# INSTRUCTION BULLETIN

**No. 340043**
**Machine: 355/385**
**Published: 4-97/01**
**System: CHASSIS**

**NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in your machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save you the cost of ordering an entire kit.**

*NOTE: Numbers in parenthesis ( ) are reference numbers for parts listed in Bill of Materials.*

Installation Instructions for Kit number 374555 (rear balljoint) and 374554 (front balljoint).

**SYNOPSIS / PROBLEM:**

This kit contains the parts needed to replace the steering cylinder ball joints on the model 355/385 sweeper. Please follow step-by-step instructions.

**SPECIAL TOOLS / CONSIDERATIONS:** Drain pan, large torque wrench

(Estimated time to complete: 2 hours)

**PREPARATION FOR (REAR) STEERING CYLINDER BALLJOINT REPLACEMENT:**
**(Refer to FIG. 1 and 2)**

**FOR SAFETY: Before leaving or servicing machine, stop on level surface and set parking brake. Then turn off machine and remove key.**

1. Disconnect battery cables from machine.

**WARNING: Always disconnect battery cables from machine before working on electrical components.**

2. Lift the rear of the machine and install jack stands under the frame.
3. Turn the steering wheel to the left until the rear drive motor hydraulic hoses can be accessed from the rear of the machine.
4. Raise the seat support.
5. Open the right side, rear casting.
6. If the machine runs on LPG, remove the LP tank.
7. Place a drain pan under the rear drive motor. Mark and remove the two larger hydraulic hoses from the drive motor. Remove both straight fittings from the drive motor: one fitting must be retained for reuse. The hydraulic hose with the 45° end must be loosened on the opposite end and rotated 180°. Re-tighten the hose end. (Refer to FIG. 1 and 2)
8. Remove the upper hose clamp from the rear drive casting. Pull the hoses out of the way so the hardware holding the existing steering cylinder ball joint to the casting can be accessed. (Refer to FIG. 1 and 2)
9. Remove the nut from the bottom of the existing ball joint at the rear of the steering cylinder. Lift the cylinder up far enough to remove the balljoint from the steering cylinder rod. Loosen the jam nut on the cylinder rod. Remove and discard the existing ball joint. (Refer to FIG. 1 and 2)

## INSTALLATION OF (REAR) STEERING CYLINDER BALL JOINT:

**(Refer to FIG. 1 and 2)**

1. Install the new balljoint (1) on the steering cylinder rod in the same location and orientation as the old ball joint. (Refer to FIG. 1 and 2)
2. Place the hex screw (2) and flat washer (5) through the new balljoint (1) end. Position the sleeve (3) under the balljoint. Place the hex screw (2) through the mount hole in the rear casting. (Refer to FIG. 1 and 2)
3. Install the nyloc nut (4) on the new screw (2). Tighten the screw (2) and nut (4) to 240 ft lbs. This must be done or the balljoint may loosen up over time. Go back and tighten the jam nut on the steering cylinder rod. Tighten the jam nut very firmly. (Refer to FIG. 1 and 2)
4. **If your machine is a model 355,** install the straight fitting (7) in the port on the drive motor nearest the face of the drive casting. (Refer to FIG. 1 and 2)
5. **If your machine is a model 385,** install the straight fitting (8) in the port on the drive motor nearest the face of the drive casting. (Refer to FIG. 1 and 2)
6. Install the reducer fitting (9) on top of the fitting installed in the previous step. (Refer to FIG. 1 and 2)
7. Install the straight fitting retained from the old motor into the port on the new drive motor that is farthest from the face of the drive casting. Install the 45°fitting (6) so it points toward the rear drive casting. (Refer to FIG. 1 and 2)
8. Connect the hydraulic hose, with the straight end, to the fitting in the drive motor nearest the face of the drive casting. Firmly tighten the hose end while holding the hose from turning. (Refer to FIG. 1 and 2)
9. Connect the hydraulic hose, with the 45°end, to the 45° fitting in the drive motor farthest from the face of the drive casting. Firmly tighten the hose end while holding the hose from turning. **Note: This hose must be rotated 180°from the original orientation before reconnecting.** (Refer to FIG. 1 and 2)
10. Reinstall the upper hose clamp on the drive casting. Tighten the hardware to 15 – 20 ft lbs. (Refer to FIG. 1 and 2)
11. Install the two cable ties (10) around the rear drive motor hydraulic hoses in the area just above the drive casting.
12. Reconnect the battery cables and start the machine. Operate the propel circuit and check the rear drive motor for proper operation and for any leaks.
13. Close the rear casting and remove the jack stands. Lower the machine. Check the hydraulic reservoir and add fluid if necessary.

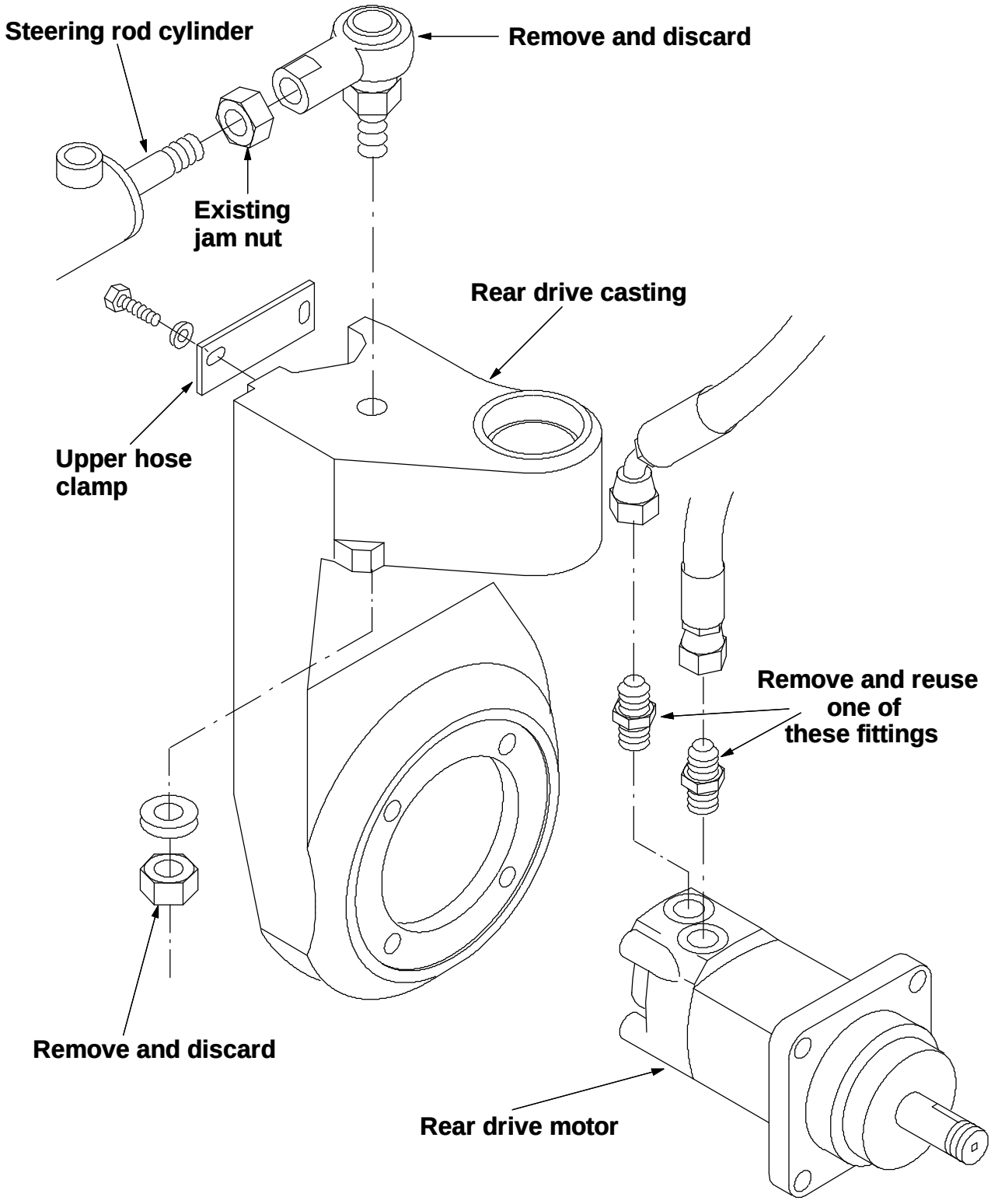


**FIG. 1 - Old Style Rear Steering Cylinder Balljoint Assembly, Hydraulic Fittings, And Hoses**

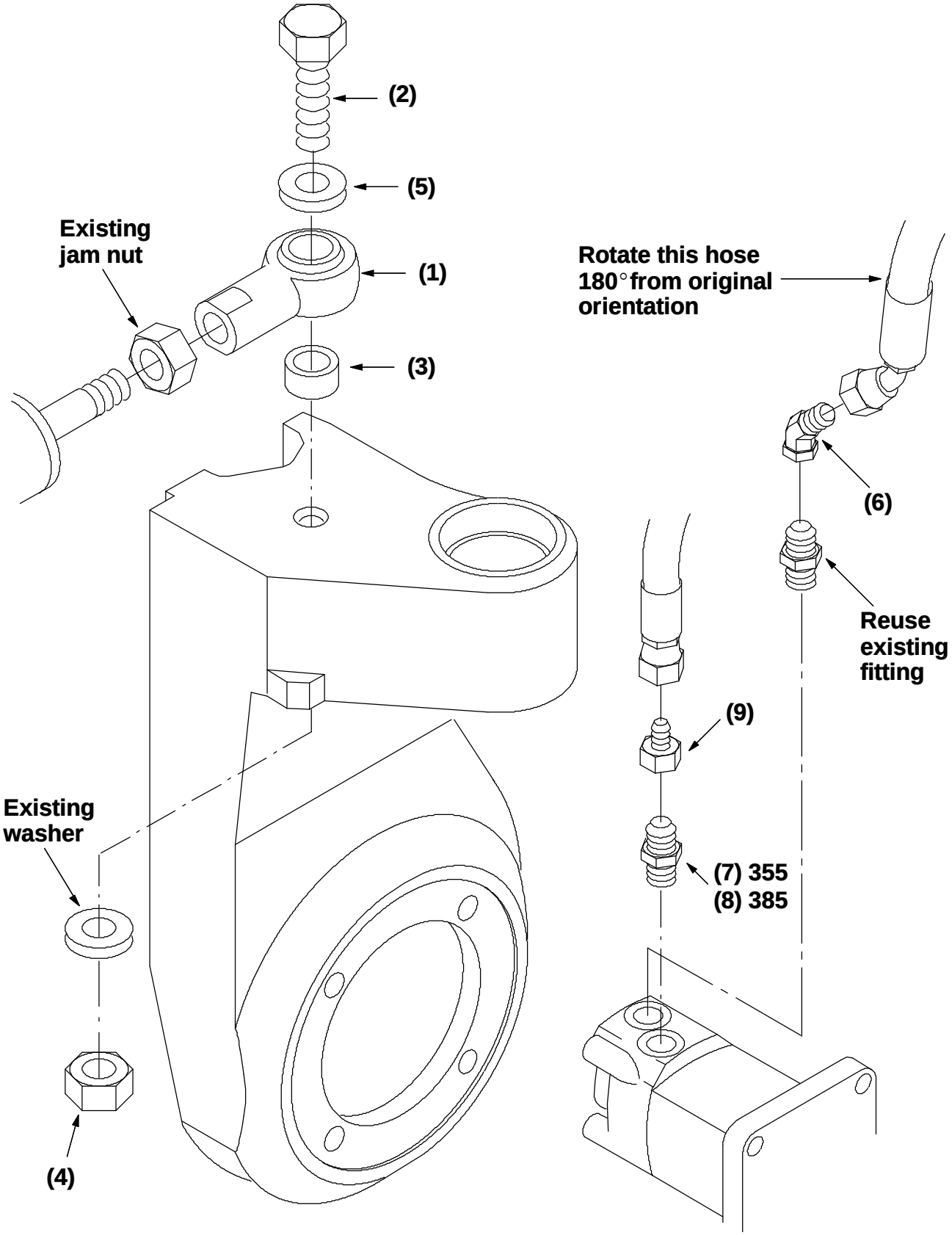


**FIG. 2 - New Style Rear Steering Cylinder Balljoint Assembly, Hydraulic Fittings, And Hoses**

## PREPARATION FOR (FRONT) STEERING CYLINDER BALLJOINT REPLACEMENT:
**(Refer to FIG. 3 and 4)**

1. Start the machine and raise the hopper. Engage the prop arm.

**FOR SAFETY: Before leaving or servicing machine, stop on level surface and set parking brake. Then turn off machine and remove key.**

2. Disconnect battery cables from machine.

**WARNING: Always disconnect battery cables from machine before working on electrical components.**

3. Remove the dust panel from the front of the machine in the area just below the vacuum fan assembly.

4. Go to the operators compartment and remove the floor plate from the machine. This will allow access to the front balljoint.

*NOTE: If the machine is equipped with a cab, the cab door and door seal support angle must be removed first. If the machine is equipped with a cab heater, it must also be removed.*

5. Remove the nut from the bottom of the existing ball joint at the front of the steering cylinder. Lift the cylinder up far enough to remove the balljoint from the steering cylinder. Loosen the jam nut on the cylinder. Remove and discard the existing ball joint. Retain the jam nut. (Refer to FIG. 3 and 4)

## INSTALLATION OF (FRONT) STEERING CYLINDER BALL JOINT:
**(Refer to FIG. 3 and 4)**

1. Install the new balljoint (1) and existing jam nut in the steering cylinder in the same location and orientation as the old ball joint. (Refer to FIG. 3 and 4)

2. Place the hex screw (2) and flat washer (5) through the new balljoint (1) end. Position the sleeve (3) under the balljoint. Place the hex screw (2) through the mount hole on the machine frame. (Refer to FIG. 3 and 4)

3. Install the nyloc nut (4) on the new screw (2). Tighten the screw (2) and nut (4) to 240 ft lbs. This must be done or the balljoint may loosen up over time. Go back and tighten the jam nut on the steering cylinder. Tighten the jam nut very firmly. (Refer to FIG. 3 and 4)

4. Reconnect the battery cables and start the machine. Disengage the prop arm and lower the hopper. Check the hydraulic reservoir and add fluid if necessary.

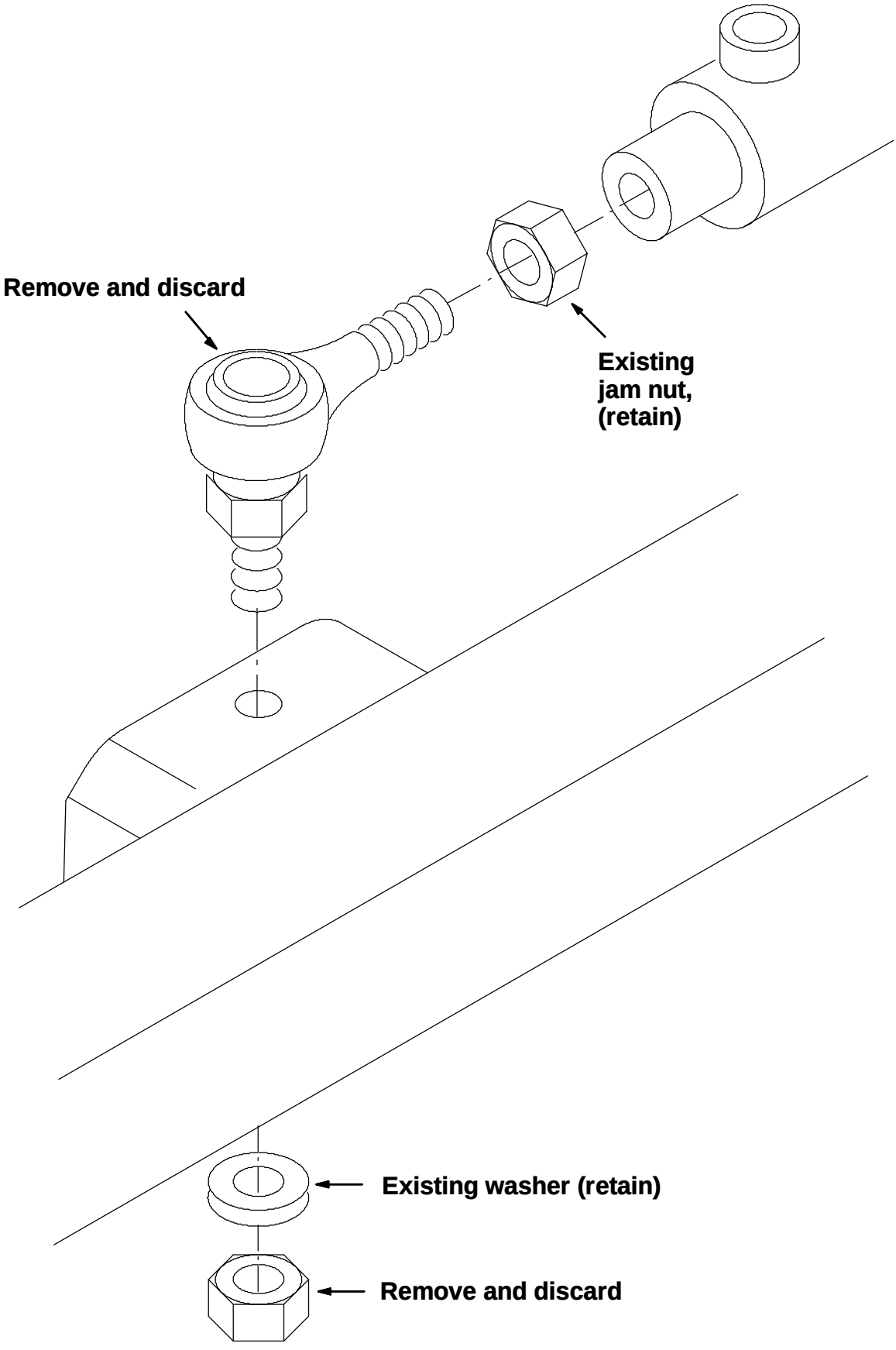


**FIG. 3 - Old Style Front Steering Cylinder Balljoint Assembly**

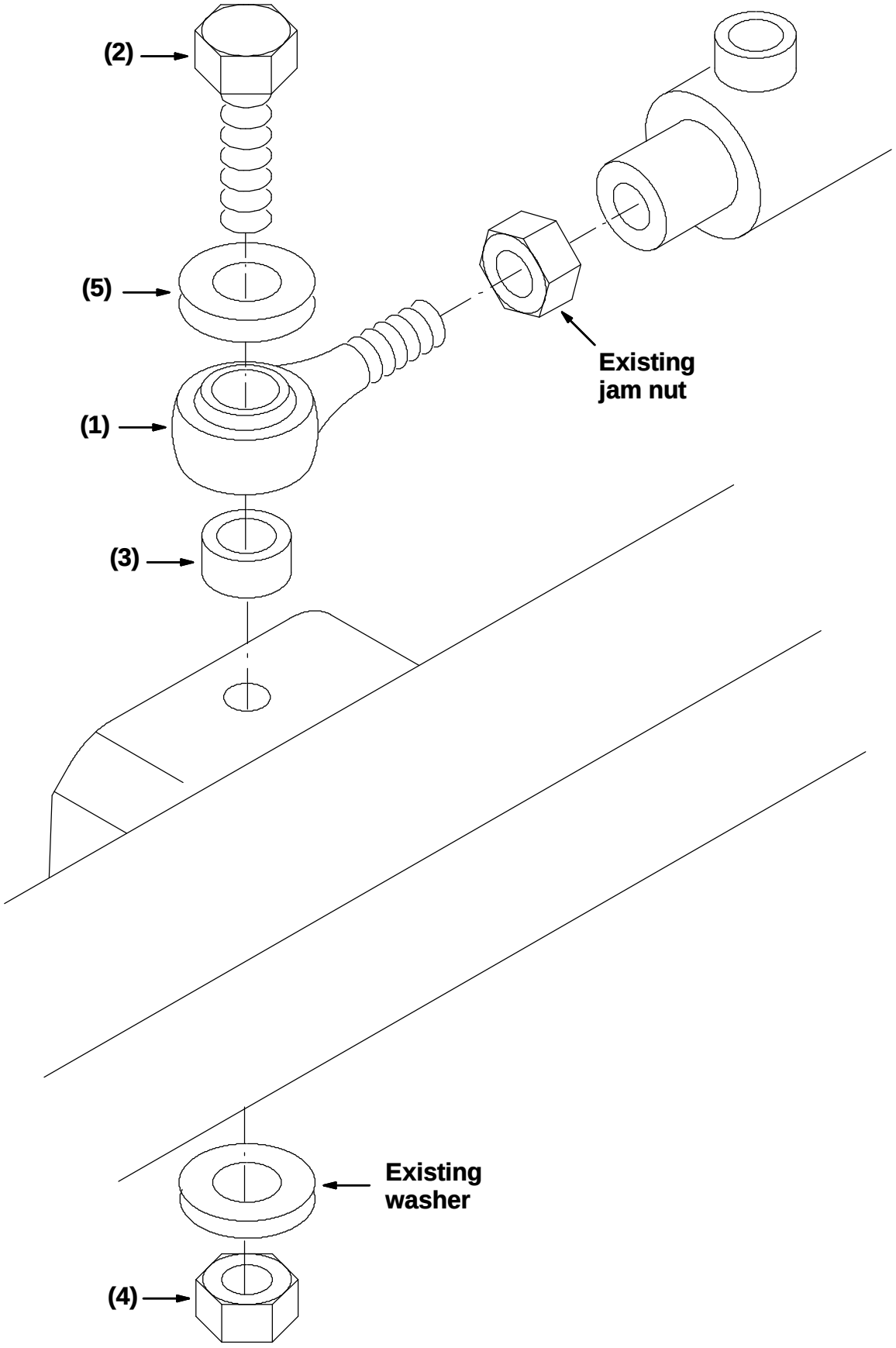


**FIG. 4 - New Style Front Steering Cylinder Balljoint Assembly**

## BILL OF MATERIALS FOR *REAR* BALLJOINT KIT 374555

| Ref. | TENNANT Part No. | Description | Qty. |
|---|---|---|---|
| 1 | 64887 | Rod-end .75-16 | 1 |
| 2 | 374553 | Hex screw, .75 - 10 x 3.5” | 1 |
| 3 | 374552 | Sleeve, .75/.25/.75 | 1 |
| 4 | 32987 | Nyloc nut, .75 - 10 | 1 |
| 5 | 39350 | Flat washer, .75 SAE | 1 |
| 6 | 54017 | Hyd ftg, 45 - JM10/JF10 | 1 |
| 7 | 06750 | Hyd ftg, str - JM12/OM10 (355 only) | 1 |
| 8 | 42260 | Hyd ftg, str - JM12/OM12 (385 only) | 1 |
| 9 | 59975 | Hyd ftg, str - JM10/JF12 (355 & 385) | 1 |
| 10 | 44961 | Cable tie | 2 |

## BILL OF MATERIALS FOR *FRONT* BALLJOINT KIT 374554

| Ref. | TENNANT Part No. | Description | Qty. |
|---|---|---|---|
| 1 | 64886 | Rod-end .75-16 | 1 |
| 2 | 374553 | Hex screw, .75 - 10 x 3.5” | 1 |
| 3 | 374552 | Sleeve, .75/.25/.75 | 1 |
| 4 | 32987 | Nyloc nut, .75 - 10 | 1 |
| 5 | 39350 | Flat washer, .75 SAE | 1 |

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