

5.3 Hydraulic circuits

5.3.1 Ground drive circuit

The ground drive system includes a tandem pump (1), two ground drive motors (2), sensors, the ground speed lever (3), and a controller (4).

The tandem pump is two variable displacement piston pumps mounted together. The front piston pump drives the left-hand ground drive motor and the rear piston pump drives the right-hand ground drive motor. The tandem pump is driven by a gearbox which is driven by the engine crankshaft.

The ground drive motors are variable displacement piston motors. Electronic displacement controls (EDC) control the swash plates in the ground drive motors.

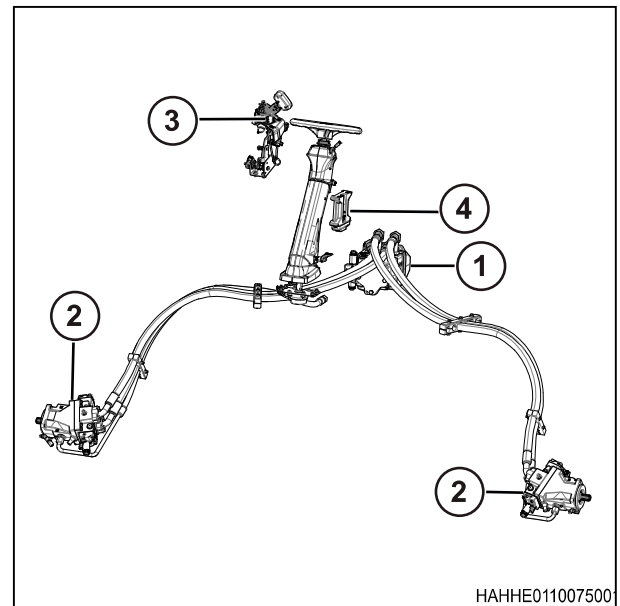


Fig. 10

The ground drive motors are mounted to the final drives.

The steering wheel and the ground speed lever send an electrical signal to the controller. The controller sends an electrical signal to the electric displacement controls (EDC) which control the flow from the tandem pump.

When the controls are in the neutral position there is no flow from the tandem pump.

When the ground speed lever is moved forward a signal is sent from the sensor to the controller. The controller tells the piston pumps to give equal flow from both of the piston pumps and the tractor moves straight forward. The wheel speed sensors give feedback to make sure the instructions were followed. The farther forward the ground speed lever is moved, the more flow is sent to the ground drive motors and the faster the machine will travel. When the ground speed lever is returned to the neutral position, the flow to the motors is stopped. The return flow from the motors is also stopped, preventing the motors from turning and causing the machine to stop. When the ground speed lever is pulled back to the reverse position, the output from the tandem pump is reversed. This causes the motors to rotate in the opposite direction so the machine moves rearward.

Turning the steering wheel sends a signal to the controller. The controller tells the piston pumps to increase the flow to one ground drive motor and decrease the flow to the other ground drive motor. This causes the machine to turn if the tractor is moving. When the ground speed lever is in the neutral position, turning the steering wheel causes one drive wheel to rotate forward and the other drive wheel to rotate rearward, causing the machine to turn.



WARNING:

Any time the engine is running and the parking brake is not applied, the machine will turn if the steering wheel is moved, even if the ground speed lever is in neutral.

5.3.2 Engine fan circuit

The engine fan is hydraulically driven. Oil flows from the charge pump (1) through the fan control valve (2) to the fan motor (3). Oil then flows back to the fan control valve, through a filter (4), and then to the tandem pumps.

The fan control valve controls the fan direction and fan speed. During most of the operating time the fan operates in the forward direction. This moves air through the screen, radiators and coolers, and toward the engine.

The speed of the fan is determined by the cooling required for the current conditions. Higher air temperature or heavier loads will cause the fan to operate faster.

To remove debris from the screen, the fan will reverse and will move air in the opposite direction. The fan will reverse:

- Two minutes after the header is turned on.
- At least every 15 minute that the header is on.
- After the header is turned off.

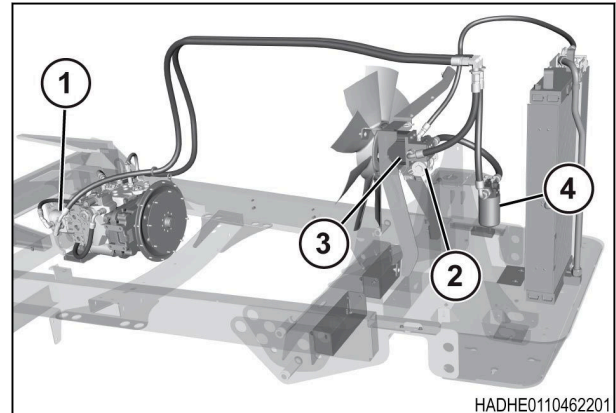


Fig. 11

5.3.3 Parking brake circuit

The parking brakes are a spring applied and pressure release type. The parking brakes are located within the housing of the final drives (1).

The parking brakes are applied by springs in the brake assembly when no hydraulic pressure is present. The parking brakes are released when hydraulic pressure is applied to the brake cylinder.

To supply hydraulic pressure to the parking brake, the engine must be running to operate the ground drive charge pump.

The parking brake switch supplies an input to the ground drive controller. The ground drive controller then send an output to enable the parking brake valve.

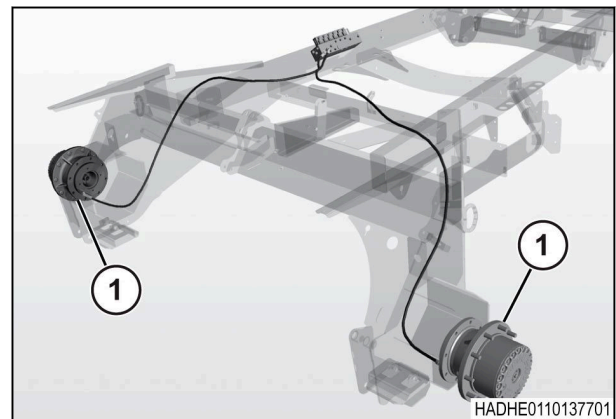


Fig. 12