



Rockwell  
International

instructions

# LED Status Display, 635-0825-( )

Collins Telecommunications Products Division

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## 1. DESCRIPTION

The LED Status Display 635-0825-( ), shown in figure 1, consists of up to 23 transistor-switch-controlled 5-V dc LED's. LED's are lighted when +5 V dc is applied at connector pin 25, a ground is applied at connector pin 16, and a positive voltage is applied to the connector pin associated with the individual LED. Refer to table 1 and figure 2 for signals (positive to light) and their associated connector pins and LED's.

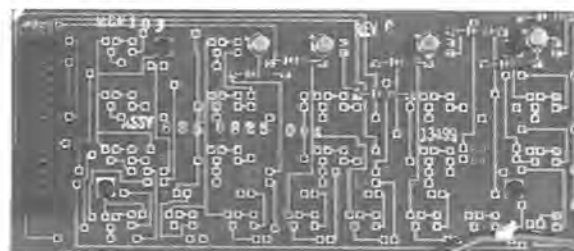
## 2. TESTING/TROUBLESHOOTING PROCEDURES

### 2.1 Test Equipment and Power Requirements

Test equipment and power sources required to test, troubleshoot, and repair the LED status display are listed in the maintenance section of this instruction book.

### 2.2 Testing

The test procedures in table 2 check total performance of the LED status display. These test procedures permit isolation of a fault to a specific component or circuit when the results are used with the schematic to circuit trace the fault.



TP5-2347-017

LED Status Display  
Figure 1

## 3. REPAIR

Repair of the LED status display is accomplished using the standard planar card repair procedures. Refer to the maintenance section of this instruction book for planar card repair procedures.

**NOTICE:** This section replaces third edition dated 1 June 1979.

Table 1. LED Status Display, Configuration Matrix.

| LED  | APPLIED SIGNAL<br>[SILKSCREEN<br>IF DIFFERENT] | JUMPER    | INPUT<br>PIN<br>(A2J3) | LED STATUS DISPLAY |      |      |      |      |      |      |      |      |      |
|------|--|-----------|------------------------|--------------------|------|------|------|------|------|------|------|------|------|
|      |  |           |                        | 635-0825-( )       |      |      |      |      |      |      |      |      |      |
|      |  |           |                        | -001               | -002 | -003 | -004 | -005 | -006 | -007 | -008 | -009 | -010 |
| DS1  | Sidetone en [RF OUT]                           |           | 9                      |                    | X    | X    |      | X    | X    | X    |      | X    |      |
| DS2  | PA READY ind                                   |           | 10                     |                    | X    | X    |      | X    | X    | X    |      | X    |      |
| DS3  | PA FAULT ind                                   |           | 11                     |                    | X    | X    |      | X    | X    | X    |      | X    |      |
| DS4  | KEY ind  |           | 12                     |                    | X    | X    |      | X    | X    | X    |      | X    |      |
| DS5  | R/E FAULT ind                                  |           | 13                     |                    |      | X    |      |      | X    |      |      |      |      |
| DS5  | RCV FAULT ind                                  |           | 13                     | X                  |      |      | X    |      |      |      | X    |      | X    |
| DS5  | EXCTR FAULT ind                                |           | 13                     |                    | X    |      |      | X    |      | X    |      | X    |      |
| DS6  | RCV OVERLOAD                                   |           | 14                     | X                  |      | X    | X    |      | X    |      | X    |      | X    |
| DS7  | AFC LOCK ind                                   |           | 15                     |                    |      |      |      |      |      |      |      |      | X    |
| DS8  | COUPLER FAULT ind                              |           | 8                      |                    | X    | X    |      | X    | X    | X    |      | X    |      |
| DS9  | LSB (FL2)                                      | R9 to E2  | 17                     |                    | X    | X    |      |      |      |      |      | X    |      |
| DS9  | AM en  | R9 to E1  | 4                      | X                  |      |      |      |      |      |      | X    |      | X    |
| DS10 | SSB en [SSB/CW]                                | R10 to E3 | 5                      | X                  |      |      |      |      |      |      | X    |      | X    |
| DS10 | CW en  | R10 to E4 | 2                      |                    | X    | X    |      |      |      |      |      | X    |      |
| DS11 | ISB en   |           | 1                      |                    | X    | X    |      |      |      |      |      | X    |      |
| DS12 | USB (FL1)                                      | R12 to E6 | 18                     |                    | X    | X    |      |      |      |      |      | X    |      |
| DS12 | ISB en   | R12 to E5 | 1                      | X                  |      |      |      |      |      |      | X    |      | X    |
| DS13 | AM en  | R13 to E7 | 4                      |                    | X    | X    |      |      |      |      |      | X    |      |
| DS13 | FM en  | R13 to E8 | 3                      |                    |      |      |      |      |      |      |      |      | X    |
| DS14 | 16 (FL8)                                       |           | 24                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS15 | A (FL3)  |           | 22                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS16 | B (FL4)  |           | 21                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS17 | USB (FL1) [U]                                  |           | 18                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS18 | LSB (FL2) [L]                                  |           | 17                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS19 | C (FL5)  |           | 19                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS20 | D (FL6)  |           | 20                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS21 | E (FL7)  |           | 23                     | X                  |      |      |      |      |      |      | X    |      | X    |
| DS22 | BUSY   |           | 6                      | X                  | X    | X    |      |      |      |      |      | X    | X    |
| DS23 | PRESEL FAULT ind                               |           | 7                      | X                  |      | X    | X    |      | X    | X    | X    | X    | X    |
|      |  |           |                        | -011               | -012 | -013 | -014 |      |      |      |      |      |      |
| DS1  | Sidetone enbl [RF OUT]                         |           | 9                      |                    | X    |      | X    |      |      |      |      |      |      |
| DS2  | PA READY ind                                   |           | 10                     |                    | X    |      | X    |      |      |      |      |      |      |
| DS2  | AM enbl  |           | 10                     |                    |      | X    |      |      |      |      |      |      |      |
| DS3  | PA FAULT ind                                   |           | 11                     |                    | X    |      | X    |      |      |      |      |      |      |
| DS3  | AFC LOCK ind                                   |           | 11                     |                    |      | X    |      |      |      |      |      |      |      |
| DS4  | KEY ind  |           | 12                     |                    | X    |      | X    |      |      |      |      |      |      |

Table 1. LED Status Display, Configuration Matrix (Cont).

| LED  | APPLIED SIGNAL<br>[SILKSCREEN<br>IF DIFFERENT] | JUMPER    | INPUT<br>PIN<br>(A2J3) | LED STATUS DISPLAY |      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------|--|-----------|------------------------|--------------------|------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|
|      |  |           |                        | 635-0825-( )       |      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
|      |  |           |                        | -011               | -012 | -013 | -014 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS4  | ISB enbl                                       |           | 12                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS5  | R/E FAULT ind                                  |           | 13                     |                    |      |      | X    |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS5  | RCV FAULT ind                                  |           | 13                     | X                  |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS5  | EXCTR FAULT ind                                |           | 13                     |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS6  | RCV OVERLOAD                                   |           | 14                     | X                  |      | X    | X    |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS7  | AFC LOCK ind                                   |           | 15                     | X                  |      |      | X    |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS7  | CW enbl  |           | 15                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS8  | COUPLER FAULT<br>ind                           |           | 8                      |                    | X    |      | X    |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS8  | BUSY   |           | 8                      |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS9  | AM enbl  | R9 to E1  | 4                      |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS9  | B1 enbl  | R9 to E1  | 4                      |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS10 | CW enbl  | R10 to E4 | 2                      |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS10 | B2 enbl  | R10 to E3 | 5                      |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS11 | PEAK CLIPPER                                   |           | 1                      |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS12 | A1 enbl  | R12 to E5 | 1                      |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS13 | PILOT CARRIER                                  | R13 to E8 | 3                      |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS13 | A2 enbl  | R13 to E8 | 3                      |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS14 | ISB ind  |           | 24                     |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS14 | FL1 enbl [16]                                  |           | 24                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS15 | B1 ind   |           | 22                     |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS15 | FL5 enbl [C]                                   |           | 22                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS16 | A1 ind   |           | 21                     |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS16 | FL6 enbl [D]                                   |           | 21                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS17 | FL3 enbl [A]                                   |           | 18                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS18 | B2 ind   |           | 17                     |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS18 | FL4 enbl [B]                                   |           | 17                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS19 | A2 ind   |           | 19                     |                    | X    |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS19 | FL7 enbl [E]                                   |           | 19                     |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS20 |  |           | 20                     |                    |      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS21 |  |           | 23                     |                    |      |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS22 | NET DATA enbl                                  |           | 6                      |                    |      | X    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DS23 | PRESEL FAULT ind                               |           | 7                      | X                  | X    | X    | X    |  |  |  |  |  |  |  |  |  |  |  |  |  |

NOTES:

X indicates LED and associated circuit are installed in LED status display and any associated jumpers are installed.

A blank indicates LED and associated circuit are not installed in LED status display, and any associated jumpers are removed.

Table 2. LED Status Display, Testing and Troubleshooting Procedures.

| TEST   | PROCEDURE   | NORMAL INDICATION      | IF INDICATION IS ABNORMAL |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
|--|---|------------------------|---------------------------|----------------------|----|---|-----|---|---|----|----|---|--------|---|---|------|----|---|--------------|----|----|-----------|----|----|--------------|--|---|
| <p>1. Setup</p>  | <p>a. Remove top cover of unit containing LED status display to be tested.</p> <p>b. If local unit, remove control card A10. Install A10 extender.</p> <p>If control unit, remove parallel output card A12. Install A12 extender.</p> <p style="text-align: center;"><b>Note</b></p> <p>Control card A10 in local unit or parallel output card A12 in control unit is not installed during these tests.</p> <p>c. Connect a test lead to (+5 V dc).</p> <p style="text-align: center;"><b>Note</b></p> <p>This test lead is used for biasing on the switching transistors.</p>  |                        |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| <p>2. LED Status Display<br/>635-0825-001<br/>and<br/>635-0825-008</p> | <p>a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.</p> <p>b. Check that each LED goes out when test lead is removed from associated extender pin.</p> <p>c. Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected.</p> <table border="1" data-bbox="329 1276 829 1871"> <thead> <tr> <th><u>EXTENDER PIN NO</u></th> <th><u>A2J3 PIN NO</u></th> <th><u>PANEL MARKING</u></th> </tr> </thead> <tbody> <tr> <td>74</td> <td>1</td> <td>ISB</td> </tr> <tr> <td>8</td> <td>4</td> <td>AM</td> </tr> <tr> <td>72</td> <td>5</td> <td>SSB/CW</td> </tr> <tr> <td>7</td> <td>6</td> <td>BUSY</td> </tr> <tr> <td>28</td> <td>7</td> <td>PRESEL FAULT</td> </tr> <tr> <td>12</td> <td>13</td> <td>RCV FAULT</td> </tr> <tr> <td>67</td> <td>14</td> <td>RCV OVERLOAD</td> </tr> </tbody> </table> | <u>EXTENDER PIN NO</u> | <u>A2J3 PIN NO</u>        | <u>PANEL MARKING</u> | 74 | 1 | ISB | 8 | 4 | AM | 72 | 5 | SSB/CW | 7 | 6 | BUSY | 28 | 7 | PRESEL FAULT | 12 | 13 | RCV FAULT | 67 | 14 | RCV OVERLOAD | <p><u>ASSOCIATED LED</u></p> <p>DS12</p> <p>DS9</p> <p>DS10</p> <p>*DS22</p> <p>DS23</p> <p>DS5</p> <p>DS6</p> | <p><u>CHECK</u></p> <p>DS12, Q12, R12, and R34.</p> <p>DS9, Q9, R9, R31, Q23, and R45.</p> <p>DS10, Q10, R10, and R32.</p> <p>DS22, Q22, R22, and R44.</p> <p>DS23, Q24, R46, and R47.</p> <p>DS5, Q5, R5, and R27.</p> <p>DS6, Q6, R6, and R28</p> |
| <u>EXTENDER PIN NO</u>   | <u>A2J3 PIN NO</u>  | <u>PANEL MARKING</u>   |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 74   | 1   | ISB                    |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 8  | 4   | AM                     |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 72   | 5   | SSB/CW                 |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 7  | 6   | BUSY                   |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 28   | 7   | PRESEL FAULT           |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 12   | 13  | RCV FAULT              |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| 67   | 14  | RCV OVERLOAD           |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| <p>(Cont)</p>  |   |                        |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |
| <p>*Applicable only to 635-0825-001.</p>                               |   |                        |                           |                      |    |   |     |   |   |    |    |   |        |   |   |      |    |   |              |    |    |           |    |    |              |  |   |

Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST   | PROCEDURE  |                    |                         | NORMAL INDICATION        | IF INDICATION IS ABNORMAL          |
|--|--|--------------------|-------------------------|--------------------------|------------------------------------|
| 2. (Cont)  | <u>EXTENDER PIN NO</u>   | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u>    | <u>ASSOCIATED LED</u>    | <u>CHECK</u>                       |
|  | 97   | 17                 | L                       | DS18                     | DS18, Q18, R18, and R40.           |
|  | 32   | 18                 | U                       | DS17                     | DS17, Q17, R17, and R39.           |
|  | 34   | 19                 | C                       | DS19                     | DS19, Q19, R18, and R41.           |
|  | 35   | 20                 | D                       | DS20                     | DS20, Q20, R20, and R42.           |
|  | 98   | 21                 | B                       | DS16                     | DS16, Q16, R16, and R38.           |
|  | 33   | 22                 | A                       | DS15                     | DS15, Q15, R15, and R37.           |
|  | 99   | 23                 | E                       | DS21                     | DS21, Q21, R21, and R43.           |
|  | 100  | 24                 | 16                      | DS14                     | DS14, Q14, R14, and R36.           |
|  | e. Connect +5 V dc to extender pin 72 (A2J3-5).  |                    |                         | DS10 (SSB/CW) lights.    | DS10, Q10, R10, R32, Q23, and R45. |
| f. Connect test lead to extender pin 74 (A2J3-1).                          |  |                    | DS12 (ISB) lights.      | DS12, Q12, R12, and R24. |                                    |
|  |  |                    | DS10 (SSB/CW) goes out. | Q23 and R45.             |                                    |
| g. Remove +5 V dc from extender pin 72 and test lead from extender pin 74. |  |                    |                         |                          |                                    |
| 3. LED Status Display<br>635-0825-002                                      | a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.     |                    |                         |                          |                                    |
|  | b. Check that each LED goes out when test lead is removed from associated extender pin.                                    |                    |                         |                          |                                    |
|  | c. Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected. |                    |                         |                          |                                    |
|  | d. <u>EXTENDER PIN NO</u>  | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u>    | <u>ASSOCIATED LED</u>    | <u>CHECK</u>                       |
|  | 74   | 1                  | ISB                     | DS11                     | DS11, Q11, R11, and R33.           |
| 9  | 2  | CW                 | DS10                    | DS10, Q10, R10, and R32. |                                    |
| (Cont)   | 8  | 4                  | AM                      | DS13                     | DS13, Q13, R13, and R35.           |

Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST  | PROCEDURE   |                        |                    | NORMAL INDICATION    | IF INDICATION IS ABNORMAL |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
|---|---|------------------------|--------------------|----------------------|---------------------------|---|------|----|---|---------------|---|---|--------|----|----|----------|----|----|----------|----|----|-----|----|----|-------------|----|----|-----|----|----|-----|--|-----------------------|------|-----|-----|-----|-----|-----|-----|-----|------|-------------------|--------------------|---------------------|--|--------------|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------|--------------------------|------------------------------------|--------------------------|--------------|
| 3. (Cont)   | <table border="1"> <thead> <tr> <th data-bbox="402 394 542 457"><u>EXTENDER PIN NO</u></th> <th data-bbox="586 394 678 457"><u>A2J3 PIN NO</u></th> <th data-bbox="722 394 841 457"><u>PANEL MARKING</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="402 470 418 491">7</td> <td data-bbox="586 470 602 491">6</td> <td data-bbox="722 470 792 491">BUSY</td> </tr> <tr> <td data-bbox="402 548 435 569">13</td> <td data-bbox="586 548 602 569">8</td> <td data-bbox="722 548 841 604">COUPLER FAULT</td> </tr> <tr> <td data-bbox="402 625 418 646">5</td> <td data-bbox="586 625 602 646">9</td> <td data-bbox="722 625 813 646">RF OUT</td> </tr> <tr> <td data-bbox="402 703 435 724">69</td> <td data-bbox="586 703 613 724">10</td> <td data-bbox="722 703 846 724">PA READY</td> </tr> <tr> <td data-bbox="402 781 435 802">77</td> <td data-bbox="586 781 613 802">11</td> <td data-bbox="722 781 846 802">PA FAULT</td> </tr> <tr> <td data-bbox="402 858 435 879">68</td> <td data-bbox="586 858 613 879">12</td> <td data-bbox="722 858 776 879">KEY</td> </tr> <tr> <td data-bbox="402 936 435 957">12</td> <td data-bbox="586 936 613 957">13</td> <td data-bbox="722 936 813 993">EXCTR FAULT</td> </tr> <tr> <td data-bbox="402 1008 435 1029">97</td> <td data-bbox="586 1008 613 1029">17</td> <td data-bbox="722 1008 776 1029">LSB</td> </tr> <tr> <td data-bbox="402 1085 435 1106">32</td> <td data-bbox="586 1085 613 1106">18</td> <td data-bbox="722 1085 776 1106">USB</td> </tr> </tbody> </table> | <u>EXTENDER PIN NO</u> | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u> | 7                         | 6 | BUSY | 13 | 8 | COUPLER FAULT | 5 | 9 | RF OUT | 69 | 10 | PA READY | 77 | 11 | PA FAULT | 68 | 12 | KEY | 12 | 13 | EXCTR FAULT | 97 | 17 | LSB | 32 | 18 | USB | <table border="1"> <thead> <tr> <th data-bbox="889 428 1105 449"><u>ASSOCIATED LED</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="889 470 954 491">DS22</td> </tr> <tr> <td data-bbox="889 548 938 569">DS8</td> </tr> <tr> <td data-bbox="889 625 938 646">DS1</td> </tr> <tr> <td data-bbox="889 703 938 724">DS2</td> </tr> <tr> <td data-bbox="889 781 938 802">DS3</td> </tr> <tr> <td data-bbox="889 858 938 879">DS4</td> </tr> <tr> <td data-bbox="889 936 938 957">DS5</td> </tr> <tr> <td data-bbox="889 1008 938 1029">DS9</td> </tr> <tr> <td data-bbox="889 1085 954 1106">DS12</td> </tr> <tr> <td data-bbox="889 1163 1089 1184">DS10 (CW) lights.</td> </tr> <tr> <td data-bbox="889 1241 1089 1262">DS11 (ISB) lights.</td> </tr> <tr> <td data-bbox="889 1318 1117 1339">DS10 (CW) goes out.</td> </tr> </tbody> </table> | <u>ASSOCIATED LED</u> | DS22 | DS8 | DS1 | DS2 | DS3 | DS4 | DS5 | DS9 | DS12 | DS10 (CW) lights. | DS11 (ISB) lights. | DS10 (CW) goes out. | <table border="1"> <thead> <tr> <th data-bbox="1154 428 1247 449"><u>CHECK</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="1154 470 1393 527">DS22, Q22, R22, and R44.</td> </tr> <tr> <td data-bbox="1154 548 1360 604">DS8, Q8, R8, and R30.</td> </tr> <tr> <td data-bbox="1154 625 1360 682">DS1, Q1, R1, and R23.</td> </tr> <tr> <td data-bbox="1154 703 1360 760">DS2, Q2, R2, and R24.</td> </tr> <tr> <td data-bbox="1154 781 1360 837">DS3, Q3, R3, and R25.</td> </tr> <tr> <td data-bbox="1154 858 1360 915">DS4, Q4, R4, and R26.</td> </tr> <tr> <td data-bbox="1154 936 1360 993">DS5, Q5, R5, and R27.</td> </tr> <tr> <td data-bbox="1154 1008 1365 1064">DS9, Q9, R9, Q23, and R45.</td> </tr> <tr> <td data-bbox="1154 1085 1393 1142">DS12, Q12, R12, and Q34.</td> </tr> <tr> <td data-bbox="1154 1163 1398 1220">DS10, Q10, R10, R32, Q23, and R45.</td> </tr> <tr> <td data-bbox="1154 1241 1393 1297">DS11, Q11, R11, and R33.</td> </tr> <tr> <td data-bbox="1154 1318 1300 1339">Q23 and R45.</td> </tr> </tbody> </table> | <u>CHECK</u> | DS22, Q22, R22, and R44. | DS8, Q8, R8, and R30. | DS1, Q1, R1, and R23. | DS2, Q2, R2, and R24. | DS3, Q3, R3, and R25. | DS4, Q4, R4, and R26. | DS5, Q5, R5, and R27. | DS9, Q9, R9, Q23, and R45. | DS12, Q12, R12, and Q34. | DS10, Q10, R10, R32, Q23, and R45. | DS11, Q11, R11, and R33. | Q23 and R45. |
| <u>EXTENDER PIN NO</u>                              | <u>A2J3 PIN NO</u>  | <u>PANEL MARKING</u>   |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 7   | 6   | BUSY                   |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 13  | 8   | COUPLER FAULT          |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 5   | 9   | RF OUT                 |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 69  | 10  | PA READY               |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 77  | 11  | PA FAULT               |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 68  | 12  | KEY                    |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 12  | 13  | EXCTR FAULT            |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 97  | 17  | LSB                    |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 32  | 18  | USB                    |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| <u>ASSOCIATED LED</u>                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS22  |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS8   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS1   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS2   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS3   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS4   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS5   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS9   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS12  |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS10 (CW) lights.                                   |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS11 (ISB) lights.                                  |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS10 (CW) goes out.                                 |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| <u>CHECK</u>  |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS22, Q22, R22, and R44.                            |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS8, Q8, R8, and R30.                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS1, Q1, R1, and R23.                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS2, Q2, R2, and R24.                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS3, Q3, R3, and R25.                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS4, Q4, R4, and R26.                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS5, Q5, R5, and R27.                               |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS9, Q9, R9, Q23, and R45.                          |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS12, Q12, R12, and Q34.                            |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS10, Q10, R10, R32, Q23, and R45.                  |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| DS11, Q11, R11, and R33.                            |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| Q23 and R45.  |   |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |
| 4. LED Status Display<br>635-0825-003<br><br>(Cont) | <p>a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.</p> <p>b. Check that each LED goes out when test lead is removed from associated extender pin.</p> <p>c. Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected.</p>  |                        |                    |                      |                           |   |      |    |   |               |   |   |        |    |    |          |    |    |          |    |    |     |    |    |             |    |    |     |    |    |     |  |                       |      |     |     |     |     |     |     |     |      |                   |                    |                     |  |              |                          |                       |                       |                       |                       |                       |                       |                            |                          |                                    |                          |              |

Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST   | PROCEDURE  |                    |                      | NORMAL INDICATION        | IF INDICATION IS ABNORMAL       |
|--|--|--------------------|----------------------|--------------------------|---------------------------------|
| 4. (Cont)  | <u>EXTENDER PIN NO</u>   | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u> | <u>ASSOCIATED LED</u>    | <u>CHECK</u>                    |
|  | 74   | 1                  | ISB                  | DS11                     | DS11, Q11, R11, and R33.        |
|  | 9  | 2                  | CW                   | DS10                     | DS10, Q10, R10, and R32.        |
|  | 8  | 4                  | AM                   | DS13                     | DS13, Q13, R13, and R35.        |
|  | 7  | 6                  | BUSY                 | DS22                     | DS22, Q22, R22, and R44.        |
|  | 28   | 7                  | PRESEL               | DS23                     | DS23, Q24, R46, and R47.        |
|  | 13   | 8                  | COUPLER FAULT        | DS8                      | DS8, Q8, R8, and R30.           |
|  | 5  | 9                  | RF OUT               | DS1                      | DS1, Q1, R1, and R23.           |
|  | 69   | 10                 | PA READY             | DS2                      | DS2, Q2, R2, and R24.           |
|  | 77   | 11                 | PA FAULT             | DS3                      | DS3, Q3, R3, and R25.           |
|  | 68   | 12                 | KEY                  | DS4                      | DS4, Q4, R4, and R26.           |
|  | 12   | 13                 | R/E FAULT            | DS5                      | DS5, Q5, R5, and R27.           |
|  | 67   | 14                 | RCV OVERLOAD         | DS6                      | DS6, Q6, R6, and R28.           |
|  | 97   | 17                 | LSB                  | DS9                      | DS9, Q9, R9, R31, Q23, and R45. |
| 32   | 18   | USB                | DS12                 | DS12, Q12, R12, and Q34. |                                 |
|  | e. Connect +5 V dc to extender pin 9 (A2J3-2).   |                    |                      | DS10 (CW) lights.        | DS9, Q9, R9, R31, Q23, and R45. |
|  | f. Connect test leads to extender pin 74 (A2J3-1).   |                    |                      | DS11 (ISB) lights.       | DS11, Q11, R11, and R33.        |
|  | g. Remove +5 V dc from extender pin 9 and test lead from extender pin 74.  |                    |                      | DS10 (CW) goes out.      | Q23 and R45.                    |
| 5. LED Status Display<br>635-0825-004<br>and<br>635-0825-011<br>(Cont) | a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead. |                    |                      |                          |                                 |
|  | b. Check that each of the LED's go out when test lead is removed from associated extender pin.                         |                    |                      |                          |                                 |





Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST                                     | PROCEDURE |   |                        | NORMAL INDICATION        | IF INDICATION IS ABNORMAL |                             |
|--|-----------|---|------------------------|--------------------------|---------------------------|-----------------------------|
| 7. (Cont)                                | d.        | <u>EXTENDER<br/>PIN NO</u>  | <u>A2J3<br/>PIN NO</u> | <u>PANEL<br/>MARKING</u> | <u>ASSOCIATED LED</u>     | <u>CHECK</u>                |
|  |           | 71  | 7                      | PRESEL<br>FAULT          | DS23                      | DS23, Q24, R46, and<br>R47. |
|  |           | 70  | 8                      | COUPLER<br>FAULT         | DS8                       | DS8, Q8, R8, and R30.       |
|  |           | 5   | 9                      | RF OUT                   | DS1                       | DS1, Q1, R1, and R23.       |
|  |           | 69  | 10                     | PA READY                 | DS2                       | DS2, Q2, R2, and R24.       |
|  |           | 4   | 11                     | PA FAULT                 | DS3                       | DS3, Q3, R3, and R25.       |
|  |           | 68  | 12                     | KEY                      | DS4                       | DS4, Q4, R4, and R26.       |
|  |           | 3   | 13                     | R/E<br>FAULT             | DS5                       | DS5, Q5, R5, and<br>R27.    |
|  |           | 67  | 14                     | RCV<br>OVERLOAD          | DS6                       | DS6, Q6, R6, and<br>R28.    |
|  | 2         | 15  | AFC LOCK               | *DS7                     | DS7, Q7, R7, and R29.     |                             |
| 8. LED Status<br>Display<br>635-0825-007 | a.        | Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.     |                        |                          |                           |                             |
|  | b.        | Check that each LED goes out when test lead is removed from associated extender pin.                                    |                        |                          |                           |                             |
|  | c.        | Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected. |                        |                          |                           |                             |
|  | d.        | <u>EXTENDER<br/>PIN NO</u>  | <u>A2J3<br/>PIN NO</u> | <u>PANEL<br/>MARKING</u> | <u>ASSOCIATED LED</u>     | <u>CHECK</u>                |
|  |           | 71  | 7                      | PRESEL<br>FAULT          | DS23                      | DS23, Q24, R46, and<br>R47. |
|  |           | 70  | 8                      | COUPLER<br>FAULT         | DS8                       | DS8, Q8, R8, and R30.       |
|  |           | 5   | 9                      | RF OUT                   | DS1                       | DS1, Q1, R1, and R23.       |
|  |           | 69  | 10                     | PA READY                 | DS2                       | DS2, Q2, R2, and R24.       |
|  |           | 4   | 11                     | PA FAULT                 | DS3                       | DS3, Q3, R3, and R25.       |
|  |           | 68  | 12                     | KEY                      | DS4                       | DS4, Q4, R4, and R26.       |
|  | 3         | 13  | EXCTR<br>FAULT         | DS5                      | DS5, Q5, R5, and R27.     |                             |
| *Applicable only to 635-0825-014.        |           |   |                        |                          |                           |                             |



Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST                                   | PROCEDURE   | NORMAL INDICATION   | IF INDICATION IS ABNORMAL   |                                 |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
|--|---|---|---|---------------------------------|----------------|-------|----|---|-----|------|--------------------------|----|---|----|------|--------------------------|---|---|----|-----|---------------------------------|----|---|--------|------|--------------------------|---|---|------|------|--------------------------|----|---|--------------|------|--------------------------|----|----|-----------|-----|-----------------------|----|----|--------------|-----|-----------------------|---|----|----------|-----|-----------------------|----|----|---|------|--------------------------|----|----|---|------|--------------------------|--------|----|----|---|--------------------------|--|--|
| 9. (Cont)                              | <p>e. Connect +5 V dc to extender pin 9 (A2J3-2).</p> <p>f. Connect test lead to extender pin 74 (A2J3-1).</p> <p>g. Remove +5 V dc from extender pin 9 and test lead from extender pin 74.</p>   | <p>DS10 (CW) lights.</p> <p>DS11 (ISB) lights.</p> <p>DS10 (CW) goes out.</p> | <p>DS10, Q10, R10, R32, Q23, and R45.</p> <p>DS11, Q11, R11, and R33.</p> <p>Q23 and R45.</p> |                                 |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 10. LED Status Display<br>635-0825-010 | <p>a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.</p> <p>b. Check that each LED goes out when test lead is removed from associated extender pin.</p> <p>c. Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected.</p> <table border="1"> <thead> <tr> <th>EXTENDER PIN NO</th> <th>A2J3 PIN NO</th> <th>PANEL MARKING</th> <th>ASSOCIATED LED</th> <th>CHECK</th> </tr> </thead> <tbody> <tr> <td>74</td> <td>1</td> <td>ISB</td> <td>DS12</td> <td>DS12, Q12, R12, and R34.</td> </tr> <tr> <td>73</td> <td>3</td> <td>FM</td> <td>DS13</td> <td>DS13, Q13, R13, and R35.</td> </tr> <tr> <td>8</td> <td>4</td> <td>AM</td> <td>DS9</td> <td>DS9, Q9, R9, R31, Q23, and R45.</td> </tr> <tr> <td>72</td> <td>5</td> <td>SSB/CW</td> <td>DS10</td> <td>DS10, Q10, R10, and R32.</td> </tr> <tr> <td>7</td> <td>6</td> <td>BUSY</td> <td>DS22</td> <td>DS22, Q22, R22, and R44.</td> </tr> <tr> <td>28</td> <td>7</td> <td>PRESEL FAULT</td> <td>DS23</td> <td>DS23, Q24, R46, and R47.</td> </tr> <tr> <td>12</td> <td>13</td> <td>RCV FAULT</td> <td>DS5</td> <td>DS5, Q5, R5, and R27.</td> </tr> <tr> <td>67</td> <td>14</td> <td>RCV OVERLOAD</td> <td>DS6</td> <td>DS6, Q6, R6, and R28.</td> </tr> <tr> <td>2</td> <td>15</td> <td>AFC LOCK</td> <td>DS7</td> <td>DS7, Q7, R7, and R29.</td> </tr> <tr> <td>97</td> <td>17</td> <td>L</td> <td>DS18</td> <td>DS18, Q18, R18, and R40.</td> </tr> <tr> <td>32</td> <td>18</td> <td>U</td> <td>DS17</td> <td>DS17, Q17, R17, and R39.</td> </tr> <tr> <td>(Cont)</td> <td>34</td> <td>19</td> <td>C</td> <td>DS19, Q19, R18, and R41.</td> </tr> </tbody> </table> | EXTENDER PIN NO   | A2J3 PIN NO   | PANEL MARKING                   | ASSOCIATED LED | CHECK | 74 | 1 | ISB | DS12 | DS12, Q12, R12, and R34. | 73 | 3 | FM | DS13 | DS13, Q13, R13, and R35. | 8 | 4 | AM | DS9 | DS9, Q9, R9, R31, Q23, and R45. | 72 | 5 | SSB/CW | DS10 | DS10, Q10, R10, and R32. | 7 | 6 | BUSY | DS22 | DS22, Q22, R22, and R44. | 28 | 7 | PRESEL FAULT | DS23 | DS23, Q24, R46, and R47. | 12 | 13 | RCV FAULT | DS5 | DS5, Q5, R5, and R27. | 67 | 14 | RCV OVERLOAD | DS6 | DS6, Q6, R6, and R28. | 2 | 15 | AFC LOCK | DS7 | DS7, Q7, R7, and R29. | 97 | 17 | L | DS18 | DS18, Q18, R18, and R40. | 32 | 18 | U | DS17 | DS17, Q17, R17, and R39. | (Cont) | 34 | 19 | C | DS19, Q19, R18, and R41. |  |  |
| EXTENDER PIN NO                        | A2J3 PIN NO   | PANEL MARKING   | ASSOCIATED LED  | CHECK                           |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 74                                     | 1   | ISB   | DS12  | DS12, Q12, R12, and R34.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 73                                     | 3   | FM  | DS13  | DS13, Q13, R13, and R35.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 8                                      | 4   | AM  | DS9   | DS9, Q9, R9, R31, Q23, and R45. |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 72                                     | 5   | SSB/CW  | DS10  | DS10, Q10, R10, and R32.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 7                                      | 6   | BUSY  | DS22  | DS22, Q22, R22, and R44.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 28                                     | 7   | PRESEL FAULT  | DS23  | DS23, Q24, R46, and R47.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 12                                     | 13  | RCV FAULT   | DS5   | DS5, Q5, R5, and R27.           |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 67                                     | 14  | RCV OVERLOAD  | DS6   | DS6, Q6, R6, and R28.           |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 2                                      | 15  | AFC LOCK  | DS7   | DS7, Q7, R7, and R29.           |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 97                                     | 17  | L   | DS18  | DS18, Q18, R18, and R40.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| 32                                     | 18  | U   | DS17  | DS17, Q17, R17, and R39.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |
| (Cont)                                 | 34  | 19  | C   | DS19, Q19, R18, and R41.        |                |       |    |   |     |      |                          |    |   |    |      |                          |   |   |    |     |                                 |    |   |        |      |                          |   |   |      |      |                          |    |   |              |      |                          |    |    |           |     |                       |    |    |              |     |                       |   |    |          |     |                       |    |    |   |      |                          |    |    |   |      |                          |        |    |    |   |                          |  |  |

Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST                                   | PROCEDURE   |                        |                    | NORMAL INDICATION      | IF INDICATION IS ABNORMAL |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
|--|---|------------------------|--------------------|------------------------|---------------------------|----------------------|----|----|--------------|---|----|----|----|----|---------------|---|-----|----|----|---|---|-----------------------|------|---------------|---|-----------------------|------|-----------------------|--------------------|-------------------------|--|--------------|--|--------------------------|--------------------------|--------------------------|--------------------------|------------------------------------|--------------------------|-----------------------|
| 10. (Cont)                             | <table border="1"> <thead> <tr> <th><u>EXTENDER PIN NO</u></th> <th><u>A2J3 PIN NO</u></th> <th><u>PANEL MARKING</u></th> </tr> </thead> <tbody> <tr> <td>35</td> <td>20</td> <td>D</td> </tr> <tr> <td>98</td> <td>21</td> <td>B</td> </tr> <tr> <td>33</td> <td>22</td> <td>A</td> </tr> <tr> <td>99</td> <td>23</td> <td>E</td> </tr> <tr> <td>100</td> <td>24</td> <td>16</td> </tr> </tbody> </table>  | <u>EXTENDER PIN NO</u> | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u>   | 35                        | 20                   | D  | 98 | 21           | B | 33 | 22 | A  | 99 | 23            | E | 100 | 24 | 16 |   | <table border="1"> <thead> <tr> <th><u>ASSOCIATED LED</u></th> </tr> </thead> <tbody> <tr> <td>DS20</td> </tr> <tr> <td>DS16</td> </tr> <tr> <td>DS15</td> </tr> <tr> <td>DS21</td> </tr> <tr> <td>DS14</td> </tr> <tr> <td>DS10 (SSB/CW) lights.</td> </tr> <tr> <td>DS12 (ISB) lights.</td> </tr> <tr> <td>DS10 (SSB/CW) goes out.</td> </tr> </tbody> </table> | <u>ASSOCIATED LED</u> | DS20 | DS16          | DS15  | DS21                  | DS14 | DS10 (SSB/CW) lights. | DS12 (ISB) lights. | DS10 (SSB/CW) goes out. | <table border="1"> <thead> <tr> <th><u>CHECK</u></th> </tr> </thead> <tbody> <tr> <td>DS20, Q20, R20, and R42.</td> </tr> <tr> <td>DS16, Q16, R16, and R38.</td> </tr> <tr> <td>DS15, Q15, R15, and R37.</td> </tr> <tr> <td>DS21, Q21, R21, and R43.</td> </tr> <tr> <td>DS14, Q14, R14, and R36.</td> </tr> <tr> <td>DS10, Q10, R10, R32, Q23, and R45.</td> </tr> <tr> <td>DS12, Q12, R12, and R24.</td> </tr> <tr> <td>Q23 and R45.</td> </tr> </tbody> </table> | <u>CHECK</u> | DS20, Q20, R20, and R42.   | DS16, Q16, R16, and R38. | DS15, Q15, R15, and R37. | DS21, Q21, R21, and R43. | DS14, Q14, R14, and R36. | DS10, Q10, R10, R32, Q23, and R45. | DS12, Q12, R12, and R24. | Q23 and R45.          |
| <u>EXTENDER PIN NO</u>                 | <u>A2J3 PIN NO</u>  | <u>PANEL MARKING</u>   |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 35                                     | 20  | D                      |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 98                                     | 21  | B                      |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 33                                     | 22  | A                      |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 99                                     | 23  | E                      |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 100                                    | 24  | 16                     |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| <u>ASSOCIATED LED</u>                  |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS20                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS16                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS15                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS21                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS14                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS10 (SSB/CW) lights.                  |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS12 (ISB) lights.                     |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS10 (SSB/CW) goes out.                |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| <u>CHECK</u>                           |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS20, Q20, R20, and R42.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS16, Q16, R16, and R38.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS15, Q15, R15, and R37.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS21, Q21, R21, and R43.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS14, Q14, R14, and R36.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS10, Q10, R10, R32, Q23, and R45.     |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS12, Q12, R12, and R24.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| Q23 and R45.                           |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 11. LED Status Display<br>635-0825-012 | <p>a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.</p> <p>b. Check that each LED goes out when test lead is removed from associated extender pin.</p> <p>c. Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected.</p> <table border="1"> <thead> <tr> <th><u>EXTENDER PIN NO</u></th> <th><u>A3J3 PIN NO</u></th> <th><u>PANEL MARKING</u></th> </tr> </thead> <tbody> <tr> <td>74</td> <td>1</td> <td>PEAK CLIPPER</td> </tr> <tr> <td>9</td> <td>2</td> <td>CW</td> </tr> <tr> <td>73</td> <td>3</td> <td>PILOT CARRIER</td> </tr> <tr> <td>8</td> <td>4</td> <td>AM</td> </tr> <tr> <td>71</td> <td>7</td> <td>PRESEL FAULT</td> </tr> <tr> <td>70</td> <td>8</td> <td>COUPLER FAULT</td> </tr> </tbody> </table> |                        |                    | <u>EXTENDER PIN NO</u> | <u>A3J3 PIN NO</u>        | <u>PANEL MARKING</u> | 74 | 1  | PEAK CLIPPER | 9 | 2  | CW | 73 | 3  | PILOT CARRIER | 8 | 4   | AM | 71 | 7 | PRESEL FAULT  | 70                    | 8    | COUPLER FAULT | <table border="1"> <thead> <tr> <th><u>ASSOCIATED LED</u></th> </tr> </thead> <tbody> <tr> <td>DS11</td> </tr> <tr> <td>DS10</td> </tr> <tr> <td>DS13</td> </tr> <tr> <td>DS9</td> </tr> <tr> <td>DS23</td> </tr> <tr> <td>DS8</td> </tr> </tbody> </table> | <u>ASSOCIATED LED</u> | DS11 | DS10                  | DS13               | DS9                     | DS23   | DS8          | <table border="1"> <thead> <tr> <th><u>CHECK</u></th> </tr> </thead> <tbody> <tr> <td>DS11, Q11, R11, and R33.</td> </tr> <tr> <td>DS10, Q10, R10, and R32.</td> </tr> <tr> <td>DS13, Q13, R13, and R35.</td> </tr> <tr> <td>DS9, Q9, R9, and R31.</td> </tr> <tr> <td>DS23, Q24, R46, and R47.</td> </tr> <tr> <td>DS8, Q8, R8, and R30.</td> </tr> </tbody> </table> | <u>CHECK</u>             | DS11, Q11, R11, and R33. | DS10, Q10, R10, and R32. | DS13, Q13, R13, and R35. | DS9, Q9, R9, and R31.              | DS23, Q24, R46, and R47. | DS8, Q8, R8, and R30. |
| <u>EXTENDER PIN NO</u>                 | <u>A3J3 PIN NO</u>  | <u>PANEL MARKING</u>   |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 74                                     | 1   | PEAK CLIPPER           |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 9                                      | 2   | CW                     |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 73                                     | 3   | PILOT CARRIER          |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 8                                      | 4   | AM                     |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 71                                     | 7   | PRESEL FAULT           |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| 70                                     | 8   | COUPLER FAULT          |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| <u>ASSOCIATED LED</u>                  |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS11                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS10                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS13                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS9                                    |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS23                                   |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS8                                    |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| <u>CHECK</u>                           |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS11, Q11, R11, and R33.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS10, Q10, R10, and R32.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS13, Q13, R13, and R35.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS9, Q9, R9, and R31.                  |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS23, Q24, R46, and R47.               |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| DS8, Q8, R8, and R30.                  |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |
| (Cont)                                 |   |                        |                    |                        |                           |                      |    |    |              |   |    |    |    |    |               |   |     |    |    |   |   |                       |      |               |   |                       |      |                       |                    |                         |  |              |  |                          |                          |                          |                          |                                    |                          |                       |

Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST                                   | PROCEDURE  |                    |                      | NORMAL INDICATION        | IF INDICATION IS ABNORMAL       |
|--|--|--------------------|----------------------|--------------------------|---------------------------------|
| 11. (Cont)                             | <u>EXTENDER PIN NO</u>   | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u> | <u>ASSOCIATED LED</u>    | <u>CHECK</u>                    |
|  | 5  | 9                  | RF OUT               | DS1                      | DS1, Q1, R1, and R23.           |
|  | 69   | 10                 | PA READY             | DS2                      | DS2, Q2, R2, and R24.           |
|  | 4  | 11                 | PA FAULT             | DS3                      | DS3, Q3, R3, and R25.           |
|  | 68   | 12                 | KEY                  | DS4                      | DS4, Q4, R4, and R26.           |
|  | 3  | 13                 | EXCTR FAULT          | DS5                      | DS5, Q5, R5, and R27.           |
|  | NA<br>(A2J2-24)  | 17                 | B2                   | DS18                     | DS18, Q18, R18, and R40.        |
|  | NA<br>(A2J2-22)  | 19                 | A2                   | DS19                     | DS19, Q19, R19, and R41.        |
|  | NA<br>(A2J2-20)  | 21                 | A1                   | DS16                     | DS16, Q16, R16, and R38.        |
| NA<br>(A2J2-19)                        | 22   | B1                 | DS15                 | DS15, Q15, R15, and R37. |                                 |
| NA<br>(J9-9)                           | 24   | ISB                | DS14                 | DS14, Q14, R14, and R36. |                                 |
| 12. LED Status Display<br>635-0825-013 | a. Check that none of the LED's listed in step d are lighted before associated extender pin is connected to test lead.     |                    |                      |                          |                                 |
|  | b. Check that each LED goes out when test lead is removed from associated extender pin.                                    |                    |                      |                          |                                 |
|  | c. Connect test lead to extender pin indicated in step d and check that associated LED lights when test lead is connected. |                    |                      |                          |                                 |
|  | <u>EXTENDER PIN NO</u>   | <u>A2J3 PIN NO</u> | <u>PANEL MARKING</u> | <u>ASSOCIATED LED</u>    | <u>CHECK</u>                    |
|  | 26   | 1                  | A1                   | DS12                     | DS12, Q12, R12, and R34.        |
|  | 17   | 3                  | A2                   | DS13                     | DS13, Q13, R13, and R35.        |
|  | 6  | 4                  | B1                   | DS9                      | DS9, Q9, R9, R31, Q23, and R45. |
| 74                                     | 5  | B2                 | DS10                 | DS10, Q10, R10, and R32. |                                 |
| 73                                     | 6  | NET DATA           | DS22                 | DS22, Q22, R22, and R44. |                                 |
| (Cont)                                 |  |                    |                      |                          |                                 |

Table 2. LED Status Display, Testing and Troubleshooting Procedures (Cont).

| TEST          | PROCEDURE                  |                        |                          | NORMAL INDICATION        | IF INDICATION IS ABNORMAL |
|---------------|----------------------------|------------------------|--------------------------|--------------------------|---------------------------|
| 12. (Cont)    | <u>EXTENDER<br/>PIN NO</u> | <u>A2J3<br/>PIN NO</u> | <u>PANEL<br/>MARKING</u> | <u>ASSOCIATED LED</u>    | <u>CHECK</u>              |
|               | 71                         | 7                      | PRESEL<br>FAULT          | DS23                     | DS23, Q24, R46, and R47.  |
|               | NA (J14-10)                | 9                      | FM                       | DS1                      | DS, Q1, R1, and R23.      |
|               | 8                          | 10                     | AM                       | DS2                      | DS2, Q2, R2, and R24.     |
|               | 66                         | 11                     | AFC LOCK                 | DS3                      | DS3, Q3, R3, and R25.     |
|               | 9                          | 12                     | ISB                      | DS4                      | DS4, Q4, R4, and R26.     |
|               | 13                         | 13                     | RCV FAULT                | DS5                      | DS5, Q5, R5, and R27.     |
|               | 68                         | 14                     | RCV<br>OVERLOAD          | DS6                      | DS6, Q6, R6, and R28.     |
|               | 72                         | 15                     | CW                       | DS7                      | DS7, Q7, R7, and R29.     |
|               | NA<br>(J9-37)              | 17                     | FLB                      | DS18                     | DS18, Q18, R18, and R40.  |
|               | NA<br>(J9-100)             | 18                     | FLA                      | DS17                     | DS17, Q17, R17, and R39.  |
|               | NA<br>(J9-12)              | 19                     | FLE                      | DS19                     | DS19, Q19, R18, and R41.  |
|               | NA<br>(J9-41)              | 21                     | FLD                      | DS16                     | DS16, Q16, R16, and R38.  |
|               | NA<br>(J9-106)             | 22                     | FLC                      | DS15                     | DS15, Q15, R15, and R37.  |
| NA<br>(J9-99) | 24                         | 16 kHz                 | DS14                     | DS14, Q14, R14, and R36. |                           |

## 4. PARTS LIST/DIAGRAMS

### 4.1 Introduction

**Caution**

This equipment contains electrostatic discharge sensitive (ESDS) devices. Special handling methods and materials must be used to prevent equipment damage. Refer to the maintenance section for the equipment before assembly/disassembly or repair is performed. ESDS items are identified in the description column of the parts list by (ESDS).

All supporting parts list illustrations that contain ESDS items are shown with the following symbol.



This paragraph assists in identification, requisition, and issuance of parts and also in maintenance of the equipment. A parts location illustration, schematic diagram, parts list tabulation, and modification history are included in the schematic diagram (figure 2). The parts location illustration is a design engineering drawing that shows exact component placement on the circuit cards.

Use the reference designator indicated on the schematic and parts location diagram to locate parts in the parts list tabulation. The Collins part number and description are listed for each reference designator. In addition, the manufacturer's code and part number are listed when applicable.

### 4.2 Parts List

**REF DES Column** — Reference designators of each part/subassembly are listed in alphanumeric sequence. These are the reference designators shown on the parts location drawing and schematic diagram.

**DESCRIPTION Column** — Lists the noun name, modifier, descriptive information, and modifications.

Modifications are identified by an alphanumeric identifier assigned to each design change. These identifiers are referenced in the **DESCRIPTION** column of the parts list in parentheses and on the schematic diagram inside an arrow that points to the change. Each change relates to the revision identifier (REV)

stamped on the circuit card/subassembly and is listed in the **EFFECTIVITY** column of the modification history.

**COLLINS PART NUMBER Column** — Lists the Collins part number for each item in the parts list.

**USABLE ON CODE Column** — Part variations within a group of equipment are indicated by a letter code (A, B, C, etc). Absence of a code indicates part applies to all models.

**MFR CODE Column** — Lists the manufacturer's code from which selected parts can be procured.

**MFR PART NUMBER Column** — Lists the manufacturer's part number for the selected parts.

Listed below are the manufacturer's names and addresses for the manufacturer's codes used in this parts list.

| <u>CODE</u> | <u>MANUFACTURER'S NAME AND ADDRESS</u>  |
|-------------|---|
| 00779       | AMP INC<br>P O BOX 3608<br>HARRISBURG PA 17105  |
| 04404       | HEWLETT-PACKARD CO AUTOMATIC<br>MEASUREMENT DIV<br>974 E ARQUES AVE<br>SUNNYVALE CA 94086           |
| 07263       | FAIRCHILD CAMERA AND INSTRUMENT CORP<br>SEMICONDUCTOR DIV<br>464 ELLIS ST<br>MOUNTAIN VIEW CA 94042 |
| 81349       | MILITARY SPECIFICATION  |

### 4.3 Equipment Covered

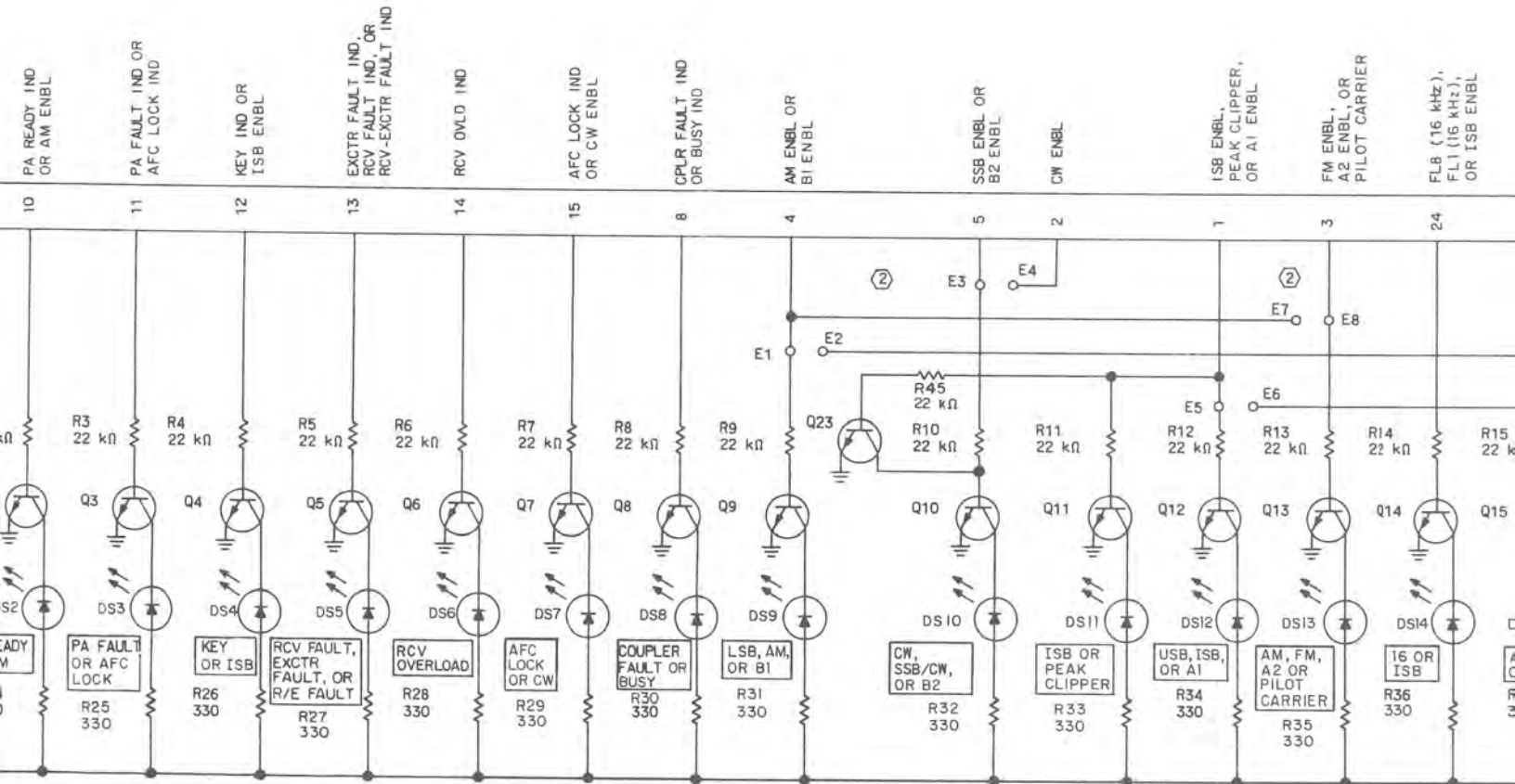
Listed below are the circuit cards/subassemblies with the latest effectivity covered by these instructions.

| <u>CIRCUIT CARD/<br/>SUBASSEMBLY</u> | <u>COLLINS<br/>PART<br/>NUMBER</u> | <u>LATEST<br/>EFFECTIVITY</u> |
|--------------------------------------|------------------------------------|-------------------------------|
| LED status display                   | 635-0825-001                       | REV C                         |
| LED status display                   | 635-0825-002                       | REV E                         |
| LED status display                   | 635-0825-003                       | REV E                         |
| LED status display                   | 635-0825-004                       | REV D                         |
| LED status display                   | 635-0825-005                       | REV D                         |
| LED status display                   | 635-0825-006                       | REV D                         |
| LED status display                   | 635-0825-007                       | REV G                         |
| LED status display                   | 635-0825-008                       | REV J                         |
| LED status display                   | 635-0825-009                       | REV J                         |
| LED status display                   | 635-0825-010                       | REV —                         |
| LED status display                   | 635-0825-011                       | REV P                         |
| LED status display                   | 635-0825-012                       | REV P                         |
| LED status display                   | 635-0825-013                       | REV N                         |
| LED status display                   | 635-0825-014                       | REV —                         |









NOTES:

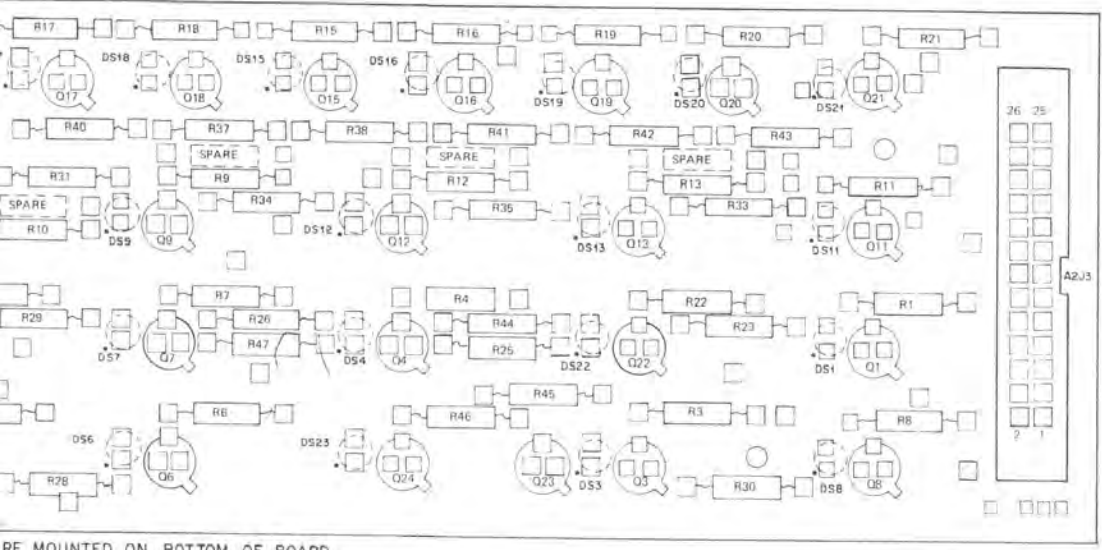
① Q1-Q24 ARE TYPE 2N2222A  
 DS3, DS5, DS6, DS8, DS9, DS11, DS12, DS14, DS7, DS13, DS15, DS16, DS17, DS18, DS19, DS20, DS21, DS22, DS23, DS24

② E1 THRU E8 COMMON

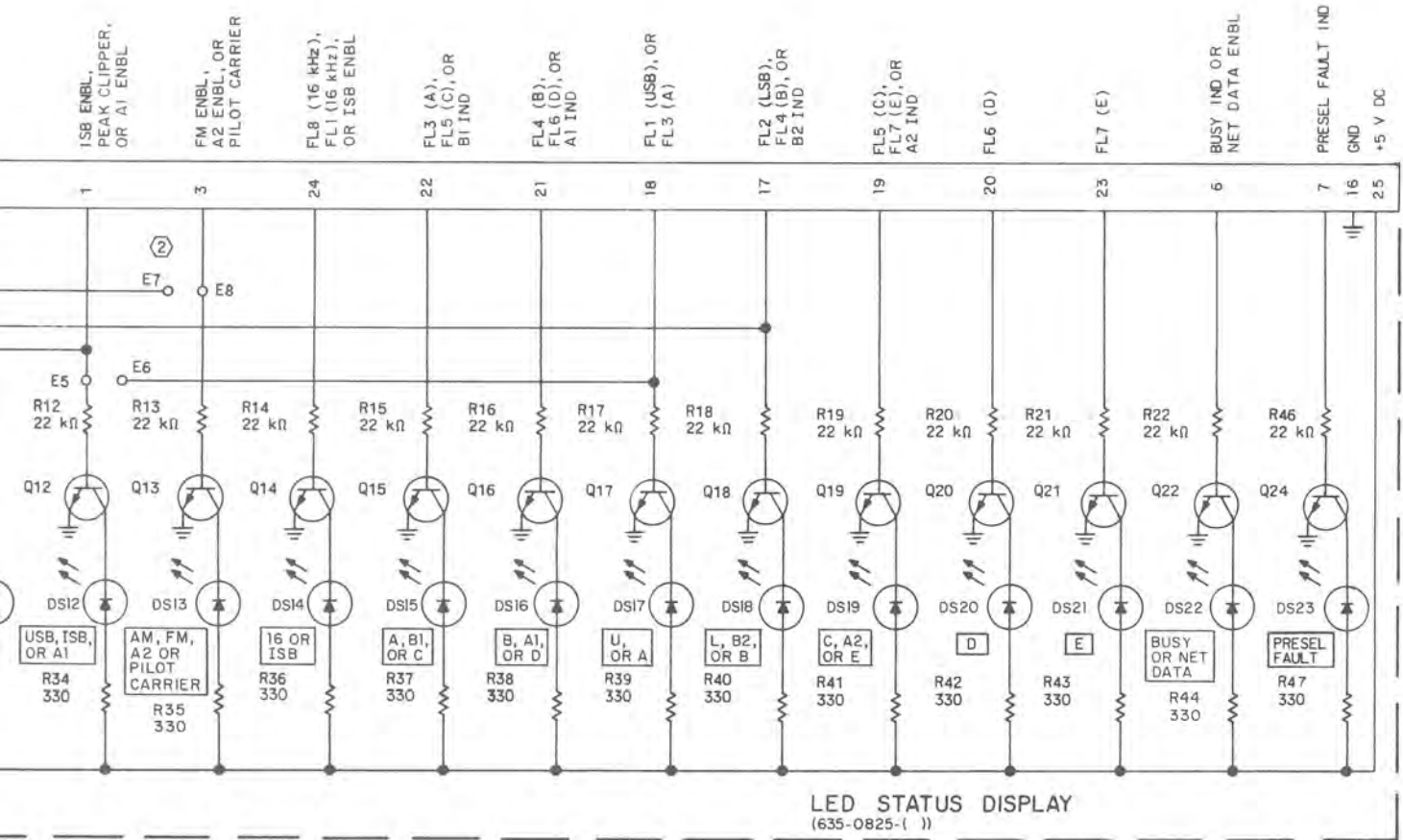
| JUMPER    |   |
|-----------|---|
| R9 TO E1  | X |
| R9 TO E2  |   |
| R10 TO E3 | X |
| R10 TO E4 |   |
| R12 TO E5 | X |
| R12 TO E6 |   |
| R13 TO E7 |   |
| R13 TO E8 |   |

③ UNLESS OTHERWISE SPECIFIED

④ REFER TO PARTS LIST OF THE LED STAT



RE MOUNTED ON BOTTOM OF BOARD



NOTES:

- ① Q1-Q24 ARE TYPE 2N2222A.  
DS3, DS5, DS6, DS8, AND DS23 ARE TYPE HP5082-4684 (RED) LED.  
DS1, DS2, DS4, DS7, AND DS9-DS22 ARE TYPE HP5082-4584 (YELLOW) LED.

- ② E1 THRU E8 CONNECTED AS FOLLOWS:

| JUMPER    | 635-0825- ( ) |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|           | -001          | -002 | -003 | -004 | -005 | -006 | -007 | -008 | -009 | -010 | -011 | -012 | -013 | -014 |
| R9 TO E1  | X             |      |      |      |      |      |      | X    |      | X    |      | X    | X    |      |
| R9 TO E2  |               | X    | X    |      |      |      |      |      | X    |      |      |      |      |      |
| R10 TO E3 | X             |      |      |      |      |      |      | X    |      | X    |      |      | X    |      |
| R10 TO E4 |               | X    | X    |      |      |      |      |      | X    |      |      | X    |      |      |
| R12 TO E5 | X             |      |      |      |      |      |      | X    |      | X    |      |      | X    |      |
| R12 TO E6 |               | X    | X    |      |      |      |      |      | X    |      |      |      |      |      |
| R13 TO E7 |               | X    | X    |      |      |      |      |      | X    |      |      |      |      |      |
| R13 TO E8 |               |      |      |      |      |      |      |      |      | X    |      | X    | X    |      |

- ③ UNLESS OTHERWISE SPECIFIED; RESISTANCE VALUES ARE IN OHMS.
- ④ REFER TO PARTS LIST FOR ACTUAL CIRCUITS USED IN EACH CONFIGURATION OF THE LED STATUS DISPLAY.

TPA-2371-014

LED Status Display, Schematic Diagram  
Figure 2 (Sheet 1 of 3)

## PARTS LIST

| REF<br>DES | DESCRIPTION                             | COLLINS<br>PART<br>NUMBER | USABLE<br>ON<br>CODE | MFR<br>CODE | MFR<br>PART NUMBER |
|------------|---|---------------------------|----------------------|-------------|--------------------|
| DS1-DS4    | LED STATUS DISPLAY<br>NOT USED          | 635-0825-001              |                      |             |                    |
| DS5,DS6    | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS7,DS8    | NOT USED                                |                           |                      |             |                    |
| DS9,DS10   | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS11       | NOT USED                                |                           |                      |             |                    |
| DS12       | DIODE LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS13       | NOT USED                                |                           |                      |             |                    |
| DS14-      | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS22       | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            |
| Q1-Q4      | NOT USED                                |                           |                      |             |                    |
| Q5,Q6      | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q7,Q8      | NOT USED                                |                           |                      |             |                    |
| Q9,Q10     | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q11        | NOT USED                                |                           |                      |             |                    |
| Q12        | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q13        | NOT USED                                |                           |                      |             |                    |
| Q14-Q24    | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| R1-R4      | NOT USED                                |                           |                      |             |                    |
| R5,R6      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R7,R8      | NOT USED                                |                           |                      |             |                    |
| R9,R10     | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R11        | NOT USED                                |                           |                      |             |                    |
| R12        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R13        | NOT USED                                |                           |                      |             |                    |
| R14-R22    | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R23-R26    | NOT USED                                |                           |                      |             |                    |
| R27,R28    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R29,R30    | NOT USED                                |                           |                      |             |                    |
| R31,R32    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R33        | NOT USED                                |                           |                      |             |                    |
| R34        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R35        | NOT USED                                |                           |                      |             |                    |
| R36-R44    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R45,R46    | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R47        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| DS1,DS2    | LED STATUS DISPLAY<br>DIODE, LIGHT EMI  | 635-0825-002              |                      | 04404       | HLMP1401           |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1301           |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1401           |
| DS5        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS6,DS7    | NOT USED                                |                           |                      |             |                    |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS9-DS13   | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS14-      | NOT USED                                |                           |                      |             |                    |
| DS21       | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            |
| Q1-Q5      | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q6,Q7      | NOT USED                                |                           |                      |             |                    |
| Q8-Q13     | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q14-Q21    | NOT USED                                |                           |                      |             |                    |
| Q22,Q23    | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| R1-R5      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R6,R7      | NOT USED                                |                           |                      |             |                    |
| R8-R13     | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R14-R21    | NOT USED                                |                           |                      |             |                    |
| R22        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R23-R27    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R28,R29    | NOT USED                                |                           |                      |             |                    |
| R30-R35    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R36-R43    | NOT USED                                |                           |                      |             |                    |
| R44        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R45        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| DS1,DS2    | LED STATUS DISPLAY<br>DIODE, LIGHT EMI  | 635-0825-003              |                      | 04404       | HLMP1401           |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1301           |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1401           |
| DS5,DS6    | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS7        | NOT USED                                |                           |                      |             |                    |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS9-DS13   | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS14-      | NOT USED                                |                           |                      |             |                    |
| DS21       | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            |
| Q1-Q6      | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q7         | NOT USED                                |                           |                      |             |                    |
| Q8-Q13     | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q14-Q21    | NOT USED                                |                           |                      |             |                    |
| Q22-Q24    | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| R1-R6      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R7         | NOT USED                                |                           |                      |             |                    |
| R8-R13     | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R14-R21    | NOT USED                                |                           |                      |             |                    |
| R22        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R23-R28    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R29        | NOT USED                                |                           |                      |             |                    |
| R30-R45    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R46        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R47        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| DS1,DS2    | LED STATUS DISPLAY<br>DIODE, LIGHT EMI  | 635-0825-007              |                      | 04404       | HLMP1401           |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1301           |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1401           |
| DS5        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS6,DS7    | NOT USED                                |                           |                      |             |                    |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS9-DS22   | NOT USED                                |                           |                      |             |                    |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            |
| Q1-Q5      | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q6,Q7      | NOT USED                                |                           |                      |             |                    |
| Q8         | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q9-Q23     | NOT USED                                |                           |                      |             |                    |
| Q24        | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            |
| R1-R5      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R6,R7      | NOT USED                                |                           |                      |             |                    |
| R8         | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR076223KS        |
| R9-R22     | NOT USED                                |                           |                      |             |                    |
| R23-R27    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |
| R28,R29    | NOT USED                                |                           |                      |             |                    |
| R30        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR076331KS        |

## PARTS LIST (Cont)

| REF<br>DES | DESCRIPTION                             | COLLINS<br>PART<br>NUMBER | USABLE<br>ON<br>CODE |
|------------|---|---------------------------|----------------------|
| R29        | NOT USED                                |                           |                      |
| R30-R35    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R36-R43    | NOT USED                                |                           |                      |
| R44        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R45,R46    | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R47        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| DS1-DS4    | LED STATUS DISPLAY<br>NOT USED          | 635-0825-004              |                      |
| DS5,DS6    | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| DS7-DS22   | NOT USED                                |                           |                      |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      |
| Q1-Q4      | NOT USED                                |                           |                      |
| Q5,Q6      | TRANSISTOR                              | 352-0661-020              |                      |
| Q7-Q23     | NOT USED                                |                           |                      |
| Q24        | TRANSISTOR                              | 352-0661-020              |                      |
| R1-R4      | NOT USED                                |                           |                      |
| R5,R6      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R7-R26     | NOT USED                                |                           |                      |
| R27,R28    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R29-R45    | NOT USED                                |                           |                      |
| R46        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R47        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| DS1,DS2    | LED STATUS DISPLAY<br>DIODE, LIGHT EMI  | 635-0825-005              |                      |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-010              |                      |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| DS5        | DIODE, LIGHT EMI                        | 353-0232-010              |                      |
| DS6,DS7    | NOT USED                                |                           |                      |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      |
| Q1-Q5      | TRANSISTOR                              | 352-0661-020              |                      |
| Q6,Q7      | NOT USED                                |                           |                      |
| Q8         | TRANSISTOR                              | 352-0661-020              |                      |
| R1-R5      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R6,R7      | NOT USED                                |                           |                      |
| R8         | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R9-R22     | NOT USED                                |                           |                      |
| R23-R27    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R28,R29    | NOT USED                                |                           |                      |
| R30        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| DS1,DS2    | LED STATUS DISPLAY<br>DIODE, LIGHT EMI  | 635-0825-006              |                      |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-010              |                      |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| DS5,DS6    | DIODE, LIGHT EMI                        | 353-0232-010              |                      |
| DS7        | NOT USED                                |                           |                      |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| DS9-DS22   | NOT USED                                |                           |                      |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      |
| Q1-Q6      | TRANSISTOR                              | 352-0661-020              |                      |
| Q7         | NOT USED                                |                           |                      |
| Q8         | TRANSISTOR                              | 352-0661-020              |                      |
| Q9-Q23     | NOT USED                                |                           |                      |
| Q24        | TRANSISTOR                              | 352-0661-020              |                      |
| R1-R6      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R7         | NOT USED                                |                           |                      |
| R8         | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R9-R22     | NOT USED                                |                           |                      |
| R23-R28    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R29        | NOT USED                                |                           |                      |
| R30        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R31-R45    | NOT USED                                |                           |                      |
| R46        | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R47        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| DS1,DS2    | LED STATUS DISPLAY<br>DIODE, LIGHT EMI  | 635-0825-007              |                      |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-010              |                      |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| DS5        | DIODE, LIGHT EMI                        | 353-0232-010              |                      |
| DS6,DS7    | NOT USED                                |                           |                      |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| DS9-DS22   | NOT USED                                |                           |                      |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      |
| Q1-Q5      | TRANSISTOR                              | 352-0661-020              |                      |
| Q6,Q7      | NOT USED                                |                           |                      |
| Q8         | TRANSISTOR                              | 352-0661-020              |                      |
| Q9-Q23     | NOT USED                                |                           |                      |
| Q24        | TRANSISTOR                              | 352-0661-020              |                      |
| R1-R5      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R6,R7      | NOT USED                                |                           |                      |
| R8         | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      |
| R9-R22     | NOT USED                                |                           |                      |
| R23-R27    | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |
| R28,R29    | NOT USED                                |                           |                      |
| R30        | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      |

PARTS LIST (Cont)

PARTS LIST (Cont)

|                     | COLLINS<br>PART<br>NUMBER | USABLE<br>ON<br>CODE | MFR<br>CODE | MFR<br>PART NUMBER |
|---------------------|---------------------------|----------------------|-------------|--------------------|
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
|                     | 635-0825-004              |                      |             |                    |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 372-0043-410              |                      | 00779       | 87478-4            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
|                     | 635-0825-005              |                      |             |                    |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 372-0043-410              |                      | 00779       | 87478-4            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
|                     | 635-0825-006              |                      |             |                    |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 372-0043-410              |                      | 00779       | 87478-4            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
|                     | 635-0825-007              |                      |             |                    |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 372-0043-410              |                      | 00779       | 87478-4            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
|                     | 635-0825-010              |                      |             |                    |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-010              |                      | 04404       | HLMP1401           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 353-0232-030              |                      | 04404       | HLMP1301           |
|                     | 372-0043-410              |                      | 00779       | 87478-4            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
|                     | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 352-0661-020              |                      | 07263       | 2N2222A            |
| 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |

| REF<br>DES | DESCRIPTION                             | COLLINS<br>PART<br>NUMBER | USABLE<br>ON<br>CODE | MFR<br>CODE | MFR<br>PART NUMBER | REF<br>DES |
|------------|---|---------------------------|----------------------|-------------|--------------------|------------|
| R31-R45    | NOT USED                                |                           |                      |             |                    | Q5-Q7      |
| R46        | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | Q8         |
| R47        | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | Q9,Q10     |
|            | LED STATUS DISPLAY                      | 635-0825-008              |                      |             |                    | Q11        |
| DS1-DS4    | NOT USED                                |                           |                      |             |                    | Q12        |
| DS5,DS6    | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | Q13        |
| DS7,DS8    | NOT USED                                |                           |                      |             |                    | Q14-Q2     |
| DS9,DS10   | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R1-R4      |
| DS11       | NOT USED                                |                           |                      |             |                    | R5-R7      |
| DS12       | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R8         |
| DS13       | NOT USED                                |                           |                      |             |                    | R9,R10     |
| DS14-      | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R11        |
| DS21       | NOT USED                                |                           |                      |             |                    | R12        |
| DS22       | NOT USED                                |                           |                      |             |                    | R13        |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | R14-R2     |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            | R23-R2     |
| Q1-Q4      | NOT USED                                |                           |                      |             |                    | R30        |
| Q5,Q6      | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | R31,R3     |
| Q7,Q8      | NOT USED                                |                           |                      |             |                    | R33        |
| Q9,Q10     | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | R34        |
| Q11        | NOT USED                                |                           |                      |             |                    | R35        |
| Q12        | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | R36-R4     |
| Q13        | NOT USED                                |                           |                      |             |                    | R45,R4     |
| Q14-Q21    | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | R47        |
| Q22        | NOT USED                                |                           |                      |             |                    |            |
| Q23,Q24    | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | DS1-DS     |
| R1-R4      | NOT USED                                |                           |                      |             |                    | DS5,DS     |
| R5,R6      | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | DS7        |
| R7,R8      | NOT USED                                |                           |                      |             |                    | DS8-DS     |
| R9,R10     | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | DS23       |
| R11        | NOT USED                                |                           |                      |             |                    | J1         |
| R12        | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | Q1-Q4      |
| R13        | NOT USED                                |                           |                      |             |                    | Q5-Q7      |
| R14-R21    | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | Q8-Q23     |
| R22-R26    | NOT USED                                |                           |                      |             |                    | Q24        |
| R27,R28    | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R1-R4      |
| R29,R30    | NOT USED                                |                           |                      |             |                    | R5-R7      |
| R31,R32    | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R8-R24     |
| R33        | NOT USED                                |                           |                      |             |                    | R27-R2     |
| R34        | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R30-R4     |
| R35        | NOT USED                                |                           |                      |             |                    | R45,R4     |
| R36-R43    | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R47        |
| R44        | NOT USED                                |                           |                      |             |                    |            |
| R45,R46    | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | DS1,DS     |
| R47        | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | DS3        |
|            | LED STATUS DISPLAY                      | 635-0825-009              |                      |             |                    | DS4        |
| DS1-DS2    | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | DS5        |
| DS3        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | DS6,DS     |
| DS4        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | DS8        |
| DS5        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | DS9-DS     |
| DS6,DS7    | NOT USED                                |                           |                      |             |                    | DS12       |
| DS8        | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | DS13-      |
| DS9-DS13   | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | DS16       |
| DS14-      | NOT USED                                |                           |                      |             |                    | DS17       |
| DS21       | NOT USED                                |                           |                      |             |                    | DS18,      |
| DS22       | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | DS19       |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | DS20-      |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            | DS22       |
| Q1-Q5      | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | DS23       |
| Q6,Q7      | NOT USED                                |                           |                      |             |                    | J1         |
| Q8-Q13     | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | Q1-Q5      |
| Q14-Q21    | NOT USED                                |                           |                      |             |                    | Q6,Q7      |
| Q22-Q24    | TRANSISTOR                              | 352-0661-020              |                      | 07263       | 2N2222A            | Q8-Q1      |
| R1-R5      | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | Q12        |
| R6,R7      | NOT USED                                |                           |                      |             |                    | Q13-Q      |
| R8-R13     | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | Q17        |
| R14-R21    | NOT USED                                |                           |                      |             |                    | Q18,Q      |
| R22        | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | Q20-Q      |
| R23-R27    | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | Q24        |
| R28,R29    | NOT USED                                |                           |                      |             |                    | R1-R5      |
| R30-R35    | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R6,R7      |
| R36-R43    | NOT USED                                |                           |                      |             |                    | R8-R1      |
| R44        | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R12        |
| R45,R46    | RESISTOR,FXD CMPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        | R13-R      |
| R47        | RESISTOR,FXD CMPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        | R17        |
|            | LED STATUS DISPLAY                      | 635-0825-010              |                      |             |                    | R18,R      |
| DS1-DS4    | NOT USED                                |                           |                      |             |                    | R20-R      |
| DS5,DS6    | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | R23-R      |
| DS7        | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R28,R      |
| DS8        | NOT USED                                |                           |                      |             |                    | R30-R      |
| DS9,DS10   | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R34        |
| DS11       | NOT USED                                |                           |                      |             |                    | R35-R      |
| DS12       | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R39        |
| DS13       | NOT USED                                |                           |                      |             |                    | R40,R      |
| DS14-      | DIODE, LIGHT EMI                        | 353-0232-010              |                      | 04404       | HLMP1401           | R42-R      |
| DS22       | NOT USED                                |                           |                      |             |                    | R46        |
| DS23       | DIODE, LIGHT EMI                        | 353-0232-030              |                      | 04404       | HLMP1301           | R47        |
| J1         | HOUSING,CONN,EL                         | 372-0043-410              |                      | 00779       | 87478-4            |            |
| Q1-Q4      | NOT USED                                |                           |                      |             |                    |            |

PARTS LIST (Cont)

| MFR PART NUMBER | REF DES  | DESCRIPTION                             | COLLINS PART NUMBER | USABLE ON CODE | MFR CODE | MFR PART NUMBER |
|-----------------|----------|---|---------------------|----------------|----------|-----------------|
|                 | Q5-Q7    | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | Q8       | NOT USED                                |                     |                |          |                 |
| RCR076223KS     | Q9,Q10   | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
| RCR076331KS     | Q11      | NOT USED                                |                     |                |          |                 |
|                 | Q12      | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | Q13      | NOT USED                                |                     |                |          |                 |
| HLMP1301        | Q14-Q24  | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | R1-R4    | NOT USED                                |                     |                |          |                 |
| HLMP1401        | R5-R7    | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
|                 | R8       | NOT USED                                |                     |                |          |                 |
| HLMP1401        | R9,R10   | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
|                 | R11      | NOT USED                                |                     |                |          |                 |
| HLMP1401        | R12      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
|                 | R13      | NOT USED                                |                     |                |          |                 |
|                 | R14-R22  | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
| HLMP1301        | R23-R26  | NOT USED                                |                     |                |          |                 |
| 87478-4         | R27-R29  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
|                 | R30      | NOT USED                                |                     |                |          |                 |
| 2N2222A         | R31,R32  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
|                 | R33      | NOT USED                                |                     |                |          |                 |
| 2N2222A         | R34      | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
|                 | R35      | NOT USED                                |                     |                |          |                 |
| 2N2222A         | R36-R44  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
|                 | R45,R46  | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
| 2N2222A         | R47      | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
|                 |          | LED STATUS DISPLAY                      | 635-0825-011        |                |          |                 |
| 2N2222A         | DS1-DS4  | NOT USED                                |                     |                |          |                 |
| RCR076223KS     | DS5,DS6  | DIODE, LIGHT EMI                        | 353-0232-030        |                | 04404    | HLMP1301        |
|                 | DS7      | DIODE, LIGHT EMI                        | 353-0232-010        |                | 04404    | HLMP1401        |
| RCR076223KS     | DS8-DS22 | NOT USED                                |                     |                |          |                 |
|                 | DS23     | DIODE, LIGHT EMI                        | 353-0232-030        |                | 04404    | HLMP1301        |
| RCR076223KS     | J1       | HOUSING, CONN, EL                       | 372-0043-410        |                | 00779    | 87478-4         |
|                 | Q1-Q4    | NOT USED                                |                     |                |          |                 |
| RCR076223KS     | Q5-Q7    | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | Q8-Q23   | NOT USED                                |                     |                |          |                 |
| RCR076331KS     | Q24      | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | R1-R4    | NOT USED                                |                     |                |          |                 |
| RCR076331KS     | R5-R7    | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
|                 | R8-R26   | NOT USED                                |                     |                |          |                 |
| RCR076331KS     | R27-R29  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
|                 | R30-R44  | NOT USED                                |                     |                |          |                 |
| RCR076331KS     | R45,R46  | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
|                 | R47      | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
| RCR076223KS     |          | LED STATUS DISPLAY                      | 635-0825-012        |                |          |                 |
| RCR076331KS     | DS1,DS2  | DIODE, LIGHT EMI                        | 353-0232-010        |                | 04404    | HLMP1401        |
|                 | DS3      | DIODE, LIGHT EMI                        | 353-0232-030        |                | 04404    | HLMP1301        |
|                 | DS4      | DIODE, LIGHT EMI                        | 353-0232-010        |                | 04404    | HLMP1401        |
| HLMP1401        | DS5      | DIODE, LIGHT EMI                        | 353-0232-030        |                | 04404    | HLMP1301        |
| HLMP1301        | DS6-DS7  | NOT USED                                |                     |                |          |                 |
| HLMP1401        | DS8      | DIODE, LIGHT EMI                        | 353-0232-030        |                | 04404    | HLMP1301        |
| HLMP1301        | DS9-DS11 | DIODE, LIGHT EMI                        | 353-0232-010        |                | 04404    | HLMP1401        |
|                 | DS12     | NOT USED                                |                     |                |          |                 |
| HLMP1301        | DS13-    | DIODE, LIGHT EMI                        | 353-0232-010        |                | 04404    | HLMP1401        |
| HLMP1401        | DS16     | NOT USED                                |                     |                |          |                 |
|                 | DS17     | NOT USED                                |                     |                |          |                 |
| HLMP1401        | DS18,    | DIODE, LIGHT EMI                        | 353-0232-010        |                | 04404    | HLMP1401        |
| HLMP1301        | DS19     | NOT USED                                |                     |                |          |                 |
| 87478-4         | DS20-    | NOT USED                                |                     |                |          |                 |
| 2N2222A         | DS22     | NOT USED                                |                     |                |          |                 |
|                 | DS23     | DIODE, LIGHT EMI                        | 353-0232-030        |                | 04404    | HLMP1301        |
| 2N2222A         | J1       | HOUSING, CONN, EL                       | 372-0043-410        |                | 00779    | 87478-4         |
|                 | Q1-Q5    | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
| 2N2222A         | Q6,Q7    | NOT USED                                |                     |                |          |                 |
| RCR076223KS     | Q8-Q11   | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | Q12      | NOT USED                                |                     |                |          |                 |
| RCR076223KS     | Q13-Q16  | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | Q17      | NOT USED                                |                     |                |          |                 |
|                 | Q18,Q19  | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
| RCR076223KS     | Q20-Q23  | NOT USED                                |                     |                |          |                 |
| RCR076331KS     | Q24      | TRANSISTOR                              | 352-0661-020        |                | 07263    | 2N2222A         |
|                 | R1-R5    | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
| RCR076331KS     | R6,R7    | NOT USED                                |                     |                |          |                 |
|                 | R8-R11   | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
| RCR076331KS     | R12      | NOT USED                                |                     |                |          |                 |
| RCR076223KS     | R13-R16  | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
| RCR076331KS     | R17      | NOT USED                                |                     |                |          |                 |
|                 | R18,R19  | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
|                 | R20-R22  | NOT USED                                |                     |                |          |                 |
| HLMP1301        | R23-R27  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
| HLMP1401        | R28,R29  | NOT USED                                |                     |                |          |                 |
|                 | R30-R33  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
| HLMP1401        | R34      | NOT USED                                |                     |                |          |                 |
|                 | R35-R38  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
| HLMP1401        | R39      | NOT USED                                |                     |                |          |                 |
|                 | R40,R41  | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
| HLMP1401        | R42-R45  | NOT USED                                |                     |                |          |                 |
|                 | R46      | RESISTOR,FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000        |                | 81349    | RCR076223KS     |
| HLMP1301        | R47      | RESISTOR,FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000        |                | 81349    | RCR076331KS     |
| 87478-4         |          |   |                     |                |          |                 |

LED Status Display, Schematic Diagram  
Figure 2 (Sheet 2)

## PARTS LIST (Cont)

| REF<br>DES | DESCRIPTION                              | COLLINS<br>PART<br>NUMBER | USABLE<br>ON<br>CODE | MFR<br>CODE | MFR<br>PART NUMBER |
|------------|--|---------------------------|----------------------|-------------|--------------------|
|            | LED STATUS DISPLAY                       | 635-0825-013              |                      |             |                    |
| DS1        | NOT USED                                 |                           |                      |             |                    |
| DS2        | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS3        | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS4        | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS5, DS6   | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS7-DS10   | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS11       | NOT USED                                 |                           |                      |             |                    |
| DS12-      | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS19       |  |                           |                      |             |                    |
| DS20,      | NOT USED                                 |                           |                      |             |                    |
| DS21       |  |                           |                      |             |                    |
| DS22       | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS23       | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| J1         | HOUSING, CONN, EL                        | 372-0043-410              |                      | 00779       | 87478-4            |
| Q1         | NOT USED                                 |                           |                      |             |                    |
| Q2-Q10     | TRANSISTOR                               | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q11        | NOT USED                                 |                           |                      |             |                    |
| Q12-Q19    | TRANSISTOR                               | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q20, Q21   | NOT USED                                 |                           |                      |             |                    |
| Q22        | TRANSISTOR                               | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q23        | NOT USED                                 |                           |                      |             |                    |
| Q24        | TRANSISTOR                               | 352-0661-020              |                      | 07263       | 2N2222A            |
| R1         | NOT USED                                 |                           |                      |             |                    |
| R2-R10     | RESISTOR, FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| R11        | NOT USED                                 |                           |                      |             |                    |
| R12-R19    | RESISTOR, FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| R20, R21   | NOT USED                                 |                           |                      |             |                    |
| R22        | RESISTOR, FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| R23        | NOT USED                                 |                           |                      |             |                    |
| R24-R32    | RESISTOR, FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| R33        | NOT USED                                 |                           |                      |             |                    |
| R34-R41    | RESISTOR, FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| R42, R43   | NOT USED                                 |                           |                      |             |                    |
| R44        | RESISTOR, FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| R45        | NOT USED                                 |                           |                      |             |                    |
| R46        | RESISTOR, FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| R47        | RESISTOR, FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
|            | LED STATUS DISPLAY                       | 635-0825-014              |                      |             |                    |
| DS1, DS2   | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS3        | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS4        | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS5, DS6   | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS7        | DIODE, LIGHT EMI                         | 353-0232-010              |                      | 04404       | HLMP1401           |
| DS8        | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| DS9-DS22   | NOT USED                                 |                           |                      |             |                    |
| DS23       | DIODE, LIGHT EMI                         | 353-0232-030              |                      | 04404       | HLMP1301           |
| J1         | HOUSING, CONN, EL                        | 372-0043-410              |                      | 00779       | 87478-4            |
| Q1-Q8      | TRANSISTOR                               | 352-0661-020              |                      | 07263       | 2N2222A            |
| Q9-Q23     | NOT USED                                 |                           |                      |             |                    |
| Q24        | TRANSISTOR                               | 352-0661-020              |                      | 07263       | 2N2222A            |
| R1-R8      | RESISTOR, FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| R9-R22     | NOT USED                                 |                           |                      |             |                    |
| R23-R30    | RESISTOR, FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |
| R31-R45    | NOT USED                                 |                           |                      |             |                    |
| R46        | RESISTOR, FXD CHPSN, 22K, 10%, 1/4W      | 745-0797-000              |                      | 81349       | RCR07G223KS        |
| R47        | RESISTOR, FXD CHPSN, 330 OHMS, 10%, 1/4W | 745-0731-000              |                      | 81349       | RCR07G331KS        |

LED Status Display, Schematic Diagram  
Figure 2 (Sheet 3)