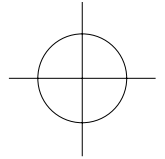


# AIR CHAMP® PRODUCTS

User Manual



**FMCBE 625 and 875 Clutch-Brakes**  
**BISSC Certified**  
**With and Without Locking Key**

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

Technical Support: 800-843-7445  
(651) 484-5900

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



# DANGER

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel ONLY.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

Nexen Group, Inc.  
560 Oak Grove Parkway  
Vadnais Heights, Minnesota 55127

ISO 9001 Certified

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## INSTALLATION

### BISSC CERTIFIED FMCBE WITH LOCKING KEY

#### CAUTION

This unit is not intended for foot mounting.  
Flange mount the FMCBE with Locking Key only.

1. Coat the threads of the Bar (Item 38) with Loctite® 242; then, thread the Bar into the Stub Shaft (Item 23) until the end of the Bar is visible in the keyway slot of the Stub Shaft (See Figure 1).
2. Apply a thin film of Never-Seez® to Key (Item 25) (See Figure 1).
3. Place the Key (Item 25) into the keyway of the Stub Shaft (Item 23) (See Figure 1).

**NOTE:** Align the air inlet port to a down position to allow condensation to drain out of the air chamber.

4. Slide the FMCBE output shaft into the gear reducer (See Figure 2).
5. Secure the FMCBE to the gear reducer, using customer supplied socket head cap screws, lock washers, and nuts (See Figure 2).
6. Tighten the Bar (Item 38) to the recommended tightening torque (See Table 1).

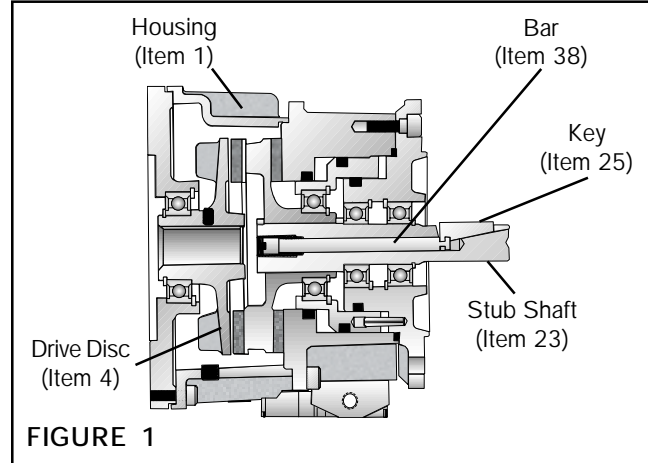


FIGURE 1

MODEL	RECOMMENDED TIGHTENING TORQUE ITEM 38
FMCBE-625	6.8 Nm (5 ft-lb)
FMCBE-875	6.8 Nm (5 ft-lb)
FMCBE-1125	14.9 Nm (11 ft-lb)
FMCBE-1375	16.0 Nm (16 ft-lb)

TABLE 1

### BISSC CERTIFIED FMCBE MOUNTED ON A C-FACED MOTOR

#### NOTE

Align the air inlet ports to a down position to allow condensation to drain out of the ports.

1. Insert customer supplied key into the motor shaft keyway.
2. Slide the Female Pilot (Item 34) and the Drive Disc (Item 4) onto the motor shaft (See Figure 2).
3. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 2).
4. Coat the O-ring Seal (Item 33) and the seal contact surface with a film of O-ring lubricant, then wipe off any excess lubricant (See Figure 2).
5. Place the O-ring Seal (Item 33) onto the Female Pilot O-ring diameter (Item 34) (See Figure 2).
6. Slide the FMCBE Assembly onto the Female Pilot (Item 34) and the Drive Disc (Item 4) (See Figure 2).

#### NOTE

Use Loctite® 242 on all fasteners.

7. Using four Nexen supplied 0.375-16 x 1.500" Hex. Head Cap Screws (Item 29), secure the Female Pilot, Drive Disc, and Housing (Item 1) to the motor (See Figure 2).
8. Tighten the Hex. Head Cap Screws (Item 29) to 15 Ft. Lbs. [20.3 N•m] torque.

9. Using eight Nexen supplied 10-24 x 0.750" Hex. Head Cap Screws (Item 27), secure the FMCBE to the Female Pilot and Drive Disc (See Figure 2).
10. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 21 In. Lbs. [2.3 N•m] torque.

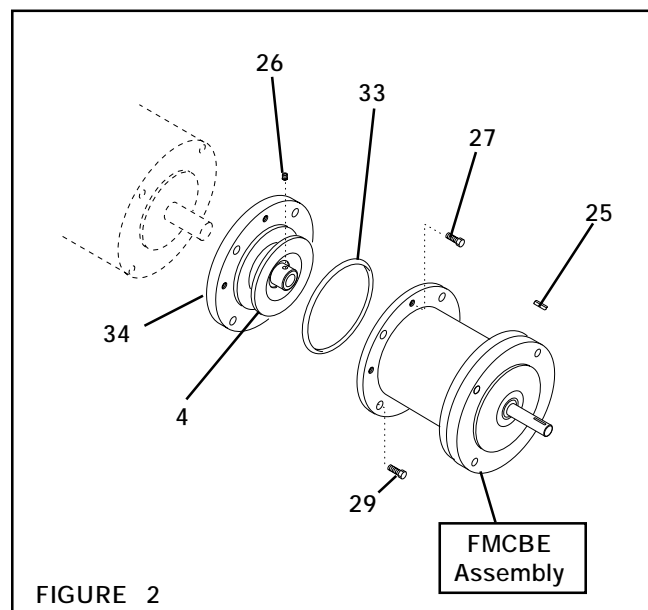


FIGURE 2

Align the air inlet ports to a down position to allow condensation to drain out of the ports.

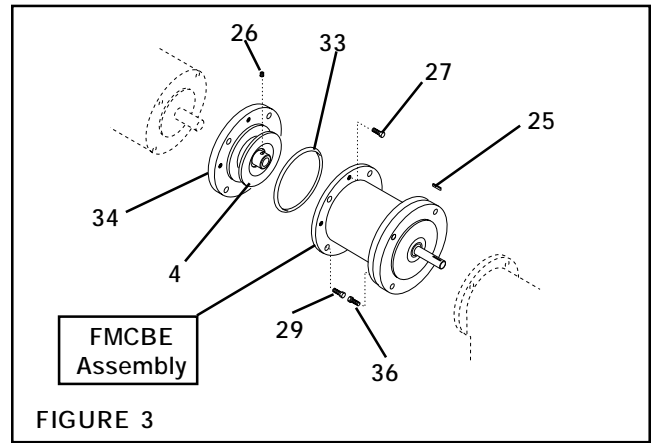
1. Insert customer supplied key into the motor shaft keyway.
2. Slide the Female Pilot (Item 34) and the Drive Disc (Item 4) onto the motor shaft (See Figure 3).
3. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 3).
4. Coat the O-ring Seal (Item 33) and the seal contact surface with a film of O-ring lubricant, then wipe off any excess lubricant (See Figure 3).
5. Place the O-ring Seal (Item 33) onto the Female Pilot (Item 34) O-ring diameter (See Figure 3).
6. Slide the FMCBE Assembly onto the Female Pilot (Item 34) and the Drive Disc (Item 4) (See Figure 3).

**NOTE**  
 Use Loctite® 242 on all fasteners.

7. Using eight Nexen supplied 10-24 x 0.750" Hex. Head Caps Screws (Item 27), secure the FMCBE Assembly to the Female Pilot (Item 34) and Drive Disc (Item 4) (See Figure 3).
8. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 21 In. Lbs. [5.5 N•m] torque.
9. Using four Nexen supplied 0.375-16 x 1.500" Hex.

Head Cap Screws (Item 29), secure the Female Pilot, Drive Disc, and FMCBE Assembly to the motor (See Figure 3).

10. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 29) to 15 Ft. Lbs. [20.3 N•m] torque.
11. Slide the FMCBE Assembly input shaft and motor into the gear reducer.
12. Using four supplied 0.375-16 x 1.250" Hex. Head Cap Screws (Item 36), secure the Male Pilot end of the FMCBE Assembly to the gear reducer (See Figure 3).
13. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 36) to 15 Ft. Lbs. [20.3 N•m] torque.



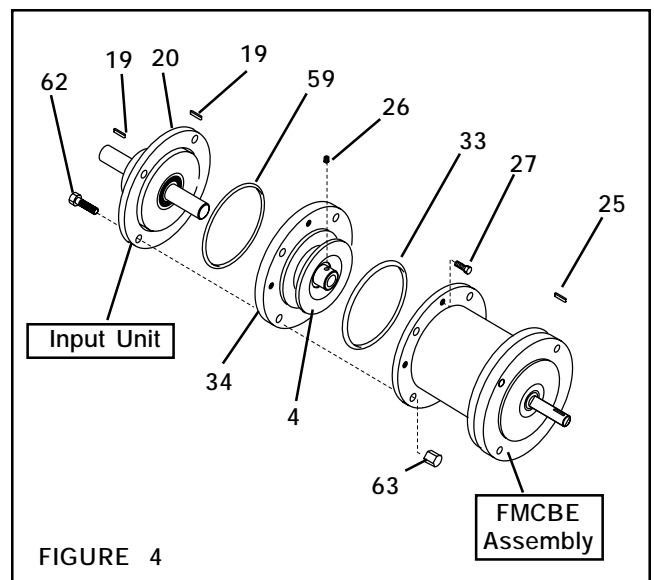
**OPTIONAL INPUT UNIT**

1. Coat the O-ring Seal (Item 59) and the seal contact surface with a film of O-ring lubricant; then, wipe off any excess lubricant (See Figure 4).
2. Place the O-ring Seal (Item 59) into the seal groove of the Input Unit Bearing Flange (Item 20) (See Figure 4).
3. Slide the Female Pilot (Item 34) and Drive Disc (Item 4) onto the Input Unit shaft (See Figure 4).
4. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 4).
5. Coat the O-ring Seal (Item 33) and the seal contact surface with a film of O-ring lubricant; then, wipe off any excess lubricant (See Figure 4).
6. Place the O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 34) (See Figure 4).
7. Slide the FMCBE Assembly onto the Female Pilot (Item 34) and the Drive Disc (Item 4) (See Figure 4).

**NOTE**  
 Use Loctite® 242 on all fasteners.

8. Using four Nexen supplied 0.375-16 x 1.750" Hex. Head Cap Screws (Item 62) and Acorn Nuts (Item 63), secure the Female Pilot, Drive Disc, and FMCBE Assembly to the Input Unit (Item 20) (See Figure 4).

9. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 62) to 15 Ft. Lbs. [20.3 N•m] torque.
10. Using eight Nexen supplied 10-24 x 0.750" Hex. Head Caps Screws (Item 27), secure the FMCBE Assembly to the Female Pilot and Drive Disc (See Figure 4).
11. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 21 In. Lbs. [2.3 N•m] torque.



## OPTIONAL MOUNTING FEET

1. Coat the O-ring Seal (Item 59) and the seal contact surface of the Input Unit with a film of O-ring lubricant; then, wipe off any excess lubricant (See Figure 5).
2. Place the O-ring Seal (Item 59) into the seal groove of the Input Unit Bearing Flange (Item 20) (See Figure 5).
3. Slide the Female Pilot Assembly onto the Input Unit shaft (See Figure 5).

**NOTE**  
Use Loctite® 242 on all fasteners.

4. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the Input Unit shaft (See Figure 5).
5. Coat the O-ring Seal (Item 33) and the seal contact surface with a film of O-ring lubricant; then, wipe off any excess lubricant (See Figure 5).
6. Place the O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 34) (See Figure 5).
7. Slide the FMCBE Assembly onto the Female Pilot Assembly (See Figure 5).
8. Using eight 10-24 x 0.750" Hex. Head Caps Screws (Item 27), secure the FMCBE Assembly to the Female Pilot Assembly (See Figure 5).
9. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 21 In. Lbs. [2.3 N•m] torque (See Figure 5).
10. Using two Nexen supplied 0.375-16 x 1.875" Hex. Head Cap Screws (Item 70) and Acorn Nuts (Item 73), secure one optional Mounting Foot (Item 71) to the FMCBE Assembly and Input Unit (See Figure 5).

11. Using two Nexen supplied 0.375-16 x 1.750" Hex. Head Cap Screws (Item 76), plug the remaining clearance holes.
12. Alternately and evenly tighten the four Hex. Head Cap Screws (Items 70 and 76) to 15 Ft. Lbs. [20.4 N•m] torque.
13. Using two Nexen supplied 0.375-16 x 1.250" Hex. Head Cap Screws (Item 75) and Acorn Nuts (Item 73), secure the other optional Mounting Foot to the Male Pilot end of the FMCBE Assembly (See Figure 5).
14. Using two Nexen supplied 0.375-16 x 1.125" Hex. Head Cap Screws (Item 77), plug the remaining clearance holes.
15. Alternately and evenly tighten the four Hex. Head Cap Screws to 15 Ft. Lbs. [20.3 N•m] torque.

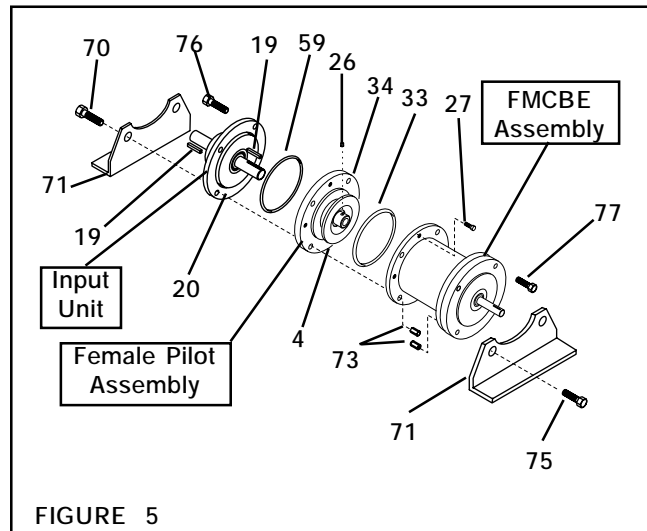


FIGURE 5

## AIR CONNECTIONS

**NOTE**

For quick response, a quick exhaust valve and short air lines are recommended between the control valves and the FMCBE to ensure rapid engagement and disengagement. The units have 1/8 NPT ports.

### 4-WAY CONTROL VALVE

1. If the brake is to be set when the solenoid is de-energized, connect the port marked 2 to the brake and the port marked 4 to the clutch (See Figure 6).
2. Connect the air supply line to the inlet port marked 1 (See Figure 6).

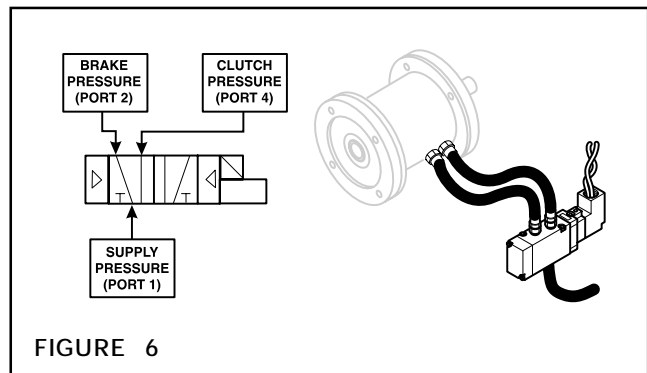


FIGURE 6

## 5-WAY CONTROL VALVE

1. If the brake is to be set and the clutch is to be **OFF** when the solenoid is de-energized, connect the port marked 4 to the brake and the port marked 2 to the clutch (See Figure 7).
2. Connect the brake air supply line to the port marked 5 and the clutch air supply line to the port marked 3 (See Figure 7).

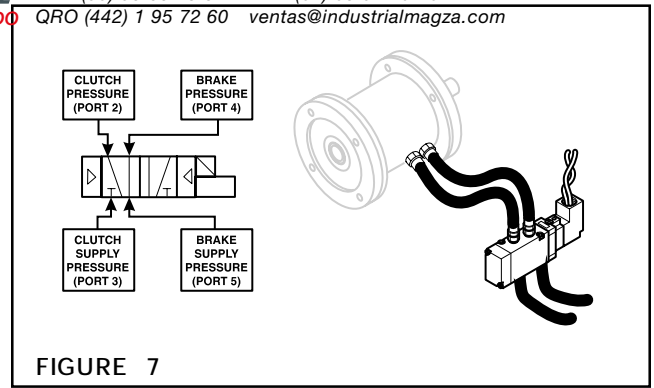


FIGURE 7

## 3-WAY CONTROL VALVES

1. Connect a 3-Way N.O. Control into the brake inlet port and a 3-Way N.C. Control into the clutch inlet port (See Figure 8).
2. Connect an air supply line to the inlet port (marked **IN**) on the top of the 3-Way N.O. Control and an air supply line to the inlet port (marked **IN**) on the side of the 3-Way N.C. Control (See Figure 8).

**NOTE**  
When a 3-Way N.O. Control is de-energized, air flows directly to the brake. When a 3-Way N.O. Control is energized, air exhausts from the brake.

When a 3-Way N.C. Control is de-energized, air exhausts from the clutch. When a 3-Way N.C. Control is energized, air flows to the clutch.

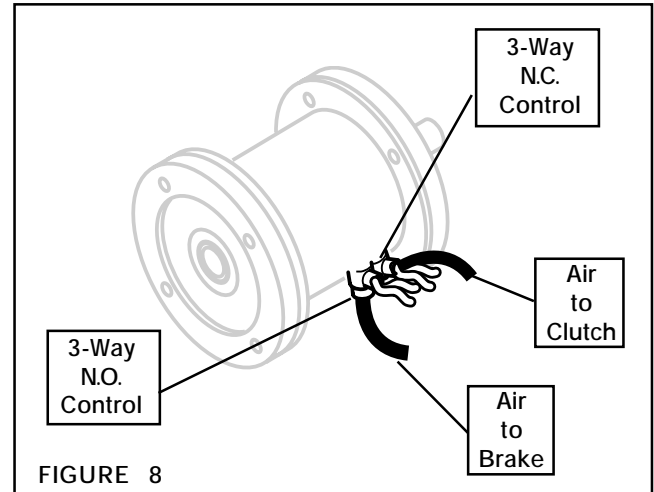


FIGURE 8

## LUBRICATION

**NOTE**  
Pneumatically actuated devices require clean, pressure regulated, and lubricated air for maximum performance and long life. The most effective and economical way to lubricate the FMCBE is with an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber.

Locate the lubricator above and within ten feet of the unit, and use a low viscosity oil such as SAE-10.

Synthetic lubricants are not recommended.

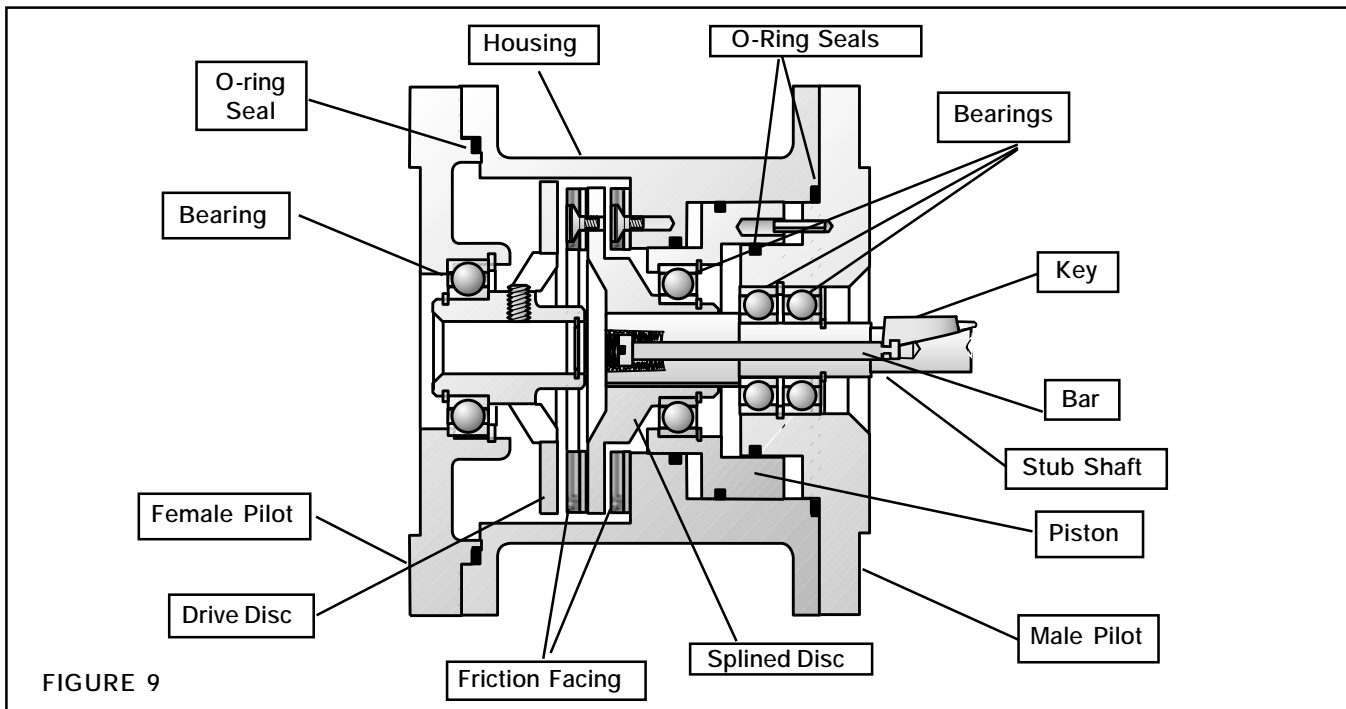
## LUBRICATOR DRIP RATE SETTINGS

**NOTE**  
These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must replicate the following procedure.

1. Close and disconnect the air line from the unit.
2. Turn the Lubricator Adjustment Knob clockwise three complete turns.
3. Open the air line.
4. Close the air line when a drop of oil forms in the Lubricator Sight Gauge.
5. Connect the air line to the unit.
6. Turn the Lubricator Adjustment Knob counter-clockwise until closed.
7. Turn the Lubricator Adjustment Knob clockwise one third turn.
8. Open the air line to the unit.

## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage (Clutch).	Air not getting to the FMCBE due to Control Valve malfunction.	Check for a Control Valve malfunction or low air pressure and replace the Control Valve if necessary.
	Defective O-ring Seals resulting in air leaks.	Replace the O-ring seals.
	Lack of lubrication on Hub Spline.	Lubricate Hub Spline.
Failure to engage (Brake).	Unexhausted air due to a Control Valve malfunction.	Check for a Control Valve malfunction and replace the Control Valve if necessary.
	Defective O-ring Seals resulting in leaks.	Replace the O-ring seals.
	Lack of lubrication on Hub Spline.	Lubricate Hub Spline.
Failure to disengage (Clutch).	Unexhausted air due to a Control Valve malfunction.	Check for a Control Valve malfunction and replace the Control Valve if necessary.
	Lack of lubrication on Hub Spline.	Lubricate Hub Spline.
Failure to disengage (Brake).	Unexhausted air due to a Control Valve malfunction.	Check for a Control Valve malfunction and replace the Control Valve if necessary.
	Lack of lubrication on Hub Spline.	Lubricate Hub Spline.
Loss of torque (Clutch and Brake).	Defective O-ring Seals resulting in air leaks.	Replace the O-ring seals.
	Contaminated Friction Facings.	Replace the Friction Facings.
	Worn Friction Facings.	Replace the Friction Facings.

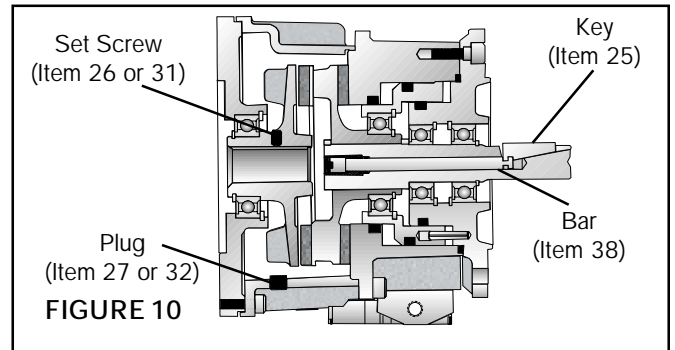




## FMCBE WITH LOCKING KEY REMOVAL

Refer to the parts list for details.

1. Remove the Plug (Item 27 or 32) and loosen the Set Screw (Item 26 or 31) securing the FMCBE to the motor or Input Unit (See Figure 10).
2. Model 625: remove the Socket Head Cap Screws (Item 29) and Lock Washers (Item 30) that secure the FMCBE to the motor or input unit; then, slide the motor or input unit off the FMCBE.  
 Model 875: remove the Socket Head Cap Screws (Item 27) that secure the FMCBE Housing (Item 1) to the Female Pilot (Item 34); then remove the Socket Head Cap Screws (Item 29) and Lock Washers (Item 30) to remove the Female Pilot from the motor or input unit.
3. Slowly unscrew the Bar (Item 38) one-half turn to release the Key (Item 25).
4. Remove the FMCBE from the gear reducer.



### CAUTION

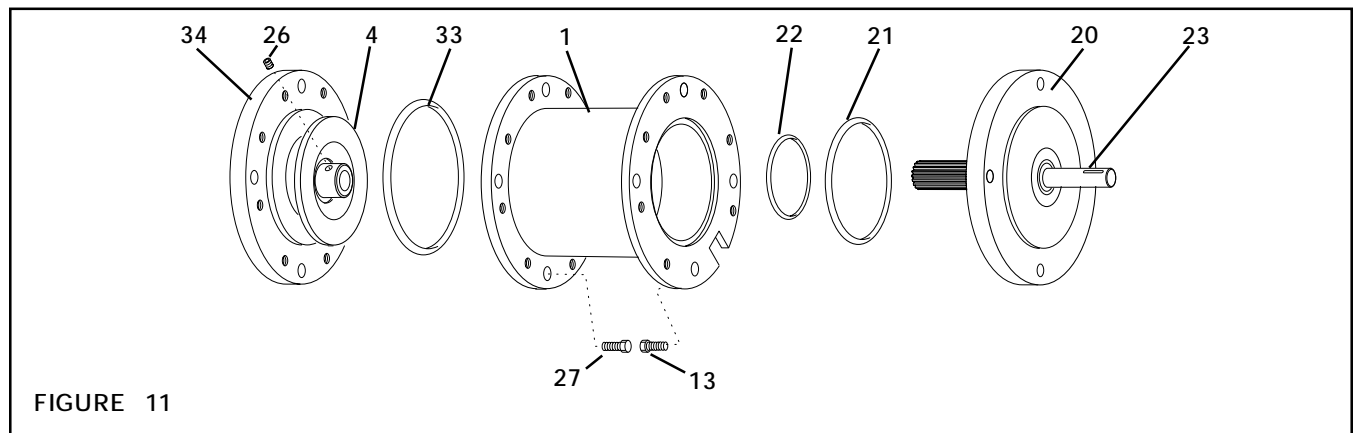
Unscrewing the Bar (Item 38) more than one-half turn will damage the bar.

## PARTS REPLACEMENT-FMCBE

### NOTE

If an Input Unit has been installed, it must be removed prior to servicing the FMCBE.

## COMPONENT DISASSEMBLY



1. Remove the eight Hex. Head Cap Screws (Item 27), Female Pilot (Item 34), Drive Disc (Item 4), and O-ring Seal (Item 33) from the FMCBE Assembly (See Figure 11).
2. Remove the seven Hex. Head Cap Screws (Item 13), Male Pilot (Item 20), Bearings (Item 19), Stub Shaft (Item 23), and O-ring Seals (Items 21 and 22) (See Figure 11).

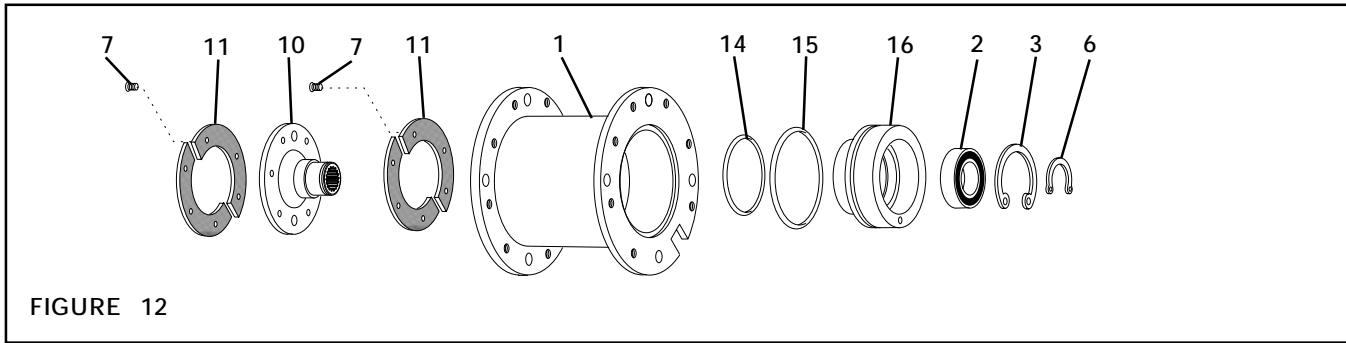


FIGURE 12

**WARNING**

Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

1. Remove the Retaining Ring (Item 6) (See Figures 12 and 13).
2. Supporting the inner flange of the Housing (Item 1), press the Splined Disc (Item 10) out of the Piston (Item 16) and Bearing (Item 2) (See Figures 12 and 13).
3. Slide the Piston (Item 16) and O-ring Seals (Items 14 and 15) out of the Housing (Item 1) (See Figures 12 and 13).
4. Remove the Retaining Ring (Item 3) from the Piston (Item 16) (See Figures 12 and 13).
5. Supporting the Piston (Item 16), press the Bearing (Item 2) out of the Piston (See Figures 12 and 13).
6. Supporting the Piston (Item 16) and pressing on the outer race of the new Bearing (Item 2), press the new Bearing into the Piston (See Figures 12 and 13).
7. Reinstall the Retaining Ring (Item 3) (See Figures 12 and 13).
8. Clean the O-ring contact surfaces of both the Piston (Item 16) and Housing (Item 1) with fresh safety solvent (See Figures 12 and 13).
9. Coat the O-ring contact surfaces of the Piston (Item 16) and Housing (Item 1) with fresh O-ring lubricant and wipe off the excess lubricant.
10. Coat the new O-ring Seals (Item 14 and 15) with fresh O-ring lubricant (See Figures 12 and 13).
11. Install O-ring Seal (Item 14) into the Housing (Item 1) and O-ring Seal (Item 15) onto the Piston (Item 16) (See Figures 12 and 13).
12. Slide the Piston (Item 16) with O-ring Seal (Item 15) back into the Housing (Item 1) and O-ring Seal (Item 14) (See Figures 12 and 13).
13. Remove the six Machine Screws (Item 7) securing the Split Friction Facings (Item 11) to the Housing (Item 1) (See Figures 12 and 13).

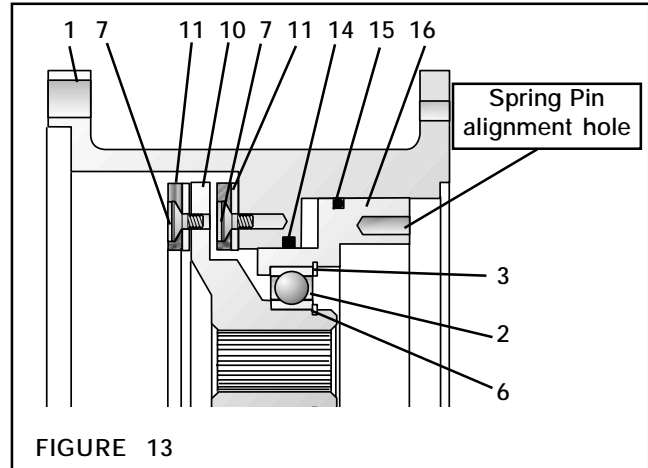


FIGURE 13

14. Remove the Split Friction Facing (Item 11) from the Housing (Item 1) (See Figures 12 and 13).
15. Using six new Machine Screws (Item 7), secure the new Friction Facing (Item 11) to the Housing (Item 1) (See Figures 12 and 13).
16. Tighten the six Machine Screws (Item 7) to 22 In. Lbs. [2.5 N•m] torque.
17. Remove the six Machine Screws (Item 7) securing the Split Friction Facings (Item 11) to the Splined Disc (Item 10) (See Figures 12 and 13).
18. Remove the Split Friction Facing (Item 11) from the Splined Disc (Item 10) (See Figures 12 and 13).
19. Using six new Machine Screws (Item 7), secure the new Friction Facing (Item 11) to the Splined Disc (Item 10) (See Figures 12 and 13).
20. Tighten the six Machine Screws (Item 7) to 22 In. Lbs. [2.5 N•m] torque.
21. Support the inner race of the Bearing (Item 2) and press the Splined Disc (Item 10) back into the Bearing (Item 2) and Housing (Item 1) (See Figures 12 and 13).
22. Reinstall the Retaining Ring (Item 6) (See Figures 12 and 13).

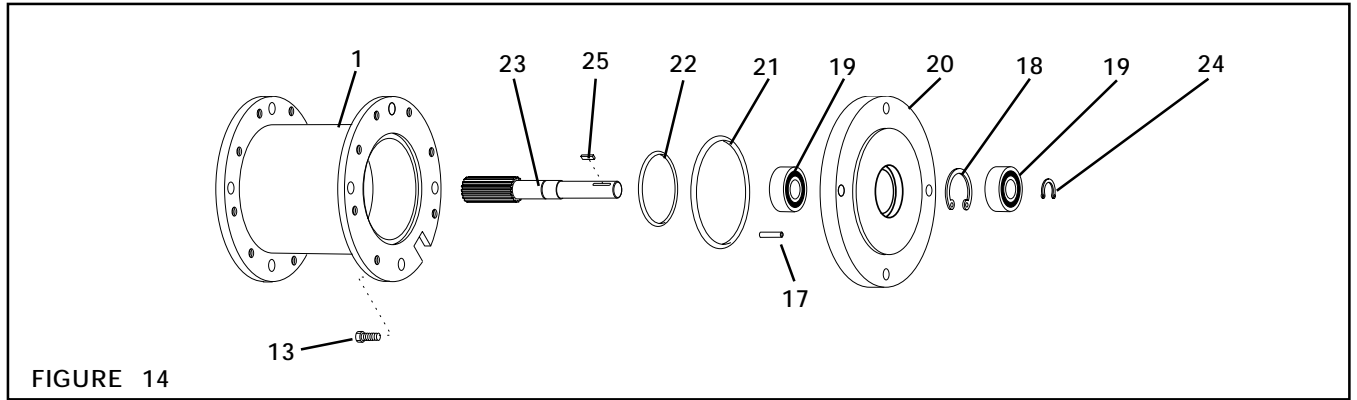


FIGURE 14

1. Remove the Key (Item 25) (See Figure 14).

**WARNING**

Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

2. Remove the Retaining Ring (Item 24) (See Figures 14 and 15).
3. Press the Stub Shaft (Item 23) out of the Male Pilot (Item 20) and Bearings (Item 19) (See Figures 14 and 15).

**NOTE**

One Bearing (Item 19) will come out of the Male Pilot (Item 20) on the Stub Shaft (Item 23).

4. Press the Bearing (Item 19) that is still in the Male Pilot (Item 20) out of the Male Pilot (See Figures 14 and 15).
5. Using a bearing puller, remove the second Bearing (Item 19) from the Stub Shaft (Item 23) (See Figures 14 and 15).
6. Supporting the Male Pilot and pressing on the outer bearing race, press one new Bearing (Item 19) into the Male Pilot until it is seated against the Retaining Ring (Item 18) inside the Male Pilot (See Figures 14 and 15).
7. Support the inner race of the bearing pressed into the Male Pilot in Step 6 and press the Stub Shaft (Item 23) into the Bearing (Item 19) and Male Pilot (Item 20) (See Figures 14 and 15).
8. Pressing on both the inner and outer races, press the second Bearing (Item 19) onto the Stub Shaft (Item 23) and into the Male Pilot (Item 20) (See Figures 14 and 15).
9. Install the Retaining Ring (Item 24) (See Figures 14 and 15).
10. Remove the O-rings Seals (Items 21 and 22) (See Figure 14).
11. Clean the O-ring Seal contact surfaces of the Housing (Item 1) and Male Pilot (Item 20) with fresh safety solvent.

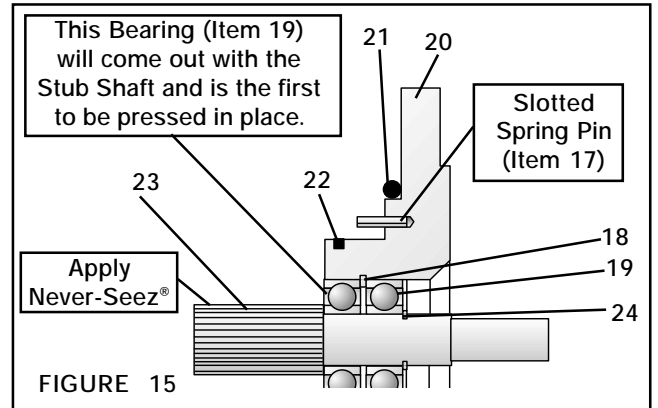


FIGURE 15

12. Coat the O-ring contact surfaces of the Male Pilot (Item 20) and Housing (Item 1) with fresh O-ring lubricant and wipe off the excess lubricant.
13. Coat the new O-ring Seals (Item 21 and 22) with fresh O-ring lubricant (See Figures 14 and 15).
14. Install the new O-ring Seals (Item 21 and 22) onto the Male Pilot (Item 20).
15. Coat the splined end of the Stub Shaft (Item 23) with a thin film of Never-Seez®.
16. Align the Slotted Spring Pin (Item 17) in the Male Pilot with the hole in the Piston and carefully slide the Male Pilot Assembly into the Housing and Piston/Splined Disc Assembly.
17. Apply a drop of Loctite® 242 to the threads of the seven Hex. Head Cap Screws (Item 13) (See Figures 14 and 15).
18. Using the seven Hex. Head Cap Screws (Item 13), secure the Male Pilot to the Housing (See Figure 14).
19. Alternately and evenly tighten the seven Hex. Head Cap Screws (Item 13) to 21 In. Lbs. [2.3 N•m].
20. **Non-locking key units only:** apply a drop of Loctite® 242 to the Key (Item 25) (See Figure 14).

**WARNING**

Do not use Loctite® on Locking Key Units

21. Press the Key (Item 25) into the Stub Shaft (Item 23) (See Figure 14).

FEMALE PILOT BEARING (Item 2) AND DRIVE DISC SEALS (Item 3)

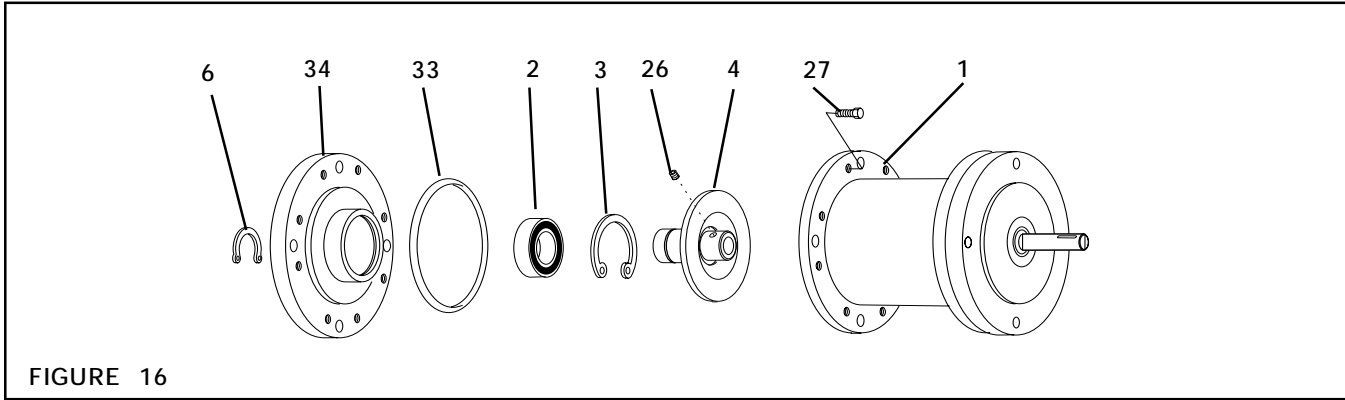


FIGURE 16

**WARNING**

Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

1. Remove the Retaining Ring (Item 6) from the Drive Disc (Item 4) (See Figures 16 and 17).
2. Fully supporting the Female Pilot (Item 34), press out the Drive Disc (Item 4) (See Figures 16 and 17).
3. Remove the Retaining Ring (Item 3) from the Female Pilot (Item 34) (See Figures 16 and 17).
4. Press the Bearing (Item 2) out of the Female Pilot (Item 34) (See Figures 16 and 17).
5. Fully supporting the Female Pilot (Item 34) and pressing on the outer bearing race, press the new Bearing (Item 2) into the Female Pilot (See Figures 16 and 17).
6. Install the Retaining Ring (Item 3) into the Female Pilot (Item 34) (See Figures 16 and 17).
7. Fully supporting the inner race of Bearing (Item 2), press the Drive Disc (Item 4) into the Bearing and Female Pilot (See Figures 16 and 17).
8. Install the Retaining Ring (Item 6) onto the Drive Disc (Item 4) (See Figures 16 and 17).
9. Clean the O-ring contact surfaces of the Female Pilot (Item 34) and Housing (Item 1) with fresh safety solvent.
10. Coat the O-ring contact surfaces of the Female Pilot and Housing with fresh O-ring lubricant and wipe off any excess lubricant.
11. Coat the new O-ring Seal (Item 33) with fresh O-ring lubricant and place the new O-ring onto the Female Pilot (See Figure 16).

**NOTE**

Do not tighten the Hex. Head Cap Screws (Item 27) until the Clutch Brake has been installed on the unit it is controlling.

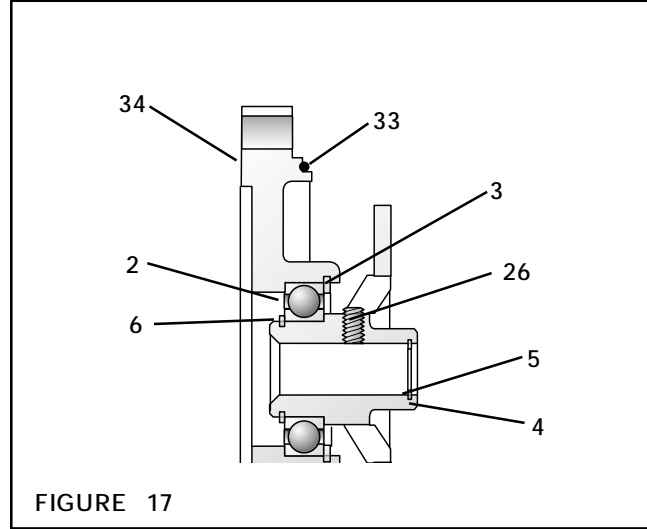


FIGURE 17

12. Secure the Female Pilot (Item 34) to the Housing with the eight Hex. Head Cap Screws (Item 27) (See Figure 16).

## PARTS REPLACEMENT-INPUT UNIT

1. Remove the eight Hex. Head Cap Screws (Item 27) (See Figure 18).
2. Remove the four Hex. Head Cap Screws (Item 62) and Acorn Nuts (Item 63) (See Figure 18).
3. Remove the Female Pilot Assembly, O-ring Seal (Item 33), and the Input Unit from the FMCBE (See Figure 16).
4. Remove the Set Screw (Item 26) and slide the Female Pilot (Item 34) off the Input Unit (Item 20) (See Figure 16).
5. Remove the O-ring Seal (Item 59) (See Figure 19).
6. Remove both Keys (Item 19) (See Figure 19).

### WARNING

Special attention should always be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

7. Remove the Retaining Ring (Item 58) (See Figure 19).
8. Supporting the Bearing Flange (Item 20), press the Stub Shaft (Item 11) and Bearings (Item 30) out of the Bearing Flange (See Figure 19).
9. Remove one Retaining Ring (Item 35) (See Figure 19).

### NOTE

One Retaining Ring must remain on the Stub Shaft (See Figure 19).

10. Press the Stub Shaft (Item 11) out of the Bearings (Item 30) (See Figure 19).
11. Press the new Bearings (Item 30) onto the Stub Shaft (Item 11) until they are seated against the Retaining Ring (Item 35) on the Stub Shaft.
12. Install the Retaining Ring (Item 35) that was removed from the Stub Shaft.
13. Remove the Variseal™ (Item 13) from the Bearing Flange (Item 20) (See Figure 19).
14. Supporting the Bearing Flange (Item 20) and pressing on the outer races of Bearings (Item 30), press the Stub Shaft and Bearings into the Bearing Flange until they are seated against the step in the Bearing Flange.
15. Install the Retaining Ring (Item 58) (See Figure 19).
16. Coat the outer seal of the Variseal™ with a thin film of O-ring lubricant (See Figure 20).
17. Press the Variseal™ with the spring facing out onto the Stub Shaft and into the Bearing Flange (See Figure 19).
18. Apply a drop of Loctite® 242 to the Keys (Item 19) (See Figure 19).
19. Press the Keys (Item 19) into the Stub Shaft (Item 11) (See Figure 19).

### NOTE

After assembly is complete, the Stub Shaft should be rotated and checked for smooth operation. If drag is apparent, move the Stub Shaft in and out to release pressure on the bearing cage and recheck for smooth operation.

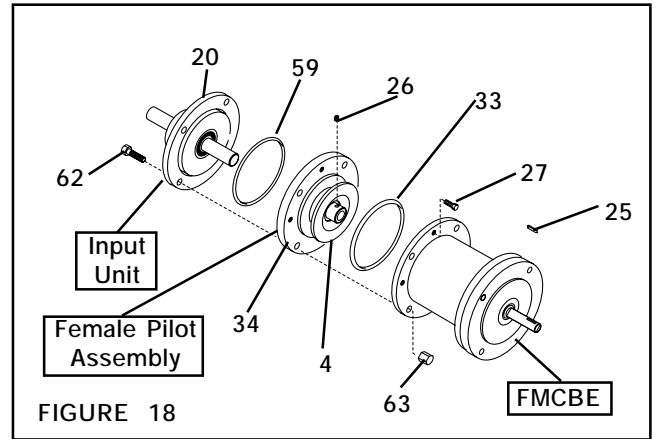


FIGURE 18

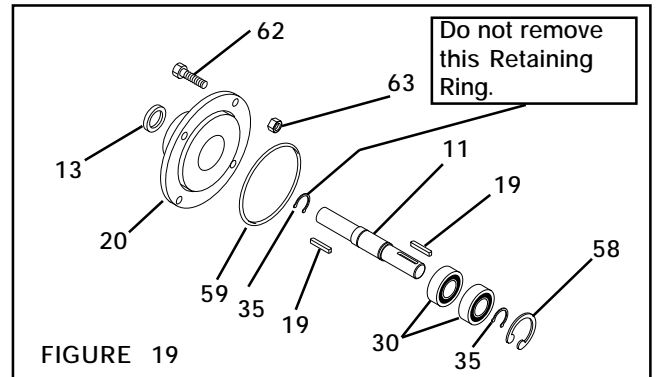


FIGURE 19

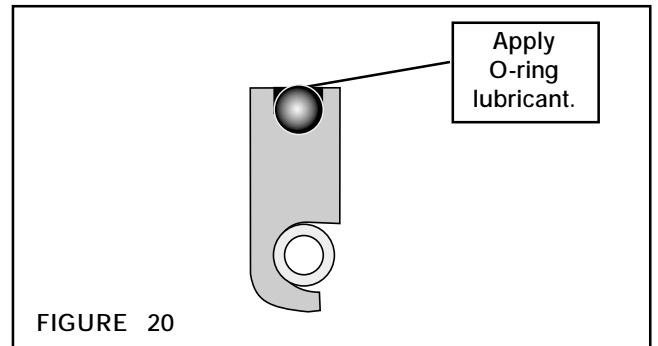


FIGURE 20

## REPLACEMENT PARTS

The item or balloon number for all Nexen products is used for part identification on all product parts list, product price list, unit assembly drawings, bills of materials, and instruction manuals.

item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

When ordering replacement parts, specify model designation,

## PARTS LIST

### BISSC CERTIFIED FMCBE

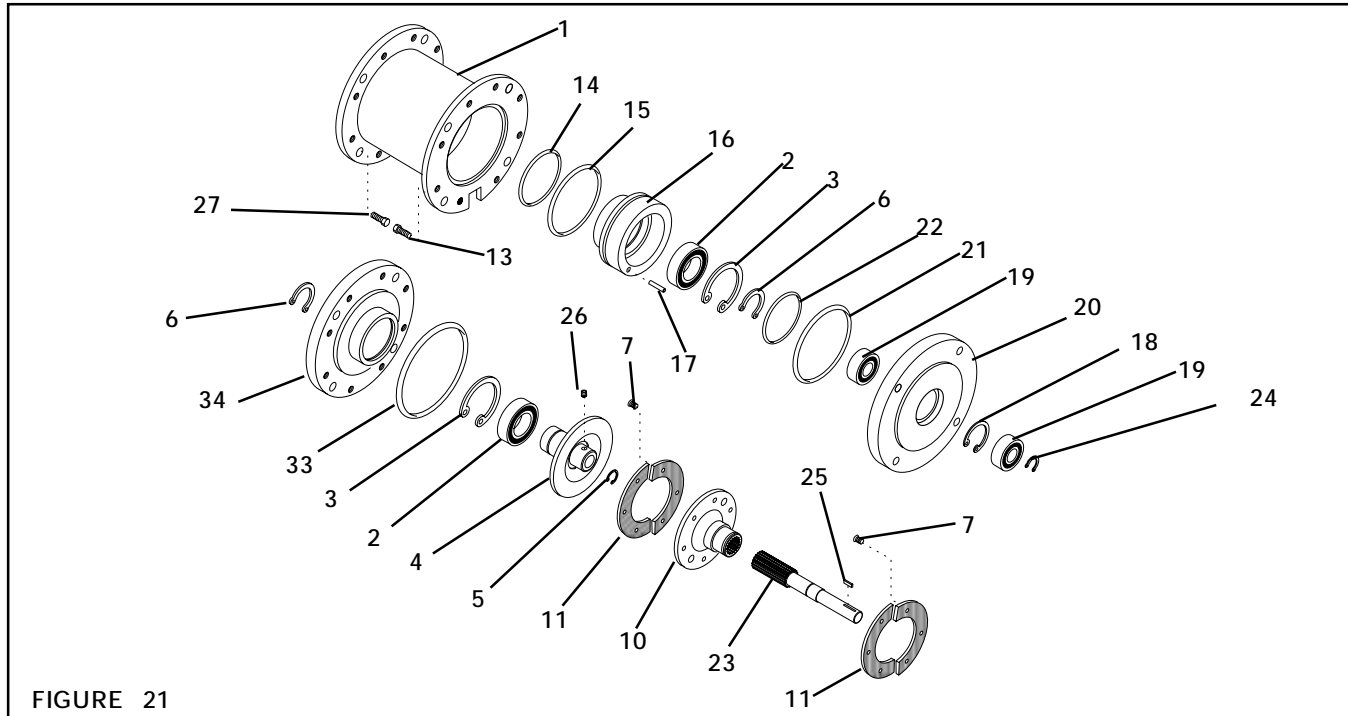


FIGURE 21

ITEM	DESCRIPTION	QTY
1	Housing	1
2 <sup>1,2</sup>	Bearing	2
3	Retaining Ring (Int.)	2
4	Drive Disc	1
5	Retaining Ring (Int.)	1
6	Retaining Ring (Ext.)	2
7 <sup>1,2</sup>	Machine Screw	12
10	Splined Disc	1
11 <sup>1,2</sup>	Friction Facing (1 Set, Split)	2
13	Hex. Head Cap Screw	7
14 <sup>1,2</sup>	O-ring Seal	1
15 <sup>1,2</sup>	O-ring Seal	1
16	Piston	1
17	Slotted Spring Pin	1
18	Retaining Ring (Int.)	1

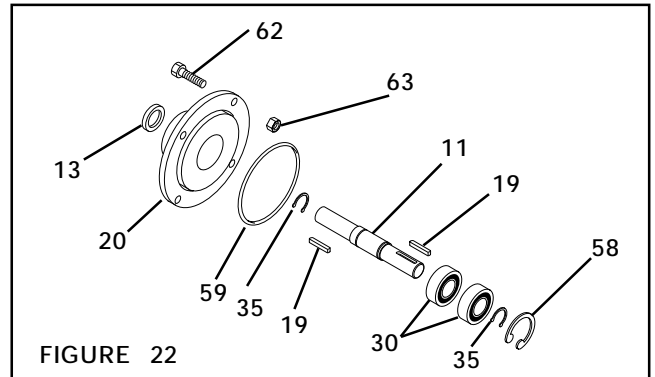
ITEM	DESCRIPTION	QTY
19 <sup>1</sup>	Bearing	2
20	Male Pilot	1
21	O-ring Seal	1
22 <sup>1,2</sup>	O-ring Seal	1
23	Stub Shaft	1
24	Retaining Ring (Ext.)	1
25	Key	1
26	Set Screw	1
27	Hex. Head Cap Screw	8
29	Hex. Head Cap Screw (Not Shown)	4
33	O-ring Seal	1
34	Female Pilot	1
36	Hex. Head Cap Screw (Not Shown)	4
38	Bar (Not Shown-see Figure 8)	1

<sup>1</sup> Denotes Rebuild Kit item.  
 Rebuild Kit Product No. 827252.

<sup>2</sup> Denotes Friction Facing Kit item.  
 Friction Facing Kit Product No. 827253 (two kits required per unit).

# INPUT UNIT

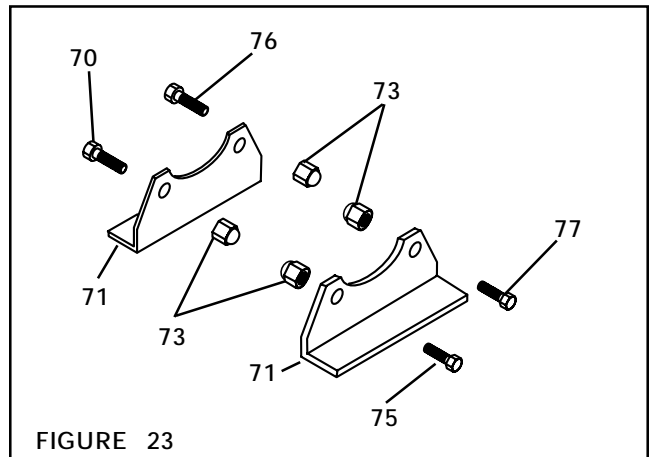
ITEM	DESCRIPTION	QTY
11	Stub Shaft	1
13 <sup>1</sup>	Variseal™	1
19	Key	2
20	Bearing Flange	1
30 <sup>1</sup>	Bearing	2
35	Retaining Ring (Ext.)	2
58	Retaining Ring (Int.)	1
59	O-ring Seal	1
62	Hex. Head Cap Screw	4
63	Acorn Nut	4



<sup>1</sup> Denotes Repair Kit item. Repair Kit Product No. 827271.

# MOUNTING FOOT

ITEM	DESCRIPTION	QTY
70	Hex. Head Cap Screw (3/8-16 x 1.875")	2
71	Mounting Foot	2
73	Acorn Nut	8
75	Hex. Head Cap Screw (3/8-16 x 1.250")	2
76	Hex. Head Cap Screw (3/8-16 x 1.750")	2
77	Hex. Head Cap Screw (3/8-16 x 1.125")	2





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Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

**Exclusive Remedy**

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

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In no event shall Nexen be liable for any consequential, indirect, incidental, or special damages of any nature whatsoever, including without limitation, lost profits arising from the sale or use of the Products.

**Warranty Claim Procedures**

To make a claim under this warranty, the claimant must give written notice of the alleged defect to whom the Product was purchased from and deliver the Product to same within one year of the date on which the alleged defect first became apparent.

**nexen**<sup>®</sup>Nexen Group, Inc.  
560 Oak Grove Parkway  
Vadnais Heights, MN 55127800.843.7445  
Fax: 651.286.1099  
www.nexengroup.com

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