HTNA SUPPLIER QUALITY MANUAL

SECTION II.9.3 – PROCESS CONTROL PLAN

PURPOSE: To establish the development and submission requirements of a process control plan for HTNA that defines and controls the method of consistent production processes.

SCOPE: This applies to all suppliers of purchased production intent parts to HTNA.

EXPLANATION:

A process control plan is a chart compiled with processes and the systems that are used to control them. The process control plan is to be developed to aid in the manufacture of quality products according to the requirements of HTNA. This can be accomplished by using a structured approach to the design, selection, and implementation of value added control methods. The process control plan is an important part of the overall quality system, it helps define and shape the quality processes that are required to produce quality products. Like most documents that control or monitor quality, this document is to be treated as living and thus should be used to drive continuous improvement activities.

SUPPLIER RESPONSIBILITIES:

1. Process Control:

   HTNA Supplier Quality System Requirements reflect TS 16949 Section 6.4 Work Environment.

   HTNA Clarification

   As a general rule, the supplier at a minimum should have systems in place that control, monitor, and evaluate the following:

   - Cleanliness (5S) – see section II.9.7
   - Contingency Plan
   - Records (i.e. – process, tooling, maintenance, etc.)
   - Designation of Special Characteristics and their control
   - Tooling & Machines
   - Maintenance
   - Operator Work Instruction Sheets
   - Operator Training Matrix and Training Schedules

2. Process Control Plan:

   HTNA Supplier Quality System Requirements match Advanced Product Quality Planning and Control Plan Section 6.0 Control Plan Methodology.

   A. Supplier shall use Section 6.0, Control Plan Methodology of the AIAG Advanced Product Quality Planning and Control Plan book to develop the Process Control Plan.

   B. The supplier should use the AIAG APQP, A-4 Product/Process Quality (pages 5 & 6) and A-8 Control Plan (page 7) Checklists to help ensure all necessary requirements are met.

   C. The supplier should use the AIAG standard form or a format that closely resembles when submitting the control plan to HTNA.

   D. A copy of the Process Control Plan (prototype or production) must be included with each submission.

E. The supplier shall have a prototype control plan for products that are developed for Design Validation (DV) and are not produced using production equipment, tooling, or personnel.

F. The supplier shall have a process control plan for products that are intended for Production Validation (PV) using production equipment, tooling, or personnel. This document is a living document that can be changed up to the point of PPAP submission. **All changes made to the process after PPAP submission will require a Part Submission Warrant (PSW) with a Process Change Request (PCR) and a formal written response from HTNA. See *SQM section II-9.9.***

G. If the supplier is unclear if the proposed change will require a PSW, they should consult with HTNA QE/QC prior to any change.

H. The supplier must provide supporting documentation stating that the methods used to control the process are effective at maintaining the quality, reliability, and capacity.

I. The supplier must adequately identify all revisions and the capability to explain the reasons for changes.

J. If the process for service parts differs from the production process, a separate process control plan must be created and identified. The supplier is not required to submit this document but must be able to produce it upon request.

K. The significant characteristics must be identified and controlled using statistical techniques.

L. The control plan steps must match those of the PFMEA & Flow Diagram.

TIMING	SUPPLIER	HTNA
Design Validation (DV) According to date on Supplier Advanced Quality Planning Schedule	• Draft initial prototype process control plan • Submit copy to HTNA QE/QC	• Review Draft of prototype control plan • Provide feedback to supplier
Prototype production builds	• Continuous improvements based on feedback and trials • Use prototype build experience to develop preliminary Control Plan	
Production Validation (PV) According to date on Supplier Advanced Quality Planning Schedule Pilot Production Trials	• Further develop preliminary Control Plan • Attach Preliminary Process Flow Diagram & PFMEA • Submit copy to HTNA QE/QC at each build request	• Review Draft of preliminary control plan • Provide feedback to supplier
PPAP Submission Run @ Rate Build PPAP Submission Provisional Approval Request – (30 Mfg. days after SOP)	• Finalize Control Plan • Submit PPAP package • Submit Request for PSW provisional approval	• Review final control plan • Provide feedback to supplier • Approve request for provisional approval
Final Approval Request	• Submit long term capability study results • Submit Request for PSW final approval	• Review final long term capability study results • Approve request for final approval (45 Mfg. days after SOP max)
Change Requests Revisions after Provisional Approval stage (including current production)	• If change meets PPAP issuance criteria, issue PSW w/ marked up copy of control plan to HTNA QE/QC	• Review request and provide response per PPAP procedure
	• If change does not meet PPAP issuance criteria, issue revised copy of control plan to HTNA QE/QC	• Review Process Control Plan • Provide feedback

PROCESS CONTROL PLAN

☐ Prototype ☐ Pre-Launch ☐ Production

Control Plan Number		Key Contact/Phone	Date (Orig.)	Date (Rev.)
Part Number/Latest Change Level		Core Team	Customer Engineering Approval/Date (If Req'd.)	
Part Name/Description		Supplier/Plant Approval/Date	Customer Quality Approval/Date (If Req'd.)	
Supplier/Plant	Supplier Code	Other Approval/Date (If Req'd.)	Other Approval/Date (If Req'd.)	

PART/ PROCESS NUMBER	PROCESS NAME/ OPERATION DESCRIPTION	MACHINE, DEVICE, JIG,TOOLS, FOR MFG.	CHARACTERISTICS			SPECIAL CHAR. CLASS	METHODS					REACTION PLAN
			NO.	PRODUCT	PROCESS		PRODUCT/PROCESS SPECIFICATION/ TOLERANCE	EVALUATION/ MEASUREMENT TECHNIQUE	SAMPLE SIZE	SAMPLE FREQ.	CONTROL METHOD	

A-4 PRODUCT/PROCESS QUALITY CHECKLIST

Customer or Internal Part No.

	Question	Yes	No	Comment / Action Required	Person Responsible	Due Date
1	Is the assistance of the customer's quality assurance or product engineering activity needed to develop or concur to the control plan?					
2	Has the supplier identified who will be the quality liaison with the customer?					
3	Has the supplier identified who will be the quality liaison with its suppliers?					
4	Has the quality assurance system been reviewed using the Chrysler, Ford, and General Motors Quality System Assessment?					
	Are there sufficient personnel identified to cover:					
5	● Control plan requirements?					
6	● Layout inspection?					
7	● Engineering performance testing?					
8	● Problem resolution analysis?					
	Is there a documented training program that:					
9	● Includes all employees?					
10	● Lists whose been trained?					
11	● Provides a training schedule?					
	Has training been completed for:					
12	● Statistical process control?					
13	● Capability studies?					
14	● Problem solving?					
15	● Mistake proofing?					
16	● Other topics as identified?					
17	Is each operation provided with process instructions that are keyed to the control plan?					
18	Are standard operator instructions available at each operation?					
19	Were operator/team leaders involved in developing standard operator instructions?					
	Do inspection instructions include:					
20	● Easily understood engineering performance specifications?					
21	● Test frequencies?					
22	● Sample sizes?					
23	● Reaction plans?					
24	● Documentation?					
	Are visual aids:					
25	● Easily understood?					
26	● Available?					
27	● Accessible?					
28	● Approved?					
29	● Dated and current?					

A-4 Product/Process Quality Checklist Continued on next page

A-4 PRODUCT/PROCESS QUALITY CHECKLIST (Continued)

	Question	Yes	No	Comment / Action Required	Person Responsible	Due Date
30	Is there a procedure to implement, maintain, and establish reaction plans for statistical control charts?					
31	Is there an effective root cause analysis system in place?					
32	Have provisions been made to place the latest drawings and specifications at the point of the inspection?					
33	Are forms/logs available for appropriate personnel to record inspection results?					
	Have provisions been made to place the following at the monitored operation:					
34	● Inspection gages?					
35	● Gage instructions?					
36	● Reference samples?					
37	● Inspection logs?					
38	Have provisions been made to certify and routinely calibrate gages and test equipment?					
	Have required measurement system capability studies been:					
39	● Completed?					
40	● Acceptable?					
41	Are layout inspection equipment and facilities adequate to provide initial and ongoing layout of all details and components?					
	Is there a procedure for controlling incoming product that identifies:					
42	● Characteristics to be inspected?					
43	● Frequency of inspection?					
44	● Sample size?					
45	● Designated location for approved product?					
46	● Disposition of nonconforming products?					
47	Is there a procedure to identify, segregate, and control nonconforming products to prevent shipment?					
48	Are rework/repair procedures available?					
49	Is there a procedure to requalify repaired/reworked material?					
50	Is there an appropriate lot traceability procedure?					
51	Are periodic audits of outgoing products planned and implemented?					
52	Are periodic surveys of the quality system planned and implemented?					
53	Has the customer approved the packaging specification?					

Revision Date _____

Prepared By: _____

A-8 CONTROL PLAN CHECKLIST

Customer or Internal Part No.

	Question	Yes	No	Comment / Action Required	Person Responsible	Due Date
1	Was the control plan methodology referenced in Section 6 used in preparing the control plan?					
2	Have all known customer complaints been identified to facilitate the selection of special product/process characteristics?					
3	Are all special product/process characteristics included in the control plan?					
4	Were SFMEA, DFMEA, and PFMEA used to prepare the control plan?					
5	Are material specifications requiring inspection identified?					
6	Does the control pan address incoming (material/components) through processing/assembly including packaging?					
7	Are engineering performance testing requirements identified?					
8	Are gages and test equipment available as required by the control plan?					
9	If required, has the customer approved the control plan?					
10	Are gage methods compatible between supplier and customer?					

Revision Date _____

Prepared By: _____