.
13	Legend	Legend, if needed, for illustration.
14	Supplier, Part Name, Part Number, Rev Level	Repeat information from page 1 of the form.
15	No.	Sequential item number. If the inspection item is dimensional, include X, Y, or Z direction.
16	Inspection Item	Characteristic of the part to be controlled by Supplier.
17	Rank	**A**=Safety; problems which could affect safety, or a Noncompliance to government regulations (I.e. restraint devices) **G**=Problems that could affect compliance of government regulations. **B**=Function; functional problems which could impair the

		performance of Products (I.e. recline function or slide function) **C**=Appearance; appearance problem and non-functional dimensional variances.
18	Specification	Requirement and tolerance of the Inspection Item.
19	Location	Where is the specification defined?
20	Method	What method will Supplier's Production department use to verify the Inspection Item.
21	Check Frequency	How often will Supplier's Production department verify this Inspection Item.
22	Report	Indicate the reporting frequency of this verification data by Supplier's Production department using the chart on page 1 of the form.
23	Method	What method will Supplier's Quality Department use to verify the Inspection Item.
24	Check Frequency	How often will Supplier's Quality Department verify this Inspection Item.
25	Report	Indicate the reporting frequency of this verification data by Supplier's Quality Department using the chart on page 1 of the form.
26	Deviation from Nominal	When the form is being used to report data, enter the difference of the actual results from nominal. **Calculate x bar (x) and range I.**
27	Sketch	An illustration of the Product. Indicate location of Inspection Items by entering corresponding numbers.

HFI

HFI QUALITY STANDARD / INSPECTION DATA SHEET

PAGE 1 OF 3

	QUALITY STANDARD				DATA		
SUPPLIER: (1)	SUPPLIER		TS TECH		SUPPLIER	TS TECH	
	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	ISSUE
PART NAME: (2)							
PART NUMBER: (3)	(4)		(5)		(6)		
THE PURPOSE OF THIS QUALITY STANDARD IS TO CLARIFY THE BLUE PRINT DRAWING OR SPECIFICATION AND TO HIGHLIGHT CRITICAL CHARACTERISTICS, TEST OR CHECKING FREQUENCIES. UNSPECIFIED TOLERANCES ARE 'CALLED OUT' IN ADDITION TO CRITICAL MATING SURFACES. THIS DOCUMENT IS A 'LIVING' DOCUMENT AND MUST REMAIN CURRENT WITH REGARD TO THE BLUE PRINT DRAWING DESIGN LEVEL. SUPPLIER PROCESS CHANGES AND ALL INSPECTION CRITERIA CHANGES MUST BE REFLECTED IN THIS DOCUMENT.	4						
	3						
	2		(7)				
	1						
	0						
	REVISION	YY/MM/DD	CONTENT OF REVISION		DESIGN CHANGE LEVEL		ISSUE

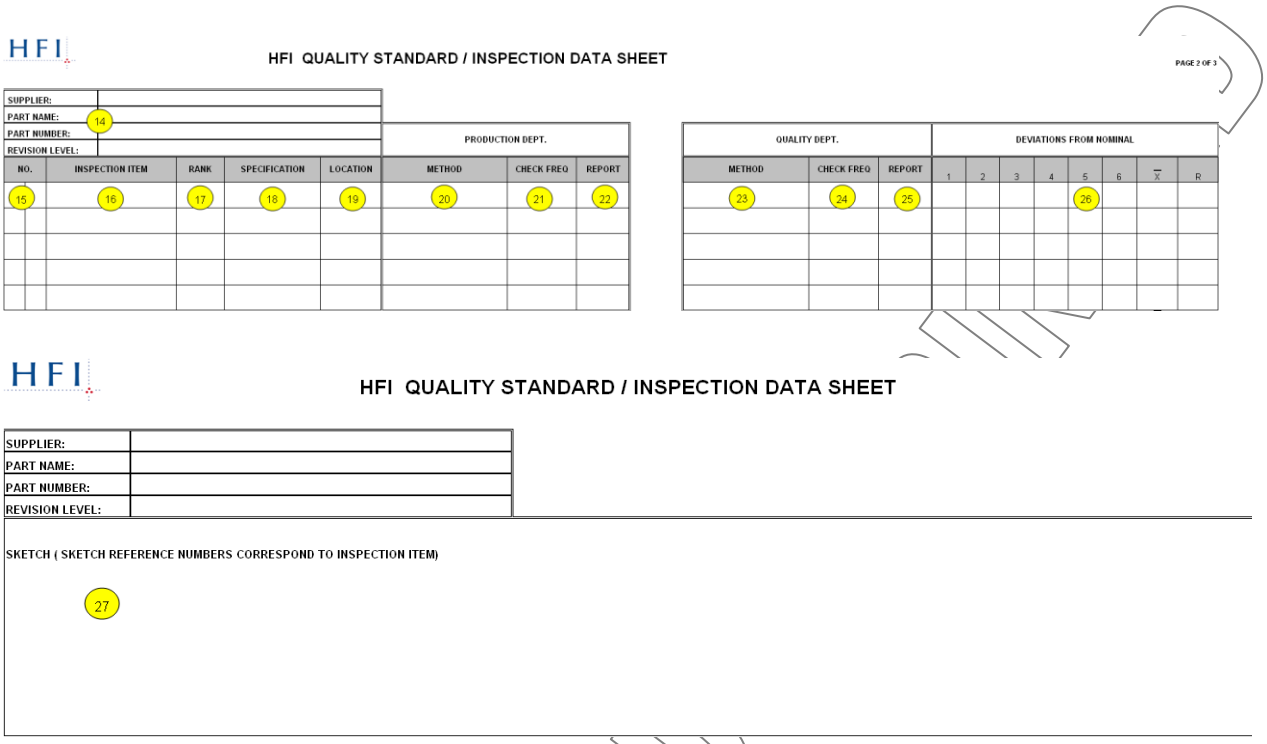
DATA PURPOSE (8)		REPORT (9)	
☐	QUALITY CONTROL INSPECTION	F	FILE
☐	PRODUCTION INSPECTION	D	DAILY
☐	NEW MODEL INSPECTION	W	WEEKLY
☐	PROBLEM INVESTIGATION INSPECTION	M	MONTHLY
		Q	QUARTERLY
		Y	YEARLY

GRADE		CATEGORY	# OF POINTS	%	JUDGEMENT
OK	A	WITHIN QUALITY STANDARD TOLERANCE			☐ PASS (11)
UNACCEPTABLE	B	<=+/- 0.5 ABOVE QUALITY STANDARD TOLERANCE	(10)		☐ FAIL
	C	>+/-0.5<=+/-1.5 ABOVE QUALITY STANDARD TOLERANCE			HANDWORK
	D	>+/-1.5 ABOVE QUALITY STANDARD TOLERANCE			☐ YES (12)
		SUMMARY TOTALS			☐ NO

COMMENTS:

LEGEND (IF NEEDED)

(13)



HFI QUALITY STANDARD / INSPECTION DATA SHEET

PAGE 2 OF 3

SUPPLIER:	
PART NAME: (14)	
PART NUMBER:	
REVISION LEVEL:	

					PRODUCTION DEPT.			QUALITY DEPT.			DEVIATIONS FROM NOMINAL							
NO.		INSPECTION ITEM	RANK	SPECIFICATION	LOCATION	METHOD	CHECK FREQ	REPORT	METHOD	CHECK FREQ	REPORT	1	2	3	4	5	6	$\bar{X}$	R
(15)		(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)					(26)			

HFI QUALITY STANDARD / INSPECTION DATA SHEET

SUPPLIER:	
PART NAME:	
PART NUMBER:	
REVISION LEVEL:	

SKETCH (SKETCH REFERENCE NUMBERS CORRESPOND TO INSPECTION ITEM)

(27)

15 APPENDIX F (LOT CONTROL AND TRACEABILITY)

15.1 Purpose

The purpose of lot control and traceability is to identify component Products of HFI Products so that any problems, due to those component Products, can be traced, isolated, contained, and corrected.

15.2 Scope

All Products provided to HFI are required to be in compliance with the appropriate level of lot control as determined by HFI.

Lot Number Display Details (“LNDD”) is required to be submitted for all Products Supplier ships to HFI.

HFI requires the use of the LNDD form (described in this procedure)

15.3 Requirement

Supplier is required, at a minimum:

1. To provide Products to HFI in identified lot.
2. To apply lot control requirements of this procedure to materials and subcomponents.
3. To produce and ship Products in a first in, first out (FIFO) manner.
4. To include the manufacture date of the Products on the shipping label.

HFI reserves the right to stipulate maximum lot size and lot identification method. Supplier may also be required to complete and submit a lot control plan (PDF Process Display Form) and traceability

confirmation.

Supplier is responsible to have lot control and traceability to sub-Suppliers. Sub-Supplier's lot control and traceability system should be verified periodically and a clear understanding of the ability to trace back Products.

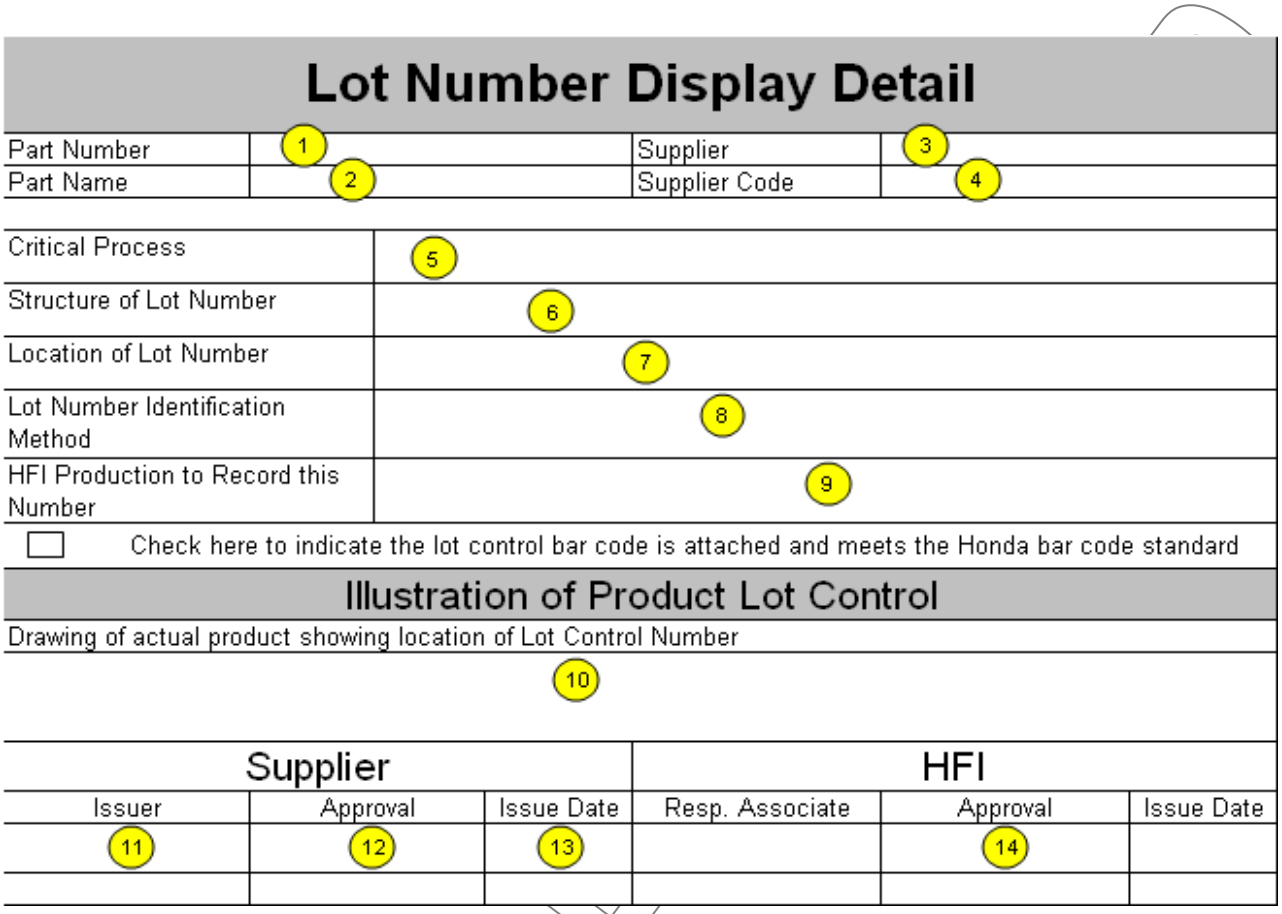
Supplier is responsible to maintain traceability of all Products that are removed from standard processes. Products must be identified in a manner approved by HFI's Quality group. (Control of ABNORMAL PROCESSES)

Supplier must have a system to identify Products which are repaired or reworked. This system should include a method of marking Products to differentiate them from standard production. Markings should be approved by HFI Quality group and described on the Process Flow Chart. In individual cases HFI Quality group may waive the marking requirement if the marking may cause additional quality or manufacturing issues.

Supplier is required to complete a LNDD form for HFI approval

15.4 Procedure

Procedure for Completing a LNDD		
Item #	**Item Name**	**Details of Item**
1	Part Number	The part number from the applicable drawing
2	Part Name	The part name from the applicable drawing
3	Supplier	The name of the company supplying the Product
4	Supplier Code	Supplier code (If assigned)
5	Process	Manufacturing process of the Product (Ex. Welding, stamping, injection molding, sewing, etc.)
6	Structure of Lot Number	Detailed explanation of each digit of the lot number (Ex. Date, Julian date, shift, year, etc.)
7	Location of Lot Number ID	Where on the Product and/or container is the lot number located?
8	Lot Number ID Method	The method and/or medium used to display the lot number (Ex. Stamped, printed label, etc.)
9	HFI to Record	Sufficient containment can be achieved if HFI production records this section of the lot number
10	Drawing	In this area place a drawing of the Product indicating the location of the lot number. The structure of the lot number should also be explained in this area.
11	Issuer	Name of the issuer
12	Approval	Approval signature as per Supplier's internal approval procedure
13	Issue Date	Date LNDD was issued
14	HFI Approval	HFI signatures and date



Lot Number Display Detail			
Part Number	1	Supplier	3
Part Name	2	Supplier Code	4

Critical Process	5
Structure of Lot Number	6
Location of Lot Number	7
Lot Number Identification Method	8
HFI Production to Record this Number	9

☐ Check here to indicate the lot control bar code is attached and meets the Honda bar code standard

Illustration of Product Lot Control
Drawing of actual product showing location of Lot Control Number
10

Supplier			HFI		
Issuer	Approval	Issue Date	Resp. Associate	Approval	Issue Date
11	12	13		14	

16 APPENDIX G (5 PRINCIPLES OF PROBLEM SOLVING WORKSHEET)

16.1 Purpose

The 5 Principles for Problem Solving Worksheet (5P) is a tool used to:

- Permanently resolve recurring or high impact problems related to safety, quality, productivity, or cost.
- Standardize problem solving procedures.
- Effectively and efficiently communicate problem solving activity between HFI companies that could be affected.
- To create a working history of a problem and the countermeasures that was taken to correct the issue. This will be a record for future reference.

16.2 Scope

The 5P is an additional method to respond to a HFI Trouble Report (SCAR) that gives more detailed information than the SCAR's standard corrective action response.

16.3 Requirement

A 5P is required for all problems with an importance ranking of "A" and, at HFI's discretion, for other problems based on potential impact to the customer, recurrence, or HFI downtime.

The 5P must be submitted to Supplier's HFI Quality Control Representative by the due date issued to Supplier. Supplier's appropriate management must review and sign prior to submission.

If the due date for the response can't be met, Supplier must contact their HFI Quality Control Representative prior to the due date. A new due date may be arranged provided Supplier is making a good faith effort to resolve the problem.

Supplier may be requested to present the 5P on site at HFI or HFI may request to have 5P presented at Supplier's location so that review of actual situation can occur. This is to ensure that HFI has a clear understanding of what occurred and countermeasures put in place are completed to prevent reoccurrence.

A signed copy must be approved and attached to the SCAR prior to it being closed out.

16.4 Procedure

The 5 Principles referred to are as follows:

- Problem Statement. (What happened?)
- Identify root cause (Why did it happen?).
- Determine corrective action, i.e. countermeasure (What has or will be done about it?).
- Confirm countermeasures (Are countermeasures effective and do they remain in place?)
- Feedback/Feed Forward (Who will be made aware of what happened and can the countermeasures be implemented in similar processes?).

16.5 Completing a 5P

16.5.1 SECTION 1 Problem Statement: The Object and Defect

The first step to solving a problem is to learn what happened:

- Review the failure information; and the actual Product,
- Examine the failed Product and understand the problem,
- Go to the spot and see the actual situation, and
- Ask the associates involved about the problem.

The problem statement is a clear specific Product, object or thing with which you are having a problem. It includes two things:

- The object: the specific Product, object or thing with which you are having a problem.
- The defect: what is wrong with the object. Indicate why this is an issue.

16.5.2 SECTION 1A Problem Discovery Information

This section provides specific information about the problem. Use 5W2H to provide as much information as possible about what the problem is.

- Who- found the problem,

- What- Product has the problem (model or type),
- When-was the problem found, when in the process was the problem found; date; time,
- Where-was the Product located when you found the problem; market; in-house; customer,
- How-was the problem found or discovered and
- How Many- have problem

Do not stop after finding out who found the problem, what machine, what time, what supplier or department. Find out where on Product, where on the machine, where in the plant, etc.

16.5.3 SECTION 1B Problem Discovery Information

This section provides specific information about the problem. Use 5W2H to provide as much information as possible about what the problem is.

- Product Analysis – Such as visual observations, dimensional comparisons, test results, technical reports, or any known changes that have taken place on or around the first known problem date or time. (such as manpower, materials, equipment adjusted, or new equipment.) This is to also include the teardown analysis.
- Process Analysis- Such as process flow diagrams, statistical history, reject history, or any known data that could reflect actual condition of process at the time of the failure.
- Customer Analysis- Any previous history of problem or known potentials that could have attributed to the issue.

There are various tools that can be used to identify possible causes. Brainstorming, use of the 4M (man, method, material, machine (the 5th M is mother nature- extremes in environment can play a role in operations of some equipment)) or 4P(people, procedures, plant, or policy).

16.5.4 SECTION 2A Identify Possible Causes- (PG 2)

This section is used to expand on the possible causes for the problem. Brainstorm for the causes giving consideration to information from 1A and 1B. In the clarification column, eliminate any causes that can be quickly eliminated.

16.5.5 SECTION 2B Expand on Possible Causes- (PG 2)

This section uses cause and effect diagrams to perform a cause analysis. Several types can be used (ex. Fishbone, org charts, mind maps). The cause analysis enables documentation of the problem causes. The single level causes from sec 2A are extended into multi-level causes by using the WHY, WHY, analysis.

After identifying possible causes test them against 1A and 1B.

- Eliminate any possible causes that don't make sense,
- Choose the most probable cause from the data in 1A and 1B,
- Prove that the MOST probable is the true cause.

16.5.6 SECTION 2C Identify Root Cause (Question and Answer Analysis)

Investigation of both causes of occurrence by conducting WHY, WHY analysis of the problem.

Hard: Why did the problem occur? (process, Product, design, or equipment)
Soft: Why was the problem not detected?

16.5.7 SECTION 2D Root Cause Selection Justification

This section identifies which root causes will be counter measured and why those causes were chosen. You must clarify causes with illustrations and explain how verification was done.

16.5.8 SECTION 3 Countermeasures

This section identifies what was done to temporarily countermeasure and to also document permanent countermeasures implemented or to be implemented.

- **Countermeasures must ALWAYS be tested for validation and prevention of re-occurrence of the issue.**

TEMPORARY C/M needs to include:

- What was done to keep the error from continuing and/ or keeps production flowing.
- Traceability/ containment – How the temporary countermeasure will be tracked. What records will be maintained when abnormal conditions are used to contain issue.
- Contingency plan – How potential problems will be prevented and what will be done if a potential problem occurs.

PERMANENT C/M needs to include:

- What C/M are being taken,
- How will the C/M be tested to confirm desirable effects,
- What effects are predicted,
- When; where, and how will the C/M be implemented,
- What documents had to be modified and by whom.,
- Use illustrations to help clarify understanding,
- Attach any additional documentation to back of 5P.

16.5.9 SECTION 4 Countermeasures Effectiveness

This section records the results of the countermeasures that were implemented. Results are recorded immediately after the countermeasure is put in place and on the appropriate follow-up dates.

- Who will confirm that C/M is working?
- How and when will the result of the countermeasure be checked?
- Did countermeasure achieve 100% results?
- Have documents been updated to reflect countermeasures?

16.5.10 SECTION 5 Feedback/ Feed forward

This section documents communication about the problem to other areas that could be impacted. Information flow should be shared horizontally to areas that have similar potentials for failure as well as vertically throughout the organization.

5 Principles for Problem Solving Sheet

Supplier Name:	
Part # & Name:	
Reference Document/Customer Trouble Report #	

1 Problem Definition / Problem Statement
(What part/object/person is affected by the defect and what is the specific defect?)

1

(Transfer problem statement to 2-C)

	Supplier / Department			Customer	
	Prepared	Checked	Approved	Approved	
Name					
Plt/Dept.					
Date					

1-A Problem Definition / Discovery (Consider: Who, What, Where, When, Why, How and How Many)

Who	1. Who found the problem?	1A
What	2. What part has the problem? (object) Model and type.	
	3. What is wrong with it? (defect) Symptom of problem. Use illustrations to clarify.	
Where	4. Where was the part located when you found the problem?	
	5. Where on the part is the trouble located?	
When	6. When was the problem first found? Date and Time.	
	7. When since then has the problem recurred? Is there a pattern forming?	
	8. When in the process was the defect first observed?	
Why	9. Why is it a problem? Content of complaint.	
How	10. How was the problem found? Visual inspection or customer complaint?	
How Many	11. How many parts or units have this problem?	
	12. How big is this defect? Size.	
	13. How many defects on each object? (Same Defect)	
	14. Is the problem getting better, worse or staying the same?	

1-B Problem Definition / Details (Provide an in-depth analysis of the problem, include any past problem history, trends, other known variables and containment measures taken.)
(Attach any supporting documents, graphs, illustrations, etc.)

1B

(Go to Page 2, Part 2A)

2-C Identify Root Cause(s) (Analysis of both problem occurrence and non detection) Transfer the Why, Why, Why data from 2B. Use only number of boxes needed and / or add more boxes if needed.

In the box below, insert Problem Statement from Box 1.	> WHY	> WHY	> WHY	> WHY	> WHY	> WHY	> WHY
Why Made? 2C							
Why Shipped?							

(Circle all causes to be countermeasured and transfer info to 2D.)

2-D Root Cause(s) Selection Justification (How 2C causes were selected and proven)
Selected cause(s), reason why selected and recreation analysis.

2D

3 Countermeasure(s)
(Initial and Long Term Schedule)

Countermeasure Implementation	Responsibility	Date Plan	Date Actual
3			

4 Countermeasure Effectiveness
(Actual evidence of countermeasure effectiveness)

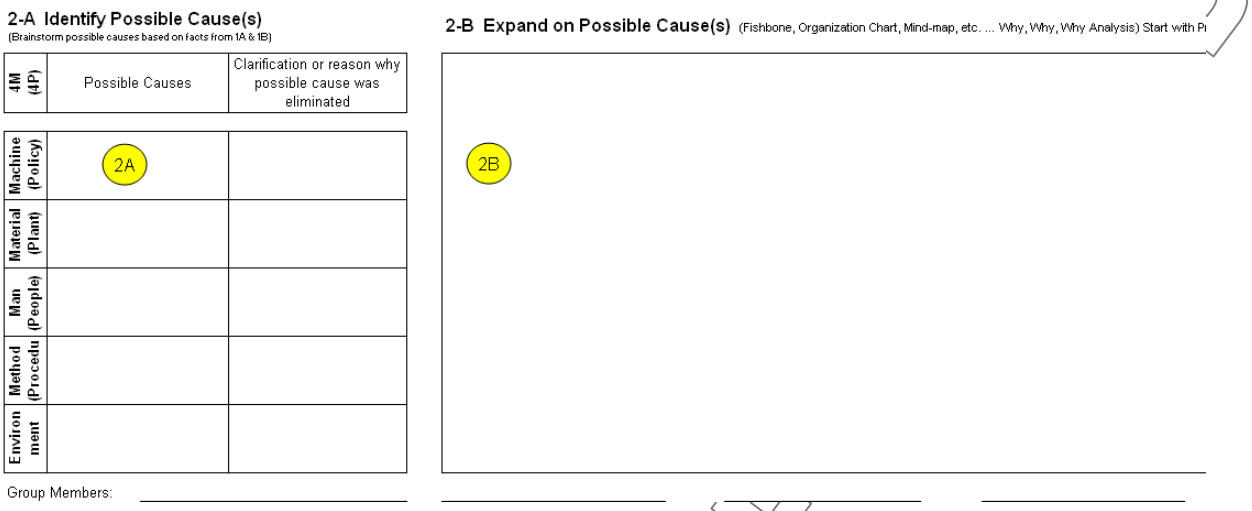
Countermeasure Results Activity / Method / Result / Next Action	Confirmed by	Date Plan	Date Actual
4			

PFMEA	PRE	POST
RPN		
Severity		
Occurrence		
Detection		

5 Feedback/Forward
(Vertical, Horizontal and to discovering associate)

Feedback/Forward to	Method	Responsibility	Date
5			

Have the following been updated and attached?
- O FMEA
- O PQCT
- O OP STD
- O Other



2-A Identify Possible Cause(s)
(Brainstorm possible causes based on facts from 1A & 1B)

4M (4P)	Possible Causes	Clarification or reason why possible cause was eliminated
Machine (Policy)	2A	
Material (Plant)		
Man (People)		
Method (Procedu		
Environment		

2-B Expand on Possible Cause(s) (Fishbone, Organization Chart, Mind-map, etc. ... Why, Why, Why Analysis) Start with Pr

2B

Group Members: _____ _____ _____ _____

17 APPENDIX H (MINIMUM PROCESS REQUIREMENTS)

17.1 Purpose

The purpose of MPR's is to clarify and communicate minimum process requirements to reduce process related defects. Minimum process requirements are defined controls and methods that HFI requires in applicable manufacturing processes.

These requirements were established to prevent future process related quality defects.

17.2 Scope

This procedure applies to all Products ordered by HFI and to the following processes:

- General requirements (All suppliers must have this completed)
- Welding (Projection, MIG, & Resistance)
- Injection Molding
- Stamping
- Painting
- Labeling
- Machining

17.3 Requirement

Supplier shall ensure that the applicable Minimum Process Requirements (MPR's) are built into the appropriate processes and related Control Plans, and that they are maintained.

Supplier shall complete each applicable MPR check sheet as shown, with the MPR needs and status to be used during the auditing process. Deviations found must be addressed immediately.

17.4 Definition

Minimum Process Requirements define the controls and methods that HFI requires in applicable manufacturing processes to meet the Specifications of HFI's Orders and/or agreements.

Note: HFI reserves the right to request more if needed to maintain an expected level of quality.

17.5 Minimum Process Requirements Forms

A copy of the latest version **Minimum Process Requirements** (MPR's) audit forms can be downloaded from our website: http://www.hfi-inc.com
Click on supplier resources and then select/click on "Supplier Minimum Process Requirements Forms"

REVISION CONTROL

Rev. #	Effective Date	Description of Change	Location of Change
02	03/12/07	-Added "Upon satisfactory completion of corrective action, 90% of the daily charges will be refunded to the supplier. 10% of the daily charges will be retained by HFI to compensate for management of open SCAR issues."	III.D.
03	11/30/07	-Changed "Raw Material Supplier" to "Production Material Supplier". -Revised production material supplier approval. Added on-site document and process reviews. Added that if HFI hasn't purchased material from the supplier in more than 12-months, that the supplier has to go through approval process again. -Added documents that are included in RFQ package. -Added engineering change requirements, continual improvement, schedule fluctuations, and EDI capability sections. -Added that VA/VE targets will be established in RFQ. -Removed Advanced Quality Planning section. -Revised PPAP requirements; supplier PPAP plan, run at rate, and ensuring interim/full approval prior to shipment. -Added Temporary Deviation, Lot Control/Traceability, and Verification of Job – Setup sections. -Changed sort fee from $35 to $45. -Added Controlled Shipping Status section -Revised quality rating system from # of defective parts to PPM. -Changed on-time requirement from +2 & -1 days to +/-0 days. -Removed VP of Purchasing from SRB. Added that the Supplier Development Manager establishes the top 10 list. -Added Supplier Corrective Action Request section. -Added approval of calibration service providers section. -Revised Packaging Specifications -Added packaging approval section. -Added example of label. -Added approval of HFI paid carriers. -Revised that ASN's must be submitted to material planner instead of the shipping supervisor. -Added Expedited Shipping Expectations section. -Revised Safety section to include how MSDS is requested and who is responsible for ensuring they are on file. -Added that supplier shipping adhesives or solvents to HFI Mexico are required to have an MSDS in Spanish with every shipment.	Entire document I.A. I.B. I.C, E, F, G I.D. II.B. II.B. II.C, E, F II.D. III. IV.B. IV.C. IV.D. V. VI.A. VII.A. VII.B. VII.C. VII.D. VII.F. VII.G. IIX.A. IIX.A.
04	6/4/08	-Changing labeling approach to separate Prototype/Engineering Trials and Production Labeling. Included a new label example and reference to HFI supplier website -Eliminated Sales from signing off on Supplier's Packaging Sketch, added Program Manager -Suppliers are no longer required to sign acknowledgement on page 32. -Removed the requirement for supplier to sign and return an acknowledgement that they accept the terms of our Supplier Quality Manual per our Purchase Order	VI. B, C VII. B VII. IX. A. Appendix
05	2/20/09	-Removed Spanish version -Renumbered entire manual for easier reference -Reformatted Table of Contents -Added RFQ form -Updated quality requirements -Added inspection fixture design guidelines -Added new model development process -Updated SCAR template -Updated Supplier Performance Report -Added process quality control table 1 and Control Plan -Added PFMEA -Added quality standard and inspection data sheet -Added lot control and traceability -Added 5P worksheet	Entire document Entire document Table of Contents Section 1.2.1 Section 2 Section 3 Section 4 Section 6 Section 7 Section 13 Section 14 Section 15 Section 16 Section 17
06	09/11/09	-Added CTPAT (Customs Trade Partnership Against Terrorism) -Added CRF (Change Request Form) procedure & flowchart. -Change Request Form (CRF): Reference Number has been replaced by REA #	Section 1.9 Section 2.3 Section 2.3

07	9/8/10	-Added description about MPRs -Added Section 17 (Minimum Process Requirements) -Added section describing long-term in-house sort & inspection fee assessment -Updated revision table for accurate revisions implemented	Section 4.3.1 Section 17 Section 2.6.1
08	10/22/10	-Removed IMDS reference -Created new section for IMDS	Section 2.2 Section 2.10
09	1/10/11	-Increased dollar value before action is taken for RMA request from $1,000 to $2,000. -Removed outdated link to RMA form	Section 2.6
10	2/24/11	-COQ (Cost of Quality) form now attached to SCAR form. -Page 1 SCAR form updated. Issue of concern replaced with Problem Description. Issue of Concern replaced with Problem Description. Added How/Why made and Why Shipped under Root Cause section. -Page 2 SCAR form now has approval signature boxes	Section 6.5 Section 6.6 Section 6.6
11	3/31/11	-Moved COQ related info from Section 6.31 to Section 6.5 -Added more description to Page 2 of SCAR form. “Why Shipped, Why Made.” -Suppliers must use bar code 128.	Section 6.31 & 6.5 Section 6.6 Section 9.3.2
12	10/14/11	- Included hourly sort fee for Mexico facilities at $15/hour. Alabama and Ohio sort fee is $45/hour.	Section 2.6
13	9/13/2016	Removed procedure for completing a Component Part Quotation Form & Component Part Quotation Form	Section 1.2.1
		Added “Through a culture of continuous improvement” –part of HFI Quality Policy.	Section 2.1
		Removed “Location PPAP coordinator” and added name of requirement sheet (Supplier PPAP Checklist and Woorkbook)	Section 2.2
		Added “PPAP level III as default requirement for new programs launches, unless otherwise specified by HFI”	Section 2.2
		Added “default Run @ Rate standard requirement of minimum 4 hours of run time, unless otherwise specified by HFI SQE”	Section 2.2
		Added requirements for process capability studies.	Section 2.2
		Removed “ECO” and changed it to “ECN”	Section 2.4
		Updated HFI’s website link for “Terms & Conditions” in regards to approved sorting companies	Section 2.7
		Added requirement to use HFI’s LNDD form or equivalent and HFI’s website link for supplier to download a copy of the LNDD form.	Section 2.8
		Changed from “Records of verification must be maintained for at least one year” to “Records of verification of product functionality, compliance and test results must be maintained for 20 years”.	Section 2.9
		On the Supplier Management Activities table “QAV/NMR” was changed to “Self-assessment Supplier Readiness Assessment Audit & Onsite QAV2”	Section 4.3.1
		Change from “PQCT I & Control Plan” to “Control Plan” –removed PQCT I Replaced PQCT with PFMEA	Section 4.3.2
		Changed section title from “Event Data” to “Part Validation & Material Testing”	Section 4.3.3
		Added new item “Part Measurement Capability & Capacity Requirements” – detailing requirements that supplier need to meet for capacity and capability to measure parts.	Section 4.3.3
		Changed “5” to “6” Piece sample –for event data requirements.	Section 4.3.3
		Added more detail in regard HFI’s requirements of the 6 piece sample data.	Section 4.3.3
		Added “or by HFI’s customer” –to clarify that a supplier may be placed on Controlled Shipping Level I (CS I) when a failure are detected by HFI’s customer –besides being detected by HFI.	Section 5.1
		Removed section title “Supplier Review Board” and replaced it with “Top Focus Suppliers”	Section 7.4
		Content changed –to summarize, HFI will identify poor performing suppliers, which will be required to present a Quality Improvement Plan (QIP) to corporate.	Section 7.4
		Removed procedure for how to complete Supplier Performance Report & Supplier Performance Report form.	Section 7.4
		Removed “PROCESS QUALTY CONTROL TABLE” and replaced it with “PROCESS FLOW CHART”	Section 12
		Removed “PROCESS QUALTY CONTROL TABLE” and replaced it with “PROCESS FLOW CHART”	Section 12.1
		Removed “PROCESS QUALTY CONTROL TABLE” and replaced it with “PROCESS FLOW CHART”	Section 12.3
		Removed content “Use of the HFI PQCT I and Control Plan from described in this procedure is encouraged” and replaced with “Use the AIAG Blue Books or go to AIAG.org for format and how to complete the Process Flow chart(s) & Control Plan(s).”	Section 12.4.1

		Removed “PQCT” and replaced with “Process Flow Chart”	Section 12.4.1
		Removed “PQCT” and replaced with “Process Flow Chart”	Section 12.4.2
		Removed “PQCT” and replaced with “Process Flow Chart”	Section 12.4.3
		Removed HFI’s PQCT table and Control Plan form off the SQM	Section 12.4.3
		Removed content “Use of the HFI PFMEA from described in this procedure is encouraged” and replaced with “Use the AIAG Blue Books or go to AIAG.org for format and how to complete PFMEA.”	Section 13.4.1
		Removed procedure table for completing PFMEA off the SQM	Section 13.4.3
		Removed “this document” and replaced it with “MPR’s”	Section 17.1
		Removed “PQCT” and replaced with “Control Plans”	Section 17.3
		Removed Minimum Process Requirements Forms and replaced with a website link for the suppliers to download a copy of latest MPRs. (note: MPRs still need to be uploaded to HFI’s website)	Section 17.5
14	6/26/17	Added section 2.12 –Customer Specific Requirements	Section 2.12
15	7/5/17	Nuisance table matrix –added “OR if S-CPR is issued due to a Customer complaint.	Section 6.6
16	11/13/17	Added new section – 2.13 –Suppliers of automotive products with embedded software requirements	Section 2.13
17	11/13/17	Added: Capability Self-assessment Requirements section 4.3.2	Section 4.3.2
18	1/5/18	Removed “/en/supplier-resources/” from HFI website page	Sections 2.7; 2.8; 17.5
19	1/26/18	Added: Section 2.3.3 - Suppliers to submit CRF minimum 150 days in advance prior implementation of changes and other requirements related changes Added: Section 2.3.4 -Supplier to submit PPAP minimum 30 days in advance unless PPAP due date is specified by HFI contact in the CRF form. Added: CRF form example modified – added PPAP due date and change from 30 to 150 days minimum for notification.	Section 2.3.3 Section 2.3.4
20	3/7/18	Changed title from Labeling to Documentation and added a description for the section that includes label, Packing List and Invoice requirements.	Section 9.3
21	3/7/18	Clarified the Production Label requirements.	Section 9.3.2
22	3/7/18	Added a section with more specific requirements for Box Labels.	Section 9.3.2.1
23	3/7/18	Added a section for Master Labels	Section 9.3.2.2
24	3/7/18	Added a section for Shipping Documentation requirements	Section 9.3.3
25	3/7/18	Added a section for Invoice Documentation requirements.	Section 9.3.4