**Measure Engine Flywheel Housing and Flywheel**

Engine flywheel housing and flywheel must meet these specifications or there will be premature clutch wear. Remove old Pilot Bearing. All gauge contact surfaces must be clean and dry. Use a dial indicator and check the following:

1. **Flywheel Face Runout**
   - Secure dial indicator base to flywheel face near the outer edge. Rotate flywheel one revolution. Maximum runout is 0.008" (0.20 mm).

2. **Pilot Bearing Bore Runout**
   - Secure dial indicator base to flywheel housing face. Position gauge finger so that it contacts pilot bearing bore. Rotate flywheel one revolution. Maximum runout is 0.005" (0.13 mm).

3. **Flywheel Housing I.D. Runout**
   - Secure dial indicator base to crankshaft. Put gauge finger against flywheel housing pilot I.D. Rotate flywheel one revolution. Maximum runout is 0.008" (0.20 mm).

**Lubricate**

- Eaton recommends the use of Roadranger EP2 for release bearing lubrication, or an equivalent Lithium Complex, NLGI #2 or #3 grease with a NLGI GB/GC performance rating and a dropping Point temperature of 220° C (428° F) or higher. Failure to use the proper grease may affect bearing life and void the warranty coverage on your Eaton product.

- Apply ample grease that visibly exits the opening and contacts the transmission shaft. This will lube the clutch brake when pedal is pressed.

**Installation Procedure**

**1 Measure**

- **Flywheel Face Runout**
  - Secure dial indicator base to flywheel face near the outer edge. Rotate flywheel one revolution. Maximum runout is 0.008" (0.20 mm).

- **Flywheel Housing I.D. Runout**
  - Secure dial indicator base to crankshaft. Put gauge finger against flywheel housing pilot I.D. Rotate flywheel one revolution. Maximum runout is 0.008" (0.20 mm).

- **Flywheel Housing Face Runout**
  - Secure dial indicator base to flywheel near the outer edge. Put gauge finger in contact with face of flywheel housing. Rotate flywheel one revolution. Maximum runout is 0.008" (0.20 mm).

**Verify Free-Play**

- **To change the yoke finger and bearing wear pads clearance, adjust the upper pedal stop to raise or lower the pedal in the cab.**

**Lubricate**

- Eaton recommends the use of Roadranger EP2 for release bearing lubrication, or an equivalent Lithium Complex, NLGI #2 or #3 grease with a NLGI GB/GC performance rating and a dropping Point temperature of 220° C (428° F) or higher. Failure to use the proper grease may affect bearing life and void the warranty coverage on your Eaton product.

- Apply ample grease that visibly exits the opening and contacts the transmission shaft. This will lube the clutch brake when pedal is pressed.

**Adjust Bearing Position**

1. Measure the distance between the release bearing and the clutch brake. The correct distance should be 0.500” – 0.560” (12.70 – 14.22 mm). If correct go to Step 3.

2. To change bearing position, you must internally adjust the clutch. Push pedal and hold pedal down when adjusting. Follow instructions for Kwik-Adjust or Value Clutches.

   - **Kwik-Adjust Clutches**
     - Push and turn adjusting nut. Clockwise moves the bearing toward transmission.

   - **Value Clutch**
     - Remove lockstrap, then rotate adjusting lugs left to move bearing toward transmission. Replace lockstrap.

**Flywheel Housing I.D. Runout**

- Secure dial indicator base to crankshaft. Put gauge finger against flywheel housing pilot I.D. Rotate flywheel one revolution. Maximum runout is 0.008” (0.20 mm).

- **To change the yoke finger and bearing wear pads clearance, adjust the upper pedal stop to raise or lower the pedal in the cab.**

- **Upper pedal stop**

**Transmission**

- Eaton Vehicle Group
- P.O. Box 4103
- Kalamazoo, MI 49003 USA
- 800-826-HELP (4357)
- www.eaton.com/roadranger

**Reference Materials**

- CLSM200 and CLSL1511

**Note:** Eaton recommends the use of Roadranger EP2 for release bearing lubrication, or an equivalent Lithium Complex, NLGI #2 or #3 grease with a NLGI GB/GC performance rating and a dropping Point temperature of 220° C (428° F) or higher. Failure to use the proper grease may affect bearing life and void the warranty coverage on your Eaton product.

- Apply ample grease that visibly exits the opening and contacts the transmission shaft. This will lube the clutch brake when pedal is pressed.

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Install Clutch to Flywheel

**For 15.5” clutch only:**
1. Measure the flywheel bore. Use the Eaton Clutch Selector Guide (CLSL1511) to verify that the damper will fit into the flywheel bore.
2. Insert aligning tool through bearing.
3. Install lock washers and mounting bolts (3/8” x 14 UNC x 2 1/4” (grade 5) finger tight. Replace studs with lockwashers and bolts.
4. Progressively tighten mounting bolts in a crisscross pattern starting with a lower bolt. Torque to 40–50 lbs. ft. (54–68 Nm).
5. Install disc onto aligning tool. Follow the orientation instructions on the disc.
6. Install intermediate plate onto drive pins. Follow the orientation instructions on the disc.
7. Install disc onto aligning tool. Follow the orientation instructions on the disc.
8. Install second disc onto aligning tool. Follow the orientation instructions on the disc.
9. Install two 7/16” x 14 UNC x 5” studs into upper mounting holes. Install assembled clutch.

**For 14” clutch only:**
1. Ensure the correct flywheel depth is 2-15/16”.
2. Put front disc into flywheel. Flywheel side must face toward engine. Use new slots to put intermediate plate on pins.
3. Install three equally spaced anti-rattle springs.
4. Turn intermediate plate left. Use 0.006” feeler gauge to check left pin clearance on all 6 drive pins.
5. Slide cover over aligning tool.
6. Install second disc onto aligning tool. Follow the orientation instructions on the disc.
7. Install intermediate plate into slots on the clutch cover. Flywheel side must face the flywheel.
8. Install disc onto aligning tool. Follow the orientation instructions on the disc.
9. Install two 7/16” x 14 UNC x 5” studs into upper mounting holes. Install assembled clutch.

**Super-duty clutch only:**
1. Insert aligning tool through bearing.
2. Install lock washers and mounting bolts (3/8” x 14 UNC x 2 1/4” (grade 5) finger tight. Replace studs with lockwashers and bolts.
3. Progressively tighten mounting bolts in a crisscross pattern starting with a lower bolt. Torque to 40–50 lbs. ft. (54–68 Nm).
4. Install disc onto aligning tool. Follow the orientation instructions on the disc.
5. Install second disc onto aligning tool. Follow the orientation instructions on the disc.
6. Install disc onto aligning tool. Follow the orientation instructions on the disc.
7. Install two 7/16” x 14 UNC x 5” studs into upper mounting holes. Install assembled clutch.

Install Transmission

**Check Transmission For Wear**
Replace any worn components.

**Transmission Bearing Retainer Cap**
A worn/rough bearing retainer cap may cause the clutch brake to wear prematurely.

**Clutch Brake**
Replace.

**Input Shaft Splines**
Any wear on the splines will prevent the driven discs from sliding freely, causing poor clutch performance and yoke bridge contact with the clutch when the pedal is down.

**Cross Shaft and Bushings**
Excessive wear at these points can cause side loading on the sleeve bushing, bushing failures and yoke bridge contact with the clutch when the pedal is down.

**Release Yoke**
Worn fingers can cause bushing wear and yoke interference when the pedal is down.

**Input Shaft (roughness)** can reduce sleeve bushing life and cause it to come out.

**Measure Input Shaft**
Length should be 8.657” (219.89 mm) nominal, and not greater than 8.71” (221.23 mm). Ref. 1990 SAE handbook 4:36.106. Replace transmission bearing retainer cap if length is greater than 8.71” (219.89 mm).

**Fasten Transmission To Flywheel Housing**
Transmission installation and clutch set-up procedures are the same for the 14” and 15.5” clutch.

1. Put transmission in gear. Be sure new clutch brake has been installed.
2. Make sure that the yoke fingers remain in the up position until they are over the release bearing housing.
3. Position transmission so it is square to and aligned with engine.
4. Mesh splines by moving transmission forward and rotating the output shaft. Do not use excessive force. Do not let the transmission hang unsupported in the discs.
5. Install mounting bolts and torque to OEM specs.