

FUEL SELECTORS OFF WARNING SYSTEM - MAINTENANCE PRACTICES

1. General

- A. The fuel selectors off warning system consists of two horns installed on the overhead console; three relays, one installed on the circuit breaker panel and two on the avionics panel behind the circuit breaker panel; four switches, two on each side installed adjacent to each other at the aft wing root shutoff valve of each wing; a circuit breaker on the circuit breaker panel and a crew alert system (CAS) message or an annunciator light on the annunciator panel.
- B. For Airplanes 20800500 and On and Airplanes 208B2000 and On the FUEL SELECT OFF (red) CAS message is shown on the Garmin Display Unit (GDU) configured as the Primary Flight Display (PFD). For more data applicable to the GDU functions refer to the G1000 Line Maintenance Manual (Cessna Caravan) P/N 190-00869-00 found in the Introduction, List of Publications.
- C. Airplanes 20800001 thru 20800499 and Airplanes 208B0001 thru 208B1999 have the FUEL SELECT OFF (red) annunciator light found on the annunciator panel.

2. Description and Operation

- A. The aural warning system is powered through the start circuit breaker with a circuit breaker installed in series to protect the integrity of the start system. The switches are actuated by a cam motion which gives a positive valve position indication. One switch on each side provides a ground signal to a relay when the shutoff valve is in the open position. When the switches are not providing a ground signal for the relays, they provide a ground signal during start for the FUEL SELECT OFF light and horn. The FUEL SELECT OFF light is powered by the annunciator circuit breaker. The other two switches provide a ground signal for the second horn when either shutoff valve is closed. Power is supplied to the second horn directly off the start circuit breaker via the start switch. When the start switch is engaged, a start command signal (24 VDC) is applied simultaneously to the Generator Control Unit, the second horn, and a relay. A current limiting resistor and diode are installed in series with the horn to protect the start system. The horn sounds as long as the start switch is engaged if either shutoff valve is closed. A relay is also actuated during starter engagement. The relay switch contacts provide a method of sounding the first horn and illuminating the red FUEL SELECT OFF light if either isolation valve is closed. Also the low fuel annunciator will illuminate if the tank selected is at or below 25 gallons

3. Warning Horns Removal/Installation (Airplanes 20800106 and On and Airplanes 20800001 thru 20800105 incorporating SK208-20)

- A. Remove Warning Horns (Refer to Figure 201).
 - (1) Remove screws (16) and remove cover (15) and trim panel (14).
 - (2) Remove screws (13) securing hinged mounting plate (12).
 - (3) Disconnect housing plug (4) from housing cap (5).
 - (4) Unscrew nut ring (7) and remove horn (6).
 - (5) Open zipper in headliner.
 - (6) Disconnect housing plug (11) from housing cap (10).
 - (7) Unscrew nut ring (8) and remove horn (9).
- B. Install Warning Horns (Refer to Figure 201).
 - (1) Position horn (9) through bracket and install nut ring (8).
 - (2) Connect housing plug (11) to housing cap (10).
 - (3) Close zipper in headliner.
 - (4) Position horn (6) through hinged mounting plate (12) and install nut ring (7).
 - (5) Connect housing plug (4) to housing cap (5).
 - (6) Secure hinged mounting plate (12) using screw (13).
 - (7) Install trim plate (14) and cover (15) using screws (16).
 - (8) Check horns for operation.

4. Relay Assembly Removal/Installation

- A. Remove Relay Assembly (Refer to Figure 201).
 - (1) Remove left sidewall circuit breaker panel by removing screws securing panel to side of airplane.
 - (2) Disconnect electrical receptacle (21).

(3) Remove nuts, washers, and screws securing relay assembly (22) to panel (23).

B. Install Relay Assembly (Refer to Figure 201).

(1) Install relay assembly (22) on panel (23) using screws, washers, and nuts.

(2) Connect electrical receptacle (21).

(3) Install circuit breaker panel to side of airplane.

5. Fuel Off Warning Switches Removal/Installation

A. Remove Fuel Off Warning Switches (Refer to Figure 201).

(1) Open right cowl and disconnect airplane battery.

(2) Remove lower wing access covers to gain access to that segment of system located between fuel tanks and fuselage.

(3) Remove electrical leads from switches; tag for identification for reinstallation.

(4) Remove nuts (30), screws (27), and remove switches (28) and actuators (26) from bracket (29).

B. Install Fuel Off Warning Switches (Refer to Figure 201).

(1) Install switches (28) and actuators (26) on bracket (29) using screws (27) and nuts (30).

(2) Connect electrical leads to switches (28), then remove tags installed for identification.

(3) Connect airplane battery and check switch operation.

(4) Install lower Wing access covers.

6. Fuel Warning Switches Adjustment

A. Adjust Fuel Warning Switches (Refer to Figure 201).

(1) Slotted holes are provided in bracket (29) for switch adjustment. Adjust switches and when fuel selector is moved from ON to OFF position and handle (25) moves 0.50 inch the horn will sound.

7. Fuel Selector Off Warning System Check (Airplanes 20800500 and On and Airplanes 208B2000 and On)

A. To do a test of the Fuel Selector Off Warning System for Airplanes 20800500 and On and Airplanes 208B2000 and On that have the Garmin G1000 system installed refer to the applicable procedures found at Fuel Quantity Indicating Systems - Inspection/Check.

8. Fuel Selector Off Warning System Check (Airplanes 20800001 thru 20800499 and Airplanes 208B0001 thru 208B1999)

A. Annunciator Test.

(1) DAY-NIGHT switch in NIGHT position.

(2) ENG. INST. lighting rheostat full dim.

(3) Both fuel tank selectors ON.

(4) Turn BATTERY switch ON and verify FUEL SELECT OFF annunciator is extinguished and there are no warning horns sounding.

(5) Press ANNUN PANEL LAMP TEST switch and verify that FUEL SELECT OFF annunciator is illuminated (full bright) and two warning horns are sounding.

B. Circuit Test (In-Flight Mode).

(1) Both fuel tank selectors OFF.

(2) Turn BATTERY switch ON and verify that FUEL SELECT OFF annunciator is illuminated (full bright) and one warning horn is sounding.

(3) With fuel quantity less than 20 gallons per tank (LOW FUEL annunciator ON), turn left fuel tank selector ON and verify that annunciator is still illuminated and one warning horn is still sounding.

(4) Turn the left fuel tank selector OFF and right fuel tank selector ON and verify that annunciator is still illuminated and one warning horn is still sounding.

(5) Add fuel to left and right fuel tanks to extinguish the LEFT and RIGHT FUEL LOW annunciators.

(6) With right fuel tank selector ON and left selector OFF, verify that annunciator is extinguished and neither warning horn is sounding.

(7) Repeat step (6) with left fuel tank selector ON and right selector OFF.

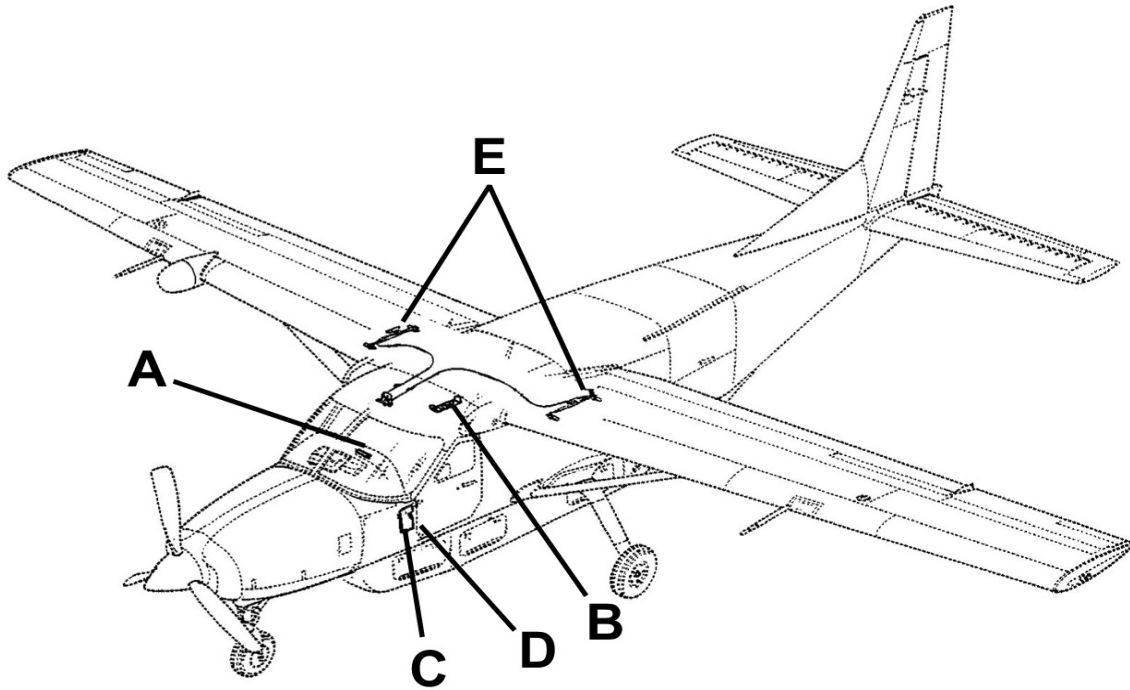
C. Circuit Test (Start Mode).

- (1) Both fuel tank selectors ON.
- (2) Move START switch to MOTOR and verify that FUEL SELECT OFF annunciator is extinguished and neither warning horn is sounding.
- (3) Turn left fuel tank selector OFF.
- (4) Move START switch to MOTOR and verify that FUEL SELECT OFF annunciator is illuminated and both warning horns are sounding.
- (5) Turn the left fuel tank selector ON and the right fuel tank selector OFF.
- (6) Repeat step (4).
- (7) Turn both fuel tank selectors OFF.
- (8) Repeat step (4).
- (9) Pull START CONT circuit breaker.
- (10) Turn both fuel tank selectors ON and verify that FUEL SELECT OFF annunciator is illuminated.
- (11) Reset START CONT circuit breaker.

NOTE: If the FUEL SELECT WARNING circuit breaker has popped or the START CONT circuit breaker has been pulled (possibly for ground maintenance), the FUEL SELECT OFF annunciator will be illuminated even with both fuel tank selectors ON. This is an indication that the fuel selector warning system has been deactivated.

Figure 201 : Sheet 1 : Fuel Selector Off Warning System

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ENGINE FIRE	OIL PRESS LOW	GENERATOR OFF	EMERGENCY PWR LEVER	AUX FUEL PUMP ON	FUEL PRESS LOW	STARTER ENERGIZED	IGNITION ON	3
VOLTAGE LOW	VACUUM LOW	RESERVOIR FUEL LOW	LEFT FUEL LOW	RIGHT FUEL LOW	STBY ELECT PWR ON	—	FUEL SELECT OFF	
DOOR WARNING	—	BATTERY OVERHEAT	BATTERY HOT	A/P OFF	A/P B.C.	STBY ELECT PWR INOP	WINDSHIELD ANTI-ICE	

DETAIL A

MODEL 208, 208 CARGOMASTER AND 208B PASSENGER (NOTE)

ENGINE FIRE	OIL PRESS LOW	GENERATOR OFF	EMERGENCY PWR LEVER	AUX FUEL PUMP ON	FUEL PRESS LOW	STARTER ENERGIZED	IGNITION ON	3
VOLTAGE LOW	VACUUM LOW	RESERVOIR FUEL LOW	LEFT FUEL LOW	RIGHT FUEL LOW	STBY ELECT PWR ON	INVERTER INOP	FUEL SELECT OFF	
DOOR WARNING	—	BATTERY OVERHEAT	BATTERY HOT	CHIP DETECTOR	STBY ELECT PWR INOP	WINDSHIELD ANTI-ICE	DE-ICE PRESSURE	

DETAIL A

MODEL 208, 208B AND 208B SUPER CARGOMASTER (NOTE)

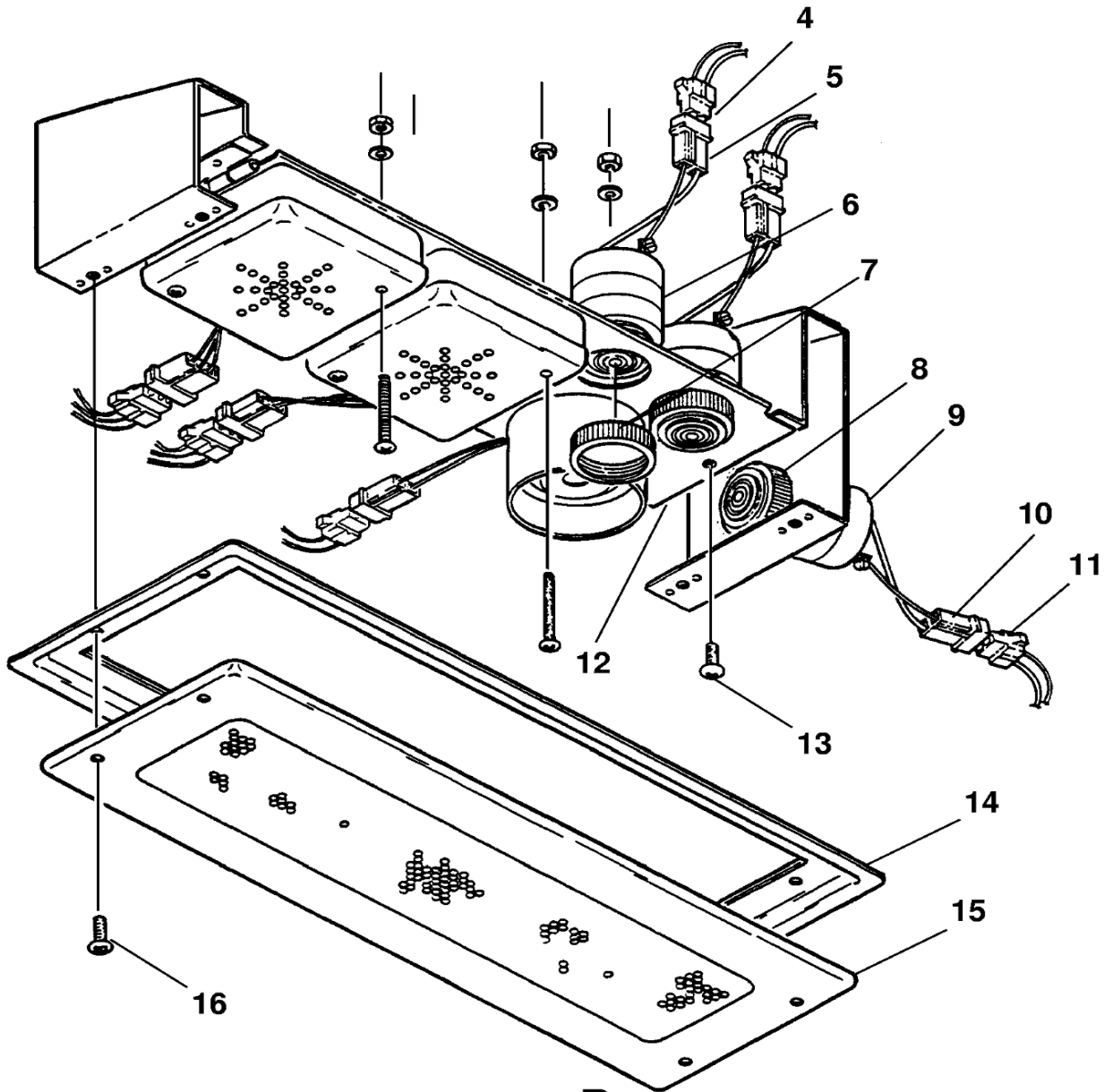
NOTE: AIRPLANES 20800001 THRU 20800499 AND AIRPLANES 208B0001 THRU 208B1999

1. LEFT FUEL LOW ANNUNCIATOR
2. RIGHT FUEL LOW ANNUNCIATOR
3. FUEL SELECTOR OFF ANNUNCIATOR

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 A2616X1033

Figure 201 : Sheet 2 : Fuel Selector Off Warning System

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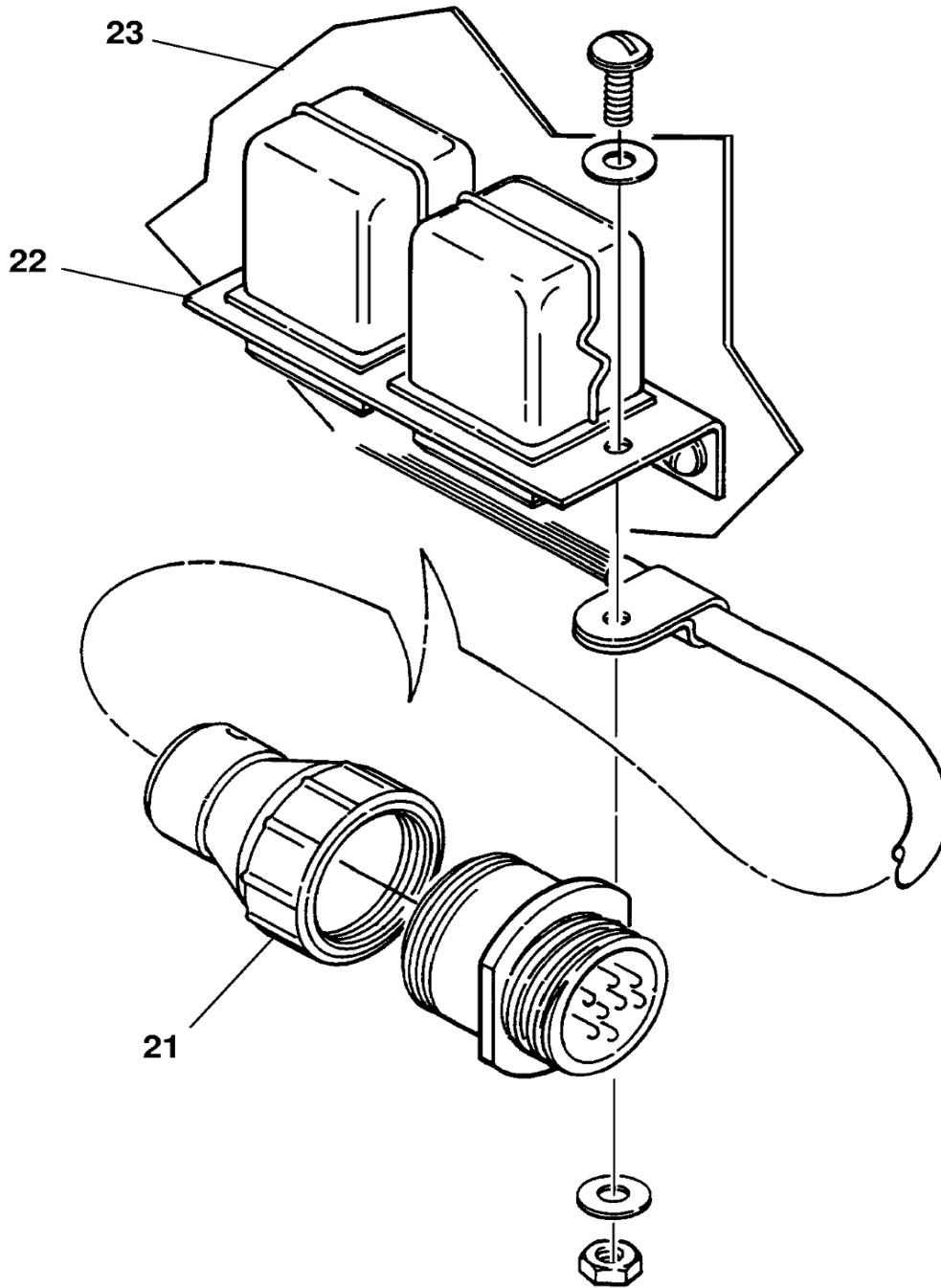
DETAIL B

- | | |
|-----------------|---------------------------|
| 4. HOUSING PLUG | 11. HOUSING PLUG |
| 5. HOUSING CAP | 12. HINGED MOUNTING PLATE |
| 6. HORN | 13. SCREW |
| 7. NUT RING | 14. TRIM PANEL |
| 8. NUT RING | 15. COVER |
| 9. HORN | 16. SCREW |
| 10. HOUSING CAP | |

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Figure 201 : Sheet 4 : Fuel Selector Off Warning System

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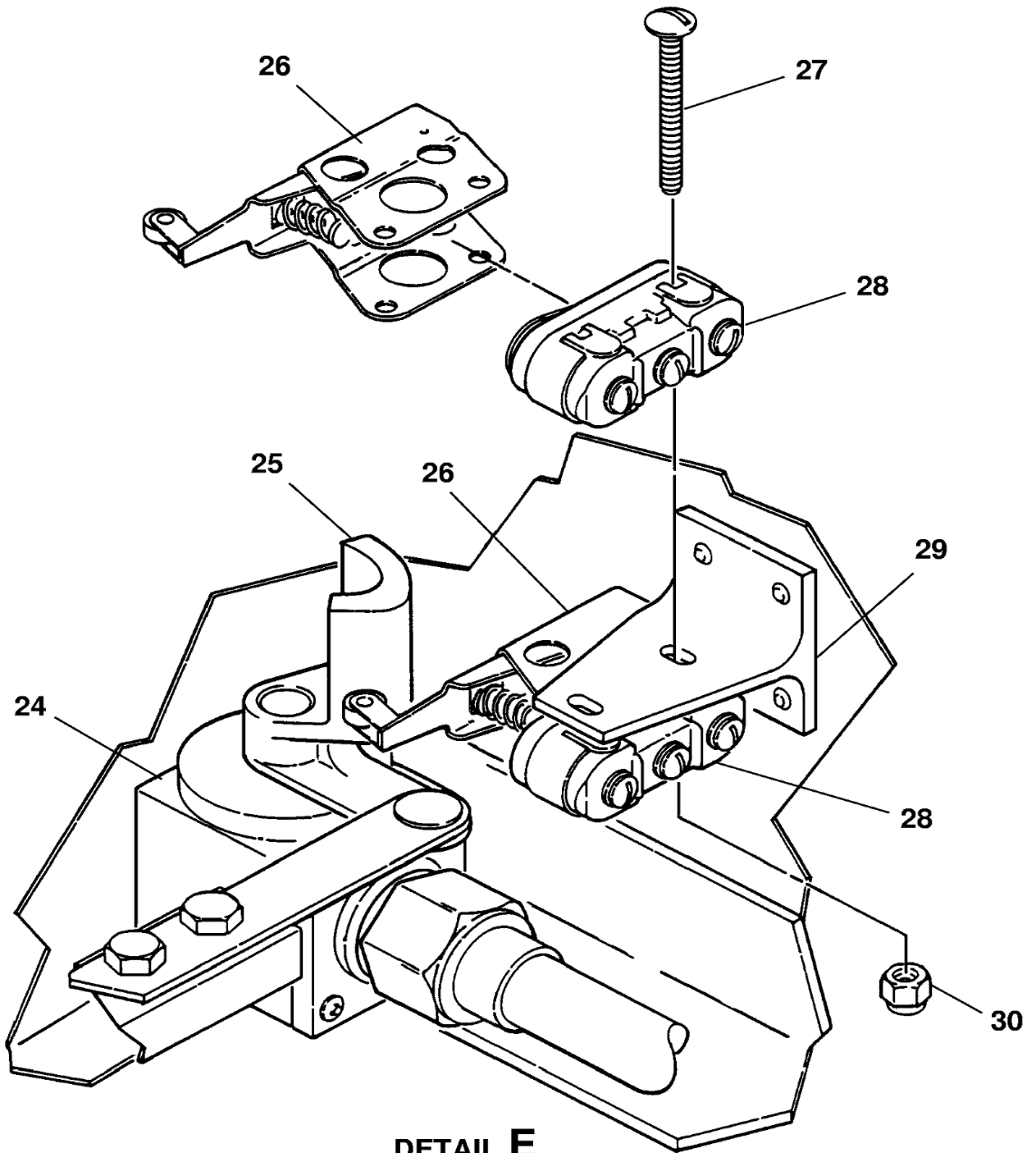
DETAIL D

- 21. RECEPTACLE
- 22. RELAY ASSEMBLY
- 23. PANEL

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Figure 201 : Sheet 5 : Fuel Selector Off Warning System

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|-----|----------|-----|---------|
| 24. | VALVE | 28. | SWITCH |
| 25. | HANDLE | 29. | BRACKET |
| 26. | ACTUATOR | 30. | NUT |
| 27. | SCREW | | |

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