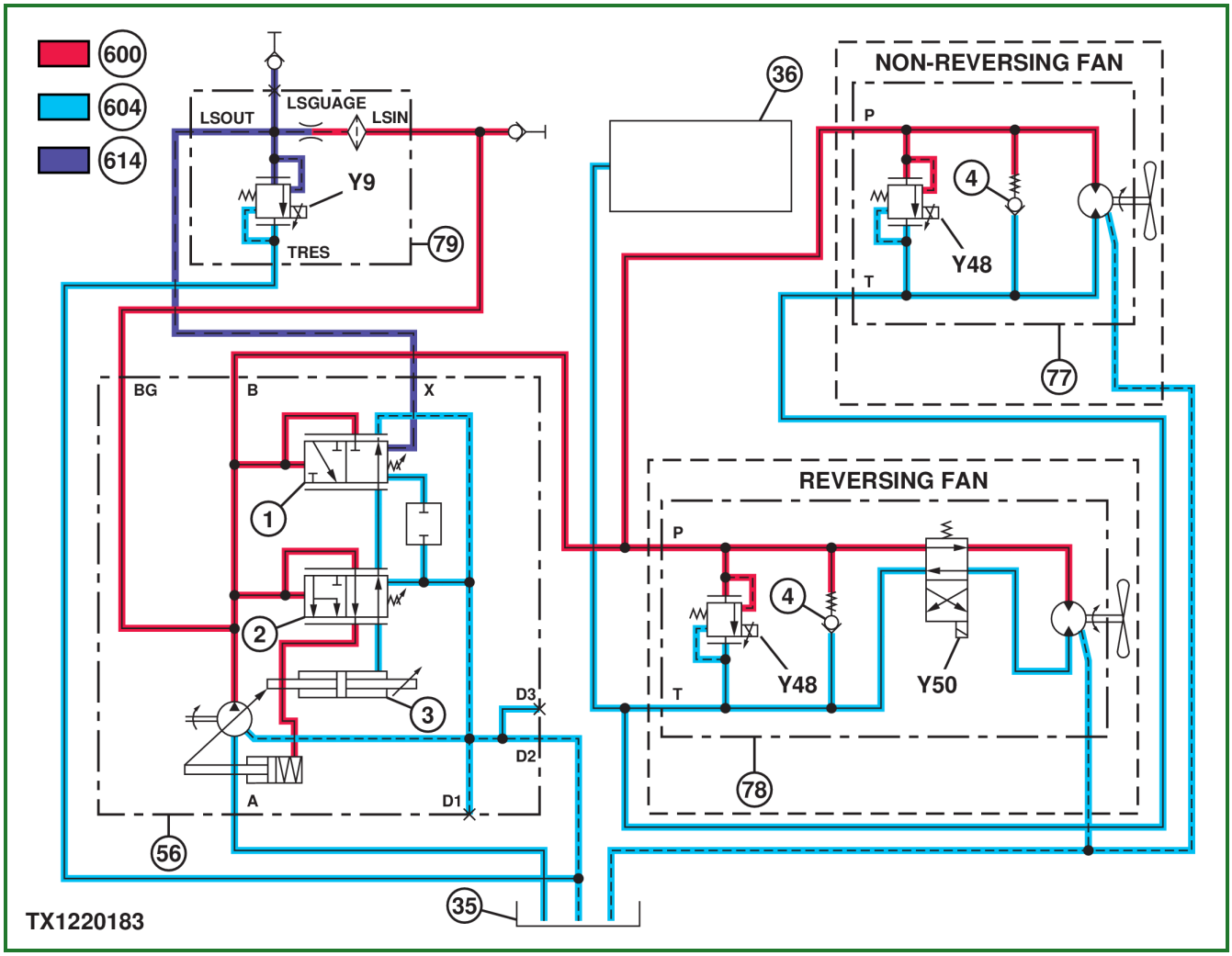
Fan Drive System Operation

There are two electrically controlled hydraulic fan systems: the left side fan system and the right side fan system.



TX1220183-UN: Left Side Fan System Circuit

LEGEND:
1 - Load Sense Differential Pressure Spool
2 - High-Pressure Cut-Off Spool
3 - Pump Displacement Control Piston
4 - Anticavitation Valve
35 - Hydraulic Reservoir
36 - Hydraulic Return Manifold
56 - Left Side Fan Pump
77 - Left Side Fan Motor (non-reversing, if equipped)
78 - Left Side Fan Motor (reversing, if equipped)
79 - Left Side Fan Load Sense Generation Valve
600 - High-Pressure Oil
604 - Return Oil
614 - Load Sense Oil
Y9 - Left Side Fan Speed Solenoid
Y48 - Left Fan Low-Pressure Solenoid
Y50 - Left Side Reversing Fan Solenoid (if equipped)

Left Side Fan System— The left side fan sends air through:

- Engine radiator
- Air conditioner condenser
- Fuel cooler
- Charge air cooler

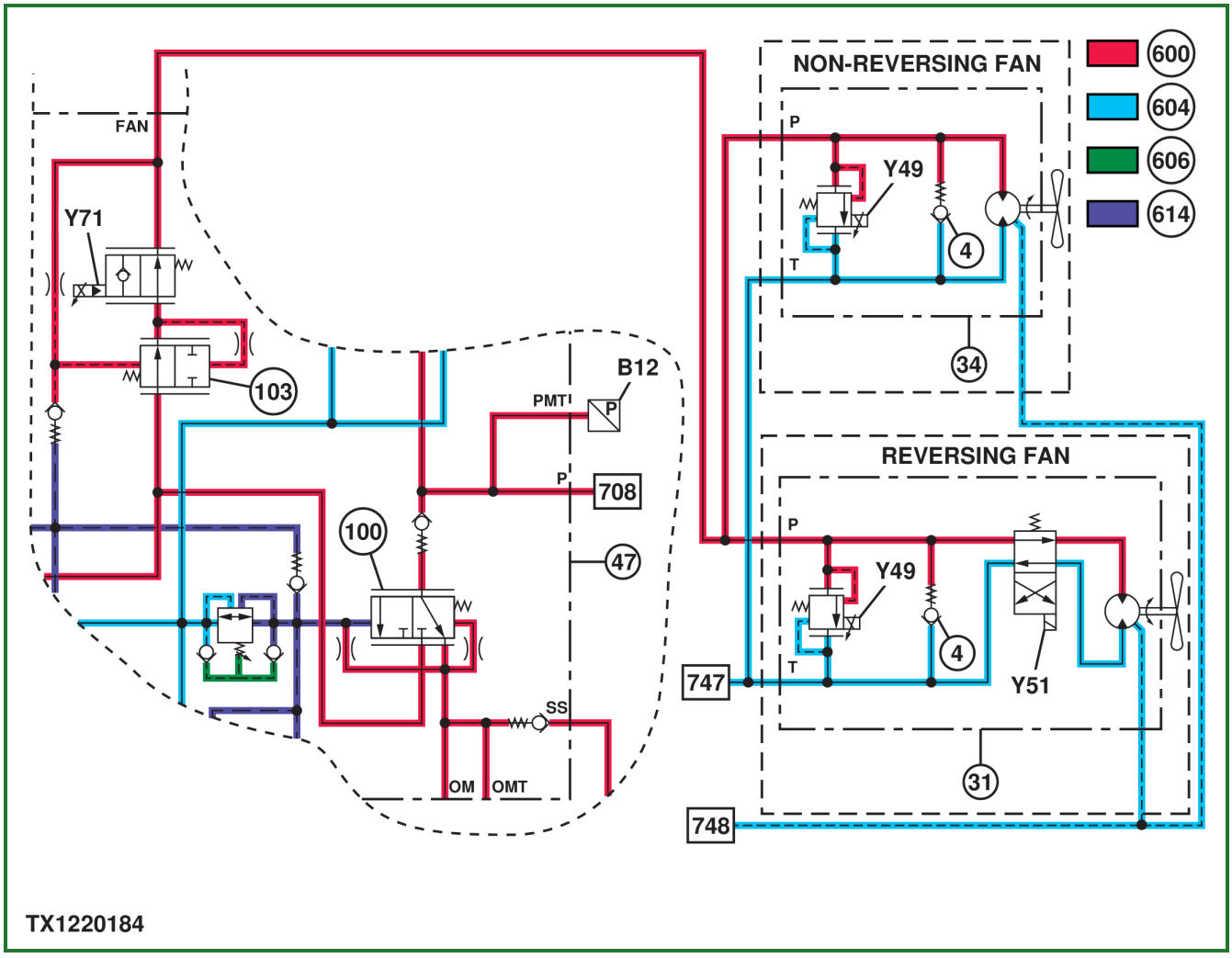
The left side fan motor (non-reversing, if equipped) (77) receives its oil from the left side fan pump (56). The left side fan speed solenoid (Y9) in the left side fan load sense generation valve (79) indirectly controls fan speed. When more fan speed is required to provide sufficient cooling, left side fan speed solenoid receives less current, increasing the load sense pressure to the pump, causing fan speed to increase. Increased load sense pressure to the pump shifts load sense differential pressure spool (1), allowing the pump displacement control piston (3) to move pump into stroke. The left side fan speed solenoid is controlled by the vehicle control unit (VCU) based on messages received from the engine control unit (ECU). For more information on VCU control of left side fan speed solenoid, see Hydraulic Fan Control Circuits Theory of Operation . (Group 9015-05.)

During a fan shutdown, the left fan low-pressure solenoid (Y48) is energized to slowly dump high-pressure oil (600) to the hydraulic reservoir so fan can coast to a stop. An anticavitation valve (4) allows oil to pass from the return side to the pressure side, if necessary, while fan is coming to a stop.

Left Side Reversing Fan System (if equipped)— A reversing fan system is available and functions the same as the non-reversing fan system except for the addition of the left side reversing fan solenoid (Y50) and left side reversing fan solenoid valve.

During a fan reversal, current is increased to the left side fan speed solenoid, causing the fan to drop to minimum speed, and the left fan low-pressure solenoid is energized, bringing the fan speed down lower. When the fan speed is low enough, the vehicle control unit (VCU) energizes the left side reversing fan solenoid, shifting the valve and reversing the direction of the fan. See Vehicle Control Unit (VCU) Circuits Theory of Operation . (Group 9015-05.)

Reversing can be done manually through the primary display unit (PDU). For more information on the electrical components in the fan circuit, see Hydraulic Fan Control Circuits Theory of Operation . (Group 9015-05.)



TX1220184-UN: Right Side Fan System Circuit

LEGEND:

4 - Anticavitation Valve