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Aerostar Manufacturing Supplier Quality Program
Aerostar Manufacturing, Supplier Quality Manual

A.

Purpose:

With this manual, we try to explain our minimum requirements to meet our OE Customer expectations in terms of Cost, Quality & Delivery. In addition, we use this to assess the capability and performance of each supplier.

Approach:

We always appreciate our suppliers who exceed the expectations of end customer in timely and efficient manner, in case if you need any clarity kindly contact our management team. (Contact details are given in Appendices).

Scope:

This manual applies to all production material suppliers that supply product(s) to our Romulus MI USA production facility.

Specific Note:

The term used in this manual “Supplier” throughout refers to entities that supply products as per international standards sent by us.
B. QUALITY POLICY

Aerostar Manufacturing specializes in precision machining, testing and assembly with a goal of zero defects. We achieve Customer satisfaction by meeting or exceeding Customer expectations in the areas of quality, delivery, cost and service.

VALUES

- Deliver what we promise
- Teamwork and communication
- Employee empowerment and involvement to drive continuous improvement, utilizing Six Sigma and Lean principles and tools
- Clean, organized facilities, utilizing the 5S framework and Lean tools
- Diverse workplace and supply chain

Lalit Goel  
CEO

Paul Kepreos  
President
C.

Aerostar Manufacturing Supplier Code of Conduct and Confidentiality and Expectations

Aerostar Mfg. Values its domestic and global supply partners who share the Company's commitment to quality and value and who operate under a philosophy that focuses on integrity and "doing the right thing."

To support that philosophy, Aerostar Mfg. Has a Code of Business Conduct for our employees and a Supplier. Code of Conduct specifically for its supply base worldwide. The supplier code outlines the Company's expectations that all suppliers will comply with certain business and ethical standards and to the laws of their respective countries, all other applicable laws, rules and regulations.

Compliance with the principles of the Aerostar Mfg. Supplier Code of Conduct is required to do business with Aerostar Mfg. Aerostar Mfg. requires a verification response from all suppliers before they are added to the supplier database.

Aerostar proprietary information is any information transmitted from Aerostar to the recipient and relating to Aerostar’s business, such as drawings, specifications, production schedules, test data or the like including information originating at Aerostar’s customers, with the following exceptions:

a. Information that is explicitly approved for release by Aerostar,
b. Information that is disclosed in a product marketed by Aerostar,
c. Information that was already known by the recipient prior to receiving the information from Aerostar or becomes known by the recipient independently of Aerostar through no wrongful act on the part of the recipient,
d. Information that is known or available to the general public.

1. Recipient agrees to maintain such proprietary information received from Aerostar in confidence to use it only in a manner consistent with the purpose for which it was transmitted and not to disclose it to persons not having a need to know it. In the event that recipient needs to transmit such information to a third party, recipient shall receive Aerostar’s prior approval in writing.

2. Aerostar Expectations
   Supplier’s leadership shall:
   • Review, understand, and ensure compliance to this manual as a part of doing business with Aerostar
   • Adhere to all requirements, including all Purchase Order Terms and Conditions
   • Adhere and comply to all environmental, health and safety laws and regulations
   • Ensure that Aerostar requirements are adequately communicated to its sub-tier suppliers, and ensure that all of Supplier’s supply chain partners adhere to these requirements.
   • Ensure their activities provide:
     - A safe work environment for employees
     - Environmental protection measures.
     - Continuous improvement commitment in Environmental, Health & Safety (EHS) performance.

D. Acronyms and Definitions

Aerostar Mfg. and industry standard acronyms are used throughout the Supplier Handbook for brevity.

1. AIAG – Automotive Industry Action Group is an industry organization that, among other responsibilities, provides administrative support to the
2. **APQP** – Advanced Product Quality Planning is a structured process for producing a quality plan, which supports the development and production of a product that will satisfy the customer. Reference the AIAG manual (Advanced Product Quality Planning and Control Plan – APQP©) for a complete description.

3. **Component Certification** – A process whereby the supplier certifies, in some cases with measurement data, that components are within specification.

4. **Aerostar Mfg. Seven Step Problem Solving** – A disciplined method for problem solving which emphasizes analysis for the true root cause and verification that the corrective action is effective in eliminating the root cause. The Seven Steps in the process are:
   1) Identify the Problem
   2) Determine and Rank Potential Root Causes
   3) Take Short Term Action and Containment
   4) Gather Data and/or Design Test
   5) Conduct Tests, Analyze Data, Identify Root Cause(s), Select Solution
   6) Plan and Implement Permanent Solution

5. **Measure, Evaluate and Recognize the Team**

6. **Classification of Characteristics (C of C)** – The process of classifying product and process characteristics for the optimum utilization of engineering, manufacturing, and supply base resources. In ISO/IATF 16949 terms these are Customer Designated Special Characteristics. C of C has four types of characteristic:
   a. **Critical Characteristic** – A dimension, material property, physical feature, etc. which, if not to specification could be a safety risk, or will certainly cause operational failure or a loss of performance.
   b. **Major Characteristic** – A dimension, material property, physical feature, etc. which if not to specification will probably cause operational failure, loss of performance, increased service cost or disruption to manufacturing.
c. **Minor Characteristic** – A dimension, material property, physical feature, etc. which has not been classified as Key, Critical or Major. It exists only as a general class to describe characteristics that do not fit other classifications. Although not classified as Critical, Major, or Key the supplier is responsible for ensuring these characteristics meet the print specification.

d. **Key Characteristic** – A dimension, material property, physical feature, process, etc. that has been identified as being key to subsequent manufacturing or assembly operations. Key characteristics may be identified by the SQI Engineer.

e. **Significant Minor (aka Six Sigma Characteristic)** – A measureable dimension, material property, physical feature, or other characteristic that has been identified by Dimensional Variation Analysis (DVA) or other analysis as being important to be monitored during the manufacturing of the component. **Note: Classification of Characteristics is intended to serve as a guide for the development of supplier process quality plans – not to relieve suppliers of the responsibility to produce all features to specification.**

7. **Direct Material** – Components and assemblies used in production processes that become part of the salable product. They are typically included as a Bill of Material item.

8. **Direct Part Marking** – Defined by customer Engineering Standard which prescribes methods for bar-code identification (1D, 2D, etc.) on required products.

9. **Disruption Score** – The process at Aerostar Mfg. of assigning a numerical score to material non-conformances based on the significance of the disruption to the Aerostar Mfg. assembly process.

10. **DQR** – Drawing Quality Review – A detailed cross-functional review of each drawing which ensures that the component is producible to the
specification, drawings are accurate and complete, and suitable for PPAP (when applicable), prior to final release of the drawings.

11. **In-plant Defect PPM** – The number of parts with supplier-caused defects found within a Aerostar Mfg. facility versus the number of parts received from that supplier by the Aerostar Mfg. facility, reported as parts per million (PPM) on a monthly basis. **Note:** For suppliers with multiple producing locations, each producing location will be considered separately.

12. **International Material Data System (IMDS)** – A global data repository for product content used by the automotive industry and used to gather data for various reporting requirements.


16. **MCM** – Master CAD Model – A master CAD model is a 3-D computer-based solid geometry model, which is a complete and accurate representation of the design intent for a produced item. For castings and forgings, it includes parting line definition, draft geometry, and fillet/round geometry.

17. **MQV** – Manufacturing Quality Verification – A process used by Aerostar Mfg. suppliers to reduce defects sent to customers by looking at FMEA findings and historical data, such as OEM defects, warranty, and customer touch points, and ensuring that steps have been taken to prevent these
defects from reaching our customers. Steps can include, but are not limited to, design changes, process design changes, and fail-safing.

18. **SCAR** – Supplier Corrective Action Response

19. **MSA** – Measurement System Analysis – A process to determine that measurement systems are capable of measuring to the desired accuracy and repeatability. Reference the AIAG manual (Measurement System Analysis - MSA) latest edition for a complete description.

20. **OEM** – Original Equipment Manufacturer.

21. **OEM Defect PPM- Supplier** – The number of Supplier Caused OEM defects divided by the number of units shipped expressed in parts per million (PPM).

22. **Pass-Thru Characteristic (PTC)** – (a.k.a. customer touch point) – A part characteristic which is not controlled or functionally tested in the Aerostar Mfg. Assembly process where any issue would first be discovered by the Aerostar Mfg. Customer. May be represented using this symbol.

23. **PCC** – Production Capability Certification – Aerostar Mfg. verification that supplier production capability and readiness will meet full production timing and volumes sometimes also known as run at rate. The intent is to identify manufacturing problems prior to full production that typically don’t become evident until full production runs are initiated. The process is used to verify supplier capacity and the supplier’s ability to meet fluctuations in demand (+ 20%).

24. **PPAP** – The Production Part Approval Process is the process used to ensure new or changed components, as well as changes to production processes, meet Aerostar Mfg. quality requirements. It is often used in conjunction with APQP. No new or changed parts can be shipped to Aerostar Mfg. before a PPAP is approved by an Aerostar Mfg. SQE.
Reference the AIAG manual (Production Part Approval Process – PPAP) for a complete description.

25. **Quality System** – Third Party Registration – Certification by an independent registrar which is qualified by a national accreditation body to perform audits to an accepted standard such as ISO/IATF 16949 and ISO9001 and to register the audited facility for a given scope.

26. **SCR** – Supplier Change Request – Process suppliers are required to use to request approval of a change to a product or process. This process may also be referred to as Product Change Notification (PCN) in some business units.

27. **SIP** – Supplier Improvement Process.

28. **Six Sigma** – Statistically based improvement process used & Suppliers will be requested to participate where significant opportunities for improvements are identified.

29. **SQE** – Supplier Quality Improvement Engineer is the person(s) at Aerostar Mfg. responsible for the ensuring suppliers execute various elements of the SQIP such as APQP, PPAP, and SCAR’s.

30. **Supplier Scorecard** – Aerostar Mfg. Purchasing system that rates the supplier in the categories of Price/Cost, Quality, Delivery, Technology, and Attitude/Administration.

**E. Enterprise Risk Management**

2. Conflict Minerals the U.S. Securities and Exchange Commission (SEC) adopted rules as directed by Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. These rules require manufacturers that file certain reports with the SEC to disclose whether the products they manufacture or contract to manufacture contain Conflict
Minerals that are “necessary to the functionality or production” of their products. These requirements were enacted to further the humanitarian goal of ending violent conflict and human rights abuses in the Democratic Republic of the Congo and adjoining countries (Covered Countries) which have been partially financed by the exploitation and trade of Conflict Minerals. Such SEC reporting manufacturers must declare whether or not any 3T/G in their products which originated from the “Covered Countries” came from Conflict-Free Smelters.

There are currently 4 minerals identified as conflict minerals (Tin, Tungsten, Tantalum and Gold, or 3T/G) and the U.S. Secretary of State may designate Other minerals in the future. Furthermore, other countries or regions may Pass similar “Conflict Minerals” regulations in the future.

Aerostar Mfg. may periodically survey suppliers of products it determines May contain conflict minerals. Surveyed suppliers will be expected to Conduct any upstream due diligence necessary to make an applicable Declaration and report the results via approved avenues communicated to The supplier by Aerostar Mfg.
F. Quality System Requirements

1. A quality system is an integral part of a successful quality program. It is not, however, a guarantee of quality products and processes. A quality system establishes disciplines. Only when the disciplines are in place and effectively executed will the benefits be derived. Functioning quality systems lead to sustained improvements within an organization.

2. Supplier quality system requirement by Aerostar Mfg.:

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<tr>
<th>Entity</th>
<th>ISO9001</th>
<th>AS9100 or ISO/IATF 16949</th>
<th>Exceptions</th>
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<tbody>
<tr>
<td>Aerostar Mfg.</td>
<td>All Direct Material Supplier</td>
<td>All Applicable Suppliers (3)</td>
<td>By Approval Only (1)</td>
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Note 1: While Aerostar Mfg. would like all suppliers to be ISO, AS, or IATF registered, there are exceptions allowed, see Note 2.

Note 2: The minimum acceptable quality system registration for a new Supplier to Aerostar Mfg. is ISO9001 unless written approval of exception is given by the applicable Aerostar Mfg. Purchasing or Quality Leader. Similar approval is required for the use of any supplier who is not ISO9001 registered (see Note 1).

Note 3: All suppliers who do not meet the AIAG, SAE, or IAQG applicability rules for becoming a supplier shall pursue certification. In the meantime, as a Minimum, these suppliers shall follow PPAP and APQP rules and all requirements listed in this manual.

Note 4: Suppliers who are not registered to one of the above listed standards must have Systems in place to ensure they meet Aerostar Mfg. Quality, Cost, and Delivery needs and complete/submit Aerostar’s Supplier Self Evaluation Audit F06_0001.
Suppliers with an above listed registration may still be required to complete and submit Evaluation F06_0001.

3. The supplier shall maintain their Quality System Registration through their registrar’s surveillance program and will notify the Aerostar Mfg. SQE or management of any change in their registration status such as a new certificate number, suspension, revocation or switch to another registrar. The supplier must submit a copy of their current registration to Aerostar Mfg.

4. For Suppliers of automotive based material, processes, or parts shall include the requirements of the Aerostar Mfg. Supplier Handbook in any scope of registration to ISO/IATF 16949 issued by an International Automotive Task Force (IATF) recognized and IATF contracted Certification body in order for the ISO/IATF 16949 certificate to be recognized as satisfying Aerostar Mfg. Criteria for third party Registration/Certification.

5. Aerostar Mfg. expects its Tier 1 suppliers to manage the quality of their supplier base.

6. Aerostar Mfg. requires that Tier 1 suppliers allow and facilitate Aerostar Mfg. visits and audits of Tier 2 suppliers as requested.

7. Automotive based Suppliers are encouraged to apply the principles outlined in “CQI-19 AIAG Sub-Tier Supplier Management process guidelines” to all their sub-tier suppliers. Aerostar Mfg. reserves the right to require a supplier apply the principles outlined in CQI-19 to address issues identified in the supplier’s sub-tier supplier development and management process.

8. ISO/IATF 16949 and ISO9001 contain numerous clauses such as “...when required by the customer” or “...where specified by the customer.” The Aerostar Mfg. Supplier Handbook is repository for these requirements. All items in this Aerostar Mfg. Supplier Handbook shall be Considered Aerostar Mfg. “customer requirements.”
9. It is impossible to cover every conceivable situation with a blanket statement or definition. If a situation occurs that is not covered by the Aerostar Mfg. Supplier Handbook, the Aerostar Mfg. SQE is the main point of contact for getting questions answered and situations resolved. The Aerostar Mfg. SQE has the authority to request data above & beyond the stated requirements in the Aerostar Mfg. Supplier Handbook if it is deemed pertinent to protect the interests of Aerostar Mfg.

**G. Continual Improvement**

1. Aerostar Mfg. expects suppliers to monitor the outputs of their quality system and continually improve in quality, service, and cost. This philosophy should be fully deployed throughout the supplier’s organization. Continual improvement in product characteristics means optimizing at a target value

And reducing variation around that value. This assumes that product characteristics currently meet specifications. Aerostar Mfg. Customers have high expectations of the quality of the Aerostar Mfg. Products and in order to meet these expectations we are equally demanding of our supply base.
2. Suppliers are expected to apply continual improvement techniques to non-product characteristics that impact quality, service, and cost such as machine downtime, floor space utilization, first-time PPAP approvals, testing methods, process flows, etc. Lean manufacturing methods are a proven way of achieving these improvements and are encouraged by Aerostar Mfg.

3. Suppliers are encouraged to adopt Six Sigma as a formal improvement process, particularly when aimed at improving quality or reducing costs.

4. The suppliers ‘quality objectives’ shall be in line with Aerostar Mfg. Quality objectives, particularly PPM (6,210), lead-time, and improvement targets.

5. Suppliers with high value, chronic or repeat quality issues are expected to participate in any Aerostar Mfg. driven problem solving initiative.

6. Suppliers are expected to implement Aerostar Mfg. Manufacturing Quality Verification (MQV) tool as part of their continual improvement process when directed by their SQE or as part of APQP during a VPI Program. MQV is a tool for identifying past and potential defects and ensuring that those defects cannot reach Aerostar Mfg. Or its customers. Aerostar Mfg. Uses MQV as an APQP tool and as a tool to drive continual improvement.

Note: Suppliers are expected to put in additional methods of control for Pass-Thru Characteristics (PTCs) whether they are defined on the Aerostar Mfg. Drawing or not. The Aerostar Mfg. SQE can help identify potential PTCs. MQV is the preferred method for identifying the actions taken to control these characteristics.

7. Suppliers shall use statistical tools for managing and improving processes wherever possible. Statistical tools may include but are not limited to Statistical Process Control.
8. Suppliers shall comply with continual improvement methods such as Annual Layout when requested. Annual Layouts are conducted to ensure continuing conformance to all Aerostar Mfg. requirements and shall include a complete layout inspection (including sub-components) to the customer drawing, confirmation of compliance to any engineering standards on the drawing, confirmation of compliance to the material specification on the drawing, and updated capability information for any special characteristics.

H. Supplier Selection

1. For potential suppliers to Aerostar Mfg., the selection team from Aerostar Mfg. will assess the supplier against specific requirements including Quality, Total Cost of Ownership (TCO), Technical, Regulatory, Financial, Warranty Commitment, Target Cost and Future Cost Reductions.

2. As a supplier or potential supplier you will be asked for a copy of your ISO/IATF 16949 or ISO9001 certificate which covers the producing plant location and product proposed for delivery to Aerostar Mfg.

3. Additionally, you will be asked to complete a Supplier Selection Assessment as a prelude to a site visit by the selection team. During the site visit, qualified members of the selection team will perform a Supplier Selection Assessment and/or a Focused Quality System Assessment. The selection team will be comprised of representatives of engineering, manufacturing, purchasing, quality and finance. The Supplier Selection Assessment looks at many of the supplier’s systems in detail with the objective of determining which areas need to be improved prior to launching an Aerostar Mfg. product at that facility. The Focused Quality System Assessment, rather than looking for the presence of an entire
quality system, focuses on the effective implementation of the system and looks for evidence of routine execution.

4. Process/Product audits of similar products being run on the process proposed for Aerostar Mfg. may also be included as part of the Supplier Selection Process.

I. APQP

1. The requirement of APQP is crucial to the development of new products and processes, the revision of existing products and processes, and moving components from one supplier to another. Its single most important tenet is that quality does not just happen, it must be planned. Quality must be in the design of the product as well as in the development of the process that will produce the product. Three key outputs of APQP are the Process Failure Mode and Effects Analysis, Control Plan, and PPAP. Suppliers are expected to be knowledgeable of and follow the APQP process.

2. As a supplier to Aerostar Mfg. awareness of at least two APQP processes happen in conjunction with one another
   a. Aerostar Mfg. initiates an APQP process internally in the development of new products. (Through Engineering/Buyer)

   b. As a supplier of a component or assembly to the new Aerostar Mfg. product, the supplier shall initiate an APQP process of its own when engaged by Aerostar Mfg. The supplier’s level of involvement will vary depending on where the responsibility for design control resides for the component or assembly that the supplier will be supplying.
4. The Aerostar Mfg. SQE will engage a supplier for APQP activity with required task completion dates at the appropriate time in the Product/Process development cycle.

5. Aerostar Mfg. requires suppliers with projects deemed as high risk to participate in the Aerostar Mfg. Safe Launch process. This may apply to new components, changes from one supplier to another, and for some component design or process changes. Suppliers expected to complete this activity will be notified by their Aerostar Mfg. SQE. Safe Launch includes but is not limited to:

   A. **Production Capability Certification (PCC Run)** – Test of capacity and Quality run by the supplier with Aerostar Mfg. personnel present. Similar to “run at rate.”

   B. **Source Release** – A process for ensuring non-PPAP approved parts meet quality requirements.

   C. **Component Certification** – A process whereby the supplier certifies, in some cases with measurement data, that components are within specification.

   ALL SUPPLIED RAW MATERIAL is required to have conforming material certification sent/emailed with EACH shipment.

   Suppliers stating “material certification kept on file” is not acceptable and material will be rejected or put on hold until conforming certification is received by Aerostar Mfg. Quality Department.

   D. **Preliminary/Inspection Control Plan** – Detailed plan for increased inspection frequencies during the safe launch timeframe.

6. Suppliers are required to use Aerostar Mfg. Electronic systems for submission of APQP, PPAP and Source Release documentation. Documentation submission requirements will be defined by the Aerostar Mfg. SQE and may vary by business unit.
7. Aerostar Mfg. has developed a formal APQP review process. This review process brings the supplier’s management; Aerostar Mfg. plant management, engineering, purchasing, and others together at different stages of the APQP process to review status of APQP activities associated with a specific component. Aerostar Mfg. suppliers shall participate in Aerostar Mfg. formal APQP process as requested by their Aerostar Mfg. SQE contact.

8. Purchase Order Specific Requirements may supersede the above Aerostar Supplier Manual requirements.

J. PPAP

1. PPAP (Production Part Approval Process) is a basic element of the Cycle. PPAP applies to both new and existing product and is intended to assure that the new or revised products and processes are production ready. PPAP can be the end result of APQP or a process in its own right to manage smaller changes. Regardless of whether Aerostar Mfg. initiates a new or revised component design, or whether the supplier initiates a change to an existing component or process, a PPAP must be approved by Aerostar Mfg. SQE prior to production parts being shipped from the supplier to Aerostar Mfg. Suppliers must be knowledgeable of and follow the AIAG PPAP process.

2. Aerostar Mfg. requires suppliers to follow the latest version of the AIAG PPAP manual.

3. Suppliers must obtain written approval from Aerostar Mfg. for product or manufacturing process changes before shipment of components to Aerostar Mfg. Unapproved changes cause serious issues often in spite of the fact that they were made by the supplier with the best of intentions.
Aerostar Manufacturing. Supplier Quality Manual

Customer must be notified of pending changes using the Aerostar Mfg. Supplier Change Request Process (SCR). Informed decisions are then made on the impact of the changes and whether a full, partial, or no PPAP submission is required. It is the supplier’s responsibility to ensure that Aerostar Mfg. has approved the PPAP before any parts are shipped to a manufacturing location.

4. Aerostar Mfg. -specific PPAP information:
   
a. Where the PPAP manual states “...contact the customer” or “…contact the customer product approval activity” that person is the SQE at Aerostar Mfg.

   b. The Submission Level (1 through 5) required by Aerostar Mfg. is defined by the SQE for each PPAP submission.

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<tr>
<th>Requirement</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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<td>1. Design Record</td>
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<td>-for proprietary components/ details</td>
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<td>-for all other components/ details</td>
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<td>2. Engineering Change Documents, if any</td>
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<td>3. Customer Engineering approval, if required</td>
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<td>4. Design FMEA</td>
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<td>5. Process Flow Diagrams</td>
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<td>6. Process FMEA</td>
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<td>7. Control Plan</td>
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<td>9. Dimensional Results</td>
<td>R</td>
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<td>10. Material, Performance Test Results</td>
<td>R</td>
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<td>A. Complete Material Certification per specification</td>
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<td>Include: BH, Yield, Tensile, Elongation when applicable.</td>
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<td>B. Cutups to show casting integrity</td>
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<td>Cut per print sections / Cut through thick areas of casting</td>
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<td>11. Initial Process Studies **</td>
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<td>13. Appearance Approval Report (AAR), **</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>*</td>
<td>R</td>
</tr>
<tr>
<td>14. Sample Product</td>
<td>R</td>
<td>S</td>
<td>S</td>
<td>*</td>
<td>R</td>
</tr>
<tr>
<td>15. Master Sample</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>*</td>
<td>R</td>
</tr>
<tr>
<td>16. Checking Aids</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>*</td>
<td>R</td>
</tr>
<tr>
<td>17. Records of Compliance **</td>
<td>R</td>
<td>R</td>
<td>S</td>
<td>*</td>
<td>R</td>
</tr>
</tbody>
</table>
### 18. Part Submission Warrant (PSW)

**S** S S S S R

If applicable

#### Bulk Material Checklist

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S</strong></td>
<td>The organization shall submit to the customer and retain a copy of records or documentation items at appropriate locations.</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>The organization shall retain at appropriate locations and make available to the customer upon request.</td>
</tr>
<tr>
<td>*<em>=</em></td>
<td>The organization shall retain at appropriate locations and submit to the customer upon request.</td>
</tr>
</tbody>
</table>

| Level 1 | Warrant only (and for designated appearance items, an Appearance Approval Report) 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 and other requirements as defined by the customer. |
| Level 5 | Warrant with product samples and complete supporting data reviewed at the organization’s manufacturing location. |

**Note 1:** A Level 5 submission may include supplier site activity such as a Process/Product Audit or other means of verifying the capability of the production system in addition to the onsite completion of the PPAP.

**Note 2:** Per AIAG manual, the supplier must complete all elements of a PPAP regardless of the submission level chosen, unless specifically waived in writing or via electronic system by Aerostar Mfg. SQE.

**Note 3:** In cases where PPAP volumes are very low, a “Special Level 4” PPAP may be utilized. You must get approval from your Aerostar Mfg. SQI engineer to use this variation.
Note 4: “Off The Shelf” Components: A part that is sold to the general public direct from the manufacturer or through a distributor network and is not being modified in any way to suit Aerostar Mfg. specific needs. These parts may be commercially available as a catalog item.

i. Suppliers providing off the shelf items to Aerostar Mfg. must be ISO9001 certified at a minimum.

ii. A Level 1 PPAP will be submitted by the supplier to Aerostar Mfg. using the appropriate Aerostar Mfg. PPAP system to signify the supplier has appropriate controls in place for production of the part. Any inspection/test data relevant to product dimensions or part function are to be retained on site by the supplier and available for review by customer upon request. Aerostar Mfg. SQE has the right to request additional data as part of PPAP where there are questions regarding off the shelf rule applicability.

c. Three sample parts are the default requirement for dimensional verification during PPAP with some customers requiring more than three samples. The Aerostar Mfg. SQE will notify the supplier if other than three sample parts are required.

Note 1: Customer’ drawings state specific Engineering, Material, Process, Inspection standards and product notes that are required to enable the supplier to manufacture the part. Compliance to these standards and notes shall be confirmed in writing by the supplier during the PPAP process. The supplier may use the dimension report/ISIR and material/performance documents to record their compliance statements.

Note 2: Aerostar Mfg. subscribes to the AIAG requirements regarding dimensional results for each manufacturing process. (E.g. Cells or production lines and all cavities, molds, patterns or dies)
Note 3: When specified on the drawing, a master cad model may become a source for product definition. Verification of features only defined by the MCM must be agreed with the Aerostar Mfg. SQE. Engineering approval for the MCM measurements is required.

d. Many Customers of Aerostar Mfg. require material content be reported in IMDS. Where requested, suppliers shall use the International Material Data System (IMDS – www.mdsystem.com) to report material composition information for components provided to Aerostar Mfg.

e. Process Flow Diagrams, PFMEA’s and Control Plans shall comply with the latest editions of AIAG APQP, PPAP, and FMEA.

i. Process Flow Diagrams, PFMEA’s and Control Plans shall use a process numbering scheme or sequencing method that is consistent to ensure traceability to each document.


Note 1: Use of operator instructions in place of a control plan is not acceptable.

f. Aerostar Mfg. PPAP Run Size Expectation:

i. When annual usage is over 3600 pieces, a 300-piece run, with 100 of the 300 pieces used for statistical analysis is required. High Volume PPAP’s will not be fully approved without sufficient data. The Aerostar Mfg. SQE and the supplier will agree to the requirements per these instructions.

A 30-piece machine study is NOT appropriate for PPAP approval.

g. Low and Ultra-Low Volume PPAP Rules:

h. When estimated annual usage is less than 3600 pieces, AIAG PPAP rules apply with the following Control Plan specific requirements: 1)
The supplier shall document in their Control Plan that they will either: perform 100% inspection and record the results or conduct an Initial process study with a minimum of 30 production pieces and maintain SPC control charts of the special characteristics during production, and 2) that they will conduct first piece full layout inspection to verify set-up. 100% inspection or SPC Control Charts for Special Characteristics and set-up records containing the first piece inspection data shall be maintained per AIAG PPAP Record Retention requirements. The Aerostar Mfg. SQE may require Pre-control as defined by Aerostar Mfg. on special and any identified special characteristics.

ii. In cases where annual usage is less than 360 pieces and statistical analysis of data impractical (e.g., normal manufacturing runs of less than 30 pieces) the supplier, upon agreement with the Aerostar Mfg. SQE, may use a Special Level 4 PPAP. This variant of the AIAG PPAP process is a Level 4 PPAP that requires submittal of the following elements: Design Record, Process Flow, Process FMEA, Control Plan, Dimensional Results, Material/Performance Test Results, Measurement Systems Analysis, and Part Submission Warrant. In addition, the supplier shall document in their Control Plan that they will perform 100% inspection of special characteristics and record the results, and conduct first piece full layout inspection to verify set-up. 100% inspection for Special Characteristics and set-up records containing the first piece inspection data shall be maintained per AIAG PPAP Record Retention requirements. Special Level 4 PPAP’s are intended only for those components with such low volumes that statistical information is invalid.

iii. The significant production run shall consist of at least one month Production quantity of the Demonstrated Capacity (e.g., Capacity = 2100 pieces, PPAP run size = 175 pieces).

i. Interim Approval of a PPAP shall only be used on an exception basis. The Aerostar Mfg. SQE will review the supplier PPAP submission and decide if an Interim approval is allowed using the Aerostar Mfg. guidelines. All interim approvals will require a detailed action plan to resolve the issues that prevented Full PPAP Approval. Material
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covered by an Interim approval that fails to meet the agreed to plan can be rejected.

j. Aerostar Mfg. suppliers must have the ability to submit PPAP documentation electronically. Documentation submission requirements will be defined by the Aerostar Mfg. SQE and may vary by business unit.

5. Aerostar Mfg. Special Characteristics: The AIAG PPAP manual refers to customer’s “Special Characteristics.” Special characteristics at Aerostar Mfg. are indicated on engineering drawings with the following symbols:

<table>
<thead>
<tr>
<th>Characteristic Type</th>
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<tbody>
<tr>
<td></td>
<td>Critical</td>
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<tr>
<td></td>
<td>Major</td>
</tr>
<tr>
<td></td>
<td>Key</td>
</tr>
<tr>
<td></td>
<td>Significant Minor (aka Six Sigma)</td>
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</tbody>
</table>

5. Aerostar Mfg. Special Characteristics: The AIAG PPAP manual refers to customer’s “Special Characteristics.” Special characteristics at customer are indicated on engineering drawings with the following symbols:

a. Special characteristics are to be documented in the “Initial Process Study” of PPAP.

b. In addition to the Critical and Major drawing characteristics, the Aerostar Mfg. SQE may specify other characteristics as Key characteristics for process control purposes. The process capability of any Key characteristics is to be documented the “Initial Process Study” of PPAP.

c. Unless otherwise directed by the Aerostar Mfg. SQE, all special characteristics are to be statistically studied and included in PPAP “Initial Process Study.” In general, Aerostar Mfg. requires a Capability or Performance Index greater than or equal to 1.67 as acceptance criteria for initial studies at the time of PPAP on special characteristics.
Note 1: It is important to consult the Initial Process Studies section of the PPAP manual for the discussion on stability and acceptance criteria for initial studies. Per these discussions, initial study acceptance criteria of quality indices between 1.33 and 1.67 may require some improvements after careful review of the data.

Note 2: The supplier shall maintain on-going capability data for all Aerostar Mfg. Special Characteristics. Ongoing process capability is to be maintained at Ppk ≥ 1.33. The requirement for maintenance of ongoing process capability is to be included in the production Control Plan. The supplier shall provide capability information to Aerostar Mfg. within 1 business day of request. In some cases, suppliers will be requested to provide capability on a routine basis (e.g. monthly).

d. While statistical studies are specified on special characteristics, this does not mean that the other characteristics on Customer Engineering drawings may be ignored. All characteristics must meet specification and it is in the supplier’s best interest to understand their capability on ALL features. All Significant Minor (A.K.A. Six Sigma characteristic) are to be studied using a minimum 30 piece sample and must demonstrate a capability or performance index of 1.0. Six Sigma Characteristics must also have a control plan item assigned to demonstrate conformance to specification over time.

Note 1: The Dimensional Results section of PPAP is where the measurement results for these characteristics are reported for the number of Sample Product required.

f. Current Calibration records are required for all gages/measurement equipment used to inspect Aerostar Mfg. product. Measurement Systems Analysis (MSA) is required for any measuring equipment used to inspect the special characteristics identified on the Aerostar Mfg. drawing or as defined by the Aerostar Mfg. SQE. The Anova method, as detailed in MSA 4th edition is the preferred method for submittal to Aerostar Mfg. MSA acceptance limits shall be as follows:
% Tolerance Ratio (Precision to Tolerance)
P/T Ratio is less than 10% is acceptable
P/T Ratio between 10 and 30% is marginally acceptable
P/T Ratio greater than 30% is unacceptable.

% R&R (Repeatability and Reproducibility)
R&R less than 10% is acceptable
R&R between 10% and 30% is marginally acceptable
R&R greater than 30% is unacceptable

K. Non-conforming Material

1. In the event that quality problems are experienced with product
   Provided by a supplier, Aerostar Mfg.’ corrective action process may
   Escalate through several phases depending on the adequacy and
   Timeliness of the supplier’s response and the effectiveness of the actions
   Taken. It may also go straight from problem notification to Senior
   Management depending on severity and urgency.

   Note 1: Reworked or repaired material is considered non-conforming
   unless prior approval of these processes was granted by the Aerostar Mfg.
   SQE and appropriate Aerostar Mfg. Engineering resources.

2. Aerostar Mfg. will notify the supplier when a nonconformance has
   occurred. At the time of notification, the supplier will also be advised if a
   corrective action response is required.

   a. When an MNC is issued to the supplier, it is Aerostar Mfg. Expectation
      that the supplier takes immediate action to contain any additional
defects. The supplier is expected to take appropriate corrective action to prevent additional defects from being produced or reaching any Customer site. Aerostar Mfg. SQE’s may check supplier’s actions taken as part of the Aerostar Mfg. Process/Product audit process.

b. The MNC gives the supplier the opportunity to document actions taken and Aerostar Mfg. suggests that the supplier document these actions. In some cases, an Aerostar Mfg. Plant may request that the supplier respond to an MNC. If response is requested, the supplier is expected to comply.

3. When a SCAR (Supplier Corrective Action Request) is issued, the below actions are required – Note, suppliers may request a review of these following items within 24 hours of the notification. Any exceptions agreed upon by both parties, will be noted in writing on the Corrective Action worksheet:

a. Supplier is required to take immediate containment actions to enable Aerostar Mfg. Facilities to operate and protect Aerostar Mfg. from further non-conforming product.

i. The supplier shall submit documented containment results within 24 hours of notification of non-conformity.

ii. The supplier’s containment process must cover all possible areas of potential defects including:

1. Supplier’s manufacturing location.
2. All potential transportation links (e.g. supplier to ship, ship to warehouse, warehouse to Aerostar Mfg., etc.).
3. All warehousing operations from the supplier through the Aerostar Mfg. facility.
4. The notifying Aerostar Mfg. facility and any other potential Aerostar Mfg. facilities.
5. The AIAG inventory containment form shall be submitted to Aerostar Mfg. to document containment has taken place at all possible inventory locations.
b. Root cause shall be identified and short term action in place within 48 hours of finding the defect. If a part is “required” to complete the root cause analysis, the 48 hours begins when the supplier receives the part. However, all attempts shall be made to complete the root cause analysis without having component physically in hand. Photographs, measurement data, and defect descriptions are usually sufficient for this purpose.

c. Long term action plan submitted within 10 working days of receipt of SCAR.

d. Long term action plan in place within 30 days of finding the defect. Past Due SCARs will be escalated to Aerostar Mfg. Management for further review.

i. Timeliness of suppliers’ responses to these due dates are measured and included in the Supplier Balanced Scorecard.

e. Aerostar Mfg. reserves the right to institute third party sorting/certification of product at the Suppliers location if a Supplier Corrective Action is inadequate or in the case of a recurring defect. Any charges accrued associated with the activities conducted by the Third party will be at the Supplier’s expense.

f. Suppliers are required to use the systems specified by their Aerostar Mfg. SQE to respond to MNC’s and SCAR’s.

g. PFMEA and Control Plan are to be reviewed and relevant revisions made as part of the problem solving process. The expectation is that these documents will be submitted as part of the completed SCAR response. Proprietary process documentation requires evidence that the review has been completed by the Aerostar Mfg. SQE. Process changes as a result of the problem solving process are expected to be submitted to Aerostar Mfg. for review using the SCR process and PPAPs completed where required.
4. All SCAR responses will be reviewed by appropriate Aerostar Mfg. Quality personnel (e.g. SQE) for adequacy. Suppliers are expected to submit evidence of problem solving tools used during root cause investigation of the issue. The Aerostar Mfg. Preferred format for Root Cause investigation is 3P-5Why; however other tools such as Cause & Effect Matrix, Fishbone Diagram, etc. may be used. Unacceptable responses will be returned to the supplier for further work.

Note 1: Aerostar Mfg. 7-Step problem solving methodology. Reference the AIAG manual (Seven-Step Problem-Solving Process for Truck and Heavy Equipment Suppliers) for detailed information. Note 2: If the supplier has institutionalized a different problem solving methodology (e.g., 8D) that is proven to be consistent with the intent of the Aerostar Mfg. Seven Step, the supplier’s response may be accepted using their format.

5. Repetitive nonconformance, adverse quality trends, or other issues may escalate the corrective action process to include, but not be limited to:

A. Formal Process/Product Audit of the supplier’s facility by Aerostar Mfg. Supplier Quality, looking for systemic issues.
B. Focused problem solving activity with agreed measures and targets and routine progress reporting into Aerostar Mfg.
C. Submission of capability information on selected characteristics.
D. Submission of Paynter Charts tracking defects and Step 3 and Step 6 action monthly.
E. Participation in 6 Sigma projects.
F. Participation in a formal Aerostar Mfg. Supplier Improvement Process program (SIP).
G. Participation in Controlled Shipping/Consequential Management activities, which may include Third Party containment/component certification processes that are provided at supplier’s expense. These actions will be implemented at the direction of Aerostar Mfg. Purchasing Supplier Quality Leader. These activities will be monitored at a senior level at Aerostar Mfg. and require the active participation of senior management at the supplier.
6. The final escalation of the corrective action process, if required, is a meeting of the supplier’s highest management with appropriate Aerostar Mfg. Plant, Purchasing or Corporate senior management. The supplier must be prepared at this meeting to commit resources to resolve the issues. Failure to follow through with these commitments would initiate re-sourcing activity by Aerostar Mfg.

7. Aerostar Mfg. monitors supplier-caused disruption costs to Aerostar Mfg. and its Customers. Costs associated with supplier caused disruptions will be recovered from the supplier. Typically, these costs could arise from:

**Non-Conforming Material**
Suppliers are responsible for the quality of their product throughout the Aerostar manufacturing process, installation at the final customer, and through the customers process. Suppliers must have procedures in place to prevent non-conforming product from escaping their process and shipping to Aerostar facilities.
In the event non-conforming material escapes and is shipped to any Aerostar location, including but not limited to, warehouses and/or affiliates, the supplier must have an internal quality alert process and must use the Aerostar Quality Alert document to alert Aerostar. The supplier is responsible for notifying their SQE, Buyer with enough information to track and contain all defective material. The supplier is responsible for all costs associated with the containment and replacement of the defective goods. The supplier will be required to submit corrective actions.
Minimum of billboards posted on two sides of the shipping containers for 3 subsequent shipments.
Suppliers are responsible for setting up and scheduling pick-ups of all Non-Conforming Materials.

**Defective Conditions**
When a product does not meet the documented specification or design requirements, or have a signed deviation from AEROSTAR, the product will
be rejected. The following is a partial list of general quality reject conditions:
- Appearance/surface defects
- Assembly defects
- Broken/damaged
- Burrs
- Contamination/corrosion
- Cracks/holes/tears
- Flash
- General deformities
- Missing part
- Casting number, illegible
- Over/under specified dimension
- Packaging
- Plating
- Sharp edges
- Wrong material

Quality Rejection Notification
In the event that non-conforming material is identified at Aerostar manufacturing or at the final customer location, immediate actions must be taken to ensure that acceptable product is used and production is maintained. Suppliers will be contacted and required to provide containment measures and sort authorization in the form of a CPAR within 24 hours of notification of the defect claim.

Quality Reporting Requirements
Suppliers are required to respond to all defective claims through using a disciplined problem-solving method (8D preferred). All efforts to identify root cause(s) should be taken with updates provided to AEROSTAR. A specific corrective action update schedule will be established with suppliers based on the severity and impact of the issue. Problem solving methods should utilize a team approach including statistical and mistake proofing techniques. Corrective actions that involve
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process changes require the supplier to provide updated Process Failure Modes and Effects Analysis (PFMEA) and Control Plans. Operator training and procedure violations are unacceptable root causes. Product layout data may be requested.

All defective claims identified and communicated to a supplier require containment actions within 24 hours by using three discipline (8D) response including, disposition of all parts at and/or in transit to AEROSTAR /or affiliate location. All certified material shall be identified with the associated CPAR number on a BillBoard or other specified criteria. This label will be near all barcodes on the container and clearly visible. The supplier is responsible to provide updates to all interim activity through to final verification. Validated corrective action measures that ensure prevention of the defective condition must be communicated in CPAR within 30 days of the original defect notification date. All interim action and corrective action plans must be entered onto the Aerostar CPAR.

L. Maintenance and Improvement

The Maintenance element perpetuates the Cycle and establishes on-going updates and monitoring of Aerostar Mfg. relationship with the supplier. This element contains both Aerostar Mfg. and supplier responsibilities.

1. Process/Product Supplier Change Control
   a. The supplier shall notify the Aerostar Mfg. SQE of any proposed process or product changes as described in the AIAG PPAP manual.

   b. The supplier shall obtain approval for all process and product change requests from their Aerostar Mfg. SQE prior to implementing a change. Proposed changes shall be approved using the Aerostar Mfg. Supplier Change Request Process (SCR). Informed decisions are then made on
Aerostar Manufacturing. Supplier Quality Manual

the impact of the changes and whether a full, partial, or no PPAP submission is required. **It is the supplier’s responsibility to ensure that Aerostar Mfg. has approved the PPAP before any parts are shipped to a manufacturing location.**

c. Changes to the supplier’s direct material supply base require the supplier to submit a Supplier Change Request (SCR). Upon approval of the Supplier Change Request the supplier may be required to submit a PPAP by the Aerostar Mfg. SQE.
d. The supplier shall gain approval from the Aerostar Mfg. SQE using the Supplier Change Request process when **any** alternate process is to be used. Note: An alternate process is one that is different than the process used during PPAP.
e. Products produced on alternate processes may be subject to increased inspection and test requirements as agreed with the SQE. **In all cases Item 1.d. applies.**

2. Quality Data

a. The supplier shall maintain routine quality data (e.g., quality indices updates, reliability test results, any data collection defined in control plans, etc.) that are required by the Aerostar Mfg. Engineering drawing, agreed to in the APQP/PPAP elements of the Cycle, or established as part of a corrective action plan. Such data shall be made available to Aerostar Mfg. upon request and provided within one (1) business day of such request.

b. When a PPAP submission for a part has not been made to Aerostar Mfg. in the last 24 months, the requirement for the next PPAP, regardless of the change to the part or process, is a complete PPAP submission which shall include updated dimensional data, Control Plan, PFMEA, and updated Process Capability data at a minimum, as well as any other information requested by the Aerostar Mfg. SQE
c. Supplier shall perform and maintain results for any required Functional Reliability Verification (FRV) testing that is identified on the component drawing by a functional reliability specification. Functional Reliability verification is intended to be ongoing and conducted by the supplier during the life of a component or sub-assembly to assess the ongoing capability of the component or sub-assembly to meet a functional reliability specification. Possible verification methods include but are not limited to: Fail-safing, in-process checks, process control, dimensional checks, and test-to-failure audit.

d. Aerostar Mfg. will monitor the quality performance of the supplier primarily through In-plant and OEM Defect PPM measures. Aerostar Mfg. will report these measures to the supplier. Zero PPM is the goal for both measures. Failure to meet this goal may result in corrective action activity as described in Section M, Non-Conforming Material. Aerostar Mfg. will set interim goals (targets) for suppliers who cannot immediately meet the zero defect goal. These targets will be reduced each year with the expectation that these suppliers will eventually meet the zero PPM goal.

e. Aerostar Mfg. will monitor the reliability performance of selected suppliers' components (especially suppliers with design control) through Warranty claims per engine, service campaign and temporary repair practice. Aerostar Mfg. will report these measures to the supplier.

i. The Suppliers must have the ability to submit Failure investigation electronically.

ii. The Supplier shall monitor and participate to reduce field warranty claims. It is important to control problem resolution time in their processes.

iii. In the event a reliability/safety problem results in a recall, the supplier shall work with Aerostar Mfg. to urgently remediate the problem.
M. Perpetuating the Supplier Quality Improvement Program

APQP and PPAP continue to provide inputs to the Maintenance element as new products and processes are developed and existing products and processes are improved. Likewise, Maintenance provides input to future APQP and PPAP projects with information on suppliers’ performance history. Following the elements of the program along with sincere execution of ISO/IATF 16949 will promote the upward slope of Continuous Improvement. Supplier performance in all elements of the program will be considered in future sourcing decisions.

N. Other Aerostar Mfg. Supplier Specific Requirements

1. Record Retention
   a. The supplier shall maintain PPAP records for the life of the product plus one year.
   b. The supplier shall maintain inspection and test records for three years minimum.

2. Access to Supplier Sites
a. The supplier shall allow on-site verification activities as required by Aerostar Mfg. and Aerostar Mfg. customers.
b. The supplier shall allow on-site Process/Product Audits and System Assessments when requested by Aerostar Mfg.
c. The supplier shall allow and facilitate visits by Aerostar Mfg. personnel to their suppliers for purposes of audit, PPAP review, APQP review, review of corrective action effectiveness, or any other reason related to the quality of components produced for Aerostar Mfg.
d. The supplier shall allow direct communication with their manufacturing facility on quality issues.

1. Quotation Criteria – When submitting a quotation, the following criteria shall be addressed:

a. Clear understanding and agreement on the product specifications, requirements and applications. Supplier is encouraged to seek participation in the Drawing Quality Review (DQR) process to ensure full understanding of Customer Print requirements.
b. Internal capabilities sufficient to manufacture products at consistent, acceptable, quality and performance levels.
c. Recommendation of any changes that will prove advantageous to product quality, performance, price and delivery.
d. Notice of any exceptions to be included with quotation bid.

2. General:

a. The supplier shall use the AIAG reference manuals for APQP, SPC, PPAP, FMEA and MSA processes.
b. Supplier shall notify Aerostar Mfg. of any changes within their management structure within two weeks of changes taking effect. This includes changes in ownership as well as any changes to contacts related to doing business with Aerostar Mfg.
i. The supplier shall appoint a ‘quality contact.’ This individual will be the prime path for communication of these handbook requirements to the supplier’s organization.
c. The supplier shall have the ability to communicate electronically with Aerostar Mfg. to address APQP, PPAP, SCAR, MNC, Source Release, RFQ, Scorecard, Survey, and Supplier Change Requests.

d. Any tooling, gauges etc. provided by Aerostar Mfg. shall be controlled within the suppliers system (e.g. for calibration requirements).

e. The supplier shall comply with any Customer Specific Requirements applied to Aerostar Mfg. by its customers.

Additionally, this requirement shall apply to any sub-tier suppliers that Perform these processes for the direct supplier to Aerostar Mfg. Suppliers to certain Businesses at Aerostar Mfg. May be required to comply with ISO-3834 Standard Quality Requirements for Welds. Where Customers require this level of weld control, the Aerostar Mfg. SQE will notify the supplier of the expectation. Use of this standard supersedes the requirement for AIAG CQI-15.

P. Additional Information (1)

1. AIAG Ordering Aerostar Mfg. does not provide AIAG manuals to its supply base, however, suppliers are expected to obtain copies for their organization. All manuals (PPAP, APQP, etc.) referenced in the Handbook may be ordered by contacting the AIAG at:

   Automotive Industry Action Group
   26200 Lahser Rd., Suite 200
   Southfield, MI 48033-7100 USA
   Phone (248) 358-3003 Fax (248) 799-7995
   or, ordering information is available on AIAG’s web site at: www.aiag.org

2. Forms
Many forms utilized in the Cycle are those referenced through PPAP, APQP, etc. Of all those referenced forms, the one that is required to be used without modification is the Automotive Industry Part Submission Warrant
Aerostar Manufacturing, Supplier Quality Manual (PSW) illustrated in PPAP. Other referenced forms (e.g., the Control Plan in APQP), are preferred to be used without modification; however, supplier modified forms are acceptable provided all information contained on the reference format is included.

Other forms utilized in the Cycle may be Aerostar Mfg. -required (e.g., Advanced Quality Planning Status Report) or Aerostar Mfg. -preferred (e.g., Seven Step Problem Solving). The Aerostar Mfg. SQE will answer supplier questions on whether a form must be used without modification) or if the form may be substituted with a form meeting the intent.

P. Additional Information (2)

PURCHASE ORDERS (P.O)

PPAP PURCHASE ORDER

PO for PPAP is issued to Supplier to cover the cost of PPAP parts only. PPAP PO will uniquely specify this in a document annexed to the PO along with level of PPAP submission. In this PO it will be mentioned number of parts required to submit 100% inspection data and remaining batch qty of PPAP will be covered under regular production purchase order. Aerostar Mfg. will clearly mention cost of PPAP parts shipments and this cost is to be borne by Supplier.

PRODUCTION PURCHASE ORDER

After PPAP approval supplier will receive purchase orders as per demand (based on Customer EDI)

RELEASE OF SCHEDULES

To assist the supplier to plan and meet our delivery expectations, we will provide correct production schedules based on actual demand from Customer. The lead times are based on part specific and MOQ. Each supplier’s delivery ratings are published every quarter.
PACKAGING
Suppliers will be expected to know specific requirement of particular part/product and quality of packaging. The material has to be applied with proper rust preventive oil and VCI papers to avoid rust since parts will be on water (Sea freight) minimum 45 days. Suppliers are to understand about fumigation of pallets/container. While submitting the quote each supplier has to provide packaging drawing and get it approved. If drawing calls for any validation then initial approval need to be taken for conducting test.

PACKAGING – DOMESTIC ON RETURNABLE PACKAGING.
When appropriate the Company may decide to establish returnable packaging systems for production part packing. Returnable packaging tends to minimize cost and waste, and leads to improvements in quality, house keeping, accessibility, and handling. A feasibility study will be conducted by our purchasing (Sourcing) function during the APQP phase of program launch on each part to determine if returnable packing will be used.

Foundry Tooling & Machine Tooling:

1. Supplier shall keep records of the condition of all dies/patterns, core boxes & fixtures. These records are to be available upon request.

2. Supplier shall not perform any repair/correction unless they have written authorization from Aerostar Mfg.

Gaging:

1. Supplier to keep all gaging current and in good working condition.

2. Supplier shall keep records of the condition & calibration of all gages. These records are to be available upon request.
3. Supplier to submit condition of each of these (Every quarter). If any critical gage or fixtures is damaged or broken then supplier MUST manufacture at own cost and make sure that parts are inspected with same kind of tools.

ADDITIONAL NOTE ON CHARACTERISTIC CONTROL

Any dimension marked with diamond or half round filled must demonstrate SPC or Process capability for the corresponding dimensional characteristics or they need to provide proof such as steel mill certificate (with proper lab documents on chemical compositions of material, which are meeting drawing requirements).

AEROSTAR MFG/ SUPPLIER: SEVERITY (S), OCCURRENCE (O) AND DETECTION (D)

It is an assessment of criticality of the corresponding characteristic to Aerostar Mfg and based on scale of 1 to 10 as mentioned in AIAG FMEA reference manual. There should be proper co-relation between basic three elements such as PFC, PFMEA AND CP so that assessment of RPN can be justified.

SUPPLIER: OCCURRENCE, (O)

It is the Suppliers assessment of the probability of failing to meet the specifications on the corresponding characteristics and based on a scale of 1 to 10 defined in the AIAG FMEA manual. Suppliers are responsible for collecting the data for the same.

SUPPLIER: DETECTION, (D)

It is the supplier’s assessment of their present controls to detect and is based on ct an out of specifications condition for the corresponding
Characteristic is based on a scale of 1 to 10 defined in AIAG ref manual table. **We will help suppliers**, if required for identifying correct ranking.

**RISK PRIORITY NUMBER (RPN)**

Following is the formula used to find out the RPN of particular process characteristic

\[ RPN = \text{Severity (S)} \times \text{Occurrence (O)} \times \text{Detection (D)} \]

Note – Follow AIAG PFMEA guidelines

**BASIC GUIDELINE FOR IDENTIFYING CORRECTIVE ACTIONS FROM PROCESS FMEA “PFMEA” RATINGS.**

Supplier always should have focus to reduce the occurrence, so primary **GOAL** of process FMEA is to reduce the occurrence. When the effects of a failure have a High severity ranking (rating), then we must have high level controls to keep the occurrence levels down. We must understand in this exercise that to make effective use of FMEA, the occurrence rating should be done on the basis of actual data available for same or similar process. In case of data is not available then experienced colleagues / senior manufacturing engineer’s help is required to take approximate occurrence rating.

**Supplier Performance.**

Supplier’s performance will always monitored by our SQE and Material purchasing divisions in terms of **Cost**, **Quality** and **Delivery**.

Our continuous feedback on above **C**, **Q** & **D** will help to understand expectations of our Customers.

Basically there are three levels **Good, Marginal & Poor**. Each one this is further classified into six categories. Our management review performance of supplier every quarter.
**Good**: This is the highest level, that supplier can attain. All new suppliers are placed in this category, when they start business with us. They remain at this level as long as supplied material has no NC’s from our quality. A supplier who comes under this category always be our first choice for new business.

The score card rating as below,
- Excellent : Score Card 95 to 100
- Above Average : Score Card 85 to 94
- Satisfactory : Score Card 79 to 84

**Marginal**: A supplier is placed in this category based on the evaluation of performance concerns by our Team. When a supplier rating is Marginal (There are quality and Delivery concerns), will not get any new business from us until your performance improves and moves to satisfactory level.

The score card rating as below,
- Below Average : Score Card 61% to 78%
- Unsatisfactory : Score Card 31% to 60%

**Poor**: This is the lowest rating level that a supplier can reach, based on our monthly review meetings where supplier’s quality and delivery issues are not changed. In this stage our team will take action for re-source the business to an alternate supplier. Once the business is re-sourced particular supplier will be removed from our approved supplier list (Will close the NDA and no further RFQ’s will be sent).

**Forms and Formats**

1. NDA (Non-Disclosure Agreement Form)
2. Supplier Information (Profile Form)
3. Supplier Evaluation Check list
4. RFQ (Request for Quotation)
5. Purchase Order
6. AIAG PPAP 4th Edition
7. AIAG (PFMEA criteria): Severity, Occurrence and Detection
8. ECN
9. Non-Conformance Tag
10. Corrective Action Report
11. NCMR
12. Debit Memo
13. Conflict Mineral Reporting
## Revision History

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Date</th>
<th>Description about Modifications</th>
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| 1      | January 2016 | Aerostar Supplier Quality Manual Review process  
Reviewed on 12 14 2015(Satish/Rusty)  
Reviewed on 12 21 2015(Satish/Rusty)  
Reviewed on 12 29 2015(Satish/Rusty)  
Reviewed on 1 22 2016(Satish/Rusty)  
Reviewed on 1 25 2016 (Satish/Bob/Dave/Mark)  
Reviewed on 1 26 2016 (Satish/Bob/Dave/Mark) |
| 2      | February 2016 | Reviewed on 2 18 2016 (Added Supplier code of conduct)                                              |
| 3      | February 2016 | Reviewed on 2 19 2016 (Terry Gosdzinski)                                                           |
| 4      | February 2016 | Release Review (copy mailed) on 2-19-16 : Management Team                                           |
| 5      | 7/26/16      | Ken updated : Section C supplier code of conduct page 6/7 NDA                                        |
| 6      | 7/13/17      | Added PPAP Requirements Table to Section J-PPAP (Terry Hicks) per ECR_17-021                        |
| 7      | 5/30/18      | Updated for IATF                                                                                   |
| 8      | 6/27/18      | Reworded Section K-3                                                                               |
| 9      | 7/24/19      | Removed the requirement of ALL suppliers to complete the Self Audit F06_0001 (note 3 page 14).       |
| 10     | 2/14/20      | Added section C.2 Aerostar Expectations                                                             |
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