

1.0 Purpose

- 1.1 Supplier Quality Assurance Requirements.

2.0 Responsibilities

NOTE: ACCEPTANCE OF PAC PURCHASE ORDERS CONSTITUTES
ACCEPTANCE TO THE REQUIREMENTS SET FORTH WITHIN
THIS PROCEDURE.

3.0 Instructions

1 Supplier Quality System Requirements

- 1.1 The supplier shall develop and maintain fundamental Quality Systems that provide for continuous improvement and ensure that articles supplied to Pall Aeropower Corporation (PAC) meet all applicable drawing, specification, purchase order and quality requirements. Suppliers shall be compliant to AS9100 current revision/ ISO 9001-2008 or, ISO 9003 Current Revision, or TS16949 Current Revision as appropriate or have an approved audit/survey on file.
- 1.2 In addition to basic Quality System requirements, PAC contractually mandates that requirements and procedures as defined below are complied with.
- 1.3 Supplementary clauses defining specific additional purchase order requirements shall be invoked. (Reference QAP Clauses, Appendix A). Such clauses shall be noted on the purchase order, referencing the applicable QAP number(s) and title.

2 DOCUMENTS & DATA

- 2.1 Documents and data supplied to PAC shall be in the **English language**.
- 2.2 PAC blueprints and sketches supplied to the vendor will be considered uncontrolled. It is the supplier's responsibility to ensure the blueprint revision coincides with the P.O. item number revision.

NOTE: *Whenever a specification or drawing is called out on a P.O., it should be interpreted to mean the latest revision issued at the date of P.O. issuance, unless otherwise specified.*

3 PAC SURVEILLANCE INSPECTION

- 3.1 All items covered by this purchase order are subject to surveillance inspection by PAC and its customers (to include Government Procurement Agencies) at supplier's plant.
- 3.2 Surveillance inspection will include surveillance of the products and supplier's systems, procedures, and facilities.

3.3 If conditions warrant, the supplier shall, as deemed necessary, provide all reasonable assistance, personnel, facilities and equipment for verification of contract or purchase order requirements, and for safety of personnel.

4 **PAC/GOVERNMENT/ REGULATORY AGENCY SURVEILLANCE AND ACCESS**

4.1 During performance on this order your Quality Assurance or inspection systems, records, and manufacturing processes are subject to review, verification and analysis by PAC, PAC customers, and authorized Government representatives and/ or regulatory agencies. Access shall be granted to cognizant representatives of PAC, PAC customers, government and/ or regulatory agencies. Government inspection or release of product prior to shipment is not required, unless you are otherwise notified.

5 **RAW MATERIAL CONTROL**

5.1 Adequate procedures shall be established to control raw material from time of receipt until delivery to PAC. Procedures shall prevent any damage, deterioration, loss or substitution.

5.2 Where appropriate, the supplier shall require that material test reports be furnished with procured raw material and a plan for verification testing be established. Sample verification testing shall be performed to assure that material conforms to the type reported in the test reports from their material source.

5.3 All round aluminum material 2-1/2 " in diameter or greater (in its raw state) shall be subject to Ultra Sonic Inspection per MIL-STD 2154. Suppliers must supply proof of Ultra Sonic testing when submitting products to Pall.

6 **PERISHABLE MATERIAL**

6.1 In accordance with ARP 1820, suppliers shall provide the control of material that have limited storage life requirement.

7 **SHELF LIFE**

7.1 Age sensitive material such as O-rings, gaskets, paints, adhesives, etc. shall have a minimum of 75% shelf life remaining from its manufactured date/cure date prior to shipment to PAC.

8 **CALIBRATION**

8.1 Suppliers shall provide and maintain adequate equipment to measure and test all products for conformance to PAC requirements and have a calibration system or use an independent calibration service that has a system complying with ANSI/NCLS Z540-1-1994 or ISO Guide 25 or ISO 10012.

9 **NONCONFORMANCE'S on DESIGNED ITEM/SUPPLIER and/or PAC CONTROLLED**

9.1 Any product not conforming to drawings or specifications found by the supplier require disposition by a Material Review Board (MRB) in advance of

shipment to PAC. All nonconformances of PAC controlled requirements must be submitted to the appropriate facilities' MRB.

9.2 The supplier may submit a "Request for Material Review" (RMR) form (Appendix B below), through PAC Purchasing. The supplier shall submit the RMR prior to performing any repair or salvage. The material shall remain at the supplier's facility until a disposition is received. Acceptance by PAC is only for the specified quantity and does not establish criteria for future shipments.

9.3 Any costs incurred due to a nonconformance caused by a supplier may be assessed back to that supplier.

9.4 Supplier shall notify PAC purchasing, within 24 hours, upon determining that nonconforming material, or items containing latent defects, have been previously supplied to PAC.

10 NONCONFORMANCES FOUND BY PAC

10.1 Nonconforming material found by PAC may be reported to the supplier on a Nonconformance Report (NCR).

10.2 Material may be classified as Return to Vendor (RTV) and returned without prior notification. Where business needs warrant, nonconforming material may be submitted to the PAC Material Review Board (MRB) for acceptance. Acceptance of nonconforming material through the MRB does not relieve the supplier of their responsibility to provide product that conforms to all PAC contract requirements and will adversely affect their Supplier Quality Rating.

10.3 Where warranted by the type of nonconformance, a Corrective Action Request (CAR) may also be issued. Failure to complete and return the CAR by the requested due date will affect the suppliers performance rating and may result in PAC withholding quotation opportunities.

10.4 Any materials returned to PAC as a result of rework or re-supply must be clearly identifiable/traceable to the original rejected shipment.

11 CONTROL OF SOFTWARE

11.1 Those suppliers utilizing software for the manufacture/quality control of products shall control software in accordance with document and data control requirements as set forth in AS9100C. When requested, suppliers shall submit their program or procedure to demonstrate compliance.

12 SUPPLIER PERFORMANCE RATING

12.1 PAC shall maintain monitor supplier delivery and quality.

12.2 Suppliers are expected to maintain an acceptable on time delivery as determined by the management team and less than 10000 DPPM. PAC will monitor and take appropriate action as necessary.

12.3 Suppliers continually receiving unacceptable rating values will be, notified and may be removed from the Approved Supplier Listing. Unacceptable

ratings will be determined based upon management input

13 RECORD RETENTION

13.1 Procedures shall be established to ensure Quality records are, unless otherwise specified, maintained for a minimum period of fifteen years after delivery of material and material certification. Quality records are those records which demonstrate conformance to specified requirements and effective operation of the quality system.

13.2 Records shall be made available for PAC review when requested.

14 SUPPLIER CLASSIFICATION

14.1 Suppliers shall be classified into the following groups based upon the types of items and/or services procured:

Group 1 - This group includes products or services that are either complex, or have critical applications, and for which verification for full conformance to contract is not economically feasible nor technically practical upon receipt.

Group 2 - This group includes products or services which are readily verifiable for conformance to contract by inspection upon receipt. This includes operations supplying warehouse (off-the-shelf) hardware items. Purchases for products or services for which there are no unusual contractual quality requirements specified.

Group 3 - Purchases - No specific Q.A. requirements apply (non-inventory type products/services).

15 GOVERNMENT, SAFETY AND ENVIRONMENTAL REGULATIONS

15.1 All purchased materials used in part manufacture shall satisfy current governmental and safety constraints on restricted, toxic and hazardous materials; as well as environmental, electrical and electromagnetic considerations applicable to the country of manufacture and sale.

16 CERTIFICATE OF CONFORMANC

16.1 Each shipment to PAC must be accompanied by a Certificate of Conformance. As a minimum, the following information must be included in the certificate of conformance:

- PAC Purchase Order Number
- PAC Part Number, revision letter, and part description.
- Supplier Part Number and revision letter, if applicable
- Standard/ Specification and revision level, including amendments, notices, etc.
- Quantity shipped
- Statement of conformance to all purchase order and drawing requirements.
- Signature and title of a responsible representative of the supplier

17 NOTIFICATION OF CHANGES

17.1 The supplier shall notify PAC purchasing of changes to Product and/ or Process definition a minimum of 6 months prior to incorporation, or as required by Purchase Order, drawing, or specification

18 REQUIREMENTS FLOW DOWN

18.1 Supplier shall flow down to sub-tier suppliers all applicable purchase order requirements. This flow down shall include key characteristics when specified.

19 CONTAINER LABELING - INCLUDES BOXES, BAGS, INDIVIDUAL SPECIAL PACKAGING AND/OR SUB CONTAINERS.

All production and shop assist suppliers must conform to the Pall Aeropower labeling requirements. All labels must be white. Font size shall be 12 pt. minimum. Label size shall be a minimum of 3"x5" in size. Barcode symbology shall be Code 128 or Code 39. The barcode label shall contain the following information:

	Barcode Symbology	Human Readable
Purchase Order / Scheduling Agreement number	X	X
Lot / Batch number	X	X
Pall Aeropower item number	X	X
Quantity with units (e.g. 1 ea, 10 ft)	X	X
Item name		X
Item drawing revision		X
Manufacture date (if age sensitive)	X	X
Supplier Name		X
Supplier ID		X

On the packing slip, it is preferable that the packing slip number be contained in barcode symbology in addition to human readable format

20 FOREIGN OBJECT DAMAGE CONTROL

20.1 Suppliers shall maintain adequate procedures to control FOD (Foreign Object Damage) for all parts / product delivered to PAC.

21 COUNTERFEIT ELECTRONIC PARTS

21.1 Suppliers shall maintain adequate procedures to control Counterfeit Electronic Parts including (but not limited to) Avoidance, Detection, Mitigation and Disposition per the requirements of SAE AS5553.

21.2 Suppliers shall notify PAC Purchasing (within 24 hours) upon determining that counterfeit materials, have been shipped or previously supplied to PAC

22 PACKAGING

22.1 Seller shall preserve, package and pack material and protection necessary to prevent deterioration or damage to the individual items during shipment, under normal environmental conditions and commercial modes of transportation. Hardware type (i.e. o-rings, inserts, fasteners) may have intermediate bulk packaging.

22.2 For bulk and multi pack containers (bag/ box/sleeve/etc.) intermediate packaging shall contain 25, 50,100 qty. Package rivets and other parts having a unit of measure of pounds shall be packaged in one-pound packages. Any package quantities already established between the buyer and supplier shall continue unless a change in quantity is incorporated into the PO.

22.3 Intermediate containers shall be marked (human readable & bar code) with quantity, PALL part number, and PO.

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Appendix A**(SUPPLEMENTARY DATA APPEARING ON PAC PURCHASE ORDERS WHEN APPLICABLE):****QUALITY ASSURANCE CLAUSES****QAP NO.**

- 1 **NDT TEST REPORTS** - NDT certifications shall be furnished with each shipment. Suppliers shall maintain all x-rays and test data for a period of 15 years.
- 2 **FIRST ARTICLE INSPECTION REQUIREMENTS -**
A first article inspection report shall be submitted for all development and/or production items in accordance with AS9102 current revision.
The first article sample must be representative of the production lot. The first article inspection report (FAIR) and sample shall accompany the shipment. The sample shall be tagged and bagged with "First Article Layout Sample" or similar wording.
FAIR non-conformances must be submitted for PAC Material Review Board consideration using the RMR form in Appendix A. The approval document must be referenced in the FAIR and included with the shipment.
- 3 **FIRST PIECE INSPECTION** - Sample forgings or castings representing proposed production must be submitted to PAC prior to performance on this purchase order.
- 4 **Blank**
- 5 **PAC SOURCE INSPECTION** - Pall Aeropower Corporation inspection and release is required prior to shipment from your plant. Notify the applicable Pall Aeropower Purchasing Department representative when source inspection is required. Source inspection and acceptance does not relieve you of any liability with reference to satisfying the requirements of our purchase order. If conditions warrant, the supplier shall, as deemed necessary, provide all reasonable assistance, personnel, facilities and equipment for verification of contract or purchase order requirements, and for safety of personnel.
- 6 **Blank**
- 7 **GOVERNMENT SOURCE INSPECTION (GSI)** - Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant, so that appropriate planning for Government Inspection can be accomplished. Evidence of Government Inspection shall accompany each shipment. Government Source Inspection and Acceptance does not relieve you of any liability with regard to satisfying the requirements of our purchase order.
- 8 **GOVERNMENT SOURCE INSPECTION (GSI) (SPECIAL)** - On receipt of this order, promptly furnish a copy to the Government Representative who normally services your plant or if none, to the nearest Army, Navy, Air Force, or Defense Supply Agency inspection office. In the event the representative or office cannot be located our purchasing agent should be notified immediately. Evidence of Government

Inspection shall accompany each shipment. Government Source Inspection and Acceptance does not relieve you of any liability with regard to satisfying the requirements of our purchase order.

- 9 **Blank**
- 10 **Blank**
- 11 **INSPECTION FIXED PRICE OF SUPPLIES** - The supplier shall meet the requirements of Federal Acquisition **Regulation** (FAR) 52.246-2.
- 12 **CERTIFICATION** - C of C Required.
- 13 **PHYSICAL/CHEMICAL TEST REPORTS for AEROSPACE PRODUCT** – Specialty Materials as defined in DFARS (252.225-7008) RESTRICTION ON ACQUISITION OF SPECIALTY METALS must be of U.S.A. melt and manufacture or from a qualifying country as defined in DFARS 252.872-1. A copy of the Mill certification with chemical and/or physical analysis certification to the applicable specification(s) shall accompany each shipment. All material certifications must state the origin of the melt and manufacture.
- 14 **Special Process Certification** – Certification stating conformance to the applicable specification for plating, coating, heat treat, magnetic particle inspection(MPI), etc., regardless of the place of performance, must accompany each shipment.
- 15 **NADCAP Special Process** – Use NADCAP approved sources.
- 16 **SHELF LIFE CERTIFICATION** - When shipping items with a limited shelf life, furnish with each shipment a signed certificate bearing the part number, purchase order number, lot or batch number and manufacturer's cure date. This information may be included on the Certificate of Conformance.
- 17 **TEST REPORTS** - Copies of function and/or inspection test reports in accordance with the blueprint requirements and/or applicable specifications as referenced in the purchase order to accompany each shipment.
- 18 **OTHER** - Other provisions, as specified on purchase order.
- 19 **COMPRESSION SET TEST REPORTS** - The following tests shall be conducted on each lot of MIL-R-83248, fluorocarbon (Viton) shapes and material: original condition tensile strength 4.6.1, elongation 4.6.1, hardness 4.6.1, specific gravity 4.6.1, and air aged 22 hrs. 392 degrees F (+-F), compression set 4.6.5. Testing and rejection criteria shall be per MIL-R-83248, para.4.4 and 4.5. A test report showing the actual results is required.
- 20 **MATERIAL TRACEABILITY AND IDENTIFICATION** - Level I Material to be furnished with manufacturer's certification and certified as US melts and free of mercury contamination. Certification must reference all applicable specifications and latest revision level, and include PAC purchase order number; heat or vendor traceability number; material description; chemical and physical properties; and signature, typed name and title of responsible representative. Chemical and physical properties must be recorded as actual valves within limits in accordance with applicable material specifications as referenced on the purchase order. Each individual piece of material to be continuous line marked with permanent black ink and includes producer's name, heat or vendor traceability number and type of

material.

- 21 **Special Processes** – Use of Customer approved special process sources as defined on the P.O. are required.
- 22 **TRACEABILITY AND QUALITY CONTROL FOR AEROSPACE CASTINGS AND FORGINGS** - Test bars are required per PACS-PQ-0015: Traceability and Quality Control for Aerospace Casting and Forgings. Supplier to maintain test bars for 15 years and provide to Pall as requested.
- 23 **GROUP 1 PURCHASE** -, and for this group includes products or services that are either complex, or have critical applications which verification for full conformance to contract is not economically feasible nor technically practical upon receipt.
- 24 **GROUP 2 PURCHASE** - This group includes products or services which are readily verifiable for conformance to contract by inspection upon receipt. This includes operations supplying warehouse (off-the-shelf) hardware items. Purchases for products or services for which there are no unusual contractual quality requirements specified.
- 25 **GROUP 3 PURCHASE** - No specific Q.A. requirements apply (non-inventory type products/services used in production).
- 26 **MATERIAL IDENTIFICATION** - Perforated Sheet Stock shall be identified in the lower corner, (1) place only Identification shall include material type designation and PAC Purchase Order number. Additional markings are prohibited.
- 27 **SPC DATA REQUIRED WITH SHIPMENT** - It is the responsibility of the supplier to monitor and maintain statistical control of their manufacturing process. Process / Product characteristics to be monitored may be selected by the supplier, unless otherwise specified by PAC as <KEY> characteristics on the applicable PAC drawing. SPC data must be provided with the delivered materials.
- 28 **CERTIFIED SUPPLIER PROGRAM**
 - A. Invocation of this clause shall automatically invoke QAP Clause 2 (First Article Inspection).
 - B. Responsibility for inspection for PAC acceptance is delegated to the suppliers Quality Manager or his designee.
 - C. Group 1 and Group 2 Purchases are to be inspected for conformance to all contract requirements. Inspection shall include as a minimum a sample review of dimensional, visual, material, special processes, part marking, performance testing, and NDT characteristics as applicable.
 - D. The suppliers sampling plan is approved for use provided it is accepted on '0' reject on '1'.
 - E. Review of certifications for NDT if performed by an outside approved source is acceptable. Review Performance Test Data or witness testing as applicable.
 - F. The supplier shall maintain records of all products accepted for PAC including the date, part number, revision level as listed on the purchase order, quantity, and inspector. These records may be in any format

selected by the supplier and shall be available upon request by PAC.

- G. The Supplier's Quality Assurance department personnel are responsible for the following unless otherwise instructed in writing by PAC:
- Assure the parts / service met the purchase order requirements prior to release.
 - Assure an adequate inspection sampling plan is used to assure product acceptance
 - Assure that a First Article Inspection has been performed and a copy provided to PAC as required by PACS-QOP-74-04.
 - Sign and Date packing slip indicating acceptance.
 - Ensure Supplier's management is informed of repeat nonconformances and corrective actions are implemented to prevent recurrence. Records must be retained for PAC review as applicable.
 - Perform any special inspections or reviews based upon PAC input.
- 29 **CALIBRATION SERVICES** - Calibration Laboratories shall have a system in compliance with ANSI/NCLC Z540-1-1994 or ISO Guide 25 or ISO 10012.
- A. Calibration Certificates will at a minimum contain the information as set forth in ANSI/NCLC Z540-1-1994 or ISO Guide 25 or ISO 10012.
 - B. Perform calibration services as requested in Purchase Order.
- 30 **INSPECTION REPORTS** - Inspection Reports are required. Inspection and/or test reports showing actual values must be submitted with each batch/lot of product shipped to Pall Aeropower Corporation.
- Inspection sampling shall be accomplished in accordance with ANSI/ ASQC Z1.4. All plans incorporate an accept =0, reject=1 criteria. Switching rules apply as specified in ANSI/ ASQC Z1.4.

Inspection Reports must include, as a minimum, the following information:

1. Supplier Name, and PAC Purchase Order number.
2. Pall Aeropower Corporation Part Number and Revision.
3. All Drawing Characteristics and tolerances
4. Actual Inspection Results (Variable results shall be recorded to the same decimal place as the drawing feature. Attribute data shall be recorded with the gage number).
5. Quantity Inspected, Sample Size, Sampling Plan, Quantity Accepted, Quantity Rejected.
6. Drawing Location, if applicable.
7. Date Inspected, Inspector's Name, and Stamp.
8. Approved RMR number, if applicable. (Refer to Paragraph 9 of this document).

- 31 **PHYSICAL/CHEMICAL TEST REPORTS** - A copy of the chemical and/or physical analysis certification to the applicable specification(s) shall accompany each shipment.
- 32 **QAP 32 Production Part Approval Process**
(Ref AIAG PPAP Reference Manual Third Edition)

The supplier shall submit the items and/or records required by the level specified. Items and records shall be those specified within the AIAG Production Part Approval Process (Ref AIAG Reference Manual Third Edition) dependant on the submission level specified below.

Submission Levels

QAP32A = Level 1 submission
QAP32B = Level 2 submission
QAP32C = Level 3 submission
QAP32D = Level 4 submission
QAP32E = Level 5 submission

- 1 **ASQR-01 Flow down** - The requirements of ASQR-01 apply to this order

APPENDIX B

PALL AEROPOWER CORPORATION REQUEST FOR MATERIAL REVIEW FORM

Supplier Name:		DATE:		Supplier #	
RMR REQUESTED BY (PRINT NAME):		PART NUMBER:			REV:
TELEPHONE NUMBER:		PART NAME:			
FAX NUMBER:		P.O. QTY.:		P.O. #	
SUPPLIER SIGNATURE & TITLE:		BUYER:			
QTY REJ	DWG ZONE	DISCREPANCY DESCRIPTION	PAC MRB USE ONLY		
			ACC	REW	REJ
ROOT CAUSE & CORRECTIVE ACTION TAKEN TO PREVENT RECURRENCE:					
PURCHASING:		QUALITY ASSURANCE:		ENGINEERING:	

Forms and Records

- 3.1 Procedure Appendix B - Pall Aeropower Corporation Request for Material review

4.0 Attachments

- 4.1 None

5.0 Related Documents

- 5.1 AP-740 Purchasing

6.0 References

- 6.1 None