

BULLETIN A-3031

P-222-19

Installation Instructions

Drawworks Overrunning Clutches for Hydromatic Brakes



 **Formsprag**[®]
Clutch

An Altra Industrial Motion Company

Introduction

Formsprag Clutch Drawworks over-running clutches are designed specifically to meet the needs of the Drawworks Industry. They feature Formchrome® sprags for long life and Formsprag's exclusive "Free Action" retainer for instant engagement.

⚠ WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

Pre-installation

Before installing check:

1. Shaft to bore fit

The clutch bore has a taper of 1.250 in. per foot.

If a shrink fit is required, the shaft fit must not exceed .002 interference.

2. Key and Keyseat

Hardness: Use a hardened key, from 30 to 40 Rockwell "C" scale.

Length: The key must be equal to the length of the inner race for proper engagement.

Fit: Break edges of the key before installing, to prevent any bearing at these points. Install with a push fit. Be sure the key seats squarely. Do not force fit.

3. Rotation

Check the clutch for the proper rotation in each application. Turn the outer race to check overrunning direction.

Installation

1. When mounting the clutch and key on the shaft, DO NOT apply pressure to the outer race of the clutch. Doing so, may result in bearing damage.
2. If an interference fit is required, immerse the clutch in hot clean oil (not to exceed 200°F) for 15 to 30 minutes before mounting. Recommended interference NOT TO EXCEED .002 in.
3. Secure the clutch in position on the shaft with an appropriate keeper plate, tighten bolts to recommended torque.
4. Mount attaching coupling to the outer race.
5. All Formsprag Clutch Drawworks clutches are lubricated with high grade automotive automatic transmission fluid (unless otherwise specified on order) before leaving the factory. However, if lubrication other than ATF is desired, or the ambient temperature is not suitable for its use, flush out the clutch using the flushing procedure. Then, per the refill procedure, fill the clutch with the recommended lubricant for the ambient temperature range.

Lubrication

Proper lubrication and lubricant maintenance are the most important single maintenance factors for long, effective, trouble free clutch operation. Read the following instructions and follow them carefully for maximum performance and utilization.

Lubrication Instructions

Use lubricants selected from the following table according to the Application Ambient Temperature.

Temperature Range	Recommended Lube
+20°F to +150°F	Mobil DTE Heavy Medium Shell Turbo Oil #33 Texaco Rando Oil "C" Standard Chevron O/C Turbine Oil No. 15 Exxon Terreso #52 Amoco Industrial #31 Sunoco Sunvis #31 Gulf Harmony #53 *SAE 50 Wt. Oil (High Grade Only)
-10°F to +150°F	Any Automotive (ATF) Automatic Transmission Fluid (High Grade Only)
-40°F to +150°F	Mobil Jet Oil #2 Shell Turbo Oil #500 Texaco Starjet Oil #5 Exxon Turbo Oil #2395 Exxon Enco Turbo Oil #2389 Standard Esso Turbo Oil #2389

*Do not use SAE-50 in the FSD-27

⚠CAUTION Do not use lubricants containing slippery additives or those having extreme pressure characteristics such as any extreme pressure (EP) type lubricants. For additional lube information see Brochure #A-4032.

Oil Lubrication Maintenance

1. Check lubricant level monthly.
2. Add lubricant is necessary to maintain the proper fluid level.

Approximately 7/8 Full

3. Flush the clutch every six months with mineral spirits.

Mobil Oil Company "Solvasol" or equivalent may be used.

Flushing will remove waxes and gums formed by vaporization of the oil and assure continued efficiency of operation. See "Flushing Procedure" section.

4. Flush with mineral spirits and relubricate before use if clutch has been out of service or in storage for six months or more.

Use recommended oils only.

In cases of dirty or abrasive environment or severe operating conditions (24 hours per day), it is recommended that oil be changed every month.

Flushing Procedure

1. Rotate the clutch outer race to position shown in Figure 1.

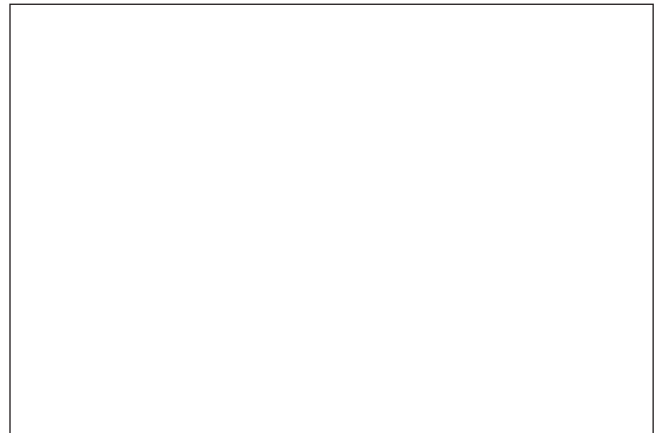


Figure 1

2. Open Ports A, B, and C allowing all the lubricant to drain out port "C".
3. Replace plug in Port "C" and refill the clutch with mineral spirits per the refill procedure.
4. Run the clutch through 4 duty cycles to break up and dissolve oily residue which may have formed.
5. Drain solvent by repeating steps 1 & 2 above. Replace and tighten plug in Port "C".

Refill Procedure

1. Rotate the clutch outer race to position it as shown in (Figure 1), with plug “C” being in place and tight.
2. Add recommended lubricant through Port A until fluid flows from Port B. The clutch will then be approximately 7/8 full. Use a pressure can for minimum filling time.
3. Replace and tighten plugs in Ports A and B to prevent leakage.

Inspecting and Lubrication Maintenance Procedure

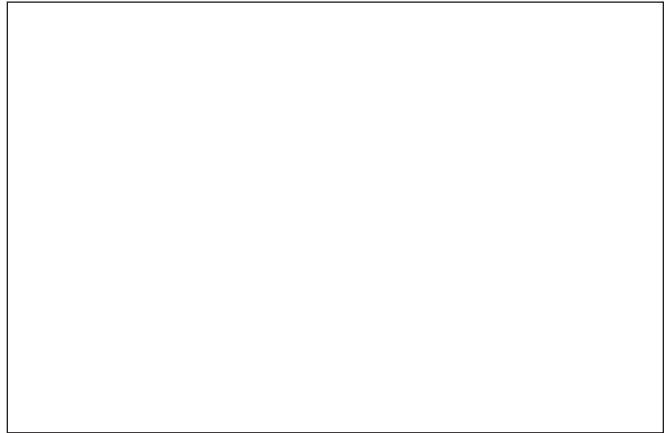
1. Rotate the clutch outer race to position it as shown in (Figure 1).
2. Remove plugs from Ports A and B.
3. Rotate clutch slightly to check the lubricant level.
4. Add lubricant, if required, per steps 2 and 3 of the “Refill Procedure”.

Grease Lubrication

- Do not attempt to substitute grease lubrication in this clutch. The use of grease lubrication in a clutch designed for oil lubrication could cause a malfunction.
- The Formsprag Drawworks Clutch has auxiliary seals that are packed with grease at the factory. In the event of a major shut down of the Drawworks system, it is possible to repack the seals using the following procedure:
 1. Remove all of the button head screws from the seal cover, and remove cover.
 2. Remove the old grease from cavity with a clean rag.
 3. Repack cavity with one of the following greases or equivalents:

Lubriplate Low-Temp (Fiske Bros.)
Mobilux #2 (Mobil)
Rykon #2 (Amoco)
Amolith #2 (Amoco)
Alvania #2 (Shell)

Do not use grease lubricants containing E. P. or Anti-Wear additives.
 4. Replace seal covers and button head screws.



Extended Storage Procedure

If the clutch is to be stored for six months or more, prepare the clutch using the following procedure.

1. Rotate clutch to the position shown in (Figure 1).
2. Flush out existing oil per flushing procedure.
3. Rotate clutch as shown in (Figure 2), with Port "A" in vertical position and plug "C" being in place and tight.

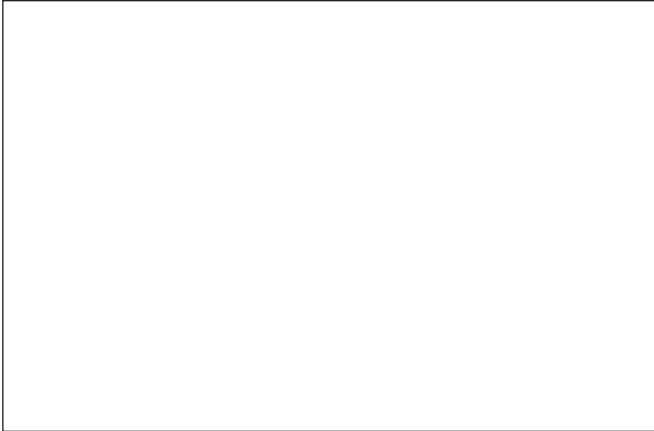


Figure 2

4. Completely fill clutch with S.A.E. oil (high grade only) with applicator into Port "B" until oil flows out from Port "A".
5. Replace and tighten plug in Port "A".
6. Rotate clutch so that Port "B" is vertical. Remove oil applicator, replace and tighten plug.
7. If storing on shaft, grease all exposed surfaces and cover clutch with plastic.
8. If storing clutch alone, grease all exposed surfaces, seal clutch in plastic and store in a cool dry location.

Packaging

Your Formsprag Drawworks Clutch, carefully wrapped in vapor inhibitor type activated paper for corrosion protection and packed in a shipping box conforming to the requirements of Rule 41 Uniform Freight Classification, may be stored for up to two years and reshipped without added packaging. The Drawworks Clutches are packed in wooden, style 4 shipping boxes with integral skids. (See oil lubrication maintenance for information about clutches which have been stored for extended periods.) When storing in an unprotected area or if the original package is opened, wrap the box with a waterproof covering.

Clutch Rebuilding Service

Disassembly and repair of Formsprag Clutches in the field is not recommended. Formsprag Clutches are precision devices manufactured under careful controls to meet exacting standards. When reconditioning is required, clutches should be returned to Formsprag Clutch directly or through your local Formsprag Distributor, or through the O.E.M.

Warranty

Formsprag LLC warrants that it will repair or replace (whichever in its sole discretion it deems advisable) any product it manufactured and sold which proves to be defective in material or workmanship within a period of one (1) year from date of original purchase for consumer, commercial or industrial use. This warranty extends only to the original purchaser and is not transferable or assignable without Formsprag LLC's prior consent.

This warranty covers normal use and does not cover damage or defect which results from alterations, accident, neglect, disassembly, or improper installation, operation, or maintenance.

Formsprag LLC's obligation under this warranty is limited to the repair or replacement of the defective product. In no event shall Formsprag LLC be liable for consequential, indirect or incidental damages of any kind incurred by reason of manufacture, sale or use of any defective product. Formsprag LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.



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