

**BOEING**   
**COMMERCIAL JET**  
OVERHAUL MANUAL

**FLIGHT INSTRUMENT MODULE ASSEMBLY**  
**P3-3, P1-3**

**31-36-82**

BOEING P/N 65-81684-6, -7

AIRLINE P/N

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THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

| BOEING<br>SERVICE<br>BULLETIN | BOEING<br>TEMPORARY<br>REVISION | OTHER<br>DIRECTIVES | DATE DIRECTIVE<br>INCORPORATED<br>INTO TEXT |
|-------------------------------|---------------------------------|---------------------|---|
|                               |                                 |                     |   |

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| * IEP-1  | Mar 25/73 |      |      |      |      |
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| * 12   | Mar 25/73 |      |      |      |      |
| * 13   | Mar 25/73 |      |      |      |      |
| * 14   | Mar 25/73 |      |      |      |      |
| * 15   | Mar 25/73 |      |      |      |      |
| * 16   | BLANK     |      |      |      |      |

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| Assembly. . . . .                               | None        |
| Fits and Clearances . . . . .                   | None        |
| Testing . . . . .                               | 1           |
| Trouble Shooting. . . . .                       | None        |
| Storage Instructions. . . . .                   | None        |
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FLIGHT INSTRUMENT MODULE ASSEMBLY

1. DESCRIPTION AND OPERATION

- A. The flight instrument module assembly contains switches, indicators, and instrument clamps on the captain's or first officer's instrument panel. Four quick-disconnect studs fasten the module to the panel. A rear-mounted connector, aligned by the module index pins, mates with the airplane wire bundle.

NOTE: Special instructions for disassembly, cleaning, inspection assembly, trouble shooting, special tools, or storage are not required. Standard shop practices, and procedures contained in 31-10-01, Instrument Panel Electrical Module General Information, are sufficient for overhaul of this assembly.

2. REPAIR

- A. The following baseplate assembly screws have been installed with Loctite and will be difficult to remove. If replaced, coat threaded areas with Loctite primer grade T and nutlock compound 74 (Loctite Corporation, 705 North Mountain Road, Newington, Connecticut 06111) per manufacturer's instructions:

- (1) Screws into module index pins
- (2) Screws at both ends of spacers separating connector support plate and baseplate.
- (3) Screws attaching wire bundle support clamp spacers to baseplate.

3. TESTING

A. Test Equipment

- (1) Power Supply: +28 volts dc
- (2) Multimeter: Simpson 260 or equivalent
- (3) Mating connector with pigtail leads:
  - (a) (65-81684-6 only) BACC45FT12-12S8 (mate with D543)  
BACC45FT12-12S (mate with D429)
  - (b) (65-81684-7 only) BACC45FT18-31S (mate with D425)

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65-81684

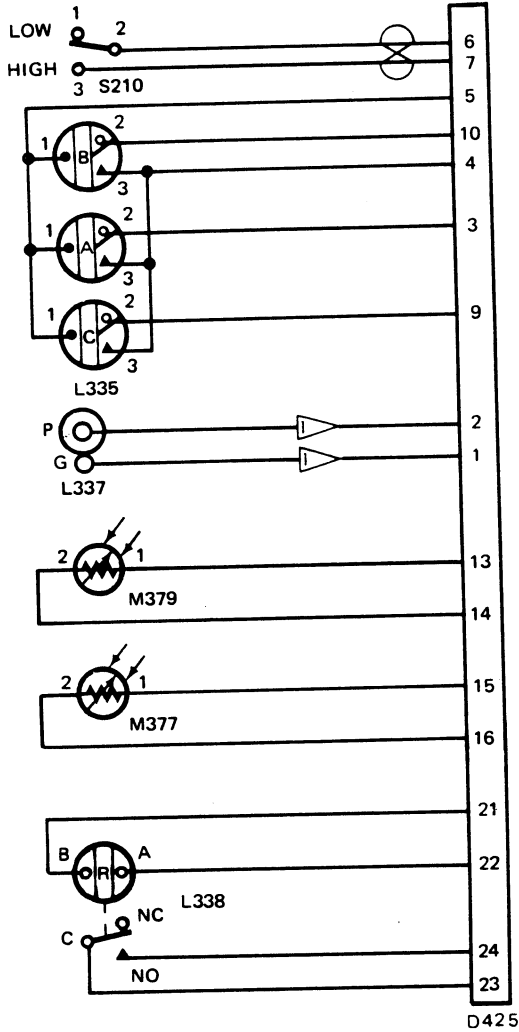
B. Functional Test

- (1) Mate test connector with module connector. Identify and tag pigtail leads.
- (2) Perform test steps listed in figure 1.
- (3) (65-81684-7 only) Photocell Tests
  - (a) With photocell face surfaces exposed to total darkness, verify 300k resistance, or more, between pins 13 and 14, and between pins 15 and 16.
  - (b) With photocell face surfaces exposed to ambient room light, verify approximately 200 ohms between pins 13 and 14, and between pins 15 and 16.
- (4) Disconnect test connectors.

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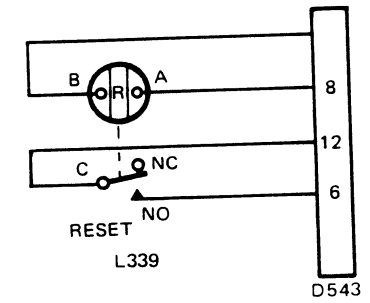
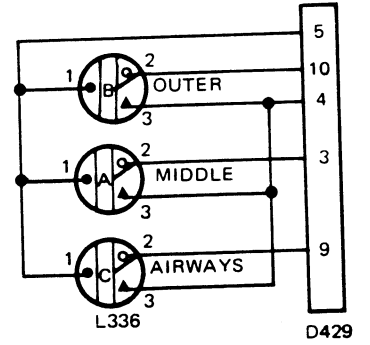
| Step | Component Tested | Procedure  | Required Results                           |
|------|------------------|--|--|
|      | L335             | (For 65-81684-6, use lower connector, D429)                  |  |
| 1    |                  | Connect pin 5 to 6 volts                                     |  |
| 2    |                  | Connect pin 4 to ground                                      | L335 not illuminated                       |
| 3    |                  | Depress and release each cap in turn, blue, amber, and clear | Each lamp shall illuminate while depressed |
| 4    |                  | Disconnect pin 4   |  |
| 5    |                  | Connect pin 10 to ground                                     | Blue cap illuminated                       |
| 6    |                  | Connect pin 3 to ground                                      | Amber cap illuminated                      |
| 7    |                  | Connect pin 9 to ground                                      | Clear cap illuminated                      |
| 8    |                  | Depress each cap in turn, release                            | Each lamp extinguished while depressed     |
| 9    |                  | Remove all connections                                       |  |
|      |                  | <u>Assembly 65-81684-6 only (use upper connector, D543)</u>  |  |
| 10   | L339             | Jumper pin 8 to pin 12                                       |  |
| 11   |                  | Connect pin 7 to 28 volts dc                                 |  |
| 12   |                  | Connect pin 6 to ground                                      | L339 extinguished                          |
| 13   |                  | Depress L339, release  | L339 illuminated while depressed           |
| 14   |                  | Remove all connections                                       |  |
|      |                  | <u>Assembly 65-81684-7 only</u>                              |  |
| 15   | L338             | Jumper in 22 to pin 24                                       |  |
| 16   |                  | Connect pin 21 to 28 volts dc                                |  |
| 17   |                  | Connect pin 23 to ground                                     | L338 extinguished                          |
| 18   |                  | Depress L338, release  | L338 illuminated                           |
| 19   |                  | Remove all connections                                       |  |
| 20   | S210             | Set S210 to LOW (down)                                       | No continuity pin 6 to 7                   |
| 21   |                  | Set S210 to HIGH (up)  | Continuity pin 6 to 7                      |
| 22   | L337             | Measure pin 1 to pin 2                                       | No continuity                              |
| 23   |                  | Measure L337 rim to pin 1                                    | Continuity                                 |
| 24   |                  | Measure L337 center to pin 2                                 | Continuity                                 |

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ASSEMBLY 65-81684-7

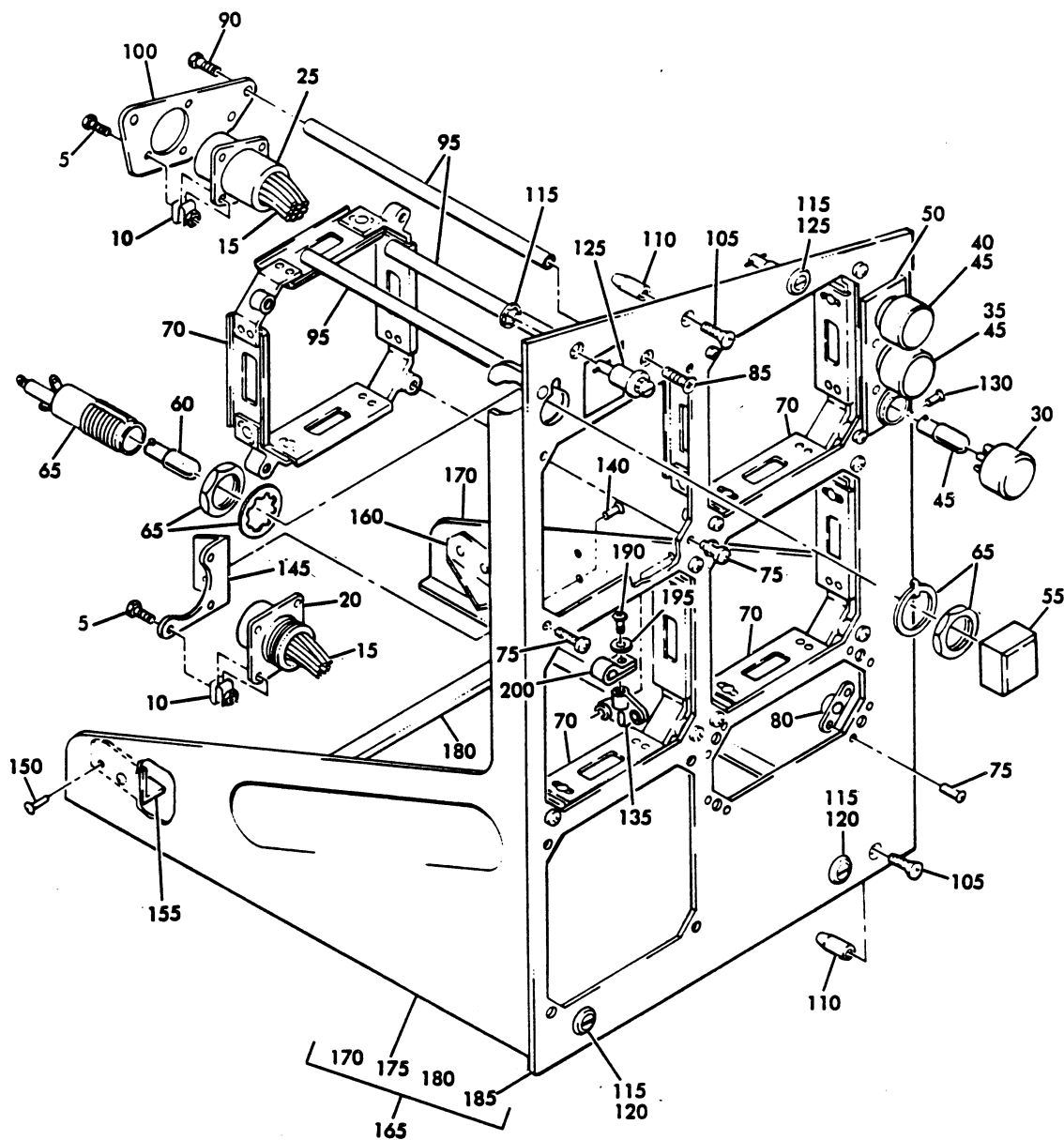
NOTE: ALL WIRES SIZE AWG 22 BMS 13-13, TYPE 1, CLASS 1 EXCEPT NOTED.



ASSEMBLY 65-81684-6

 WIRE SIZE AWG 20

4. ILLUSTRATED PARTS LIST



ASSEMBLY 65-81684-6

First Officers' Flight Instrument Module Assembly (P3-3)  
Figure 3



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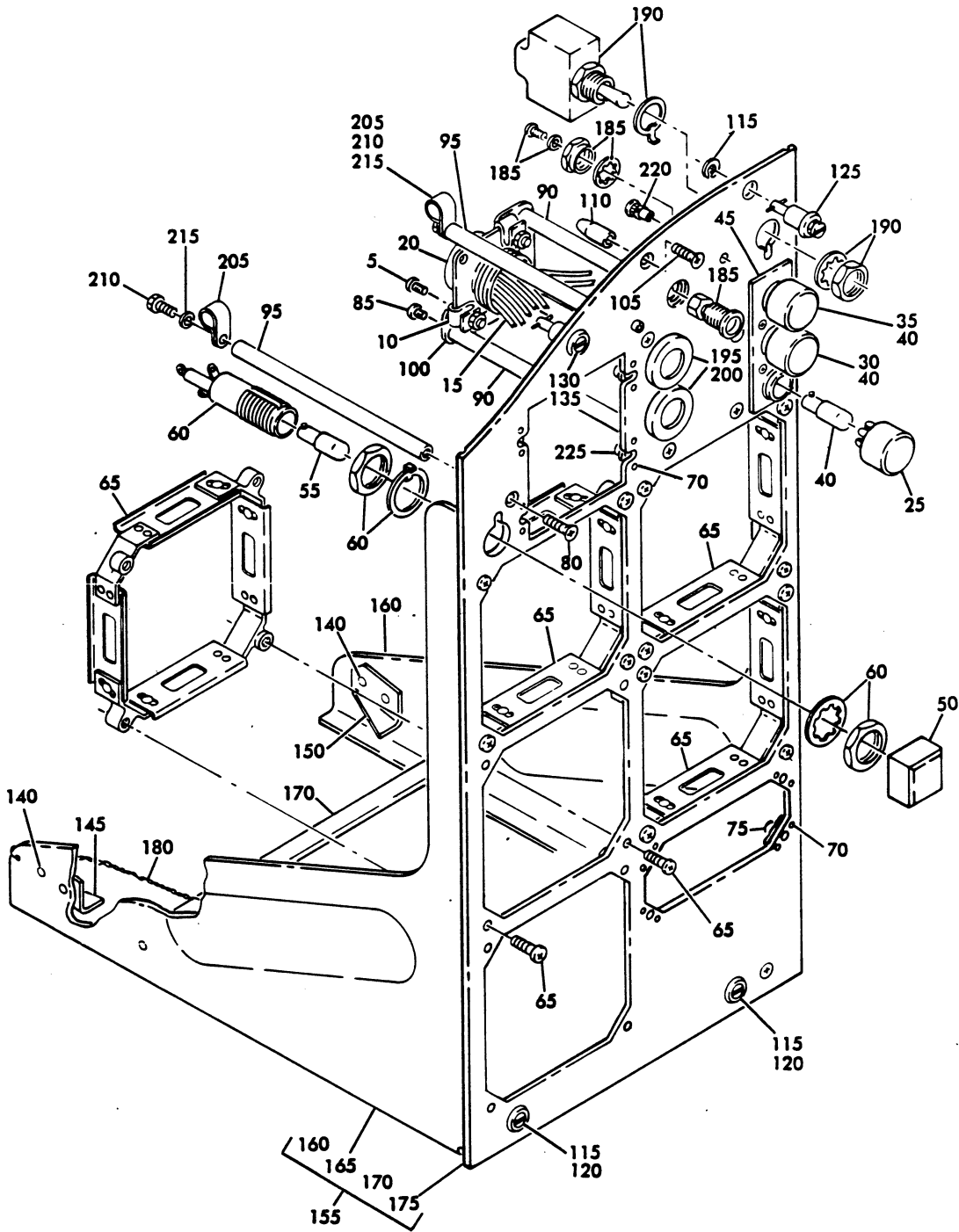
| FIG. & ITEM NO. | PART NO.        | AIRLINE PART NUMBER | N O M E N C L A T U R E                              |   |   |   |   |   |   | USE CODE | QTY PER ASSY |
|-----------------|-----------------|---------------------|--|---|---|---|---|---|---|----------|--------------|
|                 |                 |                     | 1  | 2 | 3 | 4 | 5 | 6 | 7 |          |              |
| 3-              | 65-81684-6      |                     | FIRST OFFICER'S FLIGHT INSTRUMENT MODULE ASSY (P3-3) |   |   |   |   |   |   |          |              |
| 5               | BACS12CB04-6    |                     | . SCREW  |   |   |   |   |   |   |          | 6            |
| 10              | BACN10NW1       |                     | . NUT, Clip  |   |   |   |   |   |   |          | 6            |
| 15              | 61-30045-008    |                     | . WIRE BUNDLE ASSY                                   |   |   |   |   |   |   |          | 1            |
| 20              | BACC45FN12-12P  |                     | . . CONNECTOR  |   |   |   |   |   |   |          | 1            |
| 25              | BACC45FN12-12P8 |                     | . . CONNECTOR  |   |   |   |   |   |   |          | 1            |
| 30              | 539-1012-002    |                     | . CAP, Indicator light, V81590                       |   |   |   |   |   |   |          | 1            |
| 35              | 539-1012-003    |                     | . CAP, Indicator light, V81590                       |   |   |   |   |   |   |          | 1            |
| 40              | 539-1012-004    |                     | . CAP, Indicator light, V81590                       |   |   |   |   |   |   |          | 1            |
| 45              | MS15571-2       |                     | . BULB   |   |   |   |   |   |   |          | 3            |
| 50              | 074-1012-006    |                     | . BASE ASSY, Indicator light, V81590                 |   |   |   |   |   |   |          | 1            |
| 55              | 515-1031-003    |                     | . CAP, Indicator light, V81590                       |   |   |   |   |   |   |          | 1            |
| 60              | 1864            |                     | . BULB, V24455                                       |   |   |   |   |   |   |          | 2            |
| 65              | 088-1031-003    |                     | . BASE ASSY, Indicator light, V81590                 |   |   |   |   |   |   |          | 1            |
| 70              | 9963            |                     | . CLAMP, Instrument, V91893 (preferred)              |   |   |   |   |   |   |          | 4            |
| 70              | 54621           |                     | . CLAMP, Instrument, V98625 (optional)               |   |   |   |   |   |   |          | 4            |
| 75              | BACR15BA3D      |                     | . RIVET  |   |   |   |   |   |   |          | 8            |
| 80              | BACN10JP06A     |                     | . NUTPLATE   |   |   |   |   |   |   |          | 4            |
| 85              | NAS514P632-6    |                     | . SCREW  |   |   |   |   |   |   |          | 3            |
| 90              | BACS12CB06-6    |                     | . SCREW  |   |   |   |   |   |   |          | 3            |
| 95              | 66-13524-7      |                     | . SPACER   |   |   |   |   |   |   |          | 3            |
| 100             | 69-49743-1      |                     | . PLATE, Connector support                           |   |   |   |   |   |   |          | 1            |
| 105             | NAS514P832-6    |                     | . SCREW  |   |   |   |   |   |   |          | 2            |
| 110             | 69-42739-1      |                     | . PIN, Index   |   |   |   |   |   |   |          | 2            |
| 115             | BACW10X4        |                     | . WASHER, Toothed                                    |   |   |   |   |   |   |          | 4            |
| 120             | 26S55-5AB       |                     | . STUD ASSY, V71286                                  |   |   |   |   |   |   |          | 2            |
| 125             | 26S55-6AB       |                     | . STUD ASSY, V71286                                  |   |   |   |   |   |   |          | 2            |
| 130             | BACR15BA3D      |                     | . RIVET  |   |   |   |   |   |   |          | 2            |
| 135             | BACN10MK3-45    |                     | . NUTPLATE   |   |   |   |   |   |   |          | 1            |
| 140             | BACR15BA5D      |                     | . RIVET  |   |   |   |   |   |   |          | 2            |
| 145             | 69-43873-6      |                     | . ANGLE  |   |   |   |   |   |   |          | 1            |
| 150             | BACR15BA4D      |                     | . RIVET  |   |   |   |   |   |   |          | 4            |
| 155             | 69-43831-1      |                     | . STOP   |   |   |   |   |   |   |          | 1            |
| 160             | 69-43831-2      |                     | . STOP   |   |   |   |   |   |   |          | 1            |
| 165             | 69-37310-23     |                     | . BASEPLATE ASSY                                     |   |   |   |   |   |   |          | 1            |
| 170             | 69-41277-2      |                     | . . BRACKET, Support                                 |   |   |   |   |   |   |          | 1            |

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| FIG. & ITEM NO. | PART NO.    | AIRLINE PART NUMBER | N O M E N C L A T U R E |   |   |   |   |   |   | USE CODE | QTY PER ASSY |
|-----------------|-------------|---------------------|-------------------------|---|---|---|---|---|---|----------|--------------|
|                 |             |                     | 1                       | 2 | 3 | 4 | 5 | 6 | 7 |          |              |
| 3-              |             |                     |                         |   |   |   |   |   |   |          | 1            |
| 175             | 69-41277-3  |                     |                         |   |   |   |   |   |   |          | 1            |
| 180             | 69-42851-1  |                     |                         |   |   |   |   |   |   |          | 1            |
| 185             | 69-37310-24 |                     |                         |   |   |   |   |   |   |          | 1            |
| 190             | BACS12CB3   |                     |                         |   |   |   |   |   |   |          | 1            |
| 195             | AN960PD10L  |                     |                         |   |   |   |   |   |   |          | 1            |
| 200             | BACC10DK    |                     |                         |   |   |   |   |   |   |          | 1            |

| Reference Designation Index (See Schematic Diagram) |                 |          |
|---|-----------------|----------|
| Reference Designation                               | Part Number     | Item No. |
| D429  | BACC45FN12-12P  | 20       |
| D543  | BACC45FN12-12P8 | 25       |
| L336  | 074-1012-006    | 50       |
| L339  | 088-1031-003    | 65       |



ASSEMBLY 65-85614-7

First Officers' Flight Instrument Module Assembly (P3-3)  
Figure 4

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| FIG.<br>&<br>ITEM<br>NO. | PART NO.           | AIRLINE<br>PART<br>NUMBER | N O M E N C L A T U R E                           |   |   |   |   |   |   | USE<br>CODE | QTY<br>PER<br>ASSY |
|--------------------------|--------------------|---------------------------|---|---|---|---|---|---|---|-------------|--------------------|
|                          |                    |                           | 1   | 2 | 3 | 4 | 5 | 6 | 7 |             |                    |
| 4-                       | 65-81684-7         |                           | CAPTAIN'S FLIGHT INSTRUMENT MODULE<br>ASSY (P1-3) |   |   |   |   |   |   |             |                    |
| 5                        | BACSL2CB04-6       |                           | . SCREW   |   |   |   |   |   |   |             | 3                  |
| 10                       | BACN10NWI          |                           | . NUT, Clip                                       |   |   |   |   |   |   |             | 3                  |
| 15                       | 61-30037-019       |                           | . WIRE BUNDLE ASSY                                |   |   |   |   |   |   |             | 1                  |
| 20                       | BACC45FN18-<br>31P |                           | . . CONNECTOR                                     |   |   |   |   |   |   |             | 1                  |
| 25                       | 539-1012-002       |                           | . CAP, Indicator light, V81590                    |   |   |   |   |   |   |             | 1                  |
| 30                       | 539-1012-003       |                           | . CAP, Indicator light, V81590                    |   |   |   |   |   |   |             | 1                  |
| 35                       | 539-1012-004       |                           | . CAP, Indicator light, V81590                    |   |   |   |   |   |   |             | 1                  |
| 40                       | MS15571-2          |                           | . BULB  |   |   |   |   |   |   |             | 3                  |
| 45                       | 074-1012-006       |                           | . INDICATOR LIGHT, V81590                         |   |   |   |   |   |   |             | 1                  |
| 50                       | 515-1031-003       |                           | . CAP, Indicator light, V81590                    |   |   |   |   |   |   |             | 1                  |
| 55                       | 1864               |                           | . BULB, V24455                                    |   |   |   |   |   |   |             | 2                  |
| 60                       | 088-1031-003       |                           | . BASE ASSY, Indicator light, V81590              |   |   |   |   |   |   |             | 1                  |
| 65                       | 9963               |                           | . CLAMP, Instrument, V91893<br>(preferred)        |   |   |   |   |   |   |             | 4                  |
| 65                       | 54621              |                           | . CLAMP, Instrument, V98625<br>(optional)         |   |   |   |   |   |   |             | 4                  |
| 70                       | BACR15BA3D         |                           | . RIVET   |   |   |   |   |   |   |             | 16                 |
| 75                       | BACN10JPO6A        |                           | . NUTPLATE  |   |   |   |   |   |   |             | 4                  |
| 80                       | NAS514P632-6       |                           | . SCREW   |   |   |   |   |   |   |             | 5                  |
| 85                       | BACSL2CB06-6       |                           | . SCREW   |   |   |   |   |   |   |             | 3                  |
| 90                       | 66-13524-6         |                           | . SPACER  |   |   |   |   |   |   |             | 3                  |
| 95                       | 66-13524-3         |                           | . SPACER  |   |   |   |   |   |   |             | 2                  |
| 100                      | 69-43873-4         |                           | . PLATE, Receptacle support                       |   |   |   |   |   |   |             | 1                  |
| 105                      | NAS514P832-6       |                           | . SCREW   |   |   |   |   |   |   |             | 2                  |
| 110                      | 69-42739-1         |                           | . PIN, Index                                      |   |   |   |   |   |   |             | 2                  |
| 115                      | BACW10X4           |                           | . WASHER, Toothed                                 |   |   |   |   |   |   |             | 4                  |
| 120                      | 26S55-5AB          |                           | . STUD ASSY, V71286                               |   |   |   |   |   |   |             | 2                  |
| 125                      | 26S55-6AB          |                           | . STUD ASSY, V71286                               |   |   |   |   |   |   |             | 2                  |
| 130                      | BACS21Y6RB         |                           | . STUD  |   |   |   |   |   |   |             | 1                  |
| 135                      | BACW10X2           |                           | . WASHER  |   |   |   |   |   |   |             | 1                  |
| 140                      | BACR15BA4D         |                           | . RIVET (replaces MS20426D4)                      |   |   |   |   |   |   |             | 4                  |
| 145                      | 69-43831-1         |                           | . STOP  |   |   |   |   |   |   |             | 1                  |
| 150                      | 69-43831-2         |                           | . STOP  |   |   |   |   |   |   |             | 1                  |
| 155                      | 69-37310-23        |                           | . BASEPLATE ASSY                                  |   |   |   |   |   |   |             | 1                  |
| 160                      | 69-41277-2         |                           | . . BRACKET, Support                              |   |   |   |   |   |   |             | 1                  |
| 165                      | 69-41277-3         |                           | . . BRACKET, Support                              |   |   |   |   |   |   |             | 1                  |
| 170                      | 69-42851-1         |                           | . . ROD, Stabilizing                              |   |   |   |   |   |   |             | 1                  |
| 175                      | 69-37310-24        |                           | . . BASEPLATE                                     |   |   |   |   |   |   |             | 1                  |

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| FIG. & ITEM NO. | PART NO.       | AIRLINE PART NUMBER | N O M E N C L A T U R E |   |   |   |   |   |   | USE CODE | QTY PER ASSY |
|-----------------|----------------|---------------------|-------------------------|---|---|---|---|---|---|----------|--------------|
|                 |                |                     | 1                       | 2 | 3 | 4 | 5 | 6 | 7 |          |              |
| 4-              |                |                     |                         |   |   |   |   |   |   |          |              |
| 180             | MS20995NC32    |                     |                         |   |   |   |   |   |   |          | AR           |
| 185             | SCN001         |                     |                         |   |   |   |   |   |   |          |              |
| 190             | MS24523-23     |                     |                         |   |   |   |   |   |   |          | 1            |
| 195             | 8346-1CODE-131 |                     |                         |   |   |   |   |   |   |          | 2            |
| 195             | 21K187         |                     |                         |   |   |   |   |   |   |          | 2            |
| 200             | 346-1001-001   |                     |                         |   |   |   |   |   |   |          | 2            |
| 205             | BACC10DK       |                     |                         |   |   |   |   |   |   |          | 2            |
| 210             | BACS12CB3      |                     |                         |   |   |   |   |   |   |          | 2            |
| 215             | AN960D         |                     |                         |   |   |   |   |   |   |          | 2            |
| 220             | BACN10PA06-12  |                     |                         |   |   |   |   |   |   |          | 2            |
| 225             | BACN10JPA04A   |                     |                         |   |   |   |   |   |   |          | 4            |

| Reference Designation Index (See Schematic Diagram) |                |          |
|---|----------------|----------|
| Reference Designation                               | Part Number    | Item No. |
| D425  | BACC45FN18-31P | 20       |
| L336  | 074-1012-002   | 45       |
| L337  | SCN001         | 185      |
| L339  | 088-1031-003   | 60       |
| M377, M379  | 346-1001-001   | 200      |
| 5210  | MS24523-23     | 190      |

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VENDORS

V18178 Vactec Inc., Northline Industrial Boulevard, Maryland Heights,  
Missouri 63042

V24455 General Electric Co. Lamp Div. of Consumer Products Group, 21800  
Tungsten Road, Cleveland, Ohio 44117

V26742 Methode Electronics Incorporated, 7447 West Wildon Ave., Chicago,  
Illinois 60656

V71286 Camloc Fastener Corp., 22 Spring Valley Road, Paramus, New Jersey  
07652

V81590 Korry Manufacturing Co., 223 8th Avenue, Seattle, Washington 98109

V82219 Sylvania Electric Products Incorporated, Electronic Tube Division,  
Receiving Tube Operations, Emporium, Pennsylvania 15834

V91893 MSP Inc., 200 West Sherman Street, P.O. Box 1056, Marion, Indiana  
46592

V98625 Aeroquip Corp., Marman Div., 11214 Exposition Boulevard, Los Angeles,  
California 90064