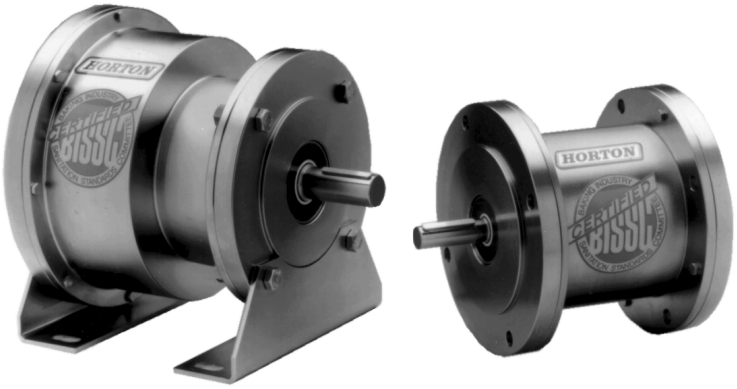
nexen®

AIR CHAMP® PRODUCTS

User Manual



BISSC Certified FMCE

Models 625 and 875

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FORM NO. L-20268-C-1102

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

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

Table of Contents

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

BISSC CERTIFIED 625 FMCE MOUNTED ON A C-FACED MOTOR

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 1).
2. Insert customer supplied key into the motor shaft keyway.
3. Slide the Female Pilot (Item 34) and the Drive Disc (Item 4) onto the motor shaft (See Figure 1).
4. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 1).
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 1).
6. Place the O-ring Seal (Item 33) onto the Female Pilot O-ring diameter (Item 34) (See Figure 1).
7. Slide the FMCE Assembly onto the Female Pilot (Item 34) and the Drive Disc (Item 4) (See Figure 1).

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

Use Loctite® 242 on all fasteners.

8. Using four Nexen supplied 0.375-16 x 1.5" Hex. Head Cap Screws (Item 29), secure the Female Pilot, Drive Disc, and Housing (Item 1) to the motor (See Figure 1).

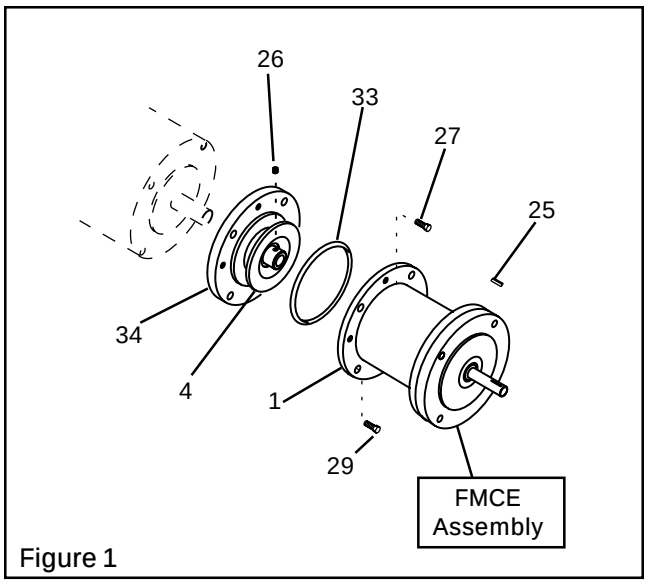


Figure 1

9. Tighten the Hex. Head Cap Screws (Item 29) to 20.3 Nm [15 ft-lb] torque.
10. Using four Nexen supplied 10-24 x 0.75" Hex. Head Cap Screws (Item 27), secure the FMCE to the Female Pilot and Drive Disc (See Figure 1).
11. Alternately and evenly tighten the Hex. Head Cap Screws (Item 27) to 2.3 Nm [21 in-lb] torque.

BISSC CERTIFIED 875 FMCE 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. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 2).
2. Insert customer supplied key into the motor shaft keyway.
3. Slide the Female Pilot (Item 34) and the Drive Disc (Item 4) onto the motor shaft (See Figure 2).

NOTE: Use Loctite® 242 on all fasteners.

4. Using four Nexen supplied 0.375-16 x 1.000" Hex. Head Cap Screws (Item 29), secure the Female Pilot and the Drive Disc to the motor (See Figure 2).

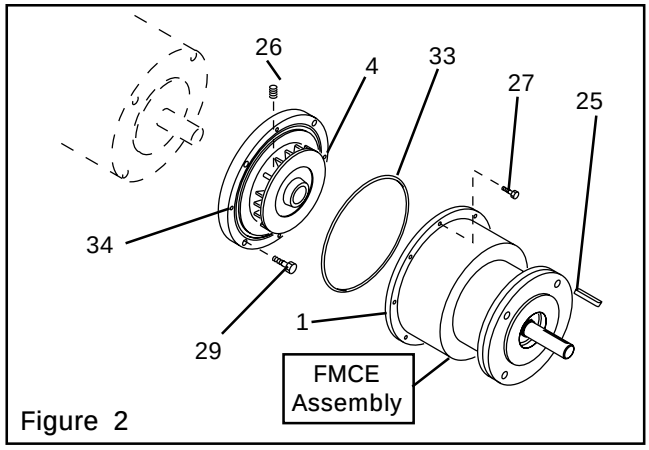


Figure 2

5. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 29) to 20.3 Nm [15 ft-lb] torque.

6. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 2).

7. 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).

8. Slide O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 26) (See Figure 2).

9. Slide the FMCE Assembly onto the Female Pilot (Item 26) and the Drive Disc (Item 4) (See Figure 2).

10. Using eight Hex. Head Caps Screws (Item 27), secure the FMCE Assembly onto the Female Pilot and Drive Disc (See Figure 2).

11. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 5.5 Nm [49 in-lb] torque.

BISSC CERTIFIED 625 FMCE MOUNTED BETWEEN A C-FACED MOTOR AND GEAR REDUCER

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 3).

2. Insert customer supplied key into the motor shaft keyway.

3. Slide the Female Pilot (Item 34) and the Drive Disc (Item 4) onto the motor shaft (See Figure 3).

4. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 3).

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 3).

6. Place the O-ring Seal (Item 33) onto the Female Pilot (Item 34) O-ring diameter (See Figure 3).

7. Slide FMCE Assembly onto the Female Pilot (Item 34) and the Drive Disc (Item 4) (See Figure 3).

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

Use Loctite® 242 on all fasteners.

8. Using eight Nexen supplied 10-24 x 0.75" Hex. Head Caps Screws (Item 27), secure the FMCE Assembly to the Female Pilot (Item 34) and Drive Disc (Item 4) (See Figure 3).

9. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 5.5 Nm [21 in-lb] torque.

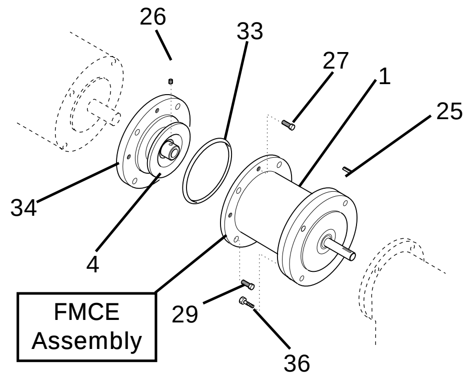


Figure 3

10. Using four Nexen supplied 0.375-16 x 1.5" Hex. Head Cap Screws (Item 29), secure the Female Pilot, Drive Disc, and FMCE Assembly to the motor (See Figure 3).

11. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 29) to 20.3 Nm 15 ft-lb torque.

12. Slide the FMCE Assembly input shaft and motor into the gear reducer.

13. Using four supplied 0.375-16 x 1.25" Hex. Head Cap Screws (Item 36), secure the Male Pilot end of the FMCE Assembly to the gear reducer (See Figure 3).

14. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 36) to 20.3 Nm [15 ft-lb] torque.

BISSC CERTIFIED 875 FMCE MOUNTED BETWEEN A C-FACED MOTOR AND GEAR REDUCER

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 4).

2. Insert customer supplied key into the motor shaft keyway.

3. Slide the Female Pilot (Item 34) and the Drive Disc (Item 4) onto the motor shaft (See Figure 4).

NOTE: Use Loctite® 242 on all fasteners.

4. Using four Nexen supplied 0.375-16 x 1.000" Hex. Head Cap Screws (Item 29), secure the Female Pilot and the Drive Disc to the motor (See Figure 4).

5. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 29) to 20.3 Nm [15 ft-lb] torque (See Figure 4).

6. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 4).

7. 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).

8. Slide O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 26) (See Figure 4).

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

9. Slide the FMCE Assembly onto the Female Pilot (Item 26) and Drive Disc (Item 4) (See Figure 4).

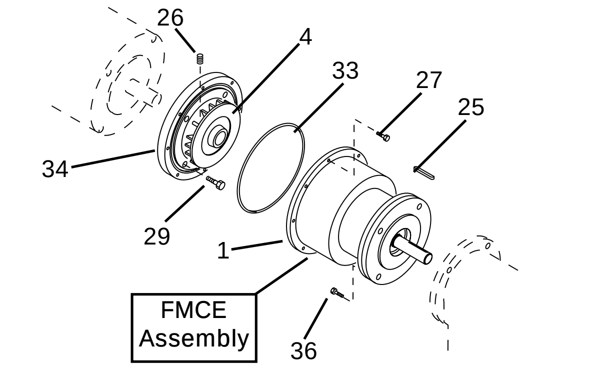


Figure 4

10. Using eight Nexen supplied 0.250-20 x 0.875" Hex. Head Cap Screws (Item 27), secure the FMCE 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 5.5 Nm [49 in-lb] torque.

12. Slide the Male Pilot end of the FMCE Assembly and motor into the gear reducer.

13. Using four Nexen supplied 0.375-16 x 1.500" Hex. Head Cap Screws (Item 36), secure the Male Pilot end of the FMCE Assembly to the gear reducer (See Figure 4).

14. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 36) to 20.3 Nm [15 ft-lb] torque.

OPTIONAL INPUT UNIT

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

BISSC CERTIFIED 875 FMCE

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 5).

2. 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 5).

3. Place the O-ring Seal (Item 59) into the seal groove of the Input Unit Bearing Flange (Item 20) (See Figure 5).

4. Slide the Female Pilot (Item 34) and Drive Disc (Item 4) onto the Input Unit shaft (See Figure 5).

5. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the motor shaft (See Figure 5).

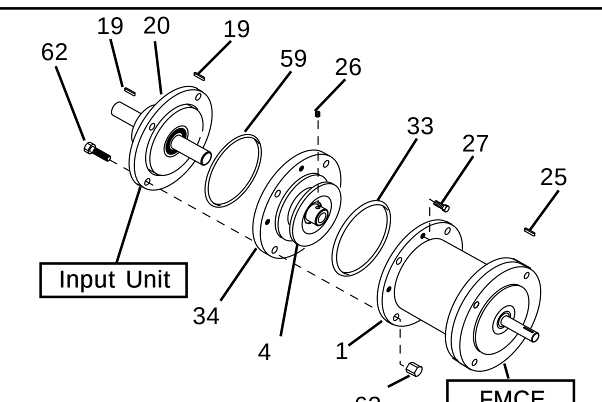


Figure 5

6. 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).

7. Place O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 34) (See Figure 5).

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

8. Slide FMCE Assembly onto the Female Pilot (Item 34) and the Drive Disc (Item 4) (See Figure 5).

NOTE: Use Loctite® 242 on all fasteners.

9. Using four Nexen supplied 0.375-16 x 1.75" Hex. Head Cap Screws (Item 62) and Acorn Nuts (Item 63), secure the Female Pilot, Drive Disc, and FMCE Assembly to the Input Unit (Item 20) (See Figure 5).

10. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 62) to 20.3 Nm [15 ft-lb] torque.

11. Using eight Nexen supplied 10-24 x 0.75" Hex. Head Caps Screws (Item 27), secure the FMCE Assembly to the Female Pilot and Drive Disc (See Figure 5).

12. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 2.3 Nm [21 in-lb] torque.

BISSC CERTIFIED 875 FMCE

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 6).

2. 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 6).

3. Place the O-ring Seal (Item 59) into the seal groove of the Input Unit Bearing Flange (Item 20) (See Figure 6).

4. Slide the Female Pilot (Item 26) and Drive Disc (Item 4) onto the Input Unit shaft (See Figure 3).

NOTE: Use Loctite® 242 on all fasteners.

5. Using four Nexen supplied 0.375-16 x 1.250" Hex. Head Cap Screws (Item 62) and Nuts (Item 64), secure the Female Pilot and Drive Disc to the Input Unit (See Figure 6).

6. Alternately and evenly tighten the four Hex. Head Cap Screws (Item 62) to 20.3 Nm [15 ft-lb] torque.

7. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the Input Unit shaft (See Figure 6).

8. 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 6).

9. Slide O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 26) (See Figure 3).

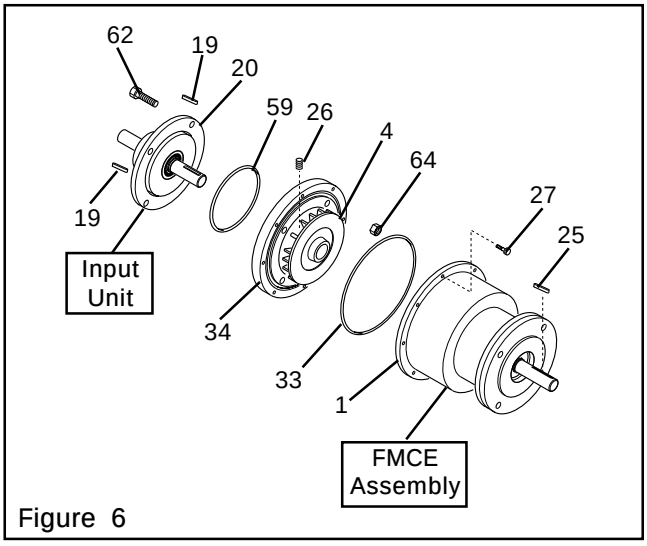


Figure 6

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

10. Slide the FMCE Assembly onto the Female Pilot (Item 26) and the Drive Disc (Item 4) (See Figure 6).

11. Using eight 0.250-20 x 0.875" Hex. Head Caps Screws (Item 27), secure the FMCE Assembly to the Female Pilot and Drive Disc (See Figure 6).

12. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 5.5 Nm [49 in-lb] torque.

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

BISSC CERTIFIED 625 FMCB

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 7).
2. 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 7).
3. Place the O-ring Seal (Item 59) into the seal groove of the Input Unit Bearing Flange (Item 20) (See Figure 7).
4. Slide the Female Pilot Assembly onto the Input Unit shaft (See Figure 4).

NOTE: Use Loctite® 242 on all fasteners.

5. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the Input Unit shaft (See Figure 7).
6. 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 7).
7. Place the O-ring Seal (Item 33) onto the seal diameter of the Female Pilot (Item 34) (See Figure 7).
8. Slide the FMCE Assembly onto the Female Pilot Assembly (See Figure 7).
9. Using eight 10-24 x 0.75" Hex. Head Caps Screws (Item 27), secure the FMCE Assembly to the Female Pilot Assembly (See Figure 7).
10. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 2.3 Nm [21 in-lb] torque (See Figure 7).

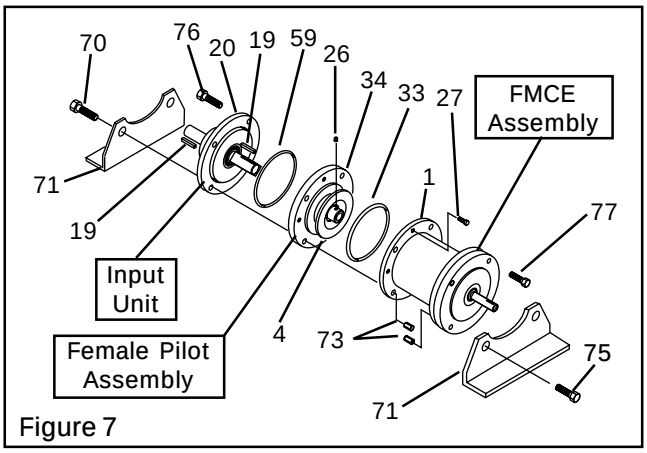


Figure 7

11. 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 FMCE Assembly and Input Unit (See Figure 7).
12. Using two Nexen supplied 0.375-16 x 1.75" Hex. Head Cap Screws (Item 76), plug the remaining clearance holes.
13. Alternately and evenly tighten the four Hex. Head Cap Screws (Items 70 and 76) to 20.4 Nm 15 ft-lb] torque.
14. Using two Nexen supplied 0.375-16 x 1.25" Hex. Head Cap Screws (Item 75) and Acorn Nuts (Item 73), secure the other optional Mounting Foot to the Male Pilot end of the FMCE Assembly (See Figure 7).
15. Using two Nexen supplied 0.375-16 x 1.12" Hex. Head Cap Screws (Item 77), plug the remaining clearance holes.
16. Alternately and evenly tighten the four Hex. Head Cap Screws to 20.3 Nm [15 ft-lb] torque.

BISSC CERTIFIED 875 FMCE

1. Remove the eight Hex. Head Cap Screws (Item 27); then, separate the Female Pilot (Item 34) and Drive Disc (Item 4) from the FMCE Assembly (See Figure 8).
2. 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 8).
3. Place the O-ring Seal (Item 59) into the seal groove of the Input Unit Bearing Flange (See Figure 8).
4. Slide the Female Pilot Assembly onto the Input Unit shaft (See Figure 8).

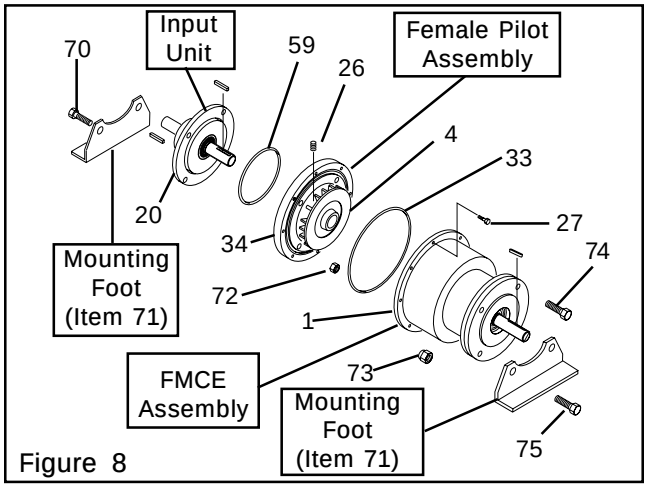


Figure 8

NOTE: Use Loctite® 242 on all fasteners.

5. Using two 0.375-16 x 1.500" Hex. Head Cap Screws (Item 70) and Hex. Nuts (Item 72), secure one optional Mounting Foot (Item 71) to the Female Pilot Assembly and Input Unit (See Figure 8).

6. Using two 0.375-16 x 1.250" Hex. Head Cap Screws (Item 74) and Hex. Nuts (Item 72), secure Input Unit to Female Pilot Assembly using two remaining holes (See Figure 8).

7. Tighten four Hex. Head Cap Screws (Items 70 and 74) to 20.3 Nm [15 ft-lb] torque.

8. Tighten the Set Screw (Item 26) to lock the Drive Disc (Item 4) onto the Input Unit shaft (See Figure 8).

9. 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 8).

10. Slide the O-ring Seal (Item 33) into the seal diameter of the Female Pilot Assembly (Item 34) (See Figure 8).

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

11. Slide the FMCE Assembly onto the Female Pilot Assembly (See Figure 8).

12. Using eight 0.250-20 x 0.875" Hex. Head Cap Screws (Item 27), secure the FMCE Assembly to the Female Pilot Assembly (See Figure 8).

13. Alternately and evenly tighten the eight Hex. Head Cap Screws (Item 27) to 49 In. Lbs. [5.5 Nm] torque (See Figure 8).

14. Using two 0.375-16 x 1.375" Hex. Head Cap Screws (Item 75) and Acorn Nuts (Item 73), secure one optional Mounting Foot (Item 71) to the Male Pilot end of the FMCE Assembly (See Figure 8).

15. Using two 0.375-16 x 1.250" Hex. Head Cap Screws (Item 74) and Acorn Nuts (Item 73), plug the remaining mounting holes.

16. Alternately and evenly tighten the four Hex. Head Cap Screws to 20.3 Nm [15 ft-lb] torque.

AIR CONNECTIONS

NOTE: For quick response, a quick exhaust valve and short air lines are recommended between the control valves and the BISSC Certified FMCE to ensure rapid engagement and disengagement. The units have a 1/8 NPT port. Locate the air inlet in the down position to allow condensation to drain out of the exhaust port.

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 BISSC Certified FMCE 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

Synthetic lubricants are not recommended.

LUBRICATOR DRIP RATE SETTING

NOTE: These setting are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration much 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 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 counterclockwise until closed.

7. Turn the Lubricator Adjustment Knob clockwise one-third turn.

8. Open the air line to the unit.

PROBLEM	PROBABLE CAUSE	SOLUTION
Failure to engage.	Air not getting to the BISSC Certified FMCE due to a Control Vlave 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 the Hub spline.	Lubricate the Hub spline.
Failure to disengage.	Unexhausted air 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 the Hub spline.	Lubricate the Hub spline.
Loss of torque.	Defective O-ring Seals resulting in air leaks	Replace the O-ring Seals.
	Contaminated Friction Facing.	Replace the Friction Facing.
	Worn Friction Facing.	Replace the Friction Facing.

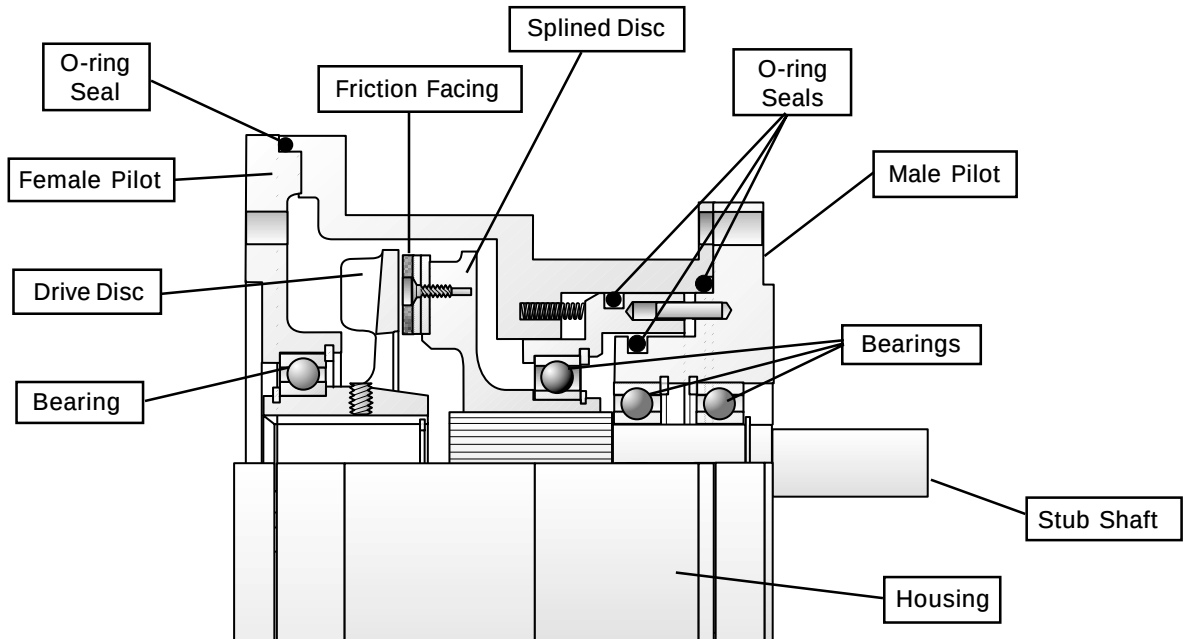


Figure 9
TYPICAL BISSC FMCE

NOTE: If an Input Unit has been installed, it must be removed prior to servicing the BISSC Certified FMCE.

COMPONENT DISASSEMBLY – 625 FMCE

1. Remove the Hex. Head Cap Screws (Item 27), Female Pilot (Item 34), Drive Disc (Item 4), and O-ring Seal (Item 33) from the FMCE Assembly (See Figure 10).

2. Remove the 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 10).

3. Remove the Hex. Head Cap Screws (Item 29); then, loosen the Set Screw (Item 26) and slide the Female Pilot (Item 34) off the Input Unit or Motor (See Figure 10).

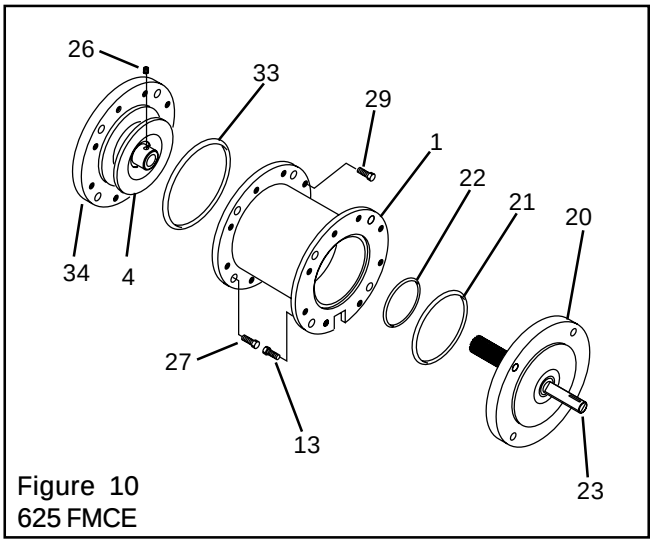


Figure 10
625 FMCE

COMPONENT DISASSEMBLY – 875 FMCE

1. Remove the Hex. Head Cap Screws (Item 27), Female Pilot (Item 34), Drive Disc (Item 4), and O-ring Seal (Item 33) from the FMCE Assembly (See Figure 11).

2. Remove the 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).

3. Remove the Hex. Head Cap Screws (Item 29); then, loosen the Set Screw (Item 26) and slide the Female Pilot (Item 34) off the Input Unit or Motor (See Figure 11).

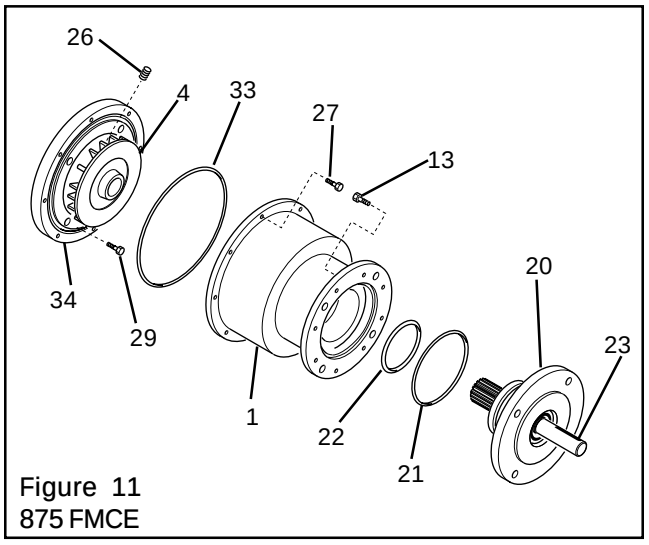
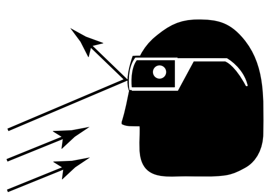


Figure 11
875 FMCE

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.



1. Remove the Retaining Ring (Item 6) from the Splined Disc (Item 10) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

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 Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

3. Slide the Piston (Item 16) and O-ring Seal (Item 15) out of the Housing (Item 1); then remove the old O-ring Seal (Item 15) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

4. Remove the Return Springs (Item 37) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

5. Remove the Retaining Ring (Item 3) from the Piston (Item 16) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

6. Supporting the Piston (Item 16), press the old Bearing (Item 2) out of the Piston (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

7. Clean the bearing bore of the Piston (Item 16) with fresh safety solvent, making sure all old Loctite® residue is removed; then, apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 2) See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

8. 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 Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

9. Reinstall the Retaining Ring (Item 3) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

10. Clean the O-ring contact surfaces of both the Piston (Item 16) and Housing (Item 1) with fresh safety solvent (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

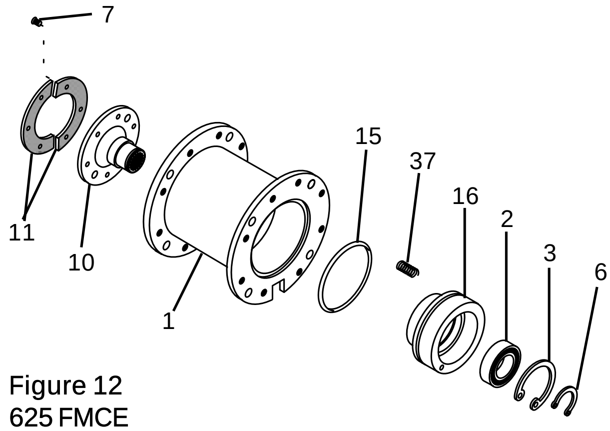


Figure 12
625 FMCE

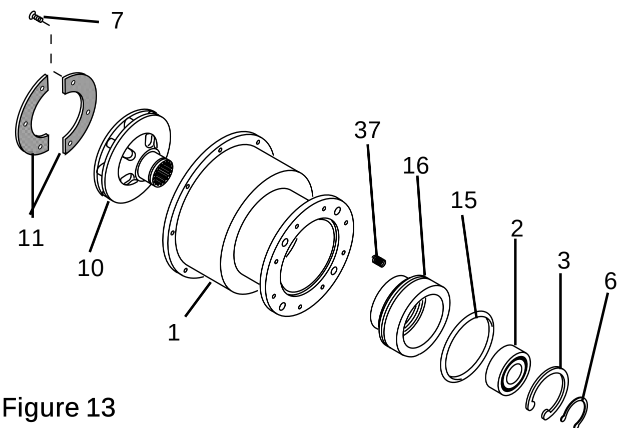


Figure 13
875 FMCE

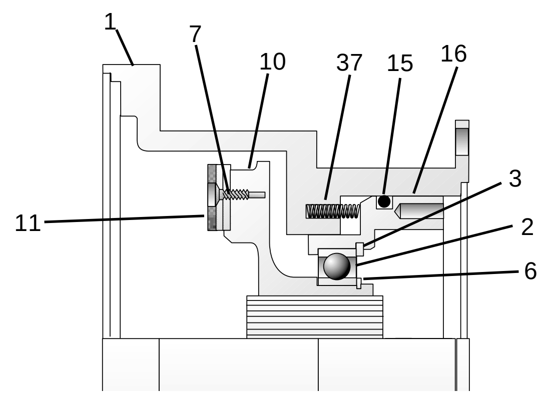


Figure 14

11. 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.

12. Coat the new O-ring Seal (Item 15) with fresh O-ring lubricant (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

13. Install the new O-ring Seal (Item 15) onto the Piston (Item 16) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

14. Reinstall the Return Springs (Item 37).

15. Slide the Piston (Item 16) with O-ring Seal (Item 15) back into the Housing (Item 1) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

16. Remove the old Machine Screws (Item 7) securing the old Split Friction Facing (Item 11) to the Splined Disc (Item 10) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

17. Remove the old Split Friction Facing (Item 11) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

18. Using new Machine Screws (Item 7), secure the new Friction Facing (Item 11) to the Splined Disc (Item 10) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

19. Tighten the Machine Screws (Item 7) to 2.5 Nm [22 in-lb] torque.

20. 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 Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

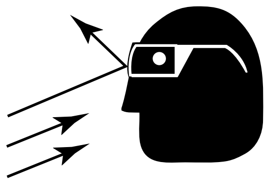
21. Reinstall the Retaining Ring (Item 6) (See Figure 12 for Model 625 FMCE or 13 for Model 875 FMCE, and Figure 14).

MALE PILOT BEARINGS (ITEM 19) AND O-RING SEALS (ITEM 21 AND 22)

1. Remove the Key (Item 25) from the Stub Shaft (Item 23) (See Figure 15 for Model 625 FMCE or 16 for Model 875 FMCE).

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.



2. Remove the Retaining Ring (Item 24) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

3. Press the Stub Shaft (Item 23) out of the Male Pilot (Item 20) and Bearings (Item 19) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

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 (Item 20) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

5. Using a bearing puller, remove the second Bearing (Item 19) from the Stub Shaft (Item 23) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

6. Clean the bearing bore of the Male Pilot (Item 20) with fresh safety solvent, making sure all old Loctite® residue is removed; then, apply an adequate amount of Loctite® 680 to evenly coat the outer race of both new Bearings (Item 19) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

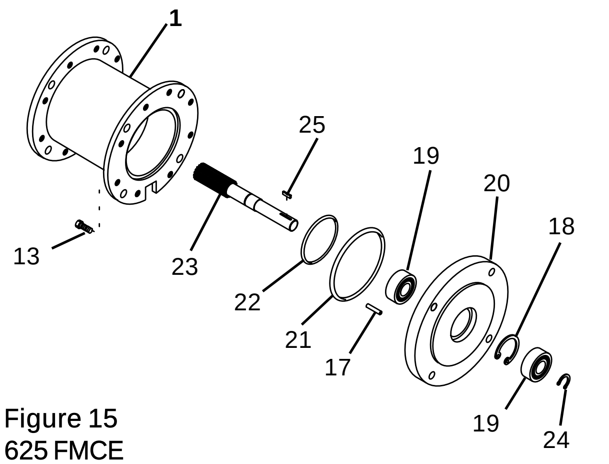


Figure 15
625 FMCE

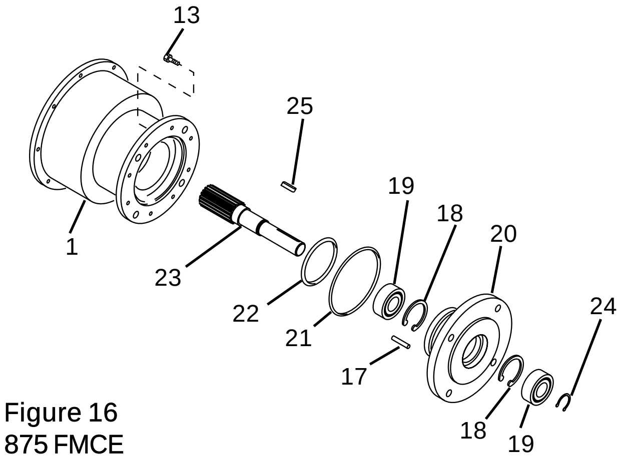


Figure 16
875 FMCE

7. 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 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

8. Support the inner race of the bearing pressed into the Male Pilot in Step 7 and press the Stub Shaft (Item 23) into the Bearing (Item 19) and Male Pilot (Item 20) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

9. 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 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

10. Reinstall the Retaining Ring (Item 24) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

11. Remove the old O-ring Seals (Items 21 and 22) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

12. Clean the O-ring Seal contact surfaces of the Housing (Item 1) and Male Pilot (Item 20) with fresh safety solvent (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

13. 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.

14. Coat the new O-ring Seals (Item 21 and 22) with fresh O-ring lubricant (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

15. Install the new O-ring Seals (Item 21 and 22) onto the Male Pilot (Item 20) (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

16. Coat the splined end of the Stub Shaft (Item 23) with a thin film of Never-Seez® (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

17. 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 (See Figures 15 and 17 for Model 625 FMCE or Figures 16 and 18 for Model 875 FMCE).

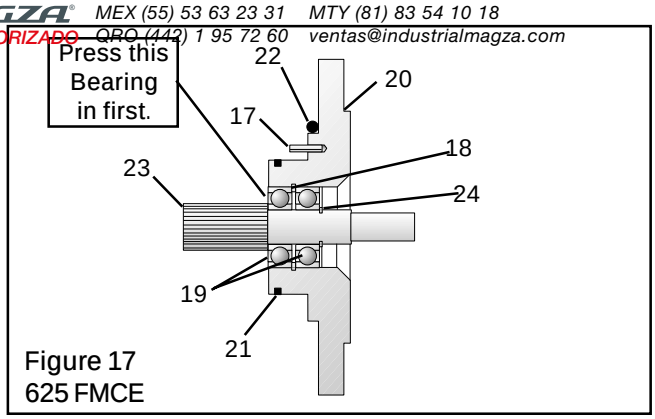


Figure 17
625 FMCE

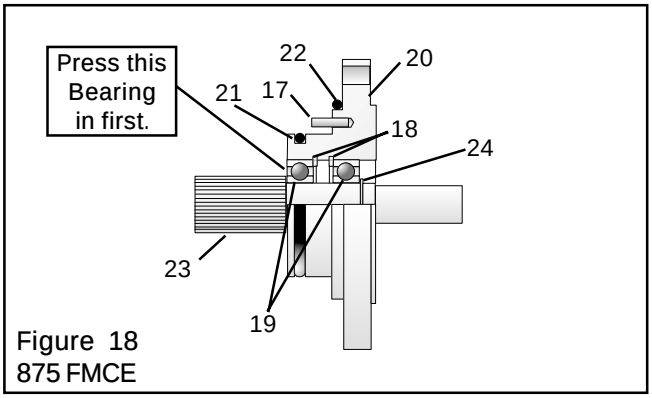


Figure 18
875 FMCE

18. Apply a drop of Loctite® 242 to the threads of the Hex. Head Cap Screws (Item 13) (See Figure 15 for Model 625 FMCE or Figure 16 for Model 875 FMCE).

19. Using the Hex. Head Cap Screws (Item 13), secure the Male Pilot to the Housing (Item 1) (See Figure 15 for Model 625 FMCE or Figure 16 for Model 875 FMCE).

20. Alternately and evenly tighten the Hex. Head Cap Screws (Item 13) to 2.3 Nm [21 in-lb] torque.

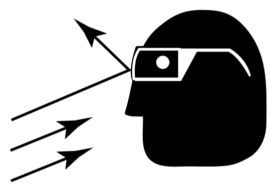
21 Apply a drop of Loctite® 242 to the Key (Item 25) (See Figure 15 for Model 625 FMCE or Figure 16 for Model 875 FMCE).

22. Press the Key (Item 25) into the Stub Shaft (Item 23) (See Figure 15 for Model 625 FMCE or Figure 16 for Model 875 FMCE).

FEMALE PILOT BEARING (ITEM 2) AND O-RING SEAL (ITEM 33)

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.



1. Remove the Retaining Ring (Item 6) from the Drive Disc (Item 4) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
2. Fully supporting the Female Pilot (Item 34), press the Drive Disc (Item 4) out of the Female Pilot (Item 34) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
3. Remove the Retaining Ring (Item 3) from the Female Pilot (Item 34) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
4. Press the old Bearing (Item 2) out of the Female Pilot (Item 34) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
5. Clean the bearing bore of the Female Pilot (Item 34) with fresh safety solvent, making sure all old Loctite® residue is removed; then, apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 2) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
6. 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 Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
7. Install the Retaining Ring (Item 3) into the Female Pilot (Item 34) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
8. Fully supporting the inner race of Bearing (Item 2), press the Drive Disc (Item 4) into the Bearing and Female Pilot (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
9. Reinstall the Retaining Ring (Item 6) onto the Drive Disc (Item 4) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE, and Figure 21).
10. Clean the O-ring contact surfaces of the Female Pilot (Item 26) and Housing (Item 1) with fresh safety solvent.
11. Coat the O-ring contact surfaces of the Female Pilot (Item 34) and Housing (Item 1) with fresh O-ring lubricant and wipe off any excess lubricant.

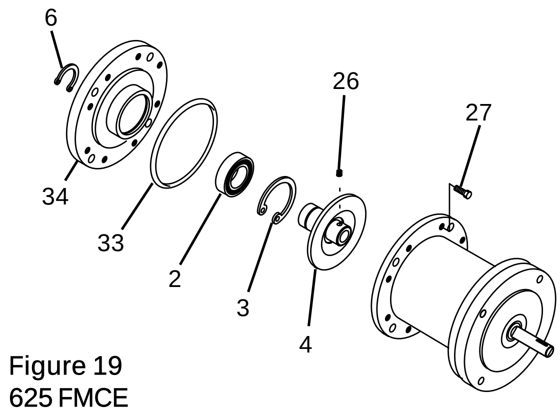


Figure 19
625 FMCE

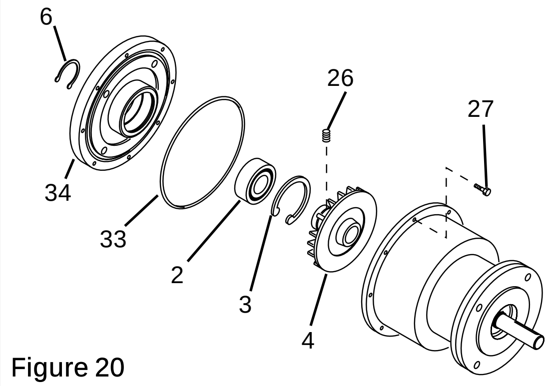


Figure 20
875 FMCE

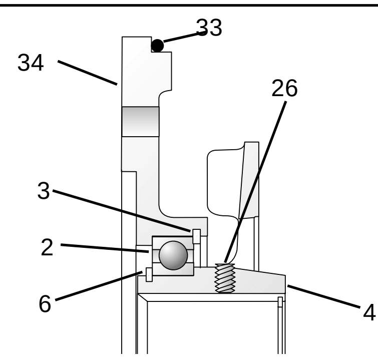


Figure 21

12. 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 19 for Model 625 FMCE or 20 for Model 875 FMCE).

NOTE: **Do not tighten the Hex. Head Cap Screws (Item 27) until the FMCE has been installed on the unit it is controlling.**

13. Secure the Female Pilot Assembly to the Housing with the eight Hex. Head Cap Screws (Item 27) (See Figure 19 for Model 625 FMCE or 20 for Model 875 FMCE).

1. Remove the Hex. Head Cap Screws (Item 27) (See Figure 22 for Model 625 FMCE or 23 for Model 875 FMCE).

2. Remove the Female Pilot Assembly (Items 4 and 34), O-ring Seal (Item 33), and the Input Unit from the FMCE (See Figure 22 for Model 625 FMCE or 23 for Model 875 FMCE).

3. Remove the Hex. Head Cap Screws (Item 62) and Hex. Nuts (Item 64) (See Figure 22 for Model 625 FMCE or 23 for Model 875 FMCE).

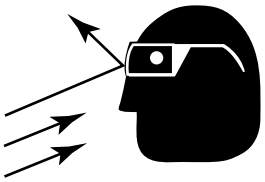
4. Remove the Set Screw (Item 26) and slide the Female Pilot Assembly off the Input Unit (See Figure 22 for Model 625 FMCE or 23 for Model 875 FMCE).

5. Remove the O-ring Seal (Item 59) (See Figure 22 for Model 625 FMCE or 23 for Model 875 FMCE).

6. Remove both Keys (Item 19) (See Figure 24).

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 24).

8. Supporting the Bearing Flange (Item 20), press the Stub Shaft (Item 11) and Bearings (Item 30) out of the Bearing Flange (See Figure 24).

NOTE: One Retaining Ring (Item 35) must remain on the Stub Shaft (Item 11) (See Figure 24).

9. Remove one Retaining Ring (Item 35) (See Figure 24).

10. Press the Stub Shaft (Item 11) out of the Bearings (Item 30) (See Figure 24).

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 (See Figure 24).

12. Reinstall the Retaining Ring (Item 35) that was removed from the Stub Shaft (See Figure 24).

13. Remove the Variseal™ (Item 13) from the Bearing Flange (Item 20) (See Figure 24).

14. Clean the bearing bore of the Bearing Flange (Item 20) with fresh safety solvent, making sure all old Loctite® residue is removed; then, apply an adequate amount of Loctite® 680 to evenly coat the outer races of the two new Bearings (Item 30) (See Figure 24).

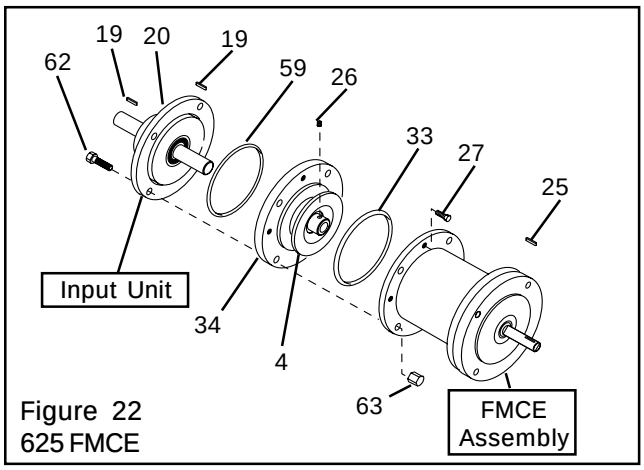


Figure 22
625 FMCE

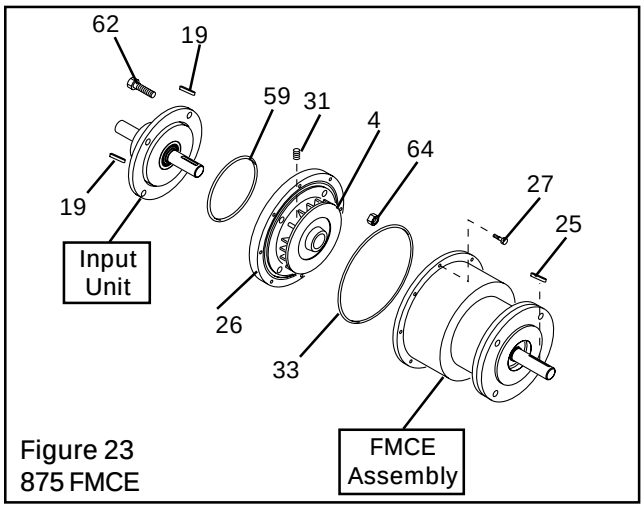


Figure 23
875 FMCE

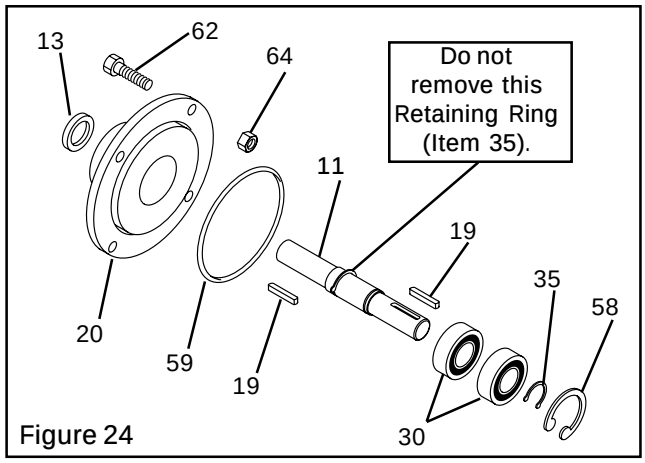


Figure 24

15. 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.

16. Reinstall the Retaining Ring (Item 58) (See Figure 24).

17. Coat the outer seal of the new Variseal with a thin film of O-ring lubricant (See Figure 25).

18. Press the Variseal™ with the spring facing out onto the Stub Shaft and into the Bearing Flange (See Figure 24).

18. Apply a drop of Loctite® 242 to the Keys (Item 24) (See Figure 14).

19. Press the Keys (Item 19) into the Stub Shaft (Item 11) (See Figure 24).

NOTE: After assembly is complete, the Stub Shaft should be rotated and checked for smooth operation. If the operation is other than smooth (some drag will be apparent), move the Stub Shaft in and out to release pressure on the bearing cage and recheck for smooth operation.

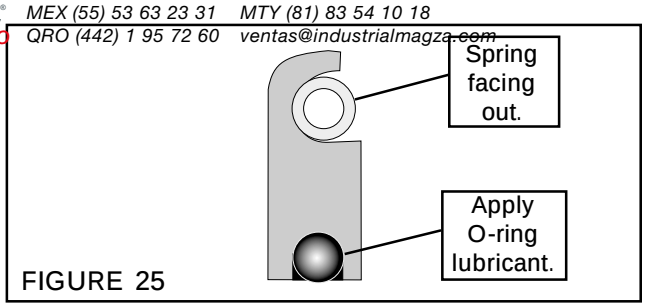


FIGURE 25

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.

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

BISSC CERTIFIED 625 FMCE

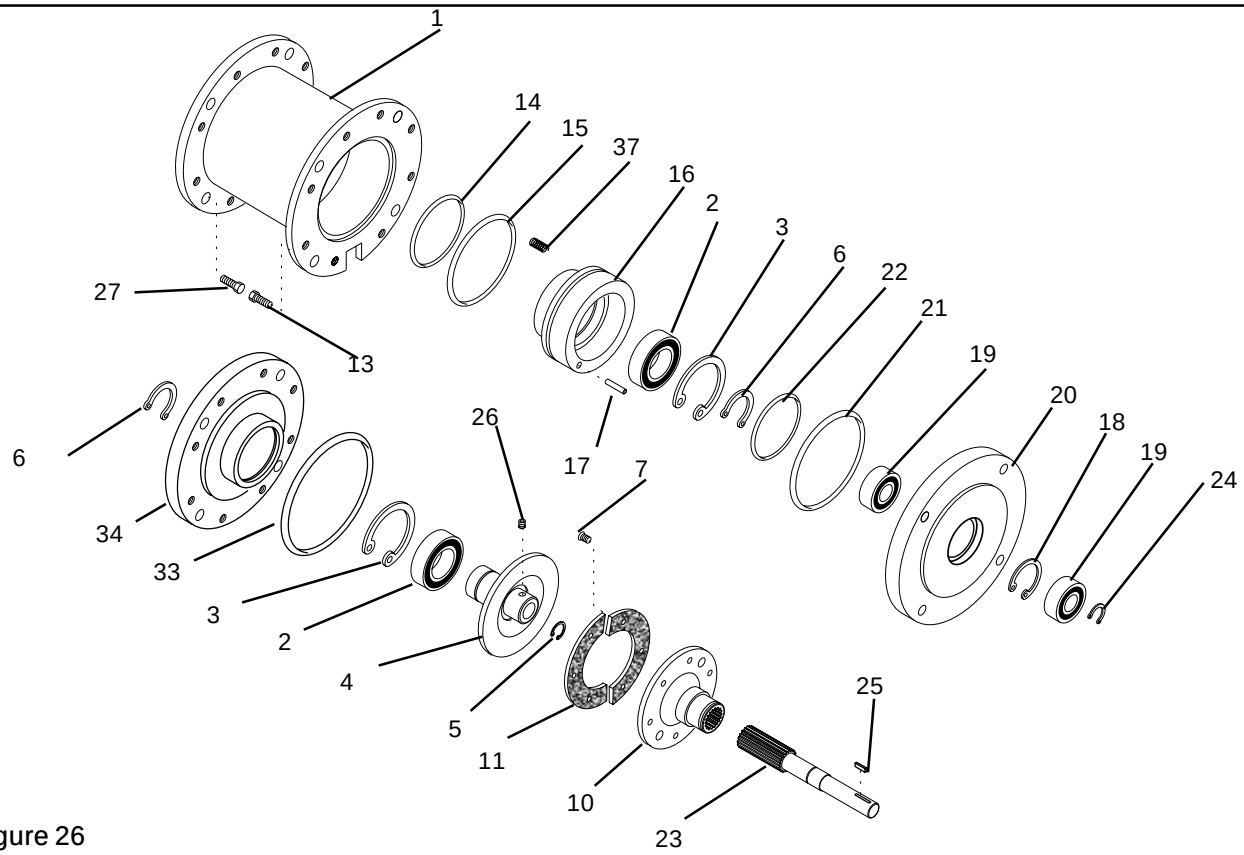


Figure 26
625 FMCE

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

ITEM	DESCRIPTION	QTY
19[1]	Bearing	2
20	Male Pilot	1
21	O-ring Seal	1
22[1]	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
37[1]	Return Spring	6

[1] Denotes rebuild kit item included in repair kit 827267.
[2] Denotes friction facing kit item included in facing kit 827268.

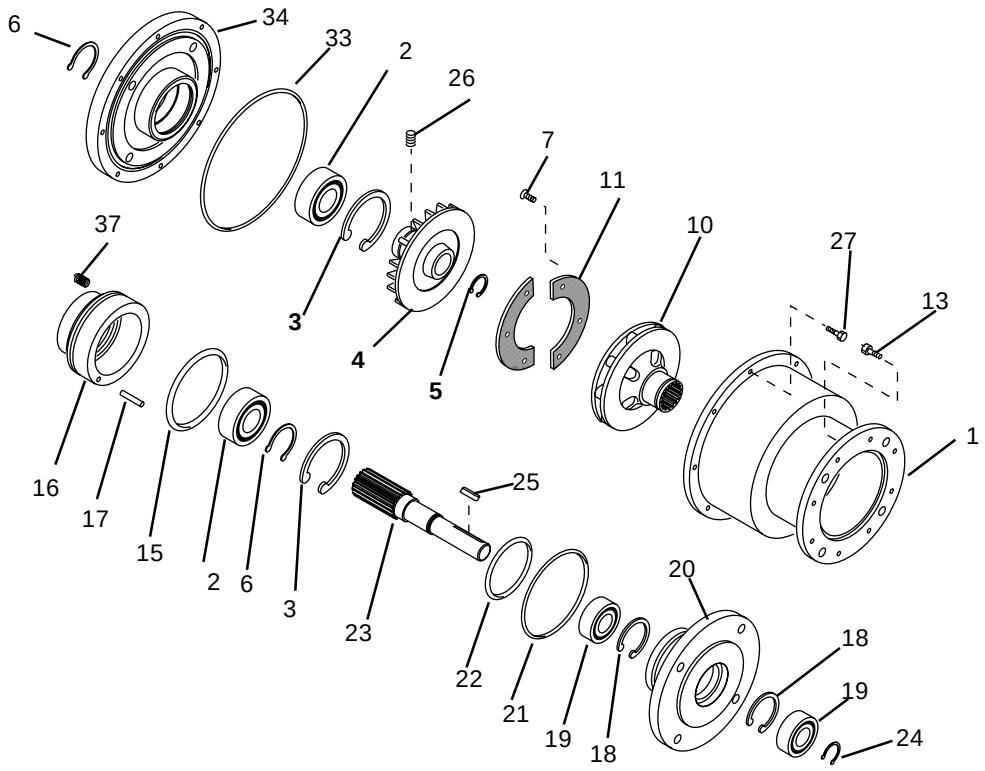


Figure 27
875 FMCE

ITEM	DESCRIPTION	QTY
1	Housing	1
2[1,2]	Bearing	2
3	Retaining Ring (Int.)	2
4	Drive Disc	1
5	Retaining Ring (Int.)	1
6	Retaining Ring (Ext.)	2
7[1,2]	Machine Screw	6
10	Splined Disc	1
11[1,2]	Friction Facing (1 Set, Split)	1
13	Hex. Head Cap Screw	8
15[1,2]	O-ring Seal	1
16	Piston	1
17	Slotted Spring Pin	1
18	Retaining Ring (Int.)	2
19[1]	Bearing	2

ITEM	DESCRIPTION	QTY
20	Male Pilot	1
21	O-ring Seal	1
22[1,2]	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
37	Return Spring	6

[1] Denotes rebuild kit item included in repair kit 827265.
[2] Denotes friction facing kit item included in facing kit 827266.

INPUT UNIT

ITEM	DESCRIPTION	QTY
11	Stub Shaft	1
13[1]	Variseal ™	1
19	Key	2
20	Bearing Flange	1
30[1]	Bearing	2
35	Retaining Ring (Ext.)	2
58	Retaning Ring (Int.)	1
59	O-ring Seal	1
62	Hex. Head Cap Screw	4
64	Hex. Nut	4

[1] Denotes repair kit item included in repair kit 827281.

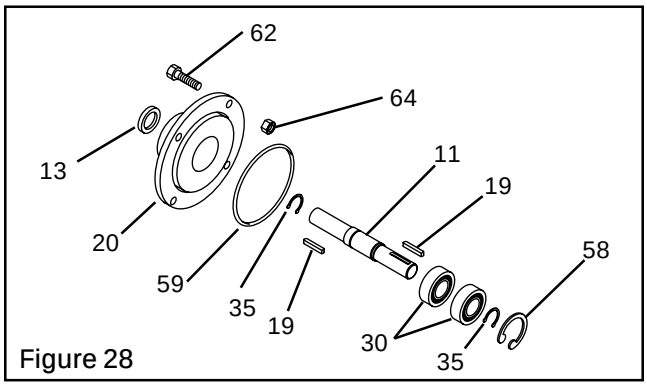


Figure 28

MOUNTING FOOT—BISSC CERTIFIED 625 FMCE

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 1.25")	2
76	Hex. Head Cap Screw (3/8 -16x 1.75")	2
77	Hex. Head Cap Screw (3/8 -16x 1.125")	2

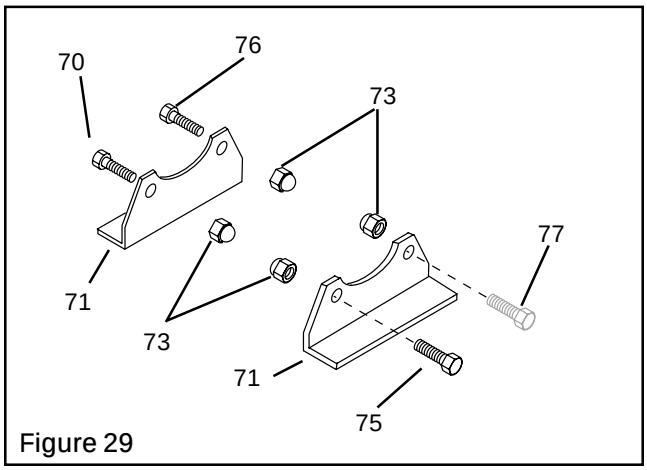


Figure 29

MOUNTING FOOT—BISSC CERTIFIED 875 FMCE

ITEM	DESCRIPTION	QTY
70	Hex. Head Cap Screw (3/8-16 x 1.50")	2
71	Mounting Foot	2
72	Hex. Nut	4
73	Acorn Nut	4
74	Hex. Head Cap Screw (3/8-16 x 1.25")	4
75	Hex. Head Cap Screw (3/8-16 x 1.38")	2

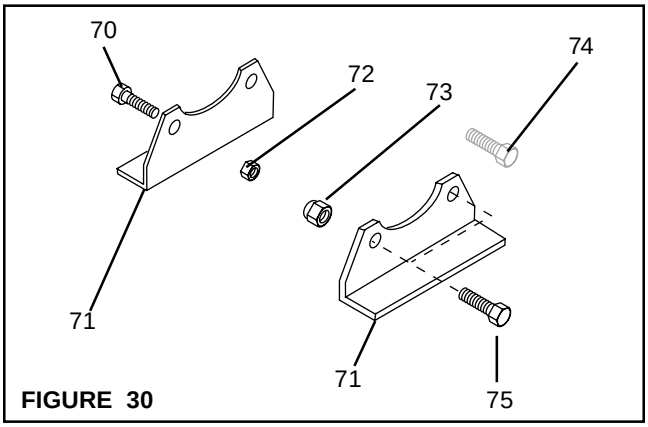


FIGURE 30

Warranties

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.

Limitation of 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 images, 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.

Limitation of Damages

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

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