

This document describes charging the GH40 Hydraulic Hammer with nitrogen gas. Text and illustrations were taken directly from the service manual shown below.

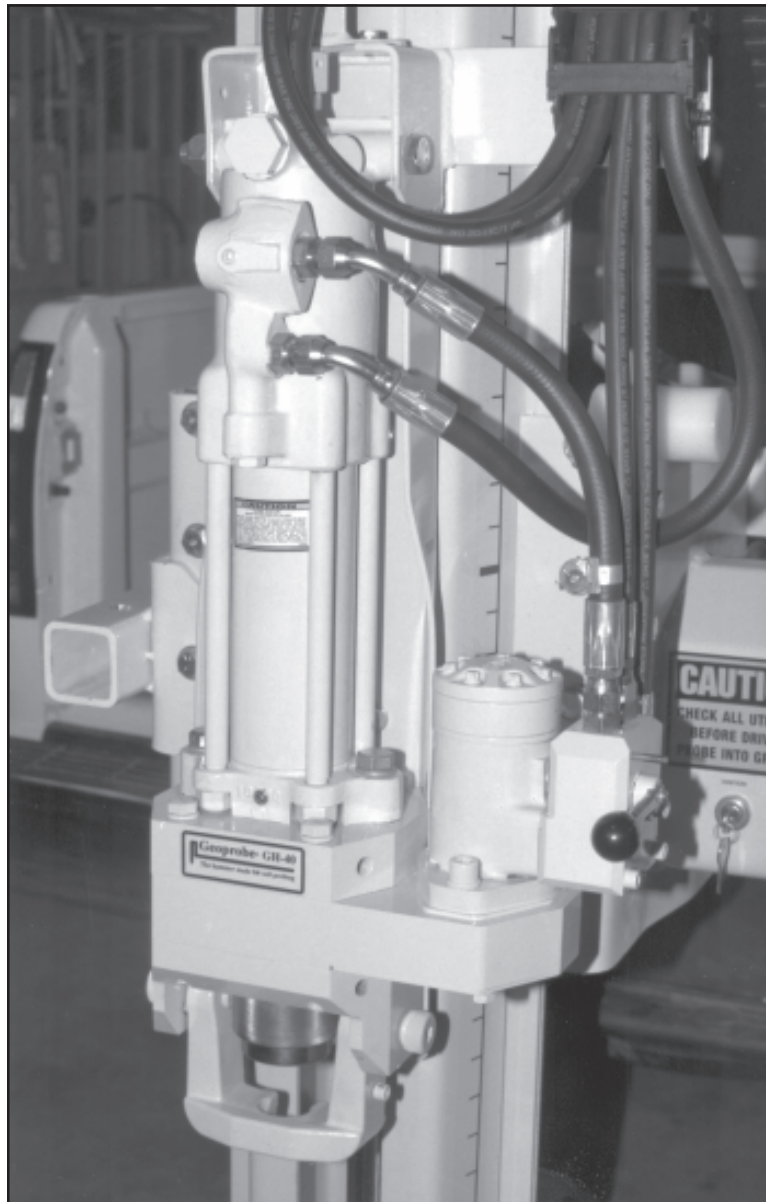
GEOPROBE® GH40 HYDRAULIC HAMMER

SERVICE MANUAL

Technical Bulletin No. 95-040

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GEOPROBE GH40 HYDRAULIC HAMMER

Geoprobe® Systems

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7.0 RECHARGING NITROGEN IN GH-40 HAMMER

Should the Geoprobe® operator experience inconsistency with the percussion function of the GH-40 Hammer, one possible culprit could be a lack of nitrogen charge in the hammer member accumulator chamber. The percussion function may lack snap or completely fail as a result of inadequate nitrogen charge. Though hammer failure due to a lack of nitrogen is rare, recharging the hammer member will eliminate the possibility that an inadequate nitrogen charge is contributing to hammer member failure.

NOTE: The following recharge procedure requires the use of a cylinder of industrial quality nitrogen gas, a pressure regulator assembly (Fig 7.1), and a charge valve adapter (Fig 7.2) These are included in the GH-40 Nitrogen Charge Kit (FA3100K) available from Geoprobe Systems.

- 7.1 Fold the probe derrick into the vertical position, lower the foot onto the ground, and raise the hammer to approximately waist level. Shut off the power unit engine.
- 7.2 Remove the cap from the nitrogen charge port using a 1-3/8" wrench or socket as shown in Figure 7.3. This will provide access to the nitrogen charge valve shown in Figure 7.4.
- 7.3 Loosen the lock nut on the nitrogen charge valve by turning it counterclockwise one complete revolution with a 5/8" socket (Fig. 7.5)
- 7.4 Thread the large hex cap of the charge valve adapter into the nitrogen port on the hammer (Fig 7.6). Install the adapter finger tight but with sufficient torque to seat the O-ring within the port.
- 7.5 Thread the center stem of the charge valve adapter in toward the hammer until it is finger tight. (Fig 7.7).
- 7.6 Attach the quick-connect coupler on the end of the nitrogen fill hose to the quick-connect nipple on the charge valve adapter as shown in Figure 7.8.
- 7.7 Ensure that the line pressure in the nitrogen fill hose is set at zero by turning the regulator tee-handle (Fig 7.9) counterclockwise until it turns freely.
- 7.8 Open the main valve on the nitrogen cylinder (Fig 7.10) by turning the handle counterclockwise.
- 7.9 Slowly turn the regulator tee-handle (Fig 7.9) clockwise until the line pressure gauge reads 650 psi.

IMPORTANT: DO NOT overcharge the system. Charging the system beyond 650 psi will rupture the accumulator diaphragm or otherwise damage the hammer.

- 7.10 Close the main valve on the nitrogen gas cylinder (Fig 7.10) by turning the handle clockwise.
- 7.11 Unthread the charge valve adapter center stem several revolutions out from the hex cap (Fig. 7.11)
- 7.12 Rotate the regulator tee handle (Fig 7.9) counterclockwise until the line pressure gauge reads 650 psi (pressure is released).
- 7.13 Remove the charge valve adapter from the hammer by unthreading the large hex cap. Detach the adapter from the nitrogen fill hose at the quick-connect fittings.

7.14 Snug the lock nut on the nitrogen charge valve (loosened in Step 7.3) using a ratchet and a 5/8" socket (Fig. 7.20). **DO NOT OVERTIGHTEN.**

7.15 Listen for a hissing sound around the charge valve and accumulator housing. Check for dripping oil around the base plate and piston if hammer member is removed as in Figure 7.12, or from the hex drive if the hammer is installed as in Figure 7.13.

Obvious leaks, such as those described above, would indicate a defective accumulator diaphragm in the hammer member. If the accumulator diaphragm has failed, the hammer member must be sent to the Geoprobe factory in Salina, Kansas, for repair.

7.16 Reinstall the nitrogen charge port cap that was removed in Step 7.2.

7.17 Nitrogen recharge is complete.

IMPORTANT: Do not transport the nitrogen gas cylinder without first removing the regulator assembly. Always secure the cylinder during transport to prevent shifting or rolling while the vehicle is in motion. These are important safety issues as the cylinder can be propelled at a high rate of speed if the regulator or valve were to be damaged during transport.



Fig. 7.1. Nitrogen gas cylinder with pressure regulator assembly.

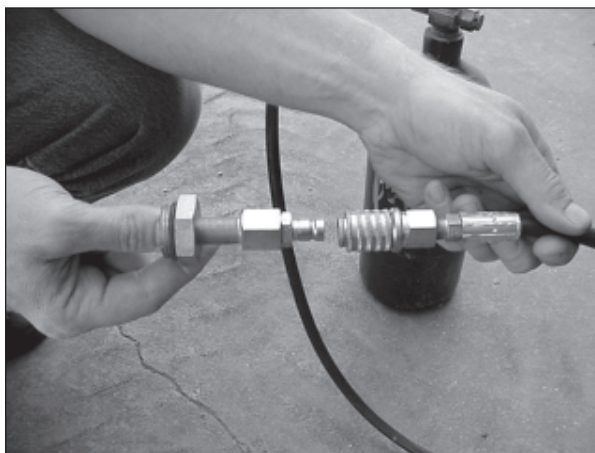


Fig. 7.2. Charge valve adapter (left) shown with nitrogen fill hose quick-connect coupler.

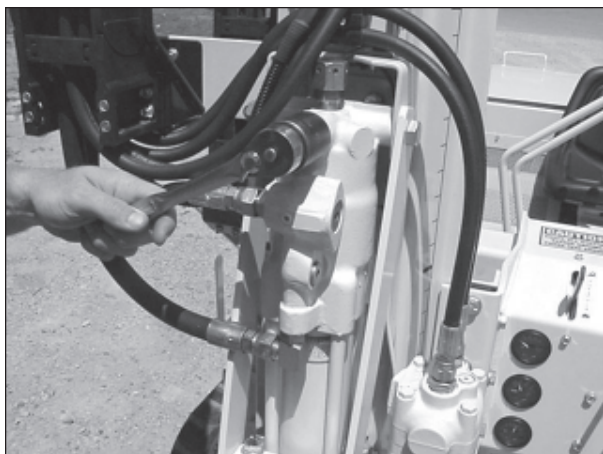


Fig. 7.3. Remove cap from nitrogen charge port.



Fig. 7.4. Nitrogen charge valve and lock nut.

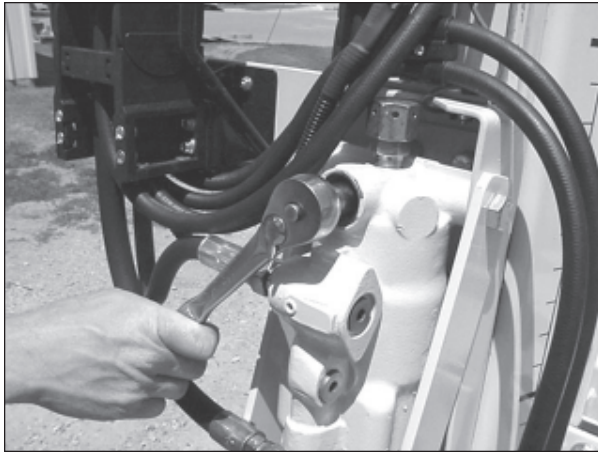


Fig. 7.5. Loosen lock nut on nitrogen charge valve one full revolution.

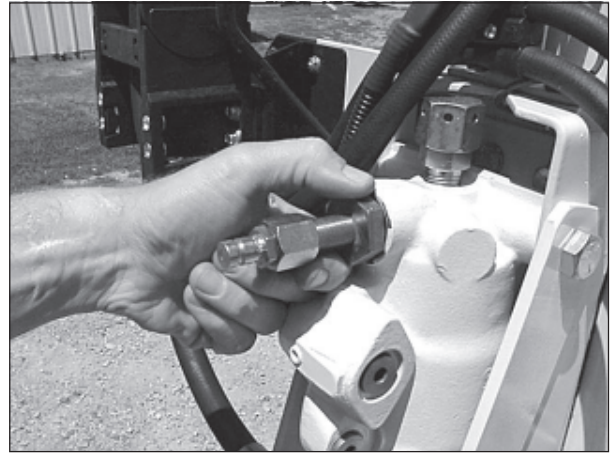


Fig. 7.6. Thread hex cap of charge valve adapter into nitrogen charge port until hand tight.

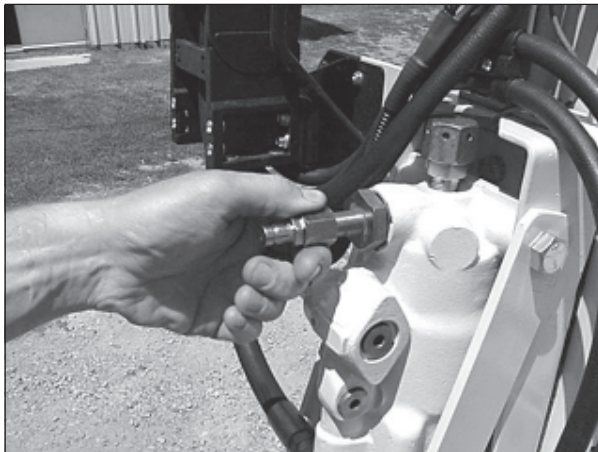


Fig. 7.7. Thread charge valve adapter center seam into hex cap until stem is hand tight.

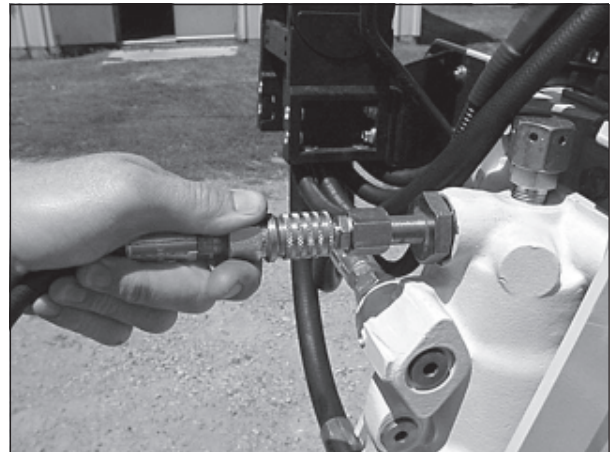


Fig. 7.8. Attach nitrogen fill hose to charge valve adapter at quick-connects.



Fig. 7.9. Nitrogen gas regulator tee-handle



Fig. 7.10. Nitrogen gas cylinder main valve.

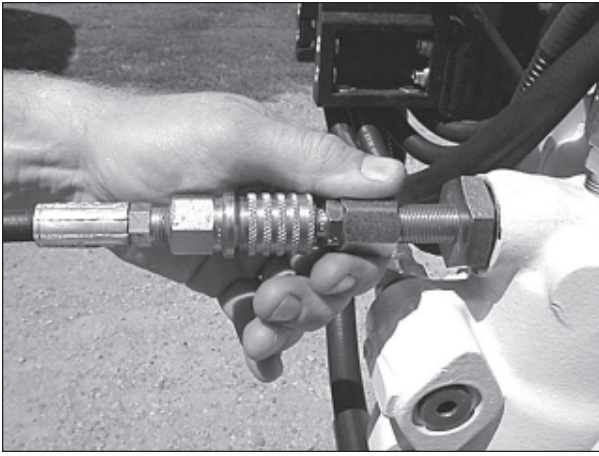


Fig. 7.11. Unthread the charge valve adapter center stem out from the hex cap.



Fig. 7.12. Check for dripping oil around base plate and piston.

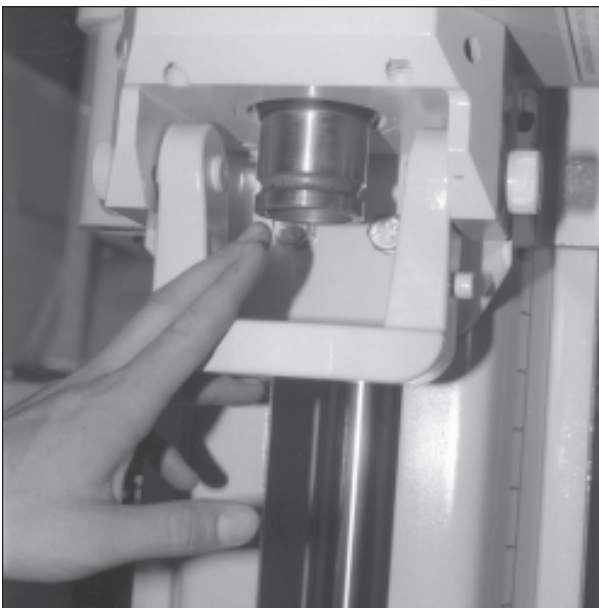


Fig. 7.13. Check for dripping oil from hex drive.