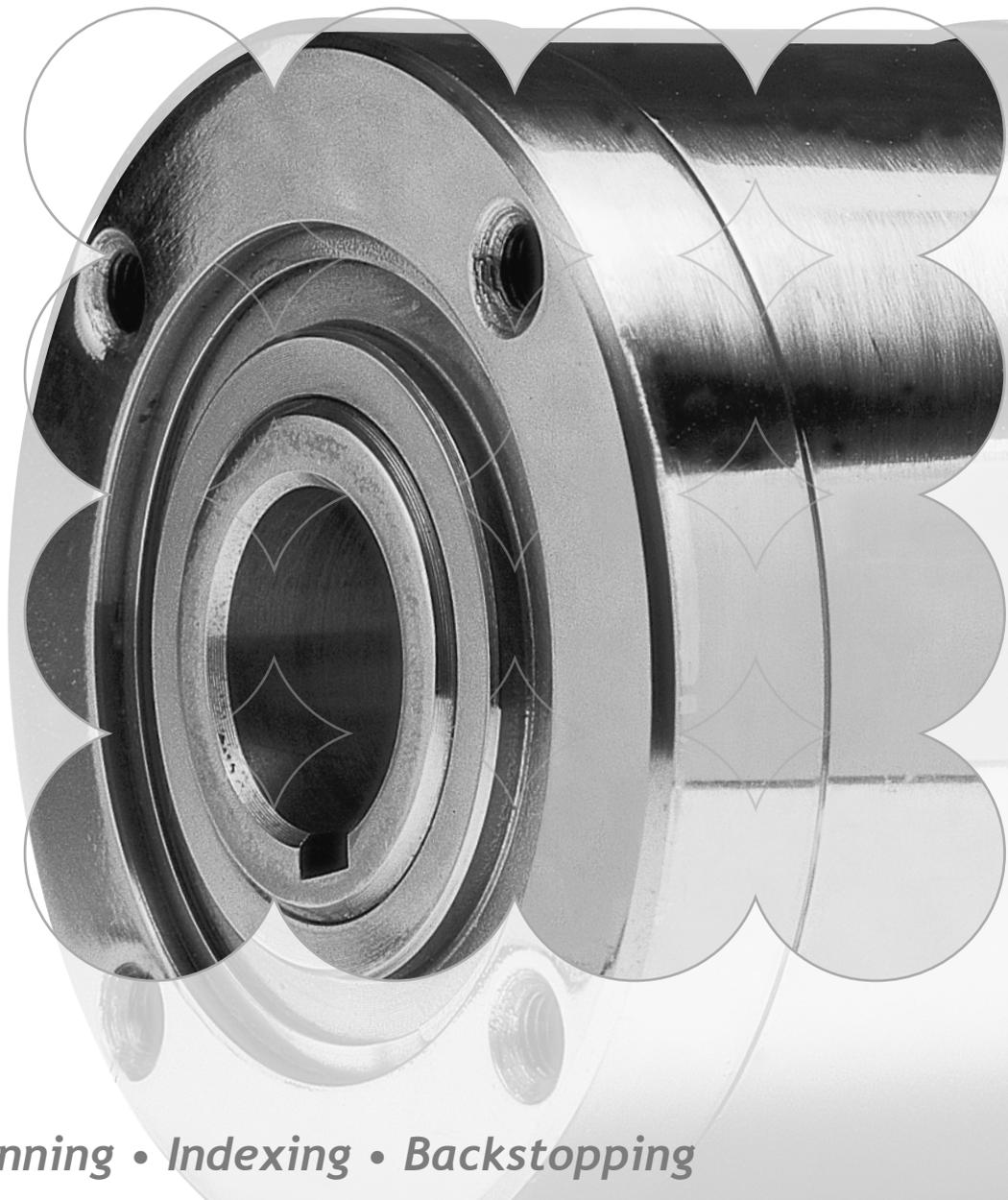


# *Freewheels*

*Sprag Clutch Maintenance / Installation Instructions*



*Overrunning • Indexing • Backstopping*

**RENOLD**  
*Superior Freewheel Technology*

[www.renold.com](http://www.renold.com)

# Sprag Clutch - installation and lubrication instructions

## Pre Installation Check

1. Shaft tolerance should be h6 for both metric & imperial (inch) shafts, except for SH series where g7 should be used.
2. For applications requiring a press fit it is important not to exceed 0.025mm (0.01") of interference (Consult Renold for advice).
3. Key/Keyseat
  - a. Use a hardened key with 30/40 Rockwell C scale hardness.
  - b. Keyseats are cut with a small corner radius to minimise stresses.
  - c. Keys should be side fitting with top clearance and take account of the keyseat radius. Always use a key utilising the full length of the inner race.
  - d. For overrunning and backstopping applications install the key with a push fit, ensuring that it seats squarely. **DO NOT FORCE THE KEY INTO THE KEYSEAT.**
  - e. For indexing applications key should be fitted to give up to 0.025mm (0.001") side interference to prevent loosening caused by reversals. **(DO NOT EXCEED 0.025mm (0.001") OF INTERFERENCE)**

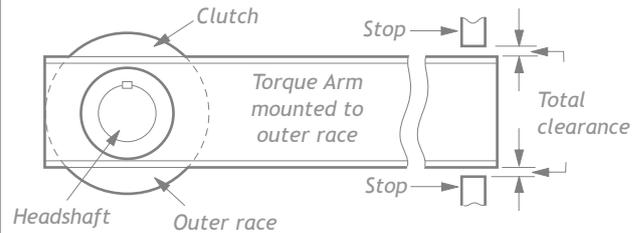
4. To couple two shafts, use a unit incorporating a flexible coupling eg type SCPF or SCGF (for details contact Renold).

## Installation

1. Before mounting on a shaft check both for damage and dimensional accuracy.
2. Before fitting, check that free direction of rotation is correct by turning inner race.
3. Offer unit to shaft and **apply pressure to end face of inner race only**. Pressure applied to the outer race could cause damage to the bearings and premature failure of the unit. Oil lubricated units requiring an interference fit (max, 0.025mm/0.001") should be immersed in hot clean oil (not exceeding 90°C/200°F) for 10 minutes before mounting.

4. Oil lubricated units should **only** be used on horizontal applications. (For vertical applications consult Renold.)
5. Secure units axially by use of retaining plate, loose collars, snap rings or similar.
6. When used as a backstop with torque arm attachment allow 12 to 25mm (0.5" to 1.0") clearance between stops and the arm.
7. Mount any mating parts onto the outer race utilising the tapped holes located at each end of the unit and ensure that any resultant load is centred on the unit. Consult Renold for advice regarding applications, especially if side loadings are present.

### INSTALLATION: Backstop applications using torque arms



1. Place inner torque arm on shaft. If separate collars are used to locate clutch, place inner collar on shaft.
2. Place key in shaft keyway.
3. Shafts should be to g7 tolerance.
4. Check that free rotation direction is correct.
5. Fit clutch on shaft applying pressure to end face of inner race only. Pressure applied to the outer race could damage bearings & cause premature failure of the unit.
6. Bolt torque arms to clutch and check that they are not restrained sideways and that there is a total clearance between the arm and the stops of 12mm (0.5") for units up to size 1027 & 25mm (1") for sizes 1051 to 5000.
7. Fit retaining plate if required.

## Lubrication



**WARNING**

**LUBRICATION IS THE SINGLE MOST IMPORTANT CLUTCH MAINTENANCE FACTOR.**

If a clutch is used as the sole failsafe device in any application then other factors in the operating or applicational environment, such as improper use, lack of servicing or lubrication may cause the unit to fail with consequent danger to users, property or personnel.

The use of lubricants in clutches other than those recommended can cause improper sprag engagement and subsequent failure of the unit. This may result in property damage or personal injury. Renold will not be responsible for any changes made by lubricant manufacturers in their products.

Under no circumstances should lubricants containing EP or friction reducing additives be used.

## Oil Lubrication

1. All Renold clutches are supplied non-filled with oil. When filling with oil a check is recommended to establish the correct fill level has been achieved for the how the clutch is used (see section on Oil filling Procedure).
2. Applications where the ambient temperature exceeds 65°C (150°F), should be referred to Renold.
3. Do not mix oils shown below, as they may not be compatible. When changing brands, flush and fill unit according to instructions below.

	Oil lubrication			Grease lubricated
	(-20/+20°C)	(+20/+50°C)	(+50/+80°)	
Mobil	Mobil Velocite Oil No 6	Mobil Velocite Oil No 10	Mobil DTE 25	Unirex N2/N3
Renolin	Renolin DTA10	Renolin DTA22	Renolin DTA46	
Petronas	Petronas ISO VG10	Petronas ISO VG22	Petronas ISO VG46	
Castrol	Hyspin Spindle Oil 10	Hyspin Spindle Oil 22	Hyspin Spindle HVI 22	
Total	Drosera MS10	Drosera MS22	Drosera MS46	
SKF				LGHP2
Leprinxol				Lycos MZ 2
Matrix				Grease USG 2

## Oil Lubrication Maintenance

1. Check oil level monthly, adding, if required, the recommended oil for the application type and to the following levels:

**OVERRUNNING AND BACKSTOPPING; 1/2 FULL INDEXING; 7/8 FULL**

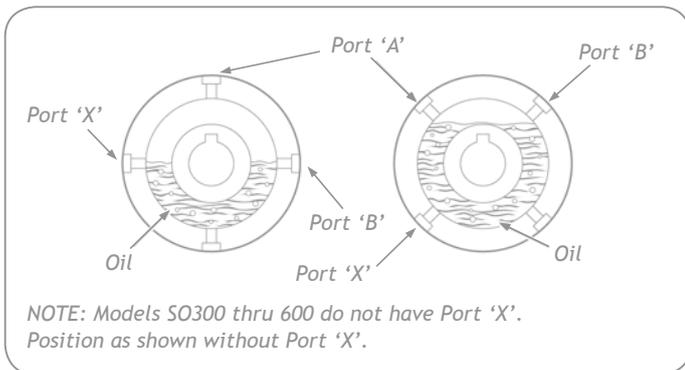
For indexing applications in excess of 150 strokes/min, topping up may be needed at shorter intervals. Dirty, abrasive atmospheres, or severe duty (24 hrs/day) require more frequent attention.

2. Flush clutch with mineral spirits every 6 months to ensure maximum efficiency. Do not use Carbon Tetrachloride. Flushing removes waxes and gums formed by vaporisation.

3. If unit has been out of use, or in storage, for six months or more, then flushing and re-filling is recommended. If period exceeds two years then seals should also be replaced.

## Oil Filling Procedure

1. Rotate clutch outer race to locate two oil ports (A) and (B) as shown on the illustration below.



2. Remove plugs (A) and (B), adding oil as required through (A) until it just flows from port (B).

3. Replace and tighten both plugs ensuring that fibre washers are in place under the head.

## Sleeve Bearing Clutches

4. To prevent oil seepage from sleeve bearing clutches use a proprietary sealant at the outer end of the inner race.

## Oil Flushing Procedure

1. Rotate clutch outer race until one port is at the lowest position.

2. Remove bottom plug and drain unit completely. The removal of the topmost plug will vent and assist the drainage.

3. Replace bottom plug and fill unit with mineral spirit (eg kerosene, **do not use Carbon Tetrachloride**). Replace top plug and rotate unit slowly for several minutes.

4. Remove bottom plug and drain flushing fluid. Remove top plug to assist operation.

5. Replace and tighten lower plug, re-lubricate in accordance with oil lubrication instructions.

## Grease Lubrication

1. Grease lubricated clutches are factory packed with grease. Greases compatible to those in the table may be used. **Caution do not use LUBRICANTS CONTAINING E.P. OR SLIPPERY ADDITIVES.**

2. Do not attempt to substitute grease lubrication in a standard oil lubricated clutch. Contact Renold for advice.

3. Wipe fittings clean and pump new grease into all fittings until it flows past labyrinth seals on both sides of the unit.

Application	Lubricate	Rugged Conditions*
Overrunning	3 month intervals	Every 2 weeks
Backstopping	3 month intervals	Every 2 weeks
Indexing	1 month intervals	Every 2 weeks

\*24 hrs/day duty or severe abrasive conditions

Ambient Temperature Range	Recommended Grease
-7°C to +65C (+20F to 150F)	Mobil Grease MP Shell Albida R2

THE USE OF EQUIVALENT LUBRICANTS IS PERMISSABLE

## Clutch Repair Service

**RENOLD DO NOT RECOMMEND THE DISASSEMBLY OR REPAIR OF UNITS IN THE FIELD.** Renold provides a factory reconditioning service where units are restored to an "as new" condition.

## Rotating Equipment

Rotating equipment is potentially hazardous and should be properly guarded. The user should check and conform to all applicable safety codes in their area and properly guard.

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