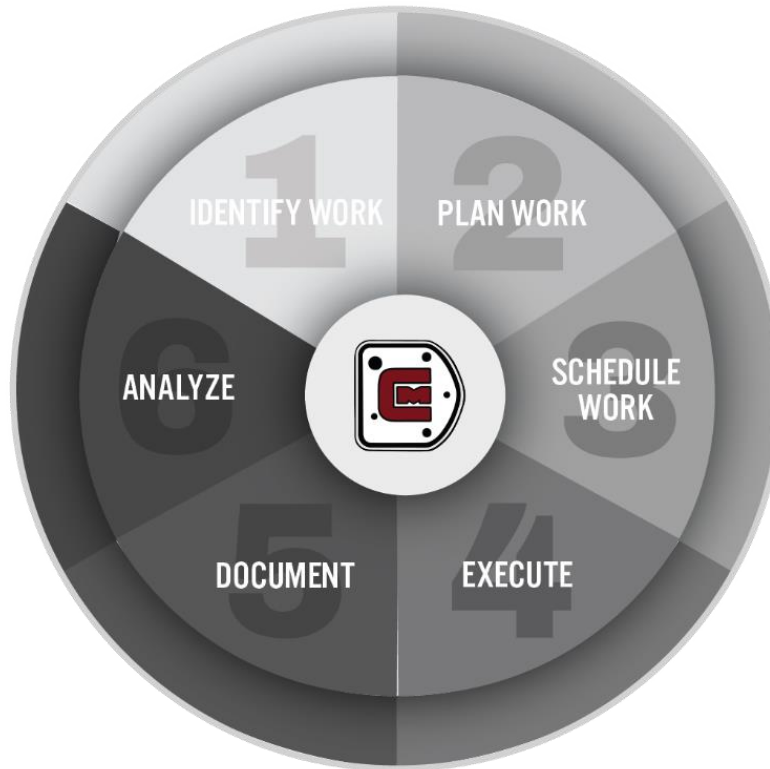




SUPPLIER QUALITY MANUAL

**Expectation for suppliers throughout the
U.S and International**

Achieve Success



1. **IDENTIFY WORK:** Where, what, and when?
2. **PLAN WORK:** Validate equipment and identify labor, parts, and procedures
3. **SCHEDULE WORK:** Validate resource availability
4. **EXECUTE:** Distribute work package and perform work
5. **DOCUMENT:** Confirm work hours update work history
6. **ANALYZE:** Compare to plan, test, and adjust frequency between interventions



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Challenge Quality Policy

Challenge is committed to customer satisfaction and continual improvement.

Challenge Objectives

- Achievement 100% On-Time Delivery performance from Suppliers
- Overall Supplier PPM Score of 25 or less (Issued by Challenge)
- ISO 9001:2015 and working towards IATF 16949:2016

Expectations & Philosophy

The procedures and policies defined in this manual will help support supplier efforts toward our shared objectives.

Challenge competes for business in the most competitive markets in the world. We must constantly improve our performance, our technologies, and our costs to remain competitive. Our suppliers are critical to our ability to succeed and must fully support our efforts in these activities.

The goals for Challenge and our suppliers are simple; be the very best at what we do and do it at the lowest cost. We must have the best quality, the lowest cost, and the highest level of customer satisfaction to survive and to ensure profitable growth. To achieve this, we must have a highly flexible, highly motivated and highly robust supply base.

Challenge requires 100% On-Time Delivery from all suppliers. We expect “Zero” defects and rigorous continuous improvement from suppliers. We expect 100% on time and 1st time approval for PPAP from all suppliers. We expect “flawless” supplier launches.

Director of Quality



SECTION 1- Introduction

A. Policy and Vision

It is the policy of Challenge Mfg. Company, LLC (“Challenge”) to utilize only those suppliers who can fully support our competitive goals, fully utilize the concepts of Continual Improvement, and strive to be number one in quality, delivery, and costs.

B. Purpose

The purpose of the Challenge Supplier Quality Manual is to clearly define the expectations and policies for suppliers to Challenge

C. Scope

This manual applies to all direct material and service suppliers to Challenge. In addition, many of the policies and procedures defined in this manual apply to indirect material and service providers when indicated on the purchase order.

D. Responsibility

1. Suppliers are responsible for ensuring that they are using the most recent revision of the Supplier Quality Manual, and all other reference documents cited herein. This includes, but not limited to Customer, Industry, as well as Statutory and Regulatory requirements.
2. Suppliers are responsible for meeting the requirements defined in this manual.
3. Failure to meet these requirements may result in loss of existing or future business with Challenge. Any/all costs associated with supplier failures will also be the responsibility of the supplier.
4. Suppliers are responsible for 100% on-time delivery and “Zero” defects.
5. Suppliers are responsible for supporting Challenge continuous improvement activities.
6. Suppliers are responsible for supporting Challenge efforts and procedures for ensuring flawless launches, including on-time PPAP submissions. This includes compliance with any applicable Customer Specific Requirements for Program specific documentation or other requirements.
7. Suppliers are responsible for ensuring compliance to Challenge requirements throughout their respective Supply Chain.
8. Suppliers are responsible for developing and implementing part specific and executable contingency plans for ensuring continued delivery of product and services in the event of unplanned events including catastrophic events.
9. Suppliers are responsible for Annual Validation unless otherwise stated in writing.

E. Challenge Supplier Quality Manual Availability

The Challenge Supplier Quality Manual can be obtained on the Challenge website: <https://www.challenge-mfg.com/suppliers-info/>.



SECTION 2- Challenge Supplier Requirements

A. Supplier Selection and Approval Process

1. ISO 9001:2015 and IATF 16949:2016 Registration

- Suppliers to Challenge must be 3rd party certified to ISO 9001:2015 and working towards IATF 16949:2016. Challenge customers have established IATF or TS 16949 as the standard for the Automotive Manufacturing sector. In accordance with Challenge Purchasing procedures, Challenge may select a supplier which is only ISO 9001 Certified (prevailing edition). Challenge will also recognize ISO 9001 Certification for those suppliers that are not manufacturers, and therefore may not comply with these requirements.

Suppliers must adhere to the appropriate AIAG standards. Requirements include: Production Part Approval Process (PPAP), Advanced Product Quality Planning (APQP), Per Challenge PPAP Checklist requirements.

2. Challenge Supplier Evaluation (Ref. Section E for form)

- All potential suppliers to Challenge must meet the minimum requirements defined in the Challenge Supplier Self- Assessment.
- All potential suppliers will complete a self-assessment utilizing the Challenge Supplier Self- Assessment form. Upon review of the evaluation documents, Challenge Purchasing/Supplier Quality/Internal Auditors will determine whether to accept the results of the self-assessment and/or conduct an onsite evaluation.

3. Preferred Supplier List

- Suppliers will be considered for new business based on the classification on the Preferred Supplier List and the current rating at Challenge user plants.

4. Customer Dictated Sources

- Customer dictated sources - unless otherwise stated in writing by our Customer and Challenge Purchasing, Customer-directed sources must also comply with the requirements defined in this manual.

B. Supplier Launch Readiness

Suppliers will be required to follow a formal process for launching new product as defined in the Challenge Supplier Launch Readiness.

The process will include the steps identified in IATF or TS16949 and the appropriate AIAG guidelines. Successful launches and launch documentation submitted on time will be key performance metrics for suppliers. Examples of some of the requirements defined in this process include:



1. Supplier Classification

Supplier/ Commodity is classified into categories, which define the level of Challenge participation, and the type of documentation a supplier must submit to support a new product launch.

2. Challenge 5-Phase Supplier Launch Readiness

Challenge has a 5-Phase launch process for suppliers. The phases include:

- Phase 1- Plan and Define
- Phase 2- Process/Tooling development
- Phase 3- Product & Process Validation
- Phase 4- Production Launch Plan
- Phase 5- Continuous Improvement Plan

3. Process Flow Diagrams are required for all Level 3 PPAP submittals. (Process Flow) Supplier must submit a process flow chart to identify each process step for manufacturing product. Each process step number must be identified the same as on the Control Plan and FMEA.

4. Control Plans are required for all Level 3 PPAP submittals. (Control Plan) Supplier must submit a control plan which includes all manufacturing applications. Special characteristic if applicable must be identified. The gage and measurement technique should be described and listed along with tool, fixture, frequency and test device used for data collection. Reaction Plan for failed product or process should be listed as well.

5. Potential Failure Mode and Effects Analysis (FMEA) Supplier FMEA must list each process step on the FMEA table. The list should include all the ways the product or process can fail during manufacturing. Assign Severity, Occurrences, Detection and calculate RPN rankings. Supplier decides which failures will be worked on based on the risk priority numbers. Focus on the highest RPN, re-evaluate each of the potential failures once improvements have been made and determine the impact of the improvement. Special Characteristics must define as product characteristics or manufacturing process parameters which can affect safety or compliance with regulations, fit, function, performance, or subsequent processing of product.

6. Supplier must submit (CPK) showing process is capable and in control by measuring it's spread / dispersion within the specification limit. Challenge require CPK of 1.67 or greater and PPK of 1.33.



7. Measurement Systems Analysis (MSA) For all Level 3 PPAP submittals, Challenge requires *separate* GR&R's be submitted *for each* measurement gage or device family gage that is used to validate Special (Significant, Critical, Major or CSI) Characteristics identified on the Design Record or listed in the Control Plan. The minimum number of appraisers, trials and parts when performing GR&R's are as follows:
- Variable data - 3 appraisers, 3 trials, 10 parts
 - Attribute data - 3 appraisers, 3 trials, 30 parts

Assessment of the measurement system should be based on the Total Tolerance of the feature being measured (%GRR to TOLERANCE). Guidelines for measurement system acceptability are as follows:

- The percent GRR should be less than 10% for gages used to measure Special Characteristics
 - Gages whose percent GRR is between 10% to 30% may be acceptable for some applications, but use of the gage must be approved by Challenge Quality Engineering or Customer
 - Gages whose percent GRR is over 30% are considered unacceptable for the application and cannot be used
8. Statistical Process Control (SPC). This includes compliance to applicable "CQI" Standards for Special Processes (CQI 9, CQI 11, etc.).
9. The Supplier must submit (Run at Rate) to prove and demonstrate its manufacturing process is capable of producing parts according to Challenge requirements at the quoted production rate.

10. Government Regulatory Compliance

Suppliers shall comply with all applicable governmental regulations and safety standards. Registration to ISO 14001 is strongly recommended. At a minimum, suppliers shall have a formal process in place to ensure compliance to government regulations, health and safety of employees, and a positive impact on the environment.

Must have a certified quality management system (QMS) (for example, ISO 9001:2015, TS 16949:2009 or IATF 16949:2016).

11. End-of-Vehicle Life Directive (ELV)

The European Commission implemented the End-of-Life Vehicle Directive (ELV) which prohibits the use of mercury, lead, cadmium, and hexavalent chromium in vehicles and components. The Directive is intended to minimize the impact of "end-of-life" vehicles on the environment. This is mandated for all European Union (EU)



Member States and is also required by North American and Japanese vehicle manufacturers.

12. Material Reporting

Automotive companies require suppliers to provide detailed information for all materials used in their products. The format for this is the International Material Data System (IMDS). IMDS can be found at www.mdssystem.com. Challenge suppliers are required to complete IMDS submissions prior to PPAP. (Submit to Challenge IMDS CODE: 15732)

13. Conflict Mineral Reporting

The term “conflict minerals” is defined as columbite-tantalite (coltan), cassiterite, gold, wolframite, tantalum, tin, tungsten, and any other mineral or its derivatives determined by the U.S. Secretary of State to be financing conflict in the Democratic Republic of the Congo (DRC) or an adjoining country.

Challenge requires its Suppliers to certify compliance to applicable statutory requirements, as requested.

14. Packaging

Challenge and the supplier will agree upon packaging during Phase 2 of the Supplier Readiness Process. The Challenge Packaging Information Form will be used to define the packaging details, and record submission and approval of Packaging parameters. Wherever possible, returnable packaging will be utilized. Suppliers are responsible for developing contingency packaging (expendable) should the returnable containers not be available.

Basic requirements will include:

- All packaging must have a proper label that complies with AIAG barcode label guidelines. The labels must include the following information at minimum:
 - Challenge Part Number with engineering change level and description
 - Number of pieces/quantities
 - Supplier name and/or supplier code
 - Lot Control/ Traceability information (refer to Paragraph 11 below)
 - Part specific information that may be specified by Challenge
- There shall be only one part number in each container and only one part number on each pallet. (Unless otherwise agreed upon during Phase 2 planning with the Challenge Launch Team)
- Packaging must be robust enough to protect the component/ materials and prevent damage or contamination during shipment. Challenge may require formal, independent testing
- All Packaging materials must comply with E-078 requirements.



15. Lot Control and Traceability

Lot control and traceability are essential requirements for suppliers to Challenge. The size of the lot reflects the amount of risk should a problem with product occur and therefore must be managed accordingly. Traceability must include the Manufacturing date, and the means to trace other critical processing streams (Heat Treat Lots, Assembly Cells, Cavities, etc.), as required for effective product identification.

16. Supplier Management Process

Suppliers must have effective systems in place to ensure that services, incoming materials, and components from sub-contractors meet all requirements.

C. Continual Improvement Process

1. Supplier Performance Reporting

Challenge will update supplier performance quarterly and publish as needed. It is the supplier's responsibility to communicate the importance of these metrics within their organization. It is also the supplier's responsibility to develop an improvement plan and implement the required improvements.

It is the goal and expectation that Suppliers to Challenge maintain "Zero" PPM and 100% On-Time Delivery. Supplier Corrective Action Request (SCAR) and /or other remedial actions may be implemented for any occurrence that can put these above 25 PPM or below 100% on- time delivery. In addition, suppliers will be monitored for on-time PPAP and APQP events and 1st time approval rate for both processes. Suppliers may also have and be required to support- specific objectives for cost improvement, engineering support, and Electronic Data Interchange (EDI) functionality.

2. Concern Management/ Problem Solving

Challenge Supplier Corrective Action Request (SCAR) defines requirements and expectations for suppliers regarding problem solving, Root Cause Analysis and Corrective Action. The SCAR outlines a disciplined, formal approach for problem solving and specifies the approach required for each step of the 8D process.

The SCAR process applies to all suppliers of production material, parts, subassemblies, or services. Suppliers will utilize the SCAR for resolving any/ all issues including quality related problems, delivery related problems, late submissions, and other issues identified in this manual and on the Challenge purchase order.

Supplier Corrective Action Request (SCAR) Response Requirements:

- Initial Response- 24 Hours
- Short Term Corrective Actions (Including Containment) - 48 Hours. Must include written confirmation of a Return Material Authorization (RMA) number.



- If Return Material Authorization (RMA) is not received within 48hrs, non-conforming material will be debited automatically in the next pay cycle and/or thru a debit memo “CMC Vendor Debit” and defective parts will be scrapped.
- Completed/ Verified Long Term Corrective Actions- 2 weeks

3. Escalation of Issues – PEP 1 – 4

Challenge requires Suppliers to ensure that all material, services, and processes are in conformance to all specifications and requirements. This includes adherence to the defined delivery schedule. Repeat product and/ or process issues, launch or delivery disruptions- may require the use of Controlled Shipping at the expense of the Supplier. Challenge uses PEP, Performance Escalation Process for repeat occurrences. A Supplier failing to protect a Challenge facility from repeated incidences will be subject to the Performance Escalation Process, up to and including resourcing. Complete details of the **PEP** program is provided in Plex under Purchasing **P-709**. The general criteria regarding Supplier Performance initiating **PEP** are:

- **PEP 1** – Supplier Score Card is below the acceptable performance margin with Zero to 1 issue in any given consecutive 6-month period. This would not require an onsite Supplier Quality Control Plan review and/or Systems Audit but would require the supplier’s plant management to present their recovery plan.
- **PEP 2** – Supplier Score Card is below the acceptable performance margin with 2 repeat issues in any given consecutive 6-month period. This requires an onsite Supplier Quality Control Plan review and/or a Supplier Quality Audit, including a CAPA (Corrective Action Preventative Action) verification. Supplier’s middle management is required to present their recovery plan.
- **PEP 3** – Supplier Score Card is below the acceptable performance margin with 3 repeat issues in any given consecutive 6-month period. This requires Supplier’s Executive team meet with CMC Supply Chain Directors.
- Supplier status is changed to Conditional Supplier New Business Hold/Category. An onsite CAPA verification is required.
- **PEP 4** – Supplier Score Card is below the acceptable performance margin with 4 repeat issues in any given consecutive 6-month period. Supplier’s Executive team meets with CMC Executives where the Supplier Exit Plan is initiated and cancelling of PO’s.

*De-Escalation occurs when the supplier meets KPI agreements within the designated time frame & corrective action is effective.



4. Controlled Shipping

Challenge may determine that special measures are required to ensure adequate quality and delivery performance.

Controlled Shipping is a requirement by Challenge for a Supplier to add a separate, redundant inspection process for containment of a specific non-conformance, while implementing Corrective Action(s). The containment activity is in addition to normal controls and should be completed in a separate, controlled area. Submission of the sorting data showing inspection results is required. The data obtained from the redundant inspection process is critical as both a measure of the effectiveness of the secondary inspection process and the Corrective Actions taken to eliminate the initial non-conformance.

Challenge will notify the Supplier when they have been placed in Controlled Shipping.

Examples of criteria for a Supplier being placed on controlled shipping may include the following:

- Repeat quality performance issues
- Product nonconformance during Launch
- Repeat Shipping (count, labelling, etc.) discrepancies

Two levels of Controlled Shipping exist

- Level 1 includes a problem-solving process as well as a redundant inspection process. The Supplier's employees at the Supplier's location enact the inspection process in order to isolate the Customer from receipt of non-conforming parts/ material.
- Level 2 includes the same processes as Controlled Shipping Level 1, with an added inspection process by a third-party representing Challenge or our Customer. The third party is selected by the Supplier, approved by Challenge, and paid for by the Supplier. Continued failure to meet expectations could result in removal from the Approved Supplier List.

NOTE: Suppliers at CS level 2 are not permitted to bid for new, existing or transfer business unless notified by either the plant or Challenge Purchasing.

Other measures may be required if level 2 controls are not effective.

Criteria for exiting Controlled Shipping Level 1 or 2:

- Challenge will make the determination whether the Supplier can effectively correct the nonconforming material situation through the normal corrective action process and isolate Challenge from the problem.



- Application for an Exit Letter from Level 1 or 2 will be reviewed and approved by the Challenge plant, provided all the criteria has been met, and action plans have been completed and validated.

5. Supplier Cost Recovery

Suppliers are responsible for the quality, on-time delivery, and reliability of the product they supply. Product must meet all design and specified requirements. The Supplier accepts financial responsibility for the consequences of nonconforming product and rejected PPAP submissions. This includes, but is not limited to, costs incurred for containment, sorting, premium freight, rework, repair, and replacement of defective material, resulting overtime, and productivity loss incurred by Challenge or by Challenge customers.

- **Chargeback Debit** - The method of chargeback will be by debit memo
- **Changes** - In cases where a Supplier has implemented an unauthorized change or has failed to deliver contracted products in accordance with the specifications and terms of the Challenge Purchase Order, all cost that are incurred by Challenge and/ or its customers will be the sole responsibility of the Supplier

6. Supplier Request or Engineering Change (SREA) (Ref. Section E for form)

Any changes to process or product [Including, but not limited to: Material Change, Manufacturing Method Change, Process Order Change, Machine Change, Jig/Tool Change, Die/Mold Change, Inspection Method Change, New sub-supplier, Design Change, and Transportation/Packaging Change] must be submitted to CMC Purchasing and then by Challenge in writing. Prior to production shipments of the change, PPAP/PA/IPP submission will be required, as necessary. The initial shipment of the changed parts shall be denoted with an orange CMC 'New Model' sticker on the outer container of the first parts shipped. Failure to obtain written approval before any change is implemented will be viewed as a nonconformance. It can also result in immediate loss of the existing business.

7. Part Validation or Annual Validation

Suppliers are required to submit an Annual Validation for all, or any Production Part(s) or Service(s) provided to Challenge Manufacturing.

Unless otherwise specified, any Validations must be submitted utilizing the AIAG PPAP format and criteria for completion.

Challenge will specify the Level of submission.

Annual assessment of "CQI" results for Special Processes (CQI 9, CQI 11, etc.) shall be submitted. Challenge may utilize the services of third parties to conduct or assist in the validation/revalidation process. Supplier will be responsible for the costs associated with that process.



8. Business Continuity Planning

It is expected that Suppliers to Challenge prepare a Business Continuity Plan for all Products/Services on contract (Business Continuity Planning checklists and templates can be found at the AIAG or SAE websites). This plan ensures that suppliers are prepared for natural disasters and man-caused events that can disrupt business practices. A contact list with alternate and “all- hour” contacts is required. The plan and lists (including updates) must be provided to Challenge Corporate Purchasing and the appropriate Contact Lists to Challenge user plants.

9. Records and Sample Retention

Records or Sample Retention must comply with the appropriate statutory, regulatory, industry and/ or Customer standard.

D. Verification of Purchased Product

Challenge representatives and/or our customer’s representatives shall be afforded the right to verify at the supplier’s premises that the product/services conform to specified requirements.

Such verification shall not be used by the supplier as evidence of effective control of quality by the supplier. Verification by Challenge or our customer shall not absolve the supplier the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by the customer.

E. References

NOTE: All applicable publications are assumed to be current to the most recent “practical” edition.

ISO 9001:2015 International Organization for Standardization
TS 16949:2009 Technical Specification International Automotive Task Force
IATF 16949:2016 Automotive Quality Management System Standard
AIAG Production Part Approval Process (PPAP)
AIAG Advanced Product Quality Planning and Control Plan (APQP)
AIAG Potential Failure Mode and Effects Analysis (FMEA)
AIAG Statistical Process Control (SPC)
AIAG Measurement Systems Analysis (MSA)
AIAG CQI-19 Sub-tier Supplier Management Process
AIAG CQI-20 Effective Problem-Solving Practitioner Guide
AIAG M-12 Business Continuity Planning for the Automotive Industry
AIAG M-9 Materials Operation Management Guidelines
Challenge (Q-025) Supplier Self-Assessment Form
Challenge (Q-247) Supplier PPAP & Annual Layout Requirements Workbook
PEP (Performance Escalation Process) for Suppliers (P-709)
Challenge (SC-003) Supplier Request for Engineering Approval Form
Challenge Terms and Conditions