

**METRIC FLANGE MOUNTED  
ENCLOSED CLUTCH WITH  
SPRING ENGAGED BRAKE**




**FMCBES MODELS 110-14, 130-19, 130-24,  
7-28, 7-38, 8-38, AND 8-42**



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.

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|   |  |   |
|---|--|---|
|  |  <b>DANGER</b>  |  |
|   | 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 <b>ONLY</b> . Improper installation can damage your system, cause injury or death. Comply with all applicable codes. |   |

This document is the original, non-translated, version.

Conformity Declaration: In accordance with Appendix II B of CE Machinery Directive (2006/42/EC):

A Declaration of Incorporation of Partly Completed Machinery evaluation for the applicable EU directives was carried out for this product in accordance with the Machinery Directive. The declaration of incorporation is set out in writing in a separate document and can be requested if required.

This machinery is incomplete and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the applicable provisions of the Directive.

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## GENERAL SPECIFICATIONS


| Size            | Brake Torque (Nm) | Clutch Torque (Nm) | Weight (Kg) | Min. Disengagement Air Pressure (Brake) (Bar) | Max. Engagement Air Pressure (Clutch) (Bar) |
|-----------------|-------------------|--------------------|-------------|---|---|
| 110-14          | 10                | 18                 | 11          | 1.6   | 3   |
| 130-19 & 130-24 | 18                | 27                 | 18          | 1.8   | 3.3   |
| 7-28            | 32                | 44                 | 28          | 1.9   | 3.4   |
| 7-38            | 46                | 64                 | 28          | 1.9   | 3.4   |
| 8-38            | 72                | 68                 | 70          | 2.3   | 3.8   |
| 8-42            | 108               | 105                | 70          | 2.3   | 3.8   |

## GENERAL SAFETY PRECAUTIONS




**CAUTION**

Use lifting aids and proper lifting techniques when installing, removing, or placing this product in service.




**CAUTION**

Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.




**CAUTION**

Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.



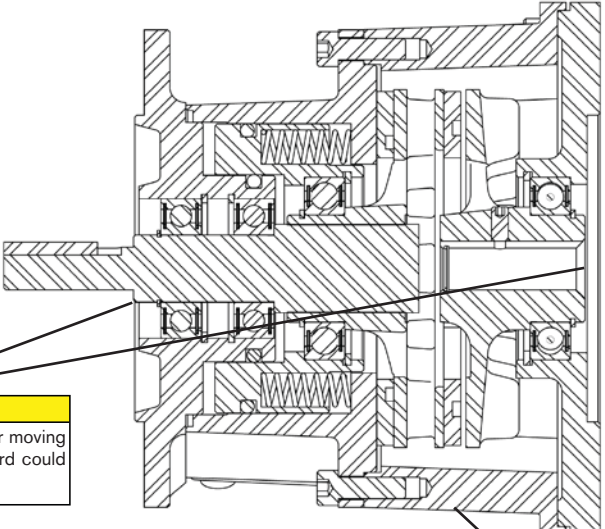
**WARNING**


This product is capable of emitting a spark if misused therefore is not recommended for use in any explosive environment.



**WARNING**


Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards".





**CAUTION**

Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.



**CAUTION**

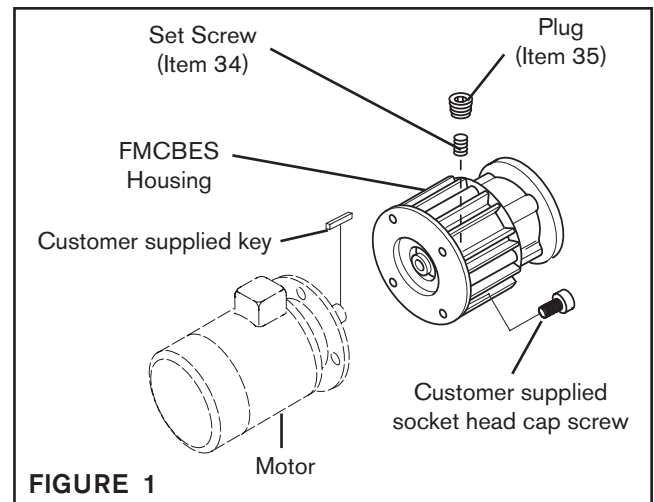
Surface temperature may exceed safe handling limits during operation. Do not touch.

## INSTALLATION

### MOUNTED ON THE SHAFT END OF A MOTOR

Refer to Figure 1.

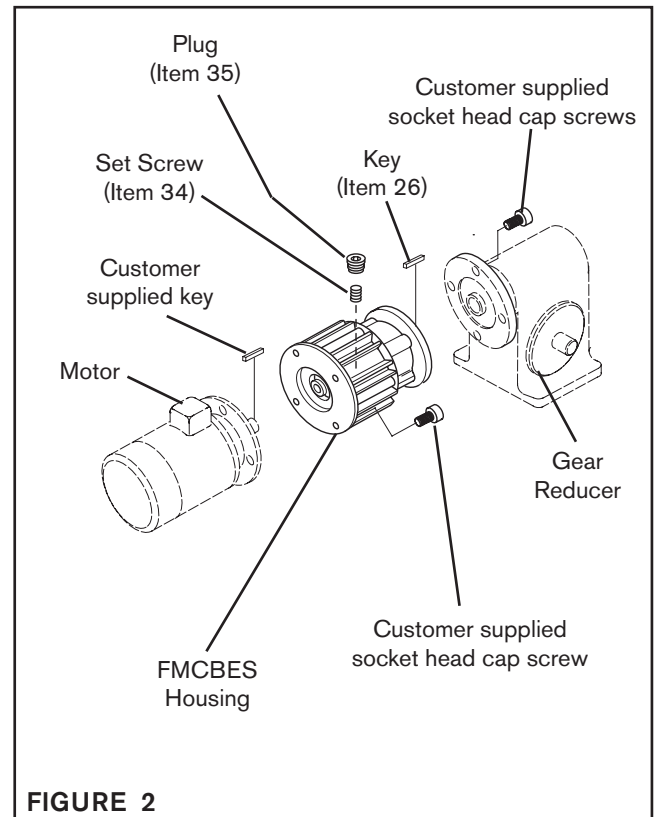
1. Insert the customer supplied key into the motor shaft keyway.
2. Slide the FMCBES onto the motor shaft, then secure it to the motor using customer supplied socket head cap screws and lock washers.
3. Align the hole in the FMCBES Housing with the Set Screw in the Drive Disc.
4. Tighten the Set Screw (Item 34) and then install the Plug (Item 35).



### MOUNTED BETWEEN A GEAR REDUCER AND A MOTOR

Refer to Figure 2.

1. Insert the Key (Item 26) into the output shaft of the FMCBES.
2. Slide the FMCBES output shaft into the gear reducer.
3. Secure the FMCBES to the gear reducer using customer supplied socket head cap screws, lock washers, and nuts.
4. Insert the customer supplied key into the motor shaft keyway.
5. Slide the motor into the FMCBES and secure it to the FMCBES using customer supplied socket head cap screws and lock washers.
6. Align the hole in the FMCBES Housing with the Set Screw in the Drive Disc.
7. Tighten the Set Screw (Item 34) and then install the Plug (Item 35).



## LUBRICATION

### NOTE

Nexen pneumatically actuated devices require clean, pressure regulated air for maximum performance and life. All seals in Nexen Pneumatically operated devices are lubricated for life and do not require additional lubrication.

However, some customers prefer to use an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber. This is acceptable, but care must be taken to ensure once an air mist lubrication system is used, it is continually used over the life of the product as the oil mist may wash free the factory installed lubrication.

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

Synthetic lubricants are not recommended.

Nexen product's bearings are shielded and pre-lubricated, and require no further lubrication.

## LUBRICATOR DRIP RATE SETTINGS



### CAUTION

These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must follow the manufacturer's suggested procedure.

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

## AIR CONNECTIONS

All Nexen pneumatically actuated devices require clean and dry air, which meet or exceeds ISO 8573.1:2001 Class 4.4.3 quality.

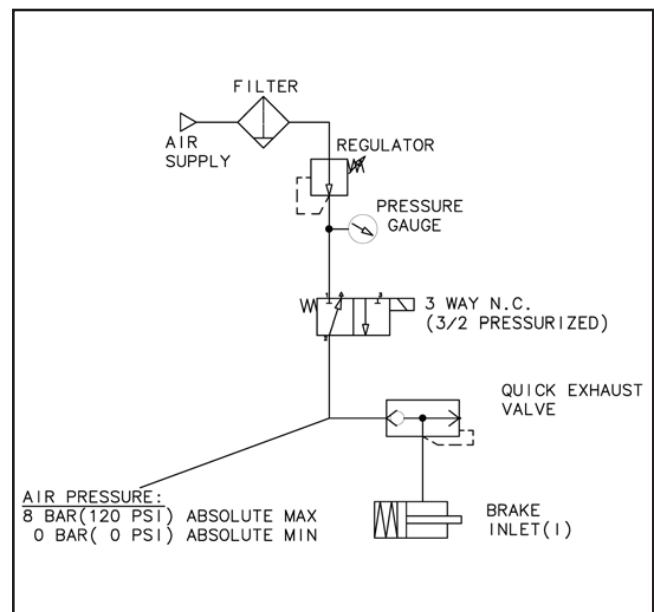
### NOTE

For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the unit. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.



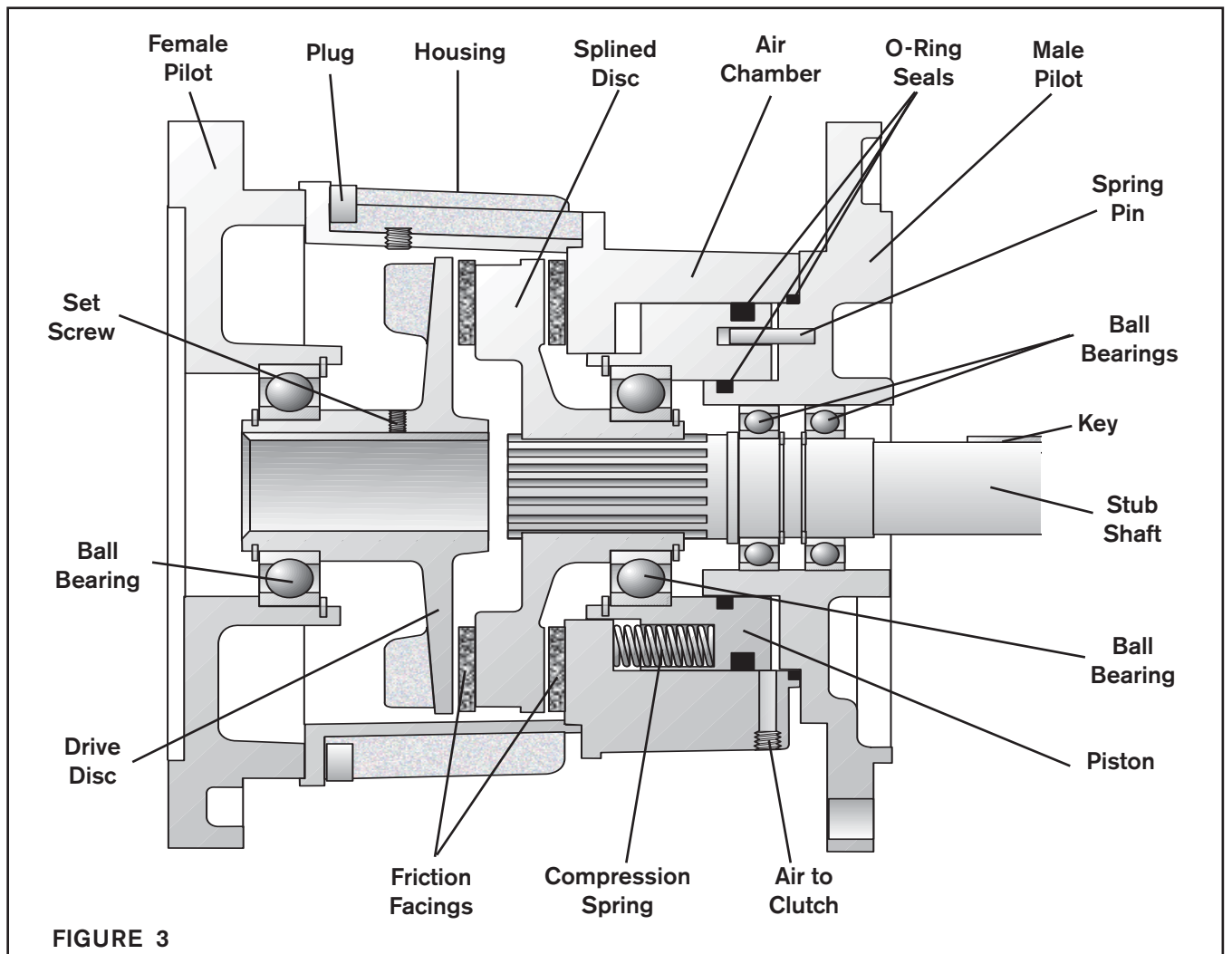
### CAUTION

Low air pressure will cause slippage and overheating. Excessive air pressure will cause abrupt starts and stops, reducing product life.



## TROUBLESHOOTING

| SYMPTOM                        | PROBABLE CAUSE  | SOLUTION  |
|--------------------------------|---|---|
| Failure to engage (clutch).    | Air not getting to the FMCBES due to a control valve malfunction. | Check for a control valve malfunction or low air pressure and replace the control valve if necessary. |
|                                | Lack of lubrication on Stub Shaft spline.                         | Lubricate Stub Shaft spline.  |
|                                | Air leaks around the O-ring Seals.                                | Replace the O-ring Seals.   |
| Failure to engage (brake).     | Weak or broken Compression Springs.                               | Replace the Compression Springs.  |
|                                | Lack of lubrication on Stub Shaft spline.                         | Lubricate Stub Shaft 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 Stub Shaft spline.                         | Lubricate Stub Shaft spline.  |
| Failure to disengage (brake).  | Air not getting to the FMCBES due to a control valve malfunction. | Check for a control valve malfunction or low air pressure and replace the control valve if necessary. |
|                                | Lack of lubrication on Stub Shaft spline.                         | Lubricate Stub Shaft spline.  |
| Loss of torque.                | Air leaks around the O-ring Seals.                                | Replace the O-ring Seals.   |
|                                | Worn or dirty Friction Facings.                                   | Replace the Friction Facings.   |



## PARTS REPLACEMENT-FRICTION FACINGS

### NOTE

The following sections are arranged by model. Verify that you are in the correct section for your model.

### FMCBES 110-14, 130-19, AND 130-24

Refer to Figures 4 & 5.

### NOTE

If an Input Unit is installed on the FMCBES, it must be removed before servicing the FMCBES. Remove the Plug (Item 35) and loosen the Set Screw (Item 34) to release the FMCBES from the Input Unit shaft.

1. Remove the four Socket Head Cap Screws (Item 14) and separate the two halves of the FMCBES.
2. Remove the six old Flat Head Screws (Item 12) and the first old split Friction Facing (Item 11).

### NOTE

Apply sufficient air pressure to the brake to release the brake portion of the FMCBES.

3. Align the holes in the Splined Disc (Item 9) with the Flat Head Screws (Item 12) that secure the second split Friction Facing (Item 11).
4. Remove the six old Flat Head Screws (Item 12) and the second old Friction Facing (Item 11).
5. Install the first new split Friction Facing (Item 11) and new Flat Head Screws (Item 12).
6. Tighten the six new Flat Head Screws (Item 12) to 22 In. Lbs. [2.5 N•m] torque.

### NOTE

Release the air pressure to the FMCBES.

7. Install the second new split Friction Facing (Item 11) and new Flat Head Screws (Item 12).
8. Tighten the six new Flat Head Screws (Item 12) to 22 In. Lbs. [2.5 N•m] torque.
9. Apply a drop of Loctite 242 to the threads of the Socket Head Cap Screws (Item 14).
10. Install and tighten the four Socket Head Cap Screws (Item 14), securing the two halves of the FMCBES to 10.5 Ft. Lbs. [14.2 N•m] torque for Model 110-14 and 24.5 Ft. Lbs. [33.2 N•m] torque for Models 130-19 and 130-24.

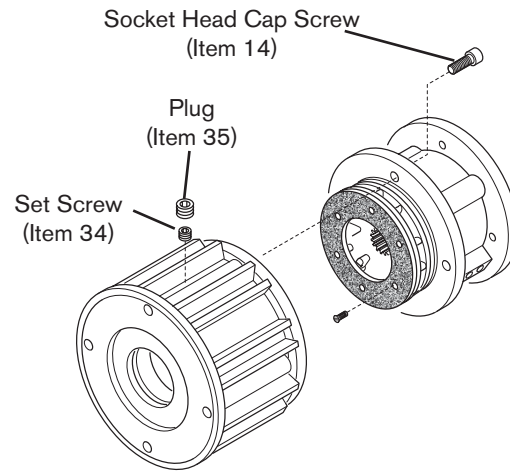


FIGURE 4

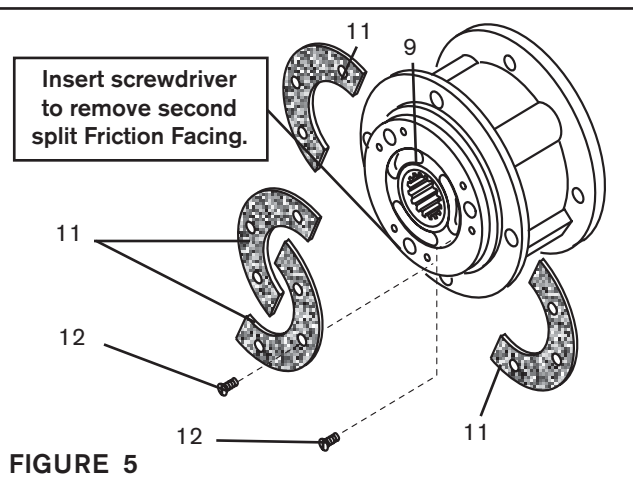


FIGURE 5



## PARTS REPLACEMENT – FRICTION FACINGS

### FMCBES 7-28, 7-38, 8-38, AND 8-42

Refer to Figure 6 & 7.

#### NOTE

If an Input Unit is installed on the FMCBES, it must be removed before servicing the FMCBES. Remove the Plug (Item 35) and loosen the Set Screw (Item 34) to release the FMCBES from the Input Unit shaft.

1. Remove the four Socket Head Cap Screws (Item 8) and separate the two halves of the FMCBES.
2. Remove the six old Flat Head Screws (Item 12), the first old split Friction Facing (Item 11).

#### NOTE

Apply sufficient air pressure to the brake to release the brake portion of the FMCBES.

3. Align the holes in the Splined Disc (Item 9) with the Flat Head Screws (Item 12) that secure the second split Friction Facing (Item 11).
4. Remove the six old Flat Head Screws (Item 12) and the second old Friction Facing (Item 11).
5. Install the first new split Friction Facing (Item 11) and new Flat Head Screws (Item 12).
6. Tighten the six new Flat Head Screws (Item 12) to 71 In. Lbs. [8.02 N•m] torque.

#### NOTE

Release the air pressure to the FMCBES.

7. Install the second new split Friction Facing (Item 11), new Flat Head Screws (Item 12).
8. Tighten the six new Flat Head Screws (Item 12) to 71 In. Lbs. [8.02 N•m] torque.
9. Apply a drop of Loctite 242 to the threads of the Socket Head Cap Screws (Item 8).
10. Install and tighten the four Socket Head Cap Screws (Item 8) securing the two halves of the FMCBES to 24.5 Ft. Lbs. [33.2 N•m] torque for FMCBES 7-28 and 7-38, and 49.5 Ft. Lbs. [67.1 N•m] torque for Models 8-38 and 8-42.

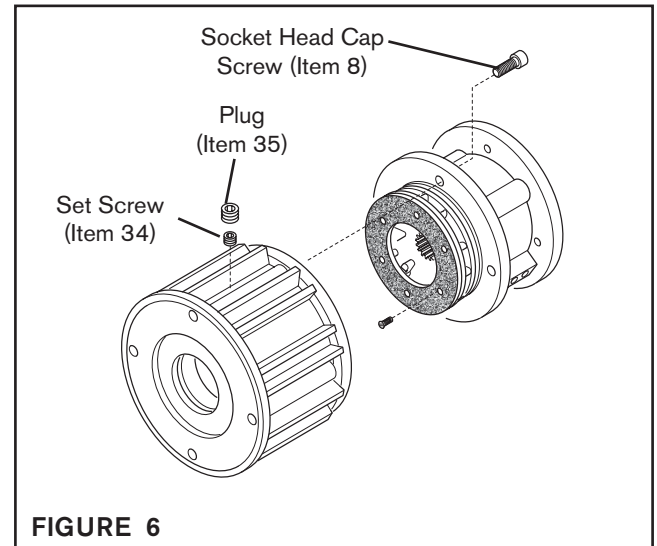


FIGURE 6

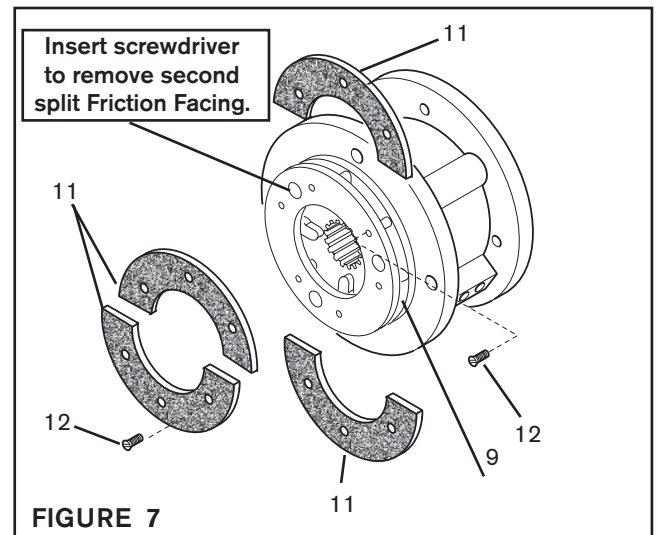


FIGURE 7

## PARTS REPLACEMENT – HOUSING BEARING

### NOTE

The following sections are arranged by model. Verify that you are in the correct section for your model.

### FMCBES 110-14

Refer to Figure 8.

1. Remove the four Socket Head Cap Screws (Item 14) and slide the Housing (Item 7), Bearing (Item 2), and the Drive Disc (Item 4) out of the FMCBES.



### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

2. Remove Retaining Ring (Item 6).
3. Press the Drive Disc (Item 4) out of the Bearing (Item 2) and the Housing (Item 7).
4. Remove Retaining Ring (Item 3).
5. Fully supporting the Housing (Item 7), press the old Bearing (Item 2) out of the Housing (Item 7).

### NOTE

**Do not reuse the bearing. Applying force to the inner bearing race to remove a bearing held by the outer race causes damage to the bearing.**

6. Clean the bearing bore of the Housing (Item 7) with fresh safety solvent, making sure all old Loctite residue is removed.
7. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 2)

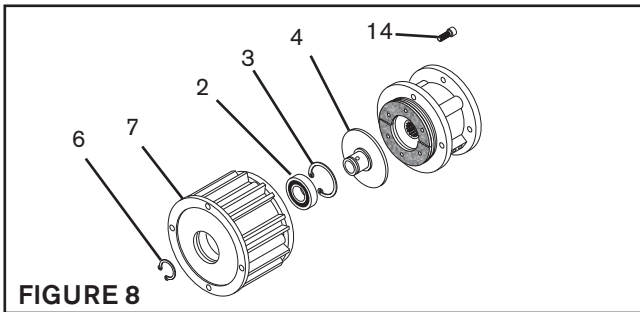


FIGURE 8

8. Carefully align the outer race of the new Bearing (Item 2) with the bore of the Housing (Item 7).
9. Supporting the Housing (Item 7) and pressing on the outer race of the new Bearing (Item 2), press the new Bearing into the Housing.
10. Reinstall Retaining Ring (Item 3).
11. Support the inner race of the new Bearing (Item 2) and press the Drive Disc (Item 4) into the new Bearing and Housing (Item 7).
12. Reinstall Retaining Ring (Item 6).
13. Apply a drop of Loctite 242 to the threads of the Socket Head Cap Screws (Item 14).
14. Slide the Housing (Item 7), Bearing (Item 2), and Drive Disc (Item 4) into the FMCBES and reinstall the four Socket Head Cap Screws (Item 14).
15. Tighten the four Socket Head Cap Screws to 10.5 Ft. Lbs. [14.2 N•m] torque.

## PARTS REPLACEMENT – FEMALE PILOT BEARING

### FMCBES 130-19, 130-24, 7-28, 7-38, 8-38, AND 8-42

Refer to Figure 9.

1. Remove four Socket Head Cap Screws (Item 8) and slide the Female Pilot (Item 1), Bearing (Item 2), and the Drive Disc (Item 4) out of the FMCBES



### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

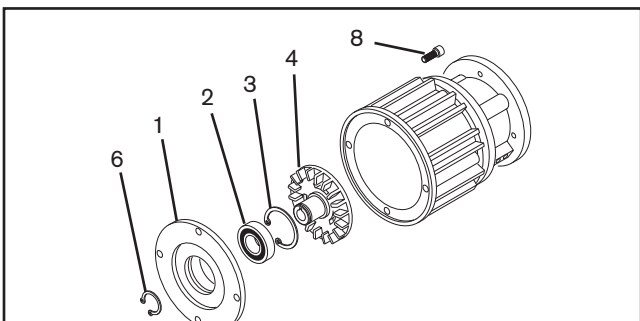


FIGURE 9

## PARTS REPLACEMENT – FEMALE PILOT BEARING (continued)

Refer to Figure 9.

2. Remove Retaining Ring (Item 6).
3. Press the Drive Disc (Item 4) out of the Bearing (Item 2) and the Female Pilot (Item 1).
4. Remove Retaining Ring (Item 3).
5. Fully supporting the Female Pilot (Item 1), press the old Bearing (Item 2) out of the Female Pilot (Item 1).

### NOTE

**Do not reuse the bearing. Applying force to the inner bearing race to remove a bearing held by the outer race causes damage to the bearing.**

6. Clean the bearing bore of the Female Pilot (Item 1) with fresh safety solvent, making sure all old Loctite residue is removed.
7. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the new Bearing (Item 2).
8. Carefully align the outer race of the new Bearing (Item 2) with the bore of the Female Pilot (Item 1).
9. Supporting the Female Pilot (Item 1) and pressing on the outer race of the new Bearing (Item 2), press the new Bearing into the Female Pilot.

10. Reinstall Retaining Ring (Item 3).
11. Support the inner race of the new Bearing (Item 2) and press the Drive Disc (Item 4) into the new Bearing and Female Pilot (Item 1).
12. Reinstall Retaining Ring (Item 6).
13. Apply a drop of Loctite 242 to the threads of the Socket Head Cap Screws (Item 8).
14. Slide the Female Pilot (Item 1), Bearing (Item 2), and Drive Disc (Item 4) into the FMCBES and reinstall the four Socket Head Cap Screws (Item 8).
15. Tighten four Socket Head Cap Screws (Item 8) to the recommended torque (See Table 1).

TABLE 1

| FMCBES MODEL | RECOMMENDED TIGHTENING TORQUES SOCKET HEAD CAP SCREW (ITEM 8) |
|--------------|---|
| 130-19       | 14.2 Nm [10.5 ft-lbs]   |
| 130-24       | 14.2 Nm [10.5 ft-lbs]   |
| 7-28         | 33.2 Nm [24.5 ft-lbs]   |
| 7-38         | 33.2 Nm [24.5 ft-lbs]   |
| 8-38         | 67.1 Nm [49.5 ft-lbs]   |
| 8-42         | 67.1 Nm [49.5 ft-lbs]   |

## PARTS REPLACEMENT—PISTON BEARING AND O-RING SEALS


FMCBES 110-14, 130-19, 130-24, 7-28, 7-38, 8-38, AND 8-42

### NOTE

**Socket Head Cap Screws are Item 14 for Models 110-14, 130-19, and 130-24, and Item 8 for all other models.**

Refer to Figure 10.

1. Remove the four Socket Head Cap Screws and separate the Air Chamber (Item 13) from the Housing (Item 7).
2. Remove the four Socket Head Cap Screws (Item 14) securing the Male Pilot (Item 18) to the Air Chamber (Item 13).
3. Remove the Male Pilot (Item 18) and Stub Shaft (Item 23) from the Air Chamber (Item 13).



**CAUTION**

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

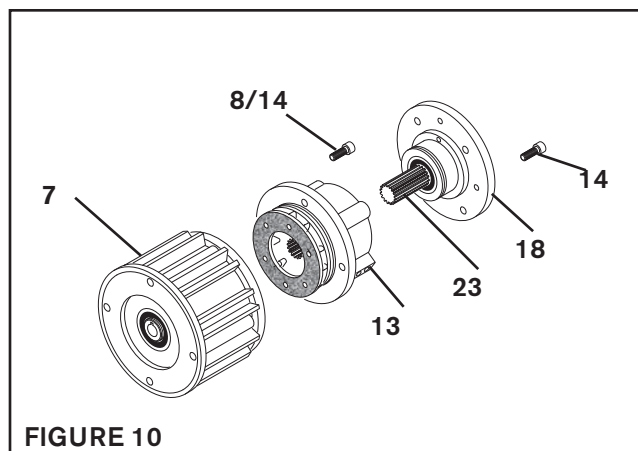
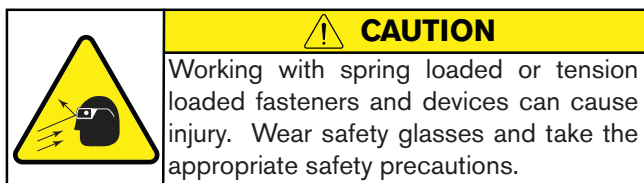


FIGURE 10

## PARTS REPLACEMENT—PISTON BEARING AND O-RING SEALS (continued)

Refer to Figure 11.

4. Using a “C”-clamp or arbor press with fixture, press the Piston (Item 15) into the Air Chamber (Item 13); then, remove the Retaining Ring (Item 21 for Model 7-38 and Item 6 for all other Models) from the Splined Disc (Item 9).
5. Supporting the Air Chamber (Item 13) and Piston (Item 15), press the Splined Disc (Item 9) from the Bearing (Item 31 for Model 7-38 and Item 2 for all other Models).
6. Slowly remove the “C”-clamp or arbor press with fixture.



7. Remove the Piston (Item 15) and Compression Springs (Item 17) from the Air Chamber (Item 13).
8. Remove the Retaining Ring (Item 19 for Model 7-38 and Item 3 for all other Models) from the Piston.
9. Remove the old O-Ring Seal (Item 16) from the Piston.
10. Press the Bearing (Item 31 for Model 7-38 and Item 2 for all other models) out of the Piston (Item 15).
11. Clean the bearing bore of the Piston with fresh safety solvent, making sure all old Loctite residue is removed.
12. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing.
13. Carefully align the outer race of the new Bearing (Item 31 for Model 7-38 and Item 2 for all other Models) with the bore of the Piston (Item 15).
14. Supporting the Piston and pressing on the outer race of the new Bearing, press the new Bearing into the Piston.
15. Reinstall the Retaining Ring (Item 19 for Model 7-38 and Item 3 for all other Models), securing the Bearing to the Piston.
16. Coat the O-Ring contact surfaces of the Air Chamber, Piston, and the O-Ring Seal with a thin film of O-Ring lubricant and install the new O-Ring Seal (Item 16).

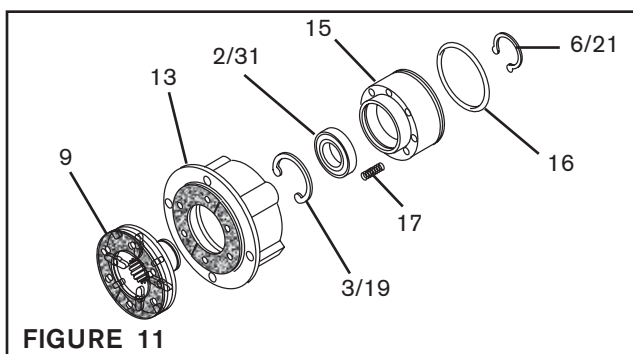


TABLE 2

| FMCBES MODEL | RECOMMENDED TIGHTENING TORQUES<br>SOCKET HEAD CAP SCREW (ITEM 8) |
|--------------|--|
| 130-19       | 14.2 Nm [10.5 ft-lb]   |
| 130-24       | 14.2 Nm [10.5 ft-lb]   |
| 7-28         | 33.2 Nm [24.5 ft-lb]   |
| 7-38         | 33.2 Nm [24.5 ft-lb]   |
| 8-38         | 67.1 Nm [49.5 ft-lb]   |
| 8-42         | 67.1 Nm [49.5 ft-lb]   |

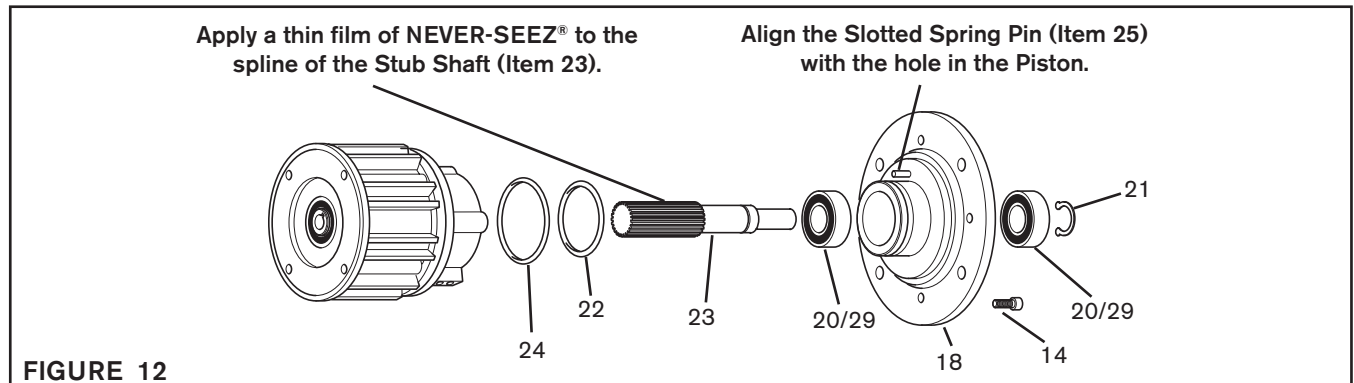
17. Reinstall the Compression Springs (Item 17) into the Piston (Item 15).
18. Slide the Piston (Item 15) into the Air Chamber (Item 13).
19. Use a “C”-clamp or arbor press with fixture to compress the Piston (Item 15) into the Air Chamber (Item 13).
20. Support the inner race of the new Bearing and press the Splined Disc into the new Bearing and Piston.
21. Reinstall the Retaining Ring (Item 21 for Model 7-38 and Item 6 for all other Models) that secures the Splined Disc to the Bearing.
22. Remove the “C”-clamp or arbor press with fixture.
23. Apply a drop of Loctite 242 to the threads of the Socket Head Cap Screws (Item 14 for Models 130-19 and 130-24 and Item 8 for all other Models).
24. Reinstall and tighten the four Socket Head Cap Screws, securing the Air Chamber (Item 13) to the Housing (Item 7) to the recommended torque (See Table 2).

## PARTS REPLACEMENT—MALE PILOT BEARINGS AND O-RING SEALS

### NOTE

The following sections are arranged by model. Verify that you are in the correct section for your model.

### MODELS 110-14, 130-19, 130-24, 7-28, 8-38, AND 8-42



Refer to Figure 12.

1. Remove the O-Ring Seals (Items 22 and 24) from the Male Pilot (Item 18).



### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

2. Remove the Retaining Ring (Item 21) from the Stub Shaft (Item 23).
3. Press the Stub Shaft (Item 23) out of the Male Pilot (Item 18).

### NOTE

One old Bearing (Item 20 for Models 130-19, 130-24, and 8-42 and Item 29 for Models 7-28 and 8-38) will remain attached to the Stub Shaft (Item 23).

4. Press the old Bearing from the Stub Shaft (Item 23)
5. Press the other old Bearing out of the Male Pilot (Item 18).

### NOTE

It is not necessary to remove the Retaining Ring from the inside of the Male Pilot.

6. Clean the bearing bore of the Male Pilot with fresh safety solvent, making sure all old Loctite® residue is removed.
7. Apply an adequate amount of Loctite 680 to evenly coat the outer race of one new Bearing.
8. Carefully align the outer race of the new Bearing (Item 20 or 29) with the bore of the output side of the Male Pilot.

TABLE 3

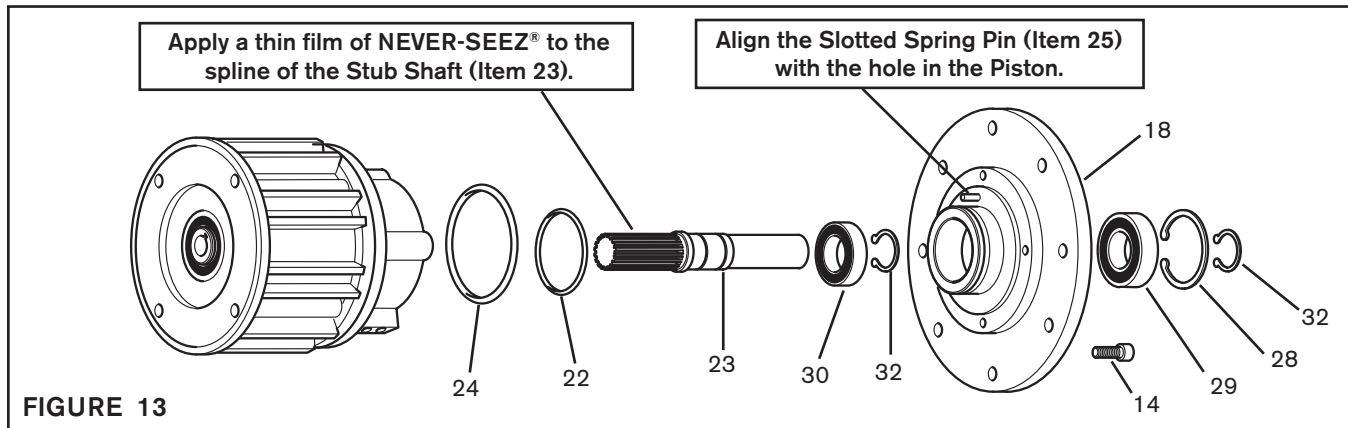
| FMCBES MODEL | RECOMMENDED TIGHTENING TORQUE<br>SOCKET HEAD CAP SCREW (ITEM 14) |
|--------------|--|
| 110-14       | 14.2 Nm [10.5 ft-lbs]  |
| 130-19       | 33.2 Nm [24.5 ft-lbs]  |
| 130-24       | 33.2 Nm [24.5 ft-lbs]  |
| 7-28         | 33.2 Nm [24.5 ft-lbs]  |
| 8-38         | 67.1 Nm [49.5 ft-lbs]  |
| 8-42         | 67.1 Nm [49.5 ft-lbs]  |

9. While supporting the Male Pilot and pressing on the outer race, press the new Bearing until it is seated against the Retaining Ring (Item 21) inside the Male Pilot.
10. Press the new Bearing onto the Stub Shaft (Item 23).
11. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the second new Bearing.
12. Carefully align the outer race of the new Bearing with the bore of the Male Pilot.
13. While pressing on the outer race of the first new Bearing and supporting the inner race of the new Bearing already in the Male Pilot, press the new Bearing and Stub Shaft into the Male Pilot until it is seated against the Retaining Ring inside Male Pilot.
14. Reinstall Retaining Ring (Item 21).
15. Coat the O-Ring contact surfaces of the Male Pilot, Piston, and the new O-Ring Seals (Items 22 and 24) with a thin film of fresh O-Ring lubricant.
16. Install the new O-Ring Seals onto the Male Pilot.

## PARTS REPLACEMENT-MALE PILOT BEARINGS AND O-RING SEALS (continued)

17. Apply a thin film of NEVER-SEEZ® to the spline of the Stub Shaft (Item 23).
18. Align the Slotted Spring Pin (Item 25) on the Male Pilot with the hole in the Piston.
19. Slide the Male Pilot and Stub Shaft into the FMCBES.
20. Apply a drop of Loctite 242 to the threads of the four Socket Head Cap Screws (Item 14).
21. Reinstall the four Socket Head Cap Screws (Item 14), securing the Male Pilot (Item 18) to the Air Chamber (Item 13).
22. Tighten the four Socket Head Cap Screws (Item 14) to the recommended torque (See Table 3).

### FMCBES 7-38



Refer to Figure 13.

1. Remove the O-Ring Seals (Items 22 and 24) from the Male Pilot (Item 18).



#### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

2. Remove the Retaining Ring (Item 32) from the Stub Shaft (Item 23).
3. Press the Stub Shaft (Item 23) out of the Male Pilot (Item 18).

#### NOTE

**One old Bearing (Item 30) will remain attached to the Stub Shaft (Item 23).**

4. Remove the second Retaining Ring (Item 32) from the Stub Shaft (Item 23).
5. Press the old Bearing (Item 30) from the Stub Shaft.
6. Remove the Retaining Ring (Item 28) from the Male Pilot (Item 18); then, press the old Bearing (Item 29) out of the Male Pilot.
7. Clean the bearing bore of the Male Pilot (Item 18)

with fresh safety solvent, making sure all old Loctite residue is removed.

8. Press the new Bearing (Item 30) onto the Stub Shaft (Item 23).
9. Reinstall one Retaining Ring (Item 32) to secure the new Bearing in place on the Stub Shaft (Item 23).
10. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the new Bearing (Item 29).
11. Carefully align the outer race of the new Bearing (Item 30) with the bore of the output side of the Male Pilot.
12. While supporting the Male Pilot and pressing on the outer race, press the new Bearing until it is seated against the Retaining Ring (Item 28) inside the Male Pilot.
13. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the second new Bearing (Item 30).
14. Carefully align the outer race of the new Bearing (Item 30) with the bore of the Male Pilot.



## PARTS REPLACEMENT-FMCBES 7-38 (continued)

15. While supporting the inner race of Bearing (Item 29) and pressing on the outer race of the Bearing (Item 30), press the new Bearing and Stub Shaft into the Male Pilot and Bearing.
16. Reinstall the Retaining Ring (Item 32).
17. Coat the O-Ring contact surface of the Male Pilot, Piston, and the new O-Ring Seals with a thin film of fresh O-Ring lubricant and install the new O-Ring Seals (Items 22 and 24) onto the Male Pilot.
18. Apply a thin film of NEVER-SEEZ® to the spline of the Stub Shaft (Item 23).
19. Align the Slotted Spring Pin on the Male Pilot with the hole in the Piston.
20. Slide the Male Pilot and Stub Shaft into the FMCBES.
21. Apply a drop of Loctite 242 to the threads of the four Socket Head Cap Screws (Item 14).
22. Reinstall the four Socket Head Cap Screws (Item 14), securing the Male Pilot (Item 18) to the Air Chamber (Item 13).
23. Tighten the four Socket Head Cap Screws (Item 14) to 24.5 Ft. Lbs. [33.2 N•m] torque.

## PARTS REPLACEMENT-INPUT UNIT

### NOTE

The following sections are arranged by model. Verify that you are in the correct section for your model.

### FMCBES 110-14

Refer to Figure 14.

### NOTE

Remove the Plug (Item 35) and loosen the Set Screw (Item 34) one full turn to release the Input Unit shaft from the FMCBES. Both the Plug (Item 35) and Set Screw (Item 34) are located on the FMCBES Housing (See Figure 4).

1. Remove the Socket Head Cap Screws (Item 29) and Lock Washers (Item 30); then, remove the Input Unit from the FMCBES.



### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

2. Remove the Retaining Ring (Item 34) from the output end of the Input Unit.
3. Fully supporting the Flange (Item 27), press the Shaft (Item 28) out of Input Unit.

### NOTE

Bearing (Item 19) will come out of the Flange (Item 27) with the Shaft (Item 28).

4. Remove the Retaining Ring (Item 35) from the Shaft (Item 28).
5. Press the old Bearing (Item 19) off the Shaft (Item 28).

### NOTE

Do not reuse the old Bearing (Item 19). Applying force to the inner bearing race to remove a bearing held by the outer race causes damage to the bearing.

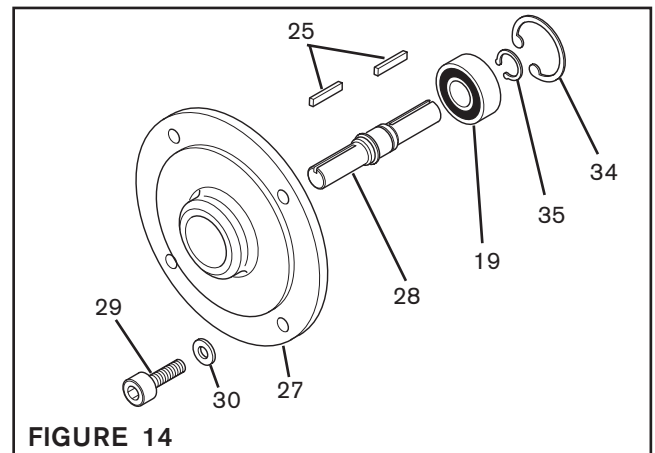


FIGURE 14

6. Clean the bearing bore of the Flange (Item 27) with fresh safety solvent, making sure all old Loctite® residue is removed.
7. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the new Bearing (Item 29).
8. Carefully align the outer race of the new Bearing (Item 19) with the bore of the Flange (Item 27) and press the new Bearing into place.
9. Reinstall Retaining Ring (Item 34).
10. Fully supporting the inner race of the Bearing (Item 19), press the Shaft (Item 28) into the Bearing until the Retaining Ring (Item 35) on the Shaft is seated against Bearing.
11. Reinstall the second Retaining Ring (Item 35).

## PARTS REPLACEMENT-INPUT UNIT (continued)

FMCBES 130-19 AND 130-24

Refer to Figure 15.

### NOTE

Remove the Plug (Item 35) and loosen the Set Screw (Item 34) one full turn to release the Input Unit shaft from the FMCBES. Both the Plug (Item 35) and Set Screw (Item 34) are located on the FMCBES Housing (See Figure 4).

1. Remove the Socket Head Cap Screws (Item 29), Lock Washers (Item 30), and Hex. Nuts (Item 31); then, remove the Input Unit from the FMCBES.
2. Fully supporting the Input Unit, press the Shaft (Item 28) out of the Input Unit.
3. Using a bearing puller, remove the Bearing (Item 19) from the Flange (Item 27).

### NOTE

Do not reuse the bearing. Applying force to the inner bearing race to remove a bearing held by the outer race causes damage to the bearing.

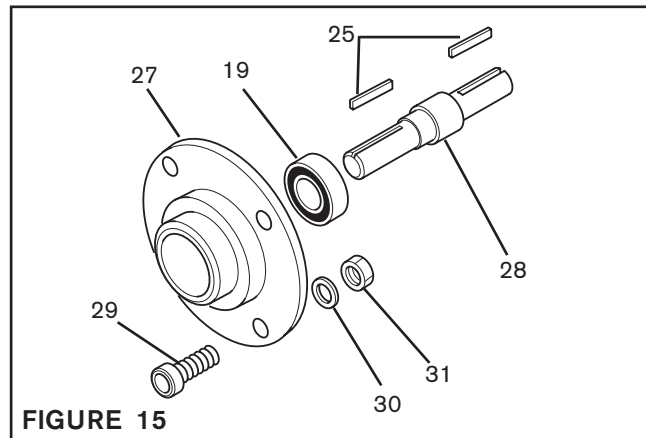


FIGURE 15

4. Clean the bearing bore of the Flange (Item 27) with solvent, making sure all old Loctite residue is removed.
5. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the new Bearing (Item 19).
6. Carefully align the outer race of the new Bearing (Item 19) with the bore of the Flange (Item 27) and press the new Bearing into place.
7. Press the Shaft (Item 28) into the Input Unit.

FMCBES 7-28, 7-38, 8-38, AND 8-42

Refer to Figure 16.

### NOTE

Remove the Plug (Item 35) and loosen the Set Screw (Item 34) one full turn to release the Input Unit shaft from the FMCBES. Both the Plug (Item 35) and Set Screw (Item 34) are located on the FMCBES Housing (See Figure 4).

1. Remove the Socket Head Cap Screws (Item 37), Lock Washers (Item 38); then, remove the Input Unit from the FMCBES.



### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

2. Remove the Retaining Ring (Item 28) from the output end of the Input Unit.
3. Fully supporting the Flange (Item 35), press the Shaft (Item 36) out of Input Unit.

### NOTE

Bearing (Item 29) will come out of the Flange (Item 35) with the Shaft (Item 36).

4. Remove the Retaining Ring (Item 32) from the Shaft (Item 36).
5. Press the old Bearing (Item 29) off the Shaft (Item 36).

### NOTE

Do not reuse the old Bearing (Item 29). Applying force to the inner bearing race to remove a bearing held by the outer race causes damage to the bearing.

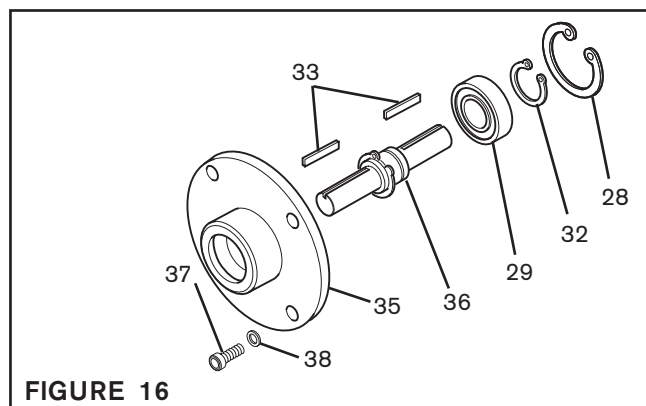


FIGURE 16

6. Clean the bearing bore of the Flange (Item 35) with fresh safety solvent, making sure all old Loctite residue is removed.
7. Apply an adequate amount of Loctite 680 to evenly coat the outer race of the new Bearing (Item 29).
8. Carefully align the outer race of the new Bearing (Item 29) with the bore of the Flange (Item 35) and press the new Bearing into place.
9. Reinstall the Retaining Ring (Item 28).
10. Fully supporting the inner race of the Bearing (Item 29), press the Shaft (Item 36) into the Bearing until the Retaining Ring (Item 32) is seated against the Bearing.
11. Reinstall the second Retaining Ring (Item 32).



## REPLACEMENT PARTS

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

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

## PARTS LIST-FMCBES

### FMCBES 110-14

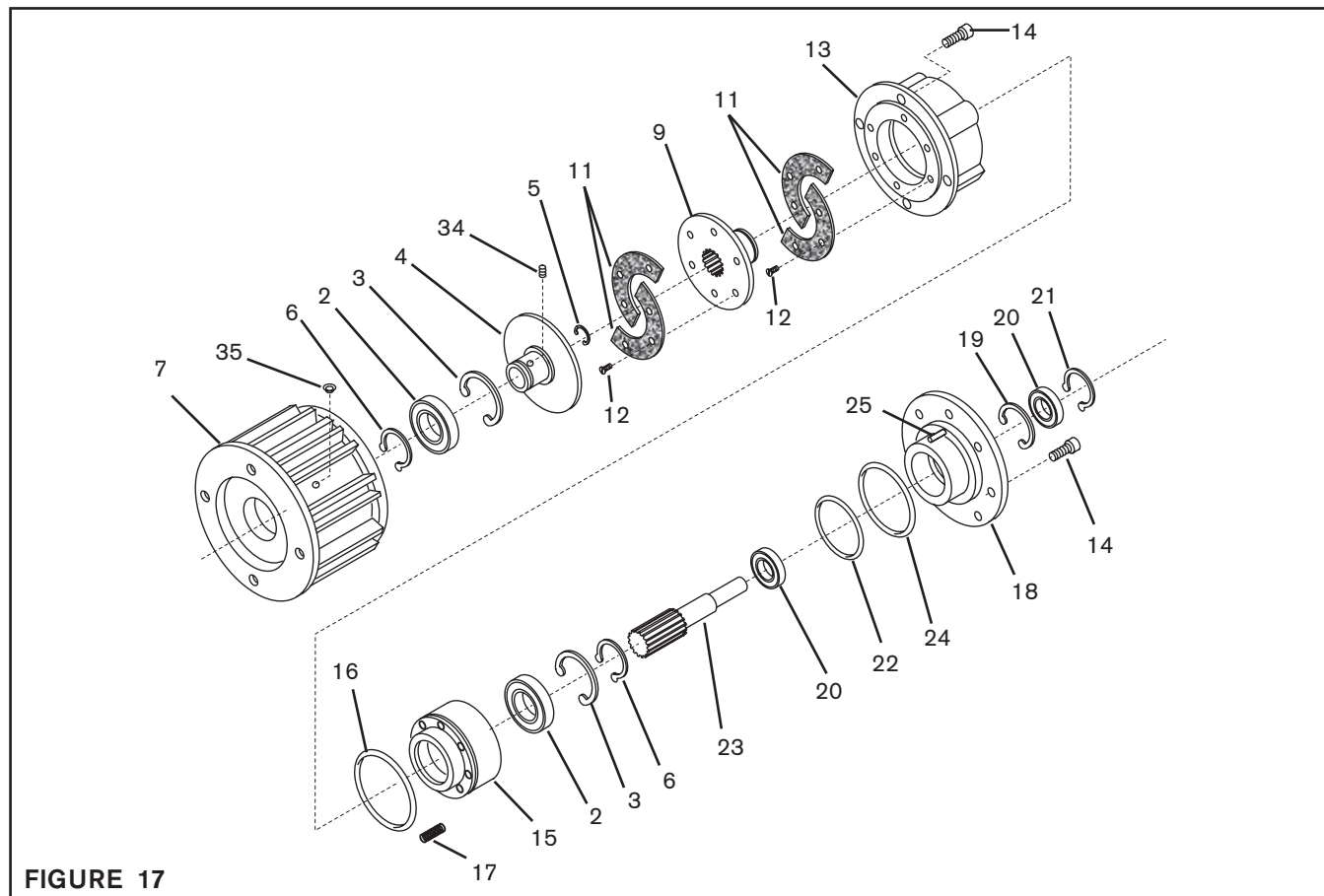


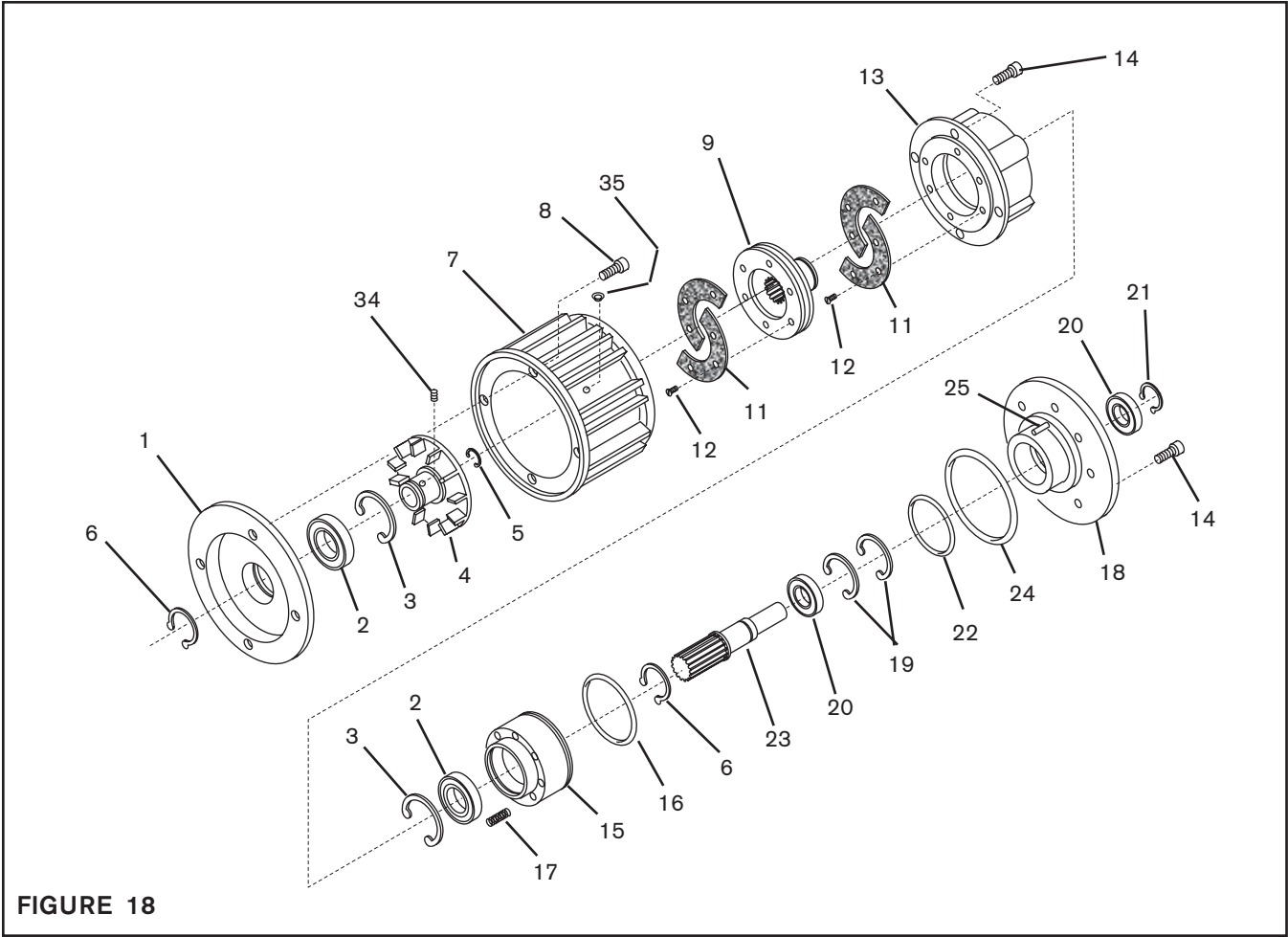
FIGURE 17

| ITEM            | DESCRIPTION                     | QTY |
|-----------------|---------------------------------|-----|
| 2 <sup>1</sup>  | Bearing                         | 2   |
| 3               | Retaining Ring (Int.)           | 2   |
| 4               | Drive Disc                      | 1   |
| 5               | Retaining Ring (Int.)           | 1   |
| 6               | Retaining Ring (Ext.)           | 2   |
| 7               | Housing                         | 1   |
| 9               | Splined Disc                    | 1   |
| 11 <sup>2</sup> | Friction Facing                 | 2   |
| 12 <sup>2</sup> | Flat Head Screw (M5-0.8)        | 12  |
| 13              | Air Chamber                     | 1   |
| 14              | Socket Head Cap Screw (M8-1.25) | 8   |
| 15              | Piston                          | 1   |
| 16 <sup>1</sup> | O-Ring Seal                     | 1   |

<sup>1</sup> Denotes Repair Kit items.  
Repair Kit No. 801401.

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 17 <sup>1</sup> | Compression Spring    | 12  |
| 18              | Male Pilot            | 1   |
| 19              | Retaining Ring (Int.) | 1   |
| 20 <sup>1</sup> | Bearing               | 2   |
| 21              | Retaining Ring (Ext.) | 1   |
| 22 <sup>1</sup> | O-Ring Seal           | 1   |
| 23              | Stub Shaft            | 1   |
| 24 <sup>1</sup> | O-Ring Seal           | 1   |
| 25              | Slotted Spring Pin    | 1   |
| 26              | Key (Not Shown)       | 1   |
| 34              | Set Screw             | 1   |
| 35              | Plug (0.125 NPTF)     | 1   |

<sup>2</sup> Denotes Facing Kit items.  
Facing Kit No. 801448 (two kits required per unit).

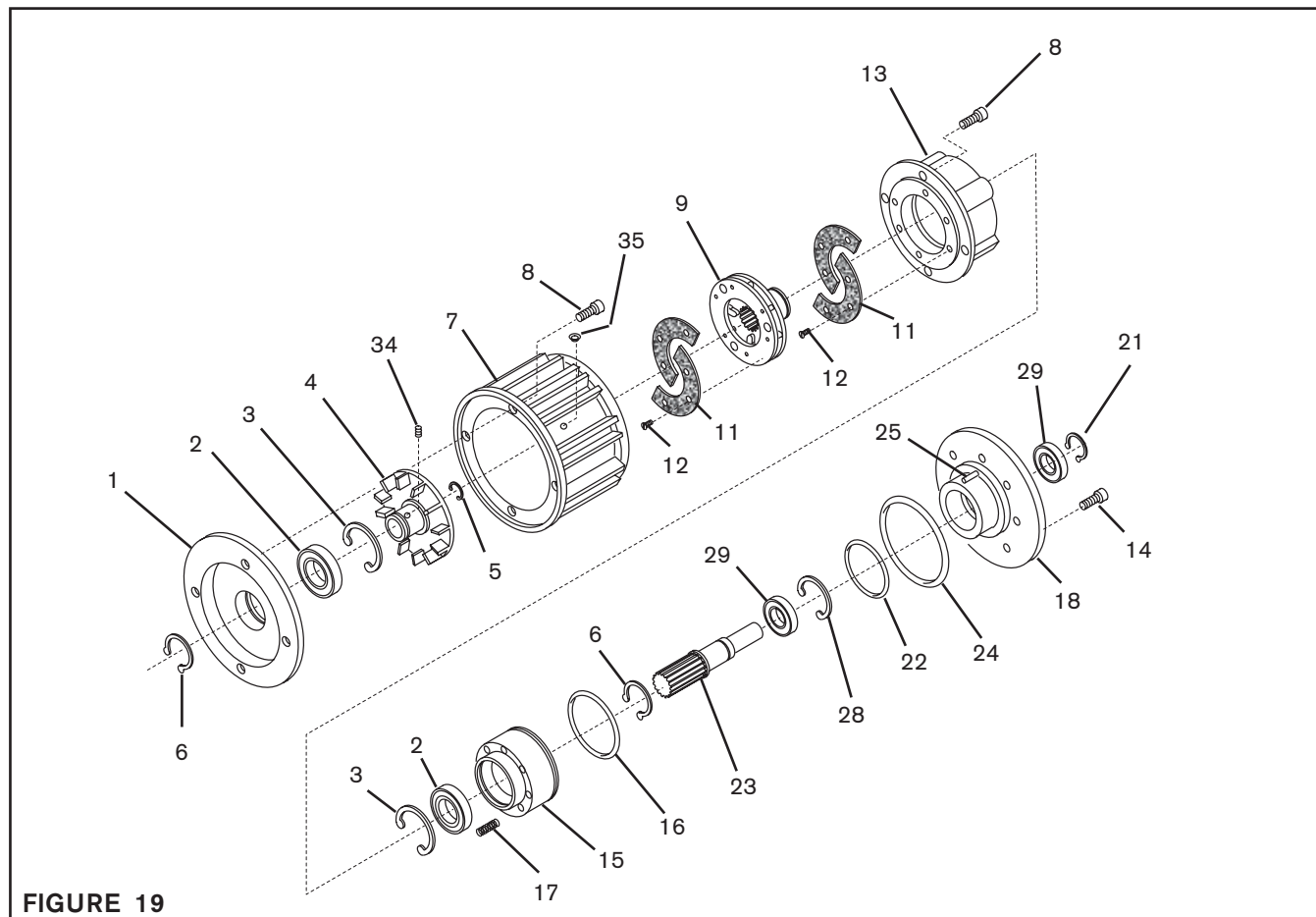


| ITEM            | DESCRIPTION                     | QTY |
|-----------------|---------------------------------|-----|
| 1               | Female Pilot                    | 1   |
| 2 <sup>1</sup>  | Bearing                         | 2   |
| 3               | Retaining Ring (Int.)           | 2   |
| 4               | Drive Disc                      | 1   |
| 5               | Retaining Ring (Int.)           | 1   |
| 6               | Retaining Ring (Ext.)           | 2   |
| 7               | Housing                         | 1   |
| 8               | Socket Head Cap Screw (M6-1.0)  | 4   |
| 9               | Splined Disc                    | 1   |
| 11 <sup>2</sup> | Friction Facing                 | 2   |
| 12 <sup>2</sup> | Flat Head Screw (M5-0.8)        | 12  |
| 13              | Air Chamber                     | 1   |
| 14              | Socket Head Cap Screw (M8-1.25) | 8   |

<sup>1</sup> Denotes Repair Kit items.  
Repair Kit No. 801402.

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 15              | Piston                | 1   |
| 16 <sup>1</sup> | O-Ring Seal           | 1   |
| 17 <sup>1</sup> | Compression Spring    | 12  |
| 18              | Male Pilot            | 1   |
| 19              | Retaining Ring (Int.) | 2   |
| 20 <sup>1</sup> | Bearing               | 2   |
| 21              | Retaining Ring (Ext.) | 1   |
| 22 <sup>1</sup> | O-Ring Seal           | 1   |
| 23              | Stub Shaft            | 1   |
| 24 <sup>1</sup> | O-Ring Seal           | 1   |
| 25              | Slotted Spring Pin    | 1   |
| 26              | Key (Not Shown)       | 1   |
| 34              | Set Screw             | 1   |
| 35              | Plug (0.125 NPTF)     | 1   |

<sup>2</sup> Denotes Facing Kit items.  
Facing Kit No. 801430 (two kits required per unit).

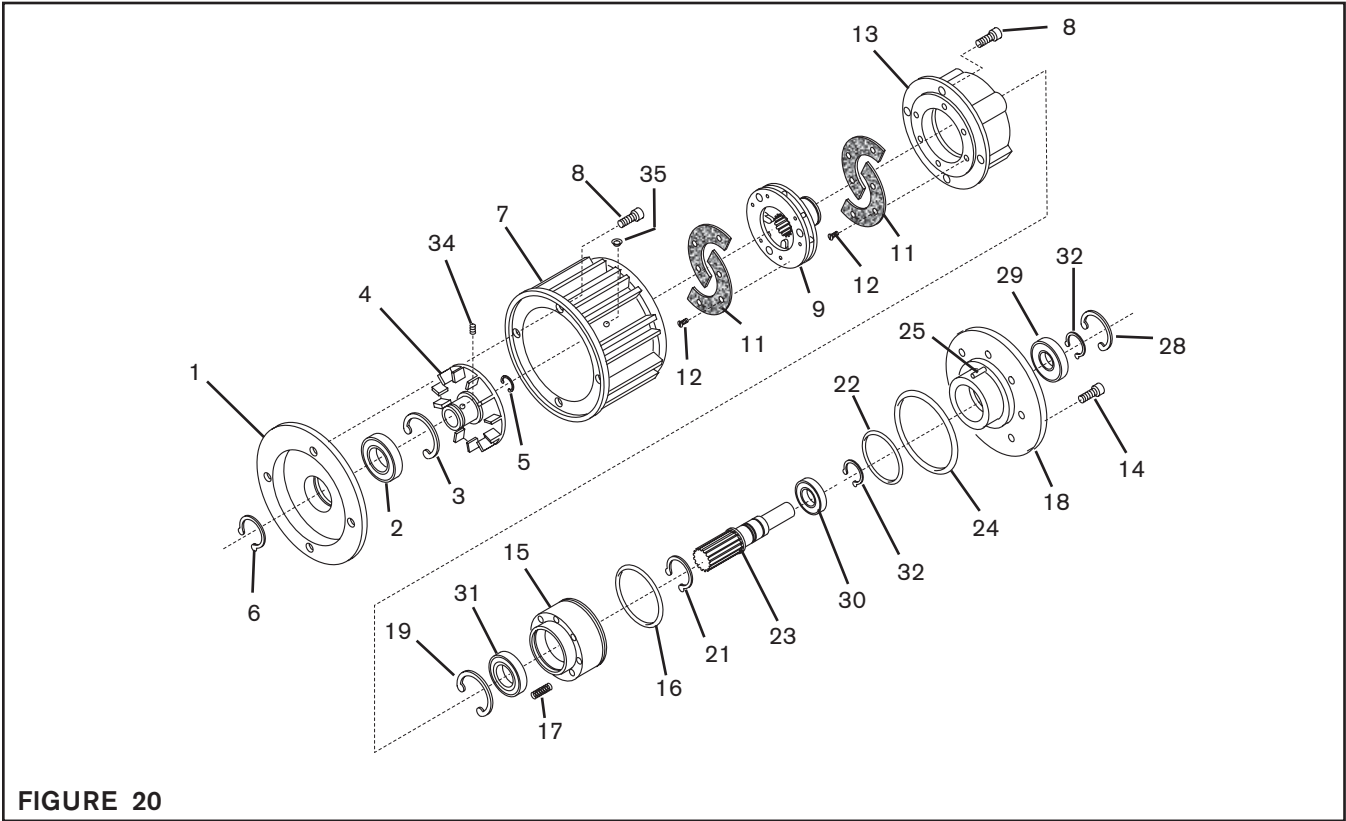


| ITEM            | DESCRIPTION                     | QTY |
|-----------------|---------------------------------|-----|
| 1               | Female Pilot                    | 1   |
| 2 <sup>1</sup>  | Bearing                         | 2   |
| 3               | Retaining Ring (Int.)           | 2   |
| 4               | Drive Disc                      | 1   |
| 5               | Retaining Ring (Int.)           | 1   |
| 6               | Retaining Ring (Ext.)           | 2   |
| 7               | Housing                         | 1   |
| 8               | Socket Head Cap Screw (M8-1.25) | 8   |
| 9               | Splined Disc                    | 1   |
| 11 <sup>2</sup> | Friction Facing                 | 2   |
| 12 <sup>2</sup> | Flat Head Screw (M6-1.0)        | 12  |
| 13              | Air Chamber                     | 1   |
| 14              | Socket Head Cap Screw (M8-1.25) | 4   |
| 15              | Piston                          | 1   |

<sup>1</sup> Denotes Repair Kit items.  
Repair Kit No. 801662.

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 16 <sup>1</sup> | O-Ring Seal           | 1   |
| 17 <sup>1</sup> | Compression Spring    | 12  |
| 18              | Male Pilot            | 1   |
| 21              | Retaining Ring (Ext.) | 1   |
| 22 <sup>1</sup> | O-Ring Seal           | 1   |
| 23              | Stub Shaft            | 1   |
| 24 <sup>1</sup> | O-Ring Seal           | 1   |
| 25              | Slotted Spring Pin    | 1   |
| 26              | Key (Not Shown)       | 1   |
| 28              | Retaining Ring (Int.) | 1   |
| 29 <sup>1</sup> | Bearing               | 2   |
| 34              | Set Screw (M8-1.25)   | 1   |
| 35              | Plug (0.250 NPTF)     | 1   |

<sup>2</sup> Denotes Facing Kit items.  
Facing Kit No. 801605 (two kits required per unit).



| ITEM            | DESCRIPTION                     | QTY |
|-----------------|---------------------------------|-----|
| 1               | Female Pilot                    | 1   |
| 2 <sup>1</sup>  | Bearing                         | 1   |
| 3               | Retaining Ring (Int.)           | 1   |
| 4               | Drive Disc                      | 1   |
| 5               | Retaining Ring (Int.)           | 1   |
| 6               | Retaining Ring (Ext.)           | 1   |
| 7               | Housing                         | 1   |
| 8               | Socket Head Cap Screw (M8-1.25) | 8   |
| 9               | Splined Disc                    | 1   |
| 11 <sup>2</sup> | Friction Facing                 | 2   |
| 12 <sup>2</sup> | Flat Head Screw (M6-1.0)        | 12  |
| 13              | Air Chamber                     | 1   |
| 14              | Socket Head Cap Screw (M8-1.25) | 4   |
| 15              | Piston                          | 1   |
| 16 <sup>1</sup> | O-Ring Seal                     | 1   |

<sup>1</sup> Denotes Repair Kit items.  
Repair Kit No. 801661.

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 17 <sup>1</sup> | Compression Spring    | 12  |
| 18              | Male Pilot            | 1   |
| 19              | Retaining Ring (Int.) | 1   |
| 21              | Retaining Ring (Ext.) | 1   |
| 22 <sup>1</sup> | O-Ring Seal           | 1   |
| 23              | Stub Shaft            | 1   |
| 24 <sup>1</sup> | O-Ring Seal           | 1   |
| 25              | Slotted Spring Pin    | 1   |
| 26              | Key (Not Shown)       | 1   |
| 28              | Retaining Ring (Int.) | 1   |
| 29 <sup>1</sup> | Bearing               | 1   |
| 30 <sup>1</sup> | Bearing               | 1   |
| 31 <sup>1</sup> | Bearing               | 1   |
| 32              | Retaining Ring (Ext.) | 2   |
| 34              | Set Screw (M8-1.25)   | 1   |
| 35              | Plug (0.250 NPTF)     | 1   |

<sup>2</sup> Denotes Facing Kit items.  
Facing Kit No. 801645 (two kits required per unit).

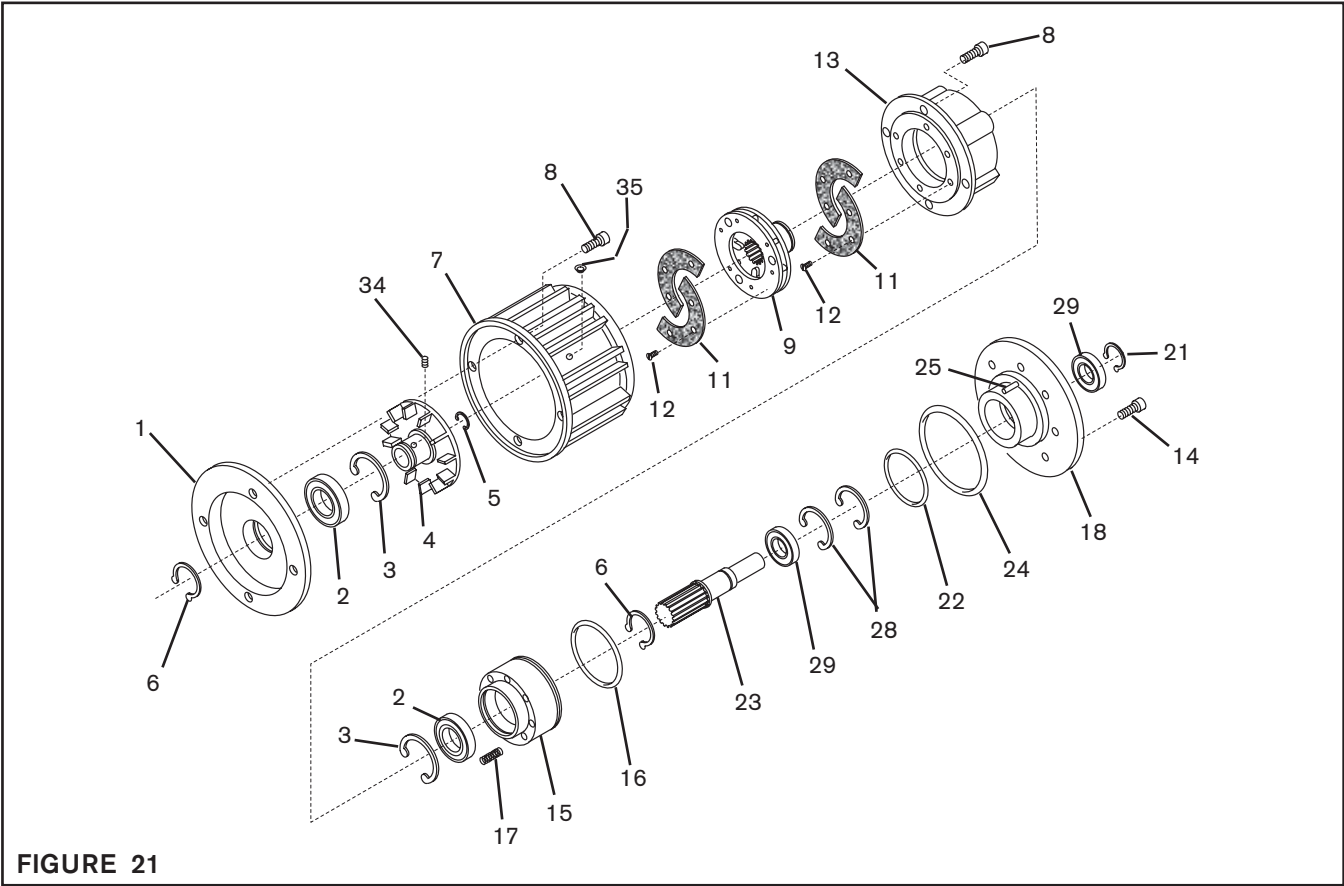


FIGURE 21

| ITEM            | DESCRIPTION                     | QTY |
|-----------------|---------------------------------|-----|
| 1               | Female Pilot                    | 1   |
| 2 <sup>1</sup>  | Bearing                         | 2   |
| 3               | Retaining Ring (Int.)           | 2   |
| 4               | Drive Disc                      | 1   |
| 5               | Retaining Ring (Int.)           | 1   |
| 6               | Retaining Ring (Ext.)           | 2   |
| 7               | Housing                         | 1   |
| 8               | Socket Head Cap Screw (M10-1.5) | 8   |
| 9               | Splined Disc                    | 1   |
| 11 <sup>2</sup> | Friction Facing                 | 2   |
| 12 <sup>2</sup> | Flat Head Screw (M6-1.0)        | 12  |
| 13              | Air Chamber                     | 1   |
| 14              | Socket Head Cap Screw (M10-1.5) | 4   |
| 15              | Piston                          | 1   |

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 16 <sup>1</sup> | O-Ring Seal           | 1   |
| 17 <sup>1</sup> | Compression Spring    | 10  |
| 18              | Male Pilot            | 1   |
| 21              | Retaining Ring (Ext.) | 1   |
| 22 <sup>1</sup> | O-Ring Seal           | 1   |
| 23              | Stub Shaft            | 1   |
| 24 <sup>1</sup> | O-Ring Seal           | 1   |
| 25              | Slotted Spring Pin    | 1   |
| 26              | Key (Not Shown)       | 1   |
| 28              | Retaining Ring (Int.) | 2   |
| 29 <sup>1</sup> | Bearing               | 2   |
| 34              | Set Screw (M10-1.5)   | 1   |
| 35              | Plug (0.250 NPTF)     | 1   |

<sup>1</sup> Denotes Repair Kit items.  
Repair Kit No. 801664.

<sup>2</sup> Denotes Facing Kit items.  
Facing Kit No. 801647 (two kits required per unit).

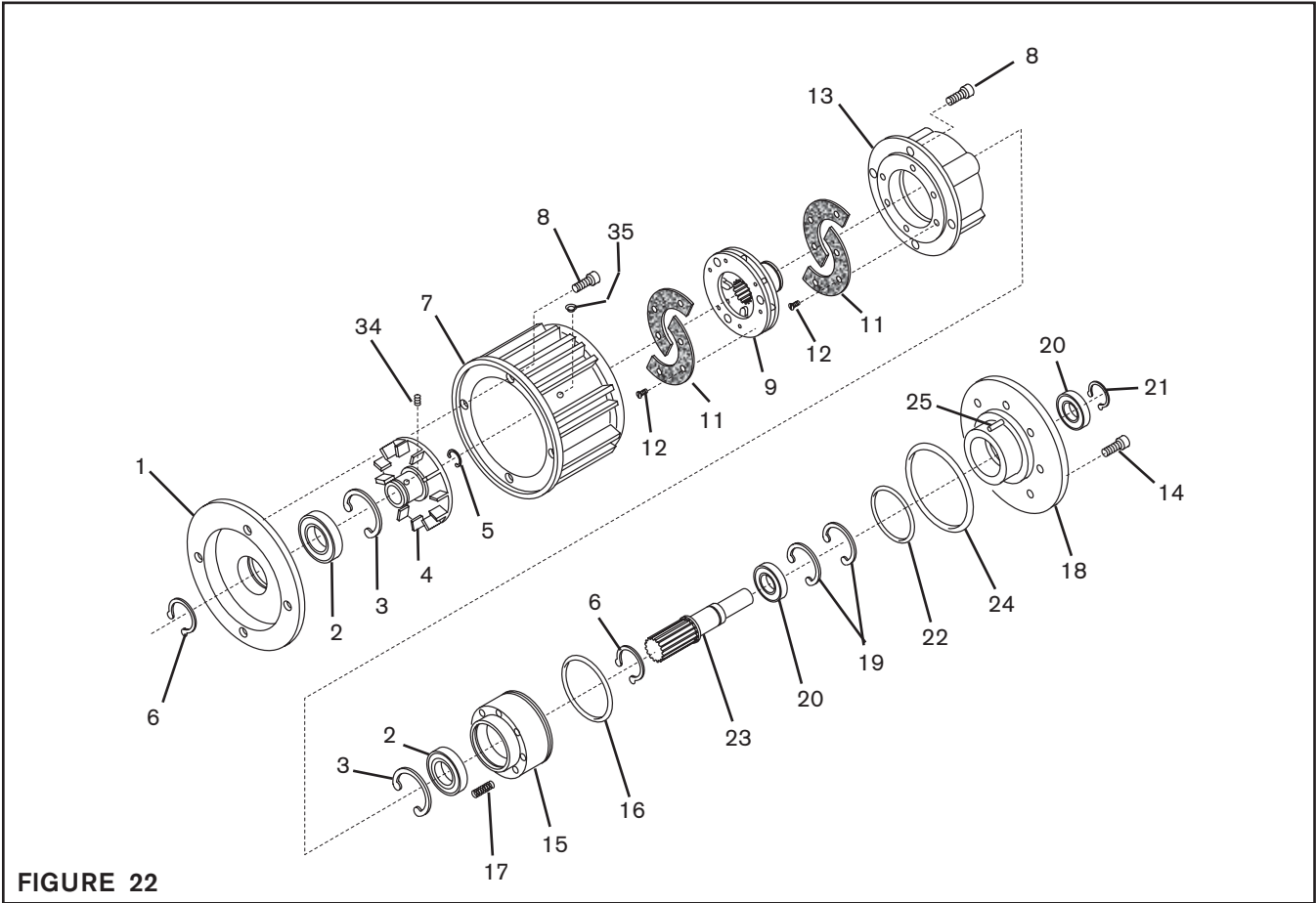


FIGURE 22

| ITEM            | DESCRIPTION                     | QTY |
|-----------------|---------------------------------|-----|
| 1               | Female Pilot                    | 1   |
| 2 <sup>1</sup>  | Bearing                         | 2   |
| 3               | Retaining Ring (Int.)           | 2   |
| 4               | Drive Disc                      | 1   |
| 5               | Retaining Ring (Int.)           | 1   |
| 6               | Retaining Ring (Ext.)           | 2   |
| 7               | Housing                         | 1   |
| 8               | Socket Head Cap Screw (M10-1.5) | 8   |
| 9               | Splined Disc                    | 1   |
| 11 <sup>2</sup> | Friction Facing                 | 2   |
| 12 <sup>2</sup> | Flat Head Screw (M6-1.0)        | 12  |
| 13              | Air Chamber                     | 1   |
| 14              | Socket Head Cap Screw (M10-1.5) | 4   |
| 15              | Piston                          | 1   |

<sup>1</sup> Denotes Repair Kit items.  
Repair Kit No. 801405.

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 16 <sup>1</sup> | O-Ring Seal           | 1   |
| 17 <sup>1</sup> | Compression Spring    | 10  |
| 18              | Male Pilot            | 1   |
| 19              | Retaining Ring (Int.) | 2   |
| 20 <sup>1</sup> | Bearing               | 2   |
| 21              | Retaining Ring (Ext.) | 1   |
| 22 <sup>1</sup> | O-Ring Seal           | 1   |
| 23              | Stub Shaft            | 1   |
| 24 <sup>1</sup> | O-Ring Seal           | 1   |
| 25              | Slotted Spring Pin    | 1   |
| 26              | Key (Not Shown)       | 1   |
| 27              | Male Pilot            | 1   |
| 34              | Set Screw (M10-1.5)   | 1   |
| 35              | Plug (0.250 NPTF)     | 1   |

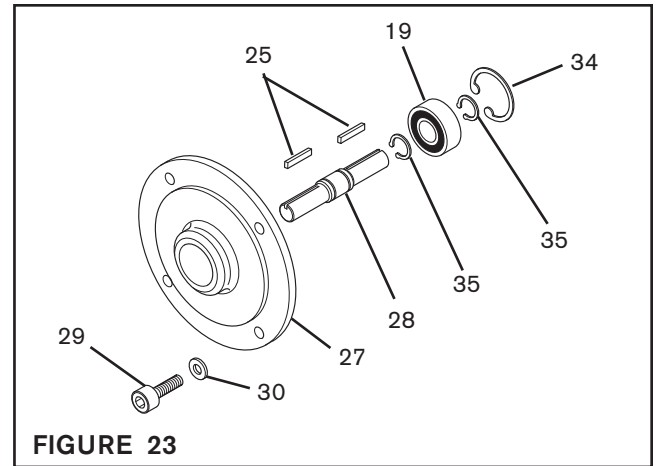
<sup>2</sup> Denotes Facing Kit items.  
Facing Kit No. 801649 (two kits required per unit).

## PARTS LIST-INPUT UNIT

### MODELS 110-14

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 19 <sup>1</sup> | Bearing               | 1   |
| 25              | Key                   | 2   |
| 27              | Flange                | 1   |
| 28              | Shaft                 | 1   |
| 29              | Socket Head Cap Screw | 4   |
| 30              | Lock Washer           | 4   |
| 34              | Retaining Ring (Int.) | 1   |
| 35              | Retaining Ring (Ext.) | 2   |

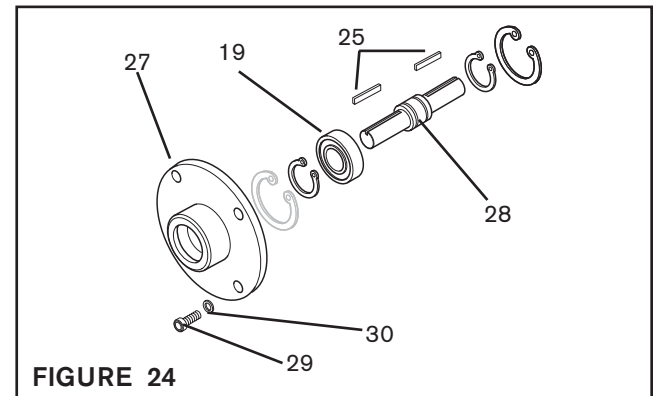
<sup>1</sup> Denotes Repair Kit item.  
Repair Kit No. 801437.



### MODELS 130-19 AND 130-24

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 19 <sup>1</sup> | Bearing               | 1   |
| 25              | Key                   | 2   |
| 27              | Flange                | 1   |
| 28              | Shaft                 | 1   |
| 29              | Socket Head Cap Screw | 4   |
| 30              | Lock Washer           | 4   |
| 31              | Hex. Nut              | 4   |

<sup>1</sup> Denotes Repair Kit item.  
Repair Kit No. 801429.

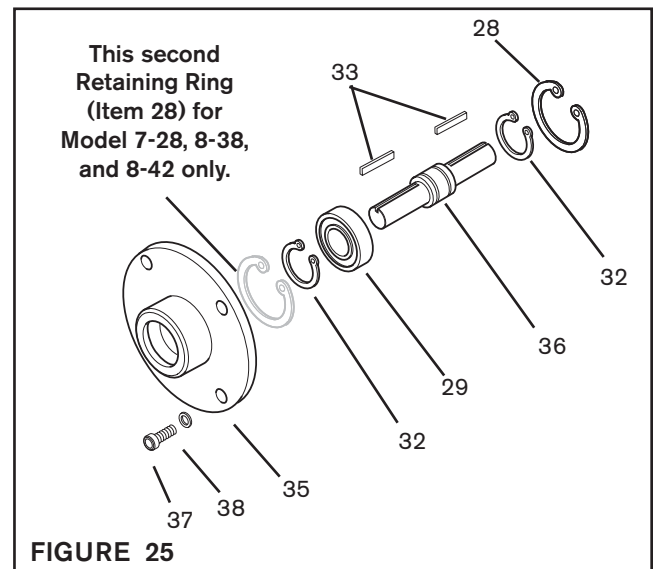


### MODELS 7-28, 7-38, 8-38, AND 8-42

| ITEM            | DESCRIPTION           | QTY |
|-----------------|-----------------------|-----|
| 28              | Retaining Ring (Int.) | *   |
| 29 <sup>1</sup> | Bearing               | 1   |
| 32              | Retaining Ring (Ext.) | 2   |
| 33              | Key                   | 2   |
| 35              | Flange                | 1   |
| 36              | Shaft                 | 1   |
| 37              | Socket Head Cap Screw | 4   |
| 38              | Lock Washer           | 4   |

<sup>1</sup> Denotes Repair Kit item.  
FMCBES 7-28 Repair Kit No. 801641.  
FMCBES 7-38 Repair Kit No. 801642.  
FMCBES 8-38 Repair Kit No. 801642.  
FMCBES 8-42 Repair Kit No. 801643.

\* FMCBES Models 7-28, 8-38, and 8-42 have two Retaining Rings.  
\* FMCBES Model 7-38 has one Retaining Ring.





## WARRANTY

### Warranties

Nexen warrants that the Products will (a) be free from any defects in material or workmanship for a period of 12 months from the date of shipment, and (b) will meet and perform in accordance with the specifications in any engineering drawing specifically for the Product that is in Nexen's current product catalogue, or that is accessible at the Nexen website, or that is attached to this Quotation and that specifically refers to this Quotation by its number, subject in all cases to any limitations and exclusions set out in the drawing. 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 for the Buyer for any breach of any warranties provided in connection with this agreement will be, at the election of Nexen: (a) repair or replacement with new, serviceably used, or reconditioned parts or products; or (b) issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

### Agent's Authority

Buyer agrees that no agent, employee or representative of Nexen has authority to bind Nexen to any affirmation, representation, or warranty concerning the Products other than those warranties expressly set forth herein.

### Limitation on Nexen's Liability

TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay damages, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

### Inspection

Buyer shall inspect all shipments of Products upon arrival and shall notify Nexen in writing, of any shortages or other failures to conform to these terms and conditions which are reasonably discoverable upon arrival without opening any carton or box in which the Products are contained. Such notice shall be sent within 14 days following arrival. All notifications shall be accompanied by packing slips, inspection reports and other documents necessary to support Buyer's claims. In addition to the foregoing obligations, in the event that Buyer receives Products that Buyer did not order, Buyer shall return the erroneously shipped Products to Nexen within thirty (30) days of the date of the invoice for such Products; Nexen will pay reasonable freight charges for the timely return of the erroneously shipped Products, and issue a credit to Buyer for the returned Products at the price Buyer paid for them, including any shipping expenses that Nexen charged Buyer. All shortages, overages and nonconformities not reported to Nexen as required by this section will be deemed waived.

### Limitation on Actions

No action, regardless of form, arising out of any transaction to which these terms and conditions are applicable may be brought by the Buyer more than one year after the cause of action has accrued.

**nexen**<sup>®</sup>

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