



Auxiliary Power Unit (APU) Bearing Failures

Product: Workman HD Series

Revised Mar 12, 2012

**Remove and destroy
previous version**

**Weldment part number
and models added.**

Affected Units:

Models:

Serial Numbers:

- 07200 / 07200TC
- 07202 / 07202TC
- 07205 / 07205TC
- 07206 / 7206TC
- 07215 / 07215TC / 07216
- 07220 / 07222
- 07230 / 07231 / 07232
- 07360/61(TC)/62(TC)/64(TC)/65

- 30101-210999999
- 80101-210999999
- 30101-210999999
- 50101-69999
- 50101-210999999
- 80101-210999999
- 90101-210999999
- 240000101-290999999

Improper assembly when replacing the Bearings (251-82) and the Spacer (87-2750) can cause early failure of the APU Shaft Bearings and Spacer. Spacer (87-2750) should be inspected for correct length to ensure intended bearing support. Refer to the Installation Instructions below for correct assembly procedure and part specification data.

INSTALLATION INSTRUCTIONS

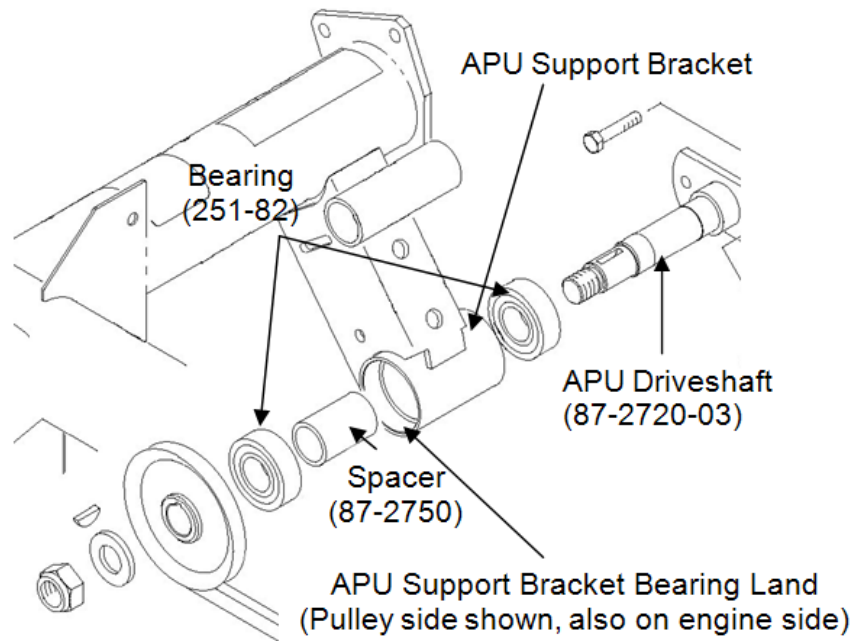
1. Inspect the APU Support Bracket inside diameter bearing land and the APU Driveshaft for damage/burrs. Repair the Bracket if damage is noted in the land area. If APU Bracket replacement is needed, refer to the Instructions attached to this bulletin.
2. Insert Bearing (251-82) into the front side (pulley side) of the APU Support Bracket by pushing on the **outer** race of the Bearing into the Bracket with a steady pressure. Continue this press until the Bearing outer race contacts the land of the Bracket opening.
3. Check the length of Spacer (87-2750) to be 1.884 in. - 1.894 in. (47.85 mm – 48.10 mm). Any Spacer found outside this specification should be discarded and replaced.
4. Place the Spacer into the APU Support bracket cavity against the Bearing installed in Step 2.
5. Press the engine side bearing by pushing on the inner and outer race of the bearing **with equal force** until it contacts Spacer (87-2750).

Note: If excessive pressure is applied after contact with spacer, bearing may be damaged.

6. Align the Spacer with the Bearing inner race openings and insert APU Driveshaft (87-2740-03). Install Pulley (87-3370-03), Woodruff Key (3257-7), Washer (3256-8), and Lock Nut (3296-15). Tighten locknut to 115 ± 15 in-lbs (13 ± 0.57 Nm) to complete assembly.

WARNING:

Do not use an impact wrench to tighten Lock Nut onto APU Driveshaft.





Replacement Support Arm Kit

Heavy-Duty Workman Vehicles

Part No. 112-3149

Form No. 3358-108 Rev. A

Installation Instructions

Warning

This kit requires parts to be welded to the chassis. Welding can expose you to a number of hazards including toxic fumes, smoke, dust, burns, fires, explosions, electric shock, radiation, noise, and heat stress which can cause serious injury and death.

- Welding portions of the kit should be performed by a trained welder.
- Weld in a adequately ventilated area with suitable fire extinguishing equipment readily available.
- Weld in a firesafe workplace. This can be accomplished by welding behind firesafe barriers or curtains and on concrete or other firesafe flooring. Remove or protect all combustibles from ignition sources.
- Wear proper protective clothing when welding, such as fire retardant coveralls. Protect your hands with leather gauntlet gloves. Feet should be protected by high top leather shoes, preferably safety shoes.
- Protect your eyes when welding. A welding helmet or hand shield with filter plate and cover plate is mandatory to protect the eyes while welding. Transparent goggles or safety glasses should be worn at all times.

Disassembly

1. Position the vehicle on a level surface.
2. Remove the 1/3 bed, if the machine is so equipped. Raise the full bed and secure it with the safety support.
3. Disconnect the negative cable from the battery.

Important Make sure APU bearings and engine isolator mounts are in good condition before starting this procedure. If either is worn replace.

4. Remove the (2) capscrews, washers, and thick spacers securing the front drive shaft coupling to the engine pulley (Fig. 1).

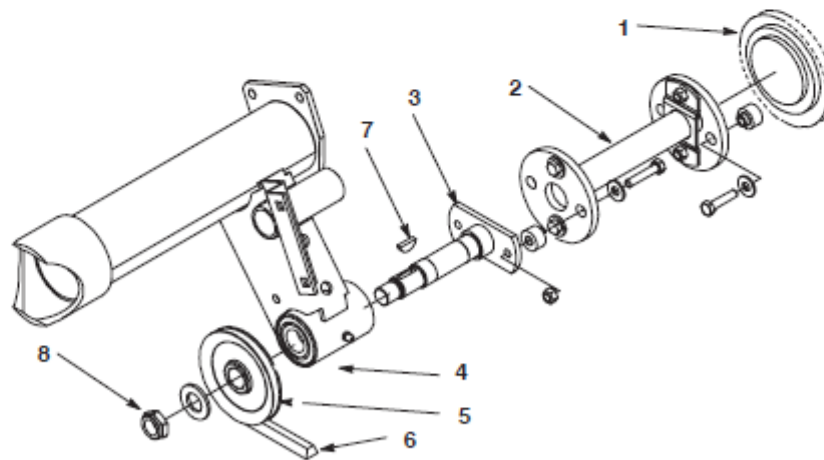


Figure 1

- | | | | |
|------------------|------------------------|------------------------------|------------------|
| 1. Engine pulley | 3. Jack shaft assembly | 5. Jack shaft drive pulley | 7. Woodruff key |
| 2. Drive shaft | 4. Jack shaft support | 6. Hydraulic pump drive belt | 8. Jackshaft nut |

5. Remove the (2) capscrews, washers, and spacers securing the rear drive shaft coupling to the jack shaft assembly (Fig. 1).
6. Loosen the idler pulley tensioning the hydraulic pump drive belt and remove the belt from the jackshaft drive pulley (Fig. 1).
7. Remove the locknut and washer securing the jack shaft drive pulley to the jack shaft. Retain the parts for re-installation (Fig. 1).
8. Remove the pulley from the jackshaft (Fig. 1).
9. Remove the Woodruff key from the drive jack shaft. Retain the key for reinstallation (Fig. 1).
10. Slide the jackshaft out of the jackshaft support (Fig. 1).

Important Use caution when removing the jack shaft so the bearings in the jack shaft support are not damaged. If the bearings are damaged they must be replaced. It is recommended that the bearings be replaced. If installing a bearing that has two seals, make sure the inward seal is removed, on each bearing, before installing.

11. Remove the grease fitting from the jack shaft support, is so equipped (Fig. 2).

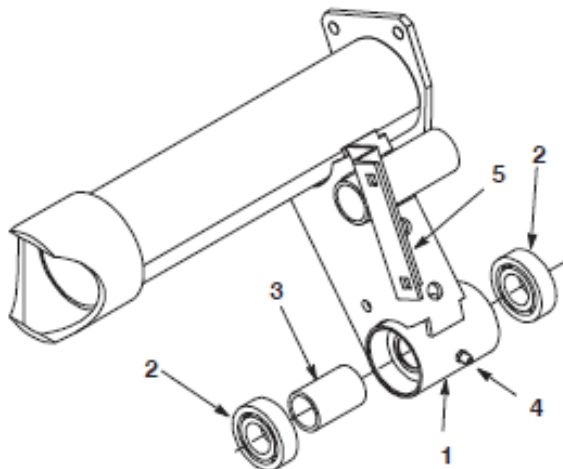


Figure 2

- | | |
|-----------------------|-------------------------------|
| 1. Jack shaft support | 4. Grease fitting |
| 2. Bearing | 5. Jack shaft support bracket |
| 3. Bearing spacer | |

12. Remove the carriage bolts and nuts securing the jack shaft support bracket to the pump mount (Fig. 2).

13. Carefully cut and remove the jack shaft support from the support tube, as shown in figure 3. Cut all four sides of the support. Use caution not to damage the support tube. Remove any excess weld from the support tube.

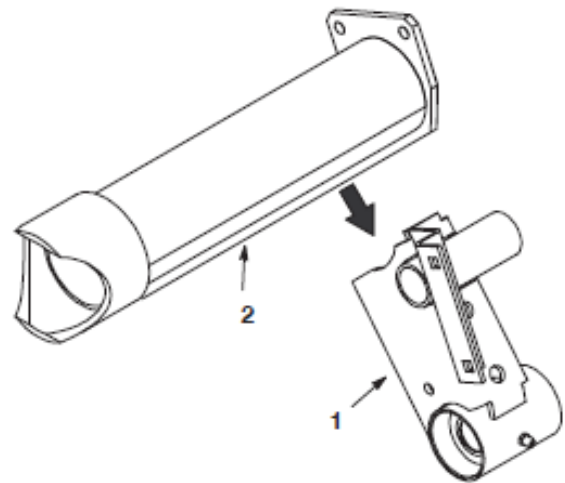


Figure 3

- | | |
|-----------------------|-----------------|
| 1. Jack shaft support | 2. Support tube |
|-----------------------|-----------------|

14. Carefully install the bearings and spacer into the new jack shaft support (Fig. 2). Also, install the grease fitting to the jack shaft support.

Locate and Weld the Jack Shaft Support to the Support Tube

1. Using the dimensions, shown in figures 4 and 5, locate the mounting position of the new jack shaft support assembly on the support tube.

Note: The starred dimensions are critical in locating the new jack shaft support assembly onto the support tube. The remaining dimensions, in parenthesis, are for reference.

Note: An Alternate Method of Locating and welding the Jack Shaft Support is located on page 6.

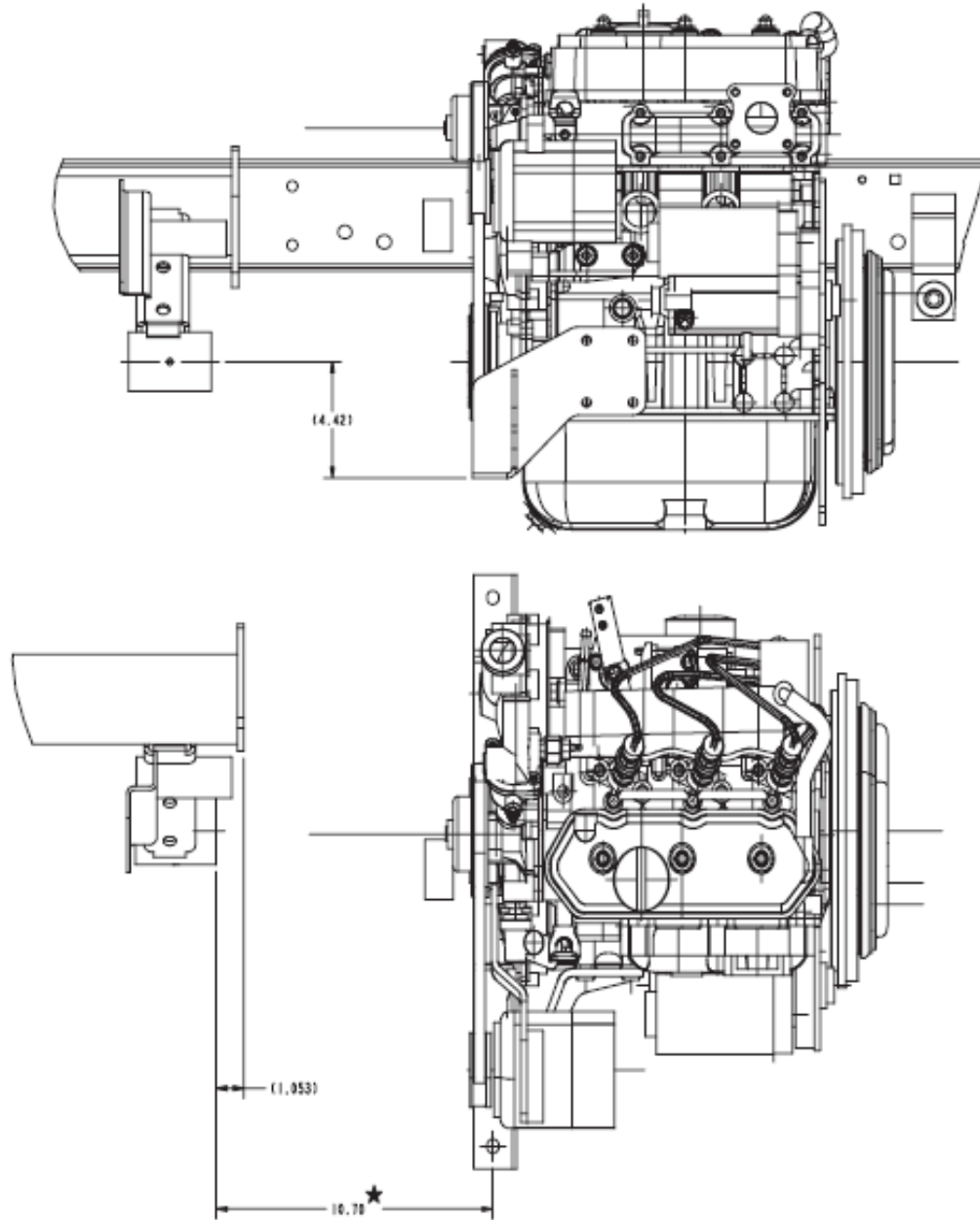


Figure 4

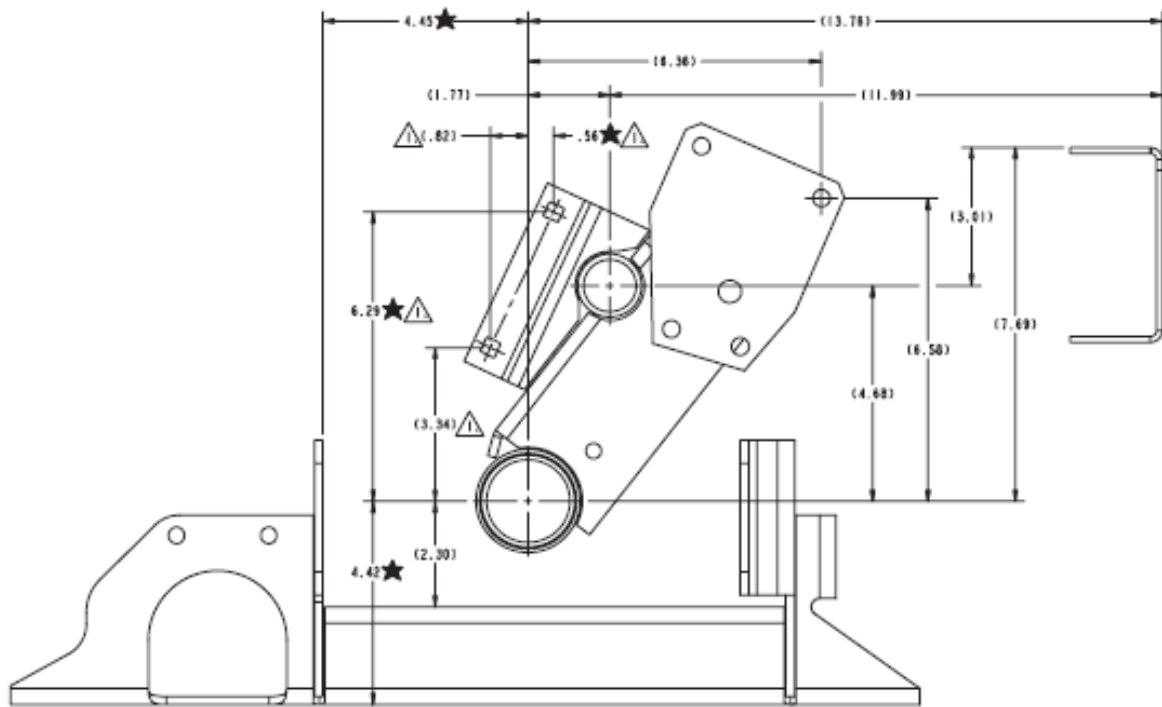


Figure 5

2. Tack weld the new drive shaft support into position on the surface of the support tube.

3. Weld the new drive shaft support to the support tube as shown in Figure 6.

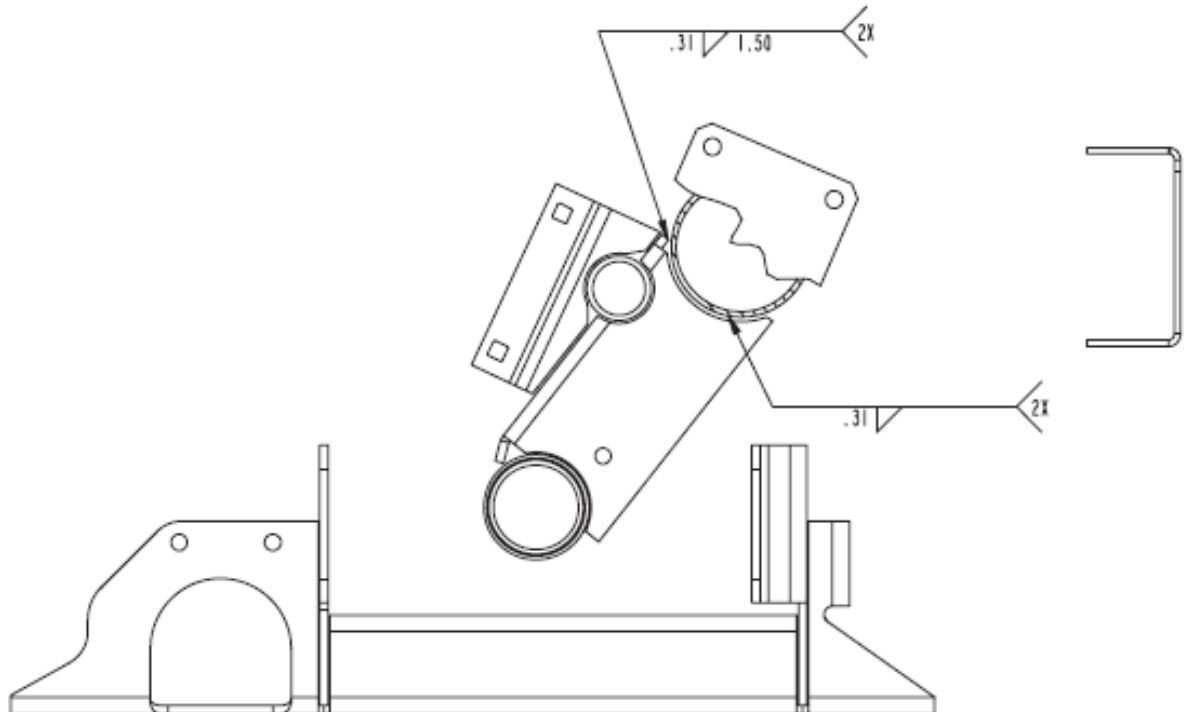


Figure 6

4. Allow the weldments to cool.
5. Prime and paint the area with a touch-up paint.
6. Secure the jack shaft support bracket to the pump mount with the carriage bolts and nuts previously removed.
7. Apply a light coat of oil or a rust preventative such as Never Seize to the shaft of the jack shaft.
8. Insert the jackshaft into the jack shaft support (Fig. 7).

Note: The bearing spacer between the jack shaft bearings in the jack shaft support may have to be held in place when inserting the jackshaft shaft.

Note: Do not pound the jack shaft into the bearings. The jack shaft should slide into place with manual force or wiggling.

9. Reinstall the Woodruff key to the jack shaft (Fig. 7).

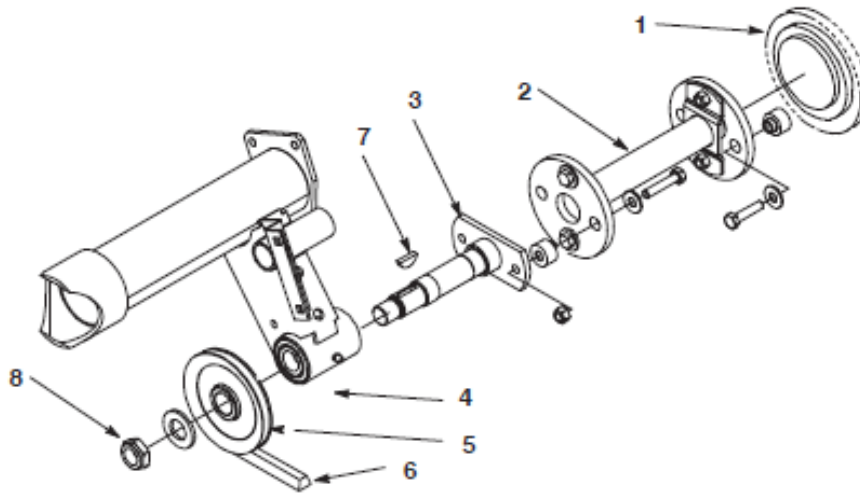


Figure 7

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|------------------|------------------------|------------------------------|------------------|
| 1. Engine pulley | 3. Jack shaft assembly | 5. Jack shaft drive pulley | 7. Woodruff key |
| 2. Drive shaft | 4. Jack shaft support | 6. Hydraulic pump drive belt | 8. Jackshaft nut |

10. Reinstall the pulley to the jack shaft (Fig. 7).
11. Secure the pulley to the jack shaft with the previously removed flat washer and the locknut (Fig. 7). Torque the nut to 100–130 ft-lb .
12. Secure the rear drive shaft coupling to the jack shaft assembly with the (2) capscrews, washers, spacers and nuts previously removed (Fig. 7).
13. Secure the front drive shaft coupling to the engine pulley with the (2) capscrews, washers, and spacers previously removed (Fig. 7).

14. Reinstall the hydraulic pump drive belt to the jackshaft pulley and adjust the idler pulley as follows:

- Check the tension by depressing the belt at the mid span of fan and drive shaft pulleys with 22 lbs. of force. A new belt should deflect .48–.58 in. A used belt should deflect .55–.65 in.
- Tighten idler pulley mounting nut.

15. Grease the jack shaft support with No. 2 lithium based grease.

Alternate Method: Locate and Weld Jack Shaft Support to the Support Tube

1. Use the following steps to locate the center line for mounting the new jack shaft support assembly to the support tube.

- A. Remove the capscrews, thin spacers and nuts securing the rubber couplers to the drive shaft (Fig. 8). Remove the couplers from the drive shaft.

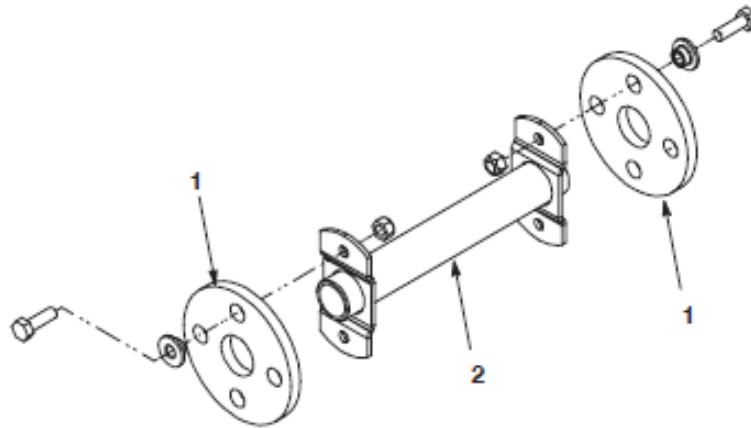


Figure 8

1. Rubber couplers
2. Drive shaft

- B. Using two of the capscrews, washers, and thick spacers, mount the drive shaft, without the rubber coupling, to the engine pulley (Fig. 9).

- C. Using two of the capscrews, washers, and thick spacers, mount the jack shaft, without the rubber coupling, to the drive shaft (Fig. 9).

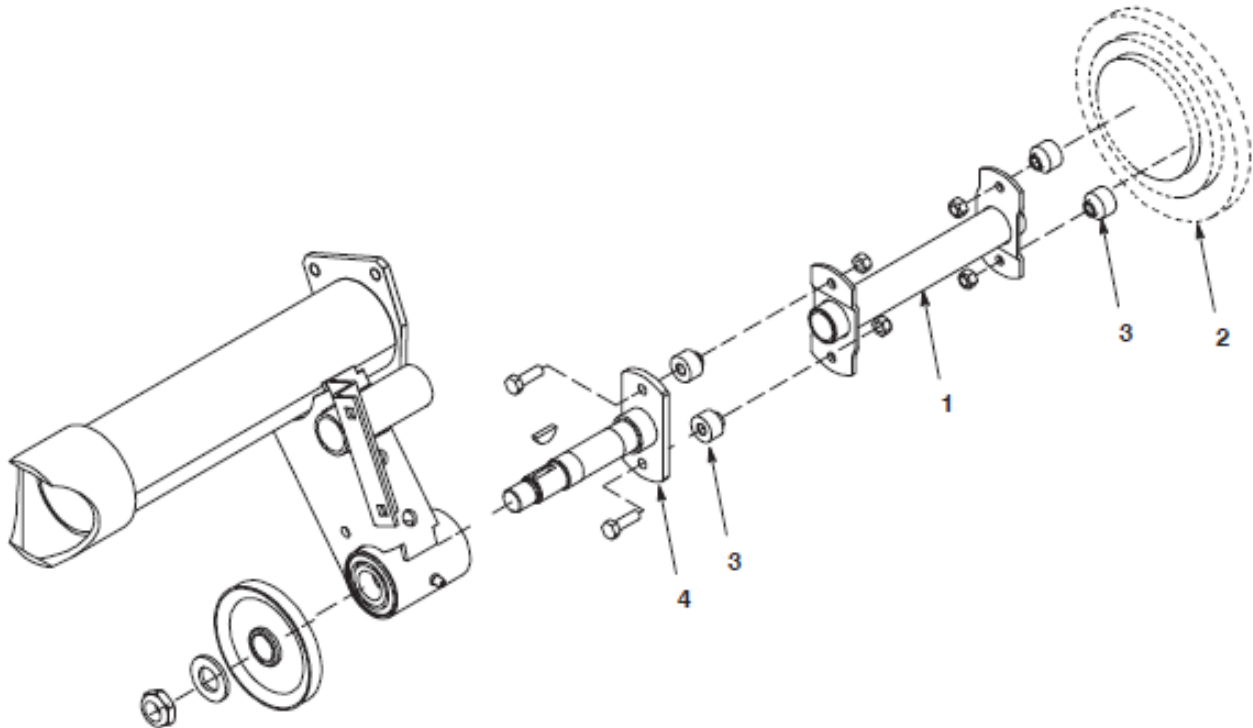


Figure 9

1. Drive shaft
2. Engine pulley
3. Thick spacer (4)
4. Jackshaft

- D. Apply a light coat of oil or a rust preventative such as Never Seize to the shaft of the jack shaft.
- E. Insert the new drive shaft support onto the jack shaft while positioning it against the support tube

Note: The bearing spacer between the jack shaft bearings in the jack shaft support may have to be held in place when inserting the jackshaft shaft.

- F. Reinstall the Woodruff key to the jack shaft (Fig. 11).
- G. Reinstall the pulley to the jack shaft (Fig. 11).
- H. Secure the pulley to the jack shaft with the previously removed flat washer and the locknut (Fig. 11). Torque the nut to 100–130 ft-lb .

- I. Align the holes of the drive shaft support bracket with the holes in the pump mount.
- J. Secure the drive shaft support bracket to the pump mount with the carriage bolts and nuts previously removed.
- K. Verify that the drive shaft is level.

2. Tack weld the new drive shaft support into position on the surface of the support tube.
3. Weld the new drive shaft support to the support tube as shown in Figure 10.

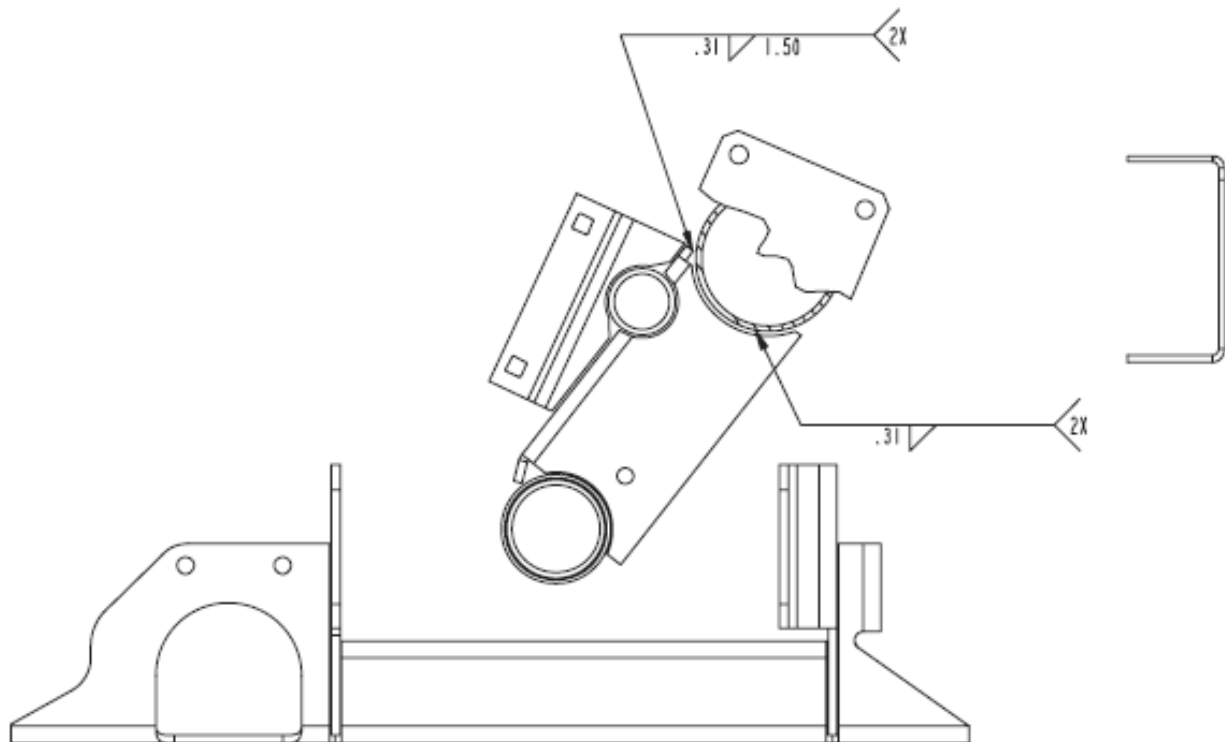


Figure 10

4. Allow the weldments to cool.
5. Prime and paint the area with a touch-up paint.
6. Disassemble the drive shaft from the jack shaft and the engine pulley.
7. Install the rubber couplings to the drive shaft with the capscrews, washers, and thick spacers previously removed.
8. Secure the rear drive shaft coupling to the jack shaft assembly with the (2) capscrews, washers, spacers and nuts previously removed (Fig. 11).
9. Secure the front drive shaft coupling to the engine pulley with the (2) capscrews, washers, and spacers previously removed (Fig. 11).