

AERO TECHNICAL COMPONENTS

Title: Quality Management System – Counterfeit Parts Prevention

Procedure: SOP 7.4-A

1.0 Purpose

The purpose of this procedure is to describe the system and process performed to prevent the purchase and / or use of Counterfeit Parts and meet the requirements of the AS5553 Standard for Counterfeit Electronic Parts Avoidance, Detection, Mitigation and Disposition and AS6174 Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel.

2.0 Responsibilities

- 2.1. The Vice President/CFO is responsible for this procedure.
- 2.2. Purchasing is responsible to procure the correct electronic parts, hardware, or components using the applicable drawing, specification, description, or other information to meet the intended use and to purchase primarily from an OCM, OEM, authorized/approved distributor when possible
- 2.3. Quality is responsible for Receiving Inspection and to examine, inspect, and/or maintain the parts to identify or mitigate the receipt and/or use of counterfeit parts.
- 2.4. Management/Sales is responsible to ensure the drawing, specification, process, or other description identifies the applicable type, class, style, part number, manufacturer, or other related information so the correct part or product is identified.

3.0 Requirements

- 3.1 Part Availability: every effort is made to maximize availability of authentic, originally designed and/or qualified parts throughout the product's life cycle, including management of parts obsolescence.
- 3.2 Purchasing will obtain parts directly from an OEM, approved distributor, authorized resell organization, or franchised aftermarket supplier when at all possible. These companies are reviewed and approved by the original component manufacturer.
- 3.3 Purchasing examines a potential source of supply to assess the risk of receiving counterfeit parts. Assessment may be a survey, audit, product review, and a review of the supplier quality data to determine performance.
- 3.4 Purchasing maintains a list of approved suppliers to minimize the risk associated with the supply and / or receipt of counterfeit parts (Quickbooks)
- 3.5 Purchasing ensures that approved/ongoing sources of supply are maintaining effective processes for mitigating the risks of supplying counterfeit parts. Actions may include surveys, audits, review of product alerts, and review of supplier quality data to determine past performance.

NOTE: At a minimum, the OEM, distributor or the aftermarket manufacturer should be required to provide certificates of conformance and acquisition traceability. These certification requirements must be clearly identified on the purchase document as deliverable data in the Special Instructions or Additional Notes section

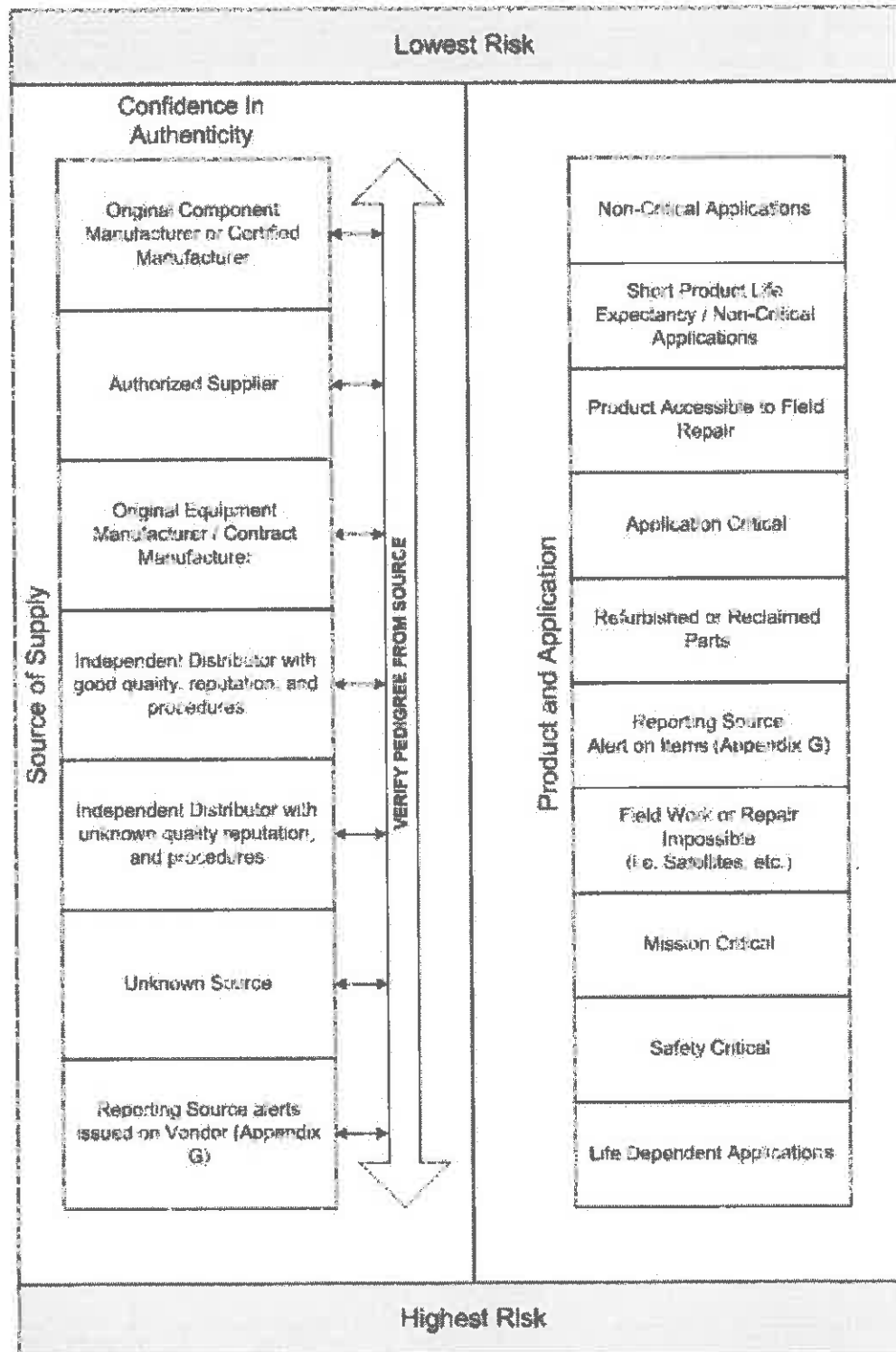
- 3.6 Product with electronic components destined for Government or military use requires a manufacturer certification while product with electronic components destined for commercial use may not require certification or traceability documents. The electronic component requirements for the product may be identified from a review of the Customer purchase order, specification, or flow down requirements. Purchasing should request certification and traceability data as a deliverable item.
- 3.7 Purchasing specifies the flow down requirements from this Counterfeit Parts Prevention Procedure applicable to the supplier or subcontractor. Purchasing must perform some

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level of risk assessment if the supplier or subcontractor does not maintain a documented counterfeit part control plan compliant to this SOP.



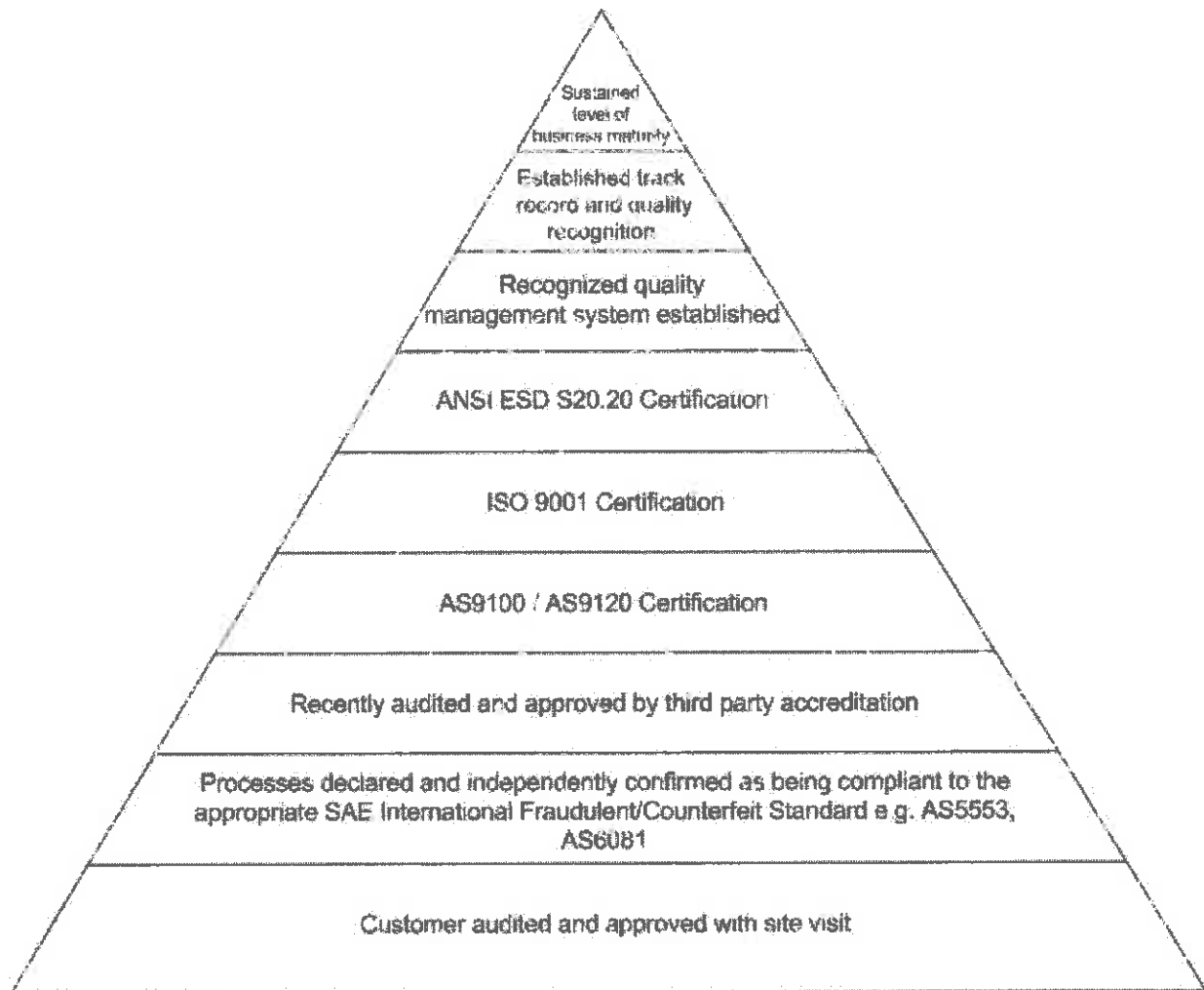
3.8 The purchase order will specify the applicable requirements of this Counterfeit Part Prevention Procedure to the supplier to minimize the risk of receiving counterfeit parts.

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Special Instructions will detail the requirement to ensure conforming, original, and authentic parts are provided. The purchase order may list certification or traceability requirements, test and / or inspection results and Quality System requirement for the supplier. The purchase order may also reference this procedure - Counterfeit Parts Prevention.



Attempt to fill in more area within the pyramid for less risk.

Risk review requirements are detailed below:

- Negligible - Easily mitigated
- Minor - Increase the cost of operations
- Moderate - Degrade the function, use or operation of the system
- Serious - Sabotage, or maliciously introduce unwanted function
- Critical - Result in injury or death of personnel, or significant destructive product damage

Likelihood versus Impact of Counterfeit Risk

Likelihood	Near Certainty ~90%			Unacceptable Risk Levels		
	Highly Likely ~70%					
	Likely ~50%					
	Low Likelihood ~30%	Acceptable Risk Levels				
	Not Likely ~10%					
		Negligible	Minor	Moderate	Serious	Critical
Impact of Non-Mitigated Counterfeit Item						

Risk Categories:



High



Medium



Low

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The table below details mitigating actions to aid in reducing risks:

- a. Not Likely ~10% - Stable, high quality production base
- b. Low Likelihood ~30% - Isolated poor performance in second tier of production base
- c. Likely ~50% - Suppliers are exiting the production base
- d. Highly Likely ~70% - Diminishing sources and material shortages exist
- e. Near Certainty ~90% - Widespread degradation of the production base; frequent poor performance instances

Traceability Requirements Mapped to Counterfeit Risk Assessments

Likelihood	Near Certainty ~90%	Certificate of Authenticity	Process Audit/Review	Auditable Part History	OCM or OCM	OCM or OCM
	Highly Likely ~70%	Receipt Visual Inspection	Certificate of Authenticity	Verification Testing	OCM or OCM	OCM or OCM
	Likely ~50%		Receipt Visual Inspection	Authorized Supplier	Auditable Part History	Auditable Part History
	Low Likelihood ~30%			Certificate of Authenticity	Verification Testing	Verification Testing
	Not Likely ~10%			Receipt Visual Inspection	Certificate of Authenticity	Certificate of Authenticity
		Negligible	Minor	Moderate	Serious	Critical
Impact of Non-Mitigated Counterfeit Item						

Risk Categories:

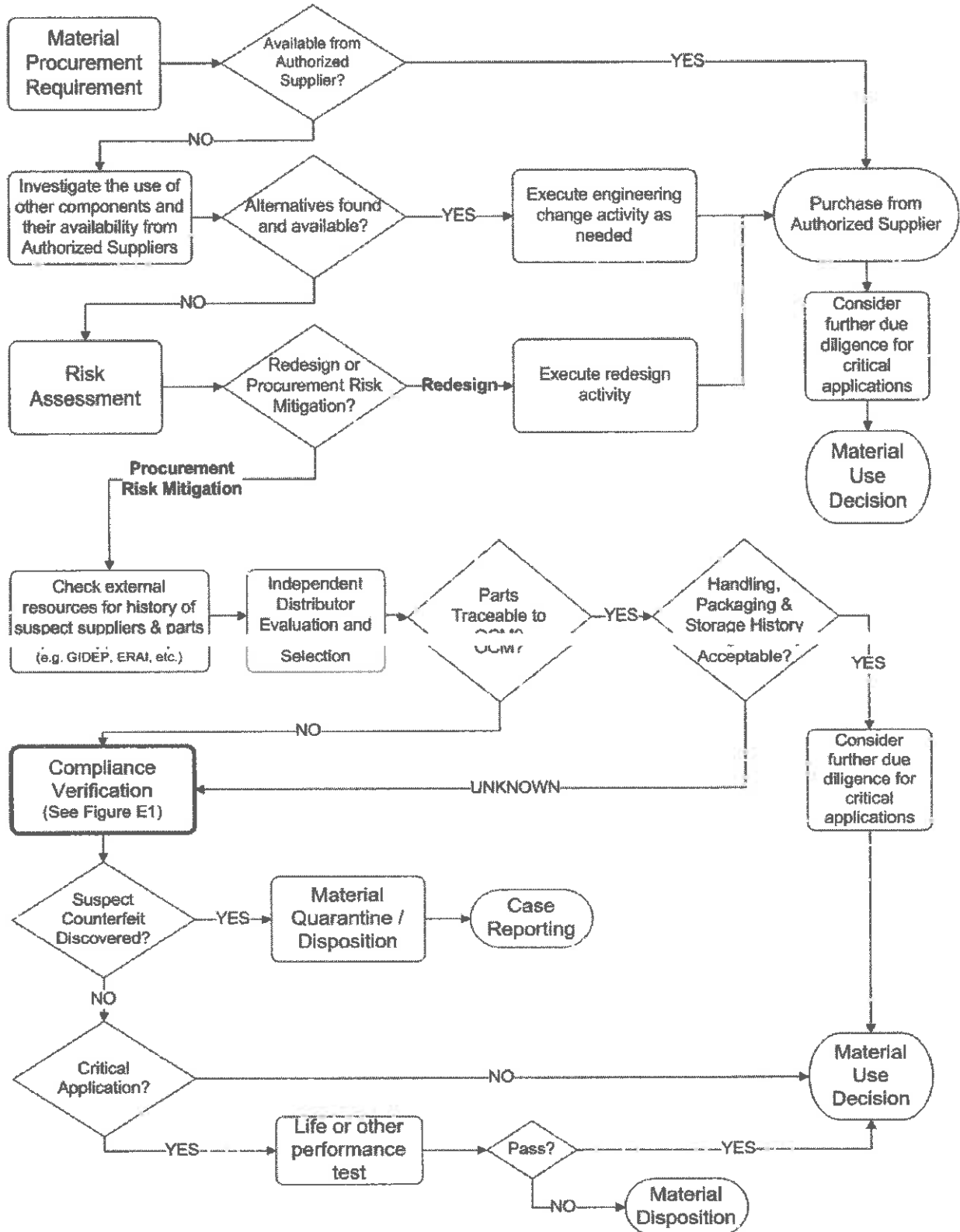


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Counterfeit Parts Prevention Flow Chart:

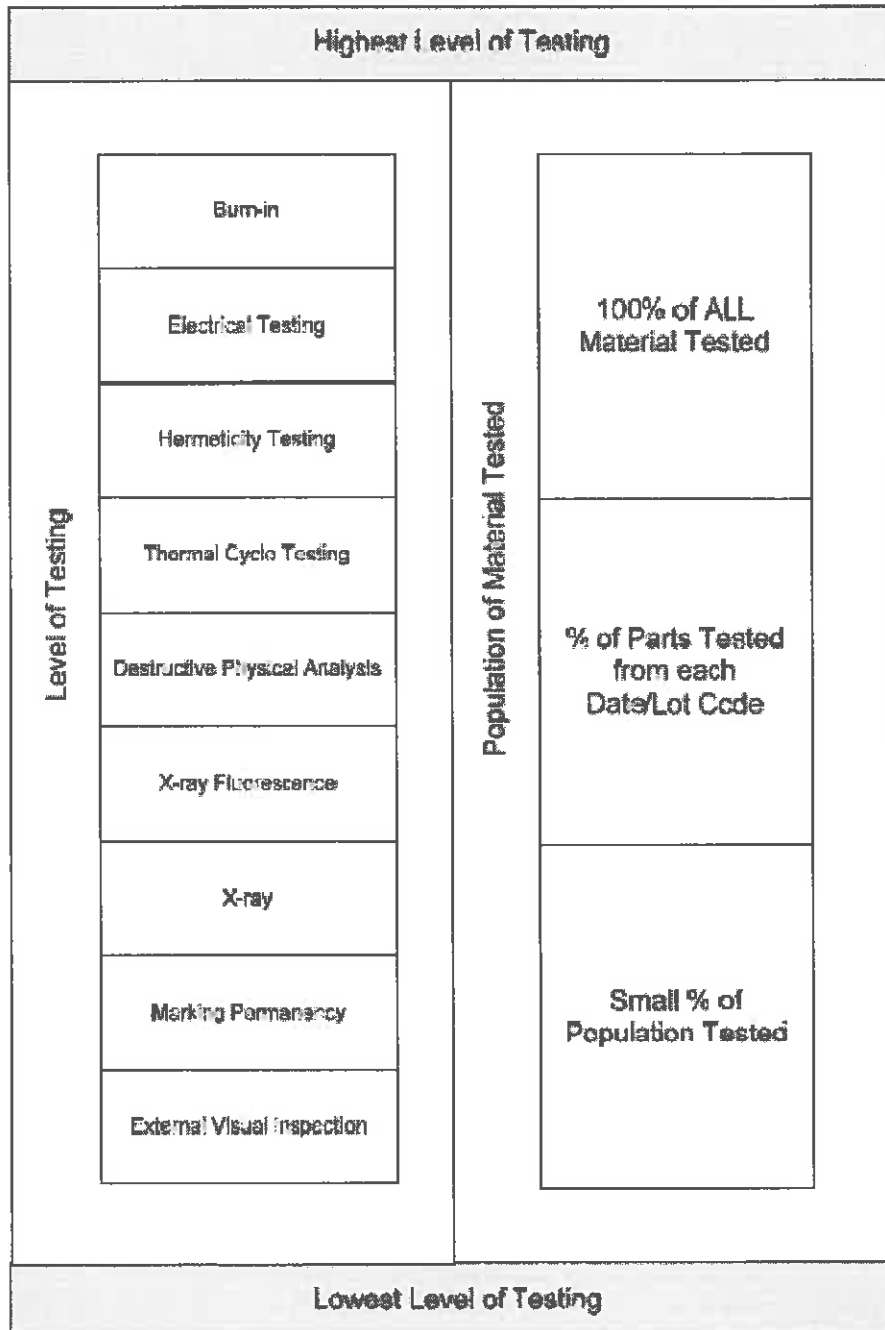


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- 3.9 Persons receiving, inspecting, or processing parts must examine the product to ensure the drawing, specification, type, class, style, part number, manufacturer, Certificate of conformance or other related information is present to detect or identify suspect or counterfeit parts. Suspect or counterfeit parts are placed on a nonconforming material document so the items may be identified and segregated to a nonconforming part location, reference SOP-8.3 Control of Nonconforming Product.



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- 3.10 Purchasing and Quality will ensure the requirements of this SOP are met reviewing documentation from the supplier in accordance with the Aero Technical Components PO and Terms & Conditions:
- 3.11 The supplier should provide an unbroken chain of documentation (certifications, packing slips, etc.) tracing the movement of the parts back to the OEM, and certification that the parts have not been salvaged, reclaimed, otherwise used, or previously rejected for any reason.
- 3.12 Any certificates of Conformance or other documentation must be reviewed for originality and applicability to the delivered material, including:
 - a. Lot and/or date codes on the packaging do not match the lot and/or date codes on the parts.
 - b. Manufacturer's logo or label is absent, or does not match that shown on their website or on previous shipments.
 - c. Poor use of English, misspelled words, alterations, or changes to the documentation.
 - d. Bar coding does not match the printed part number.
 - e. Package materials are inconsistent with the description on the datasheet.

When there is a concern for product integrity, it may be possible to verify with the OEM that date, lot codes, reel sizes and quantities listed on the documentation are valid.

- 3.13 Quality will ensure the following when examining documentation supplied by the supplier in accordance with Aero Technical Components PO:
 - 3.13.1 Visual examinations will be performed on 100% of incoming parts. Examples include, but are not limited to the following steps:
 - a. Uneven top and/or bottom coating of the part, or inconsistent texture or color between top and bottom side coating (mold compound).
 - b. Bent leads or inconsistent lead plating coverage.
 - c. Poor quality part ink or laser marking.
 - d. Chipouts on the package corners which may indicate excessive or careless handling.
 - e. Rough surface texture in the normally smooth Pin 1 indicator area.
 - f. Scratches on the surface of the package.
 - g. Cracks in the package that may signify thermal stress.
 - h. Presence of numerous date codes on one reel, tube, tray, component, etc.
 - i. Lot or date codes reflecting a date of manufacture after the last date of manufacture by the OEM.
 - j. Terminal finishes on the part not consistent with the terminal finish designator in the part number.
 - k. Country of manufacturer not associated with OEM assembly locations.
 - l. Markings not consistent with standard OEM marking content and format.
 - m. Lot or date codes not consistent with OEM production records.
 - n. Partially filled reels, trays, etc.

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- o. Inconsistent package physical dimensions.
- 3.14 For parts with identifying/traceability markings, a representative sample based on a determination of product risk should be examined from each lot (date code) for evidence of remarking or resurfacing.
- 3.15 Industry and government standard “resistance to solvents” test methods may be necessary to reveal forged markings and to remove coatings applied to disguise sanding marks, and to reveal other indications that the original device marking has been removed. Other methods include the use of acetone or scraping the surface of the part to remove markings and coatings or to detect original part numbers under a resurfaced and remarked part.
- 3.16 If receiving inspections/test, or product failure experiences indicate that parts may be counterfeit, they shall be placed in quarantine. Parts will not be shipped back to suppliers if there is a risk they will re-enter the supply chain.
- 3.17 This procedure requires that all occurrences of counterfeit parts are reported, as appropriate, to internal organizations, customers, government reporting organizations (e.g., GIDEP), industry supported reporting programs (e.g., ERAI), and criminal investigative authorities.

Aero Technical Components considers the due diligence applied to the material purchase successful when this procedure is followed and when finished product meets the test or inspection requirements identified for the product or the standard work established for the product. A failed Electrical Component or Product, Motor, or Motor Part does not mean the instance was caused by a counterfeit part. Aero Technical Components will verify the cause of the nonconformance and disposition the defect per SOP-8.3 Control of Nonconforming Product. This procedure will apply if the deficiency is suspected or attributed to a counterfeit part. Corrective action will be required when nonconformities are identified.

4.0 Definitions and acronyms

Approved Supplier – Suppliers who are formally assessed and determined to have a low risk of providing counterfeit product.

Authorized Supplier – Aftermarket manufacturers and OEM authorized sources of supply for a specific part.

Broker – In the independent distribution market, brokers are professionally referred to as an Independent Distributor.

Certificate of Conformance (C of C) – A document provided by the supplier formally declaring the purchase order requirements are met. The document may include information relative to the manufacturer, distributor, Quantity, date code, inspection date that is signed by a responsible associate for the supplier

Certificate of Conformance and Traceability (C of CT) – A certificate of conformance applicable to some military specifications requiring documented traceability of the product from the Qualified Parts List / Qualified Materials manufacturer through the product delivery to the Government.

Counterfeit Part – An article produced or altered to imitate or resemble an "approved article" without authority or right to do so, with the intent to mislead or defraud by passing the imitation as original or genuine.

NOTE: Commonly referred to within the industry as a "bogus part".

ERAI – A privately held global trade associates who monitors, investigates, reports, and mediates issues affecting the global supply chain of electronics including the supply of counterfeit and substandard parts.

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Franchised Distributor – A distributor with which the OEM has a contractual agreement to buy, stock, re-package, sell and distribute its product lines. When a distributor does not provide products in this manner, then for the purpose of AS5553, the distributor is considered an independent distributor for those products. Franchised distributors normally offer the product for sale with fully manufacturer flow-through warranty. Franchised contracts may include clauses that provide for the OEM's marketing and technical support inclusive of, but not limited to, failure analysis and corrective action, exclusivity of inventory, and competitive limiters.

Independent Distributors – A distributor that purchases new parts with the intention to sell and redistribute them back into the market. Purchased parts may be obtained from original equipment manufacturers (OEM's) or contract manufacturers (typically from excess inventories), or from other independent distributors. Re-sale of the purchased parts (re-distribution) may be to OEM's, contract manufactures, or other independent distributors. Independent distributors do not have contractual agreements or obligations with OEMs.

OEM - An original equipment manufacturer, or OEM, manufactures products or components that are purchased by another company and retailed under that purchasing company's brand name. OEM refers to the company that originally manufactured the product.

Packaging – Component packaging refers to the manner the electronic parts are packaged in preparation for use. There are four basic types of packaging: (A) Bulk, (B) Tray, (C) Tube, and (D) Reel.

Refinishing – Using a plating process method after manufacture to alter the original plating composition on a parts lead or lead wire.

Refurbished – Subjecting parts to a process to brighten, polish, or renovate the item in an effort to restore the item to a "like new" condition. Refurbished parts may have the leads realigned and tinned.

Suspected Unapproved Part – An article that might not have been or is suspected of not having been produced or maintained in accordance with approved design data and applicable statutory, regulatory, and customer requirements.

NOTE: This includes: (1) articles shipped to an end user by a supplier who does not have direct delivery authorization from the approved production organization; (2) new articles that do not conform to the approved design/data; (3) articles that have not been manufactured or maintained by an approved source; (4) articles that have been intentionally misrepresented, including counterfeit parts; and (5) articles with incomplete or inappropriate documentation.

Upscreened – Additional part testing performed to produce parts verified beyond the specification parameters of the manufacturer.

Used – Electrically charged parts removed from a prior application. Parts should be examined for nonstandard packaging, mixed lots / dates, parts from various sites, scratches, bends, test dots, faded marking, chemical residue, or other signs of use. Used parts may be sold with a limited warranty. Programmable product may still contain partial or complete programming capability that may affect part functionality. Used parts marketed as such should be declared accordingly.

5.0 Records

Record	Description	Location	Retention
Management Review Agenda Minutes	Record of AQMS performance	Stated on Master List of Records	Stated on Master List of Records
Employee Competency Matrix	Record of training requirements	Stated on Master List of Records	Stated on Master List of Records

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RMA-PR	Record of return material/ATC cost of quality	Stated on Master List of Records	Stated on Master List of Records
PO info form	Purchasing information	Stated on Master List of Records	Stated on Master List of Records
PO Info Form 002	Purchasing information	Stated on Master List of Records	Stated on Master List of Records
Receiving Inspection Report	Record of receiving results	Stated on Master List of Records	Stated on Master List of Records
Internal Audit checklist	Record of internal audit results	Stated on Master List of Records	Stated on Master List of Records
Nonconformance log	Record of all nonconformances /classifications	Stated on Master List of Records	Stated on Master List of Records
Nonconformance report	Record of results of nonconformance investigations	Stated on Master List of Records	Stated on Master List of Records
Corrective/Preventive Action Request [CPAR]	Record of Audit Finding	Stated on Master List of Records	Stated on Master List of Records
List of Qualified Auditors when Applicable	Record of Approved Internal Auditors	Stated on Master List of Records	Stated on Master List of Records

6.0 Method

7.0 References

- 7.1 Form # ATC-7.4.1-003 RMA-PR
- 7.2 Form #ATC-7.4.2-001 PO Info Form
- 7.3 Form # ATC 7.4.2-002 PO Infor Form 002
- 7.4 Form # ATC 7.4.3-001 Receiving Inspection
- 7.5 Form # ATC 8.2.2-002 Internal Audit Checklist
- 7.6 Form # ATC-8.3-001 Nonconformance Log
- 7.7 Form # ATC-8.3-002 Nonconformance Report
- 7.8 Form # ATC-8.5.2/3-001 Corrective/Preventive Action Request (CPAR)
- 7.9 Control of Nonconforming Product Procedure SOP 8.3
- 7.10 Corrective Action Procedure SOP 8.5.2
- 7.11 AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
- 7.12 AS6174 Counterfeit Materiel Assuring Acquisition of Authentic and Conforming Materiel
- 7.13 AS9120 Quality Management System – Requirments for Aviation, Space and Defense Distributors

8.0 Revision History

Revision History:

Revision	Date	Description
A	08/24/15	Initial Release

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9.0 Signatures

Approval: *Naille McLean* Date: *8/24/2015*
Vice President/CFO