

Single Vane Long Life Pump on a 4000 Series Allison Transmission

Date: September 27, 2017

Bulletin Name: MISC-TSIB-073

Model: Rear Loaders and Front Loaders

Model Year: 2009-2017

Units Affected: 4000 series Allison transmission with single vane pump

Purpose:

McNeilus has changed its production single vane pump system (4000 series Allison transmission) to enhance the performance of the vane pump system. McNeilus is releasing this information to you if you would like to replace the vane pump system on your field units. If your vehicle has an Allison 4000 series transmission direct mount to PTO, a spacer kit is available to add the additional space required.

Notice:

- This bulletin should be read and understood in its entirety before performing this procedure.
- All procedures outlined in the bulletin must be performed by skilled service personnel. Refer to the product service manual for descriptions of maintenance procedures.
- Depending on chassis configurations, some interference may occur when installing the pump system. Call a McNeilus National Service representative at 888-686-7278 for assistance.

SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

SAFETY NOTICE

Use appropriate Personal Protective Equipment (PPE) as required by your company.

Equipment Required:

Customer to supply:

- Overhead crane or other lifting device capable of lifting 90 lbs. (41 kg)
- 3/8" Allen wrench
- Torque wrenches - one in foot pounds and one in inch pounds (at least 650 in.-lbs.)
- Oil collection containers

Parts Required:

Purchase from McNeilus Truck and Manufacturing, Inc. by calling 888-686-7278 or visiting www.streetsmartparts.com. This bulletin describes two different kits; choose the correct kit for the type of transmission/mounting location in your vehicle.

For Allison 4000 series transmission – direct mount to PTO

Item	P/N	Description	Qty.
1	1572101	MANIFOLD for LONG LIFE PUMP WITH SPACERS KIT	1
1A	1564401	VALVE, EOC, LONG LIFE	1
1B	1564402	VALVE, SPACER KIT, LONG LIFE	1
1C	1256615	FLANGE, SPLIT #32 KIT	1
1D	1260531	FITTING, 90 20 JIC-20 ORG MM ST	1

For front of engine mounted PTO

Item	P/N	Description	Qty.
1	1573427	MANIFOLD KIT for LONG LIFE PUMP (No Spacers)	1
1A	1564401	VALVE, EOC, LONG LIFE	1
1B	1256615	FLANGE, SPLIT #32 KIT	1
1C	1260531	FITTING, 90 20 JIC-20 ORG MM ST	1
1D	1260610	FITTING, 90 32 FLG 61 ST	1
1E	1236212	TUBE, HYD #20 RCY CH FILTER	1

Procedure 1: Procedure Removal of Existing Components:

1. Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.
2. Locate the pump (either front mounted or rear mounted from the transmission).
3. Place oil collection containers under the pump.
4. Turn the gate valve to the CLOSED position on the hydraulic reservoir.
5. Disconnect the Deutsch connector on the EOC from the chassis harness Deutsch connector.
6. Remove the hose from the EOC and spacer block (Figure 1).

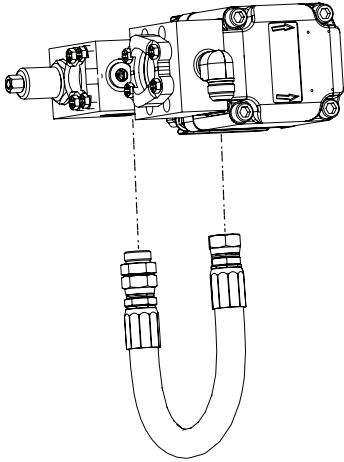


Figure 1

7. Remove and discard the (4) bolts securing the EOC on the pressure side of the pump (Figure 2).
8. Remove and discard the EOC (Figure 2).

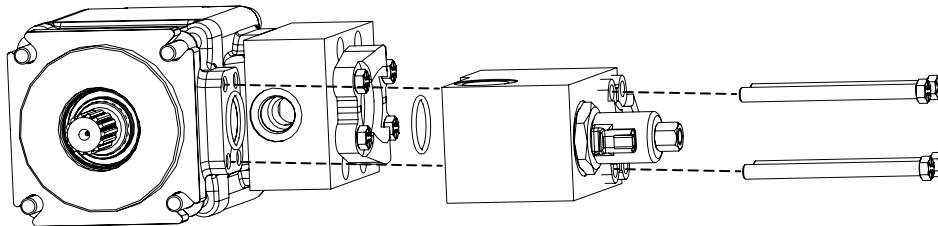


Figure 2

9. Remove and retain the bolts securing the suction side flange to spacer block (Figure 3).

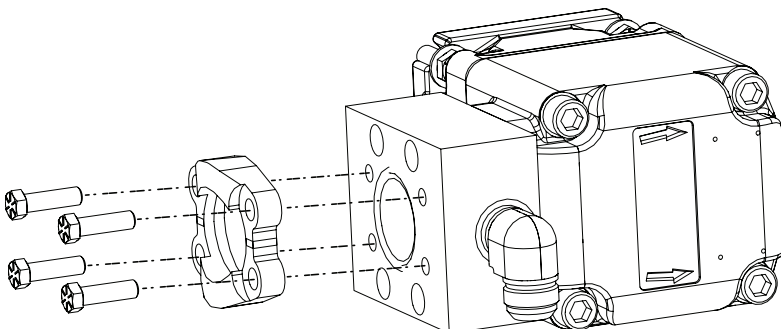


Figure 3

10. Remove and discard the (4) bolts securing the spacer block on the suction side of the pump (Figure 4).

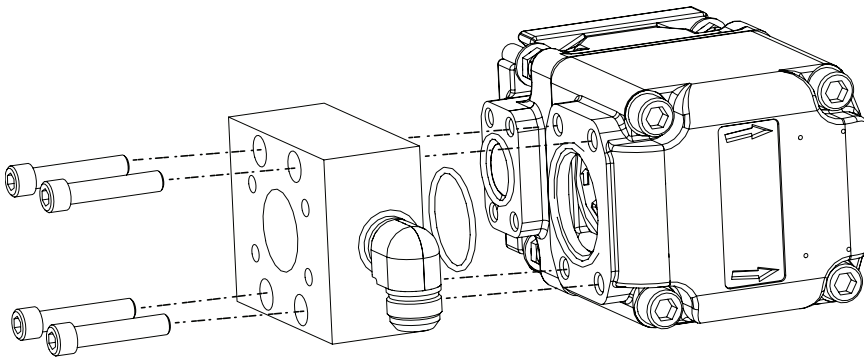
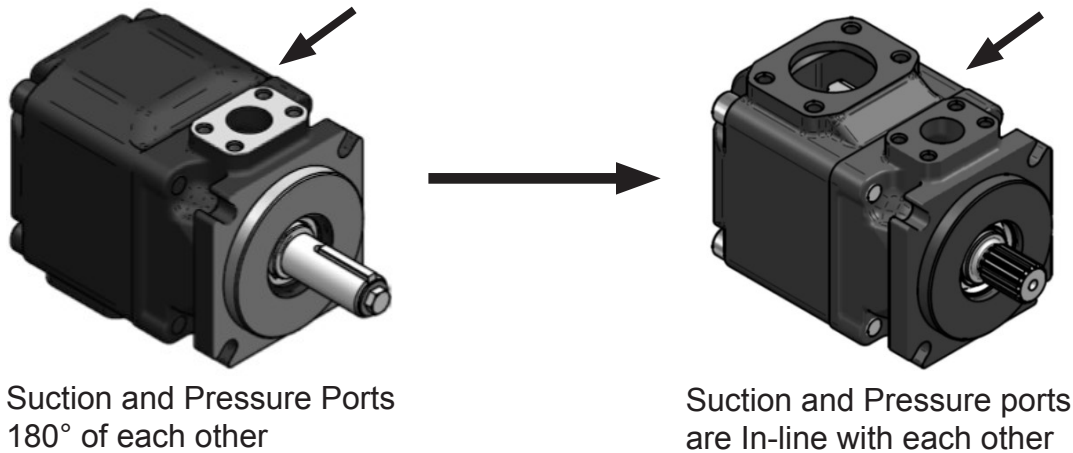


Figure 4

Procedure 2: Installation of Long Life Vane Pump System

Some pumps currently installed on vehicles will have the suction port and the pressure port set 180 degrees opposite of each other. This will require the removal of the pump from the vehicle and converting the porting to “in-line” configuration where both ports are on the same side of the pump (Figure 5).

Follow the next steps to convert the porting to the in-line configuration if necessary, otherwise, skip to Step 10 to install the Long Life Vane Pump System on pumps that already have the in-line porting.



Suction and Pressure Ports
180° of each other

Suction and Pressure ports
are In-line with each other

Figure 5

1. Remove the current pump from the PTO or other mounting surface. Retain the pump and mounting hardware.
2. Install plugs in the suction and pressure ports.
3. Mount the pump, shaft down, in a suitable vise or work bench with opening for pump flange. Clamp vise jaws onto mounting flange surfaces on the mounting cap assembly. (See Figure 6.)

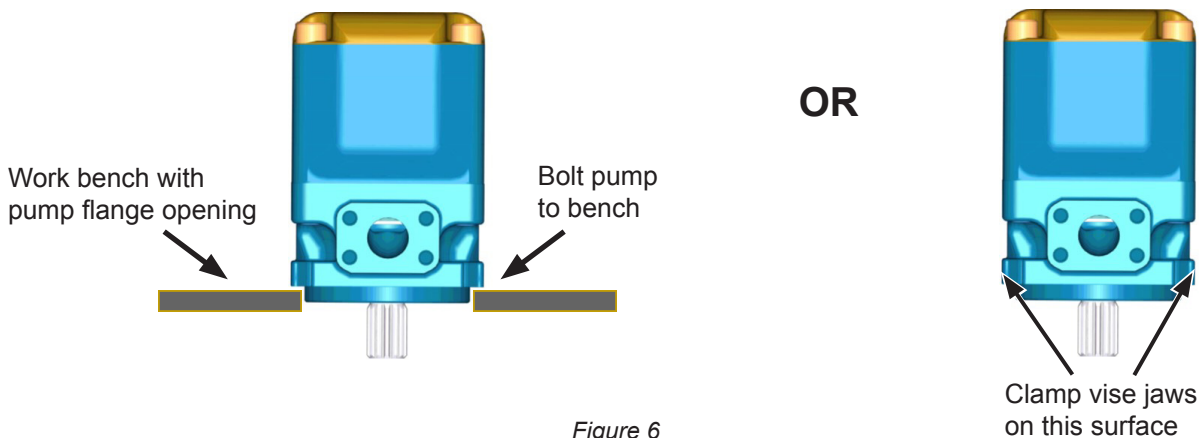


Figure 6

4. Loosen the four pump assembly bolts located on the rear of the housing (the end facing up from the work bench/vise) (Figure 7).

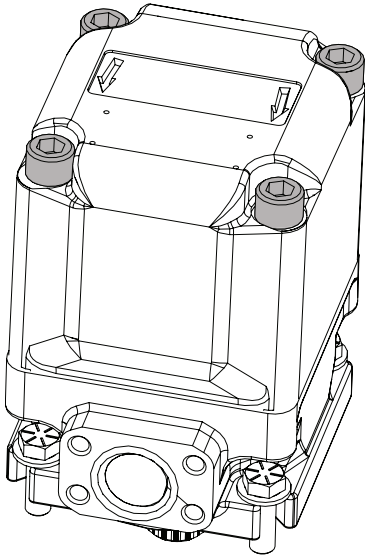


Figure 7

5. Completely remove two (2) diametrically opposite bolts (Figure 8). Leave the other two bolts loose in the other corners. The loosened two bolts will be used to rotate the housing with a suitable pry bar to adjust the porting position. **NOTE:** Do not allow the housing to raise up from the mounting cap surface. If the housing raises up, the cartridge locating pin will come out of its locating hole.

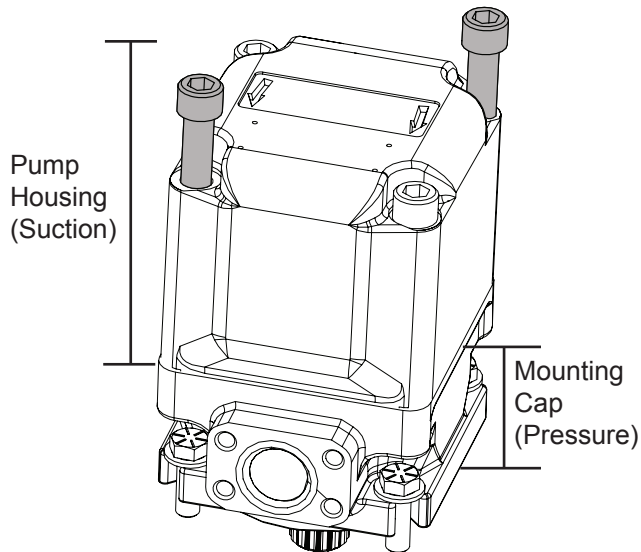


Figure 8

6. Use an appropriate pry bar to apply torque to the two remaining assembly bolts to rotate the suction port until it is in line with the pressure port (Figure 9). **IMPORTANT: Turn slowly to avoid internal seal damage.**

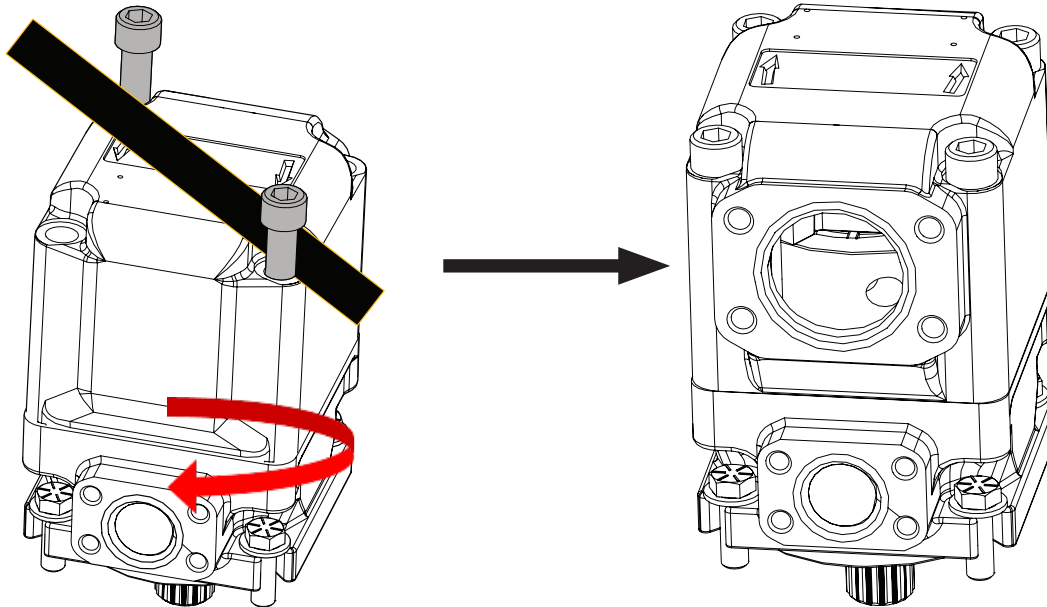


Figure 9

7. Reinstall all pump assembly bolts into the housing.
8. Use a torque wrench to tighten, in a cross pattern, each bolt to 138 ft.-lbs.
9. With the suction and pressure ports now in-line, the Long Life manifold can be installed to the pump. Do this by following the next steps.
10. If mounting directly to a PTO off a 4000 series Allison transmission, follow the next step. Otherwise, skip to Step 12.

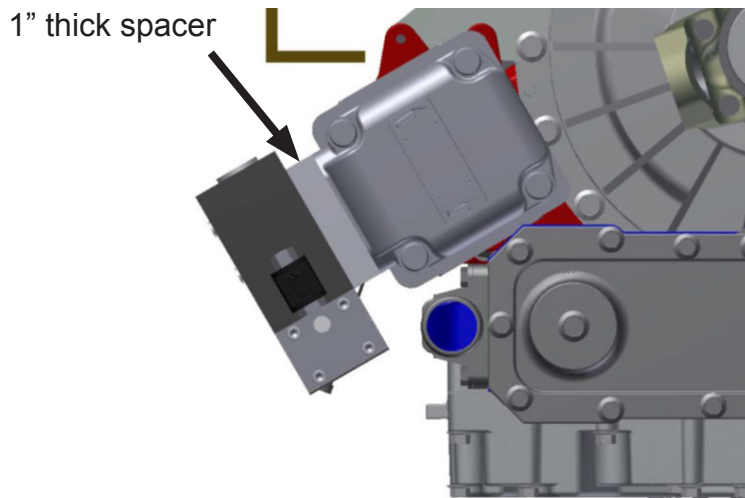


Figure 10

11. Install the appropriate size spacer on top of each port on the pump (Figure 10). Ensure the o-rings are intact, not damaged, and are face down toward the pump.

12. Install the manifold - either on top of the spacers or on top of the pump itself (Figure 11 shows with spacers, Figure 12 shows without spacers). Ensure the o-rings on the bottom are intact and not damaged.

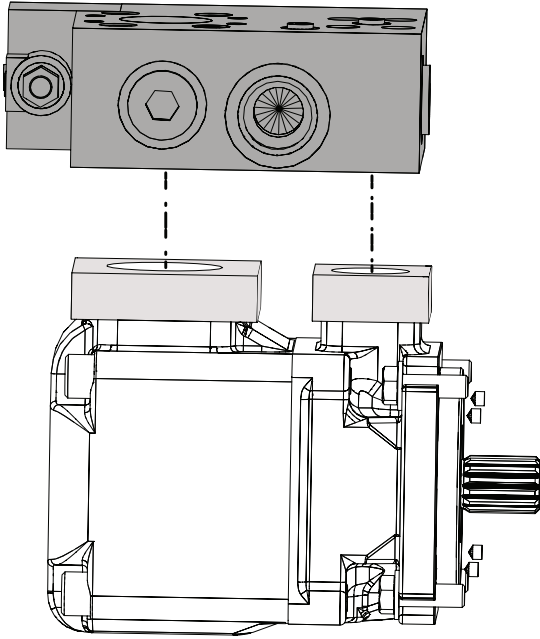


Figure 11 - With Spacers

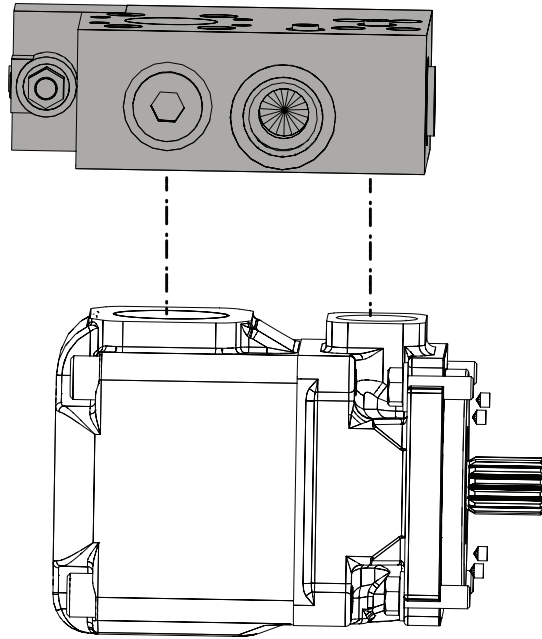


Figure 12 - Without Spacers

13. Install lock washers on bolts. **NOTE:** There are two sizes of washers and two sizes of bolts (bolts are 1/2"-13 UNC and 7/16"-14 UNC).
14. Install the correct bolts to secure the manifold to the pump. The smaller bolts are used in the smaller bolt setting.
- If the spacers are being used, use the 4" bolts of the specifications stated above. If spacers are not used, and the manifold is attached directly to the pump, 3" long bolts of the specifications stated above are used.
15. Use a torque wrench to torque the 1/2"-13 UNC bolts to 95 ft.-lbs. and the 7/16"-14 UNC bolts to 63 ft.-lbs.
16. Install and hand tighten the pressure port fitting (#20 size, 90° fitting) into the pressure port (marked "P" on the manifold) (Figure 13). Do not over tighten because it will need to be rotated when connected to the hose.

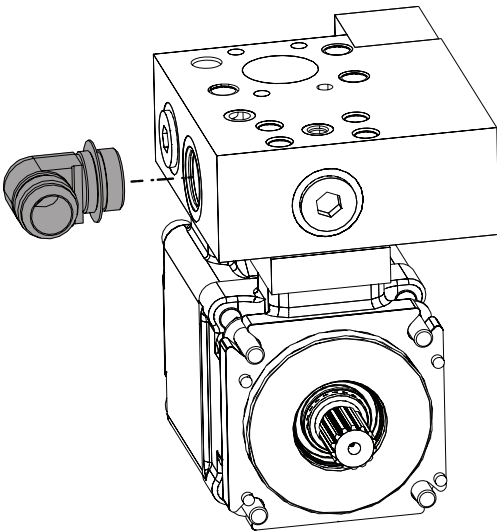


Figure 13

17. Install the pump/manifold assembly on the vehicle, connecting it to the PTO or other mounting surface using the retained hardware.
18. Use a torque wrench to torque to 80 ft.-lbs.
19. Move the existing suction hydraulic hose (#32 hose) to the suction port on the manifold and hold it there while completing the next step.

20. Install the new flange around the hydraulic hose to secure the hose to the manifold.
21. Tighten the flange bolts and use a torque wrench to torque to **650 in.-lbs.**
22. Move the existing pressure hydraulic hose to the 90° fitting on the pressure side of the manifold.
23. Hand tighten the hose to the fitting. Do not over tighten.
24. Once the hydraulic hose and fitting are aligned, use a torque wrench to tighten the jam nut on the fitting to 146 ft.-lbs. to secure the fitting to the manifold.
25. Keep alignment and tighten the hydraulic hose to the fitting using a torque wrench to torque to 127 ft.-lbs.
26. Connect the Deutsch connector on the manifold to the chassis harness Deutsch connector.
27. **Turn the gate valve to the OPEN position on the hydraulic reservoir.**
28. Remove your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.
29. Start the vehicle.
30. Check the fittings for leaks. Tighten fittings as needed.
31. Run a few hydraulic functions to check the fittings for leaks.
32. Refer to the mechanical seminar and training manual for your model refuse vehicle to test hydraulic pressures. A downloadable copy can be found on www.streetsmartparts.com.
33. After testing pressures and ensuring no leaks are present, the procedure is complete.
34. Return vehicle to service.

Continuous Improvement:

The change included in this document is part of the McNeilus Continuous Improvement Process.

McNeilus's quality policy is providing customer satisfaction through innovative products, dedicated service, and a constant focus on continuous improvement.



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