

## RECORDERS

### 1. DESCRIPTION

This section describes those components used for recording data not related to specific systems. This includes the hour meters and aircraft data logger.

*Serials 0002 thru 1820, 1822 thru 1839, 1841 thru 1862 before SB 2X-31-01:* The airplane is equipped with an hour meter located inside the aft console glove box between the crew seats. Recording begins when the BAT 1 switch is ON and either the ALT 1 or ALT 2 switch is ON.

- *Serials 0002 thru 1601, 1603 thru 1643, 1645 thru 1662:* 28 VDC for hour meter operation is supplied through the 5-amp ENGINE INST circuit breaker.
- *Serials 1602, 1644, 1663 thru 1862:* 28 VDC for hour meter operation is supplied through the 5-amp FUEL QTY / HOBBS circuit breaker on Main Bus 1.

*Serials 1821, 1840, 1863 & subs and Serials 0002 thru 1820, 1822 thru 1839, 1841 thru 1862 after SB 2X-31-01:* The airplane is equipped with two hour meters located inside the aft console glove box between the crew seats. The #1 hour meter, labeled HOBBS, begins recording when the BAT 1 switch is ON and either the ALT 1 or ALT 2 switch is ON. The #2 hour meter records flight time and is labeled FLIGHT. Recording begins when the airplane reaches a speed of approximately 35 kts and is controlled by a differential pressure switch connected to the pitot-static system.

- *Serials 0002 thru 1601, 1603 thru 1643, 1645 thru 1662:* 28 VDC for #1 hour meter operation is supplied through the 5-amp ENGINE INST circuit breaker.
- *Serials 1602, 1644, and 1663 & subs:* 28 VDC for both hour meter operation is supplied through the 5-amp FUEL QTY / HOBBS circuit breaker on Main Bus 1.

*Serials 2438 & subs:* The airplane is equipped with an Aircraft Data Logger (ADL). The ADL consists of two main components: the Data Transfer Unit (DTU) and the Recoverable Data Module (RDM).

The Data Transfer Unit is located behind the console under the RH glareshield. The DTU-100 controls and writes data to the recoverable data module. A range of inputs are transmitted to the DTU from other devices including GPS and data acquisition unit information, CAPS status, autopilot mode, stall warning, low fuel, flap position, and ice protection status. In addition, voltage levels on two electrical buses are recorded.

The Recoverable Data Module is located in the shear web of the aft vertical spar in front of the rudder. Data transmitted to the DTU is formatted and stored to the RDM.

The ADL system is powered by 28 VDC through the 5-amp STALL WARNING circuit breaker on the Essential Bus and the 5-amp FUEL QUANTITY circuit breaker on the Main Bus #1.

**2. MAINTENANCE PRACTICES**

**A. Hour Meter (See Figure 31-301)**

- (1) Removal - Hour Meter
  - (a) *Serials 0002 thru 1601, 1603 thru 1643, 1645 thru 1662:* Pull ENGINE INST circuit breaker.
  - (b) *Serials 1602, 1644, 1663 & subs:* Pull FUEL QTY / HOBBS circuit breaker.
  - (c) Remove LH crew seat. (Refer to 25-10)
  - (d) Remove left aft console trim. (Refer to 25-10)
  - (e) Disconnect electrical terminals from hour meter.
  - (f) Open center console glove box.
  - (g) Using a plastic scraper, gently pry hour meter loose from double sided tape. Remove hour meter from airplane.
- (2) Installation - Hour Meter
  - (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Isopropyl Alcohol	TT-I-735 Grade A or B	Any Source	Solvent clean.
Tape, Two Sided Foam, 1/2"	4932 Acrylic Adhesive	3M	Adhesive.

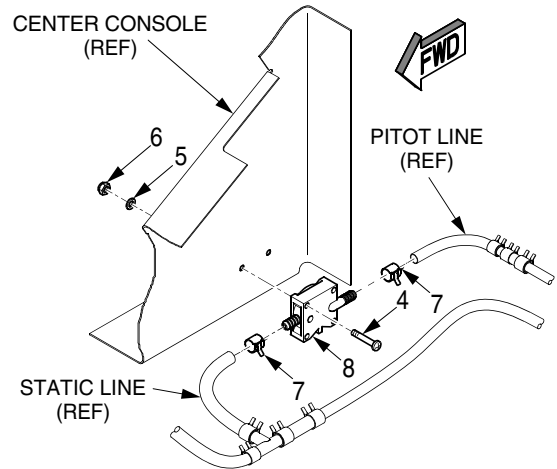
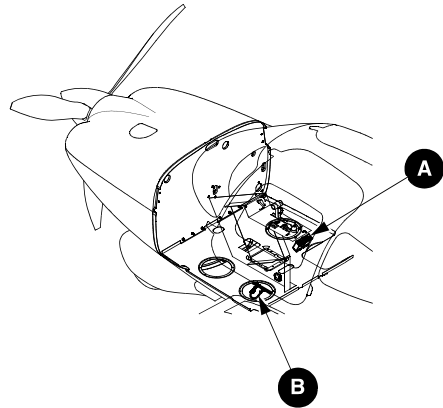
- (b) Solvent clean mating surfaces of hour meter and center console bracket. (Refer to 20-30)
- (c) Apply two sided tape to hour meter.
- (d) Position hour meter to center console bracket and press firmly to adhere.
- (e) Connect electrical terminals to hour meter.
- (f) Install left aft console trim. (Refer to 25-10)
- (g) Install LH crew seat. (Refer to 25-10)
- (h) *Serials 0002 thru 1601, 1603 thru 1643, 1645 thru 1662:* Reset ENGINE INST circuit breaker.
- (i) *Serials 1602, 1644, 1663 & subs:* Reset FUEL QTY / HOBBS circuit breaker.

**B. Differential Pressure Switch - Serials 0002 - 1820, 1822 - 1839, 1841 - 1862 after SB 2X-31-01  
(See Figure 31-301)**

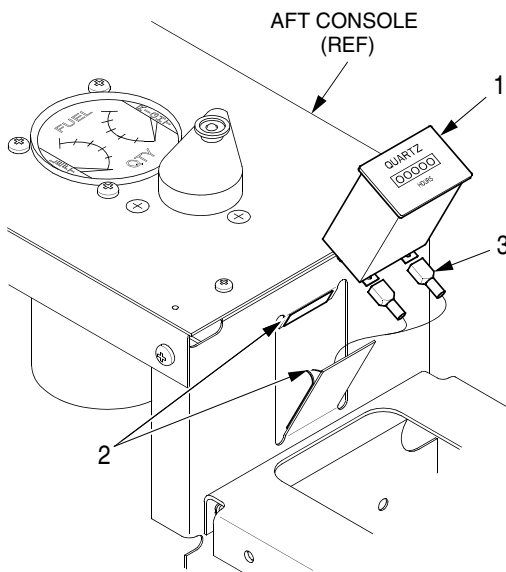
- (1) Removal - Differential Pressure Switch
  - (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
  - (b) *Serials 0002 thru 1601, 1603 thru 1643, and 1645 thru 1662:* Pull ENGINE INST circuit breaker.
  - (c) *Serials 1602, 1644, and 1663 thru 1862:* Pull FUEL QTY / HOBBS circuit breaker.
  - (d) Remove LH crew seat. (Refer to 25-10)
  - (e) Remove access panel CF2L. (Refer to 06-00)
  - (f) Disconnect electrical terminals from switch.
  - (g) Remove spring clip securing pitot line to switch.
  - (h) Remove spring clip securing static line to switch.
- (2) Installation - Differential Pressure Switch
  - (a) Position pitot line to switch and secure with spring clip.
  - (b) Position static line to switch and secure with spring clip.
  - (c) Connect electrical terminals to switch.
  - (d) Perform Functional Test - Pitot Plumbing System. (Refer to 34-10)
  - (e) Perform Functional Test - Static Plumbing System. (Refer to 34-10)
  - (f) Install access panel CF2L. (Refer to 06-00)
  - (g) Install LH crew seat. (Refer to 25-10)
  - (h) *Serials 0002 thru 1601, 1603 thru 1643, and 1645 thru 1662:* Reset ENGINE INST circuit breaker.
  - (i) *Serials 1602, 1644, and 1663 thru 1862:* Reset FUEL QTY / HOBBS circuit breaker.

**C. Differential Pressure Switch - *Serials 1821, 1840, 1863 & subs* (See Figure 31-301)**

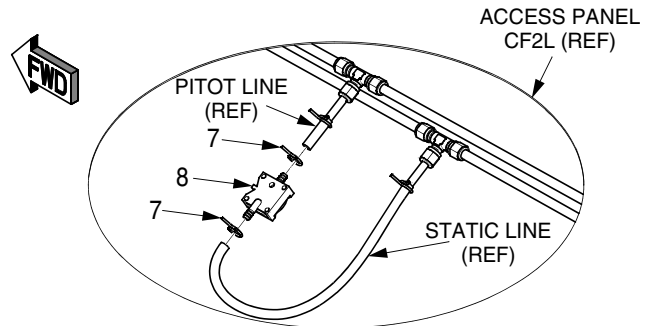
- (1) Removal - Differential Pressure Switch
  - (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
  - (b) Pull FUEL QTY / HOBBS circuit breaker.
  - (c) Remove right mid console trim. (Refer to 25-10)
  - (d) Disconnect electrical terminals from switch.
  - (e) Remove spring clip securing pitot line to switch.
  - (f) Remove spring clip securing static line to switch.
  - (g) Remove screw, washer, and nut securing switch to center console.
- (2) Installation - Differential Pressure Switch
  - (a) Position switch to center console and secure with screw, washer, and nut.
  - (b) Position pitot line to switch and secure with spring clip.
  - (c) Position static line to switch and secure with spring clip.
  - (d) Connect electrical terminals to switch.
  - (e) Perform Functional Test - Pitot Plumbing System. (Refer to 34-10)
  - (f) Perform Functional Test - Static Plumbing System. (Refer to 34-10)
  - (g) Install right mid console trim. (Refer to 25-10)
  - (h) Reset FUEL QTY / HOBBS circuit breaker.



Serials 1821, 1840, 1863 & subs.

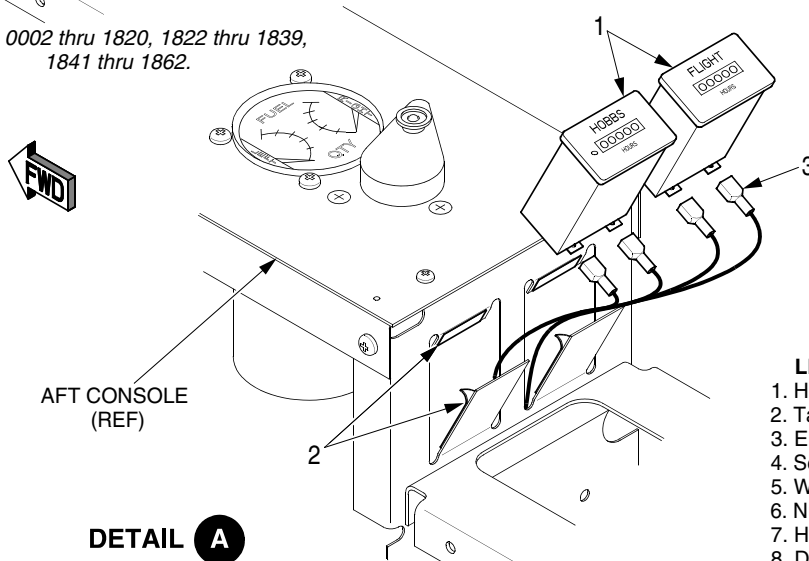


Serials 0002 thru 1820, 1822 thru 1839, 1841 thru 1862.



Serials 0002 thru 1820, 1822 thru 1839, 1841 thru 1862 after SB 2X-31-01.

**DETAIL B**



**DETAIL A**

**LEGEND**

- 1. Hour Meter
- 2. Tape
- 3. Electrical Terminal
- 4. Screw
- 5. Washer
- 6. Nut
- 7. Hose Clamp
- 8. Differential Pressure Switch

Serials 1821, 1840, 1863 & subs,  
Serials 0002 thru 1820, 1822 thru 1839, 1841 thru 1862 after SB 2X-31-01.

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**Figure 31-301**  
**Hour Meter Installation**

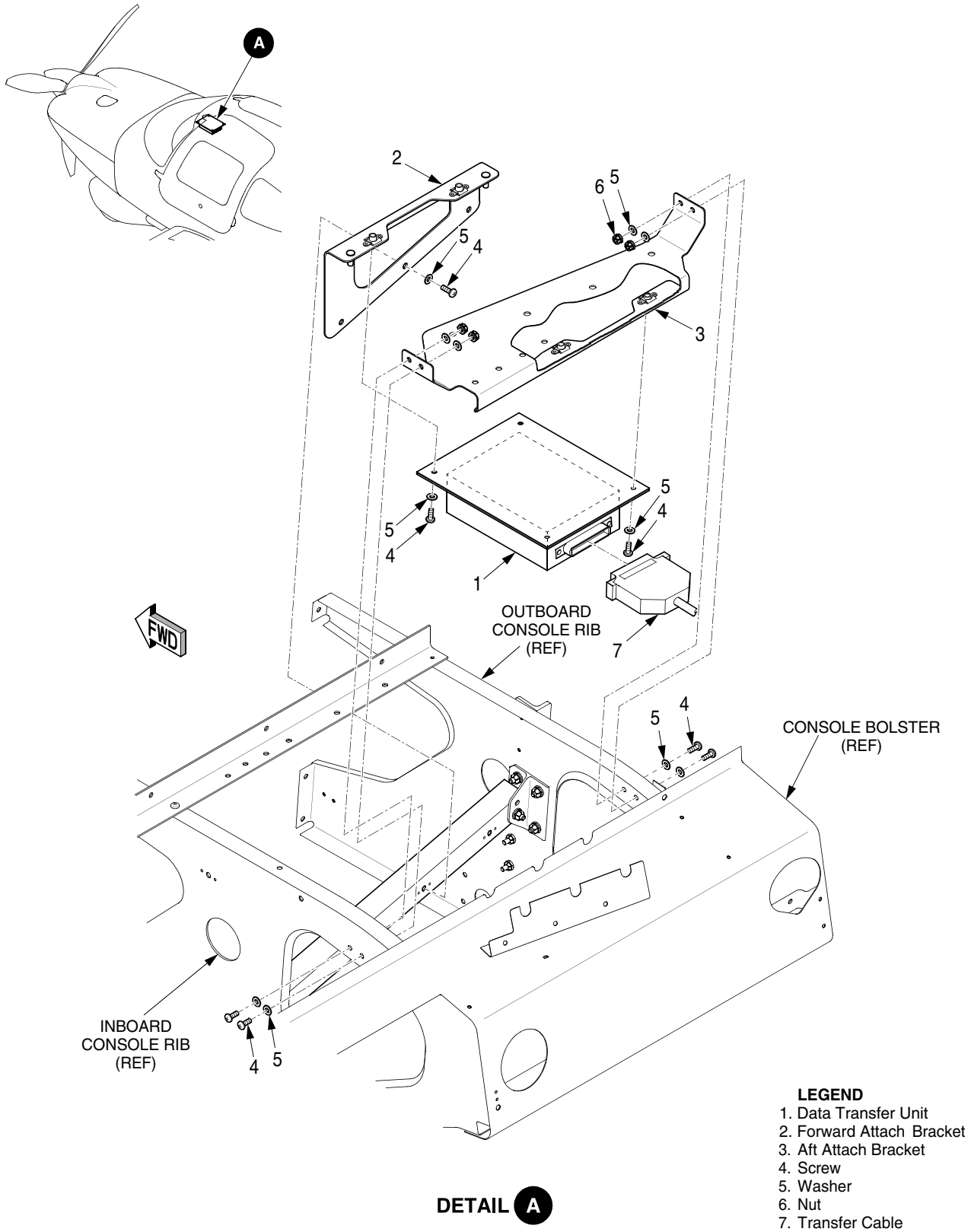
EFFECTIVITY:  
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**D. Data Transfer Unit (DTU) - *Serials 2438 & subs* (See Figure 31-302)**

- (1) Removal - Data Transfer Unit
  - (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
  - (b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
  - (c) Disconnect battery. ([Refer to 24-30](#))
  - (d) Remove RH kick plate. ([Refer to 25-10](#))
  - (e) Disconnect transfer cable from DTU.
  - (f) At RH forward console, remove screws and washers securing DTU to attach brackets. Remove DTU from airplane.
- (2) Installation - Data Transfer Unit
  - (a) At RH forward console, position DTU to attach brackets and secure with screws and washers.
  - (b) Connect transfer cable connector to DTU.
  - (c) Install RH kick plate. ([Refer to 25-10](#))
  - (d) Connect battery. ([Refer to 24-30](#))
  - (e) Reset ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
  - (f) Perform Functional Test - Aircraft Data Logger System. ([Refer to 05-50](#))

**E. Data Transfer Unit Brackets - *Serials 2438 & subs* (See Figure 31-302)**

- (1) Removal - Data Transfer Unit Brackets
  - (a) Remove data transfer unit. ([Refer to 31-30](#))
  - (b) Remove screws, washers, and nuts securing aft attach bracket to console ribs. Remove aft attach bracket.
  - (c) Remove screws and washers securing forward attach bracket to strut between console ribs. Remove forward attach bracket.
- (2) Installation - Data Transfer Unit Brackets
  - (a) Position forward attach bracket to strut between console ribs and secure with screws and washers.
  - (b) Position aft attach bracket to console ribs and secure with screws, washers, and nuts.
  - (c) Install data transfer unit. ([Refer to 31-30](#))



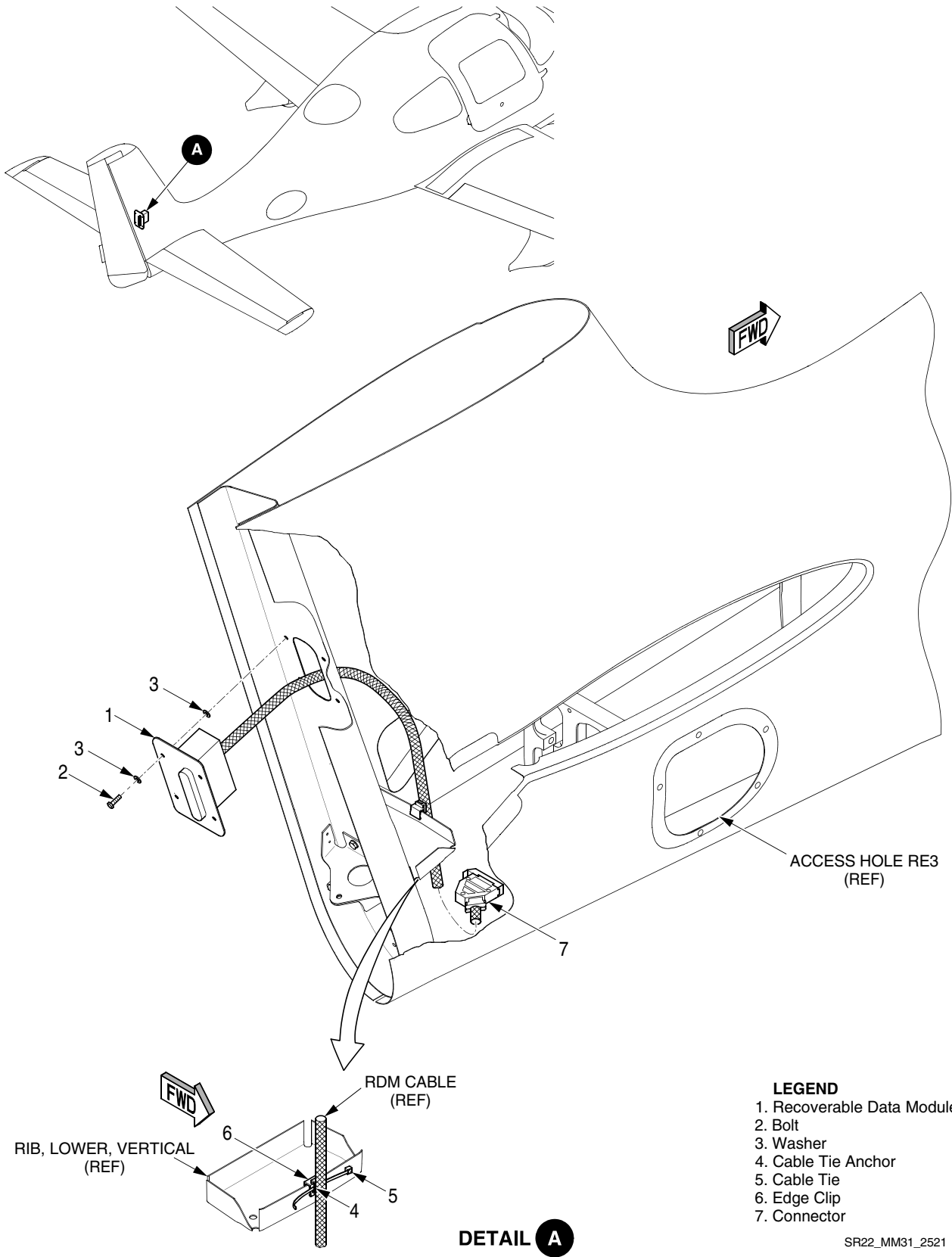
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**Figure 31-302**  
**Data Transfer Unit Installation - Serials 2438 & subs**



**F. Recoverable Data Module (RDM) - *Serials 2438 & subs* (See Figure 31-303)**

- (1) Removal - Recoverable Data Module
  - (a) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
  - (b) Pull ESSENTIAL and NON-ESSENTIAL AVIONICS circuit breakers.
  - (c) Disconnect battery. ([Refer to 24-30](#))
  - (d) Remove rudder. ([Refer to 55-40](#))
  - (e) Remove screws and washers securing recoverable data module to empennage.
- (2) Installation - Recoverable Data Module
  - (a) Position recoverable data module to empennage and secure with screws and washers.
  - (b) Install rudder. ([Refer to 55-40](#))
  - (c) Connect battery. ([Refer to 24-30](#))
  - (d) Perform Functional Test - Aircraft Data Logger System. ([Refer to 05-50](#))



**Figure 31-303**  
**Recoverable Data Module Installation - Serials 2438 & subs**