

# Test Project

## *Aircraft Maintenance*

Module E - Electrical Inspection and Rectification

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## Marking Scheme

Module E – Electrical Inspection and Rectification	Marks
E1 Board preparation, Wiring and Looming	3.40
E2 Use of Tools	1.60
E3 Connector Contacts Installation and Termination	2.00
E4 Terminal Lugs Crimping and Installation	1.20
E5 Solder Terminations	1.60
E6 Wire Circuitry Continuity Check/ Operational Test	1.50
E7 Safe working practice and area clean-up/wastage of material	1.60
E8 Trouble shooting	1.50
E9 Documentation completed	0.60
Total	15.00

## Competitor's Working Document

<b>NAME</b>	(First)	(Last)
<b>COUNTRY</b>		
<b>START TIME</b>		

### Objective

To test the Competitor's ability to alter and complete a circuitry of a given schematic and structural drawings applying the techniques iaw. the Standard Wiring Practices Manual and interpreting instructions in Work Order.

### Time Allotted

Total of 3.5 hours:            3.0 hours completing the test board.  
    0.5 hours for completing the task in Service Bulletin

### Process

#### Part 1

Install hardware and lamp assembly/ assemblies. Prepare wire circuit board per attached Figure #1 (board drawing) and

- Boeing Standard Wiring Practices Manual 20-10-11 Para5B
- AC 21-99 Sect 2 Chap 4 (Cable Clamps)

If necessary, remove the wired and unwired contacts installed on the terminals per

- DMC286-2 Repair Kit instructions

#### Part 2

Prepare wiring for installation per Boeing SWPM 20-10-11 Para 11 and SPWM 20-10-11 Para 3 and 4.

#### NOTE

**All methods and materials used in Test Project for Wire Harness assembly have to meet the requirements in SWPM 20-10-11**

#### Part 3

Install and crimp the pins and sockets for connectors D001, D002 and D003 and terminate per Figure two wiring diagram #1 and

- Amphenol MIL-DTL-38999 and Amphenol MIL-DTL-26482 manuals
- DMC286-2 Repair Kit instructions (Assy of MIL-DTL-38999 Series III)
- Boeing SWPM 20-60-00 (Adjust of the conductor size).
- Boeing SWPM 20-15-04 Para 2 (Insulation Removal)
- Boeing SWPM 20-60-08 sealint electrical connector

#### Part 4

Install and terminate wires switch SW1 per Figure two wiring diagram and

- AC 21-99 Sect 2 Chap 4 (Cable Clamps) and Boeing SWPM 20-10-11 6C (Wire Harness Clearance)
- Boeing SWPM 20-10-12 Para 3J (Clamping)
- Boeing SWPM 20-15-04 Para 2 (Insulation Removal)
- Boeing SWPM 20-15-21 Para 3 (Assembly of Terminal Lugs)

**Part 5**

Install and terminate wires to, switch SW2 per Figure two wiring diagram and

- Boeing SWPM 20-15-04 Para 2 (Insulation Removal)
- Boeing SWPM 20-15-21 Para 3 (Assembly of Terminal Lugs)

**Part 6**

Install and terminate wires to lamp assemblies per Figure two wiring diagram and.

- AC 21-99 Sect 2 Chap 7 (Soldering)
- Boeing SWPM 20-10-14 Para 2 (Installation of heat shrinkable Sleeves)

**Part 7**

Do the continuity test for circuit

**Part 8**

Do the functional test for circuit

(This step verified by Expert)

**Part 9**

Perform the Fault Finding for prepared Test Board.

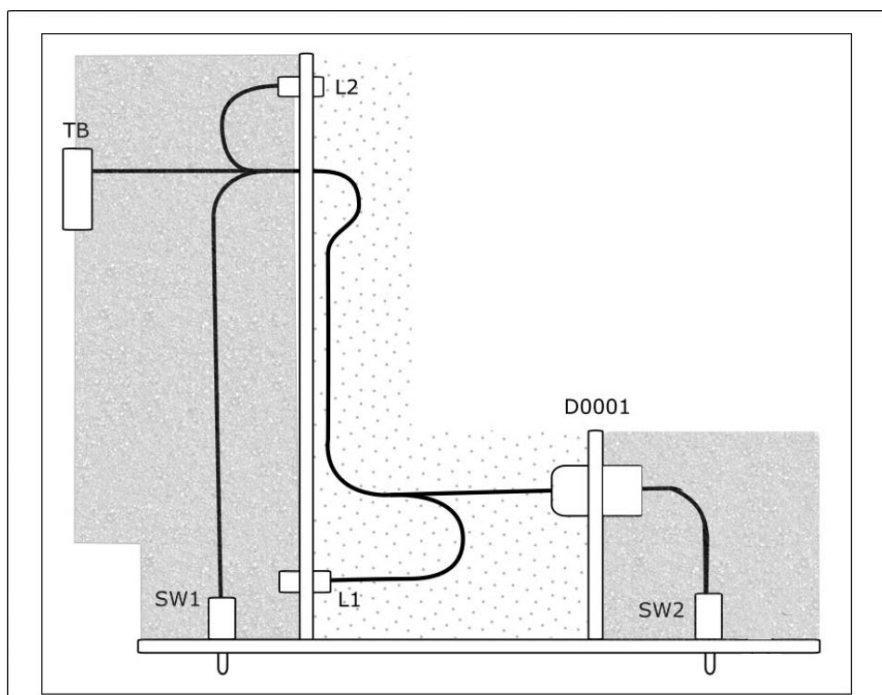
## DATA/MATERIAL PROVIDED

- Daniels DMC286-02 Maintenance/Repair Kit
- PIDG crimp tool AMP 47386-5
- Soldering Iron
- Power Supply 30VDC 2A
- Test Lead for power input (pre manufactured)
- Digital Multimeter
- Compressed air gun
- Hardware and tools for installing the connectors and clamps:
  - Aircraft grade Wire AWG22,
  - Connector, P/N JD38999/26WD97SN, QTY 1
  - Connector, P/N JD38999/20WD97PN, QTY 1
  - Backshell: P/N 620HS003NF15, QTY 2
  - Connector Pin, P/N M39029/58-363, QTY 10
  - Connector, P/N M39029/56-351, QTY 10
  - Connector Pin, P/N M39029/56-352, QTY 6
  - Connector Socket: P/N M39029/58-364, QTY 6
  - Connector, P/N MS3124E12-10PY, QTY 1
  - Connector Pin, P/N MS39029/31-240, QTY 12
  - Filler Plug P/N: MS27488-20-2, QTY 20
  - Filler Plug P/N: MS27488-16-2, QTY 20
  - Light assembly, Dialight 609-1112-140F (24V, RED) , QTY 1
  - Light assembly, Dialight 609-1212-140F (24V, GREEN), QTY 1
  - Toggle switch Qty:2, 1NT1-3, QTY 2
  - Terminal Lugs: P/N AMP 31890, QTY 8
  - P-Clamps Qty 3, P/N MS21919-WDG4, QTY 3
  - Pre-printed shrink sleeve Wire ID:s
  - Grommet AMB-1, AMB-1.6, QTY 20cm
  - Shrink sleeve 1/4", QTY 20cm
  - 3M Scotch 23 Black Self Amalgamating Tape 19mm, QTY 1m
  - Self-Adhering Tape MIL-I-224444C, QTY 40cm
  - Flux Pen,
  - Soldering tin
  - Desolder Braid Rosin
  - Isopropanol alcohol
  - Lacing Cord (SES Sterling Lacing Cord Polyamide 1.4 mm x 200 m)
  - Cotton cloth
  - Tiewraps 2.5 mm, QTY 20
  - Tiewrap gun
  - Steel ruler 30 cm

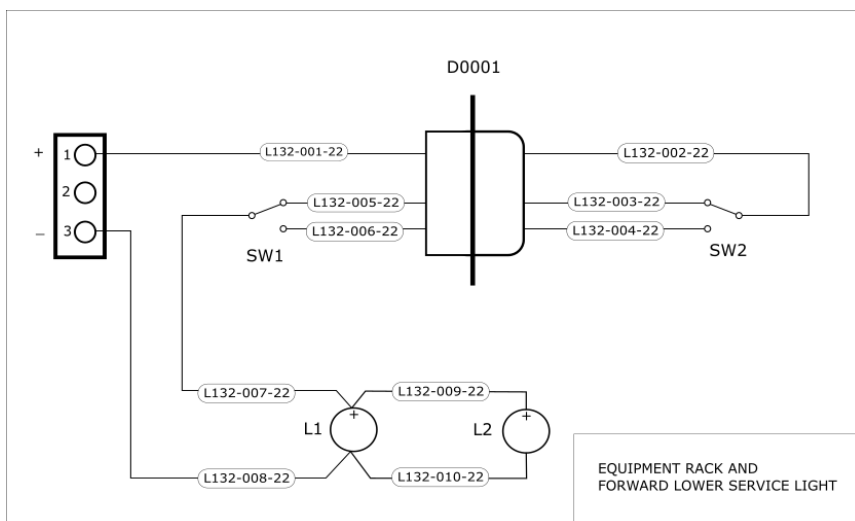
### Data:

- Boeing SWPM ATA 20 (Extract)
- Amphenol MIL-DTL-38999 and MIL-DTL-26482 manual (Extract)
- AC 21-99 (Extract)
- [Dialight 609 Series Datasheet](#)

**FIGURE #1 – ELECTRICAL BOARD DIAGRAM**



**FIGURE #2 –WIRING DIAGRAM**



**LEGEND:**

D001: MS3124E12-10PY

D002: JD38999/20WD97SN

D003: JD38999/26WD97SN

SW1, SW2: 1NT1-3

L1: Dialight 609-1112-140F RED

L2: Dialight 609-1212-140F GREEN