

FOAM MARKER SYSTEM

FOAM MARKER ELECTRICAL SYSTEM

Theory of Operation

FIG. 5: Relays K33 and K38, on the main circuit board in the electrical compartment, are the left and right foam control relays respectively.

These two relays are connected to the left/right and double foam marker switches through a series of diodes. The diodes let each relay control a single air outlet valve on the top of the tank without having voltage feedback to the non-functioning side. These relays are ground switched, meaning the left/right and double foamer switches control the ground to K33 and K38 instead of power. The power to the coils in the relays are controlled by a “master” relay, which is relay K27. K33 and K38 relays have constant battery power supplied at pin 5 through fuse 43. K27 sends power to pin 1 of K33 and K38 with the ignition in the run position and the controller power switch on. When either the left/right foamer switch position is selected, it provides ground to pin 2 to energize the relay, sending power out to the solenoid valves on the tank.

NOTE: You must have the controller power switch on before the foam marker will work.

Relay K27

This relay gets power from fuse F28 to pin 5. In the run position, battery voltage is supplied to pin 1. The ground for the relay comes to pin 2 of the relay from the controller power switch through a diode and pin 2 of the P9 connector on a gray 407 wire. When K27 is energized, voltage will pass from pin 5 to pin 3 inside the relay and go to pin 1 on relays K33 and K38.

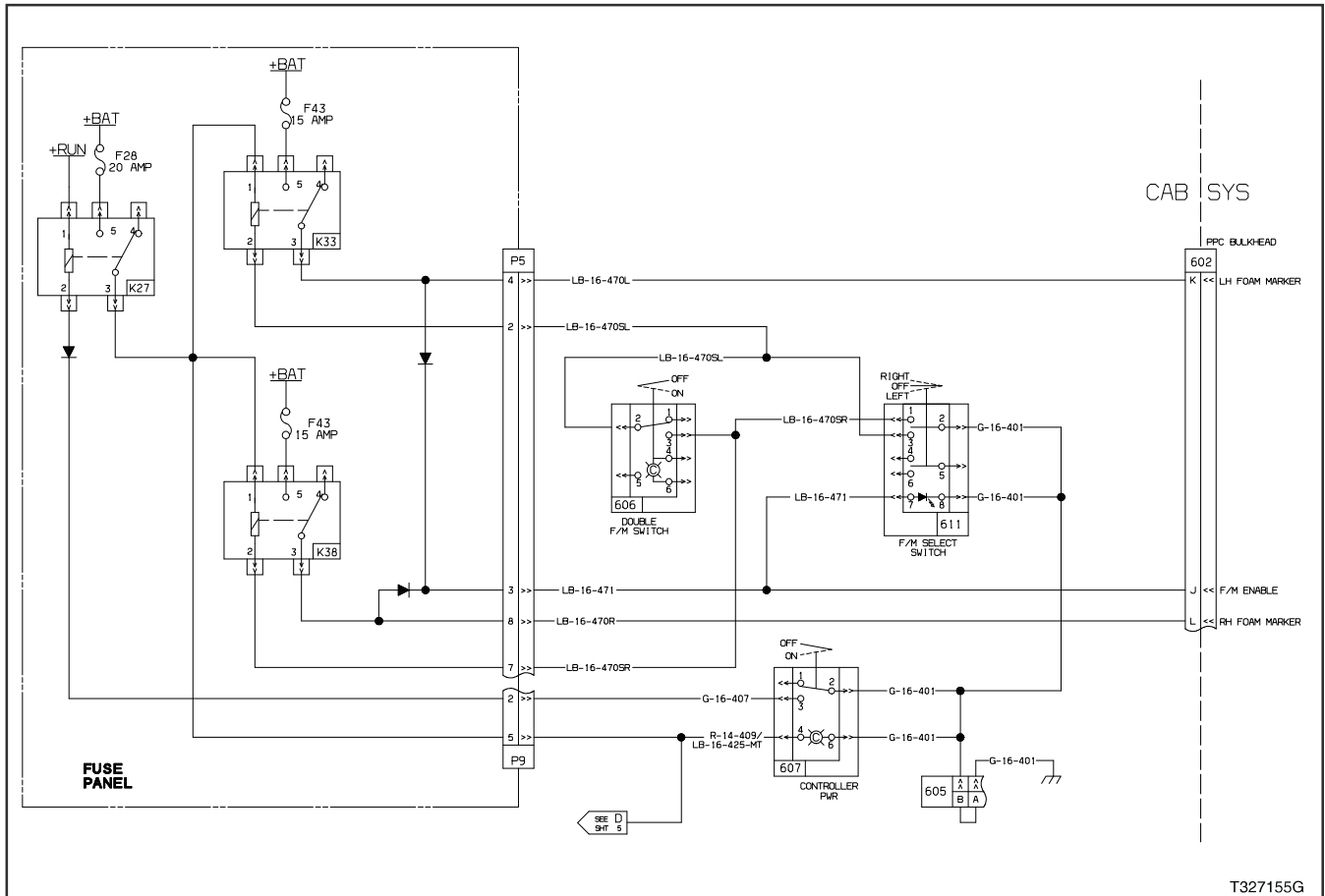


FIG. 5

Relay K33 (Left Foam)

Relay K33 has battery voltage at pin 5 from fuse F43. Check for power at pin 1 coming from relay K27. The coil is grounded in pin 2 from pin 2 of P5 connector. A light blue 470SL wire goes from pin 2 of the P5 connector to pin 3 of the left/right selector switch and pin 2 of the double-foam switch. Pin 2 of the left/right switch is connected to ground. When the switch is moved to the left, you should be able to measure continuity to ground at pin 2 of relay K33. This will energize relay K33 and send voltage from pin 5 to 3. From pin 3 of the relay, power goes to pin 4 of P5 connector and through a diode to pin 3 of P5 connector. A light blue 471 wire connects pin 3 of P5 to pin J of the PPC connector, located on the bulkhead compartment. A light blue 470L wire connects pin 4 of P5 to pin K of the PPC connector, located on the bulkhead compartment.

Relay K38 (Right Foam)

Relay K38 has battery voltage at pin 5 from fuse F43. Check for power at pin 1 coming from relay K27. The coil is grounded in pin 2 from pin 7 of the P5 connector. A light blue 470SR wire goes from pin 7 of the P5 connector to pin 1 of the left/right selector switch and pin 3 of the double-foam switch. Pin 2 of the left/right switch is connected to ground. When the switch is moved to the right, you should be able to measure continuity to ground at pin 2 of relay K38. This will energize relay K38 and send voltage from pin 5 to 3. From pin 3 of the relay, power goes to pin 8 of P5 connector and through a diode to pin 3 of P5 connector. A light blue 471 wire connects pin 3 of P5 to pin J of the PPC connector, located on the bulkhead compartment. A light blue 470R wire connects pin 8 of P5 to pin L of the PPC connector, located on the bulkhead compartment.

Left/Right Foam Switch

Check continuity from the gray 401 wire in pin 2 to a good ground. If no continuity is found, trace wire and look for a break. With continuity to ground on pin 2, move the switch to the left position. You should see ground on pin 3. If not, replace the switch. Move the switch to the right position. You should see ground on pin 1. If not, replace the switch.

Double Foam Switch

With the double foam switch off and the left/right selector switch off, check for continuity to ground on pins 2 and 3 of the double foam switch. There should be none. Turn the double foam switch on and check for continuity between pin 2 and pin 3 of the switch. If there is no continuity, replace the switch. Move the left/right selector switch to left and check for ground on pin 2 of the double switch. If there is no ground, verify that the selector switch is good and check for a bad connection or broken blue 470SL wire. Move the left/right selector switch to right and check for ground on pin 3 of the double switch. If there is no ground, verify that the selector switch is good and check for a bad connection or broken blue 470SR wire.