

Kit Contents:

Depending on which HPOP kit you purchased (DieselOrings.com 8-002 with the long threaded plug or 8-007 long thread plug and o-ring).

- Item #8-007 – Long thread plug and o-ring & .5ml Loctite 680 – Optional HPOP gasket
- Item #8-002 w/plug: – Long thread plug and o-ring, 2 o-rings for the discharge hoses – exterior; 2 o-rings for the discharge hose fittings – interior; 1 o-ring for the plug on the back of the pump, 1 o-ring for the fill plug on the reservoir, 1 o-ring to reseal the IPR to the pump, .5ml Loctite 680 – Optional HPOP gasket

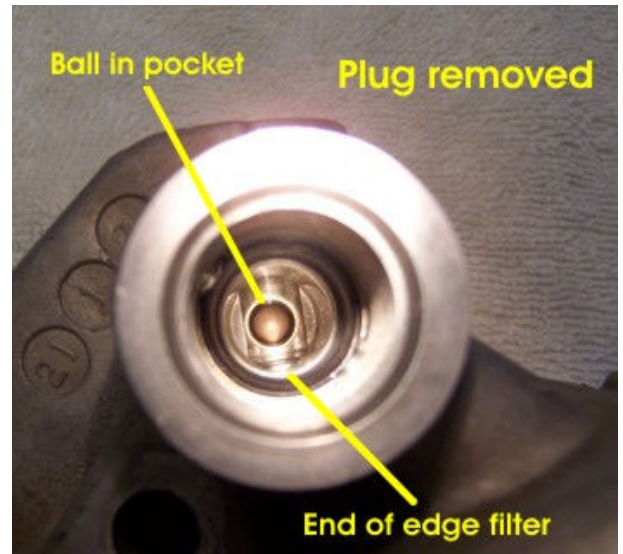
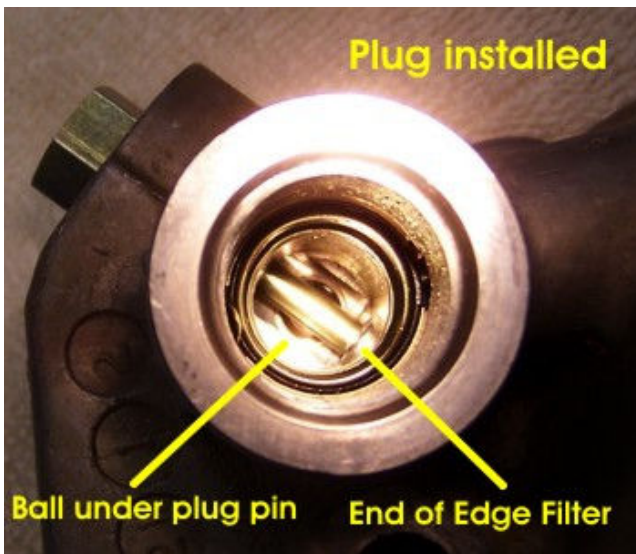


⚠ Warning: To replace this plug, the pump must be removed from the engine. Do not attempt to remove the “non-serviceable plug” until the pump is removed and properly positioned on the work bench.

⚠ The fuel bowl canister is normally removed prior to removing the HPOP for greater access to the pump. The fuel hard line seals are not reusable on the fuel bowl. For new seals, please see our fuel bowl kit #7-003.

- Before unbolting the pump from the front engine plate, evacuate as much oil from the HPOP reservoir using a hand vacuum pump thru the reservoir plug at the top of the reservoir cover.
- Disconnect both discharge hoses from the pump (see HPOP kit #8-002 for instructions).
- Remove the top cover of the reservoir (Larger bolts) to expose the HPOP drive gear. It is not necessary to remove the small torx screws that keep the two parts of the cover together.
- Remove the drive gear bolt access plate from the front engine cover and remove the shaft bolt and drive gear.
- Remove the two HPOP mounting bolts from the rear of the HPOP.
- Remove the pump from the engine bay and use a deep 1 1/8” socket to remove the IPR from the back of the pump. Have a drain pan or bucket ready to catch the remaining oil in the pump.
- Set the pump in the drain pan and allow the pump to empty into the pan.
- Support the pump in a soft-jaw vise or place the shaft in the drive gear that you removed from the reservoir cavity. **The pump must be positioned so that the shaft and milled surface of the pump is facing down and the large plate and c-clip is facing up.** In this position, the check ball and edge filter will remain in their proper positions.

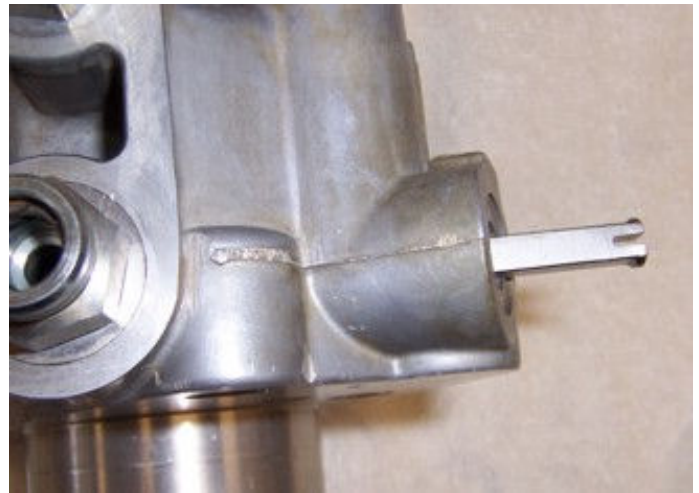
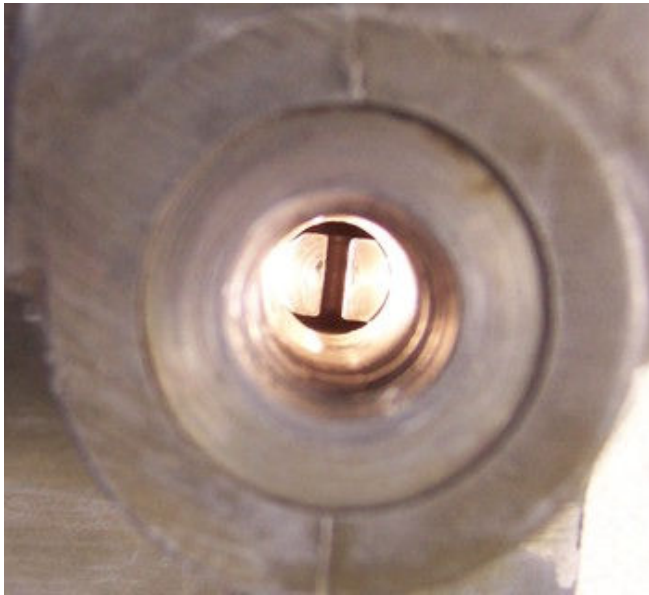
Looking thru the IPR threaded opening, you can see the end of the edge filter and small plastic ball that can be lost if you remove the non serviceable plug while mounted on the engine.



If the non-serviceable plug is not already loose, heat the end of the plug to 400-500°F. This will begin to soften the retaining compound so the plug can be removed without additional damage to the pump body threads..

Once the “non-serviceable plug” has been removed, remove the check valve ball and edge filter. It is suggested to hold the pump over a cardboard box so when the ball falls from the pump, it does not roll off where it cannot be found. The ball may stick in the pump from oil surface tension. If this is the case, you can dislodge it by blowing compressed air through the small hole located in the front of the pump opposite where the ball is seated in the pump. **Once the ball and edge filter has been removed, place them in a parts tray and set them away from the area that you are working on the pump as to not hit them and lose these important parts.**

Looking thru the “non-serviceable plug’s” opening, you can see the end of the edge filter recessed into the pump body. The edge filter is identical on both ends so there is no special orientation to the way that it is installed.



- Using a non-chlorine brake cleaner, clean the threads of the non-serviceable plug opening, the discharge fittings (if removed) and IPR opening and allow to dry. It is very important to make sure the threads are completely oil-film free to give a surface for the Loctite to adhere to.
- Inspect the interior of the IPR/plug cavity to assure there is no remaining pieces of aluminum or old retaining compound. Flush well with brake cleaner. Allow all parts to dry while making sure there is no remaining oil film on the threads of the plug, HPOP or hose fittings (if removed).
- Install the edge filter by pushing it into its cavity through the Serviceable plug’s threaded opening. Place the pump in the position where the shave is point down and the rear plate with the snap ring is pointing straight up. Place your thumb over the Serviceable Plug’s threaded opening and drop the ball into the IPR’s threaded opening. With a flashlight, look in the pump through the IPR threaded opening and assure that the ball is centered in its pocket at the front of the pump.
- Install the new “serviceable” plug o-ring on the plug. It is better to roll the o-ring over the threads rather than trying to stretch and pull the o-ring to the plug’s shoulder.
- **NOTE: If the plug’s threads in the pump have been distorted or torn, put a small amount of Loctite 680 on a cotton swab and apply a very small amount directly to the virgin threads deep in the pump as the distorted threads may wipe the Loctite that is applied to the plug clean before**

Servicing the “non-serviceable plug” on Navistar 7.3L Diesel Engines

reaching these new threads. Then, apply LocTite 680 Retaining Compound on the first 4 threads of the new long thread plug. Do not over apply the compound. If you hold the plug horizontal, there should not be a drip of LocTite forming on the bottom of the threads, if there is, carefully remove the drip so the threads are only lightly coated.

- Screw the plug into the “serviceable” plug’s threaded opening, making sure that you do not shove the ball out of its pocket. **Only screw the plug in 2 or 3 threads at this time and STOP!**

WARNING !!!

If the ball get pushed out of its pocket, it can be crushed between the edge filter and the end of the Serviceable Plug or it will be on the wrong side of the plug’s pin. With the ball out of its pocket **the truck will NEVER start and the ball can become wedged into the end of the IPR valve and must be destroyed to remove it from the IPR.**

- Using a flashlight again, look through the IPR threaded opening and **make sure** that you can verify the check ball is **BELOW** the pin of the Serviceable Plug. You should be able to see the sides of the ball protruding from either side of the pin.
- Using an inch-lb torque wrench, torque the plug to **75 lbs-in (INCH LBS!)**.
- If the discharge fittings have been removed, install them according to the directions found on Kit #8-002.





WARNING

For a long term repair on the new “serviceable plug”, it is necessary to allow the LocTite 680 Retaining Compound to cure for full 24 hours before reintroducing oil into the pump. This is LocTite’s suggested cure time for their product. For best results, leave the pump on the workbench with the plug pointing up so the LocTite does not get contaminated from oil that continues to drain from the pump for the full 24 hours of cure.

Note: If installing this plug on a **late 94 or early 95**, you will notice that the new plug is slightly longer than the original plug. This will not affect the operation or installation since there is not an edge filter in this model of pump.

Reinstalling the pump:

- Clean any remaining sealant from the reservoir gear cover plate and front engine cover.
- Using a new HPOP engine cover gasket (DieselOrings.com p/n 8-008 or 8-009), mount the pump on the engine cover and place the drive gear over the HPOP shaft. There is no keyway on the shaft and gear..
- Torque the two HPOP mounting bolts to 18 lbs-ft (24 Nm).
-  **CAUTION: Make sure that the drive gear is fully seated on the high-pressure oil pump before installing the bolt and washer. Otherwise, the drive gear may not seat properly, causing binding or slippage resulting in a no oil flow condition.**
- Proper torque on the gear bolt will lock the drive gear to the pump Torque the drive gear bolt to 95 lb-ft (129 Nm). If the engine begins to turn over while tightening this bolt there is no need to attempt to bind the engine from turning. If this occurs, just stop as this will be tight enough.
- Apply a bead of RTV sealant around the edge of the bolt cover plate and torque to 8-10 lbs-ft.
- Reinstall the upper oil reservoir gasket that you removed unless it shows signs of damage or has previously been leaking. Install a new gasket if any signs of failure are present.
-  **NOTE: There are 3 different reservoir gaskets, make sure that if you are installing a new one that it is EXACTLY the same as your old one or you could crack the lower reservoir area when you install the incorrect gasket.**
- Torque the top reservoir bolts to 18 lbs-ft (24 Nm).
- Reinstall the IPR and discharge hoses. Pull on the discharge hoses to make sure that the quick connects are properly locked in place.
- Reinstall the fuel bowl using new fuel hard line sleeves.
- Refill the HPOP reservoir to within $\frac{3}{4}$ ” of the top. You may have to turn the engine over and recheck the reservoir level a couple of time while the pump refills itself.
- Purge the fuel bowl canister by turning the key to the “ON” position until you hear the pump stop. Do this 2 or 3 times.
- It may take a few attempts to restart the truck as the discharge hoses may have drained the oil and are now full of air. Do not crank the engine more than 20 seconds at a time and then allow the starter to cool before attempting to start again.
- Once the engine starts, check for signs of oil leakage around the discharge hoses, front mounting gasket, reservoir gasket and IPR.
- Check for signs of fuel leakage on the four fuel hard line connections that were installed.
- It will take approximately 50 miles of hard driving to purge the oil rails and fuel rails of air that was introduced during this service procedure.