



Service Kit

SK310-104B
Revised February 10, 1989

TITLE: AUXILIARY FUEL PUMP WIRING MODIFICATION

The following procedures provide instructions to replace existing auxiliary fuel pump switches, remove existing fuel pressure switches and modify existing wiring as required.

EFFECTIVITY:

<u>MODELS AFFECTED</u>	<u>SERIALS AFFECTED</u>	<u>SUB KIT</u>
310	35772 thru 310R2140	B1
320	320-0001 thru 320F0045	B1
335	335-0001 thru 335-0065	B1
340	340-0001 thru 340A1817	B2

NOTE

Aircraft equipped with the optional EL panel will be required to order 1 each 2670067-1 post light assembly in addition to the parts provided in this Kit.

340A aircraft with optional INLINE AUXILIARY tank boost pumps will require SK340-18A In-Line Auxiliary Fuel Pump Electrical Modification, if not already installed.

PARTS LIST:

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
SK310-104B1		
2	AN929-4J	Cap
1	D1625-1-13	Airplane Flight Manual Supplement
1	D1626-1-13	Supplemental Airplane Flight Manual

REF: MEB88-3
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PARTS LIST (Continued):

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
SK310-104B1 (Continued)		
1	D1627-13	Procedure Modification Notices
2	MS24658-21N	Switch - Toggle, Lever Lock
4	MS3367-1-9	Tie
4	S1021A6-8	Screw
4	S1367-1-6	Terminal
4	S1370-2	Splice
4	S1557-1	Cap - Insulated Wire
1	S1829-1	Terminal
6 Ft.	S2589-18-9	Wire
1	2505059-4	Placard
1	2505059-6	Placard
1	5198526-5	Placard
1	5198526-6	Placard
1		Instructions

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
SK310-104B2		
1	D1625-1-13	Airplane Flight Manual Supplement
1	D1626-1-13	Supplemental Airplane Flight Manual
1	D1627-13	Procedure Modification Notices
2	MS20822-4-4	Elbow
2	MS24658-21N	Switch - Toggle, Lever Lock
4	MS3367-1-9	Tie
4	S1021A6-8	Screw
4	S1367-1-6	Terminal
4	S1370-2	Splice
4	S1557-1	Cap - Insulated Wire
6 Ft.	S2589-18-9	Wire
1	2505059-4	Placard
1	2505059-6	Placard
1	5198526-5	Placard
1		Instructions

CHANGE IN WEIGHT AND BALANCE:

WEIGHT INCREASE

Negligible.

INSTALLATION INSTRUCTIONS:

- A. Removal of fuel pressure switch and components, models 310, 320 and 335, (refer to Detail A - Figure 1).
1. Disconnect battery cable from airplane and turn fuel selector switch OFF.
 2. Remove RH and LH cowling from airplane to gain access to fuel pressure switches (2).
 3. Locate the fuel pressure switches (2) which are secured to a bracket on the upper aft portion of each engine.
 4. Remove existing sta-straps and clamps as required to unplug the wire connector housing to the switch. Disconnect the fuel line (1) from the fuel pressure switch (2).
 5. Remove the hardware, retaining the switch to the bracket, and discard the switch, bracket and hardware. Tie the disconnected connector to the engine mount using MS3367-1-9 Tie.
 6. Disconnect the other end of the fuel line (1) from the fitting on the fuel metering unit and discard line. Install a AN929-4J cap on the metering unit fitting.
 7. Repeat the procedure for the opposite engine.
- B. Removal of fuel pressure switch and components, model 340 (refer to Detail A - Figure 1 - Sheet 2).
1. Disconnect battery cable from airplane and turn fuel selector switch OFF.
 2. Remove RH and LH cowling from airplane to gain access to fuel pressure switches (2).
 3. Locate the fuel pressure switches (2) which are mounted on the fuel pressure regulator (5).
 4. Remove existing sta-straps and clamps as required to unplug the wire connector housing to the switch.
 5. Remove fuel pressure switch (2) from tee (7). Disconnect fuel line (6) from tee (7).

6. Remove tee (7) from fuel pressure regulator (5).

NOTE

Apply Loctite Series 69 "Hydraulic Sealant" sparingly to the male threads of the MS20822-4-4 Elbow. Sealant is to be applied to only 3/4 of a thread turn and must not be applied to the first thread. Allow 30 minutes curing time before pressure testing.

7. Install MS20822-4-4 Elbow (8) in fuel pressure regulator (5) and connect fuel line (6) to elbow (8), (refer to Detail B-Figure 1-Sheet 2).
8. Repeat the procedure for the opposite engine.

C. Removal of the existing RH and LH auxiliary fuel pump switches (refer to Figure 2 - Sheets 1 thru 7).

1. Remove Pilot's seat from airplane.
2. Remove existing auxiliary fuel pump switches in location (3) from the lower LH instrument panel.
3. Remove wires from switches and discard switches.

NOTE

Be sure to identify each wire in reference to each switch terminal for new switch replacement.

D. Postlight installation for aircraft with optional EL panel (refer to Figure 2 - Sheet 7).

1. Layout and drill hole (5) thru instrument panel.
2. Install S1829-1 terminal to the wire attached to 2670067-1 postlight assembly.
3. Install the postlight (5) in the panel and fasten the S1829-1 terminal to the terminal block located on the forward side of the instrument panel.

E. Installation of new RH and LH auxiliary fuel pump switches (refer to Figure 2 - Sheets 1 thru 8).

1. Install wires on the switches (3) per appropriate wiring diagrams (refer to Figure 3).

2. Install switches - lever lock (3) in instrument panel using nuts and washers furnished with switches (3).

NOTE

The switches (3) mount with the keyway down adjacent to the index hole. The switches lockout of the side opposite the keyway which is the up (high) position.

3. Install placards (2 and 4) on instrument panel over the silkscreen ON as shown in Figure 2, refer to appropriate figure sheet to match model and serial of aircraft.
- F. Modify existing wiring per appropriate wiring diagrams (refer to Figure 3 - Sheets 1 thru 8).
1. This modification bypasses boost relay.
 2. Low boost circuit is unchanged.
 3. High boost is accomplished by:
 - (a) Jumper across boost relay (310).
 - (b) Adding wire from high switch terminal to primer switch.
 4. Pressure switch wires are spliced on early 310s, capped and stowed on all others.
 5. On 340A0001 & On the second section of the boost pump switch controlled the auxiliary inline pumps. Wires to this section are spliced together and the switches installed on the auxiliary tank fuel selector valves by Service Kit SK340-18A (340A0001 thru 340A0469) or standard (3400470 & On) control pumps.
 6. Refer to the appropriate airplane Maintenance Manual if questions arise since some items such as wire numbers may be different even though the circuit function is the same.
- G. Run a functional switch and pump test as follows:
1. Reconnect battery cables and turn master switch ON, fuel selector valves ON and auxiliary fuel pump switches in the OFF position.

NOTE

The oil pressure switch must be bypassed to perform this test on all models 310I thru 310Q and Models 310C, D, F, G and H that have SK310-53 Oil Pressure Switch Installation Kit installed.

2. Move RH auxiliary pump switch down to LOW position and check RH pump for operation at low speed. Pull switch toggle back and up over OFF position to HIGH position and check pump for operation at high speed, then move switch to OFF position.
 3. Repeat the same procedures for the LH auxiliary fuel pump switch as described in the previous paragraph.
 4. Verify that the left and right auxiliary inline pumps (340A) operate when the auxiliary tanks are selected.
 5. Turn master switch OFF and fuel selector valves OFF.
- H. Reinstall all items removed for access to accomplish this modification.
- I. Install placard (1) as close to switches as possible and secure with screws (1) as shown (refer to Figure 2).
- J. Auxiliary Fuel Pump Switching System Supplements:
1. Select the appropriate operating information supplement (D1625-1-13 or D1626-1-13) per serial effectivity of airplane and the adhesive-backed sheet containing the procedure modification notices (D1627-13).
 2. Place the appropriate operating information supplement at the front of the manual or handbook used to operate the airplane.
 3. The D1627-13 adhesive-backed modification notices should be completed by the owner, then trimmed out and attached to the manual, handbook and checklist for the airplane. This will alert all operators that the auxiliary fuel pump switching system in the airplane has undergone a modification and that operating procedures in the manual/handbook and checklist have been superseded by information in the supplement. For airplanes provided with a Flight Manual, Owner's Manual and Checklist all three notices will be needed; if an Owner's Manual and Checklist or a Pilot's Operating Handbook and Checklist were furnished with the airplane, only two of the notices must be used. Attach the notices to the back of the title page of the Flight Manual or Pilot's Operating Handbook and/or to the cover of the Owner's Manual. An additional notice should be attached to an appropriate location on the Checklist.
- K. Make an entry in the airplane logbook stating this service kit has been installed.

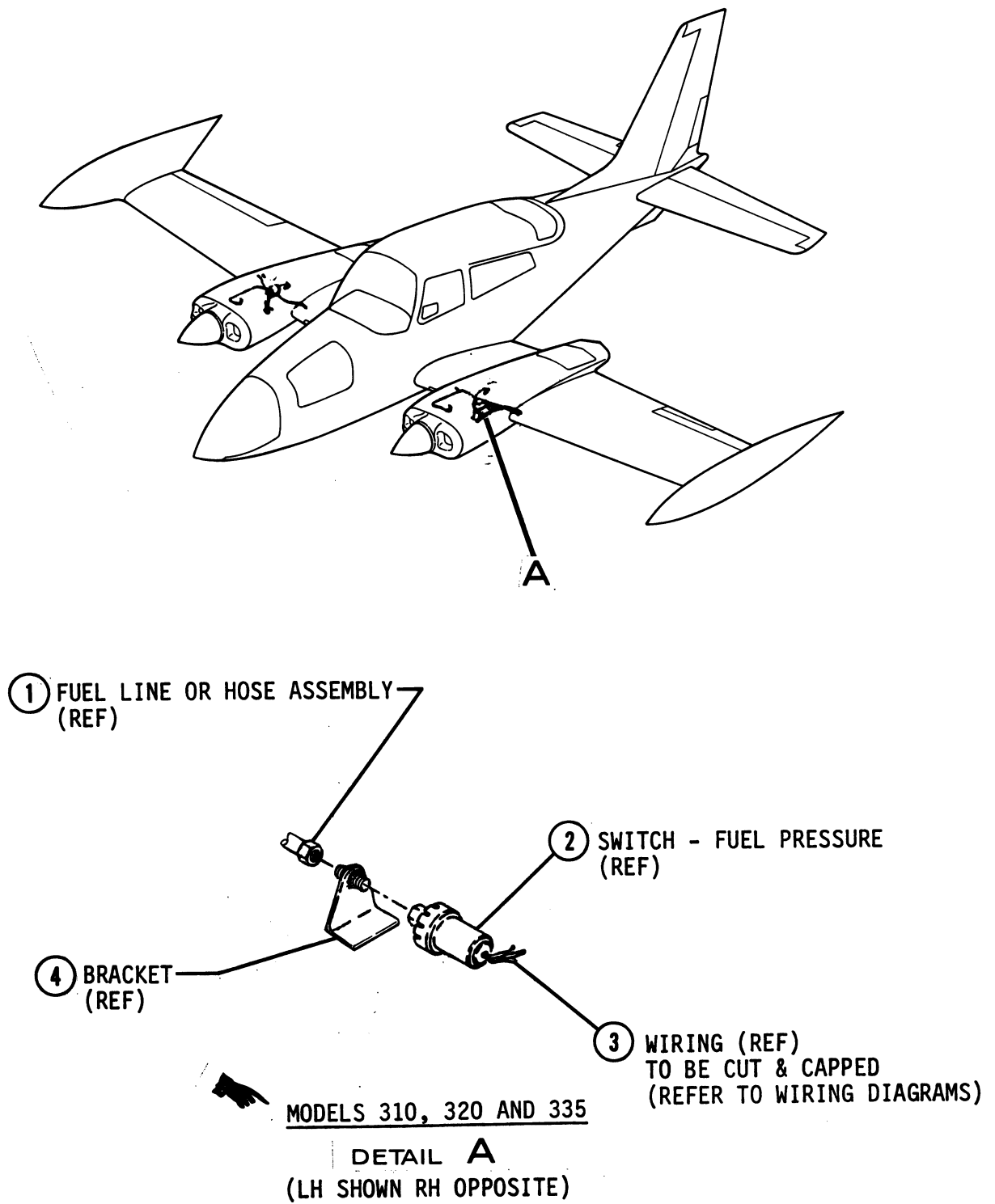


Figure 1. Auxiliary Fuel Pump System Modification - Sheet 1 of 2

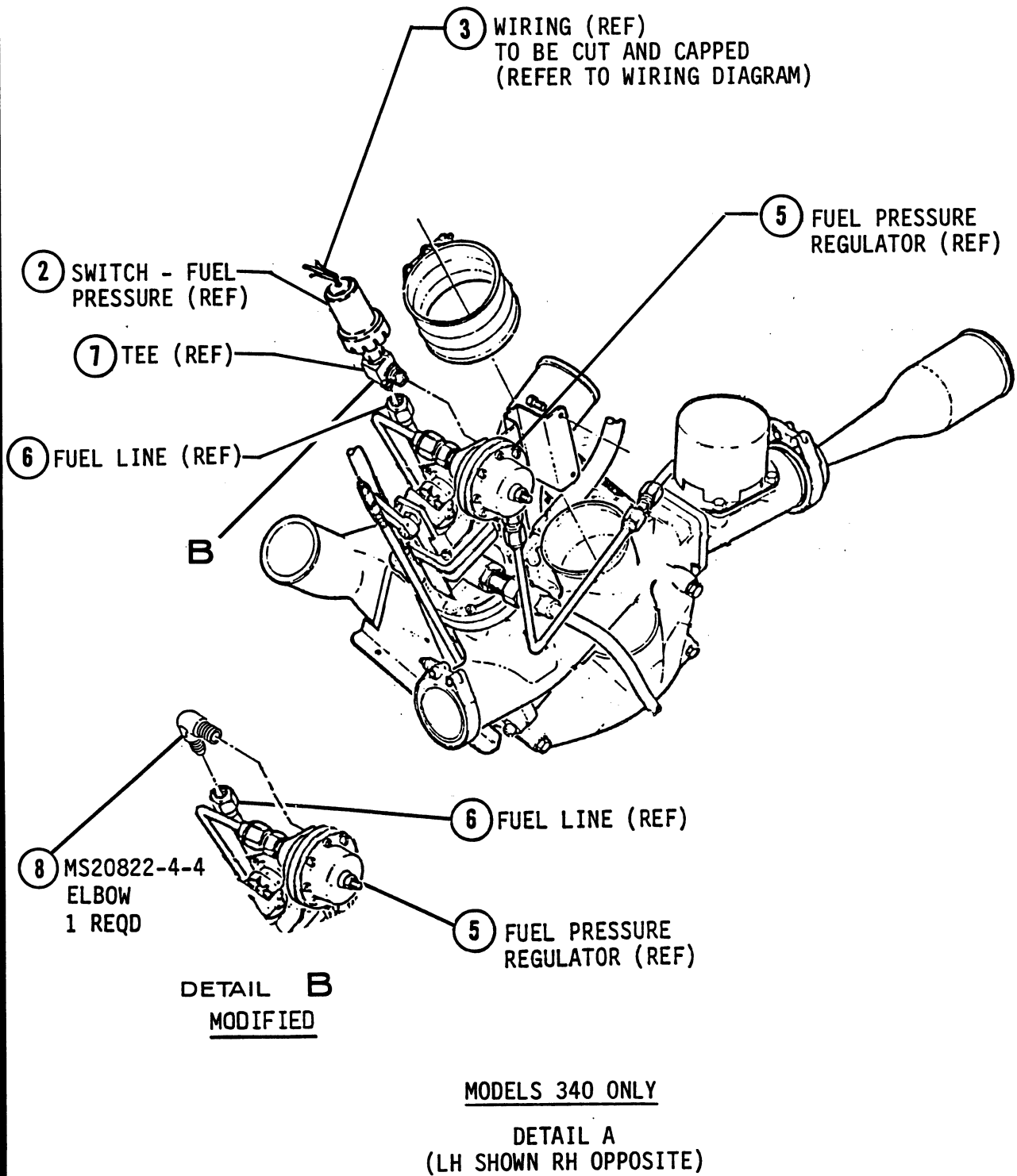
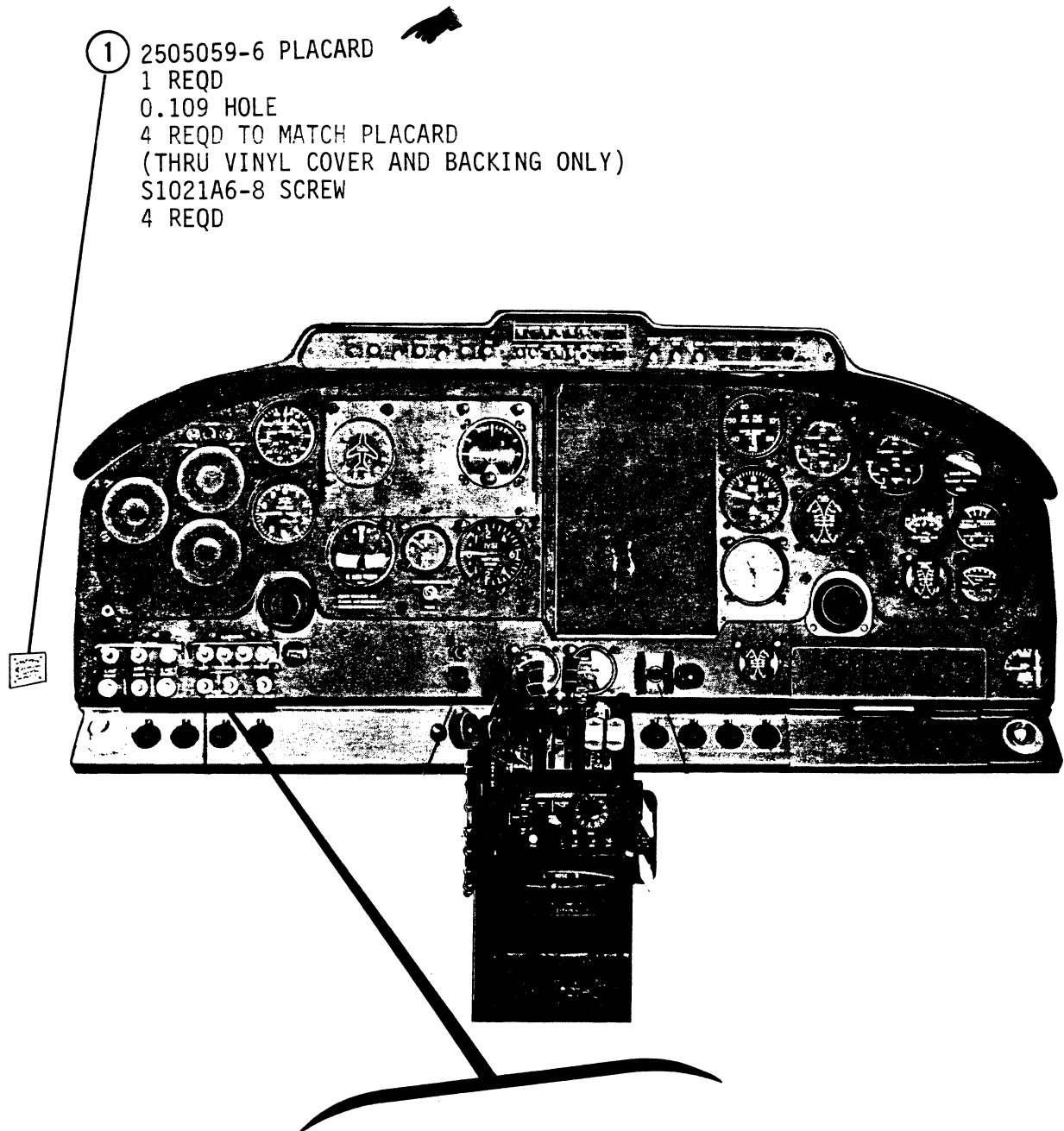


Figure 1. Auxiliary Fuel Pump System Modification - Sheet 2



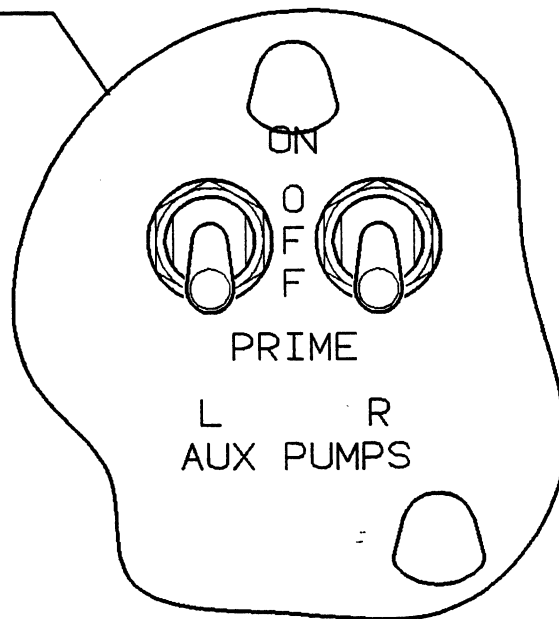
- ① 2505059-6 PLACARD
 1 REQD
 0.109 HOLE
 4 REQD TO MATCH PLACARD
 (THRU VINYL COVER AND BACKING ONLY)
 S1021A6-8 SCREW
 4 REQD

THE NEXT FIVE PAGES OF FIGURE 2.
 WILL CALL OUT THE SWITCHES AND
 PLACARDS IN THE APPROXIMATE POSITION
 SHOWN FOR THE MODELS AND SERIALS
 LISTED ON EACH PAGE.

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 1 of 8

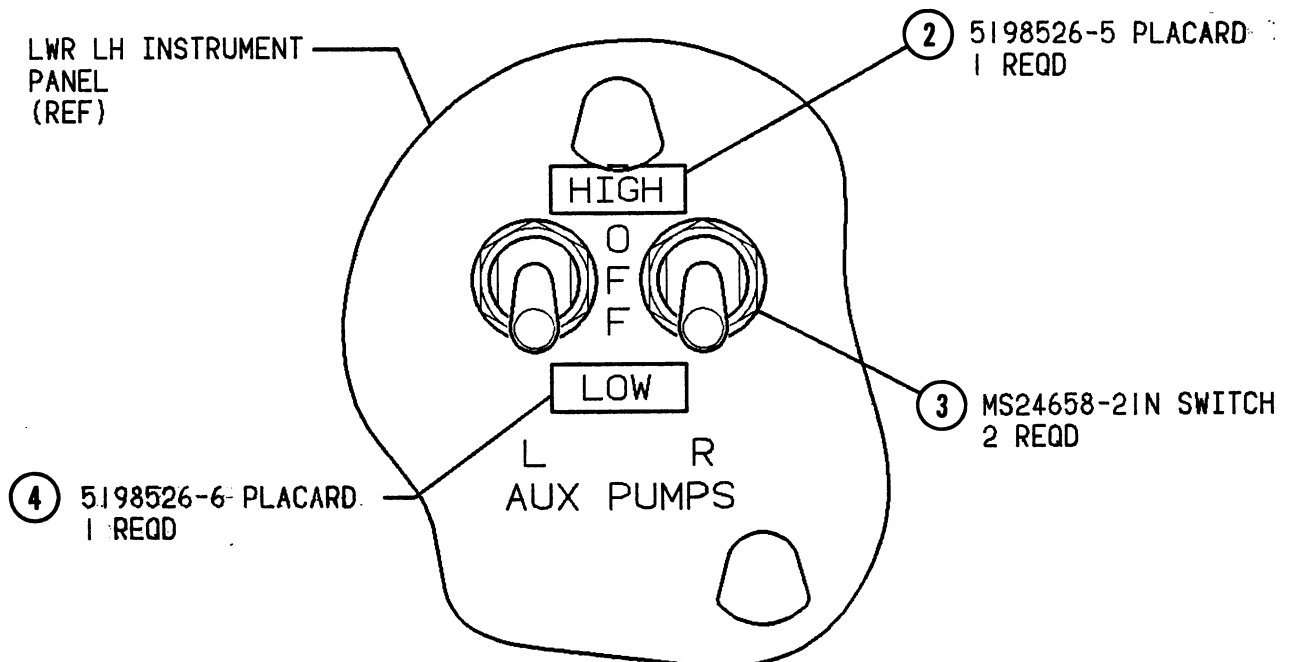
ORIGINAL

LWR LH INSTRUMENT
PANEL
(REF)



MODIFIED

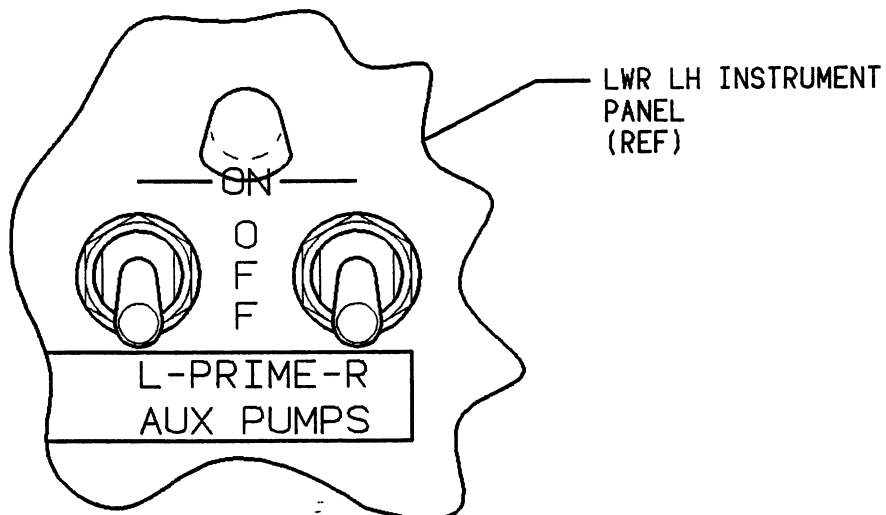
LWR LH INSTRUMENT
PANEL
(REF)



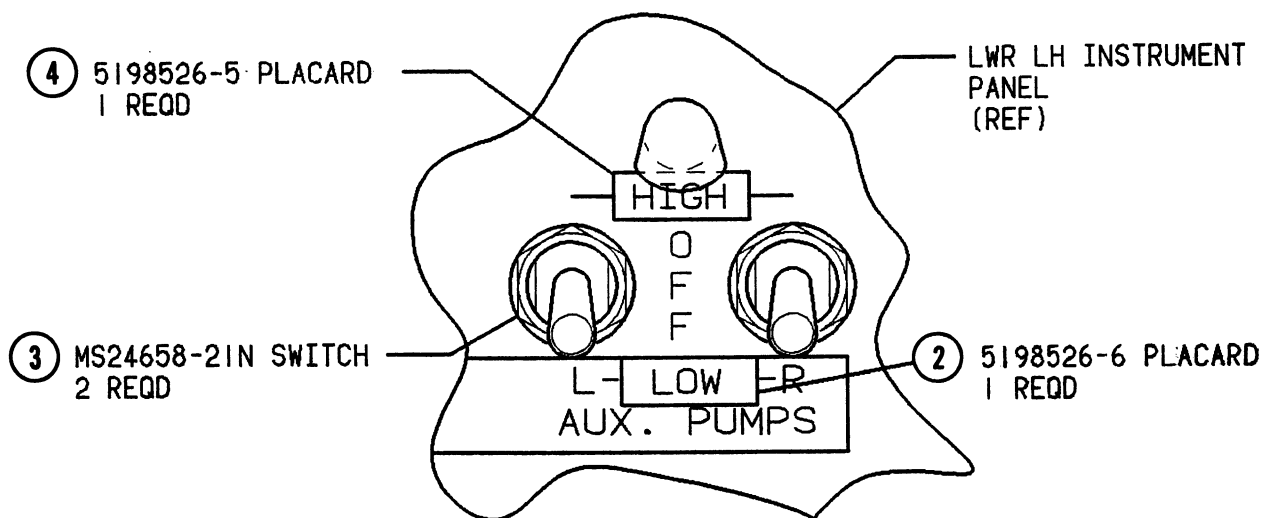
MODELS AFFECTED: 310C35772 THRU 310D39299

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 2

ORIGINAL



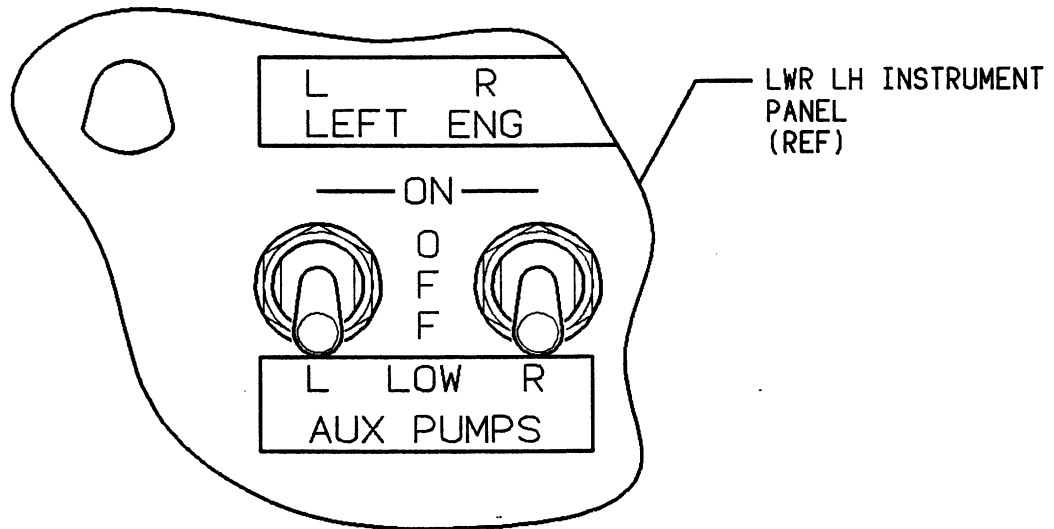
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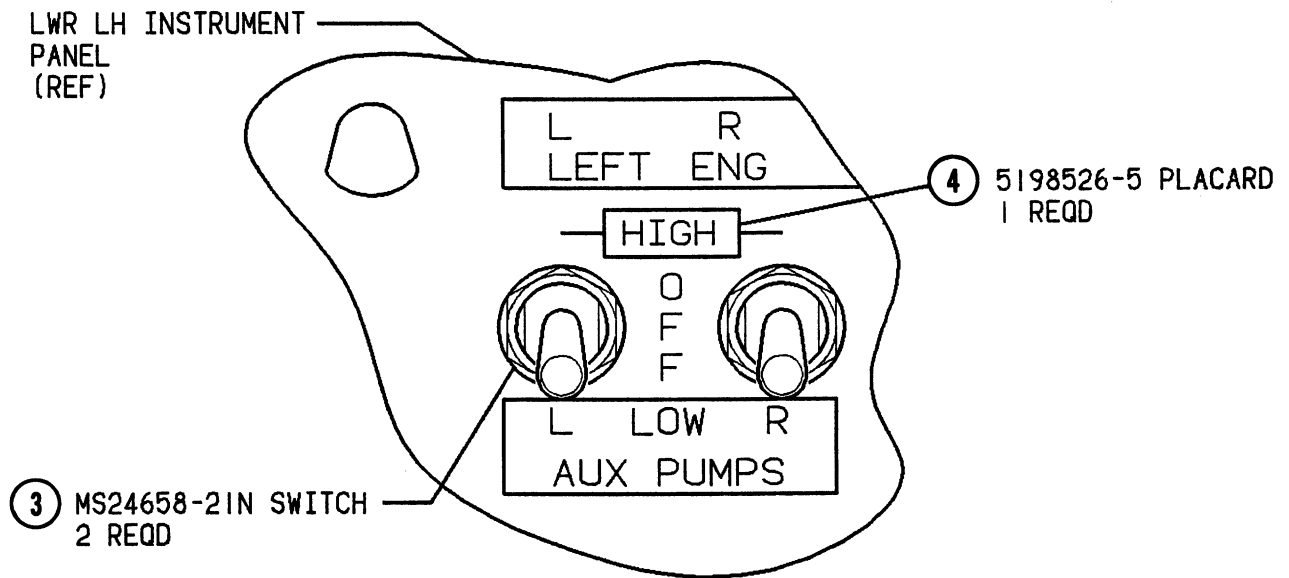
MODELS AFFECTED: 310-0001 THRU 310H0148
320-0001 THRU 320A0047

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 3

ORIGINAL

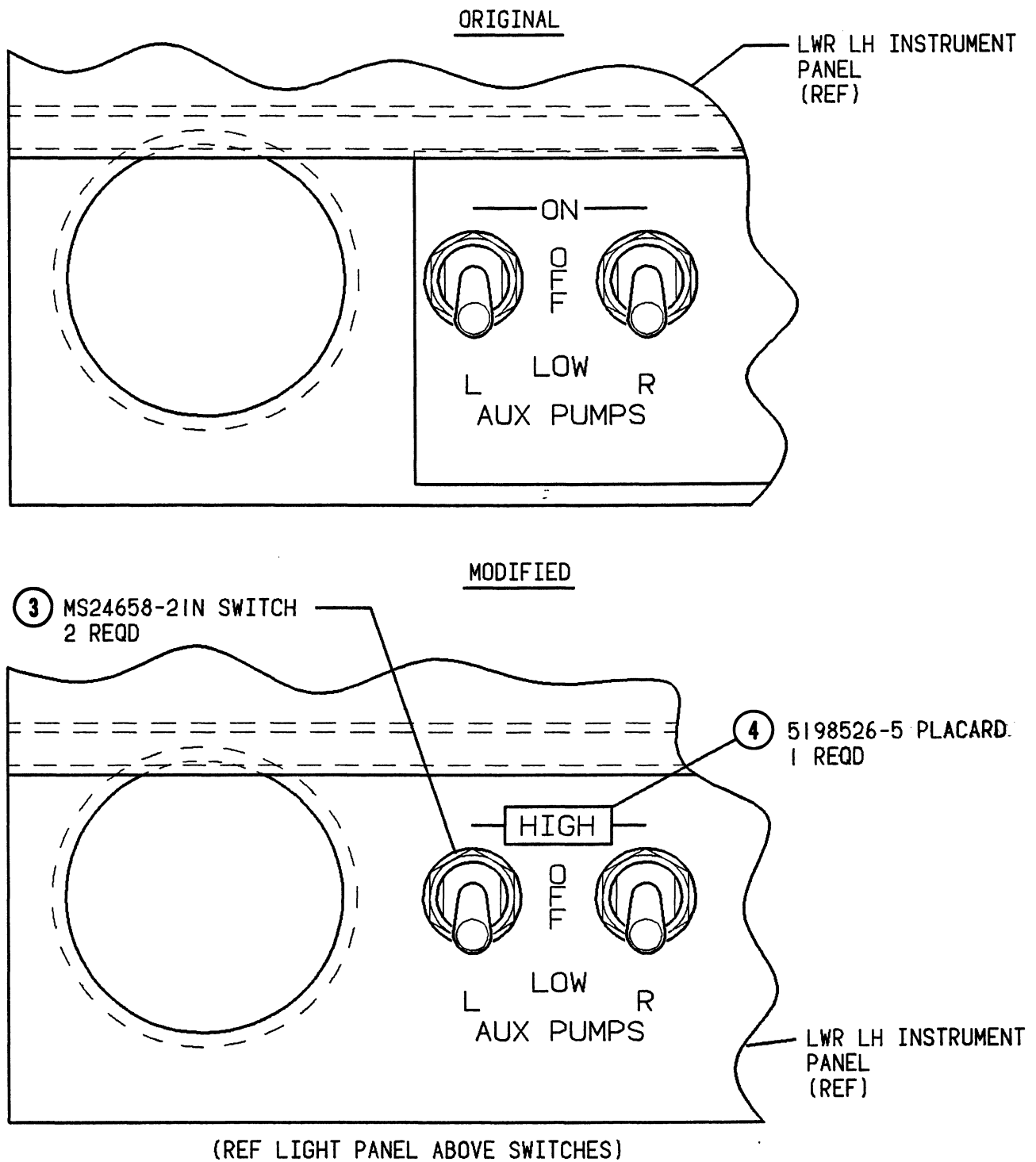


MODIFIED



MODELS AFFECTED: 310I0001 THRU 310L0207
320B0001 THRU 320D0130

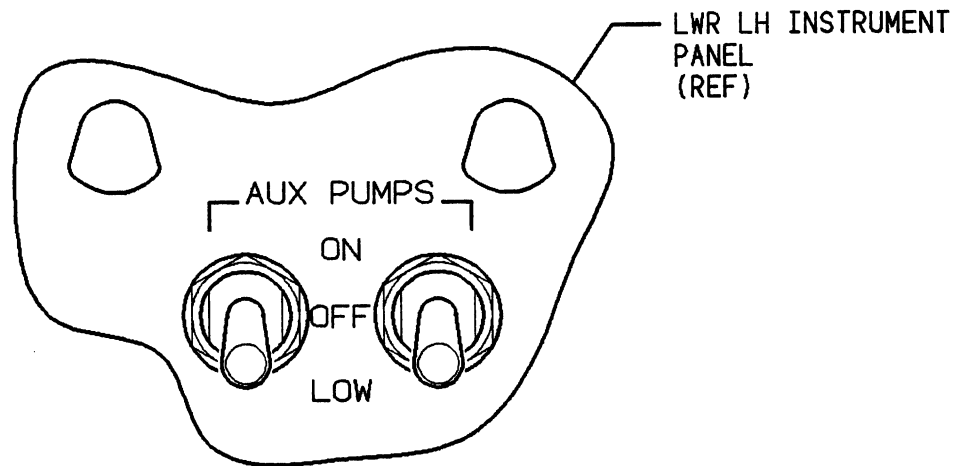
Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 4



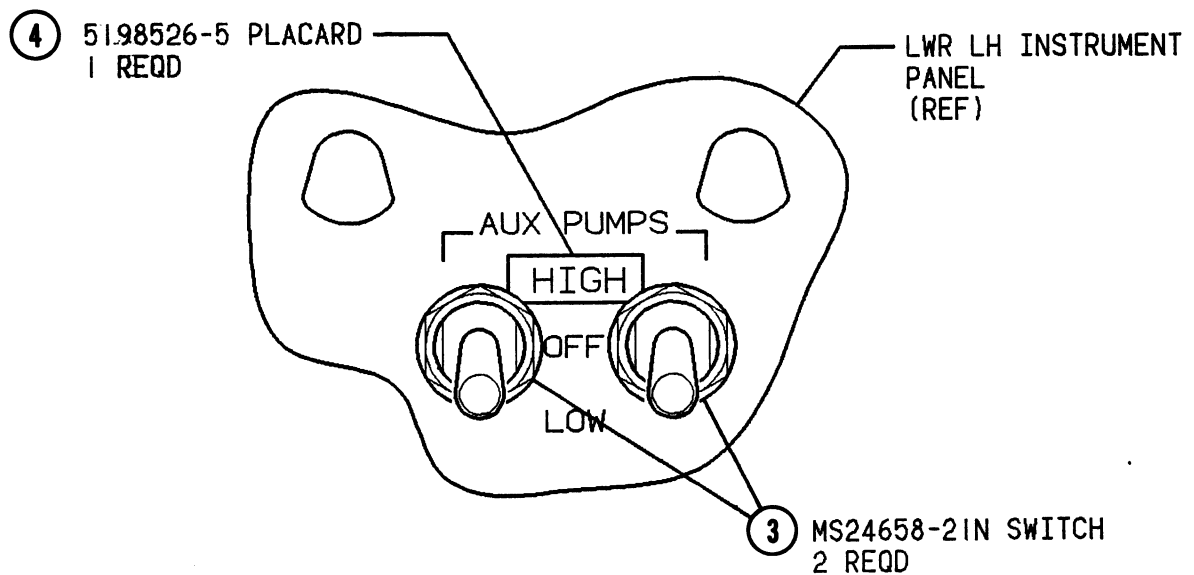
MODELS AFFECTED: 310Q0601 THRU 310R2140 (STD)
320F0001 THRU 320F0045 (STD)

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 5

ORIGINAL



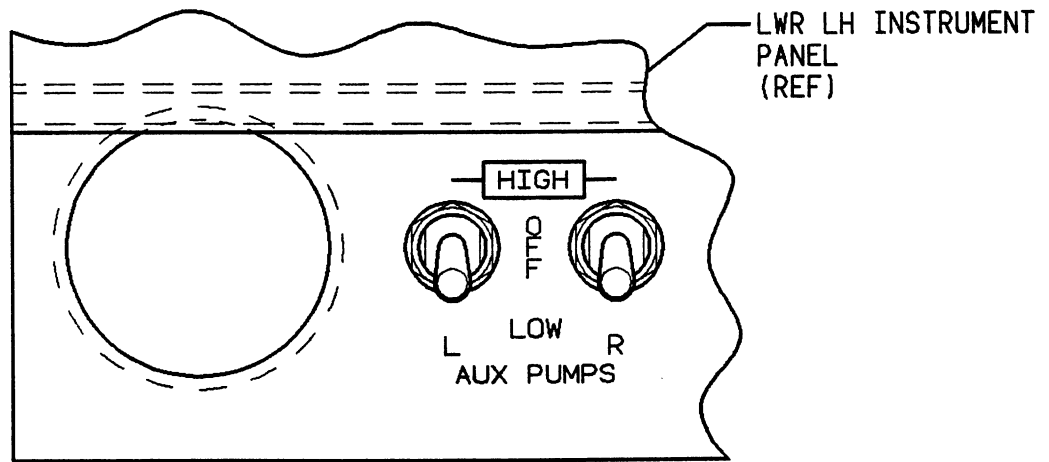
MODIFIED



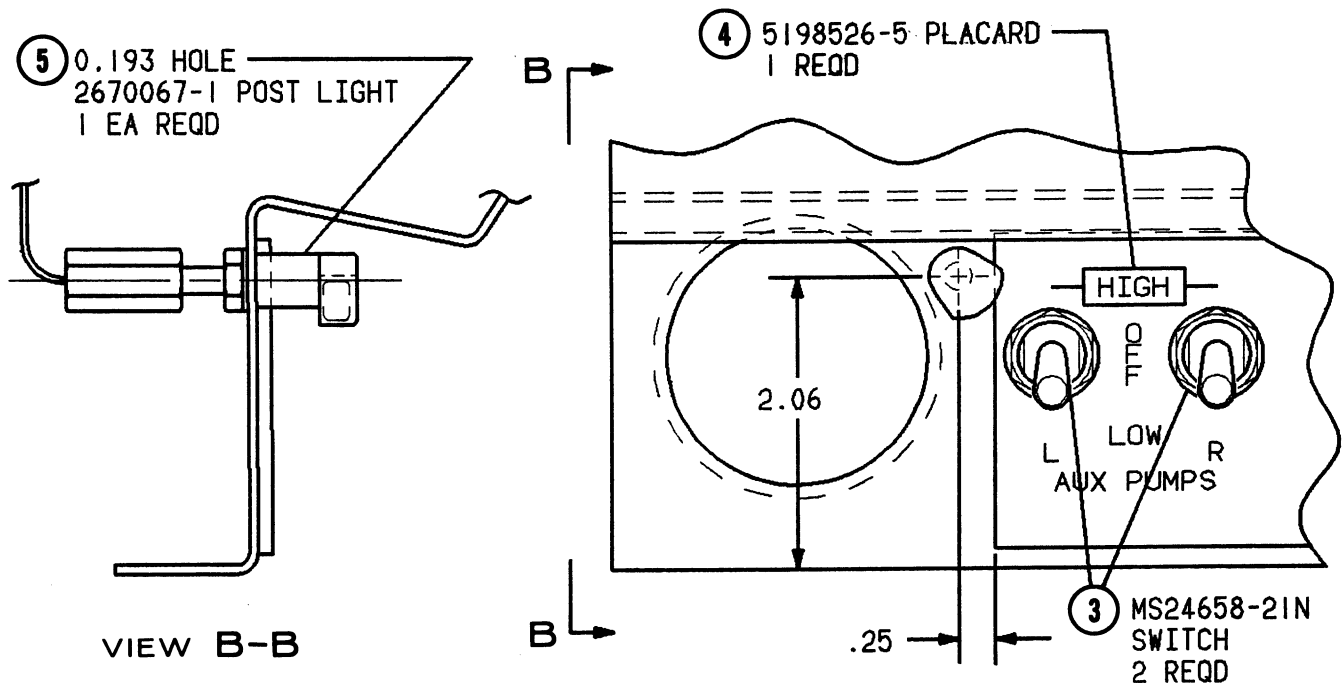
MODELS AFFECTED: 335-0001 THRU 335-0065
340-0001 THRU 340A1817

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 6

ORIGINAL



MODIFIED



MODELS AFFECTED: 310N0001 THRU 310Q0600 (STD)
310Q0601 THRU 310R2140 (OPT)
320F0001 THRU 320F0045 (OPT)

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 7

ORIGINAL

SET FUEL SELECTOR VALVES TO LEFT
MAIN FOR LEFT ENGINE AND RIGHT
MAIN FOR RIGHT ENGINE FOR
TAKEOFF, DESCENT, LANDING, AND
ALL NORMAL OPERATIONS.

TAKEOFF AND LAND WITH AUXILIARY
FUEL PUMPS ON.

EMERGENCY CROSSFEED SHUTOFF
VALVE MUST BE OPEN FOR ALL
NORMAL OPERATIONS.

100 GRADE AVIATION FUEL MINIMUM.

6 EXISTING PLACARD
LOCATED NEAR FUEL
SELECTOR VALVES.

MODIFIED

SET FUEL SELECTOR VALVES TO LEFT
MAIN FOR LEFT ENGINE AND RIGHT
MAIN FOR RIGHT ENGINE FOR
TAKEOFF, DESCENT, LANDING, AND
ALL NORMAL OPERATIONS.

TAKEOFF AND LAND WITH
AUXILIARY FUEL PUMPS LOW.

EMERGENCY CROSSFEED SHUTOFF
VALVE MUST BE OPEN FOR ALL
NORMAL OPERATIONS.

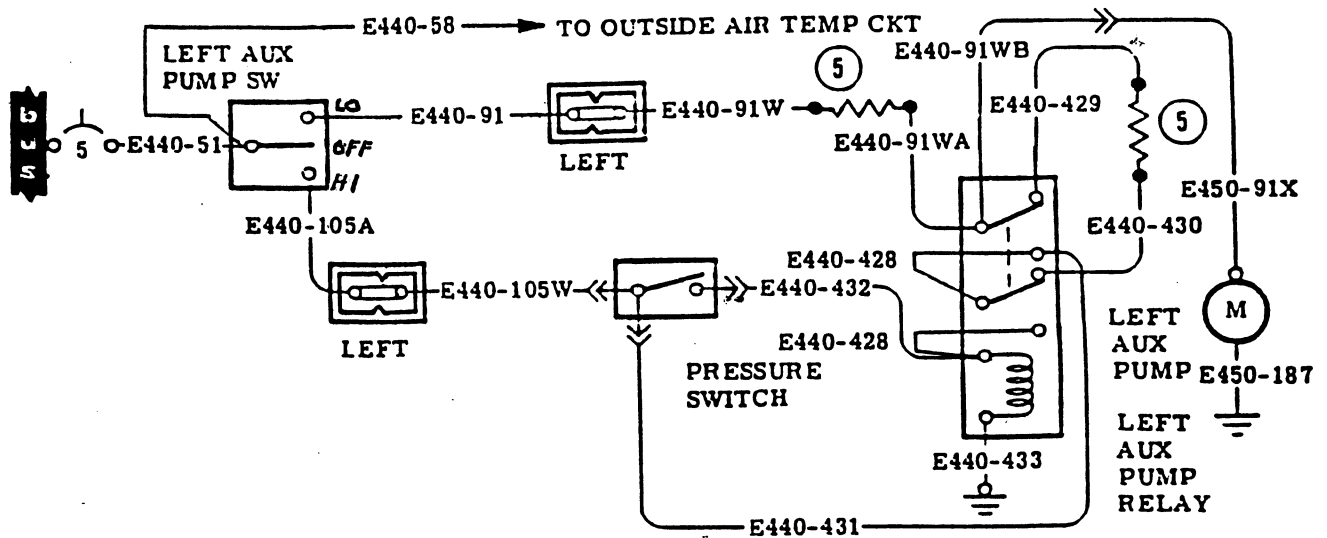
100 GRADE AVIATION FUEL MINIMUM.

6 EXISTING PLACARD
LOCATED NEAR FUEL
SELECTOR VALVES.

7 2505059-4
PLACARD
1 REQD
(INSTALL OVER
EXISTING LETTERING)

Figure 2. Auxiliary Fuel Pump Switches & Placards Installation - Sheet 8

MODELS AFFECTED: 310C, 310D, 310F

ORIGINAL

⑤ FIXED RESISTORS SN35772 THRU 35842
 ADJ. RESISTORS SN35843 & ON

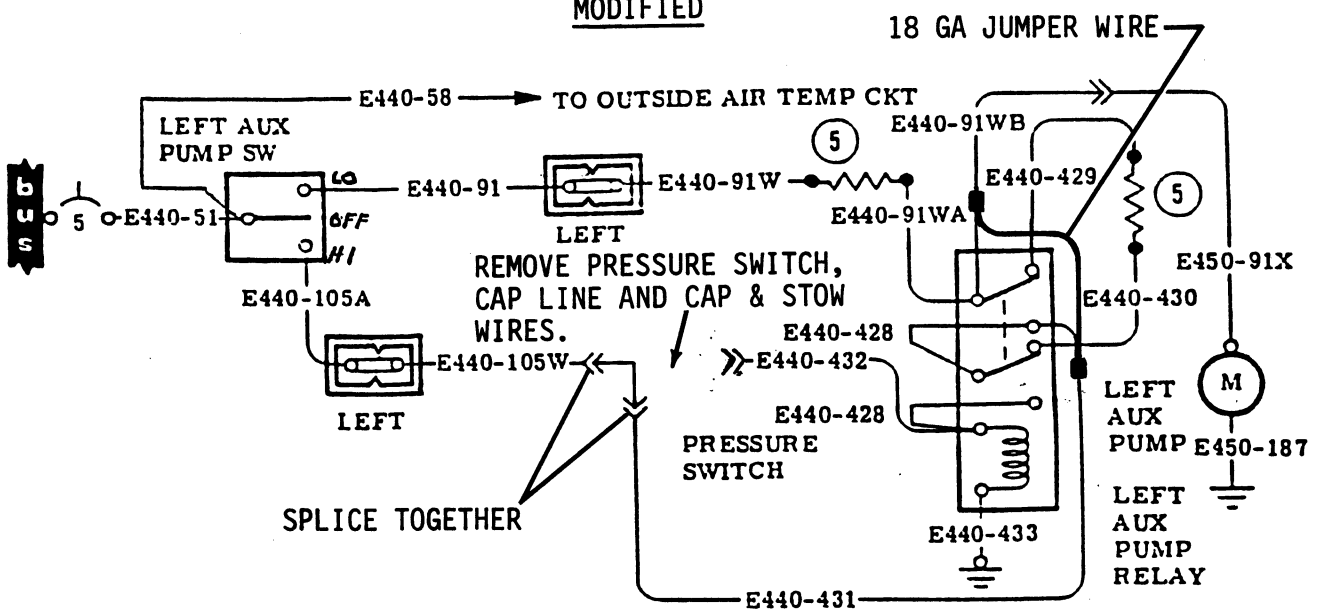
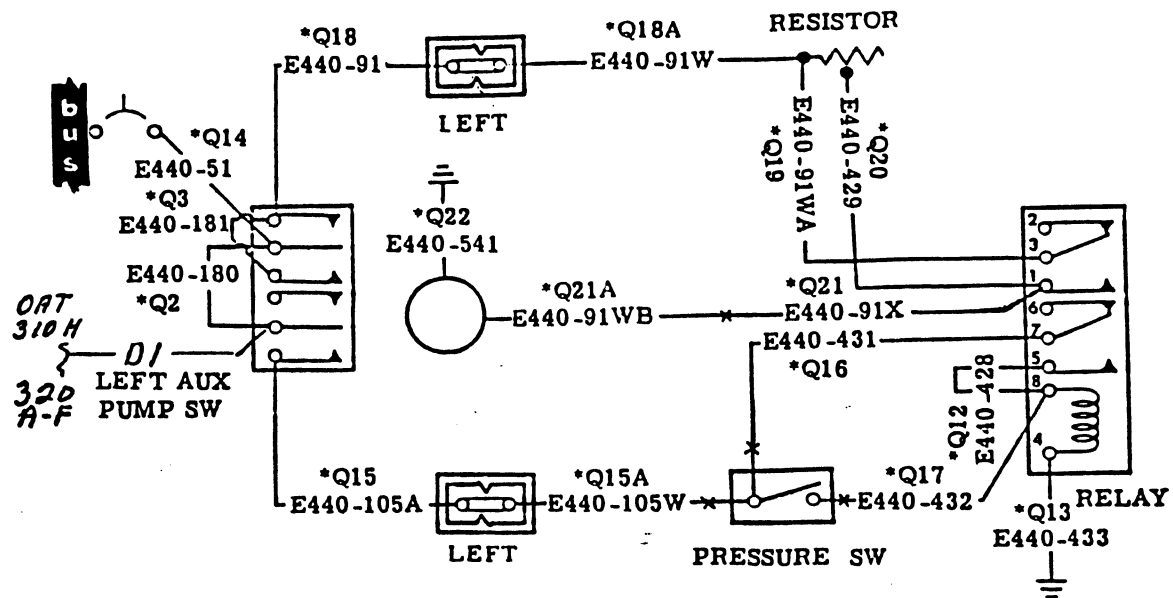
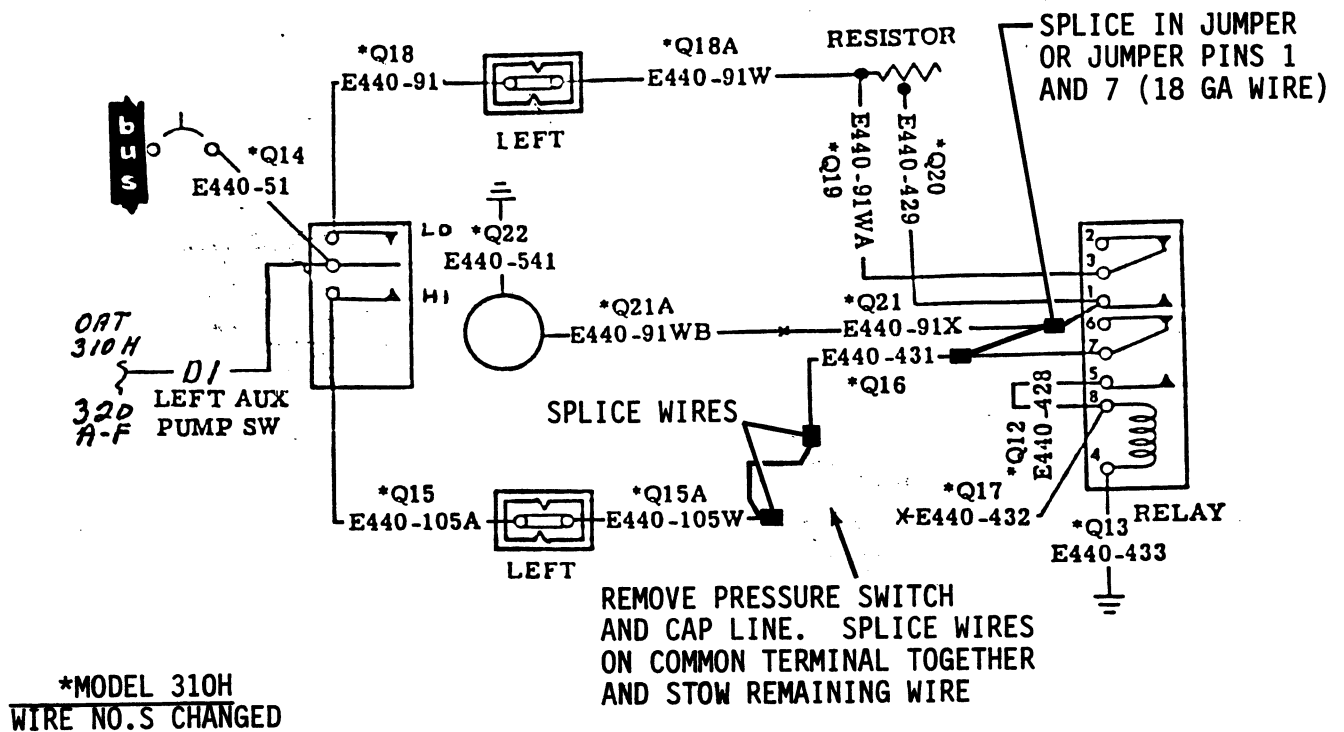
MODIFIEDLH SHOWN, RH OPPOSITE

Figure 3. Wiring Diagram - Sheet 1 of 8

MODELS AFFECTED: 310G, 310H, 320, 320A

ORIGINALMODIFIED

310G and H W/O SK310-52
320 and 320A
LH SHOWN, RH OPPOSITE

Figure 3. Wiring Diagram - Sheet 2

TYPICAL 310I AND ON (WITH OIL PRESS SWITCH)
TYPICAL 320B AND ON (DOES NOT HAVE OIL PRESS SWITCH)

LH SHOWN, RH OPPOSITE

Figure 3. Wiring Diagram - Sheet 3

L.H. BOOST PUMP TIP TANK

B1

BLUE

RED

Q5D18

L7 LEFT AUX PUMP RELAY

Q5C18

Q17A18

Q13B18

Q15A18N

Q13A18

R5

Q9D18

Q9C18

Q7B18

Q5B18

65

64

63

PB1

JB1

* (3)

Q9B18

Q7A18

Q5A18

Q1F18

S11

H39

LEFT AUX PUMP SW

S13

PRIME SWITCH

LH

RH

OIL PRESSURE SWITCH 310I & On Or SK310-53

REMOVE PRESSURE SWITCH CAP LINE AND CAP & STOW WIRES

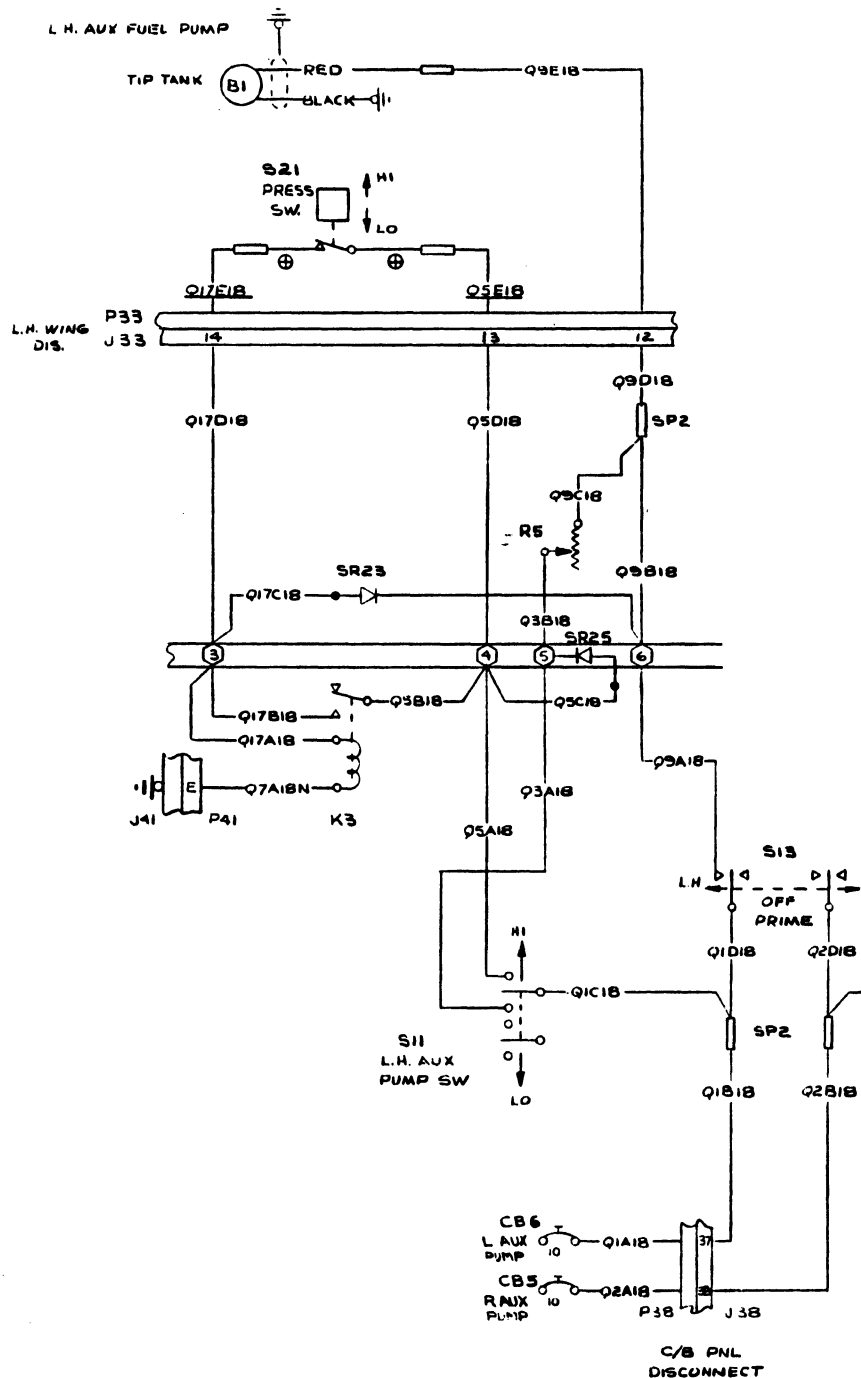
ADD 18 GA WIRE

TYPICAL 310I AND ON (WITH OIL PRESS SWITCH)
TYPICAL 320B AND ON (DOES NOT HAVE OIL PRESS SWITCH)

LH SHOWN, RH OPPOSITE

Figure 3. Wiring Diagram - Sheet 4

MODELS AFFECTED: 335

ORIGINAL

LH SHOWN, RH OPPOSITE

Figure 3. Wiring Diagram - Sheet 5

L H. AUX FUEL PUMP

TIP TANK (

REMOVE PRESSURE SWITCH, CAP LINE AND STOW WIRES

L.H. WING
DIS.

CAP & STOW
WIRE

ADD 18 GA.
WIRE

SII
L.H. AUX
BUMB SW

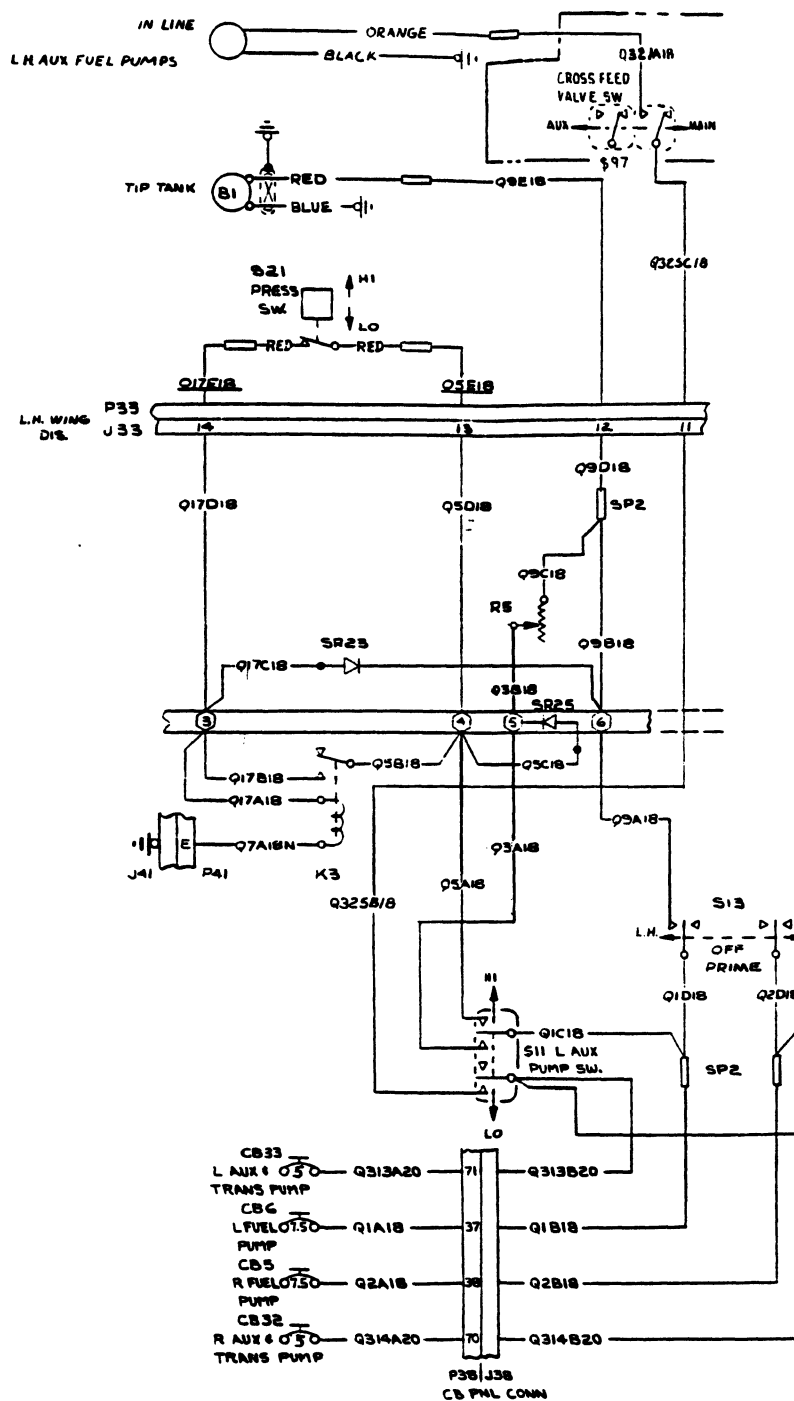
CB6
L AUX C
PUMP
CB5
R AUX
PUMP

C/B PNL
DISCONNECT

LH SHOWN, RH OPPOSITE

22

MODELS AFFECTED: 340, 340A

ORIGINAL

LH SHOWN, RH OPPOSITE

Figure 3. Wiring Diagram - Sheet 7

MODELS AFFECTED: 340, 340A

MODIFIED

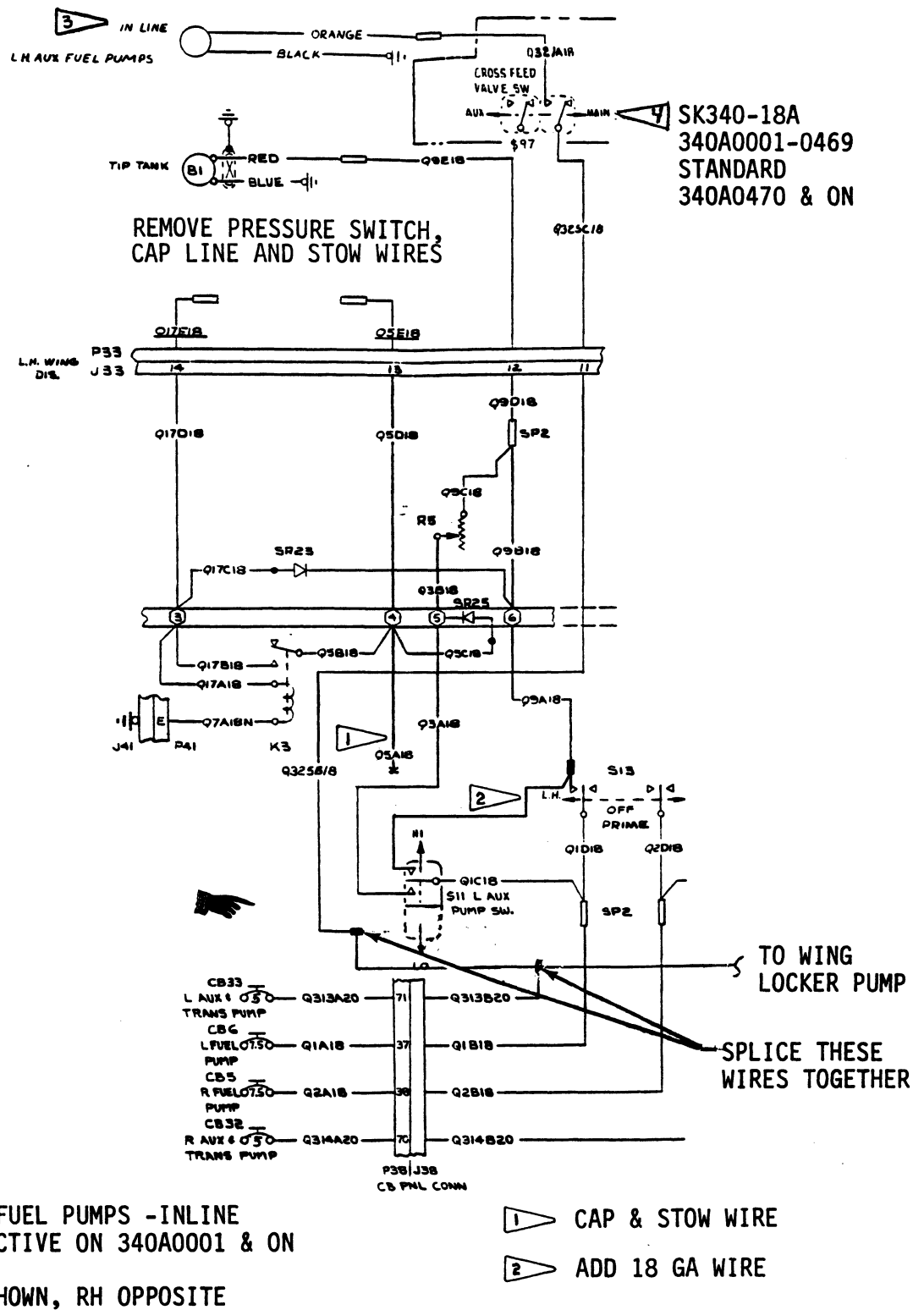


Figure 8. Wiring Diagram - Sheet 8