

SERVICE BULLETIN



Service Bulletin No.: DA20-33-03 Rev 0

Date Issued: 27 May 2013

Title: Cockpit Night Lighting System Installation

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SUPERSEDES: DA20-33-01

- 1 **ATA Code:** 3310
- 2 **Effectively:** DA 20-A1, Serial numbers 10002 through 10020
- 3 **General:** This bulletin describes the retrofit of a cockpit night lighting system.
- 4 **Compliance:** Optional.
- 5 **Approval:** Engineering data referenced or contained in this bulletin is approved as part of the type design.
- 6 **Labor:** 30 hours
- 7 **Material:** Material may be ordered as kit MK20-33-03
- 8 **Special Tools:** none
- 9 **References:** DA20-A1 Aircraft Maintenance Manual, Document # DA 201
- 10 **Accomplishment Instructions**
 - Fuselage Installation:**
 - 10.1 Remove seat cushions.
 - 10.2 Remove seat pans (Ref. Maintenance Manual Chapter 25-10).
 - 10.3 Remove Fire Extinguisher and Baggage shelves.
 - 10.4 Remove Instrument panel cover (Ref. Maintenance Manual Chapter 25-10).
 - 10.5 Remove Control Quadrant to gain access to the harness which runs through the center console.
 - 10.6 Drill and cut out the mounting holes for the two rocker switches in the center console as shown on Figure 1.

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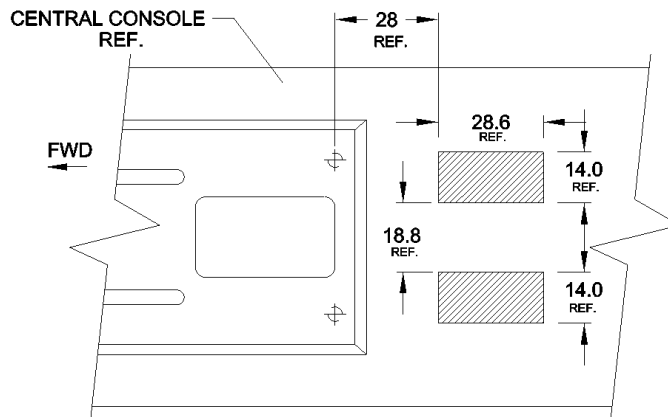


Figure 1:

- 10.7 Route the fuselage harness from the rear of the instrument panel down along the existing harness, which runs through the center console on the right side of the fuselage, to the bottom of the spar bridge.
- 10.8 Pass the switch wires through their respective holes and connect them to the switches in accordance with Figure 2.

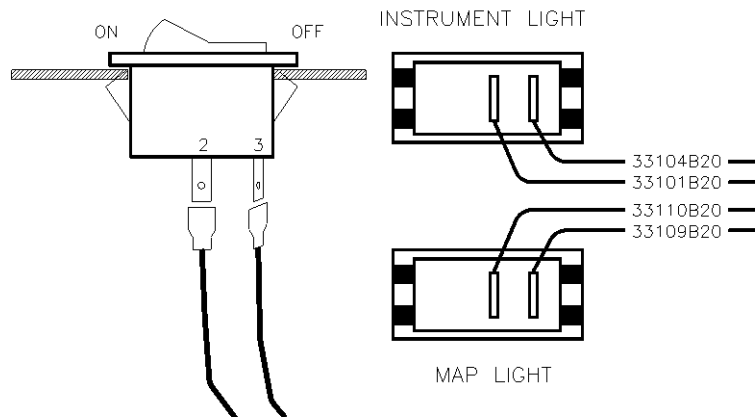


Figure 2:

- 10.9 Route lighting wires through existing conduit up to audio jacks, then through new conduit supplied, using a fish wire.
- 10.10 Attach connectors supplied to lighting wires.
- 10.11 Run conduit along RH inside edge of fuselage roll bar lip to top center position. Hold in place with adhesive DP-110 in accordance with Figure 3.

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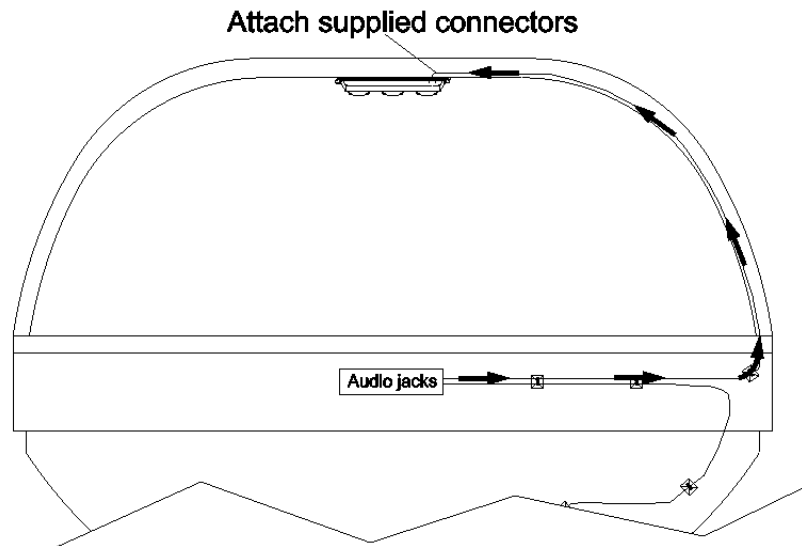


Figure 3:
(Looking fwd)

10.12 Connect wires to light fixture.

10.13 Adjust night lighting assembly until it fits snugly beneath roll bar and center it with respect to center line. Drill two holes in roll bar using pre-drilled holes in lighting assembly as a template, and countersink 100°. Secure with MS24693C27xx screws and N277 cap nuts. Make sure that the screws are sealed with sealant.

Instrument Panel Installation:

10.14 Remove labels and drill holes in instrument panel for Trim DIM/BRIGHT switch, Dimmer Rheostat and Fuel Valve LED, in accordance with Figures 4a, 4b and 4c.

Note: Trim DIM/BRIGHT hole locations differ for serial numbers.

Note: May need to remove instruments or other items in order to carry out work.

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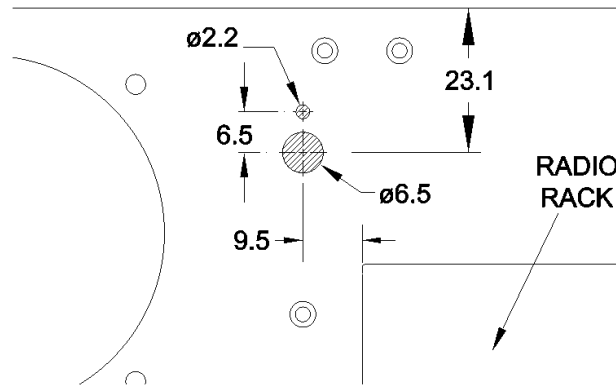


Figure 4a: Trim DIM/BRIGHT Switch
(Looking fwd)

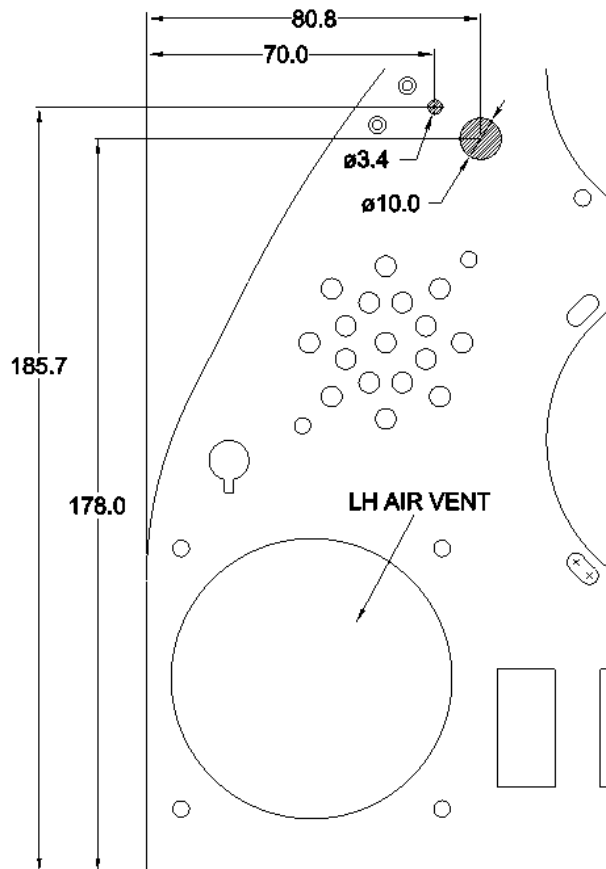


Figure 4b: Dimmer Rheostat
(Looking fwd)

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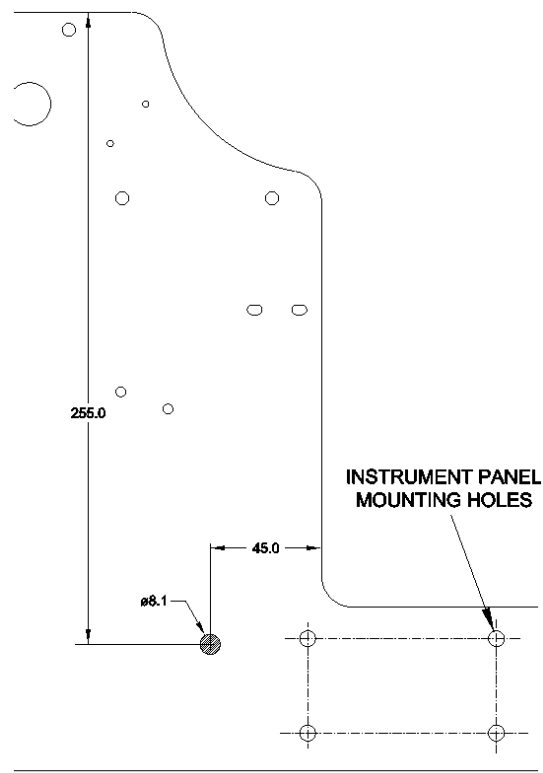
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**Figure 4c: Fuel Valve LED
(Looking down)**

- 10.15** Install and route internal lighting retro-fit harness following existing harness.
- 10.16** Secure 27512A22 wire to Flaps circuit breaker.
- 10.17** Secure 33109A20 wire to TAXI/MAP circuit breaker.
- 10.18** Secure 33104A20 wire to INTERNAL LIGHT circuit breaker.
- 10.19** Secure 33111A20N, 33108A20N and 33113A20N to ground terminal block TB2400-03.
- 10.20** Replace existing trim indicator with new trim indicator.
- 10.21** Solder Dimmer Rheostat as shown in Figure 5.

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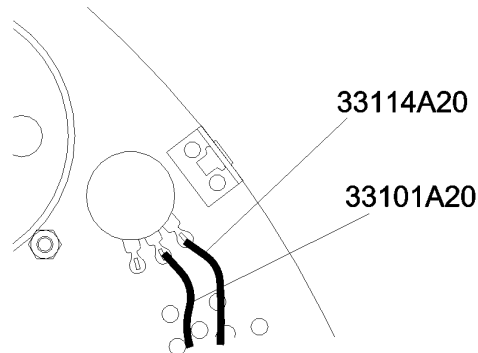


Figure 5

- 10.22** Continue with operation if flap switch controller is S/N 200 or above. If flap switch is S/N 199 or below, replace with new flap switch controller before continuing.
- 10.23** Remove flap position label to expose potentiometer adjustment and turn fully clockwise. Replace label.
- 10.24** Remove the flap controller connector P2750-01. Remove pin 'M' and cut the jumper wire that goes to pin 'H' close to the pin. Reinsert pin 'M'.
- 10.25** Remove pin 'H' and discard the pin with the remaining short jumper wire attached.
- 10.26** Insert supplied 27511A22 wire, from retro-fit harness, into pin 'H' of the flap controller.
- 10.27** Solder wires 27511A22 and 27512A22 as shown in Figure 6.

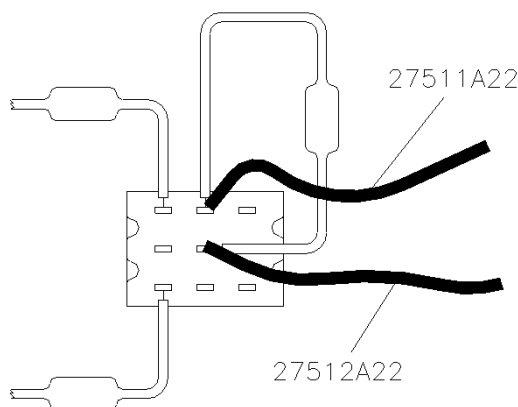


Figure 6

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- 10.28 Change internal light breaker from 7.5 amps to 1 amp. Map light power supply is protected by taxi light breaker.
- 10.29 Install LED pigtail assembly into hole cutout in Figure 4c.
- 10.30 Splice 33112A20 wire with RED wire of LED pigtail assembly. Splice 33113A20N wire with BLACK wire of LED pigtail assembly.
- 10.31 If required, prepare affected instrument panel and panel support areas for painting. Paint with BASF flat, dark grey paint #93924.
- 10.32 Reinstall all items removed on instrument panel.
- 10.33 Switch the Manifold pressure location and the Tachometer position. Install Tachometer in outboard location and Manifold pressure in inboard location.
- 10.34 Recess OAT indicator by removing indicator and probe through front of instrument panel then reinstalling it from the rear. Insert OAT spacer block between indicator and rear of instrument panel and secure with original screws in addition to brass screws supplied.
- 10.35 Install Instrument/Map light ON/OFF label on console near switch and locate remaining labels accordingly.
- 10.36 Reinstall instrument panel cover, taking care not to damage dimmer rheostat with screw.

System Test:

- 10.37 Cover canopy with a dark colored tarp or test in the dark.
- 10.38 Turn on aircraft power.
- 10.39 Engage internal light breaker and taxi light breaker.
- 10.40 Turn on instrument light switch, two outside lights on Inst/Map light assembly and red LED under instrument panel should come on.
- 10.41 Turn dimmer rheostat fully clockwise. Lights should be on full bright.
- 10.42 Varying dimmer rheostat should vary light intensity.
- 10.43 Disengage internal light breaker, lights should go out.
- 10.44 Turn on map light. Center light on Inst/Map light assembly should come on.
- 10.45 Disengage taxi light breaker. Map light should go out.

System Set Up:

- 10.46 Engage internal light breaker and taxi light breaker.

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10.47 Turn on instrument light switch.

10.48 Cover one of the outside lights on the Inst/Map light assembly and rotate the other so the light intensity is focused on the opposite side of the Instrument panel.

Note: The beam will illuminate the entire Instrument panel.

10.49 Repeat the process for the remaining outside light.

10.50 Turn instrument light off and turn map light on.

10.51 Rotate Map light until intensity is focused on the bottom center of the Instrument panel. Rotate Map light until intensity is focused on the bottom center of the Instrument panel.

Note: The map light alone can illuminate the entire Instrument panel.

11 Weight and Balance: Negligible

12 Electrical Load Data: 0.17 amps

13 Credit: None

To obtain satisfactory results, procedures specified in this service bulletin must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft Industries Inc. cannot be responsible for the quality of work performed in accomplishing the requirements of this service bulletin. Diamond Aircraft reserves the right to void continued warranty coverage in the area affected by this Service Bulletin if it is not incorporated. If you no longer own the aircraft to which this service bulletin applies, please forward it to the current owner and send the name of the current owner to Diamond Aircraft Industries, Inc., at the address below.

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