



Pages 1 to 7

RADIOGRAPHIC INSPECTION OF QUARTZ CRYSTAL UNITS

ESCC Basic Specification No. 2093501

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TABLE OF CONTENTS

<u>1.</u>	<u>SCOPE</u>	<u>5</u>
<u>2.</u>	<u>GENERAL REQUIREMENTS</u>	<u>5</u>
2.1	Applicability	5
2.2	Procedure	5
2.3	Mounting Fixtures	5
<u>3.</u>	<u>DETAILED REQUIREMENTS</u>	<u>5</u>
3.1	General	5
3.2	Quartz Crystal Units	5
3.2.1	Mount-Type	5
3.2.2	Extraneous Material	5
3.2.3	Clearances	5
3.2.4	Alignment	5
3.2.5	Lid Seal	6
<u>4.</u>	<u>FIGURES</u>	<u>6</u>
4.1	Figure 1: Typical Component	6

1. **SCOPE**

This specification, to be read in conjunction with ESCC Basic Specification No. 20900, Radiographic Inspection, contains additional specific requirements for Quartz Crystal Units.

2. **GENERAL REQUIREMENTS**

2.1 **APPLICABILITY**

The following criteria may not be varied or modified after commencement of any inspection stage. Any ambiguity or proposed minor deviation shall be referred to the ESCC Executive for resolution and approval.

2.2 **PROCEDURE**

All items shall be examined in such a manner that a minimum of handling and movement of the components is involved.

2 X-ray views shall be taken of each crystal unit (as shown in Figure 1).

2.3 **MOUNTING FIXTURES**

Suitable fixtures may be used to assist in the inspection process provided they do not of themselves cause damage to the device.

3. **DETAILED REQUIREMENTS**

3.1 **GENERAL**

The radiographic examination of quartz crystal units shall include, but not be limited to, inspection for foreign or loose particles, identification of element mount, alignment of crystal element, clearance of conductive elements and case and the case seal.

A component shall be rejected if it exhibits one or more of the defects listed in the following paragraphs.

3.2 **QUARTZ CRYSTAL UNITS**

3.2.1 **Mount-Type**

The element mount shall be recorded in the radiography report, indicating either a 2-, 3- or 4-ribbon mount for support of the element.

3.2.2 **Extraneous Material**

Loose or adherent material larger than 0.05mm in its longest dimension.

3.2.3 **Clearances**

Clearances between internal components (ribbons, conductive elements, crystal elements, posts, etc.) such that the case material and all internal elements are separated by 0.3mm or less.

3.2.4 **Alignment**

Crystal element not aligned to within 10° of the normal horizontal plane of the base of the crystal-mounting pads.

Internal ribbons non-uniform in length and construction and not within 10° of the vertical.

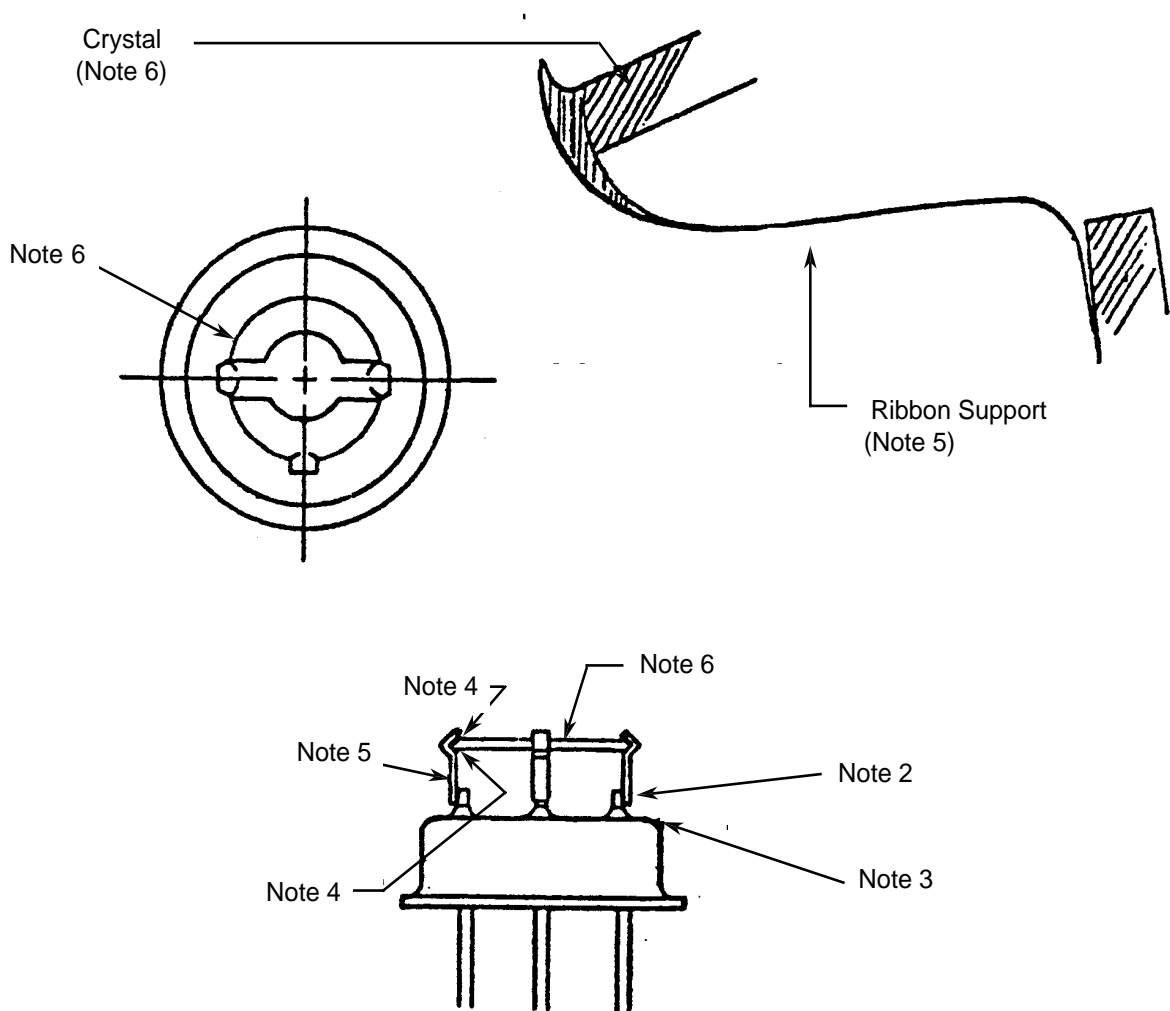
3.2.5 Lid Seal

Voids resulting in more than 50% reduction in seal width (no through voids).

Total void area reducing total seal area by more than 30%.

4. **FIGURES**

4.1 FIGURE 1: TYPICAL COMPONENT



NOTES:

1. Not drawn to scale; outline is typical of DK (TO-5) or (TO-8) header.
2. Weld attachment.
3. Mounting base.
4. Bonding cement is placed here at each support.
5. Ribbon-type support; the ribbon will be shaped in accordance with the diameter of the quartz and

- the position of the pads on the mounting base.
6. Quartz element.