

Quality Control Standard For Accessory Suppliers

**2024
Edition**



NORTH AMERICAN OPERATIONS

QUALITY CONTROL STANDARD FOR SUPPLIERS

This standard is being issued by Mazda North American Operations to all Suppliers. All revisions to this standard must be approved by the Director of Mazda North American Operations. Mazda North American Operations reserves the right to modify or change the content of this manual at any time without prior notice.

Note: Mazda North American Operations is abbreviated in this manual as MNAO.

FORWARD

The 2024 edition of the Quality Control Standard for Suppliers has been revised by Mazda North American Operations to adopt the use of IATF-16949 Quality System Requirements and Reference Manuals. All previous editions of the Quality Control Standard for Suppliers are obsolete effective June 1, 2021.

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1.0 INTRODUCTION

1.1 Preface

Mazda's success is based on the quality, performance, and affordability of our products and is impacted heavily by the quality of the products purchased from our suppliers. Because of this, Mazda views its supply-base as key members of the Production Team.

The Quality Control Standard for Suppliers outlines the fundamental quality control concepts and discusses the responsibilities of both MNAO and its suppliers. All material supplied to MNAO for production shall be developed, produced, controlled, inspected and tested in accordance with the requirements set forth in this document and other applicable documents.

1.2 Purpose

This standard defines the minimum Quality System requirements which the supplier shall establish, document and implement during all phases of part/product development and mass production (MP).

1.3 Applicability

This standard applies to all suppliers of parts, product or services to Mazda North American Operation (MNAO).

2.0 QUALITY SYSTEM REQUIREMENTS

2.1 QS-9000 Standard-Based Requirements

MNAO requires that suppliers establish, document and implement effective Quality Systems based on QS-9000 Quality System Requirements. All the QS-9000 based requirements and MNAO/Mazda specific requirements discussed in this manual are to be incorporated in the supplier's Quality System and described in the supplier's Quality Manual.

The supplier should obtain and utilize the following reference manuals from the Automotive Industries Action Group (AIAG) at (810) 358-3003.

- Quality System Requirements - QS-9000
- Advanced Product Quality Planning and Control Plan - APQP
- Production Part Approval Process - PPAP
- Potential Failure Mode and Effects Analysis - FMEA
- Measurement Systems Analysis - MSA
- Statistical Process Control - SPC

2.2 MNAO/Mazda-Specific Requirements



This section discusses MNAO/Mazda specific requirements supplemental to the QS-9000 Based Requirements. These specific requirements are organized in order of the QS-9000 Elements.

[Element 4.2 - Quality System]

Advanced Product Quality Planning

The supplier shall utilize the APQP status report methodology described in Section 3.0 Advanced Product Quality Planning of this manual to facilitate communication with everyone involved in the development of a part/product and to assure that all the required steps are completed on time.

Special Characteristics and Symbols

Quality Rank Nomenclature	Quality Rank Symbol	Definition
A - Rank Critical Characteristic (CC)	 or "A" noted in the applicable Quality Rank column	A-Rank characteristics are those product requirements (Dimensions, specifications, tests) or process parameters which can affect compliance with safe vehicle operation. These characteristics require specific assembly, shipping, manufacturing or monitoring techniques to be incorporated and included onto the Control Plan.
AR - Rank Critical Characteristic (CC)	 or "AR" noted in the applicable Quality Rank Column	AR-Rank characteristics are those product requirements (Dimensions, specifications, tests) or process parameters which can affect compliance with government regulations. These characteristics require specific assembly, shipping, manufacturing or monitoring techniques to be incorporated and included onto the Control Plan.
B - Rank Significant Characteristic (SC)	"B" noted in the applicable Quality Rank Column	B - Rank characteristics are those product, process and test requirements that are important to customer satisfaction and for which Quality Planning Actions shall be included in the Control Plan.

Note: Characteristics with "C" Rank are also used by Mazda on drawings and engineering standards. "C" Ranked Characteristics are all other characteristics required to meet the specification but not ranked A, AR or B characteristics.

Note: "B" ranked characteristics which are not identified on Mazda's design records shall be determined by MNAO Supplier Quality Assurance Group.

Special Requirement for A -and AR- Ranked Parts

A-ranked Quality characteristics relate to the safety of the vehicle's passengers, other passengers of other vehicles or pedestrians. AR-ranked quality characteristics relate to government regulations. Mazda Product Engineering will specify A- and AR-ranked characteristics on the Specification Drawings and Mazda Engineering Standards (MES) by placing A and AR symbols next to the characteristics and part numbers. To assure that these characteristics meet the required specifications, the supplier shall incorporate the intentions of these characteristics into all phases of product development and mass production. The supplier is also responsible for maintaining and continually improving the manufacturing process to eliminate potential problems.

Special requirements which the supplier shall perform to achieve 100% Quality Assurance for the duration of the life of the product production are as follows:

- The supplier shall provide certification for regulated part/product to prove that they conform to relevant laws and regulations. Mazda recommends that the supplier(s) obtain this certification from an official laboratory when applicable.
- The supplier shall carefully incorporate the A- and AR-ranked characteristics identified on Mazda specification drawing and Engineering Standard (MES) into all stages of product and process development as well as Mass Production (MP). The supplier shall assure that all A- and AR-ranked characteristics are being controlled through all manufacturing and inspection operations by rank identification (A- and AR- characteristic symbols or supplier's equivalent symbols) on all quality documents such as design records, control plans, and work instructions.
- The process capability of A- and AR- ranked characteristics shall be CPK 1.33 or greater. If CPK 1.33 is not achieved, 100% inspection is mandatory.
- The supplier shall develop and implement a detailed procedure of product identification and trace ability that will provide records of material receiving, manufacturing, assembly, testing, inspection and shipping as well as records of design and process change implementation and effectiveness.

Control Plan Special Characteristics List

Control Plan Special Characteristics List shall be developed by the supplier to identify critical and significant characteristics. This list shall be approved by MNAO Supplier Quality Assurance Group. All critical and significant characteristics identified in the Control Plan Special Characteristics List shall be incorporated into the Pre-Launch and Production Control Plan for inspection, testing and preliminary process capability studies. Whenever any change is made that affects a special characteristic, the supplier shall resubmit the Control Plan Special Characteristic List to MNAO Supplier Quality Assurance Group for approval.

Refer to Section 3.0 Advanced Product Quality Planning in this manual for the procedure.

Prototype Control Plan

Prototype Control Plans are not required for parts or services to MNAO. Follow instructions in the Prototype Quality Control Standard for Suppliers set forth by Mazda Prototype Fabrication Group for inspection/testing data submission requirements for prototype parts.

Note: For air conditioning and accessory parts, consult MNAO Engineering Group for specific requirements related to each part and/or program.

[Element 4.4 - Design Control]

Rust Prevention Requirement

For overseas export parts/product shipped to Mazda Japan, adequate rust prevention requirements (e.g. surface treatment, rust preventative, oil, coatings etc.) are one of the design inputs which shall be identified on drawing(s). Packaging design shall be based on the rust prevention requirement. Refer to MNAO Packaging Guide reference manual for this requirement.

Engineering Approval of Supplier Drawing

Engineering approval utilizing the supplier's drawings for agreement is applicable for all parts or services supplied to MNAO except U.S installed air conditioning/accessory parts and when the Supplier is not responsible for the design of a part/product. The supplier shall develop a supplier's drawing(s) for agreement incorporating Mazda's design specifications and engineering standards and shall obtain drawing approval from Mazda Product Engineering Group.

Note: For air conditioning and accessory parts, consult MNAO Engineering Group for specific requirements related to each part and/or program.

The supplier shall submit the following to MNAO Purchasing Group on the designated date specified by MNAO:

- Two (2) copies of “Submission of Drawing(s) [Final/Prototype] for Agreement and Permission for Taking Out Transmittal Notice” form (see MES BA 302A for blank forms)
- One (1) Mylar and four (4) copies of the "Supplier Drawing(s)"

MNAO Purchasing Group will then forward the "Supplier Drawing(s)" to Mazda's Product Engineering Group for review and approval. If the "Supplier Drawing(s)" is found satisfactory, Mazda Product Engineering Group will sign and stamp the drawing(s) (see stamp below). If the drawing(s) is found unsatisfactory, Mazda will describe the problem in the reason for rejection space on the Transmittal Notice and contact the supplier to quickly revise the "Supplier Drawing(s)" and resubmit to MNAO Purchasing Group.

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Whenever the supplier receives an Engineering Change Notice (ECN) from MNAO, the “Supplier Drawing(s)” for agreement shall be revised to reflect the change(s) and resubmitted to MNAO Purchasing Group. Refer to MES BA 302A, Agreed Drawing Standards and Application Essentials for complete drawing submission requirements.

Supplier Request for Engineering Approval (SREA)

When the supplier wants to change the design, the supplier shall obtain Mazda Product Engineering approval using the Request for Engineering Approval and Reply sheet (REA) form. Refer to MES BA 401A Standard for Engineering Drawing Change Proposal for complete submission requirements. The supplier shall submit the REA to MNAO Purchasing Group who will then forward it to Mazda Product Engineering Group for their review. Approval shall be obtained prior to the implementation of the change.

Note: For VE/VA item(s), consult MNAO Purchasing group for specific procedure.

Mazda Engineering Standard (MES) Performance Test Requirements

The goal of Mazda Engineering Standard testing is to verify that parts meet the design intent. The MES specifies required inspection, testing items and test methods including the sample size and frequency for each development and mass production (MP) stage. The supplier shall perform inspection and testing per the MES requirement unless Mazda waives these requirements. All inspection and testing required by the MES shall be clearly identified in the

Control Plans. Appendix Table 1 of Mazda MES indicates the sample size and frequency for each production stage.

Acronym	Stage
S-1	Prototype-1
S-2	Prototype-2
PV	Production Validation
IP-1	In Process-1 Process capability has not been verified
IP-2	In Process-2 The process is stable and capable (Cpk \geq 1.33)

MES test failures shall be immediately informed to MNAO Supplier Quality Assurance Group. Production shipments shall stop immediately pending analysis of the process and corrective action.

[Element 4.9 - Process Control]

Preliminary Process Capability Requirements

Preliminary process capability studies shall be required for each supplier/ MNAO designated special characteristics at an early stage of process preparation (prototype parts, trial production, pilot parts build etc.) A PPK value of 1.67 or greater should be achieved. See Section 4.0 Production Part Approval Process (PPAP) for details procedure.

Ongoing Process Monitoring

The supplier is responsible for selecting the appropriate inspection methods to assure that all dimensions and characteristics meet Mazda's specifications. The following shall be utilized for quality control of special characteristics.

Condition of CPK or PPK	Reaction Plan
<ul style="list-style-type: none"> CPK value for critical and significant characteristics is <u>less than 1.33</u> for a stable process with normally distributed data. PPK value for critical and significant characteristics is <u>less than 1.67</u> for chronically unstable process with output meeting specifications and a predictable pattern. 	100% inspection Identify and correct causes
<ul style="list-style-type: none"> CPK value for critical and significant characteristics is <u>1.33 or greater</u> for a stable process with normally distributed data. PPK value for critical and significant characteristics is <u>1.67 or greater</u> for chronically unstable process with output meeting specifications and a predictable pattern. 	Sampling Continue to reduce variation in process output

Change Control

After mass production of a part has begun, it is not uncommon for modifications to be made due to quality improvements, productivity improvements or adjustments of production quantities, etc.. The supplier shall pay special attention to the effect

on quality when modifications are made. Refer to Section 4.0 Production Part Approval Process (PPAP) for details.

[Element 4.10 - Inspection and Testing]

Acceptance Sample Criteria

The acceptance sample is a physical sample developed by the supplier and approved by MNAO/Mazda to clarify quality acceptance criteria of specific items. Refer to Section 4.0 Production Part Approval Process (PPAP) and Appendix A - Completion of "Acceptance Sample Application" for details.

[Element 4.13 - Control of Nonconforming Product]

Interim Action Requirement

If a nonconformance of a part/product occurs, the supplier shall contain all suspect material to assure 100% quality compliance.

When a nonconformance is found by the supplier and there is a possibility that defective product has been shipped or delivered to MNAO/Mazda, the supplier shall immediately notify MNAO Supplier Quality Assurance Group for appropriate interim action.

When MNAO or Mazda discovers a nonconformance, the supplier will be notified through a Quality Defect Notification (QDN) issued by MNAO Supplier Quality Assurance Group requesting appropriate interim action.

When the supplier receives a Quality Defect Notification, within 24 hours the supplier shall respond by fax with the interim action information to MNAO Supplier Quality Assurance Group. The Mazda interim action responses from suppliers for nonconformance's include:

- 100% inspection
- Rework
- Additional production (including replacement of returned or scrapped parts)

If there is no response from the supplier within 24 hours, MNAO/Mazda will take appropriate interim action at their sites at the supplier's expense.

When sorting of the defective material is required at MNAO or Mazda, the supplier will be charged for the associated costs of material handling, sorting, reworking etc.

Note: When required, the supplier shall visit MNAO/Mazda for disposition of nonconformance parts/product including sorting and/or rework. If the supplier requests, sorting and minor rework may be carried out by an independent sorting company at the supplier's expense. MNAO requires a supplier representative to be present on site when exercising this option.

The supplier shall certify the shipments to MNAO/Mazda after implementing the interim action until permanent corrective action is in place. Certified labels shall be placed on each package/container. Refer to Appendix F - Forms and Labels for the Certified Label.

Request for Deviation

A Request for Deviation is a written temporary authorization by MNAO / Mazda to deliver a specified quantity of parts/product which does not comply with the approved design drawing or MES. Deviations will be considered for approval only when the nonconformance will not affect the following:

- Mazda's image and/or Marketability of product
- Function, performance or durability of the parts/product (evidence shall be provided.)
- Assembly of parts/product at Mazda assembly line

A Request for Deviation will not be approved if adequate inventory is available (i.e. through sorting of suspect inventory). A Request for Deviation will be limited to: a specific part number, quantity and/or time period. A approved Request for Deviation is not to be considered a permanent change to design drawings or MES.

The supplier shall fully complete the Request for Deviation form and submit it to the MNAO Purchasing Group. Refer to Appendix B - Completion of "Request for Deviation" for details.

The supplier shall clearly identify all discrepant material and quarantine it in a location that will prevent shipping or possible usage of the material.

The Request for Deviation will be reviewed and the supplier will be notified of the result by MNAO Supplier Quality Assurance Group via the MNAO Purchasing Group. Rejected requests will be marked "rejected" and returned to the supplier.

All deviated parts shall be identified with a jointly agreed upon (supplier and MNAO SQA) deviation mark. The method of marking shall be described on the approved Request for Deviation form or attachment. Each skid or container of deviated parts shall be clearly identified by attaching a copy of the approved Request for Deviation form to them. All deviated parts shall be delivered on the date specified in the request for deviation

[Element 4.14 - Corrective and Preventative Action]

Corrective Action

Suppliers shall utilize a disciplined problem solving approach for corrective actions (e.g. Ford Eight Discipline Approach - 8D). The corrective actions shall contain as a minimum the following:

- QDN Number
- Team members responsible for the corrective action
- Description of the Problem
- Interim Corrective Actions
- Root Cause
- Choose and Verify Corrective Action
- Implementation of Permanent Corrective Actions
- Prevent Reoccurrence

A written corrective action report shall be submitted to MNAO Supplier Quality Assurance Group by the designated date on the QDN.

MNAO Supplier Quality Assurance Group may also request the supplier to resubmit for Production Part Approval (PPAP) following a supplier quality concern. Refer to Section 4.0 Production Part Approval Process (PPAP).

[Element 4.15 Handling, Storage, Packaging, Preservation and Delivery]

Packaging Requirement

The supplier shall design adequate packaging that meets MNAO/Mazda requirements. Refer to MNAO Packaging Guide reference manual.

Labeling Requirement for Sample and MP Parts/Product

The supplier shall utilize the following labels for all sample submissions, design and/or process changes, and first MP shipments of parts/product to MNAO/Mazda. Blank labels discussed in this section can be found in the Appendix F - Forms and Labels of this manual. For additional information on identification and labeling requirements, refer to MNAO Packaging Guide reference manual which can be obtained from the MNAO Logistics Group.

- Prototype Production Parts/Product
The supplier shall attach the "Prototype Parts" label to an outside wall of each pallet or container of prototype parts/product being submitted to MNAO.
- Pilot Production Parts/Product
The supplier shall attach the "Pilot Production Parts" label to an outside side wall of each pallet or container of pilot parts/product being submitted to MNAO.

- **PPAP Sample Parts/Product**
The supplier shall attach the “PPAP Samples” label to an outside side wall of each pallet or container of parts/product being submitted to MNAO for PPAP.
- **First Mass-production (MP) Shipment Parts**
All first mass-production shipments of new parts/product to MNAO/Mazda are required to have a copy of the approved “Part Submission Warrant” attached to each pallet or container being shipped. This is required for the first mass-production shipment only.
- **Design and/or Process Change Parts/Product**
When a design or process change occurs during mass-production, the supplier is required to obtain “Part Submission Warrant” approval for the changed parts/product from MNAO SQA. When the changed parts/product is shipped to MNAO/Mazda, the supplier shall attach a copy of the approved “Part Submission Warrant” to each pallet or container of the first shipment of changed parts/product.
- **Acceptance Sample Submissions**
When acceptance samples are submitted to MNAO SQA for review, each individual part shall be properly identified by completely filling out and attaching “Acceptance Limit Samples” label to each pallet or container of the samples.
- **Certified Parts Label**
When mass production parts have been sorted and/or reworked for any specific reason they shall be clearly identified by completely filling out and attaching “Certified Parts” Label to each pallet or container of the sorted and/or reworked parts. This shall apply to all parts/product that have been sorted and/or reworked at the suppliers and/or the customer’s location.

[Element 4.16 - Control of Quality Record]

Record Retention Requirement

The following Quality Controlled Documents shall be maintained for the length of part production plus ten (10) years for A- and AR-ranked parts and two (2) years for B-and C-ranked parts.

Examples of Quality Controlled Documents include:

- Design records (drawings, engineering change records etc.)
- DFMEA, PFMEA
- Control plan
- Work instructions

The following Quality Performance Records shall be maintained for ten (10) years for A- and AR-ranked parts and two (2) years for B- and C-ranked parts. The retention period for Quality Performance Records begins when the record is created.

Examples of Quality Performance Records include:

- SPC
- Inspection results
- Test results
- Measurement system analysis results

2.3 Quality Audit

The supplier shall accept MNAO/Mazda's periodic or occasional Quality Audit at all stages of development as well as mass production to assess the supplier's status of quality assurance activities. The Quality Audits include Quality System Audit, Process Audit and Product Audits. In the case that nonconformance's related to MNAO/Mazda's requirements are discovered through the Quality Audits, the supplier shall develop and submit a corrective action plan for each nonconformance's to MNAO Supplier Quality Assurance Group.

3.0 ADVANCED PRODUCT QUALITY PLANNING (APQP)

The supplier shall utilize the Advanced Product Quality Planning (APQP) and Control Plan reference manual from Automotive Industries Action Group (AIAG) as a guideline in preparing plans and checklists for ensuring that Advanced Product Quality Planning is carried out effectively.

This section identifies 26 “Key” APQP elements that the supplier should focus on and monitor. When summarized, these elements communicate the program status between the suppliers and MNAO.

This section applies to all new parts/products and major design and process changes to parts/products and services supplied to MNAO. APQP status report shall be completed whenever a Part Submission Warrant (PSW) is required per Section 4.0 Production Part Approval Process (PPAP).

3.1 APQP Status Report

In order to assure that all Key APQP elements will be completed in a timely manner, the supplier shall develop an APQP timing plan utilizing the APQP Status Report with input requirements from MNAO/Mazda (e.g. design, testing, prototype build timing etc). Program Need dates for all “Key” APQP elements must be agreed upon by MNAO/Mazda.

3.2 APQP Key Elements Descriptions

- 1) Program Kick-off
Program Kick-off is a formal customer commitment to work with the supplier on the program.
- 2) Customer Input Requirements
Customer input requirements are the design criteria and program requirements necessary to initiate the supplier Advanced Product Quality Planning process.
 - Design Goals
 - Reliability and quality goals
 - Program timing
 - Production Volume
 - Key Contact Personnel within MNAO/Mazda

- 3) Design Failure Mode and Effects Analysis (DFMEA)
A Design FMEA is a systematic approach used by a design responsible team to assure that potential design failure modes and their associated causes have been considered and addressed.

Refer to *AIAG Potential Failure Mode and Effects Analysis - FMEA reference manual*

When the supplier is responsible for the design of parts/product, the supplier shall meet all requirements of the Mazda specification drawing and Mazda Engineering Standard (MES).

In order to assess potential Design Failure modes and their associated causes, the supplier shall implement a DFMEA when the supplier is responsible for the design.

- 4) Design Review
Design reviews are regularly scheduled meetings led by the supplier's design engineering activity and shall include other cross-functional affected areas. Design reviews are a series of verification activities that are more than an engineering inspection. The design review is an effective method to prevent problems and misunderstandings. It also provides a mechanism to monitor progress and report to management. The supplier shall implement the design reviews to assure that all concerns related to design including design/manufacturing feasibility and test failures during design verification testing will be resolved in a timely manner.
- 5) Design Verification Plan
The design verification plan is a document that lists the engineering evaluations and tests required to establish that the design is fit for use in its intended environment. The supplier shall develop the design verification plan and complete the necessary Design Verifications in a timely manner.
- 6) Subcontractor APQP Status
The supplier is responsible for implementation of APQP for their suppliers or subcontractors. The supplier shall initiate, monitor and complete all APQP activities for their procured components and services.

Subcontractor APQP status is a supplier summary of its supplier or subcontractor APQP status. The supplier should incorporate their APQP requirements to their supplier or subcontractor and conduct APQP reviews as appropriate.

All suppliers must assess risk and specify the level of their supplier's APQP participation. Subcontractor that effect critical/significant characteristics should follow APQP disciplines.

- 7) Facilities, Equipment, Tooling and Gages
Facilities, equipment, tools and gages are those additional, new, refurbished and relocated resources required to produce the product at customer specified quantity and quality levels. A detailed fabrication plan shall be developed by the supplier. The fabrication plan shall indicate the vehicle program number, part number and name, quality rank and include a Gant chart type schedule showing design, build and certification timing for all required facilities, equipment, tooling and gages. The equipment, tooling and gages shall be delivered, set up and approved prior to the production trial run.

- 8) Prototype Build
Prototype builds are the manufacture or assembly of components, systems or subsystems supplied to the customer for builds occurring prior to the production trial run.

Prototype parts must be inspected and tested in accordance with the Prototype Quality Control Standard for Suppliers set forth by Mazda Prototype Fabrication Group. Prototype inspection and testing data shall be submitted to Mazda Prototype Fabrication Group and included with the prototype part shipment. Refer to *Mazda Prototype Quality Control Standard for Suppliers reference manual.*

Note: *For air conditioning and accessory parts, consult MNAO Engineering Group for specific requirements related to each part and/or program.*

- 9) Drawings and Specifications
Drawings and specifications cover all engineering drawings, CAD data, material specifications and engineering specifications (MES).

Program need dates must be communicated to MNAO/Mazda. The drawings and specification program need

date is the last possible date that supplier can accept a design change and support Part Submission Warrant (PSW) delivery at the Material Required Date (MRD).

Drawings and specifications shall include engineering specification tests, product validation test requirements and must be documented in time to support pre-launch control plan development.

10) Team Feasibility Commitment

The supplier's product Quality Planning Team shall assess the feasibility of manufacturing the proposed design. Customer design ownership does not preclude the supplier's obligation to assess design feasibility.

The team must be satisfied that the proposed design can be manufactured, assembled, tested, packaged and delivered in sufficient quantity at acceptable cost and quality to the customer on schedule. The supplier must also assess risk and determine which of their suppliers must do a feasibility assessment. The supplier shall prepare formal feasibility documentation for management review as well as MNAO review. Refer to AIAG Advanced Product Quality Planning and Control Plan APQP reference manual for an example of the Team Feasibility Commitment.

11) Manufacturing Process Flow Chart

The process flow chart is a graphic representation of the current or proposed manufacturing process flow. The supplier shall develop the process flowchart to analyze sources of variations in machines, materials, methods and manpower from the beginning to the end of a manufacturing or assembly process.

12) Process Failure Mode and Effects Analysis (PFMEA)

The process FMEA is a systematic approach used by a responsible manufacturing team to assure that potential process related failure modes and their associated causes have been considered and addressed. The supplier shall develop the PFMEA for all new or revised parts/product. A PFMEA is a living document and needs to be reviewed and updated as new failure modes are discovered. Refer to AIAG Potential Failure Mode and Effects Analysis - FMEA reference manual.

- 13) Measurement Systems Evaluation
Measurement Systems evaluation assesses the variation of the measurement system and determines whether the measurement system is acceptable for monitoring the process. The supplier shall implement the measurement systems analysis. Refer to AIAG Measurement System Analysis (MSA) reference manual.
- 14) Agreed Drawing
When a supplier is responsible for the design of a part, the supplier is required to develop and submit the "Supplier Drawing(s)" incorporating all design requirements listed in Mazda's specification drawing(s) and Mazda Engineering Standards (MES) for Mazda Engineering approval. The Supplier Drawing(s) shall be approved by Mazda Product Engineering Group prior to the Pilot Production Parts Delivery. Refer to MES BA 302A Agreed Drawing Standards and Application essentials for this procedure.
- 15) Control Plan Special Characteristics List
The Control Plan Special Characteristics List is developed by the supplier to identify all critical/significant characteristics including their specifications. The Control Plan Special Characteristics List shall be approved by MNAO Supplier Quality Assurance Group prior to the Pilot Production Parts Delivery. Whenever changes affecting the Special Characteristic List are made, prior to change incorporation the supplier shall resubmit the List for approval. Refer to Section 3.4 Preparing Control Plan Special Characteristics List for this procedure.
- 16) Pre-Launch Control Plan
The Pre-Launch Control Plan is a description of the dimensional measurements, material and functional tests (including test characteristics, sample size and frequencies indicated in the Mazda Engineering Standard (MES) PV test column) and appearance inspections that will occur after prototype and before full production. All critical and significant characteristics identified in the Control Plan Special Characteristics List shall be included in the Pre-Launch Control Plan. The Pre-Launch Control Plan should include additional product/process controls items to be implemented until the production process is validated. The purpose of the Pre-Launch Control Plan is to contain potential non-conformances during or prior to initial production runs. The supplier shall develop the Pre-Launch Control Plan with

MNAO Supplier Quality Assurance Group's concurrence. Refer to AIAG Advanced Product Quality Planning and Control Plan - APQP reference manual.

- 17) Operator Process Instructions
The operator process instructions describe the details of controls and actions that operating personnel must perform to produce quality products. The supplier shall develop the operator process instructions prior to the production trial run in order to be validated during the production trial run.
- 18) Packaging Specifications
The supplier shall design and develop the packaging specifications to meet the requirements of MNAO/Mazda Logistics Group. All Packaging Specifications shall be approved by MNAO Logistics Group prior to the Production Part Approval Submission. Refer to MNAO Packaging Guide reference manual.
- 19) Production Trial Run
The production trial run is a validation of the effectiveness of the manufacturing process utilizing production tooling, equipment, environment (including production operators), facilities and cycle times. The Pre-Launch Control Plan is to be utilized during the production trial run. Output from the Production Trial Run shall be used for the Production Part Approval Process (PPAP). Corrective design and process actions shall be established for concerns identified during the trial run.
- 20) Production Control Plan
The production Control Plan is a logical extension of the pre-launch Control Plan describing in writing the systems for controlling parts and processes during full production. The production control plan is a living document and should be updated to reflect the additions and deletions of controls based on experience gained by producing parts. The supplier shall develop the Production Control Plan in collaboration with MNAO Supplier Quality Assurance Group. Refer to AIAG Advanced Product Quality Planning -APQP reference manual

Note: *The supplier is responsible for meeting all specification requirements in a stable and consistent manner even though MNAO/Mazda reviews the Production Control Plan.*

21) Preliminary Process Capability Study
The Preliminary Process Capability (Ppk) Study is a statistical assessment of the ability to produce product within specification. Characteristics for the Preliminary Process Capability Study are all characteristics identified on the approved Control Plan Special Characteristic List. The supplier shall complete preliminary process capability studies prior to Production Part Approval submission. If acceptable process capability ($Ppk \geq 1.67$) cannot be obtained before the Production Part Approval submission, a corrective action plan and an interim revised Control Plan (e.g. indicating 100% inspection) must be developed. Refer to Section 4.0 Production Part Approval Process (PPAP) in this manual and AIAG Statistical Process Control -SPC reference manual.

22) Production Validation Testing
Production Validation testing refers to engineering tests which validate that products made from production tools and processes meet engineering standards. The supplier should select parts for production validation testing from the production trial run per the sample sizes and frequencies outlined in the Mazda Engineering Standard (MES) PV test column or as agreed upon separately in the Pre Launch Control Plan.

All production validation tests should be completed prior to production part approval submission. If Production Validation Testing is not complete prior to Production Part Approval Submission, the supplier shall obtain approval by submitting a "Request for Delay of Test Results Submission" to MNAO Supplier Quality Assurance Group. Refer to Section 4.0 Production Part Approval Process (PPAP) and Appendix D - Completion of "Request for Delay of Test Results Submission".

Note: If there are no Mazda Engineering Standards to be applied to the parts and all functional and performance requirements are identified on the Agreed Drawing, test characteristics, sample size and frequency shall be approved by MNAO Supplier Quality Assurance Group.

23) Installation Instructions
Installation Instruction is a unique requirement for Accessory Parts supplied to MNAO. Installation Instructions shall be

communicated between the supplier and MNAO Technical Service Group prior to Production Part Approval submission.

24) Service Diagnosis Instructions
Service Diagnosis Instructions are required for Accessory Parts which may require detailed trouble shooting instructions to aid field repair personnel. Service Diagnosis Instructions shall be communicated between the supplier and MNAO Technical Service Group prior to Production Part Approval submission.

25) Production Part Approval (PSW)
Production Part Approval Process is the documented verification that all customer engineering design requirements are met by the supplier and the process has the potential to produce to these requirements during an actual production run. All PPAP requirements shall be completed by the supplier with the required documentation provided to MNAO Supplier Quality Assurance Group including the Part Submission Warrant (PSW). Refer to Section 4.0 - Production Part Approval Process (PPAP).

Note: The supplier must not ship Mass Production (MP) parts to MNAO without an approved PSW from MNAO Supplier Quality Assurance Group.

26) PSW Part Delivery at MRD
PSW part delivery at the Material Required Date (MRD) is the latest date that fully approved (PSW) material shall be received at MNAO to support Mazda's production. MNAO's material required date will be communicated to the supplier from MNAO Supplier Quality Assurance Group.

3.3 Preparing and Submitting the APQP Status Report

The supplier has primary responsibility for the Status Report. The supplier must conduct GYR (Green-Yellow-Red) assessments on the 26 APQP Elements. The Status Report summarizes the results of the assessments.

The APQP Status Report shall be submitted to MNAO Supplier Quality Assurance Group at all major program reviews or upon request. The supplier shall have supporting documentation available upon request.

3.3.1 GYR Status Assessment

Green-Yellow-Red (GYR) status communicates the progress toward the successful completion of an APQP element by the program need date. The program need date is the last possible date an element can be completed and not adversely affect quality or timing of the program. The "GYR Status" column of the report shows the assessment for each element.

Definitions for Green, Yellow, and Red follow:

Green - "G" ratings are given before the program need date to indicate the element will meet the program need date and will meet all quality expectations. "G" ratings given on the program need date indicate the element is complete and meets all quality expectations.

Yellow - "Y" ratings are given prior to the program need date to indicate an element may not meet the program need date or quality expectations. To be considered "Y", a recovery plan must be in place for the element. "Y" ratings indicate a need for program management attention. A "Y" rating can only be given to an element prior to the program need date.

Red - "R" ratings are given prior to the program need date to indicate an element will not meet the program need date or quality expectations. "R" signifies the program is at risk and needs immediate management attention. Any element rated "R" at its program need date must carry the "R" rating through the remainder of the program. Completion of the element after the program need date does not change the timing status of the element; the element is late and must stay red.

3.3.2 Risk Assessment

Every APQP team must conduct a risk assessment as soon as possible after forming the team. The purpose of the risk assessment is to determine if all of the elements in the APQP process must be completed.

Assessment Criteria

The team must evaluate 4 major areas of risk:

- 1) Quality History
 - High warranty or Things Gone Wrong (TGWs) on current model or surrogate product
 - Frequent Quality Rejects and/or campaigns at the receiving plant
 - Similar component or system was the cause of a recall action

- 2) Supplier profile
 - New supplier or new manufacturing location
 - Product or manufacturing technology is new to the supplier manufacturing location
 - Supplier's historic launch performance is poor
 - Supplier resources are stretched due to significant amount of new business

- 3) Engineering Profile
 - New design
 - Manufacturing techniques are new to the industry
 - Similar products are subject to numerous design changes that threaten program timing
 - High product or process complexity
 - Product is strategically important due to high visibility or functional performance

- 4) Performance versus Targets
 - Design goals (weight, materials, functional performance, etc.) will be difficult to achieve
 - Reliability goals will be difficult to achieve
 - Quality goals (warranty, TGWs, scrap rates, rework rates, etc.) will be difficult to achieve
 - Program timing is compressed
 - Cost targets are aggressive

Adjustments to APQP Key Element Requirements

If any of the concerns listed above are present, MNAO will require all APQP elements be completed. If the program is considered to be low risk, the supplier may be allowed to skip certain APQP elements. For example, if the product is a carryover with minor changes, existing control plans can be used, and packaging evaluations may not be required. MNAO Supplier Quality Assurance Group must agree to all deviations from the APQP process. If MNAO and the supplier agree that an element is not required, the supplier should write "NA" for not applicable in the remarks section of the APQP Status Report.

3.3.3 Status Report Field Descriptions

The following section describes how to fill in each of the fields on the Status Report. Refer to the status report example following the field description for the number of each field.

- ① Date Enter the current date.
- ② Review Number Enter the number of the status report review with the customer. Increment the number after each review.
- ③ Supplier Enter the company name. If the supplier is delivering the product to another group within the manufacturing facility, a group number or group name may be entered here.
- ④ Location Enter the location of the facility manufacturing the system, subsystem or component.
- ⑤ Supplier Code Enter the Supplier Code for the facility listed in item #4.
- ⑥ Risk Assessment This section identifies risk associated with the supplier and/or product. Check the boxes, as appropriate, for new sites, new technology, or new processes. If applicable, briefly describe other risks and check the box.
- ⑦ Program Enter the name of the customer program.
- ⑧ Model Year Enter the model year for the customer program.
- ⑨ Part Number Enter the part number or lead part number for families of parts (ie, same part, different color) being supplied to Mazda. For families of parts, attach a list of all part numbers associated with the lead part number to the status report.
- ⑩ Part Name Enter the name of the part.
- ⑪ Eng. Change Level Enter the latest Engineering Change Notice number associated with the part.
- ⑫ User Plant Enter the name of the customer plant(s) to which the lead part number will be shipped for

assembly or manufacture in the next higher system, subsystem or component.

- ⑬ Team Members Enter core APQP team members. The first team member to be noted must be the supplier program manager.
- ⑭ Company/Title Identify the company and title of each core team member.
- ⑮ Phone/Fax List each core team member's phone and fax number.
- ⑯ Build Level List each prototype/pilot production build required by Mazda.
- ⑰ Material Required Date Enter the customer's material required date for each prototype/pilot production build listed in the build level column.
- ⑱ Quantity Enter the quantity required to support each prototype/pilot production build.
- ⑲ Concurred Special Characteristics Enter the number of Special Characteristics concurred with the MNAO and supplier for each pilot production build.
- ⑳ P.I.S.T. % Enter the percentage of inspection points that satisfy the tolerance for the concurred special characteristics on each pilot production build.
- ㉑ P.I.P.C. % Enter the percentage of Ppk indices that possess capability ($Ppk \geq 1.67$) for the concurred special characteristics on each pilot production build.
- ㉒ APQP Elements A list of the APQP documents, tasks, and disciplines which must be completed to support a Mazda's program.
- ㉓ GYR Status GYR assesses whether the expectations of the element will be completed in time to meet the program need date. Refer to GYR Status Assessment Procedures. Enter G, Y or R as appropriate.

- ②④ Program Need Date Enter the last possible date the element can be completed without adversely affecting quality, cost or timing of the program. It is suggested that this column be one of the first" columns filled out when initiating the status report.
- ②⑤ Supplier Timing Date Enter the date the element is currently planned to be completed. Whenever timing changes, there should be comments in the "Remarks" column that explain why the original date was revised.
- ②⑥ Closed Date Enter the date the element is successfully completed.
- ②⑦ Responsible Engineer's If an element is reported as (Y)ellow or (R)ed, assign the element to a team member, and Initials enter their initials in the box. The responsible engineer's full name and phone number must also be listed in the Team Member block.
- ②⑧ Remarks For any APQP element reported as Y or R, enter a brief remark addressing the situation. If the original timing has been revised, note the reason for the change.
- ②⑨ Comments Enter any additional comments regarding the status of the program.

3.4 Preparing the Control Plan Special Characteristics List

The Control Plan Special Characteristic List identifies the critical and significant characteristics of the part including their specifications and quality ranks. The Control Plan Special Characteristic List shall be developed by the supplier and approved by MNAO Supplier Quality Assurance Group prior to the Production Trial Run.

Special Characteristics shall include at a minimum the following;

- Product and process characteristics designated by MNAO as significant Characteristics (e.g. fit, form, function and finish)
- Governmental regulatory (AR ranked) characteristics
- Safety (A ranked) characteristics
- Engineering Standard (MES) performance tests
- Characteristics selected by the supplier through knowledge of the product and process

The supplier is responsible for incorporating the intensions of these important characteristics into all phases of process development, product validation, preliminary process capability studies as well as mass production quality control to assure that all special characteristics meet Mazda's specification or criteria.

The following describes how to fill in each of fields on the Control Plan Special Characteristics List.

- | | |
|--|--|
| ① Prototype
Pre-launch
Production | Indicate the appropriate category. Prototype is not required for the parts supplied to MNAO. |
| ② Control Plan
Number | Enter the control plan document number used for tracking, if applicable. |
| ③ Part Number/
Latest Change
Level | Enter the Mazda part number and the latest Mazda Engineering change level. |
| ④ Part Name/
Description | Enter the name and description of the product/process being controlled |
| ⑤ Supplier/Plant | Enter the name of the company and appropriate division/plant/group preparing the control plan. |
| ⑥ Supplier Code | Enter the supplier identification number issued by MNAO. |

- | | |
|--|---|
| ⑦ Key Contact/
Phone | Enter the name and telephone number of the primary contact responsible for the control plan special characteristics list |
| ⑧ Core Team | Enter the name(s) and telephone number(s) of the individual(s) responsible for preparing the control plan special characteristics list to the latest revision. |
| ⑨ Supplier
Approval/Date | Obtain the responsible manufacturing plant approval (if required). |
| ⑩ Date (Orig.) | Enter the date that the original control plan special characteristics list was completed. |
| ⑪ Date (Rev.) | Enter the date of the latest control plan special characteristics list update. |
| ⑫ Customer
Engineering
Approval/Date | This column is not applicable for the parts to MNAO. |
| ⑬ Customer
Quality
Approval/Date | Obtain the responsible MNAO Supplier Quality Assurance representative's approval. |
| ⑭ Other Approval
Date | This column is not applicable for the parts supplied to MNAO. |
| ⑮ No. | Enter cross reference number from Pre/Production Control Plan |
| ⑯ Description/
Rationale | Enter a description of the part's critical and significant characteristics from the agreed drawing, MES, applicable engineering standards and approved acceptance sample etc. |
| ⑰ Specification | Enter the specification or tolerance for each special characteristics. |
| ⑱ Class | Enter the quality rank (A,AR,B or C ranked). See Special Characteristics and Symbols on page 2 in this manual for a definition of Mazda's quality rank. |

①9 Illustration/
Pictorial

Sketch a picture or attach a drawing, numerically, identifying the characteristics listed in the Description/Rationale column. Datum's should be included in the sketch or drawing.

4.0 PRODUCTION PART APPROVAL PROCESS (PPAP)

Production Part Approval Process is the documented verification that all customer engineering design requirements are met by the supplier and the process has the potential to produce to these requirements during an actual production run.

The supplier shall adhere to the Production Part Approval Process specified in this section for sample submission. If there are any questions concerning the need or method for sample submissions, contact MNAO Supplier Quality Assurance Group.

A COPY OF THE APPROVED PART SUBMISSION WARRANT (PSW) MUST BE ATTACHED TO THE FIRST SHIPMENT OF NEW OR CHANGED PARTS.

THE SUPPLIER MUST NOT SHIP MASS PRODUCTION (MP) PARTS TO MNAO/MAZDA WITHOUT AN APPROVED PART SUBMISSION WARRANT (PSW) FROM MNAO SUPPLIER QUALITY ASSURANCE GROUP. PARTS SHIPPED WITHOUT AN APPROVED PSW SHALL BE RETURNED AT THE SUPPLIER'S EXPENSE. IN ADDITION, ANY COSTS RELATED TO MATERIAL SHORTAGES AT MAZDA SHALL BE CHARGED BACK TO THE SUPPLIER.

4.1 When Submission Is Required

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

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

Additionally, suppliers must notify the customer and submit for part approval prior to the first production shipment in the following situations unless MNAO Supplier Quality Assurance Group has specifically waived this requirement for the subject part. **If MNAO/Mazda waives a formal submission, all items in the PPAP file must be reviewed and updated, as necessary to reflect the current process. The PPAP file must contain the name of the responsible MNAO/Mazda person granting the waiver and the date.**

4. Use of another optional construction or material than was used in the previously approved part.
5. Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling.
6. Production following refurbishment or rearrangement of existing tooling or equipment.
7. Production following any change in process or method of manufacture.
8. Production from tooling and equipment transferred to a different plant location or from an additional plant location.
9. Change of source for subcontracted parts, materials or services (e.g.: heat-treating, plating)
10. Product re-released after the tooling has been inactive for volume production for twelve months or more.
11. Following a customer request to suspend shipment due to a supplier quality concern.

Note: All changes that affect A & AR Ranked characteristics always require Production Part Approval.

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

Primary suppliers are responsible for subcontracted material and services.

Production Part approval is not required for minor process changes that are normally experienced during daily production activities. However, the supplier is responsible for the change effectiveness.

Example of the minor process change:

- Change of operator
- Change of manufacturing shift
- Change of tooling (cutter, drills etc.)
- Change of material lot
- Change of operator/inspection instruction
- Minor maintenance or preventive maintenance performed on machine or equipment.

IF THERE IS ANY QUESTION CONCERNING THE NEED FOR PRODUCTION PART APPROVAL, CONTACT MNAO SUPPLIER QUALITY ASSURANCE GROUP.

4.2 Requirements for Part Approval

The following documents and items must be completed by the supplier for each part when any of the situations in Section 4.1 When Submission is Required, occur. Direction on which of these items must be provided to the customer is defined in Section 4.3 Submission Levels.

1. Mazda Production Part Submission Warrant. Refer to Section 4.7 Completion of "Part Submission Warrant".
2. Three sample parts or as agreed. Master samples to be retained by the supplier.
3. (a) Agreed Drawing if the supplier is responsible for the design.
(b) All supplier's design records including detail drawings.
4. Any authorized engineering change documents (ECN/SREA) not yet incorporated in the agreed drawing or Mazda drawing but incorporated in the part.
5. Dimensional results referenced to the agreed drawing or Mazda drawing. The results may be legibly written on the drawings (including cross-sections, tracings, or sketches as applicable).
6. Checking aids (fixtures, models, templates, mylars. etc.) specific to the part being submitted, used in inspecting or testing.
7. Material, performance, and durability test results as specified on the agreed drawing or Mazda drawing.
8. Packaging specification approved by MNAO Logistics Group. Refer to MNAO Packaging Guide reference manual.
9. Control Plan Special Characteristic List approved by MNAO Supplier Quality Assurance Group.
10. Process flow diagrams.
11. (a) Process Failure Mode and Effects Analysis (Process FMEA).

(b) If the supplier is responsible for design, a Design FMEA is also required.

Refer to *AIAG Potential Failure Mode and Effects Analysis-FMEA reference manual*.

12. Control Plans which include all product and process-related Significant or Key characteristics. Control Plans for "families" of similar parts are acceptable if the new parts have been reviewed for commonality.

Note: Production Validation (PV) and On-going (IP-1 and IP-2) testing specified in Mazda Engineering Standard (MES) shall be included on the Control Plan.

13. Process Capability Results showing conformance to Mazda's requirements for Critical, Significant, and compliance-related characteristics specified on the Control Plan Special Characteristic List with supporting data such as control charts. Refer to *AIAG Statistical Process Control-SPC reference manual*.

14. Measurement system variation (Gage R & R) studies for all equipment used for the statistical studies for new or modified gages, measurement, and test equipment. Refer to *AIAG Measurement Systems Analysis - MSA reference manual*.

15. Acceptance Sample Application approved by MNAO Supplier Quality Assurance Group if applicable. Refer to *Appendix - A Completion of "Acceptance Sample Application"*.

16. Installation instructions/service diagnosis instructions for specific parts such as dealer installed parts.

4.3 Submission Levels

MNAO Supplier Quality Assurance Group will identify the submission level that will be used with each supplier, or supplier and part number combination. MNAO's choice of levels for a supplier will be determined by such factors as:

- Supplier compliance with QS-9000 requirements
- Supplier quality recognition status
- Part criticality
- Experience with prior part submissions
- Supplier expertise with the specific commodity

The submission levels are:

- Level 1** - Warrant only submitted to the customer.
- Level 2** - Warrant with product samples and limited supporting data submitted to the customer.
- Level 3** - Warrant with product samples and complete supporting data submitted to the customer.
- Level 4** - Warrant (no product samples) with complete supporting data submitted to the customer.
- Level 5** - Warrant with product samples and complete supporting data reviewed at the supplier's manufacturing location.

See Retention/Submission Requirements Table for exact requirements for each Level.

LEVEL 3 IS THE DEFAULT LEVEL, TO BE UTILIZED FOR ALL SUBMISSIONS UNLESS SPECIFICALLY ADVISED OTHERWISE BY MNAO SUPPLIER QUALITY ASSURANCE GROUP.

Retention/Submission Requirements Table

Requirement	Submission Level				
	Level 1	Level 2	Level 3	Level 4	Level 5
1. Warrant	S	S	S	S	R
2. (a)Sample Product	R	S	S	R	R
(b)Master Sample	R	R	R	R	R
3. (a)The agreed drawing	R#	S#	S#	S#	R#
(b)Supplier's detail drawings	R	S*	S*	S*	R
4. Change Document if any	R	S	S	S	R
5. Dimensional result	R	S	S	S	R
6. Checking Aids	R	R**	R**	R**	R
7. Test Results	R	S	S	S	R
8. Packaging Specification	R	S	S	S	R
9. Control Plan Special Characteristic List	R	R	S	S	R
10. Process Flow Diagrams	R	R	S*	S*	R
11. (A) Process FMEA's	R	R	S*	S*	R
(B) Design FMEA's	R#	R#	S#*	S#*	R#
12. Control Plan	R	R	S	S	R
13. Process capability studies	R	R	S	S	R
14. Measurement System Studies	R	R	S*	S*	R
15. Acceptance Sample Application if applicable	S	S	S	S	S
16. Installation/Service Diagnosis Instructions	S***	S***	S***	S***	S***

- S - Submit to MNAO SQA. Retain copy at manufacturing location.
- R - Retain at manufacturing location. **Readily** available to customer representative upon request.
- * - Unless waived by customer.
- ** - Submit upon customer request.
- *** - Applicable for specific parts
- # - Applicable if Supplier(s) has design responsibility.

4.4 Process Requirements

The supplier shall comply with “Process Requirements” specified in AIAG Production Part Approval Process-PPAP reference manual except for the following MNAO specific requirements:

Special Characteristics

All safety and/or government - regulated characteristics and important performance, fit, form, function or appearance characteristics must be identified on the Control Plan Special Characteristics List by the supplier with MNAO Supplier Quality Assurance Group’s approval. All special characteristics on the List must be verified prior to PSW submission.

Appearance Approval Requirements

Appearance Approval Report (AAR) is not applicable for the parts or products supplied to MNAO. The supplier shall follow the appearance approval steps instructed by Mazda Engineering Group.

Appearance Sample Application

Appearance item’s process capability (e.g. burrs, scratches, weld length, color, gross etc.) should be studied during the production trial run. If it is determined that the appearance level affects the function, performance, durability, marketability or Mazda’s quality image, then acceptance limit criteria should be established utilizing the Appearance Sample Application procedure. Refer to Appendix A - Completion of “Acceptance Sample Application”.

The supplier shall submit the following to MNAO Supplier Quality Assurance Group when applying for acceptance sample approval;

- Completed Acceptance Sample Application(s) for each acceptance item and criteria.
- Three (3) representative production parts for each acceptance item and criteria.

Note; A separate acceptance sample application shall be completed for each different acceptance item and criteria.

MNAO/Mazda reviews the Acceptance Sample Application and evaluates the samples. If the application and samples are approved, MNAO/Mazda will complete and sign the lower portion of the application and will appropriately label each part as Acceptance Samples and distribute the three (3) samples as follows:

- One sample retained at Mazda’s Inspection Group

- One sample retained at MNAO Supplier Quality Assurance Group.
- One sample returned to the supplier with a copy of the approved Acceptance Sample Application

Acceptance Sample Applications should be approved by MNAO/Mazda prior to the production part approval submission.

If the acceptance criterion is changed or the acceptance samples become unfit for use because of damage or aging, the supplier shall replace or update the samples using this same procedure.

4.5 Record & Master Sample Retention

The supplier shall comply with “Record & Master Sample Retention” specified in *AIAG Production Part Approval Process-PPAP reference manual* except for the following MNAO specific requirements:

Retention Period of PPAP documentation

The supplier shall complete and retain copies of all of PPAP documentation in accordance with MNAO’s record retention requirement, regardless submission level required by MNAO. See *Section 2.2 MNAO/Mazda Specific Requirement* on page 11.

4.6 Part Submission Status

The supplier shall comply with “Part Submission Status” specified in *AIAG Production Part Approval Process-PPAP reference manual*.

4.7 Completion of “Part Submission Warrant”

The following section describes how to fill in each of the fields on the Part Submission Warrant. Refer to the Part Submission Warrant example on the following page for the number of each field.

- | | |
|--|--|
| ① Part Name | Engineering released part name. |
| ② Part Number | Engineering released part number. |
| ③ Safety/Regulated Item | “Yes” if so indicated on part drawing, otherwise “No”. |
| ④ Engineering Change & Approval Date | Show change level and approval date. |
| ⑤ Additional Engineering Change | List all authorized engineering changes and approval dates not yet incorporated on the drawing but incorporated in the part. |
| ⑥ Shown on Drawing Number | The design record that specifies the part number being submitted. |
| ⑦ Purchase Order Number | Enter this number as found on the purchase order. |
| ⑧ Part Weight | Enter the actual weight in kilograms to three decimal places. |
| ⑨ Checking Aid No. | Enter the checking aid number, if one is used for dimensional inspection. |
| ⑩ Engineering Change Level & Approval Date | Enter the engineering change number and approved date for the checking aid. |
| ⑪ Supplier Name & Supplier Code | Enter the supplier name and the code assigned to the manufacturing location on the purchase order. |
| ⑫ Supplier Manufacturing Address | Show the complete address of the location where the product is manufactured. |
| ⑬ Submission Type | Check box (es) to indicate the type of submission. |

- ⑭ Customer Name Enter MNAO
- ⑮ Buyer Name Enter the buyer's name.
- ⑯ Application Enter the model year, vehicle name, or engine, transmission, etc.
- ⑰ Reason for Submission Check the appropriate box. If checking "other", specify details. If necessary, additional details may be attached.
- ⑱ Required Submission Level Identify the submission level requested by MNAO Supplier Quality Assurance Group.
- ⑲ Submission Results Check the appropriate boxes for dimensional, material tests, performance tests, appearance evaluation, and statistical data.
- ⑳ Submission Results Check the appropriate box. If checking "no", enter explanation in "comments" below.
- ㉑ Comments Provide any explanatory details on the submission results; additional information may be attached as appropriate.
- ㉒ Supplier Authorized Signature After verifying that the results show conformance to all requirements and that all required documentation is available, the authorized supplier representative shall sign the declaration and print their Title and Phone Number.

Completion of “Acceptance Sample Application”

The following section describes how to fill in each of the fields on the Acceptance Sample Application. Refer to the acceptance sample application example for the number of each field.

- | | | |
|---|-------------------------------|---|
| ① | Part Number | Enter the part number or lead part number for families of parts. |
| ② | Supplier name and code | Enter the company name and supplier code (KU###) |
| ③ | Date Issued | Enter issued date of the Acceptance Sample Application. |
| ④ | Part Name | Enter the name of the part |
| ⑤ | Supplier Authorized Signature | Signature of individual responsible for quality |
| ⑥ | Characteristic | Enter the characteristic being submitted for evaluation and approval by MNAO Supplier Quality Assurance Group |
| ⑦ | Date of starting production | Mass production start date |
| ⑧ | Average monthly production | Enter the average monthly production of the part number listed in #2. |
| ⑨ | Effective Date | Enter the date or period that the criteria is effective. |
| ⑩ | Description | Enter the description of the acceptance sample criteria. The supplier must provide a description for each level of acceptance samples submitted (refer to the example). |
| ⑪ | Yield %/Reduction of man Hrs. | Enter the Yield number and reduced number of man hours. Specify the yield percentage or number of reduced man hours that resulted from the approval |

of acceptance samples (refer to the example below).

⑫ Number of Samples

Enter the number of samples submitted for each level of acceptance criteria (refer to the example below).

Level	Description	Yield % Reduction of man Hrs.	Number of Samples
Current condition	1 mm size	50%	3
A	1.5 mm size	75% 20hours/man	3
B	2.0 mm size	98% 40hours/man	3
C	3.0 mm size	100% 42hours/man	3

⑬ Reason for Application/
sketch

Enter the purpose of this acceptance sample criteria. Include a sketch, if applicable to explain or define the criteria

Completion of “Request for Deviation”

The following section describes how to fill in each of the fields on the Request for Deviation form. Refer to the Request for Deviation example for the number of each field.

- | | | |
|---|---------------------------------------|---|
| ① | Part number | Enter the part number or lead part number |
| ② | Supplier name and code | Enter the company name and supplier code (KU####) |
| ③ | Date Issued | Enter issued date of the Deviation Request |
| ④ | Part name | Enter the name of the part |
| ⑤ | Supplier Authorized Signature | Signature of the Supplier Quality Assurance Manager |
| ⑥ | Number of parts applied for deviation | Enter quantity of the parts that apply to the deviation. |
| ⑦ | Delivery Date | If the parts will be delivered to MNAO in several deliveries, list each separately. |
| | | Example: |
| | | October 10, 20?? 500 pieces |
| | | October 11, 20?? 400 pieces |
| ⑧ | Purchase Order Number | Enter the Purchase Order Number of the parts delivered with the deviation |
| ⑨ | Identification Method | Indicate the marking method used to identify the deviated parts |
| ⑩ | Concern Description | Nonconforming Characteristic and Sketch |
| ⑪ | Reason for Deviation Request | Enter the reasons for the deviation request |

- ⑫ Corrective action Enter the details of the corrective action and implementation timing.
- ⑬ Condition for use Check the appropriate box to identify the condition of use. If checking “other”, specify the detailed condition.

Appendix C

Pilot Parts Submission Requirement

This procedure specifies the necessary preparation and material submission requirements for Pilot Production Parts/Product submissions.

The Supplier shall submit the quantity of parts/product by the date specified on the MNAO Purchase Order for Pilot production parts/product.

The supplier shall prepare and submit the following documentation to MNAO Supplier Quality Assurance Group with each Pilot shipment and also include a complete copy of this documentation with each Pilot part shipment unless MNAO Supplier Quality Assurance Group waives this requirement.

Dimensional Inspections

For all Pilot parts/product quantities ordered, record the following data on the "Production Part Approval Dimensional Results" form found in the AIAG Production Part Approval Process - PPAP reference manual.

- 100% inspection of all special characteristics (critical and significant) indicated on the approved Pre-Launch Control Plan Special Characteristics List.
- 1 piece, 100% dimensional layout for all characteristics indicated on the Agreed Drawing or Mazda Drawing. The layout results may be legibly written on the drawing.
- When requested, enter PIST% (Percentage of Inspected Points that Satisfy the Tolerance) for the concurred special characteristics on the "APQP Status Report".
- When requested, enter PIPC% (Percentage of Ppk Indices that Possess Capability; Ppk1.67) for the concurred special characteristics on the "APQP Status Report".

Material Inspection

Material inspection is required for all raw materials of pilot parts. Record all data on the "Production Part Approval Material Test Results" form found in the AIAG Production Part Approval Process - PPAP reference manual.

Design Validation Test Results Summary

DV test summary from prototype parts shall be included with Pilot shipments. Record all data on the "Production Part Approval Performance Test Results" form found in the AIAG Production Part Approval Process - PPAP reference manual.

Production Validation Test Results Summary

PV test summary is required for all Pilot parts. Record all data on the “Production Part Approval Performance Test Results” form found in the *AIAG Production Part Approval Process - PPAP reference manual.*

Completion of “Request for Delay of Test Result Submission”

The following section describes how to fill in each of the fields on the Request for Delay of Test Result Submission. Refer to the Request for Delay of Test Result Submission example for the number of each field.

- | | | |
|---|-------------------------------|---|
| ① | Part Number | Enter the part number or lead part number for families of parts. |
| ② | Supplier Name & Code | Enter the company name and supplier code (KU#####) |
| ③ | Date Issued | Enter the issued date of the Delay Request. |
| ④ | Part Name | Enter the name of the part |
| ⑤ | Part Classification | Check the appropriate box. If other, specify detail. |
| ⑥ | Engineering Change Level | Enter the latest engineering change level. |
| ⑦ | Safety/Regulated Item | “Yes” if so indicated on part drawing, otherwise “No”. |
| ⑧ | Production Delivery Date | Enter scheduled delivery date of the production parts to MNAO. |
| ⑨ | Delayed Test Item(s) & Reason | Enter the delayed test items and detailed explanation why these tests were not completed by PSW program need date. |
| ⑩ | Test Schedule | Enter test schedule for delayed item(s). Enter tested parts manufacture date, test start date, scheduled date of test completion and scheduled date of test results submission to MNAO. |
| ⑪ | Questions | Answer the questions regarding surrogate test data, DV test results and quality issues at product development stage. If “Yes”, detail information shall be attached with this request. |
| ⑫ | Supplier Declaration | The authorized supplier representative shall sign the declaration and print their Title and Phone Number. |

Appendix E

Reference Documents

Quality System Requirements - QS 9000 (AIAG)

Advanced Product Quality Planning and Control Plan - APQP (AIAG)

Statistical Process Control - SPC (AIAG)

Measurement System Analysis - MSA (AIAG)

Quality System Assessment - QSA (AIAG)

Potential Failure Mode Effect Analysis - FMEA (AIAG)

MNAO Packaging Guide

Mazda Prototype Quality Control Standard for Suppliers

Forms

Advanced Product Quality Planning Status Report

Control Plan Special Characteristics List

Part Submission Warrant

Acceptance Sample Application

Request for Deviation

Request for Delay of Test Result Submission

Labels

Prototype Parts Label

Pilot Production Parts Label

PPAP Samples Label

Acceptance Limit Sample Label

Certified Parts Label