

ENG 1.4.004;		ENG Handbook
Procedure Name:		Revision 0
Process Specifications		28 May 2013

1. OBJECTIVE

- 1.1. The objective of this procedure is to specify a procedure for the approval of Process Specifications (both the specification Master List and individual process specifications).
- 1.2. It is also intended to outline the content of a typical Process Specification (PS).

2. GENERAL

- 2.1. The FAR Airworthiness Regulations, adopted by the Israeli Regulatory system under the Air Navigation Regulations (Procedures for Documentation of Aircraft and Aircraft Parts), 1977, and regulation 14 of the abovementioned regulations, require that the type design serving as the basis for a type certificate shall include implementation of fabrication methods that will consistently produce conforming parts, and that all methods requiring close control to attain this objective must be detailed in approved Process Specifications.
- 2.2. The purpose of a process specification is to define and control a series of operations that ensure consistent characteristics and quality of the manufactured article in accordance with the type design requirements.
- 2.3. All such process specifications should be identified on the relevant drawings as well as evaluated and approved by CAAI engineering department.
- 2.4. Process specifications are referred to on the design drawings by their number, as applicable to the designed and manufactured product.
- 2.5. When a process has a singular usage, the process may be detailed directly on the drawing, rather than referred to.

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3. Reference Material & Forms

3.1. Reference:

- 3.1.1. Regulations 14, 32(c)(5)(a), 38(a) and 40(a) of the Air Navigation Regulations (Procedures for Documentation of Aircraft and Aircraft Parts), 1977;
- 3.1.2. Sections XX.603 & XX.605(a) of 14CFR Parts 23, 25, 27 & 29.

3.2. Forms: None

4. Method

- 4.1. The applicant for a Type Certificate, Provisional Type Certificate, Amendment to a Type Certificate, or a Supplemental Type Certificate will provide for the CAAI's approval -
 - 4.1.1. A Master List of all process specifications implemented in the project, and
 - 4.1.2. All process specifications that have not previously been approved by the CAAI.
- 4.2. The Master List of process specifications shall include at least the current specification revision, date of issue, and whether the PS has been approved by the CAAI.
- 4.3. The Master List will be kept by CAAI Engineering Department.
- 4.4. The applicant shall update the Master List if changes occur.
- 4.5. Revisions to Process Specifications, as well as revisions to the Master List, must be approved by CAAI.
- 4.6. CAAI will crosscheck the applicant's Master List to assure that all Process Specifications are at their latest revision. CAAI Engineering Department will then approve the list.
- 4.7. Deviations from Process Specification should be evaluated and approved by the CAAI before the process is implemented for manufacturing.

Process Phase Evaluation

- 4.8. Manufacturing audits are performed by CAAI Manufacturing Department on a regular basis. However, in-depth evaluation of selected Process Specifications should be performed by CAAI Engineering Department (e.g. PS's of special processes, such as composite materials fabrication, non-destructive testing, and heat treatment).

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- 4.9. Processes (and areas within processes) where the process controls are the only means of ensuring that the quality of the articles produced is within the type design limits are of special interest. These processes require special attention.
- 4.10. The manufacturing inspector together with the CAAI engineer can recommend approval or rejection of the process after the following five phases have been completed:

4.10.1. Phase I – Evaluation

The CAAI engineer should evaluate the basic information of the process. It is important to see that the process information is presented in an orderly and completed manner, otherwise it may lead to misinterpretation and confusion, causing the quality of the processed articles to vary and exceed type design limits. The following outline can be used as a guide to check the content of a typical Process Specification:

- 4.10.1.1 Scope - precise description;
- 4.10.1.2 Applicable documents;
- 4.10.1.3 Materials used in the process;
- 4.10.1.4 Manufacturing data:
 - 4.10.1.4.1. Manufacturing operations throughout the process;
 - 4.10.1.4.2. Manufacturing controls;
 - 4.10.1.4.3. Test specimens (fabrication);
 - 4.10.1.4.4. Tooling qualification;
 - 4.10.1.4.5. Tooling control/calibration.
- 4.10.1.5 Inspection data:
 - 4.10.1.5.1. Process inspection;
 - 4.10.1.5.2. Inspection records;
 - 4.10.1.5.3. Inspection tests;
 - 4.10.1.5.4. Inspection controls;
 - 4.10.1.5.5. Production inspection;
 - 4.10.1.5.6. Final inspection.
- 4.10.1.6 Quality requirements.

4.10.2. Phase II – Review

The CAAI engineer should review the process and the process specification for the variables which must be controlled to ensure a conforming and consistent product.

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Variables may exist in many of the factors which affect the product quality. These include, for example: raw materials used to fabricate the item, equipment used, production facilities and environment, inspection and test equipment, and processing personnel.

4.10.3. Phase III –Controls Verification

The CAAI engineer should verify that the process specification identifies the necessary controls over the variables. These controls should establish the units of measure and acceptance limits, a description of the measurement techniques and action to be taken when the measurement does not meet acceptance standards.

4.10.4. Phase IV – On-site Process Verification

The manufacturing inspector should verify that the articles being processed are in fact being processed in accordance with the Process Specification and that the material, methods, tools and equipment called for therein are utilized.

Since the end results depend on strict adherence to the process instructions, any deviation or discrepancy should be corrected during the verification phase.

4.10.5. Phase V – Determination of Conformity

Since the inspection of the processed articles is the main object of any process evaluation, the CAAI engineer should make a determination that the process operations are capable of consistently producing articles in conformity with the type design requirements.

The method used in determining this should be as defined in the quality plan; therefore, if the process is followed, all parts produced should be of equal quality.

5. CAAI APPROVAL

- 5.1. Approval of a process specification shall be evidenced by issuing a CAAI Document Approval Status Report (DASR).
- 5.2. A request for additional information or any required amendments shall be processed through a CAAI DASR.