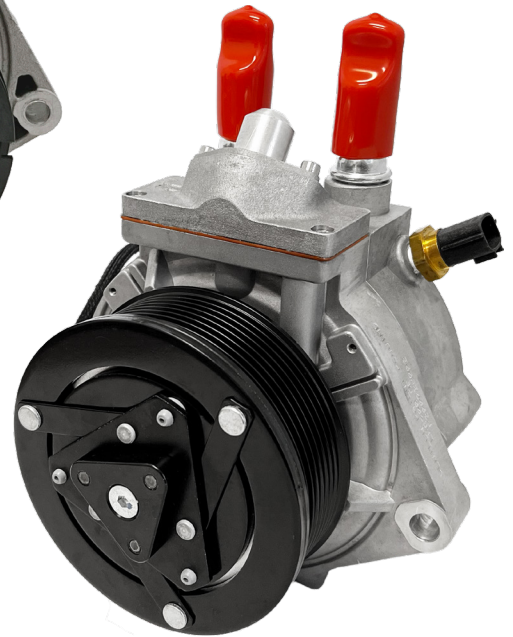
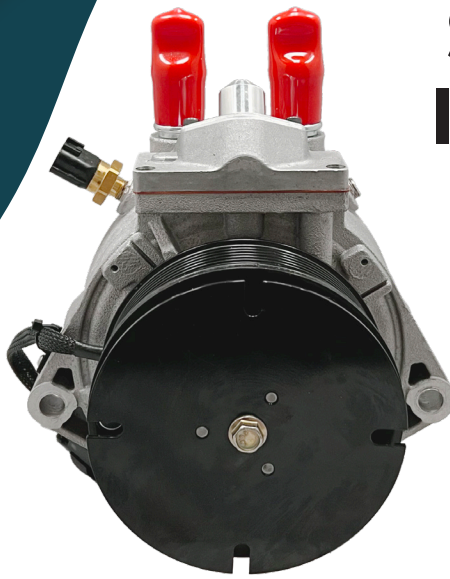


LHG700 Service Kit Instruction Manual



Ventech 

LHG (Liquid Heat Generator)

LHG700 Service Kit Manual
Ventech Service Kit # 1700

2024-03-15



Table of Contents

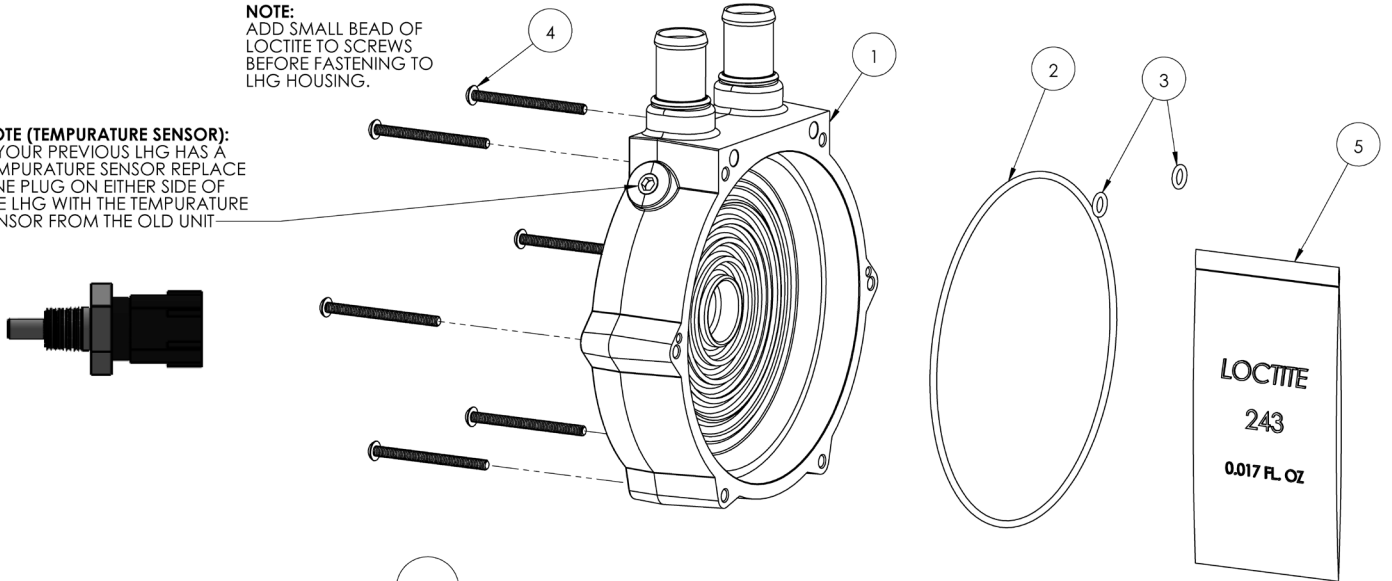
1. Kit Contents and Diagrams	4
2. About This Kit	6
3. Preparing your LHG.....	6
4. Install the Temperature Sensor (if equipped).....	7
5. Remove the current Back Canister Assembly from your LHG.....	8
6. Prepare the new LHG Front Casing, and O-Rings for Back Canister Installation.....	9
7. Install the New Front Casing O-Rings.	10
8. Install the Small O-Rings.....	11
9. Attach the new Back Canister.	12
10. Update the HV Pin, Pintle, Dome, & Spring Sub-Assembly (PDSS).	13
11. Install the new Manifold gasket.....	14
12. Install the new PDSS or Plug with updated O-Ring.....	16
13. The service kit installation is complete.	17

1. Kit Contents and Diagrams

NOTE (LHG BRASS ORIFICE):
WHEN REPLACING THE CANISTER
MAKE SURE SMALL BRASS ORIFICE IN
THE LHG HOUSING STAYS IN PLACE,
BEHIND THE 930-0023 O-RINGS.

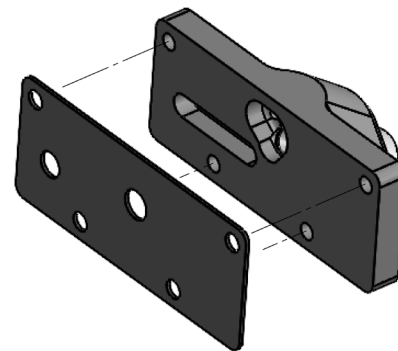
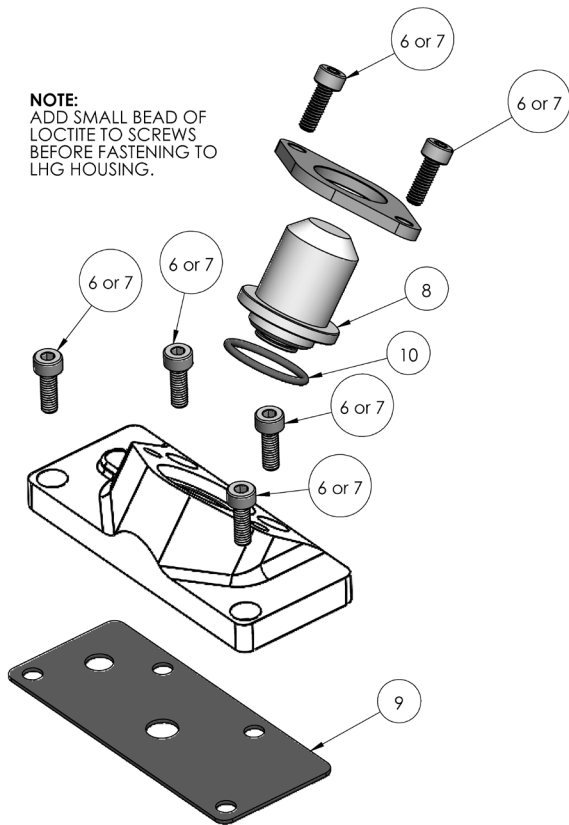
NOTE:
ADD SMALL BEAD OF
LOCTITE TO SCREWS
BEFORE FASTENING TO
LHG HOUSING.

NOTE (TEMPERATURE SENSOR):
IF YOUR PREVIOUS LHG HAS A
TEMPERATURE SENSOR REPLACE
ONE PLUG ON EITHER SIDE OF
THE LHG WITH THE TEMPERATURE
SENSOR FROM THE OLD UNIT



NOTE:
ADD SMALL BEAD OF
LOCTITE TO SCREWS
BEFORE FASTENING TO
LHG HOUSING.

NOTE:
ALIGN GASKET HOLES WITH MANIFOLD AS SHOWN BELOW



ITEM 11 - M3-0.5 X 8mm CONE POINT SET SCREW

ITEM 6 - M4-0.7 X 12mm SOCKET HEAD SCREW

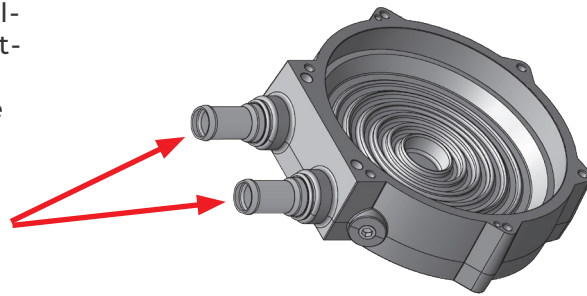
ITEM 7 - M4-0.7 X 10mm SOCKET HEAD SCREW

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	See Below	LHC700 BACK CANISTER ASSEMBLY (one of the three listed below)	1
	170-0053	5/8" HOSE FITTINGS	
	170-0054	3/4" HOSE FITTINGS	
	170-0055	1" HOSE FITTINGS	
2	930-0014	O-RING, - 160, ROUND, SILICONE RUBBER	1
3	930-0023	O-RING, - 010, ROUND, SILICONE RUBBER	2
4	920-0133	M4-0.7 x 50 BUTTON HD SCREW - STAINLESS STEEL	6
5	990-0012	LOC-TITE 243 .017 FL. OZ (BLUE)	1
6	920-0154	M4-07 X 12 SHCS - STAINLESS STEEL	6
7	920-0075	M4-0.7 X 10 SOCKET HEAD CAP SCREW-SS	6
8	110-0005	HV PIN, PINTLE, DOME, & SPRING SUB-ASSEMBLY	1
9	11-0035	MANIFOLD GASKET	1
10	930-0006	O-RING, -018, ROUND, SILICONE RUBBER	1
11	990-0183	M3-0.5 X 8 CONE POINT SET SCREW, SS	3

2. About This Kit

This Kit is intended to recondition the coolant cavities, control manifold, and associated seals and fasteners of the Ventech LHG 700 Liquid Heat Generator. It is not usable with any other LHG models.

NOTE: Before you begin, make sure that the hose fittings in this kit are the same size as the hose fittings/hoses on the LHG you intend to refurbish.



3. Preparing your LHG

This kit should be implemented on a work bench or a clean and clear workspace intended for this purpose. **It should not be attempted with the LHG mounted on the engine.**

Take care not to damage any connectors or the Temperature Sensor (if equipped)

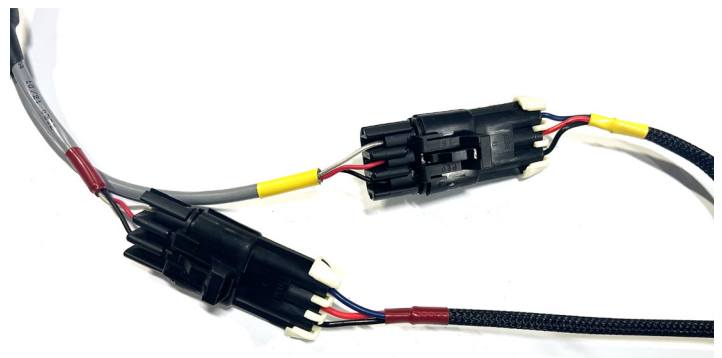
1. Begin by disconnecting the LHG wiring harness from the LHG.

Each application will be different, with as many as four connections to the wiring harness. See examples to the right. Each connection should have releasable connectors, and you should make a note or take a picture to document the configuration before disconnecting them.

Verify that the engine and engine coolant are no longer hot!

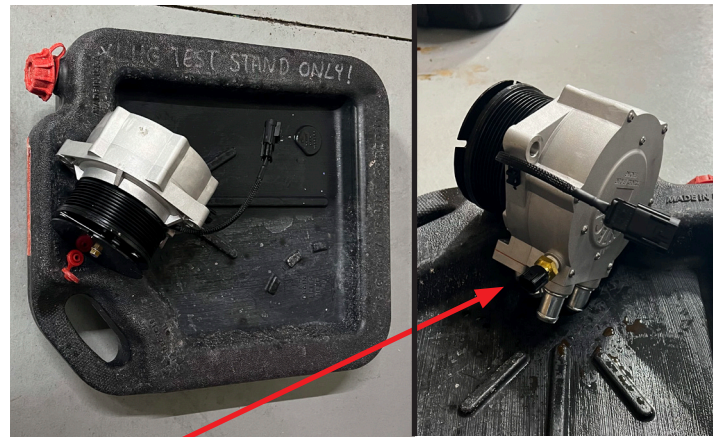
Note where the hoses are connected to the LHG so they can be returned to the proper location after this kit has been installed. In the example to the right, we have marked one hose with red duct tape and noted its location on the LHG so we can reconnect the hoses properly after the LHG is refurbished.

Clamp off and remove the the coolant supply hoses from the LHG

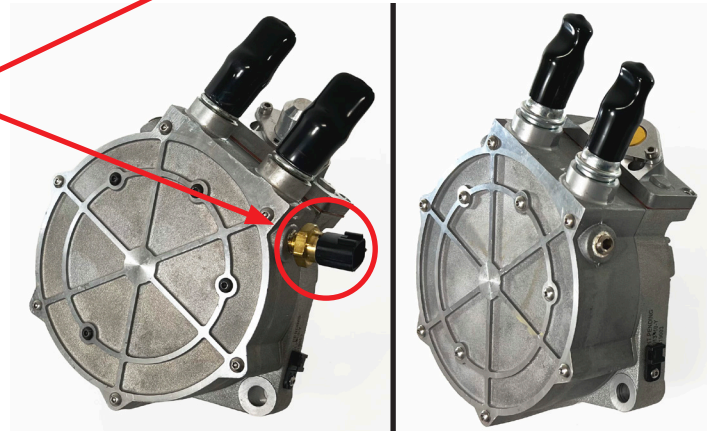


2. Drain the LHG of residual coolant by placing it with the hose fittings downwards in a container for collecting the coolant.

Even after it is drained, there will be some coolant left in the LHG. During disassembly you will want to make provision to capture this coolant and prevent it from spilling on important equipment and tools.



3. While the coolant is draining, determine if your LHG has a temperature sensor. If it does, this Temperature Sensor will have to be removed and placed on the new/kit supplied Back Canister Assembly.



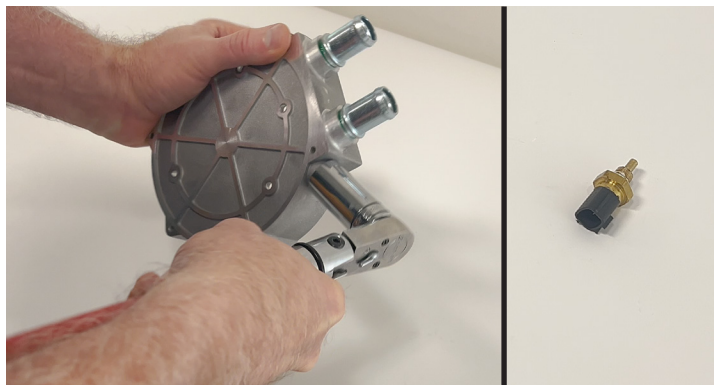
With Temperature Sensor

Without Temperature Sensor

4. At this time, use a deep well socket or open ended wrench to remove the temperature sensor.

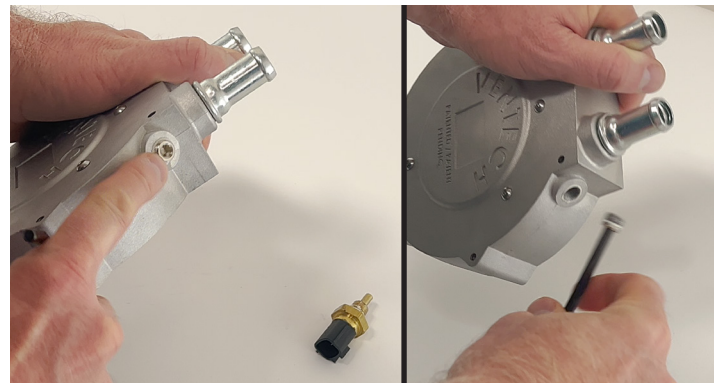
Be extremely careful not to damage the plastic connector or any other part of the Temperature Sensor.

Let the LHG continue to drain while you install the Temperature Sensor on the new Back Canister Assembly

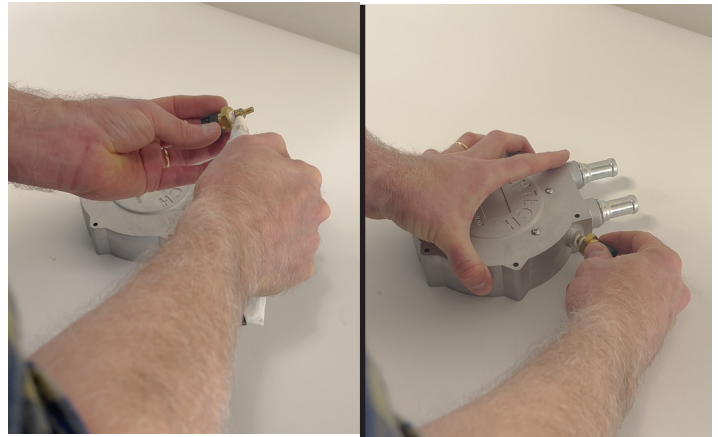


4. Install the Temperature Sensor (if equipped)

1. The new Back Canister Assembly is supplied with the Temperature Sensor mounting holes plugged. Begin by identifying the mounting hole which matches where your Temperature Sensor was on the old Back Canister Assembly. Then remove only that plug.



2. Prep the Temperature sensor by coating the threads with a small amount of thread sealer (not supplied) or plumbers tape(not supplied).
3. Install the Temperature Sensor on the new Back Canister Assembly



4. CAREFULLY torque it to 5 Ft-Lbs.

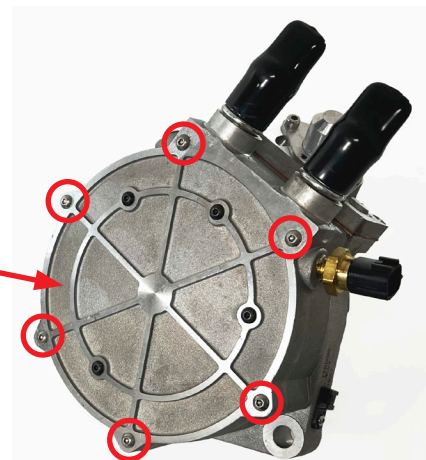


5. CAREFULLY continue to tighten the Temperature Sensor until its orientation matches that shown here.



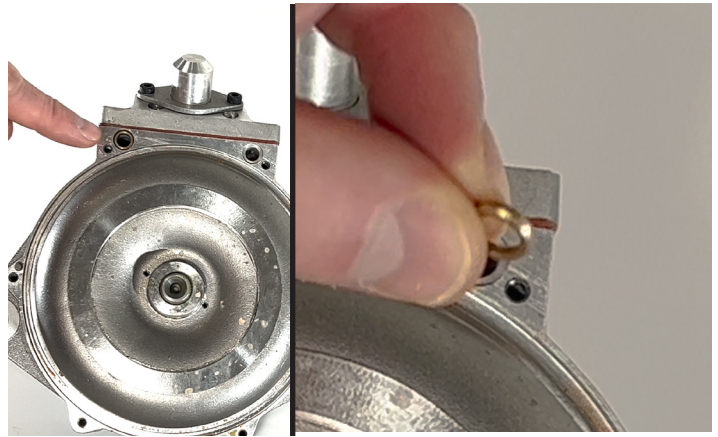
5. Remove the current Back Canister Assembly from your LHG.

1. Remove the 6 bolts shown here.
2. Detach the current Back Canister Assembly from your LHG.
3. After verifying that you have already salvaged the Temperature Sensor (if equipped), Discard the old bolts and the old Back Canister Assembly.



IMPORTANT: There are three O-Rings on the front portion of the LHG.

As you remove the O-Rings, take care not to lose this Brass Orifice. If it does come out, put it aside where it will not get lost or damaged. You can put it back in when you install the new O-Rings,



6. Prepare the new LHG Front Casing, and O-Rings for Back Canister Installation.

1. Remove the large O-Ring from the Front Casing and discard.

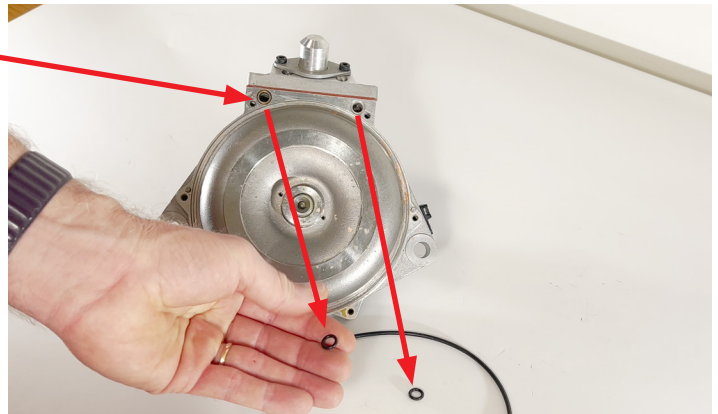


2. Remove the two small O-Rings from the Front Casing and discard them.

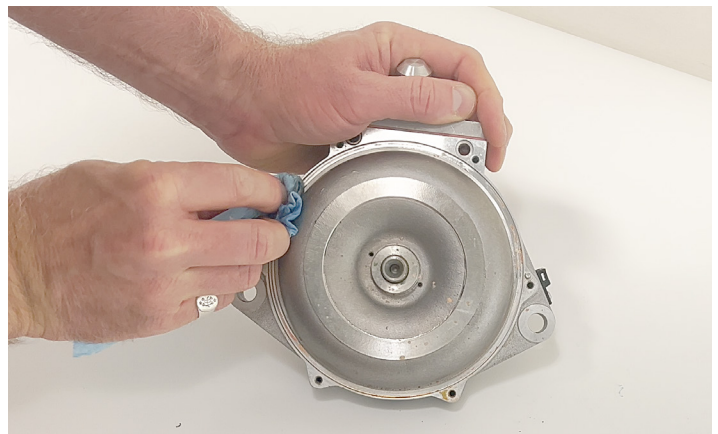
Note there is a Brass Orifice behind the left, small O-Ring. Be careful not to lose this Orifice!

If the Orifice comes out, put it back in with the beveled edge facing out.

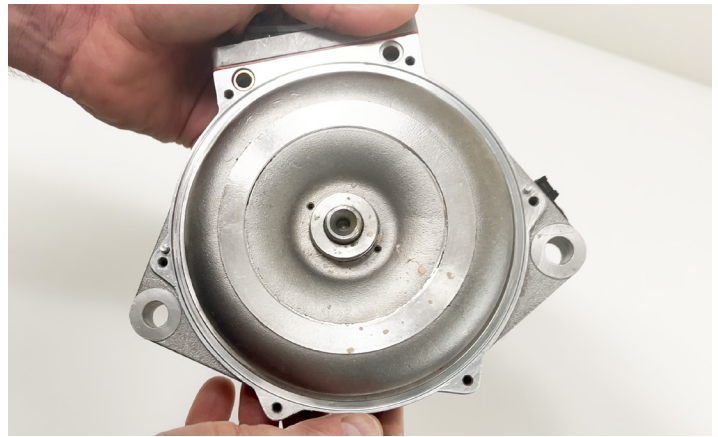
If your Brass Orifice, is lost or damage, contact Ventech to get a new one before proceeding.



3. Using alcohol, clean all of the coolant residue from the mounting surfaces and O-Ring grooves on the Front Casing.



Check to be sure there are no contaminants left in the grooves and mounting surfaces.



7. Install the New Front Casing O-Rings.

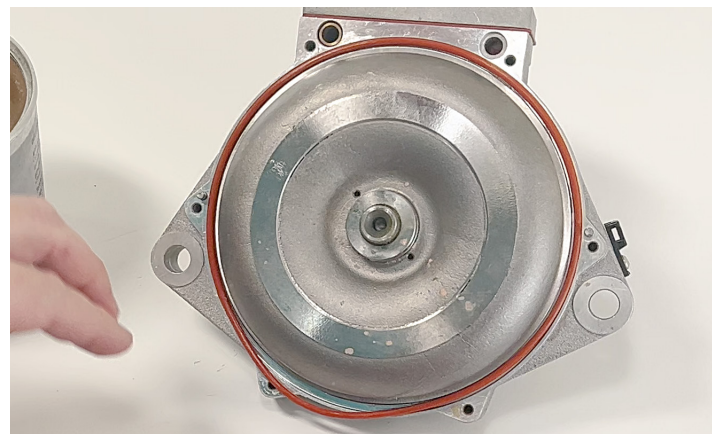


1. Prepare the large O-Ring by coating the entire O-Ring with Super Lube (not supplied in the kit). This will help it seat into the groove and keep it in place when installing the O-Ring and the Back Canister.

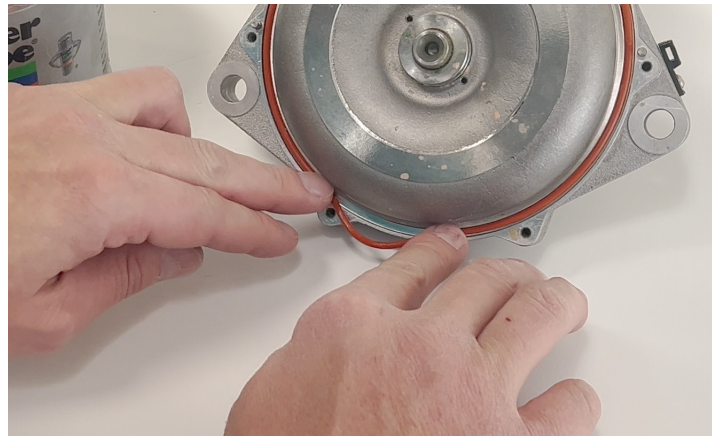


2. Place the O-Ring in the groove on the Front Casting from the top down as shown to the right.

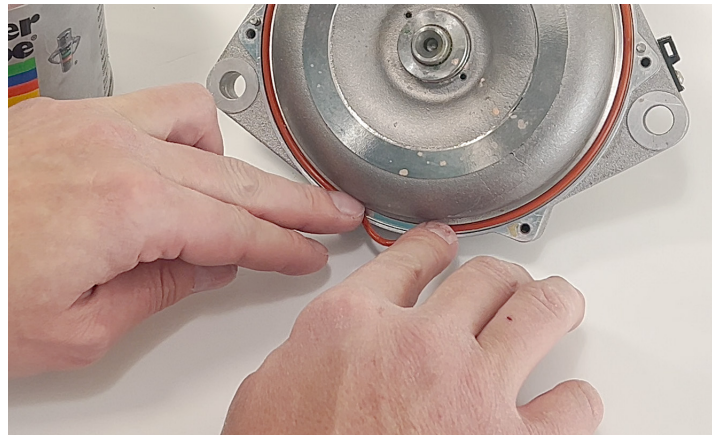
If there is enough Lube on the O-Ring it will stay in place in the groove, however as you work your way down, it will seem as if the O-ring is too big.



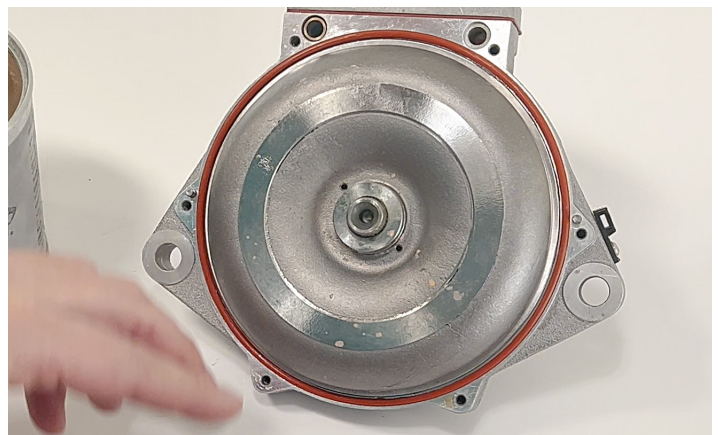
With fingers holding the O-Ring on both sides, gently work your way down.



Through a process of gently pressing the O-Ring into the groove while also letting it slip past your fingers and moving it in small increments back and up to spread around the groove ...



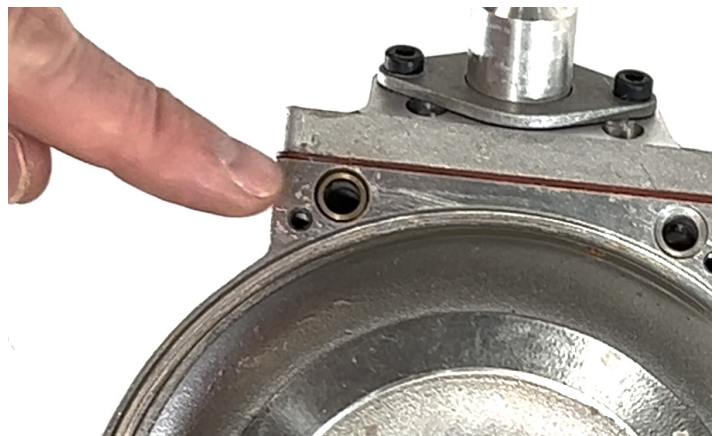
... you will eventually get the O-Ring to seat completely in the groove with no bulges or drooping.



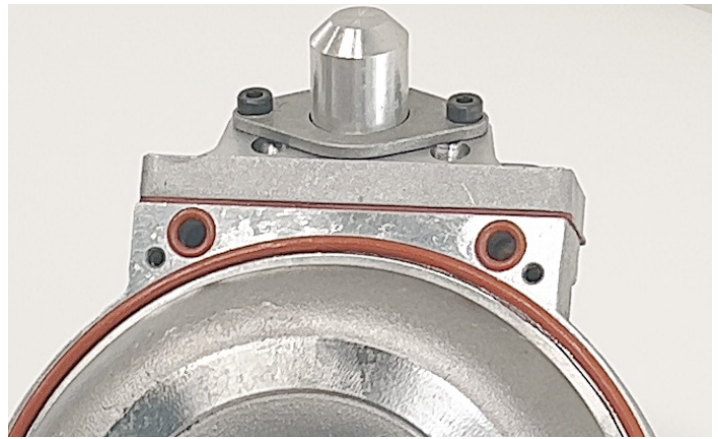
8. Install the Small O-Rings

Once again, make sure the Brass Orifice is properly positioned in the left channel shown here, with the beveled side out.

If your Brass Orifice has become lost or damaged during this process, stop now and contact Ventech to acquire a new one.

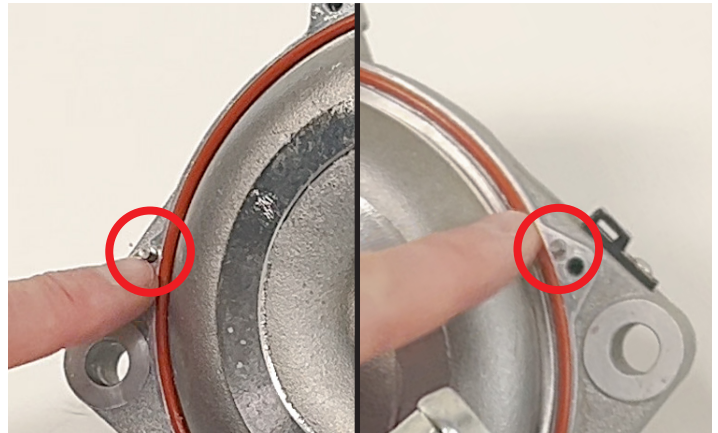


1. Coat both of the new small O-Rings with Super Lube and install them as shown here to the right.



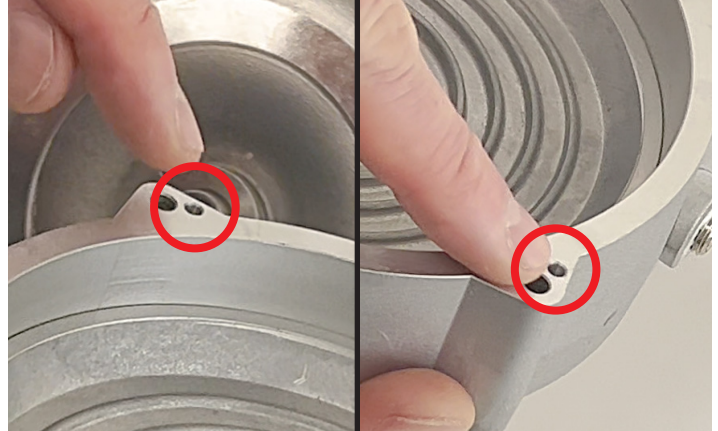
9. Attach the new Back Canister.

Identify and locate the two alignment pins on the LHG Front Casing ...

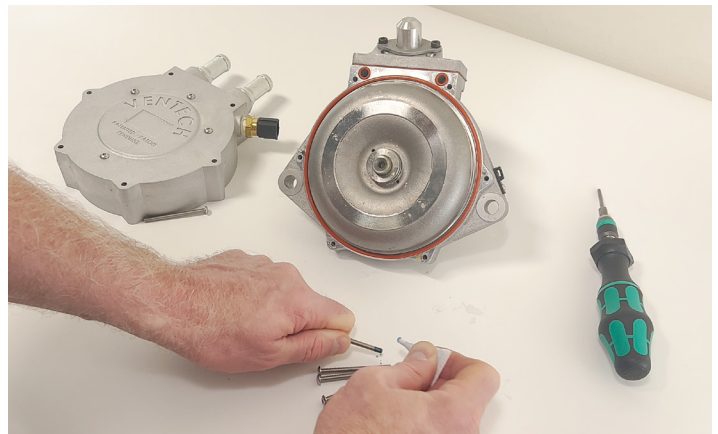


and the two alignment holes on the new Back Canister.

These will insure that the two pieces are properly positioned for final assembly.



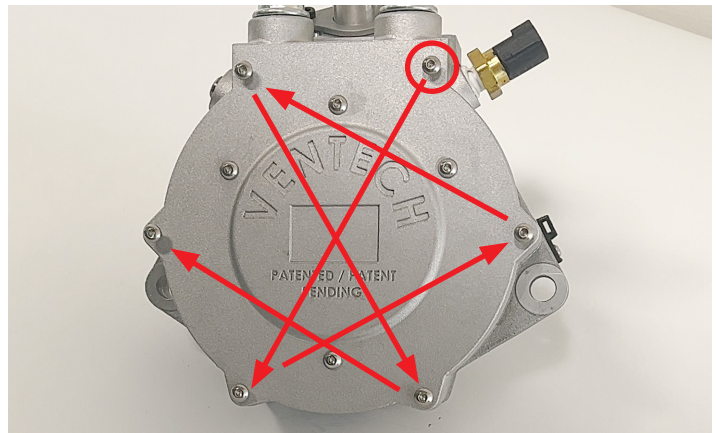
1. Place a small amount of Loctite on end threads of the 6 920-0133 M4-0.7 x 50 Button Head Screws.



- Align the Back Canister with the Front Casing using the alignment pins. Install and finger tighten the 6 920-0133 M4-0.7 x 50 Button Head Screws.



- Torque the 6 Screws to 18 in-lbs in a cross pattern.

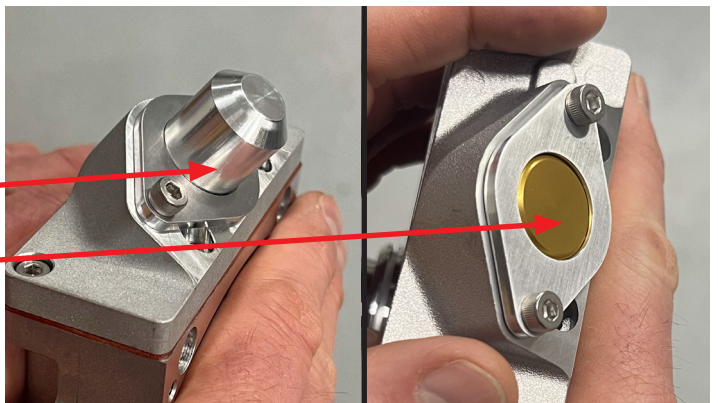


10. Update the HV Pin, Pintle, Dome, & Spring Sub-Assembly (PDSS).

- Determine if your LHG has a PDSS.

With PDSS

Without PDSS



With PDSS

Without PDSS

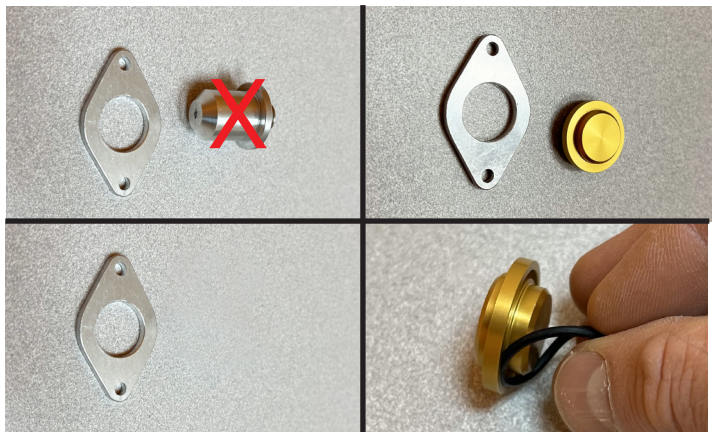
- Remove the PDSS or the plug as applicable to your LHG.

Discard the old bolts

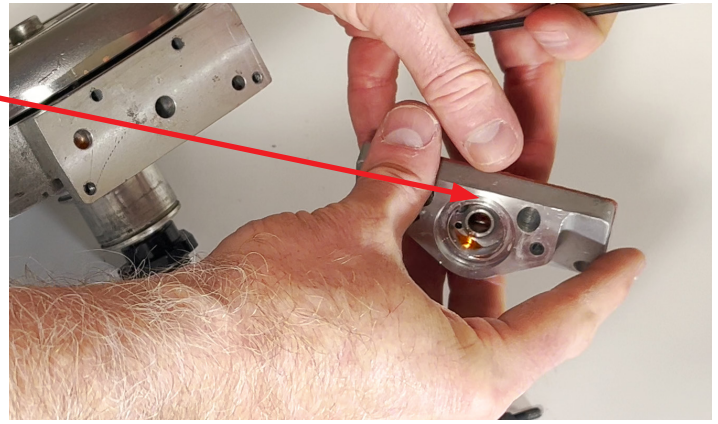
Discard the old PDSS. Set Aside the Retaining Bracket

If you have a Plug, remove the O-Ring.

Set aside the plug and the Retaining Bracket for refurbishment later.



3. Remove the Manifold.



Remove the old Manifold Gasket.

Discard the old Gasket.

Use the old bolts in step 11.3 then discard the old bolts.

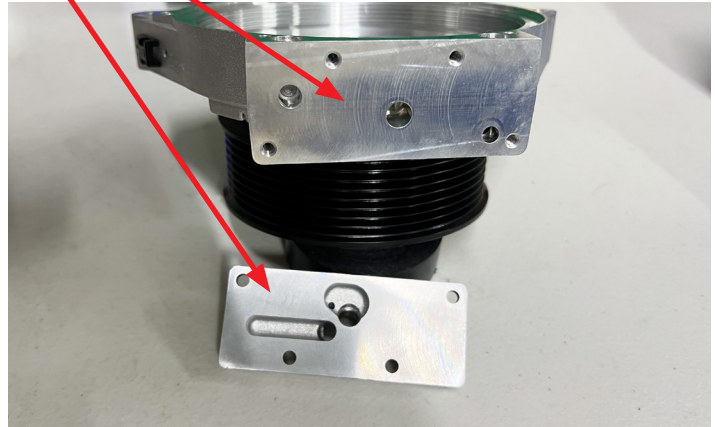
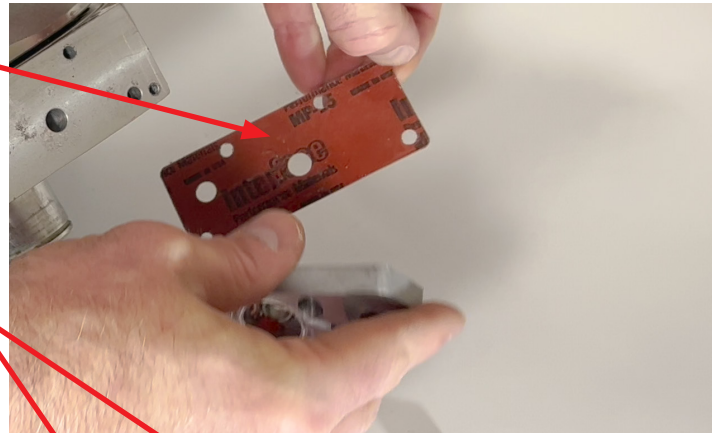
KEEP the Manifold.

Clean any Gasket residue from the Manifold and the mounting surface on the LHG.

It may be necessary to use a scraper blade to carefully remove gasket residue from the Manifold and the Manifold mounting surface taking care not to scratch either surface.

Be very careful not to allow any residue to make its way into the small holes on the Manifold or the mounting surface on the LHG housing.

Use alcohol to remove any difficult residue from the Manifold and Manifold mounting surface on the LHG.



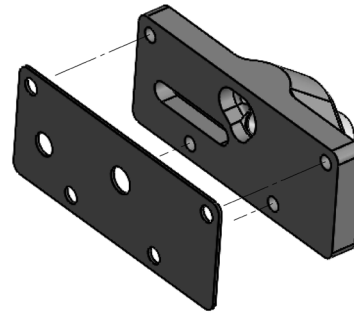
11. Install the new Manifold gasket.

1. Completely cover both sides of the new Gasket with a thin coating of petroleum jelly (not supplied).

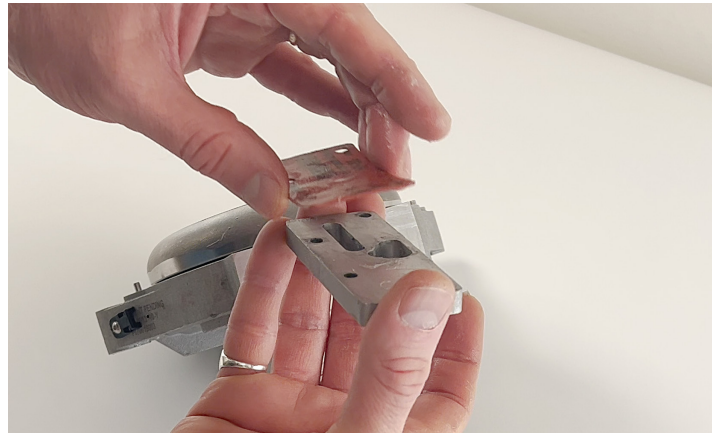


- Place the Gasket on the Manifold being careful to align the holes with the Manifold as shown to the right.

ALIGN GASKET HOLES WITH MANIFOLD AS SHOWN BELOW



The petroleum jelly will help keep the Gasket in place while you align the Manifold with the LHG housing.

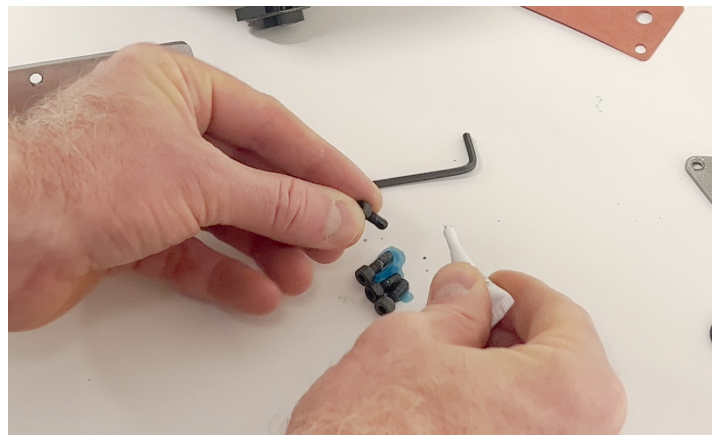


- Over the years, LHGs were supplied with two different width Manifolds. For this reason, you have been supplied with two different length SHCS (920-0154) and (920-0075).

Determine which new SHCS to use by comparing them to the ones you removed from the Manifold in step 10.3 and ONLY using the NEW SHCS of the same length as the originals (not different lengths as shown here).



- Place a small amount of Loctite on each of the new 920-0154 M4-07 X 12 SHCS bolts



5. Install the Manifold and finger tighten the bolts.

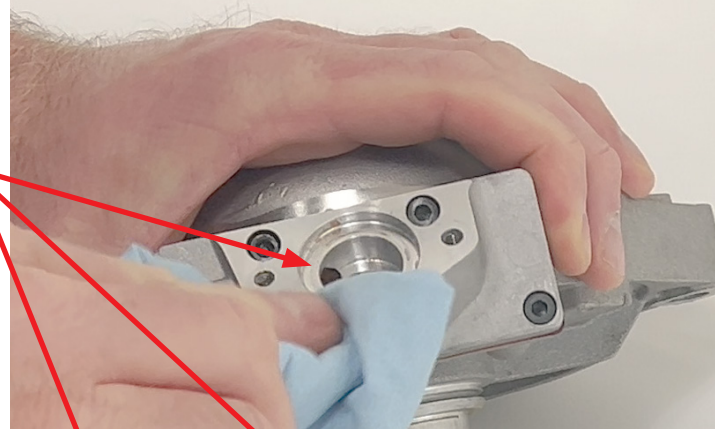


6. Next, torque the four manifold bolts to 4 in-lbs.

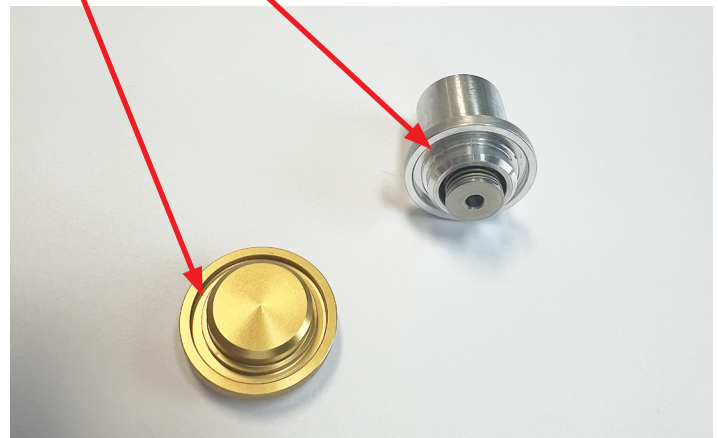


12. Install the new PDSS or Plug with updated O-Ring.

1. Make sure the top of the Manifold, the installation surfaces and all parts and seating grooves For O-Rings are clean and free of residual coolant.



If necessary, use alcohol to remove any difficult residue from the parts.



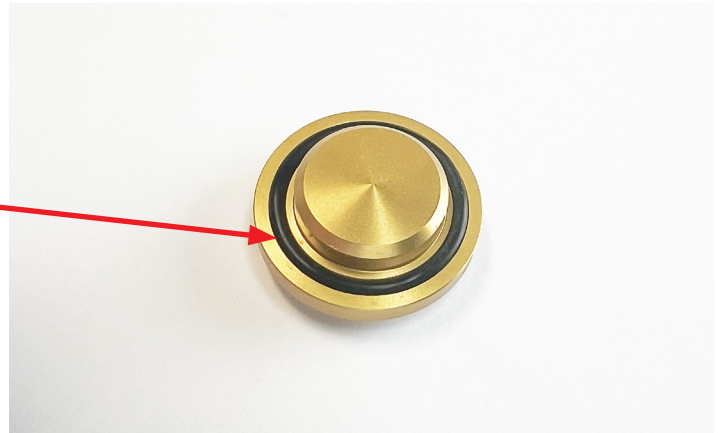
- If you had a PDSS on your original LHG, replace it with the NEW PDSS from the kit.

Make sure the new PDSS O-Ring is installed and well and completely seated in the O-Ring groove of the new PDSS.



- If you did NOT have a PDSS on your original LHG DO NOT put the new PDSS on the LHG.

Reuse the Plug from your original LHG, but remove and replace the old O-Ring with the new one in the kit. Making sure it is completely seated in the O-Ring groove.



- Make sure there is a small amount of Loctite on the 2 920-0154 M4-07 X 12 SHCS bolts.

With the O-Ring down towards the Manifold, secure the PDSS (if originally equipped) with the SHCS bolts and the original Retaining Bracket.

DON'T INSTALL THE PDSS if your LHG was not originally equipped with an PDSS. Torque both bolts to 4 in-lbs.

or

With the O-Ring down towards the Manifold, secure the Plug (if originally equipped) with the SHCS bolts and the original Retaining Bracket. Torque both bolts to 4 in-lbs.



13. The service kit installation is complete.

Reinstall the LHG on your engine and double check that all connections are complete and secure before restarting.

