# DIODE CARD ASSEMBLY

# 31-36-49

BOEING P/N 69-42999-1

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

| BOEING SERVICE BULLETIN | BOEING TEMPORARY REVISION | OTHER DIRECTIVES | DATE DIRECTIVE INCORPORATED INTO TEXT |
|---|---|---|---|
| | | PRR 30689 | Feb 15/69 |

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision

F Indicates foldout pages - print one side only

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# DIODE CARD ASSEMBLY

Boeing Part Number: 69-42999-1

## 1. DESCRIPTION AND OPERATION

A. Description

(1) The diode card assembly consists of twelve diodes mounted on an etched board.

B. Operation

(1) The diode card assembly functions as a blocking circuit in the annunciator lights module assembly.

C. Leading Particulars

Length -- 4.6 inches (approx)
Width -- 0.75 inches (approx)
Height -- 0.25 inches (approx)
Weight -- 8 ounces (approx)

## 2. DISASSEMBLY

A. Disassemble only as required for repair or replacement of components.

B. Instructions for the removal of components from printed circuit assemblies are contained in "Repair of Printed Circuit Assemblies and Component Board Assemblies," Subject 20-11-01.

## 3. CLEANING

A. Remove dust or foreign matter from printed circuit assembly using low pressure air suction.

B. Deposits that are not removable by suction, may be removed by careful wiping with a cloth moistened in aliphatic naphtha or isopropyl alcohol, followed by thorough drying with low pressure air.

WARNING: WHEN USING ISOPROPYL ALCOHOL OR ALIPHATIC NAPHTHA, AVOID PROLONGED OR REPEATED BREATHING OF VAPORS. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. KEEP AWAY FROM HEAT, SPARKS, OR OPEN FLAME.

C. Instructions for cleaning prior to soldering, or replacement of components, are contained in "Repair of Printed Circuit Assemblies and Component Board Assemblies," Subject 20-11-01.

4. INSPECTION/CHECK

A. Visual Checks

NOTE: Use five-power magnification for checking component, wiring, and soldering.

(1) Check components for security of mounting.

CAUTION: DO NOT USE FORCE AGAINST COMPONENT TO DETERMINE SOLIDITY OF MOUNTING.

(2) Check components, wire, and conductor patterns for evidence of damage.

(3) Check connections for proper installation.

(4) Check for proper routing of wire.

(5) Check for legibility of reference designations, component outlines, diode orientation symbols, and terminal identifications.

(6) Check finished surfaces and encapsulant for evidence of damage or deterioration.

(7) Check insulating sleeving for proper installation and evidence of damage.

B. Special Checks

(1) Check vendor components per manufacturer's instructions.

5. REPAIR

A. Repair

(1) Repair damaged or lifted circuits per "Repair of Printed Circuit Assemblies and Component Board Assemblies," Subject 20-11-01.

(2) Rubber stamp assembly part number prior to encapsulation, using 14-point characters per "Application of Stencils, Insignia, Silk Screen, Part Numbering and Identification Markings," Subject 20-50-10.

B. Refinish

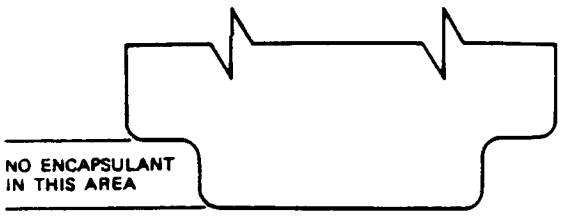
(1) Apply encapsulant over repaired areas as necessary per "Repair of Printed Circuit Assemblies and Component Board Assemblies," Subject 20-11-01. Do not encapsulate contact area shown in figure 1.

CAUTION: IF ENCAPSULANT IS APPLIED OVER THE ENTIRE ASSEMBLY, THE TOTAL THICKNESS, INCLUDING PREVIOUS COATINGS, SHOULD NOT EXCEED 0.006 INCH. EXCESSIVE ENCAPSULANT CAN ALTER THE HEAT DISSIPATION CHARACTERISTICS OF THE ASSEMBLY AND CAUSE PREMATURE FAILURE OF HEAT SENSITIVE COMPONENTS.

C. Replacement

(1) Replace all defective components per "Repair of Printed Circuit Assemblies and Component Board Assemblies," Subject 20-11-01.

(2) When installing new transistor and/or heatsink, apply thermal compound, type #120 (Wakefield Engineering Inc., 139 Foundry St., Wakefield, Massachusetts 01880) between transistor and heatsink. Mask off transistor and heatsink prior to encapsulation.




Refinish Diagram
Figure 1

6. ASSEMBLY

A. None

7. FITS AND CLEARANCES

A. None

8. TESTING

A. Test Equipment

(1) Multimeter, Model 260 (Simpson), or equivalent

(2) Connector, 528561-1 (ITT Cannon Electric), with pigtail leads

(3) Keying plug, 582507-1 (ITT Cannon Electric)

B. Functional Test

(1) Insert keying plug in pin position 43 and insert diode card assembly in test connector so that component side of card matches numbered side of connector.

(2) Verify forward and reverse diode resistance between pins indicated in figure 2.

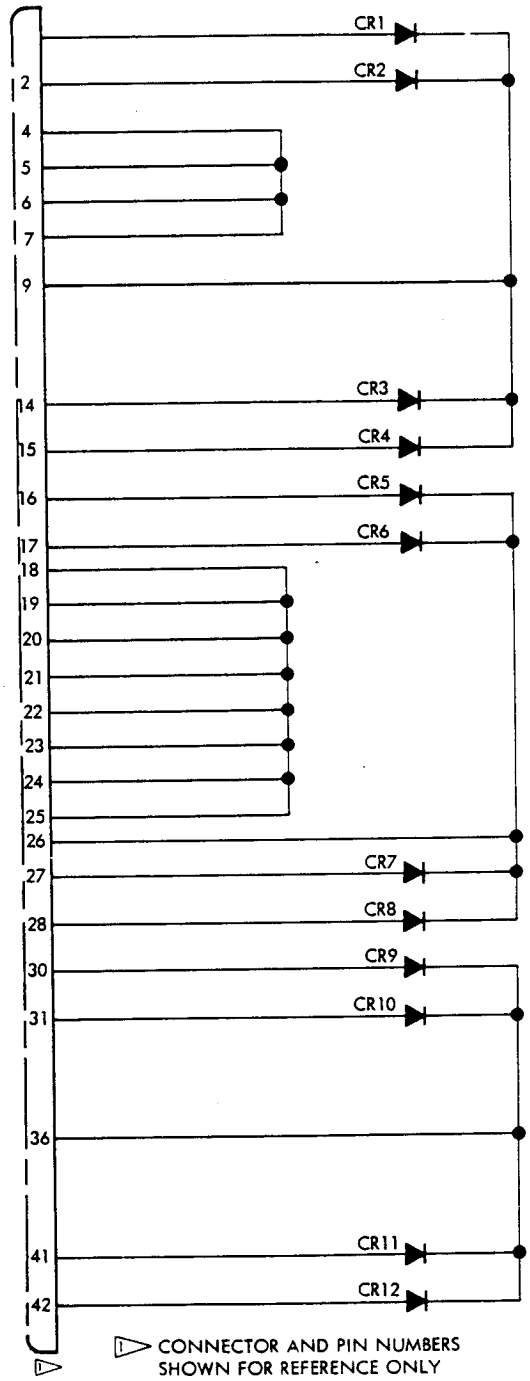
| Component Tested | Measure Between Pins | 100 Ohms Max with + at Pin | 1 Megohm Min with + at Pin |
|---|---|---|---|
| CR1 | 1 and 9 | 1 | 9 |
| CR2 | 2 and 9 | 2 | 9 |
| CR3 | 14 and 9 | 14 | 9 |
| CR4 | 15 and 9 | 15 | 9 |
| CR5 | 16 and 26 | 16 | 26 |
| CR6 | 17 and 26 | 17 | 26 |
| CR7 | 27 and 26 | 27 | 26 |
| CR8 | 28 and 26 | 28 | 26 |
| CR9 | 30 and 36 | 30 | 36 |
| CR10 | 31 and 36 | 31 | 36 |
| CR11 | 41 and 36 | 41 | 36 |
| CR12 | 42 and 36 | 42 | 36 |

Blocking Diode Test
Figure 2

(3) Perform continuity checks between pin 4 and pins 5 through 7.

(4) Perform continuity checks between pin 18 and pins 19 through 25.

(5) Remove diode card assembly from test connector.




Schematic Diagram
Figure 3

9. TROUBLE SHOOTING

A. If blocking diode test failure occurs, replace defective diode as listed in figure 2.

B. If continuity test failure occurs, repair conductor pattern on board.

NOTE: Removal and installation of conformal coating, repair of conductor pattern, and replacement of diodes is contained in "Repair of Printed Circuit Assemblies and Component Board Assemblies," Subject 20-11-01.

10. STORAGE INSTRUCTIONS

A. Protect assembly from dust, moisture, and atmospheric conditions. Place assembly in plastic bag and insert in protective carton, padded sufficiently to ensure against damage during storage and handling. Close, tape, and mark carton with assembly identity and date of overhaul.

B. For further information refer to "Protection, Storage, and Handling of Airplane Components," Subject 20-70-01.

11. SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

A. Tools used for repair of printed circuit assemblies and component board assemblies are listed in Subject 20-11-01.

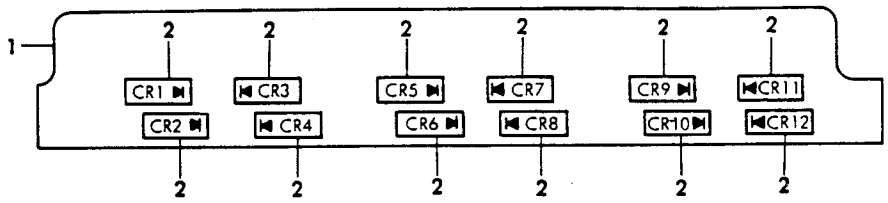
B. Tools used for repair of electrical terminations (i.e., terminal lugs) are listed in Subject 20-11-03.

C. Tools used for soldering electrical connections are listed in Subject 20-12-01.

NOTE: For additional equipment required for testing, refer to TESTING.

12. ILLUSTRATED PARTS LIST

A. Exploded View




Diode Card Assembly, 69-42999-1
Figure 4

B. Group Assembly Parts List

| FIG. & ITEM NO. | PART NO. | AIRLINE PART NUMBER | NOMENCLATURE 1 2 3 4 5 6 7 | USE CODE | QTY PER ASSY |
|---|---|---|---|---|---|
| 4- | 69-42999-1 | | DIODE CARD ASSEMBLY | | |
| 1 | 69-42999-2 | | . BOARD, Etched . . . . . | | 1 |
| 2 | 1N4384 | | . DIODE, V01295 . . . . . | | 12 |

| Reference Designation Index (See Schematic Diagram) | | |
|---|---|---|
| Reference Designation | Part Number | Item No. |
| CR1 thru CR12 | 1N4384 | 2 |

VENDOR CODE

| Code | Name and Address |
|---|---|
| V01295 | Texas Instruments, Inc.<br>Semi-Conductor Components Division<br>13500 N. Central Expressway<br>Dallas, Texas |