

# Roto-Cone® Variable Speed Sheave

Installation & Maintenance Manual

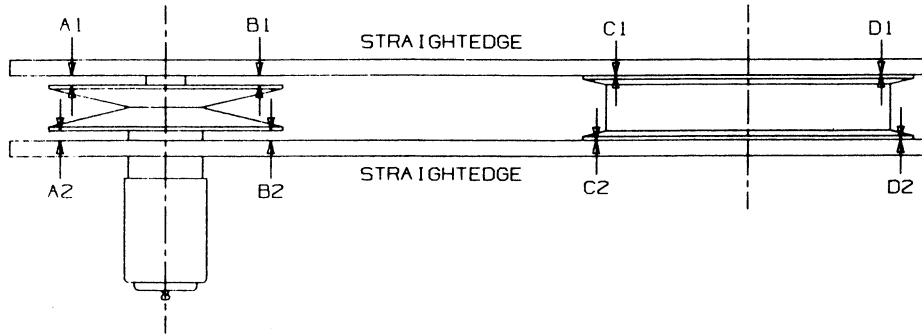
P-5038-TBW  
Form 1140



# Installation Instructions

**NOTE:** This manual is to be used in conjunction with the installation instructions packaged with the other component parts of this drive. The following instructions are based on the assumption that the companion has already been properly installed and the motor and motor base are in location. All related component instructions should be closely followed and available for reference during installation.

1. Inspect the motor shaft and key for nicks and burrs and remove if present. Install key in shaft.
2. Place Roto-Cone sheave on the shaft. This may be a slight interference fit, requiring some force to install.
3. Adjust the motor base so the motor is as close to the companion as possible. Align sheaves by using the four-point alignment method shown below. Place string or straightedge across companion and Roto-Cone sheave. The Roto-Cone sheave should be mounted as close to the motor housing as possible. If the parallel offset is more than 1/2", reposition motor base instead of moving sheave on shaft. To achieve correct angular alignment, swivel motor on base. Sheaves are properly aligned when gap  $A1=A2=B1=B2$  and gap  $C1=C2=D1=D2$ .



4. Using a torque wrench, tighten the setscrews holding the Roto-Cone to the shaft to the following torque value.

Sheave Model	Torque (ft. lbs.)
RC55, RC60	3
RC75, RC80, RC105	7
RC100	14
RC1315, RC1330	24

**CAUTION:** Failure to use the proper torque values during installation can result in damaging the sheave or motor shaft.

5. Adjust motor base to move variable sheave as far away from the companion as possible and check alignment once more. Alignment must be good at both ends of motor base travel. Make alignment corrections as required, then tighten motor and motor base to mounting surface as outlined in motor base installation instructions.
6. With an approved grease, lubricate the Roto-Cone pulley by filling the grease fittings on the outboard endcap until grease appears near the center of the flange next to the motor. On model RC1330, a grease fitting is also present where the outboard flange meets the spring can.

Approved Grease	Manufacturer
Lubriplate No. 1200-2	Fiske Brothers Refining Co.
Atlantic Lubricant 52	Atlantic Refining Co.
Supreme Grease No. 2	Gulf Refining Co.
Alvinia EP Grease No. 2	Shell Oil Co.
Amolith Grease No. 2	Standard Oil Co.

7. Adjust motor base to move Roto-Cone as close to companion sheave as possible. Place the belt into the groove of both sheaves. Seat the belt in the Roto-Cone sheave by adjusting the motor away from the companion while rotating the drive by hand.

**CAUTION:** Belt must NOT be pried over the flanges of either sheave as this will damage the belt. Drive MUST be rotated while center distance is adjusted to prevent damaging drive components.

**WARNING**  
All rotating equipment must be properly guarded to prevent personnel from coming in contact with the drive. Failure to do so could result in serious injury.

8. Drive is now ready to operate.

## Maintenance Instructions

Roto-Cone sheave should be exercised thru the speed range every 8 hours to distribute grease to all working areas. Sheave should be regreased every 40 hours.

If the Roto-Cone is acting sluggish or appears that it is not opening and closing fast enough, the pulley should be flushed and regreased.

1. With the sheave mounted on the motor or on an arbor, flush the Roto-Cone sheave by adding kerosene thru the grease fittings until it flows from the various openings in the sheave.
2. Remove the Roto-Cone from the shaft and drain the kerosene.
3. Relubricate with an approved grease as listed above.

## Repair Instruction

**WARNING**  
Improper disassembly could cause injury. The internal spring is under high compressive load. Read the following instructions completely before disassembling sheave.

The kits indicated below contain the gear, gear rack, spiral pin and gear rack capscrews. These are the only field replaceable parts and can be ordered as indicated.

Sheave Model	Rack and Gear Kit
RC55	RC55K
RC60	RC60K
RC75	RC75K
RC80	RC80K
RC105	RC105K
RC100	RC100K
RC1315	RC1300K
RC1330	RC1320K

## Disassembly

Match mark all parts before disassembly to aid in maintaining the sheave's balance during reassembly. Great care must be exercised during disassembly because the spring force may be as high as 400 lbs.

1. To remove the spring and associated parts, follow the instructions corresponding to the sheave model number.

**RC55** Place the sheave in a press and lightly depress the end cap with the arbor. This is to contain the spring after the spiral pin is removed. After the sheave is secured in the press, use a punch to remove the pin.

**RC60 thru RC1315** Place the sheave in a press and depress the outer spring cover until the spiral pin is visible in the end cap. Use punch to remove pin.

**RC1330** Remove the allen head capscrews holding the outer spring cover and remove this cover. The spring retainer is now accessible. Place the sheave in a press and use a "U" shaped spacer to compress the spring retainer and spring approximately 1/8" and remove the retaining ring.

2. Slowly release the press and remove the end cap/retainer and spring.
3. The allen head capscrews holding the gear rack to the outboard flange will be visible and can now be removed. Removal of these capscrews will allow the outboard flange to be slid off the center sleeve.
4. Remove the outboard flange to expose the capscrews attaching the inboard flange to the opposite gear rack. Remove these capscrews and slide the inboard flange from the center sleeve.
5. The gear racks can be lifted from their key slots and inspected. Use a punch to remove the gear pin and gear from the sleeve.

## Reassembly

All parts should be cleaned to remove all the grease. Align match marks during assembly.

1. Position gear in slot of center sleeve and replace gear pin thru sleeve, keeping it flush with the sleeve.
2. Place the inboard gear rack in the keyway of the center sleeve, locating it approximately flush with the inboard end of the sleeve.
3. Place the outboard gear rack in the opposite keyway on the center sleeve locating it approximately flush with the outboard end of the sleeve.
4. Insert center sleeve and gear racks into the bore of the inboard flange. The thru holes on the flange must align with the correct tapped holes in the respective gear rack. Using a medium strength Loctite, install the capscrews between the inboard flange and respective gear rack.
5. Repeat line 4 to install the outboard flange.
6. Replace the spring and end cap/retainer under the press. Compress the spring enough to replace the spiral pin/retaining ring.
7. Re-install sheave on the shaft per the directions previously outlined.
8. Regrease the assembly with an approved grease.



All Customer Service phone numbers shown in bold

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<p><b>Couplings</b></p> <p><b>Ameridrives</b> <i>Mill Spindles, Ameriflex, Ameridisc</i> Erie, PA - USA <b>1-814-480-5000</b> <i>Gear Couplings</i> San Marcos, TX - USA <b>1-800-458-0887</b> <i>Universal Joints, Drive Shafts, Mill Gear Couplings</i> Erie, PA - USA <b>1-920-593-2444</b></p> <p><b>Bibby Turboplex</b> <i>Disc, Gear, Grid Couplings, Overload Clutches</i> Dewsbury, England <b>+44 (0) 1924 460801</b> Boksburg, South Africa <b>+27(0) 11 918 4270</b></p> <p><b>Guardian Couplings</b> <i>Engineered Flywheel Couplings, Engine Housings and Pump Mounts, Flexible Shaft Couplings</i> Michigan City, IN - USA <b>1-219-874-5248</b></p> <p><b>Huco</b> <i>Precision Couplings and Air Motors</i> Hertford, England <b>+44 (0) 1992 501900</b> Chambersburg, PA - USA <b>1-888-829-6637</b></p> <p><b>Lamiflex Couplings</b> <i>Flexible Couplings, Bearing Isolators, and Coupling Guards</i> Cotia, SP - Brasil <b>+55 (11) 4615-6300</b></p>	<p><b>Electromagnetic Clutches and Brakes</b></p> <p><b>Inertia Dynamics</b> <i>Spring Set Brakes; Power On and Wrap Spring Clutch/Brakes</i> New Hartford, CT - USA <b>1-800-800-6445</b></p> <p><b>Matrix</b> <i>Electromagnetic Clutches and Brakes, Pressure Operated Clutches and Brakes</i> Brechin, Scotland <b>+44 (0) 1356 602000</b> New Hartford, CT - USA <b>1-800-825-6544</b></p> <p><b>Warner Electric</b> <i>Electromagnetic Clutches and Brakes</i> New Hartford, CT - USA <b>1-800-825-6544</b> <i>For application assistance:</i> 1-800-825-9050 Saint Barthélemy d'Anjou, France <b>+33 (0)2 41 21 24 24</b> <i>Precision Electric Coils and Electromagnetic Clutches and Brakes</i> Columbia City, IN - USA <b>1-260-244-6183</b></p>	<p><b>Heavy Duty Clutches and Brakes</b></p> <p><b>Industrial Clutch</b> <i>Pneumatic and Oil Immersed Clutches and Brakes</i> Waukesha, WI - USA <b>1-262-547-3357</b></p> <p><b>Svendborg Brakes</b> <i>Industrial Brakes and Brake Systems</i> Vejrstrup, Denmark <b>+45 63 255 255</b></p> <p><b>Twiflex</b> <i>Caliper Brakes and Thrusters</i> Wichita Falls, TX - USA <b>1-844-723-3483</b> Twickenham, England <b>+44 (0) 20 8894 1161</b></p> <p><b>Wichita Clutch</b> <i>Pneumatic Clutches and Brakes</i> Wichita Falls, TX - USA <b>1-800-964-3262</b> Bedford, England <b>+44 (0) 1234 350311</b></p>	<p><b>Overrunning Clutches</b></p> <p><b>Formsprag Clutch</b> <i>Overrunning Clutches and Holdbacks</i> Warren, MI - USA <b>1-800-348-0881</b> – Press #1 <i>For application assistance:</i> 1-800-348-0881 – Press #2</p> <p><b>Marland Clutch</b> <i>Roller Ramp and Sprag Type Overrunning Clutches and Backstops</i> Warren, MI - USA <b>1-800-216-3515</b></p> <p><b>Stieber Clutch</b> <i>Overrunning Clutches and Holdbacks</i> Heidelberg, Germany <b>+49 (0) 6221-30470</b></p>

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