



Hydrostatic Pump Replacement Kit

ProCore® 648

Part No. 108-6820

Form No. 3354- 918 Rev. B

Installation Instructions

Tools required

- Filter wrench
- Combination wrenches (1/2" thru 1-1/4")
- Drain Pan
- 1/8" Allen driver (pulley removal)
- Hydraulic Jack
- 6" (15cm) Wood Blocks for rear axle tube
- 1 jack stand
- 13/16" Crowsfoot wrench

Supplies required

- Mobil 424 (7 quarts / 6.6 liter)
 - Pump Replacement Kit (108-6820)
1. Please read these instructions FULLY prior to beginning this rework.
 2. Position unit in work area and use compressed air to clear debris off the machine.
 - Jack rear of machine 6" off the floor and support with 6" wood blocks.
 - Jack front of machine and support with jack stand.
 - Remove key.
 - Remove 10 amp clutch fuse.
 - Leave the park brake off.
 3. Remove the front hood.
 4. Remove the current return hydraulic filter and drain the reservoir (Fig. 1). Discard filter. Install the new return filter (107-9531) to avoid system contamination during remainder of process.

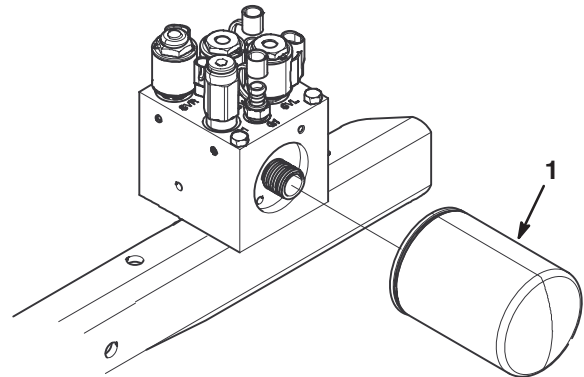


Figure 1

1. Return hydraulic filter

5. Remove the pump;

- Remove pump cover.
- Remove the neutral spring.
- Loosen the two fasteners holding the pump lever to the trunnion arm.
- Remove the 3 fasteners holding the pump controls to the top of the pump. (1 located by the trunnion and 2 at the back of the pump)

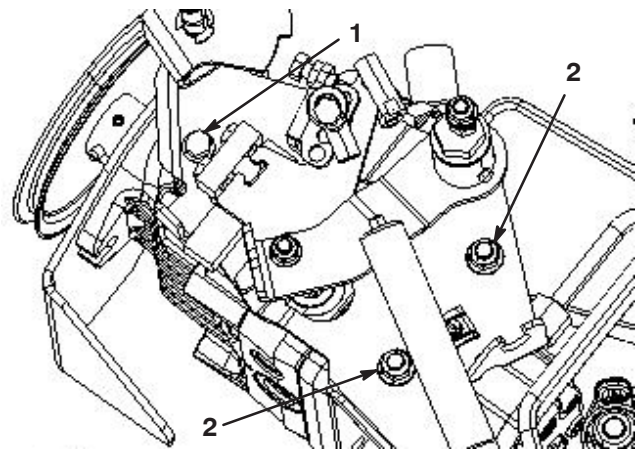


Figure 2

1. Front fastener
2. Back fasteners

- Remove the pump controls and secure away from the pump area. (no need to remove any other pump control items)
- Remove belt tension and pulley from the input shaft (use 1/8" Allen driver).

- Remove hoses, hard lines connected to the pump.
- Remove and discard the 1/4" tube (108-8815) from the manifold "CHG" port (Fig. 3).
- Lift and remove pump from the ProCore chassis.

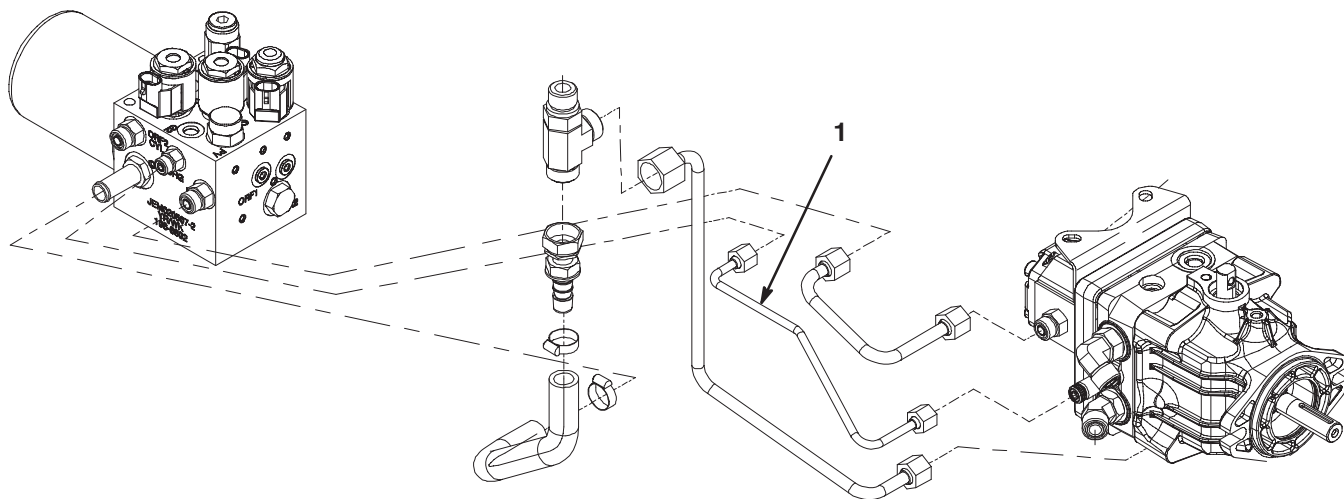


Figure 3

1. 1/4" tube (108-8815)

6. New Charge Filter installation;

- Remove 5/16-18 x 4.50" cap screws and locknuts securing manifold to frame (Fig. 4).

- Secure manifold and new filter bracket with 5/16" x 5.00" cap screws and locknuts (Fig. 4). (new filter bracket mounts under the manifold frame plate)
- Install new filter head (103-2888) to filter bracket with 1/4-20 capscrews and washers (Fig. 4). (inlet port orientated to the top side)
- Install new filter (1-633750) to filter head (Fig. 4).

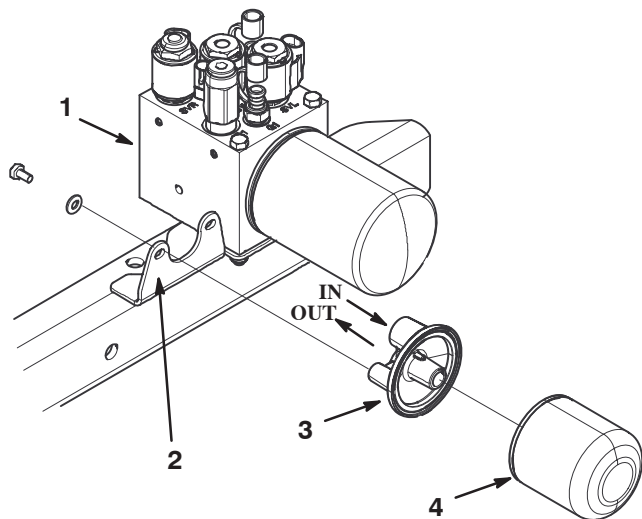


Figure 4

1. Manifold
2. New filter bracket
3. Filter head
4. Filter

7. Assemble the Gear Pump to the Hydrostatic Pump

- Remove capscrews securing gear pump to rear of original pump assembly (Fig. 5).
- Install new gear pump O-ring and secure gear pump to rear of new hydrostatic pump assembly. Torque capscrews to 180–220 in-lb (20–25 Nm).

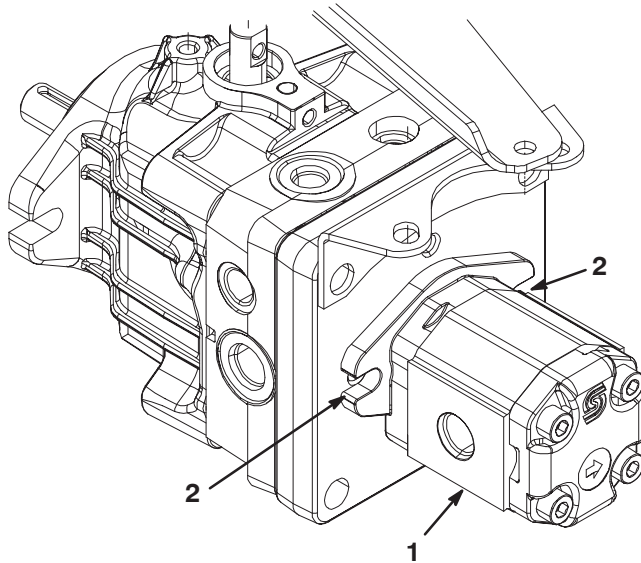


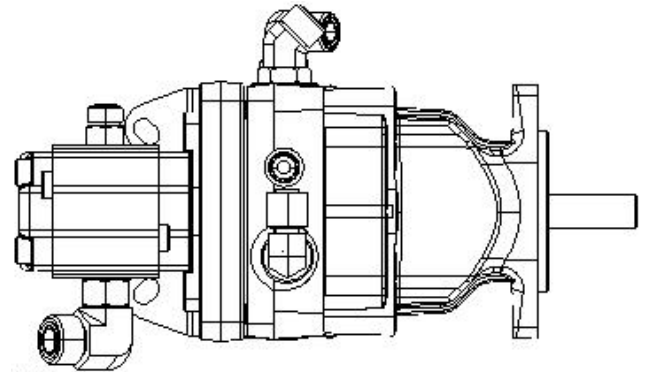
Figure 5

1. Gear pump

2. Capscrew locations

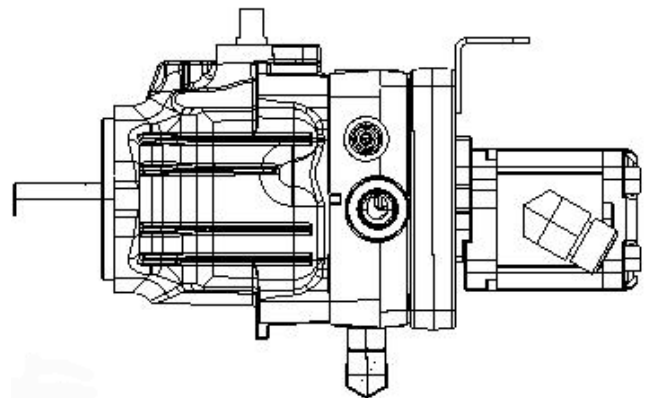
8. Install Pump

- Transfer fittings from old pump to new pump. Orientate fittings as shown in figures 6 thru 8. **Use new O-rings.**



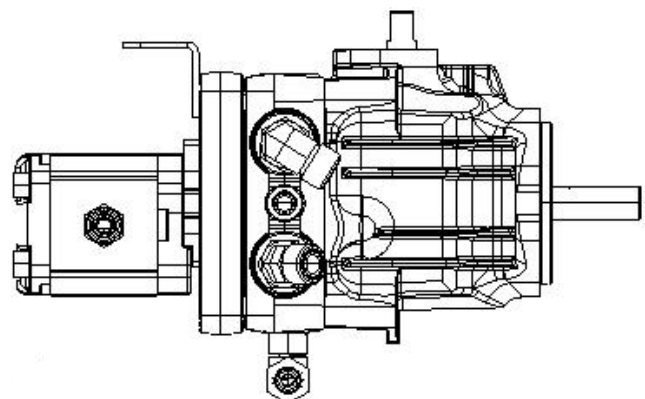
Bottom View

Figure 6



Front View

Figure 7



Rear View

Figure 8

- Install Pump assembly into unit.
Secure pump to mounting bracket.
Install pump drive belt.
Align pulley with hub facing toward pump and secure.
Set spring tension and secure idler pulley.
- Connect all lines **with the exception** of the top traction port (Fig. 9).

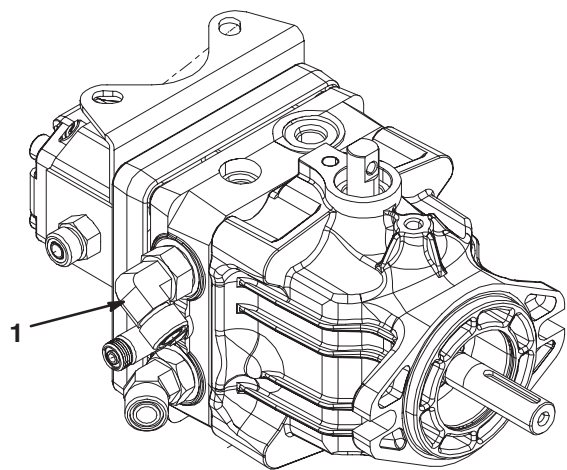


Figure 9

1. Top traction port

- Install new 1/4" tube (108–6812) between filter OUTLET and center port on pump (Fig. 10).

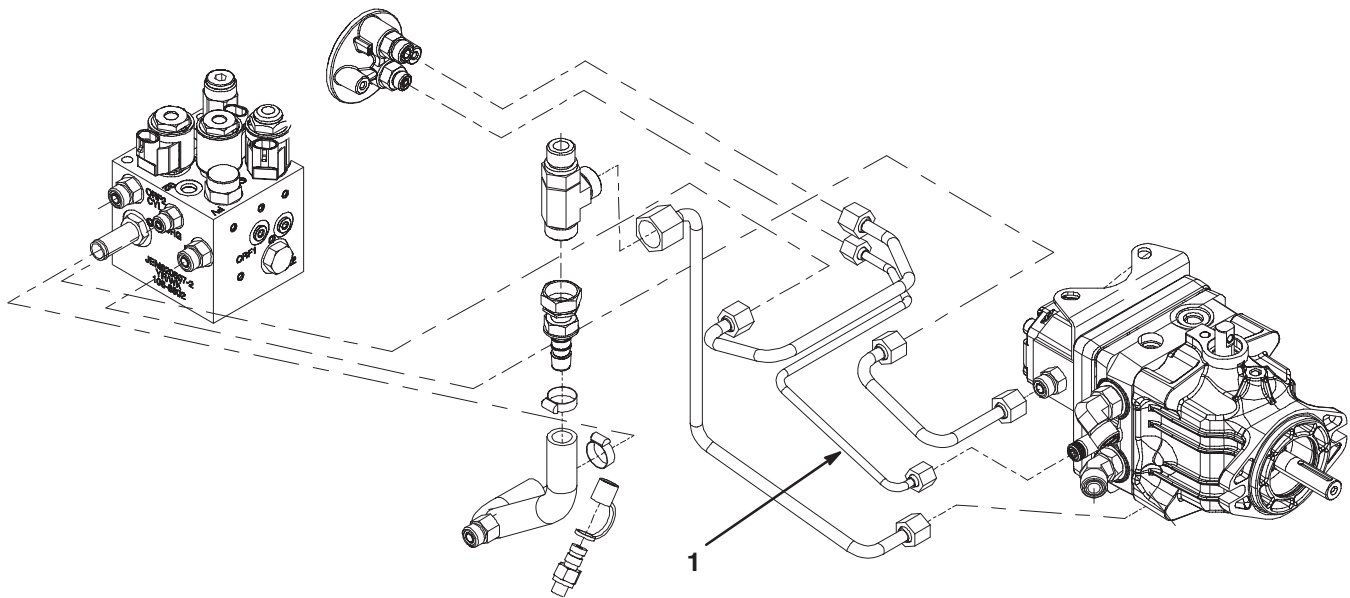


Figure 10

1. 1/4" tube (108–6812)

- Install new 3/8" tube (108-6811) between manifold "CHG" port and filter INLET (Fig. 11).

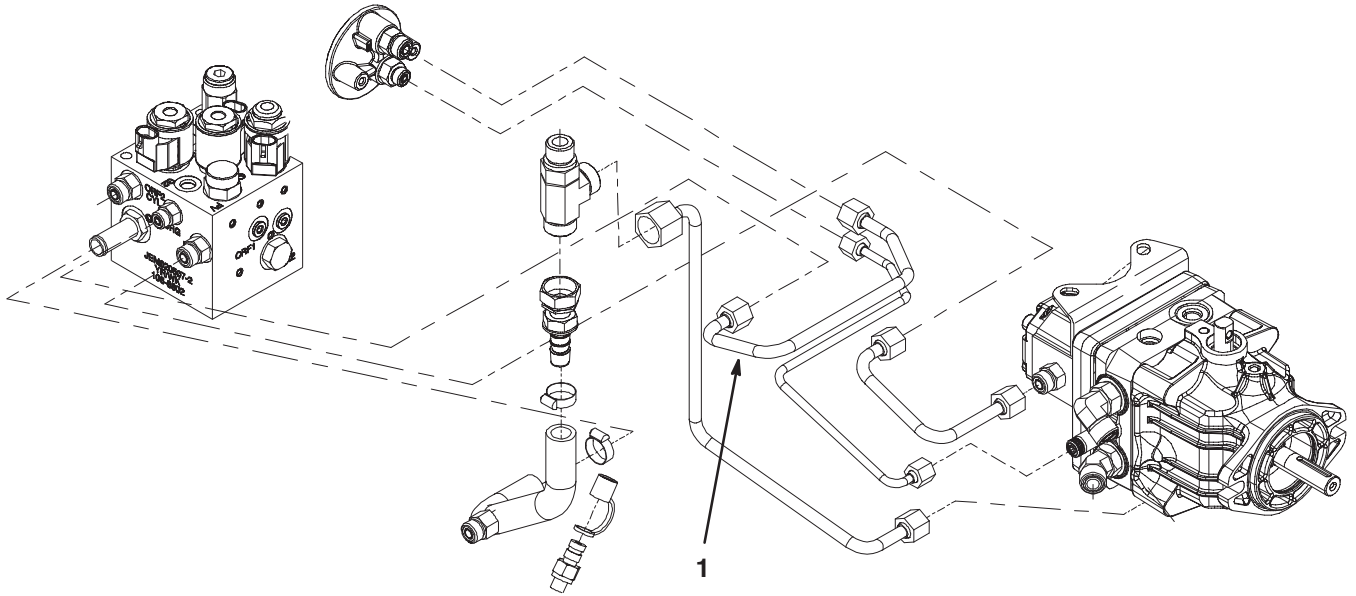


Figure 11

1. 3/8" tube (108-6811)

9. Install Circuit "one time" Filtration

- Pre-fill temporary circuit filter (107-9531) with Mobil 424. Install on filter head (92-5821) from the Circuit Filtration Kit.
- Plumb filter assembly between top hose and top traction port fitting on pump (Fig. 12). (Reverse flow direction)

Note: Flow arrow on filter head must point to pump.

- Position filter and extra hose length under unit.
- Fill Reservoir 1.5" above full mark with Mobil 424. (additional fill makes up for lost oil in system)

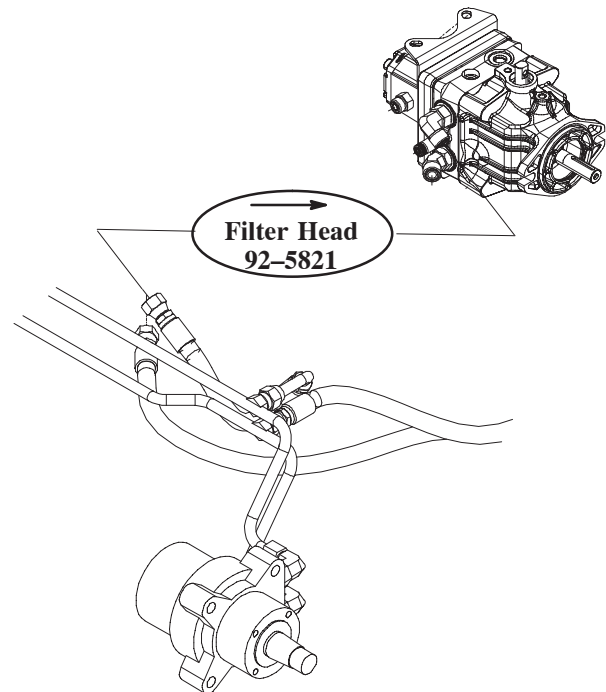


Figure 12

10. Bleed Traction Loop of Air;

- Install traction "bleed" line on traction diagnostic port and crack needle valve open. (drain into drip pan)

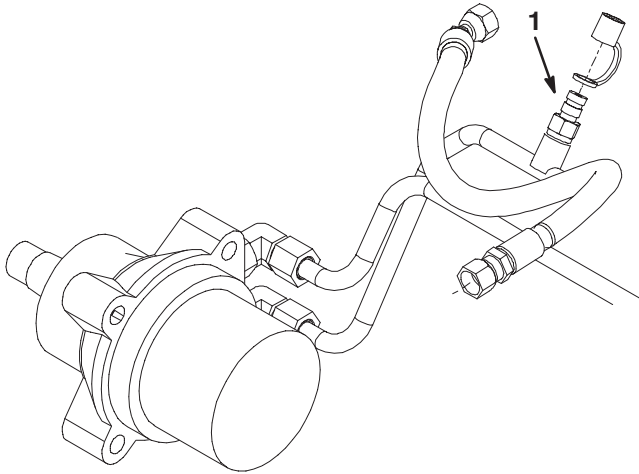


Figure 13

1. Traction diagnostic port

- Open pump bypass valve 1–2 turns on pump.

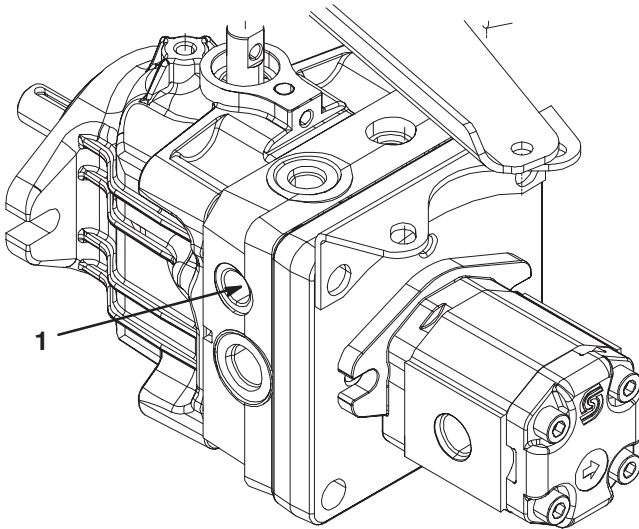


Figure 14

1. By-pass valve location

- The pump is in neutral when the flats of the trunnion shaft are aligned parallel to the mounting flange as shown in figure 15.

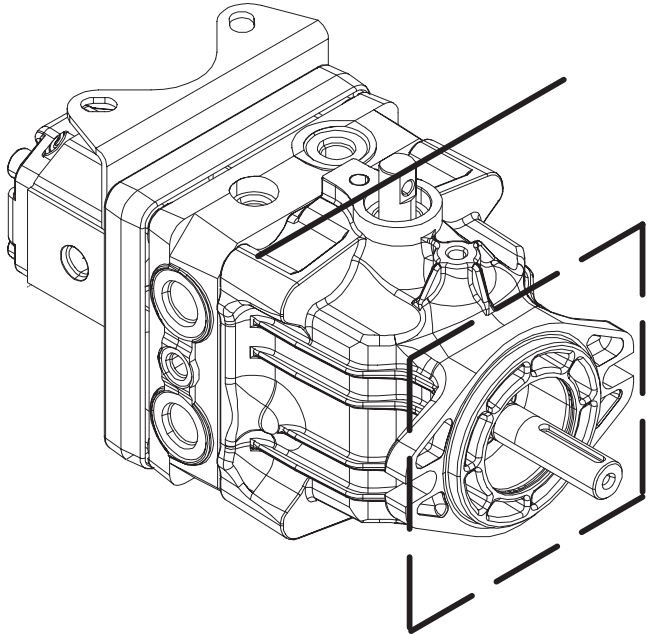


Figure 15

- Ensure pump trunnion is rotated 1–3° from neutral in a Counter–Clockwise direction (CCW is the forward traction direction).

Important Do not run traction system in reverse.

While filtering, do not allow traction system to come to a quick stop from forward. This may overpressure the filter element and contaminate the system with the contents of the filter element.

- Start Engine and run at 1/2 throttle.

Note: May require holding traction bail in neutral position to start engine.

- Bleed unit for 1 minute with bypass valve open. After 1 minute close bypass valve on pump.
- Slowly engage in forward direction (CCW on the trunnion) to full stroke (approximately 20°).
- Bleed for additional 5 minutes or until discharge is no longer foamy.

Important Do not exceed 1/8 GPM (16 ounce/min., 1/2 liter/min.) during bleed process.

- Turn engine off.
- Close needle valve and remove bleed line from diagnostic port.
- Check Reservoir level and fill as required.

11. Cleaning Cycle;

- Start Engine, move to full throttle.
- Maintain trunnion shaft in forward direction (CCW) to full stroke.
- Hold for 8 minutes.
- **Slowly** return trunnion to neutral. Avoid a quick stop or **any** travel into the reverse direction.
- Return engine speed control to 1/2 throttle and turn off engine.

12. Remove Circuit "one-time" Filtration Components;

- Remove "one-time" filter from reverse traction side and secure original hydraulic hose to pump.
- Check Reservoir level and fill as required.
- Minor level of air may be trapped in traction loop and may exhibit sluggish/erratic control for a short period (approx. 10 min.).
- **Re-Install pump controls and secure**
- Clean unit, re-install clutch fuse, shields and covers.
- Properly discard original pump. Do not use for any other service use.

13. Check Override Adjustment

- Remove lower cover on steer arm
- Inspect override assembly length (Fig. 16). Dimension of "Assembly Length" to be 7.25" – 7.38" (184 – 187 mm). The "Spring Length" is then 6.75" – 6.88" (171 – 175 mm).

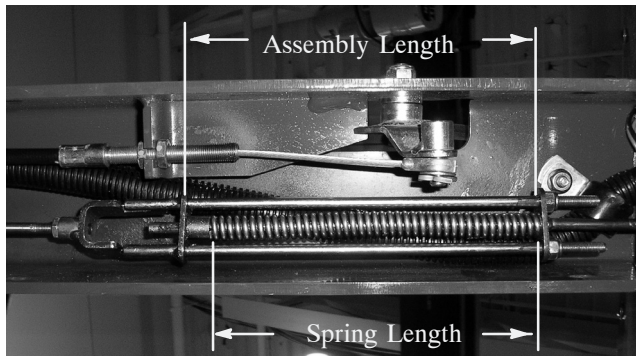


Figure 16

- If assembly does not meet these dimensional requirements, make the following adjustments:
- Remove handle console cover.

- Tighten the two override lock nuts (Fig. 17) down until the override mechanism meets the above dimensions (this should occur when nuts are fully threaded on rod). This adjustment moves the neutral position of the bail and requires the following procedures.

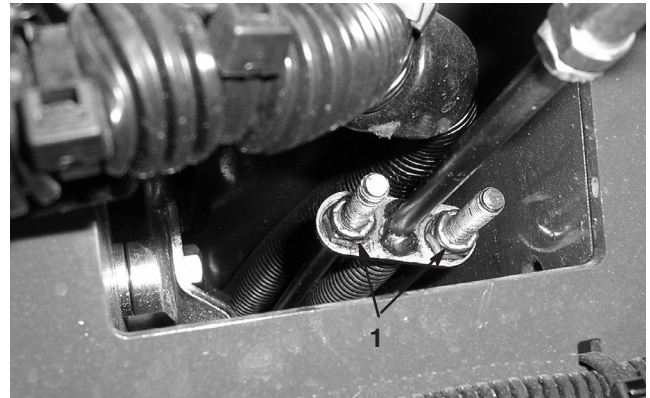


Figure 17

1. Override lock nuts

- Disconnect the override assembly from the bail end of the assembly by removing the ball joint from the bolt (Fig. 18).

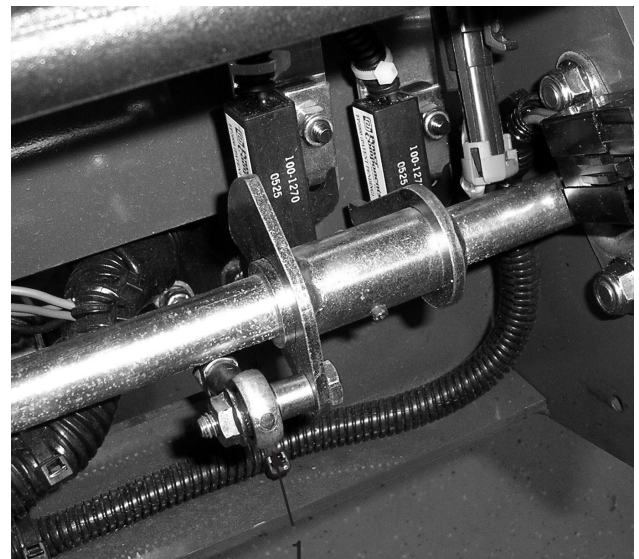


Figure 18

1. Ball joint

- Loosen jam nut on push-pull cable at the junction with the override assembly.

- Rotate the override assembly CCW to back it off the control cable until there is only .50" (12.7 mm) of thread engagement. Most units were assembled with the control cable threads extending about .125" (3.2 mm) beyond the yoke surface.

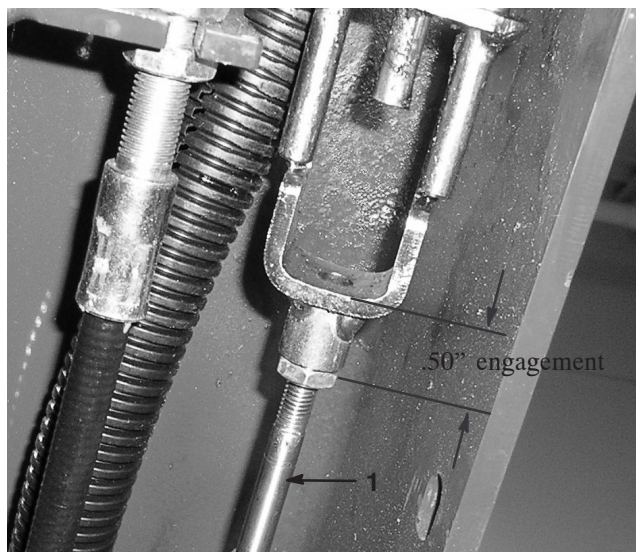


Figure 19

1. Control cable

2.

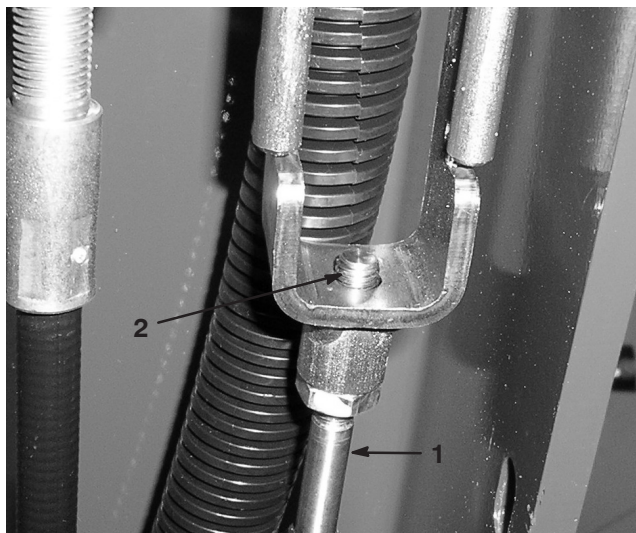


Figure 20

1. Control cable

2. .125" through

- Secure jam nut.
- Re-assemble the override assembly rod end to the bail.

- Actuate the bail in the reverse direction so the reverse stop at the pump controls is in contact as shown in Fig. 21. The assembly may be held in position with vise grips at this location to ease the following steps.



Figure 21

1. Reverse stop

- Adjust the control cable bulkhead at either the pump or handle end so the bail is .25 – .38" (6.4 – 9.7 mm) from handle frame when the reverse stop is in contact.



Figure 22

1. Bail

2. Handle

- The neutral switch target should be aligned with the "target" on the neutral switch as shown.

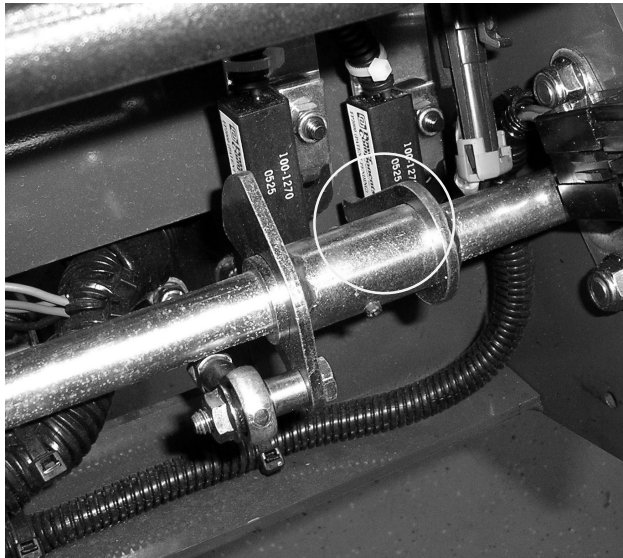


Figure 23

- Secure handle lower cover and console cover.

14. Unit Performance;

- Verify that neutral is still properly adjusted. Correct if needed.
- Verify hole spacing is still properly adjusted. Correct if needed. (The traction unit should travel 50 feet in 34 seconds for 2" hole spacing)

