

Hydraulic Remote Mount Pump CV Drive Shaft Replacement Procedure

Update Date: November 17, 2025
Bulletin Name: MISC-IB-083
Models: All McNeilus® refuse collection vehicle models
Model Years: All model years
Units Affected: Vehicle with a remote mount pump

Purpose:

McNeilus Truck and Manufacturing provides these instructions for replacing the remote mount hydraulic pump CV drive shaft be replaced because the shafts may be too short and are suspect to disengaging. The hydraulic pump CV drive shaft can break or twist. A hydraulic pump CV drive shaft failure will affect hydraulic pump operation which controls refuse body functions and does not affect chassis driving functions. You must inspect the hydraulic pump CV drive shaft, even if you have recently replaced it.

Notice:

- This bulletin should be read and understood in its entirety before performing this update 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.

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.

Tools and Equipment Required (Customer to supply own):

- Tape measure
- Torque wrench
- Ratchet extension
- Wrenches (see procedure for varying sizes)
- Machinist's marker
- Loctite® 263 (or equivalent)*
- Loctite® 242 (or equivalent)*
 - * Follow package instructions for application
- PN 1699421 check gauge (if available)
- Laser measuring tool (if available)

Procedure 1: Safety Set-Up

1. Place vehicle on a flat surface, block truck tires, disconnect vehicle battery, 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 and observe all safety conditions.

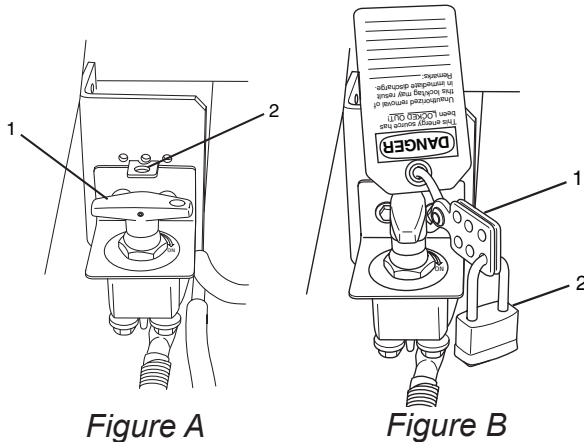
2. Battery Disconnect Switch

If your vehicle is equipped with a battery disconnect switch, it is located near the battery box. Use the battery disconnect switch when performing any maintenance so the vehicle cannot accidentally be started.

1. Turn the battery disconnect switch (Figure A, Item 1) counterclockwise so the hole on the switch aligns with the hole in the bracket (Figure A, Item 2).

2. Install the safety lockout device ring (Figure B, Item 1) through the holes on the battery disconnect switch and the bracket.

3. Install a padlock (Figure B, Item 2) onto the safety lockout device ring, lock it, and put the key in your pocket. If more than one person is working on the vehicle, each person must install his or her own padlock.



Battery Cable Disconnect

If your vehicle is not equipped with a battery disconnect switch, disconnect the negative (black) battery cable first, then disconnect the positive (red) cable.

Procedure 2: Inspect the Hydraulic Pump CV Shaft

1. The hydraulic pump CV shaft is in good working condition and does not need to be replaced if all of the following four conditions are met,
 - a. If the hydraulic pump CV shaft does not show damage.
 - b. If the pump mount shaft side is torqued correctly at 35 ft.-lbs. per bolt.
 - c. If there is 1/16" to 1/2" gap between the pump and CV shaft (Figure 1).

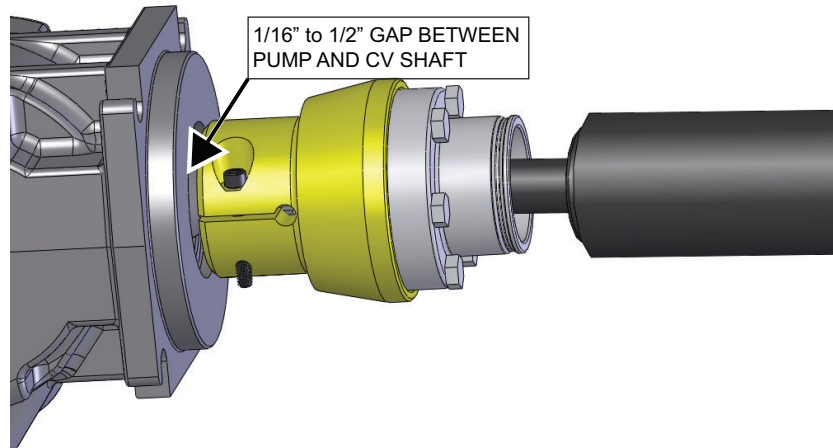


Figure 1

- d. If the hydraulic pump CV shaft has approximately 1" of movement when gripped and moved back and forth.
 - Use a machinist's marker to mark a location on the shaft near the cover (location not critical) (Figure 2).

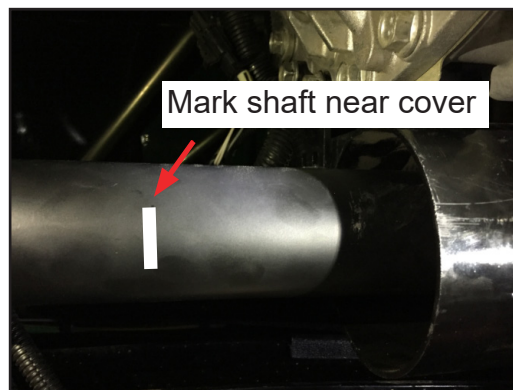


Figure 2

- Using your hand, move the shaft back and forth a few times to loosen it.
- Then move the shaft in one direction and check that it moves $\frac{3}{8}$ " to $\frac{1}{2}$ " from the mark (Figure 3). Repeat in the other direction. **NOTE:** Shaft should move back and forth a total of $\frac{3}{4}$ " to 1".

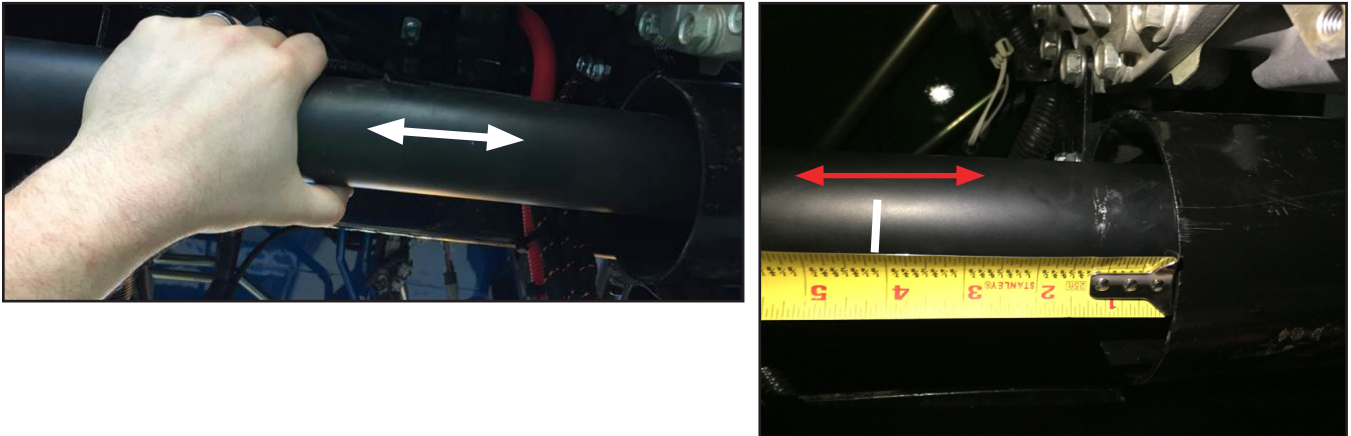


Figure 3

- If the conditions are met, this bulletin is complete. Remove your company's Lockout/Tagout per your company's procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate. Return truck to service.
2. If even one of the following conditions exists, then the hydraulic pump CV shaft must be replaced.
- If the hydraulic pump CV shaft is damaged,
 - If it is not torqued correctly,
 - If it has more or less than $\frac{1}{16}$ " to $\frac{1}{2}$ " gap between pump and CV shaft,
 - If it moves more or less than $\frac{3}{4}$ " to 1" back and forth

Procedure 3: Determine Length of the Hydraulic Pump CV Drive Shaft

To determine the required length of the new hydraulic pump CV drive shaft, measure the length of the area the hydraulic pump CV shaft occupies on the truck.

1. Remove and retain the hardware (Figure 4, Item 1) from the square Pump Mount cover (Figure 4, Item 2).

NOTE: Do not remove the circular cover.



Figure 4

2. Determine the allowable angle of the shaft measurements using the instructions and calculations below.

The next measurements and calculations will culminate in the allowable angle of the shaft. The allowable angle is between 1° and 8° . If the angle is outside that range, then remount the pump mounting bracket to achieve an angle within the range.

- A. Use a tape measure to measure from the PTO flange to the front face of the pump on the vehicle (Figure 5 shown with the CV shaft removed for illustrative purposes only. There is no need to remove the CV shaft to obtain the measurement).
- B. Subtract $1/8$ " from the measurement. (This is to account for the gap between the pump and hydraulic pump CV drive shaft.) This measurement is the vert face to vert face. Write the measurement number in the chart below. Measure and write in each of the measurements listed below.

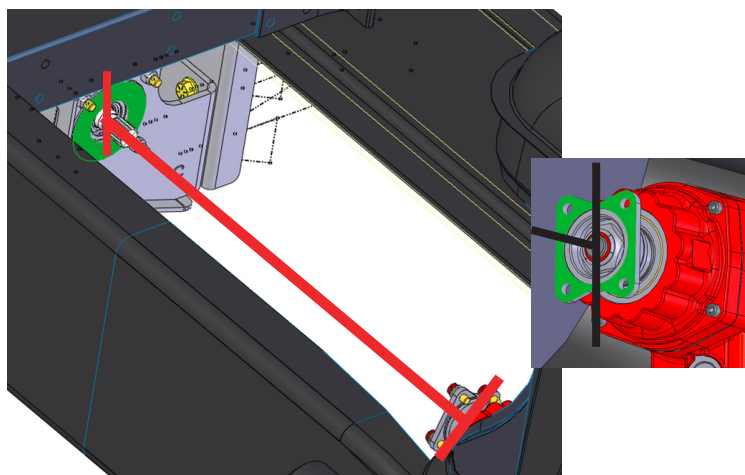


Figure 5

- C. Measure from the ground to the PTO shaft center (h1).
- D. Measure from the ground to the Pump shaft center (h2).
- E. Measure from the frame rail to the PTO shaft center (w1).
- F. Measure from the frame rail to the Pump shaft center (w2).
- G. Measure from the PTO Face to Pump Face (L1).

SHAFT DIMENSIONS	Measurements	
	Shaft Length (Vert Face to Vert Face)	
	Ground to PTO Shaft Center (h1)	
	Ground to Pump Shaft Center (h2)	
	Frame rail to PTO Shaft Center (w1)	
	Frame rail to Pump Shaft Center (w2)	
	PTO Face to Pump Face (L1)	
	Calculations	
	Height Change (calculated) (h1-h2=)	
	Width Change (calculated) (w1-w2=)	
	Rise Angle (A1) (calculated) (Degrees) ((Height Change calculated ÷ L1) * 180 ÷ 3.14159 =)	
	Cross Body Angle (A2) (calculated) (Degrees) ((Width Change calculated ÷ L1) * 180 ÷ 3.14159 =)	
	Hypotenuse of H/W Change (Height Change calculated ² + Width Change calculated ²)	
	Shaft Effective Angle (calculated) (Degrees) ((Hypotenuse of H/W Change ÷ L1) * 180 ÷ 3.14159 =)	
Conclusion	Shaft effective angle allowable limit between 1°- 8°	

When the allowable shaft angle is achieved, continue with the procedures in this bulletin.

3. Reinstall the square pump mount cover (Figure 6, Item 2) with the retained hardware (Figure 6, Item 1). Use a torque wrench to torque the hardware to 28 ft.-lbs.



Figure 6

4. Order the require parts and the correct **new Hydraulic Pump CV Shaft** based on the length needed. See all required parts and pump CV shaft part number/length list below.
5. Continue with PROCEDURE 4: Replace Hydraulic Pump CV Drive Shaft when the correct parts are procured.

Parts Required per Truck:

Purchase the following parts from your McNeilus refuse vehicle service network by calling 888-686-7278.

Hydraulic Pump CV Shaft Lengths and Part Numbers

Length	Part Number	Length	Part Number
21.14 IN	1585071	33.64 IN	1701403
23.14 IN	1549752	34.14 IN	1488021
24.64 IN	1701400	34.64 IN	1701296
24.14 IN	1562473	35.14 IN	1484578
25.64 IN	1701401	35.64 IN	1701297
25.14 IN	1550456	36.14 IN	1488022
26.14 IN	1595626	36.64 IN	1701404
27.14 IN	1484575	37.14 IN	1547495
28.14 IN	1488013	38.14 IN	1552189
29.14 IN	1488014	38.64 IN	1552190
30.14 IN	1484576	39.14 IN	1552191
30.64 IN	1701294	39.64 IN	1575835
31.14 IN	1488017	40.14 IN	1560608
31.64 IN	1701295	41.14 IN	1558837
32.14 IN	1484577	42.14 IN	1573036
32.64 IN	1701402	43.14 IN	1573748
33.14 IN	1488018	44.14 IN	1599259

Item	Part Number	Description	Qty.
1	Varies - See list of part numbers	Hydraulic Pump CV Drive Shaft (assembly contains hardware items 2 through 4)	1
2	_____	6MM ALLEN HEAD BOLT*	2
3	1140169	SCR, CAP, HEX .38-24X1.00 G8 ZY	4
4	0120302	WASH, LK, IN .38X.69X.04 ZC	4

*The (2) 6mm Allen head bolts will come with the hydraulic pump CV drive shaft as part of the flange assembly.

NOTE: The flange on the PTO side will come attached to the hydraulic pump CV drive shaft; however, the flange on the Pump side will come detached for ease of installation. The six bolts to attach the flange to the CV shaft will be included separately.

PROCEDURE 4: Replace Hydraulic Pump CV Drive Shaft

Once you receive the new hydraulic pump CV drive shaft, follow these steps to remove the old drive shaft and install the new drive shaft.

Tools and Equipment Required per Truck:

- Torque wrench
- Ratchet extension
- Wrenches (see procedure for varying sizes)
- Machinist's marker
- Loctite® 263 (or equivalent)*
- Loctite® 242 (or equivalent)*
 - * Follow package instructions for application
- PN 1699421 check gauge (if available)
- Laser measuring tool (if available)

Remove Existing Hydraulic Pump CV Drive Shaft

1. Place vehicle on a flat surface, block truck tires, disconnect vehicle battery, 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 and observe all safety conditions. See Procedure 1 for information.
2. Remove and retain the hardware using the appropriate wrenches (Figure 7, Items 3 and 4) from the support plate (Figure 7, Item 2) to disconnect the circular Pump Mount cover (Figure 7, Item 1) from the support plate.

NOTE: Item 2 is the support plate that is attached to the transmission. The circular cover attaches to the support plate. The plate is shown detached from the transmission for illustrative purposes only. Do not detach the plate from the transmission.

3. Remove and retain the hardware (located on topside and bottom side of the cover) (Figure 7, Item 7) from the square Pump Mount cover (Figure 7, Items 5 and 6).
4. Remove and retain the hardware connecting the square pump mount cover to the pump (hardware not shown, but location shown in Figure 7, Item 8).
5. Remove and retain both halves of the square pump mount cover (Figure 7, Items 5 and 6).

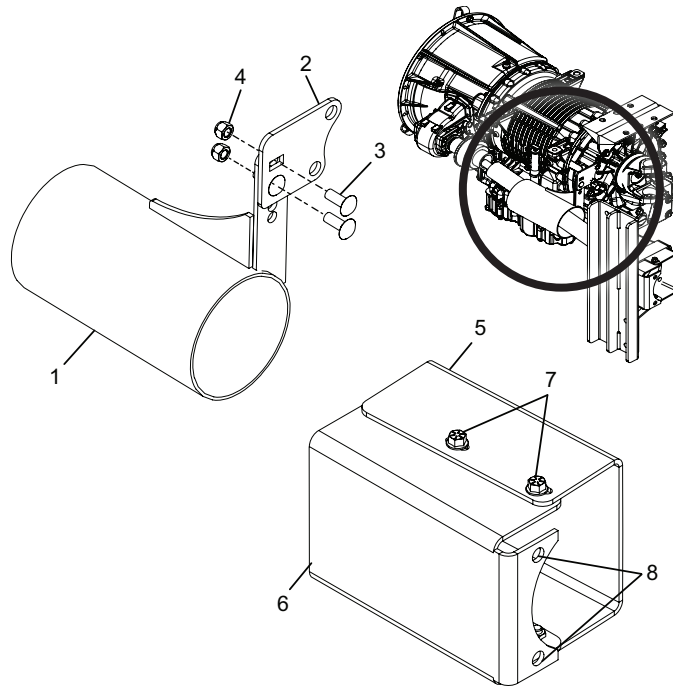


Figure 7

6. Remove the hydraulic pump CV drive shaft from the vehicle using the appropriate tools. Discard hydraulic pump CV drive shaft.

Install New Hydraulic Pump CV Drive Shaft

1. Slide the circular Pump Mount cover onto the new hydraulic pump CV drive shaft the same way it was originally.
2. Starting on the PTO connection side, apply Loctite® 263 to the new four (4) bolts (PN 1140169).
3. Use the bolts and new four (4) lock washers (PN 0120302) to install the CV shaft to the PTO (Figure 8).
4. Use a torque wrench to torque each bolt to 37 ft.-lbs. (Figure 8).

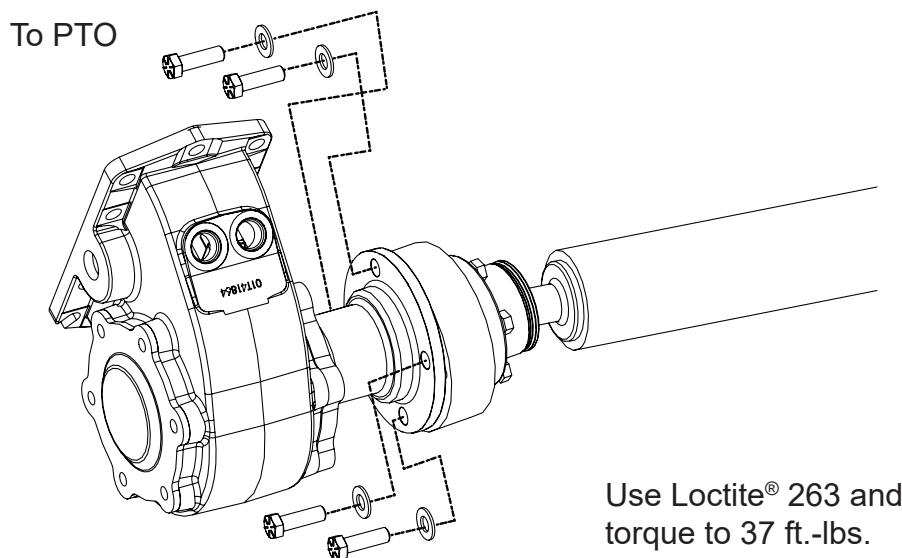


Figure 8

5. Apply Loctite® 242 to the new two (2) 6mm Allen head bolts.

6. Install the CV shaft adapter flange into the pump spline until there is a 1/16" – 1/2" gap between the pump and flange (Figure 9).
7. Tighten the bolts, but do not torque at this step.

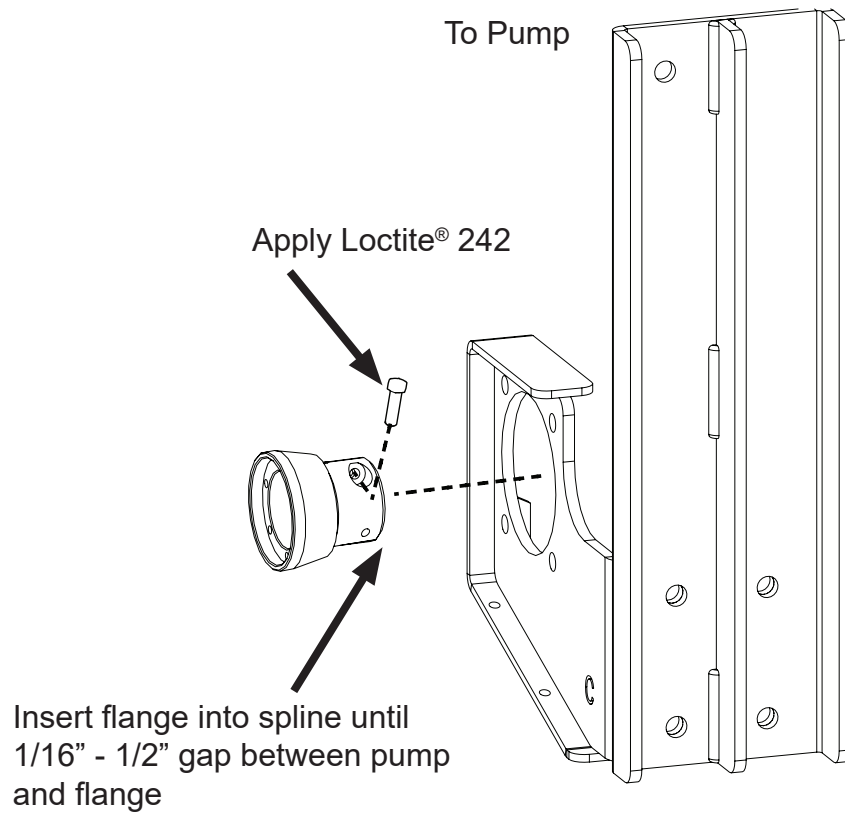


Figure 9

8. Apply Red Loctite® 263 to the new six (6) bolts.
9. Use these bolts to attach the Pump Mount adapter flange to the new CV shaft (Figure 10).
10. Use a torque wrench to torque each bolt to 24 ft.-lbs. in the bolt fastening sequence shown below.

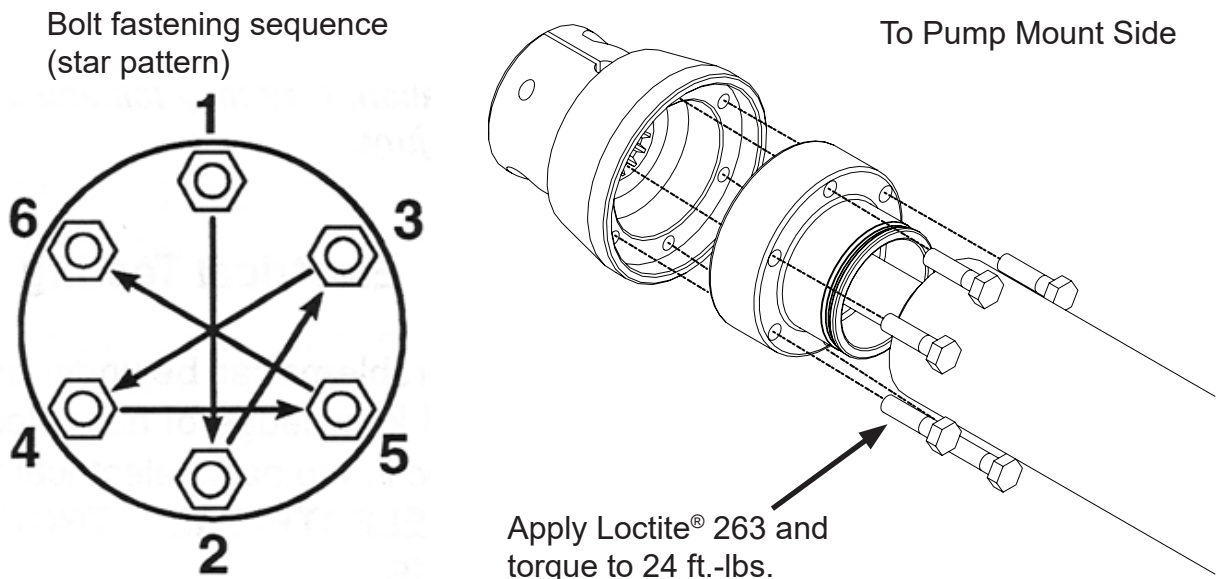


Figure 10

11. Use a torque wrench to torque each 6 mm Allen head bolt to 35 ft.-lbs. on the flange.
12. Using the appropriate wrenches, reinstall the retained hardware (see Figure 11, Items 3 and 4) to attach the circular Pump Mount cover (Figure 11, Item 1) to the support plate (Figure 11, Item 2). Tighten hardware until tight.

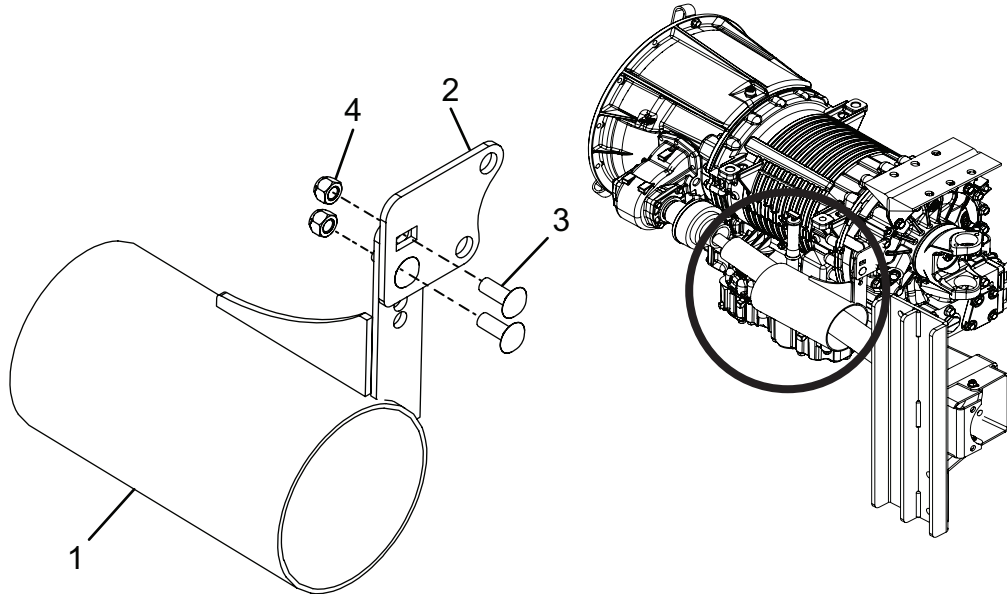


Figure 11

13. Use a machinist's marker to mark a location on the shaft near the cover (location not critical) (Figure 12).

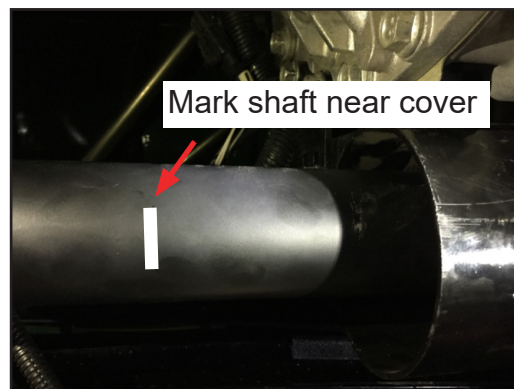


Figure 12

14. Check the shaft play amount following one of two methods.

Method 1 manual method

- A. Using your hand, move the shaft back and forth a few times to loosen it.
- B. Move the shaft in one direction until it reaches the end of its travel.
- C. Check that it moves $\frac{3}{8}$ " to $\frac{1}{2}$ " from the mark (Figure 13). Repeat in the other direction.

NOTE: Shaft should move all the way forward to all the way back a total of $\frac{3}{4}$ " to 1".

IMPORTANT: If the shaft moves more or less than $\frac{3}{4}$ " to 1" back and forth, it may be installed incorrectly or it may be the wrong length. Contact your McNeilus refuse service network at 888-686-7278 for assistance.

D. Continue with Step 15.

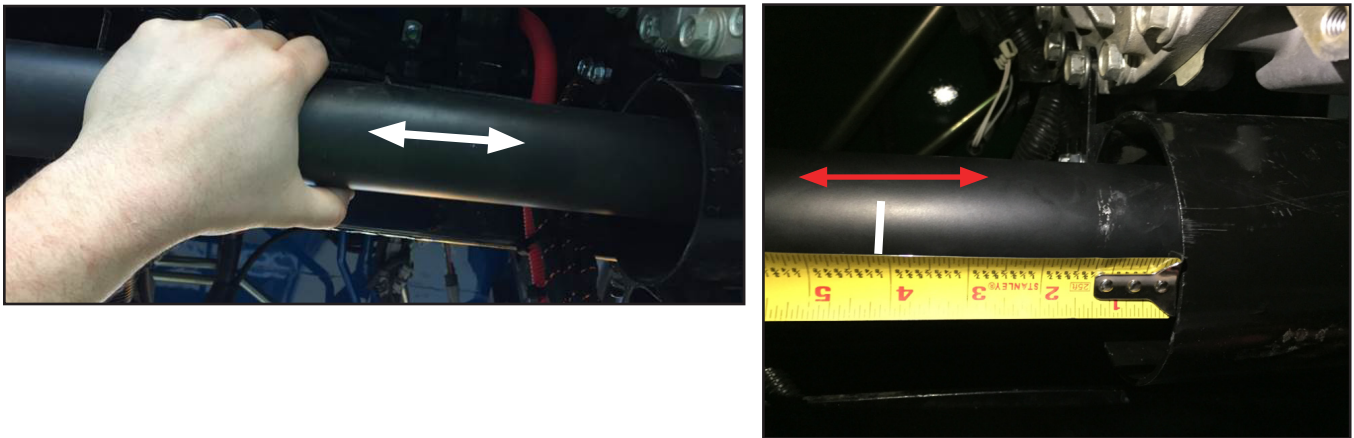


Figure 13

Method 2 with gauge and laser

- A. If the shaft play check gauge (PN 1699421) and laser measuring tool are available, use them to check the shaft play.
- B. Place the magnetic laser on the vehicle with the laser eye aimed at the shaft. Turn on the laser. See Figure 14.



Figure 14

- C. Place the shaft play check gauge (PN 1699421) over the shaft with the laser line lined up in cut out hole on the side (Figure 15).

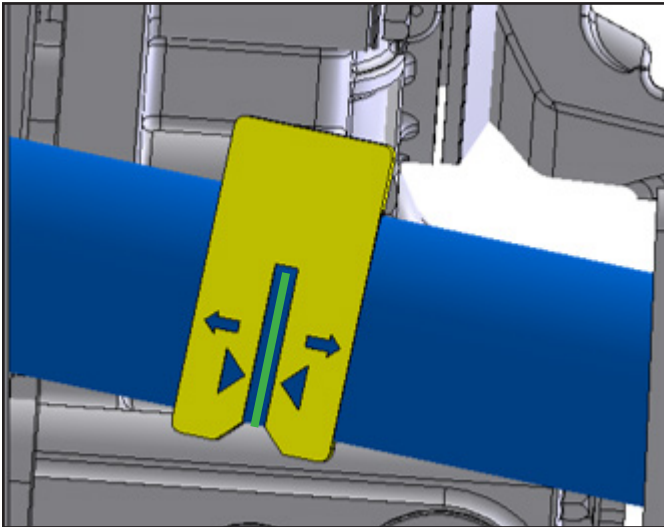


Figure 15

- D. Using your hand, move the shaft back and forth a few times to loosen it.
E. Move the shaft in one direction until it reaches the end of its travel.
F. Check that the laser line moves to the outside edge of the shaft gauge tool (Figure 16).

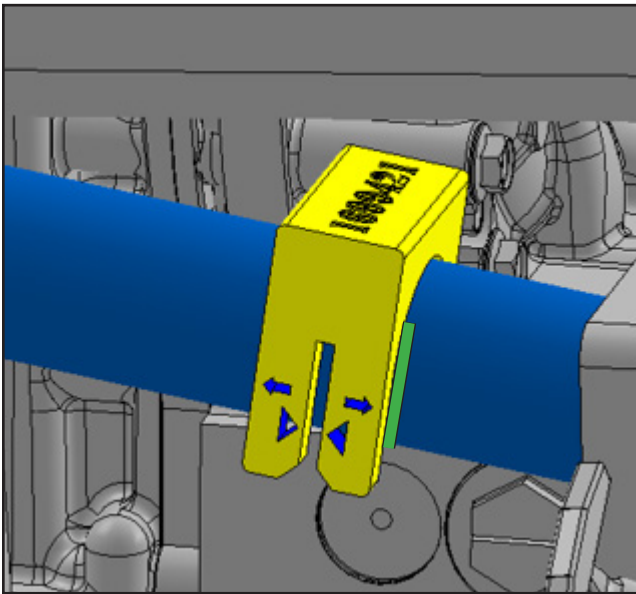


Figure 16

IMPORTANT: If the shaft moves more or less than 3/4" to 1" back and forth, it may be installed incorrectly or it may be the wrong length. Contact your McNeilus refuse service network at 888-686-7278 for assistance.

- G. Continue with Step 15.

15. Using appropriate wrenches, reinstall the pump mount cover (Figure 17, Item 1) using the retained hardware (Figure 17, Item 2) to the pump mount support plate (Figure 17, Item 3).

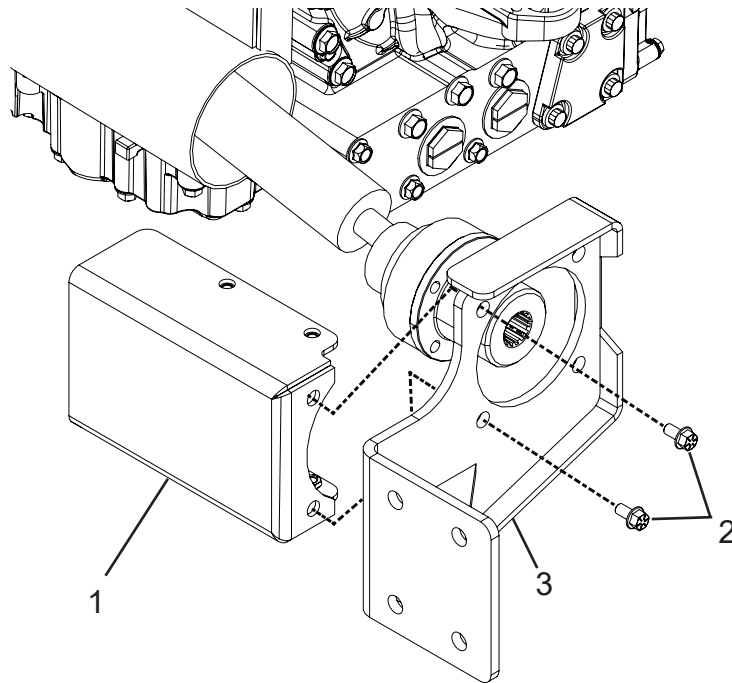


Figure 17

16. Install the existing half of the pump mount cover (Figure 18, Item 1) using the retained hardware (Figure 18, Item 2). Use a torque wrench to torque the hardware to 28 ft.-lbs.

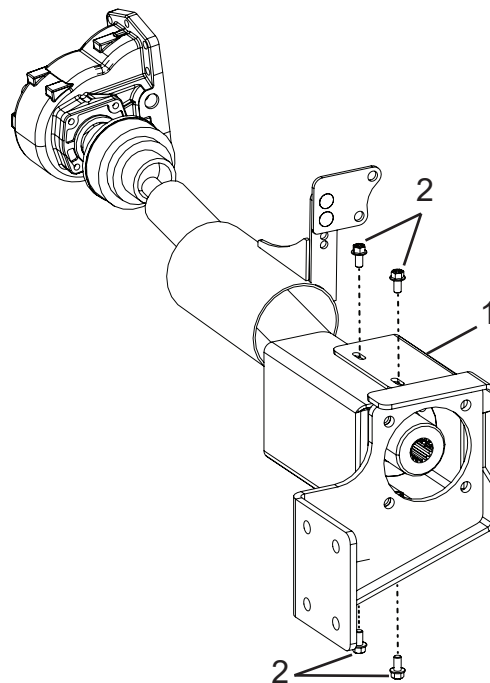


Figure 18

17. Procedure is complete.
18. Remove your company's Lockout/Tagout per your company's procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.