## 1.0 Purpose:

1.1 This procedure provides guidance for activities related to the dimensional and mechanical inspection of parts procured from specific sources for government contracts for AAR Defense Systems & Logistics (DSL).

## 2.0 Scope:

2.1 Source inspection is performed based on contractual requirements, as described by clauses, terms or conditions of contracts between the US Government and AAR. These contracts also have a general requirement that products offered to the Government for inspection and acceptance meet the terms of the contract. The specific contract clauses, terms, or conditions as well as the general requirements may necessitate the use of source inspection as a means of compliance.

## 3.0 Responsibility and Authority:

3.1 The responsibility and authority for the administration and implementation of this procedure has been assigned to the Vice President of Corporate Quality and Business Systems Compliance.

3.2 The DSL Program Manager has the responsibility and authority to ensure all source inspections have been performed as required.

3.3 Quality Control Inspectors are responsible for assuring that when required, Source Inspection was performed in accordance with this procedure.

3.4 Source inspection is performed by the Quality / Warehouse Specialist. The Quality / Warehouse Specialist performing source inspection is responsible for assuring that inspections performed comply with the requirements listed on the Source Inspection Report (SIR) and applicable Quality Assurance Provisions (QAPs).

3.5 Identification of a requirement for source inspection and applicable QAPs is performed by DSL Contracts department.

## 4.0 Forms and References:

4.1 ASC-WDL-0034 - Source Inspection Report

4.2 OP-07.1.5 - Control of Monitoring and Measuring Equipment

4.3 AS9120 - Quality Management Systems - Requirements for Aviation, Space, and Defense Distributors

## 5.0 Procedure:

5.1 Source inspection is defined by the following attributes:

5.1.1 Inspection of a lot of parts using a defined sample plan to draw a sample from the population. Sample plans are contractually defined or in the absence of a definition, are performed in accordance with a zero-based acceptance sampling plan described later in this procedure.

5.1.2 Source inspection is performed based on a Source Inspection Report (SIR) (Form: ASC-WDL-0034). The SIR describes the attributes of the lot (i.e., part number, applicable serial numbers, and description), the sample size, and the features to be inspected. Source inspection is, by design, an inspection of critical features and attributes of the part. It is not a replacement for a first-article inspection and as a result does not attempt to measure all features of a given part.

5.1.3 Sample plan selection and approval is not performed by AAR. The Government mandates and approves the use of a particular sample plan and the Acceptable Quality Level (AQL) either based on a general approval or by specific contract clause. Multiple sample plans may be used in the performance of source inspection to comply with contractual and AS9120 requirements (Ref. AS9120 8.5.1c2).

5.2 Development of a Source Inspection Report (SIR):

5.2.1 SIRs are developed on a per-part number basis and are modified to meet specific contractual terms. AAR's Program Manager is responsible for the initial generation of an SIR.

5.2.2 SIRs contain references to the OEM drawing, including part number, part nomenclature, and particular dimensions or features to be measured. The reference includes the dimensional size and tolerances for each feature. If there are no dimensions / features to be measured, such as with kits, assemblies, and MS / NAS / AN hardware, the applicable requirements on the drawing will be noted on the SIR. In addition, critical features are annotated.

5.2.3 Critical features are defined as:

5.2.3.1 That is so noted as critical on the appropriate manufacturer's drawing, with diametrical and / or linear dimensions with a total tolerance of .001 inch or less.

5.2.4 Major Dimensions are defined as:

5.2.4.1 Those with diametrical and / or linear dimensions with a total tolerance of greater than .001 up to and including .005 inch.

5.2.5 SIRs also contain references to applicable contract Quality Assurance Provisions (QAPs). QAPs may specify unique, additional, or mandatory attributes and techniques that must be followed during inspection. Evidence of QAP compliance is validated by the notation of the QAP on the SIR.

5.2.6 In many cases, parts do not have critical features. Therefore, to ensure adequate inspection of the part, a minimum number of features to be inspected are also invoked in accordance with the following table:

| ***Number of Dimensions or Features on Drawing*** | ***Number of Dimensions / Features Measured*** |
|---|---|
| 5 Dimensions / Features | 5 Dimensions / Features |
| Less than 5 Dimensions / Features | All Dimensions / Features (may be zero) |
| Greater than 5 Dimensions / Features | All Critical and Major Dimensions or Features as well as randomly selected dimensions or features for a total of at least 5 up to a maximum of 2% of all dimensions / features listed on the drawing. |

5.2.7 All features noted on the SIR must be inspected and the ACC or REJ block for that feature marked accordingly. There may be instances where a feature cannot be verified due to the lack of proper measuring equipment (i.e., requires a CMM for dimensions off a datum) or assembled components prevent access to a particular feature (i.e., plugged holes, bushings installed). In these cases, a note that the feature is unverifiable will be made on the SIR for that feature and the feature will be accepted based on the supplier certificate of conformance.

5.3 Performance of Source Inspection:

5.3.1 Source Inspection is to be performed on all Origin contract material coming from a designated Pratt & Whitney facility.

5.3.2 Inspections are performed under controlled conditions using the applicable SIR, the applicable OEM part drawing and appropriate measuring tools and equipment.

5.3.3 The inspector shall ensure that all measuring devices are within specified calibration intervals before use.

5.3.4 The inspector shall draw a random sample of items to be inspected from the lot. The sample size is determined by consulting the sample plan:

5.3.4.1 In the absence of a contractually mandated sample plan, use 1.0 AQL C=0.

5.3.5 Rejection of any feature constitutes rejection of the entire lot.

**Acceptable Quality Level (AQL)**

| Lot Size | 0.010 % | 0.015 % | 0.025 % | 0.040 % | 0.065 % | 0.10 0% | 0.15 0% | 0.25 0% | 0.40 0% | 0.65 0% | 1.0 % | 1.5 % | 2.5 % | 4.0 % | 6.5 % | 10.00 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-8 | A | A | A | A | A | A | A | A | A | A | A | A | 5 | 3 | 2 | 2 |
| 9-15 | A | A | A | A | A | A | A | A | A | A | 13 | 8 | 5 | 3 | 2 | 2 |
| 16-25 | A | A | A | A | A | A | A | A | A | 20 | 13 | 8 | 5 | 3 | 3 | 2 |
| 26-50 | A | A | A | A | A | A | A | A | 32 | 20 | 13 | 8 | 5 | 5 | 5 | 2 |
| 51-90 | A | A | A | A | A | A | 80 | 50 | 32 | 20 | 13 | 8 | 7 | 6 | 5 | 4 |
| 91-150 | A | A | A | A | A | 125 | 80 | 50 | 32 | 20 | 13 | 12 | 11 | 7 | 6 | 5 |
| 151-280 | A | A | A | A | 200 | 125 | 80 | 50 | 32 | 20 | 20 | 19 | 13 | 10 | 7 | 6 |
| 281-500 | A | A | A | 315 | 200 | 125 | 80 | 50 | 48 | 47 | 29 | 21 | 16 | 11 | 9 | 7 |
| 501-1200 | A | 800 | 500 | 315 | 200 | 125 | 80 | 75 | 73 | 47 | 34 | 27 | 19 | 15 | 11 | 8 |
| 1201-3200 | 1250 | 800 | 500 | 315 | 200 | 125 | 120 | 116 | 73 | 53 | 42 | 35 | 23 | 18 | 13 | 9 |
| 3201-10000 | 1250 | 800 | 500 | 315 | 200 | 192 | 189 | 116 | 86 | 68 | 50 | 38 | 29 | 22 | 15 | 9 |
| 10001-35000 | 1250 | 800 | 500 | 315 | 300 | 294 | 189 | 135 | 108 | 77 | 60 | 46 | 35 | 29 | 15 | 9 |
| 35001-150000 | 1250 | 800 | 500 | 490 | 476 | 294 | 218 | 170 | 123 | 96 | 74 | 56 | 40 | 29 | 15 | 9 |
| 150001-500000 | 1250 | 800 | 750 | 715 | 476 | 345 | 270 | 200 | 156 | 119 | 90 | 64 | 40 | 29 | 15 | 9 |

*Source: Defense Contract Management Agency (DCMA)*
http://guidebook.dcma.mil/226/tools_links_file/stat-sample.htm

5.4 Control of Inspection, Measuring and Testing of Equipment:

5.4.1 Periodic evaluation of the continued effectiveness of inspection, measuring and testing of equipment shall be performed in accordance with applicable guidelines. Provisions of this requirement are governed by AAR Operating Procedures OP-07.1.5 - Control of Monitoring and Measuring Equipment.

## 6.0 Revision History:

| Revision Date: | Revision: | Sections / Page Revised: | Description / Reason for Revision: | Approved by: |
|---|---|---|---|---|
| 01/APR/2019 | Original | All | Updated to new formatting requirements, clarification of Business Management System. | C. Anderson |
| 12/JUL/2023 | 1 | 3.4 / pg. 1 | Replace "Program Manager" with "Quality / Warehouse Specialist". | C. Anderson |
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