

CARGO MIRROR/PULSE LIGHT, KIT INSTALLATION INSTRUCTIONS

MODELS: BELL 412, 412EP & 412CF



Read all of the installation instructions
thoroughly prior to the inspection of this product



Weight & Balance

<u>Part Number</u>	<u>Description</u>	<u>Weight</u>	<u>Long. Arm</u>	<u>Lat. Arm</u>
AAL-290-010-902	Mirror/Light, Kit	10.34* 4.69 (Kg)	5.49 .14 (m)	0.00 0.00 (m)
AAL-706-103-001	Mirror, Kit	5.90* 2.68 (Kg)	3.12 .08 (m)	0.00 0.00 (m)

* Total increase in weight to aircraft.

Aircraft Applicability

- Model: Bell Helicopter 412, 412EP, 412CF
Serial No: All

General Notes

- All Installation Instructions shall be accomplished in accordance with (IAW) standard aircraft practices. Refer to the current revision of the FAA publications AC 43.13-1B and AC 43.13-2B for details on standard aircraft practices.
- Torque fasteners IAW the tension type torque limits indicated in the current revision of the FAA publication AC 43.13-1B, Table 7-1 unless otherwise specified.
- All Dimensions are in imperial measures (inches/pounds).
- Refer to the current revision of the Cargo Mirror/Pulse Light, Kit Illustrated Parts Breakdown (AAL-290-015-105) for the part numbers of the item(s) referenced within this document.
- Refer to the current revision of the Cargo Mirror/Pulse Light, Kit Maintenance Manual Supplement (AAL-290-015-205) for instructions on continuing airworthiness for the item(s) referenced within this document.
- Install Pulse Light Control Unit, Assy (Item 15) IAW the current revision of the Precise Flight, Pulselight Installation Manual, PPRI-3000, section 2.4, 2.6 & 3.2
- If changes to this document are required, Alpine Aerotech LP shall revise all pages and reissue the entire document.
- Alpine Aerotech LP shall make any subsequent revisions of this document available upon request. Alpine Aerotech LP also recommends that the end user of this product periodically verify the revision level of this document.



Installation Notes

- 1 Coordinate Insert (Items 2 & 3) positions with holes in LHS (Item 4) and RHS (Item 5) Mounting Block, Assys.
- 2 Apply fillet of Sealant (Item C02) to periphery of Mounting Block, Assys (Item 4 & 5) after installation. Sealant is not supplied, procure locally.
- 3 Utilize Adhesive (Item C01) for installation of inserts into their respective honeycomb panels. Adhesive is not supplied, procure locally.
- 4 Apply fillet of Sealant (Item C02) to groove of grommet (Item 40) before installation. Sealant is not supplied, procure locally.
- 5 Violet and gray wires shown connected for alternating strobe.
- 6 Brown wires joined for high speed pulse rate.



Installation Instructions (412)

1. Gain access to the inverter bay panel on the underside of the aircraft nose. Reference Figure 1.

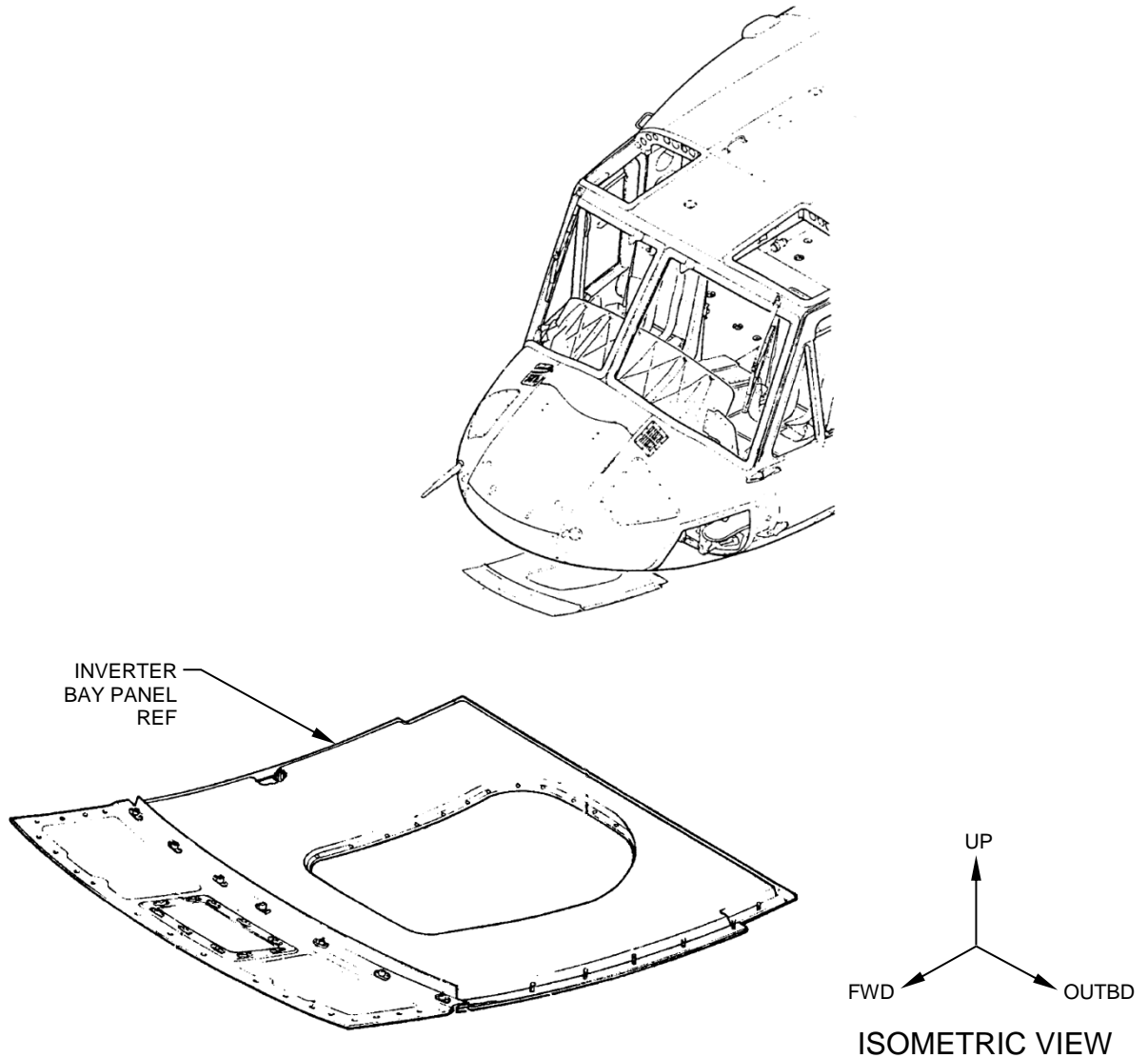


Figure 1

2. Remove the inverter bay panel P/N 212-030-206-001. Reference Figure 1.



Installation Instructions (412)

3. Locate the Mounting Block, Assy, LHS (Item 4) utilizing the existing insert on the left hand side of the panel, loosely install the Mounting Block, Assy with the supplied hardware. Reference Figure 2.

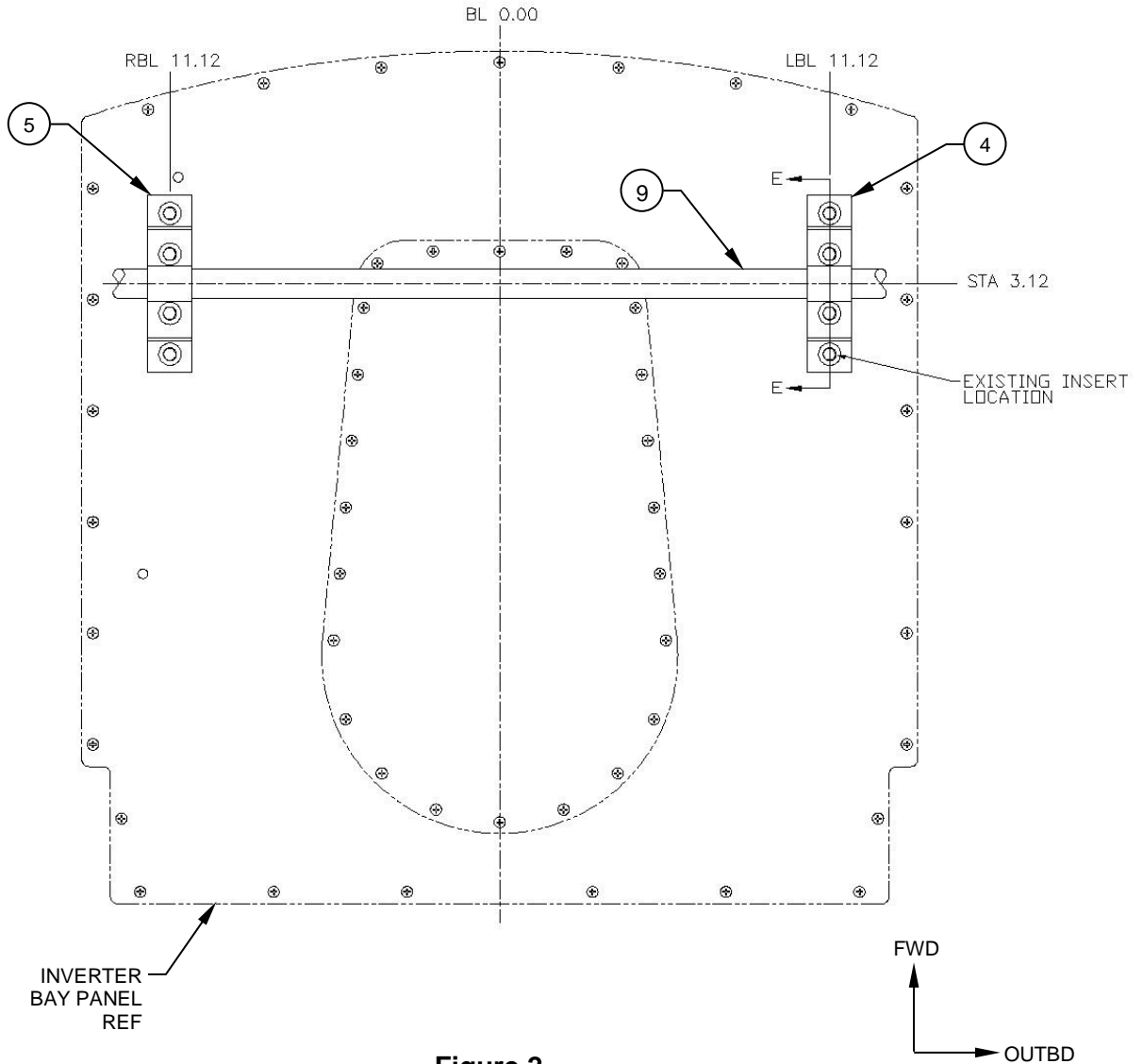


Figure 2

VIEW LKG UP

INSTALLATION SHOWN

4. Place the Mounting Block, Assy, RHS (Item 5) in its approximate location on the panel. Reference Figure 2.



Installation Instructions (412)

5. Lay the Crosstube, Assy (Item 9) into the slots in the Mounting Block, Assys (Items 4 & 5). Reference Figure 3.
6. Align Crosstube, Assy (Item 9) perpendicular to aircraft butt line axis and position the mounting blocks according to the dimensions shown. Reference Figure 3.
7. Mark locations of the three inserts (Items 2 & 3) and install in accordance with Bell Structural Repair Manual BHT-ALL-SRM, Section 3-2-12.

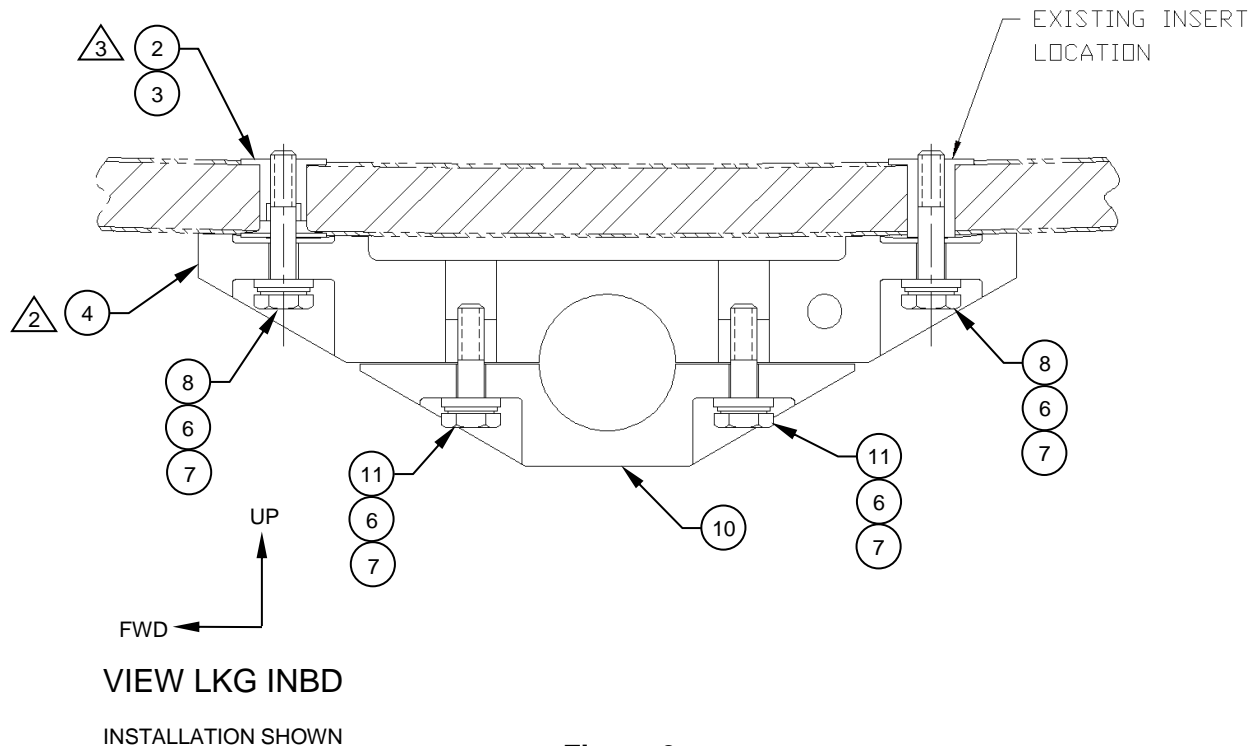


Figure 3
Section View E-E

8. Install the supplied fasteners in the Mounting Block, Assys (Items 4 & 5) and add a fillet of Sealant (Item C02) around the edge of each Mounting Block, Assy. Reference Figures 3 & 4.



Installation Instructions (412)

9. Install Mirror, Assys (Item 12) on the Crosstube, Assy (Item 9). Reference Figure 4.

NOTE: Discard the OEM lock washers (split ring washers) that come supplied with the Mirror, Assys (Item 12) and replace with Washer, Lock (Item 13).

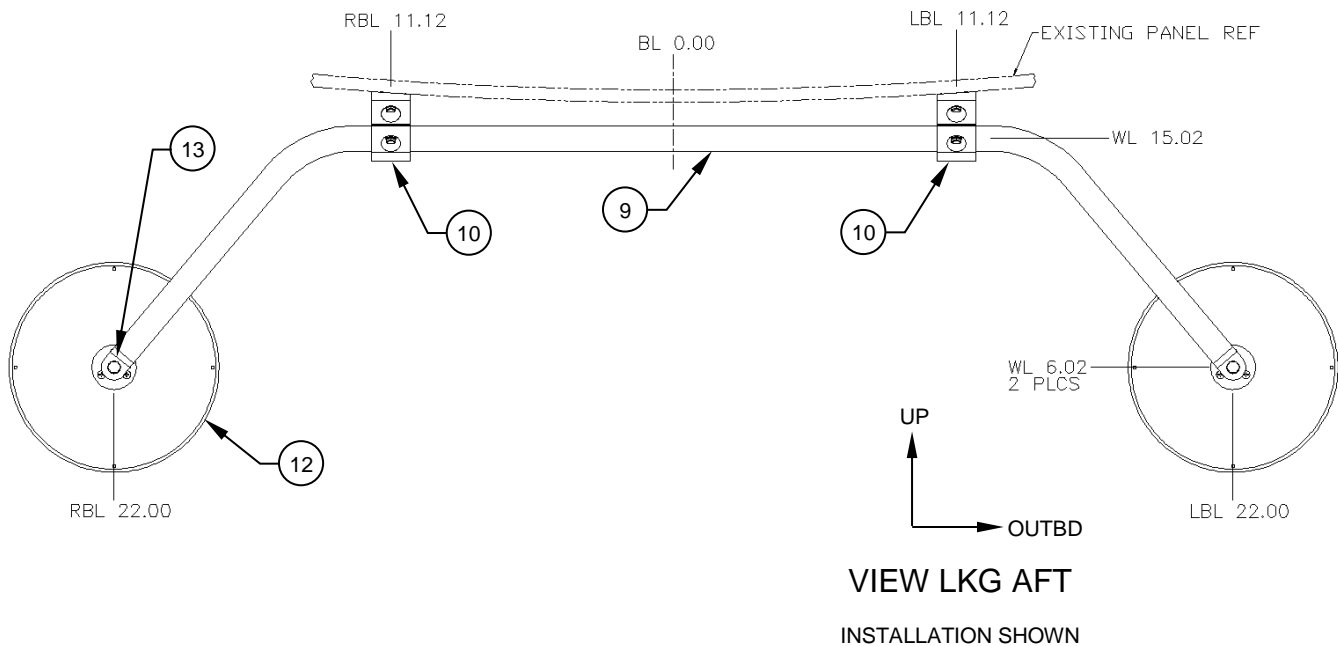


Figure 4

10. Loosely attach the Crosstube, Assy (Item 9) to the Mounting Block, Assys (Items 4 & 5) with the Cap, Details (Item 10) and the supplied hardware. Reference Figures 3 & 4.

NOTE: Do not apply final torque to fasteners common to the Cap, Details until the desired pilot/co-pilot viewing angle is established.

11. Cargo Mirror installation complete.
12. Perform a General Inspection of all items to ensure proper installation.
13. Update the aircraft logbook to reflect installation of Cargo Mirror, Kit.

NOTE: For installation of the Pulse Light, Kit proceed with steps 14 to 31.



Installation Instructions (412)

14. Mark the location of wire holes in the inverter bay panel in accordance with the dimensions outlined below. Reference Figure 5.

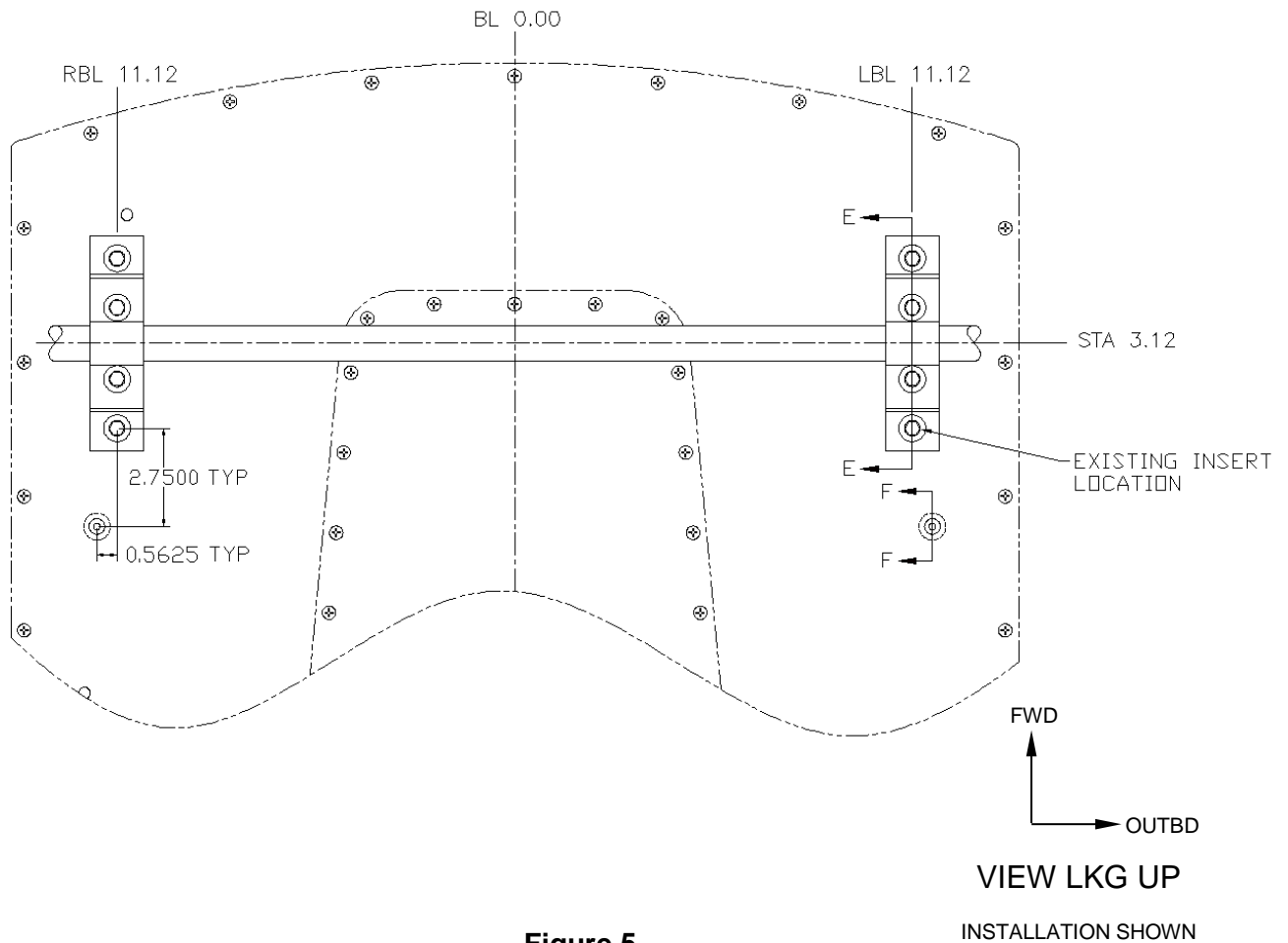


Figure 5

15. Drill and epoxy the wire holes as per standard practices outlined in Bell Structural Repair Manual BHT-ALL-SRM. Reference Figures 5 & 6.
16. Install the Grommets (Item 40) in the lower skin of inverter bay panel as shown. Reference Figure 6.



Installation Instructions (412)

17. Lead the supplied Wiring Harness, Assy (Item 41) through the appropriate wire holes and associated Grommets (Item 40) in the inverter bay panel keeping the male connector on the inside of the panel. Reference Figure 6.

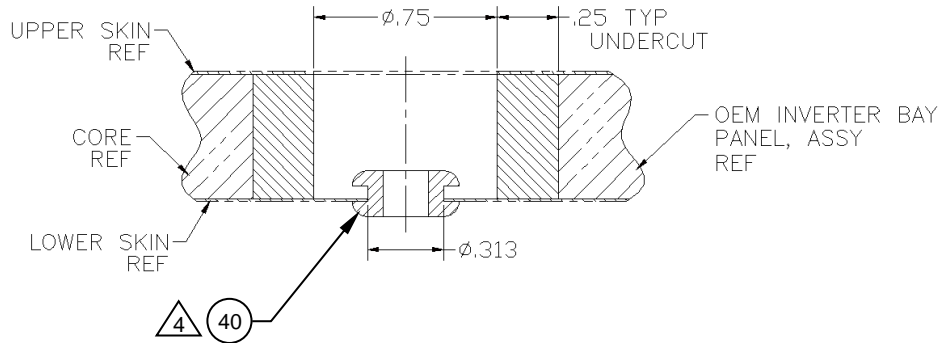


Figure 6
Section F-F

18. Install the Housing, Assys (Item 34) on the Mounting Block, Assys (Items 4 & 5). Reference Figure 7 & 8.

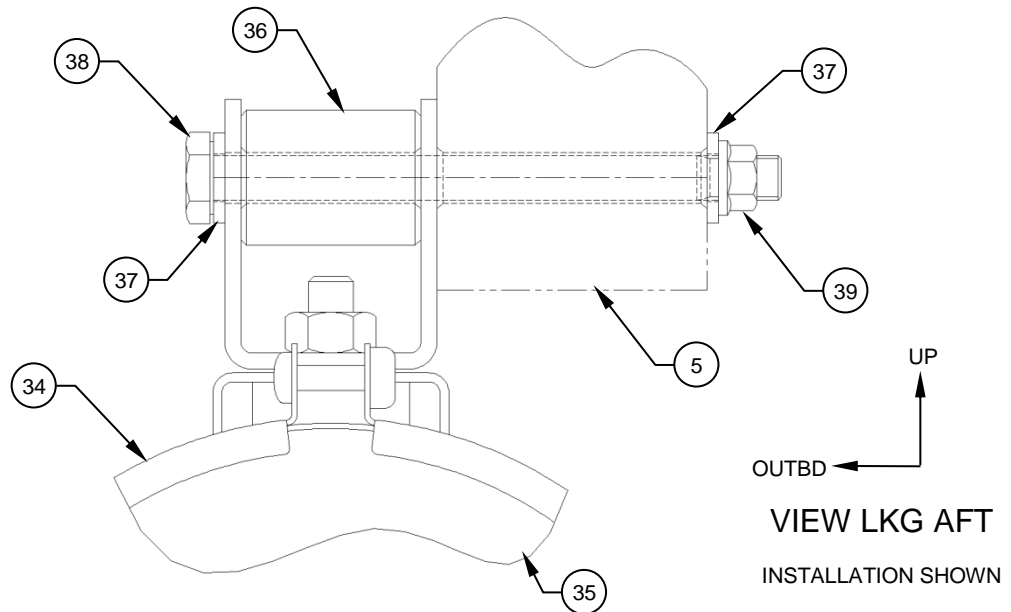


Figure 7



Installation Instructions (412)

19. Connect the Wiring Harness, Assy (Item 41) to the appropriate Housing, Assys (Item 34) and assemble with Lamp, Assys (Item 35). Reference Figure 7, 8 & 13.

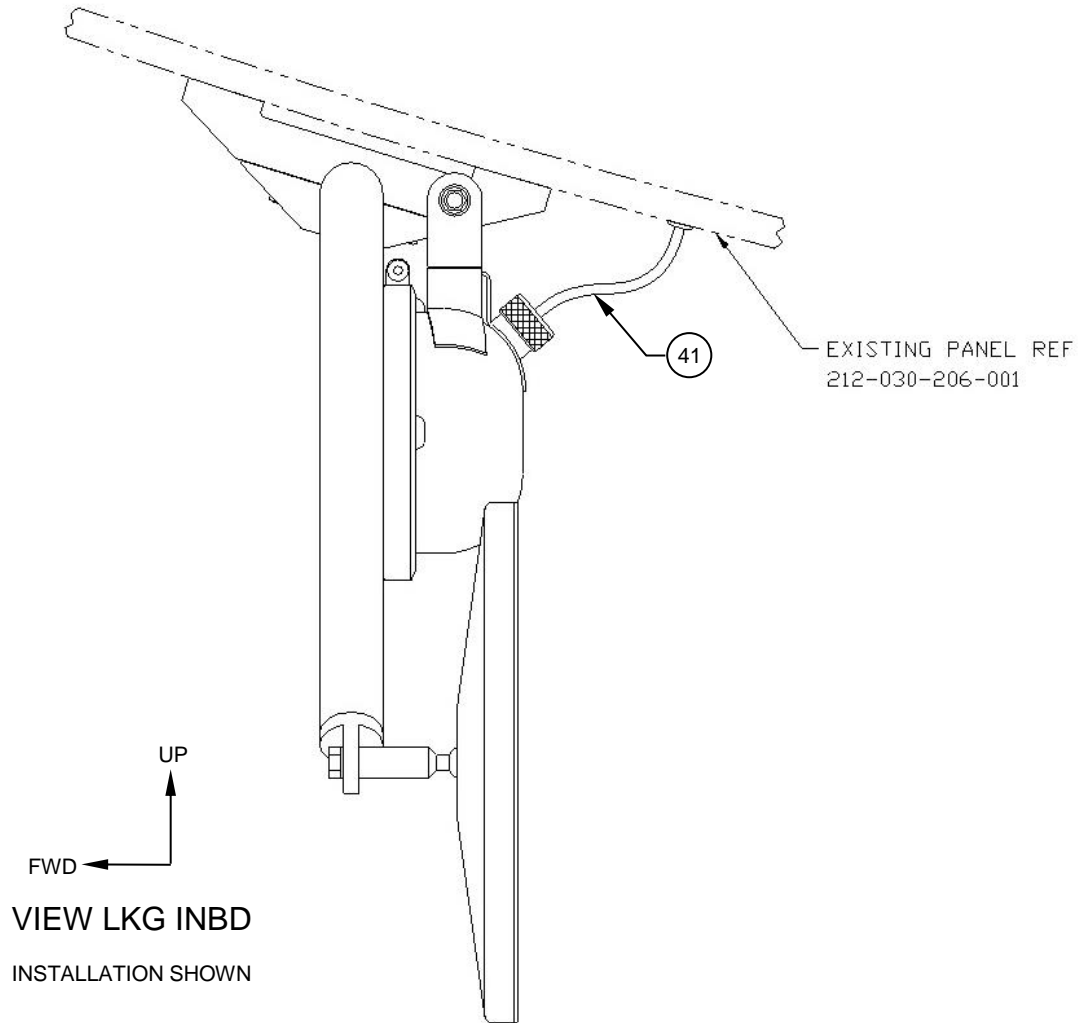


Figure 8



Installation Instructions (412)

20. Secure the Wiring Harness (Item 41) to the top side of the inverter bay panel using the supplied clamps as shown. Reference Figure 9.

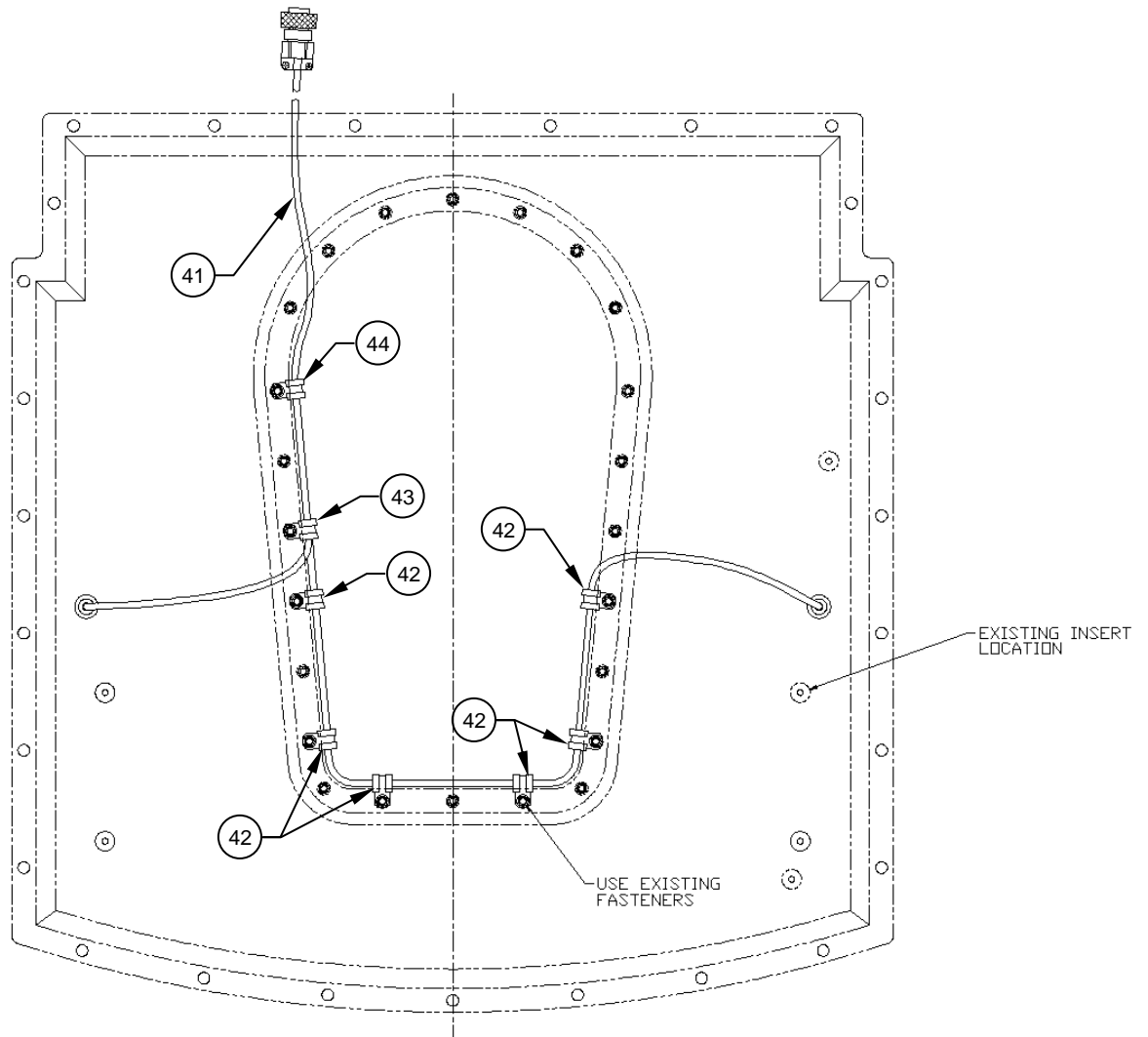


Figure 9



Installation Instructions (412)

21. Install the inserts (Item 49) in the lower side of the OEM inverter bay panel assy as per standard practices outlined in Bell Structural Repair Manual BHT-ALL-SRM. Reference Figure 10.

NOTE: Location on the OEM panel assy to be determined by the installer. Location shown is the suggested installation. If installed in another location, all ancillary items required to accomplish installation of the Bracket, Assy (Item 50) are to be supplied by the installer. Weight and Balance information is to be recalculated as required.

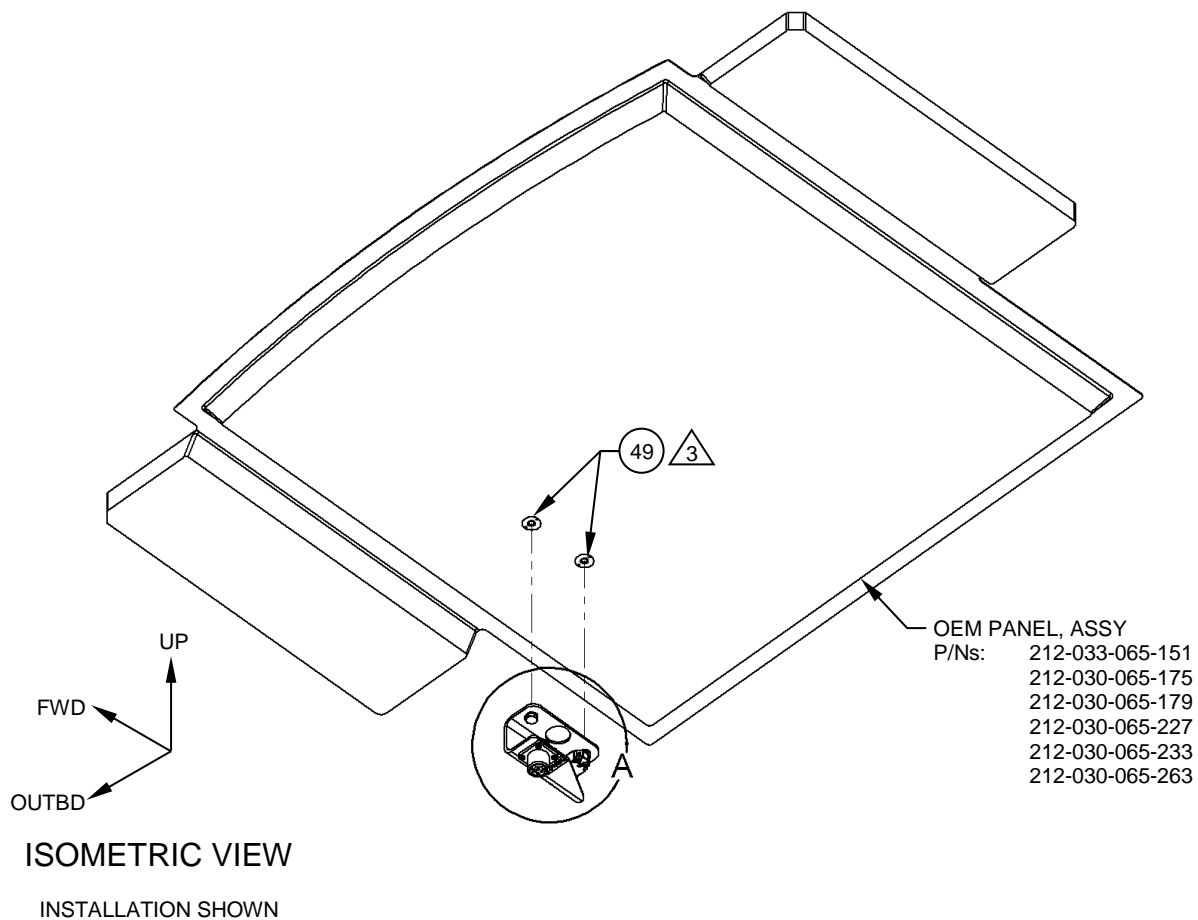


Figure 10



Installation Instructions (412)

22. Install the Bracket Assy (Item 50) with the supplied hardware as shown. Reference Figures 10 & 11.

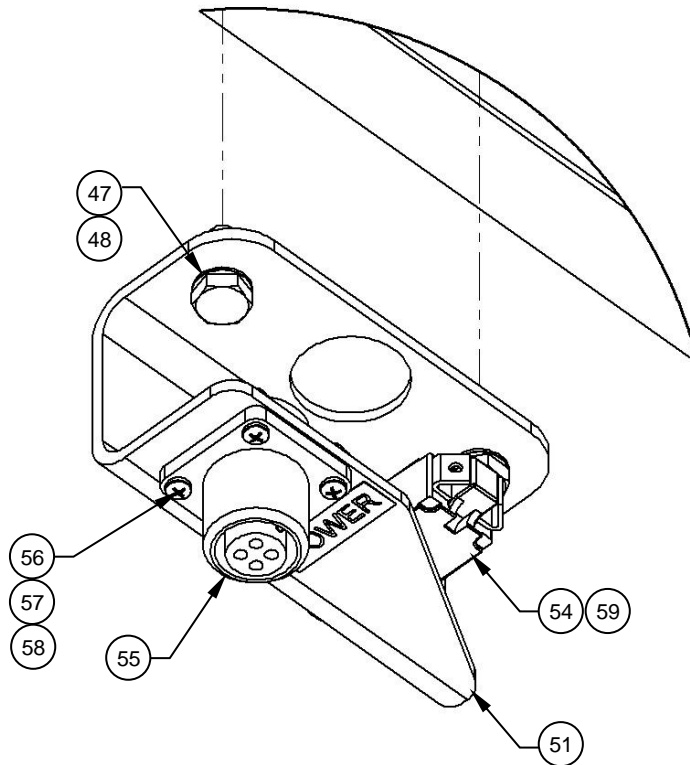


Figure 11
Bracket, Assy Item 50
Detail View A



Installation Instructions (412)

23. Install the inserts (Item 49) in the upper side of the OEM inverter bay panel assy as per standard practices outlined in Bell Structural Repair Manual BHT-MED-SRM-1. Reference Figure 12.

NOTE: Location on the OEM panel assy to be determined by the installer. Location shown is the suggested installation. If installed in another location all ancillary items required to accomplish installation of the Control Unit, Assy (Item 15) are to be supplied by the installer. Weight and Balance information is to be recalculated as required.

24. Install the Control Unit, Assy (Item 15) with the supplied hardware as shown. Reference Figure 12.

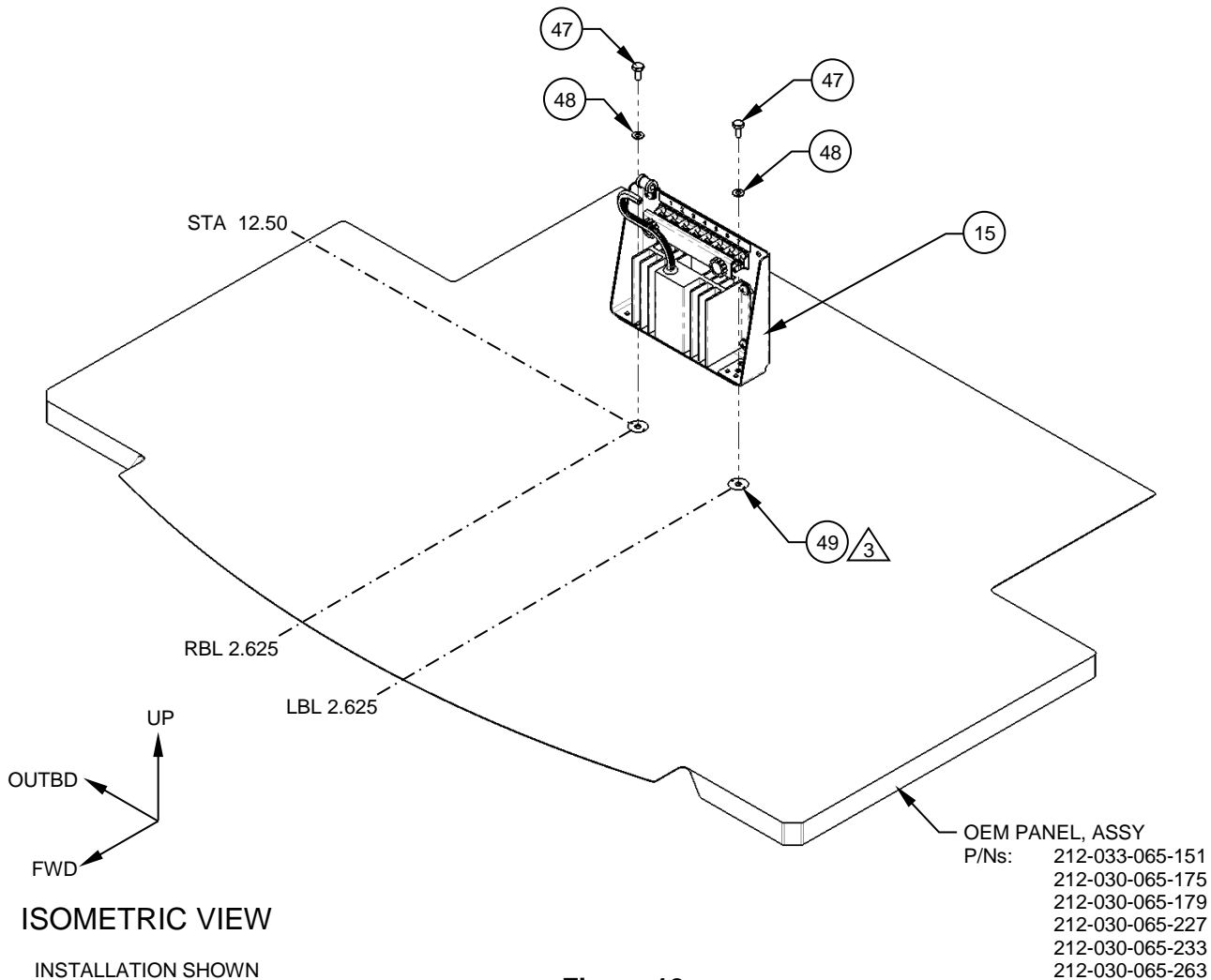


Figure 12



Installation Instructions (412)

- Lead the free (raw) ends of the supplied Wiring Harness, Assys (Item 55 & 59) from the Bracket, Assy (Item 50) to the Control Unit, Assy (Item 15) on the radio rack and wire accordingly. Reference Figure 13.

NOTE: Ensure Wiring Harness, Assys (Item 55 & 59) are properly secured to avoid the possibility of pinching, chaffing or other damage to the wires.

- Locate and install the Toggle Switch (Item 46) in a suitable location on the flight control panel. Label the switch as necessary.
- Wire the Toggle Switch (Item 46) and pulse control to the aircraft. Reference Figure 13.

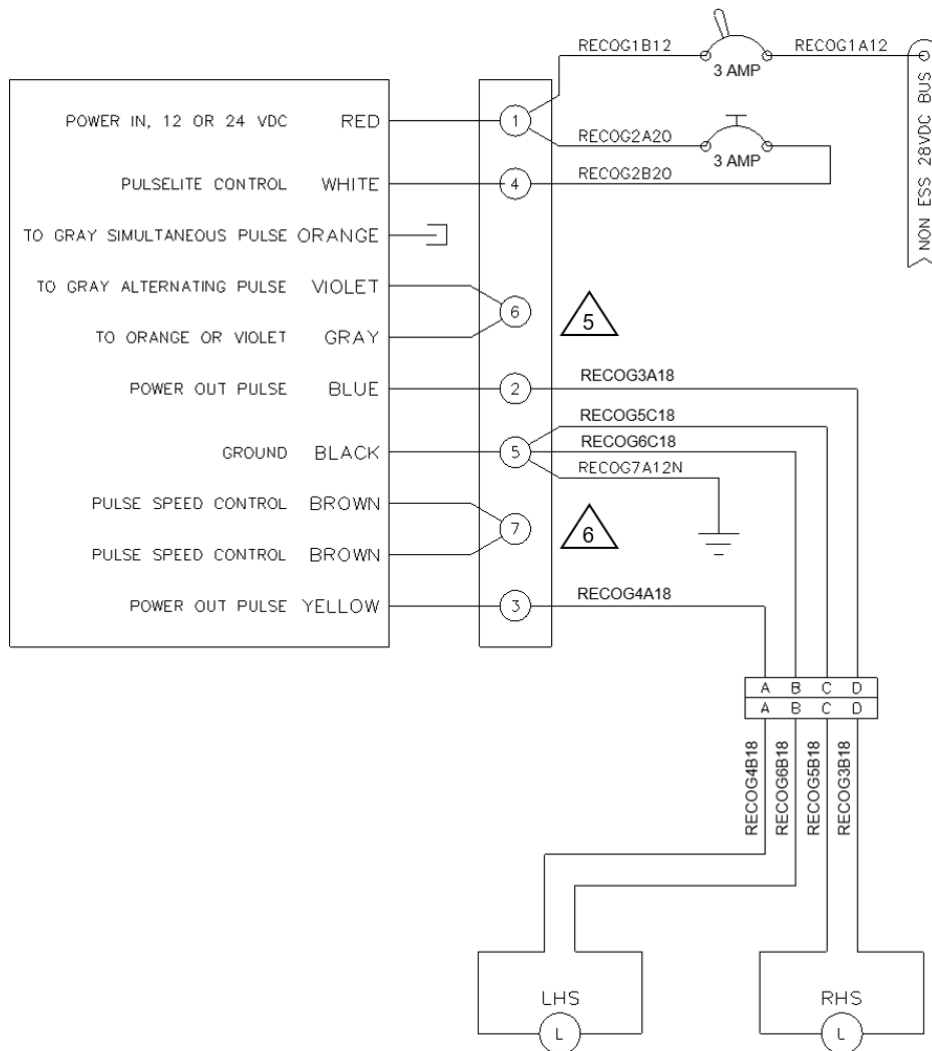


Figure 13



Installation Instructions (412)

28. Re-install inverter bay panel.
29. Installation complete.
30. Perform a General Inspection of all items to ensure proper installation. **Test the toggle switch, circuit breakers and Pulse Lights for proper function.**
31. Update the aircraft logbook for the installation of the Cargo Mirror/Pulse Light, Kit