INSPECTION AND TEST SYSTEM

**1.0 PURPOSE**

This procedure is an overview of the inspection and test system at Larson Davis. The document indicates the categories of inspection and test and references the Inspection Plan Matrix. The Inspection Plan Matrix details the minimum inspection performed but does not limit the judgment or intuition of an inspector to perform a more detailed examination.

**2.0 AFFECTED DEPARTMENTS**

Engineering

Logistics

Production

Quality Assurance

**3.0 REFERENCE DOCUMENTS**

ANSI/ASME B46.1-1985 Surface Texture (Surface Roughness, Waviness, and Lay)

Cosmetic Specification of Injection Molded Parts (Specifications for Molders and their Customers) Society of Plastics Industry – 1994

IPC-A-600 Acceptability of Printed Boards

IPC- A-610 Acceptability of Printed Board Assemblies.

IPC-7711 Rework of Electronic Assemblies.

IPC-7721 Repair and Modification of Printed Boards and Electronic Assemblies.

D0001.1034 Non-conformant Materials or Products

D0001.1102 ESD

D0001.1112-1 Inspection Plan Matrix

D0001.1126 Quality Records

**4.0 RESPONSIBILITIES & AUTHORITY**

**4.1 Engineering**

Engineering has the responsibility and authority to specify inspection parameters, methods, training and equipment required for each specified inspection or test.

 **4.2 Logistics**

Logistics has the responsibility to complete those inspections indicated in the Inspection Plan Matrix, D0001.1112-1.

 **4.3 Production**

Production employees involved in the manufacturing, test, inspection, or repair & calibration processes have the following responsibilities:

* Follow assembly procedures.
* Verify assemblies to Larson Davis engineering/assembly/inspection documentation.
* Follow ESD protection guidelines

**4.4 Quality Assurance**

Quality Assurance has the responsibility and authority necessary to verify compliance of specified purchased materials to engineering requirements and/or to the applicable IPC or other recognized specifications. In addition, QA has the authority to implement additional temporary inspection or test procedures as necessary to ensure that the finished product complies with product specifications.

**5.0 SAFETY PRECAUTIONS**

Use the safety precautions as specified or required for the instrument or product being tested or for the process being used to do the testing.

**6.0 EQUIPMENT & MATERIAL**

Inspection or test equipment appropriate for the test or inspection being performed.

**7.0 INSTRUCTIONS**

Inspection activities are performed by personnel qualified by experience and/or training and designated by the QA Manager, Production Manager or Logistics Supervisor.

The inspections are described in the Inspection Plan Matrix, D0001.1112-1 and are the minimum inspection levels for each category of part. The scope of inspection for a particular part in a category is variable per the discretion of the QA Manager or inspector and as long as the minimum scope is maintained. An inspector is not limited to performing a minimum inspection. The scope of an inspection can be temporarily expanded by QA or at the request of Engineering or Management. A change of the scope of an inspection beyond temporary is a joint decision between QA & Engineering. The categories of inspection include but are not limited to:

* Receiving Inspection
* In Process Inspection
* Final Test & Inspection
* QA Pre-Shipment Inspection

**7.1 Release from Receiving Inspection**

When receiving inspection has been completed, the individual doing the inspection takes the following actions depending on what is being inspected:

* Purchased items that are “off-the-shelf” and not LCD’s (liquid crystal displays) are received into the BSD and the “Receiver” document is filed per the Quality Records Matrix, D0001.1126-1.
* Items requiring inspection and/or testing prior to receipt will be inspected per the Inspection Materials Inspection D0002.2057.

**7.2 In Process Inspection**

In process inspection is used by employees to verify that the previous process steps have been properly executed. The inspection is typically specified in the applicable work instructions or bill of manufacturing for the process or product. Inspections that are not specified can be added at the discretion of the QA or Production Manager (with recommendation from Engineering) if a need for additional inspection is identified after analysis of monthly reports.

**7.3 Final Test**

This is performed by a qualified employee to verify product functionality. Tests that are completed are dependent on which product is being assembled and the tests that have been specified by engineering.

**7.4 QA Pre-Shipment Inspection**

Pre-shipment inspection of instruments is detailed in the QA Pre-Shipment Inspection procedure, D0001.1124. Other verifications of the outgoing shipment are performed by the employee configuring the order and/or the employee in Logistics with responsibility to ship the order.

**8.0 RECORDS**

Records that are generated by the various processes used for inspection are retained per the Quality Records Matrix, D0001.1126-1.

**9.0 DISTRIBUTION**

This document is available electronically in the Document Control area.

**10.0 ATTACHMENTS**

None

**11.0 REVISION HISTORY**

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| --- | --- | --- | --- | --- |
| **DCO #** | **REV** | **DATE** | **INITIALS** | **CHANGES MADE** |
|  | B | 2/28/00 | SW | Clarified and re-wrote sub-sections in Section 9.0 Inspection. Added document numbers to reference section, added responsibilities in Section 4.0. Changes in response to internal audit findings |
| 648 | C | 10/8/03 | JEB | Complete Re-write. Added reference documents and created an inspection matrix for the details. |
| 712 | D | 2/2/04 | JEB | Added the need to obtain Engineering recommendations when expanding inspection criteria or if trends are identified. Added an allowance to temporarily expand inspection parameters at the discretion of the Quality Manager, Production Manager or Inspector. |
| 1108 | E | 5/28/08 | DAR | Update |
| 1988 | F | 4/30/21 | AMC | Revised 7.1, second bullet to inspect incoming product per the Incoming Material Inspection D0002.2057. |