

3-way flanged ball valves

Series AM150FD and AM150FB

Model A

Class 150, 3" & 4" (DN80 & 100)

Installation, maintenance and
operating instructions

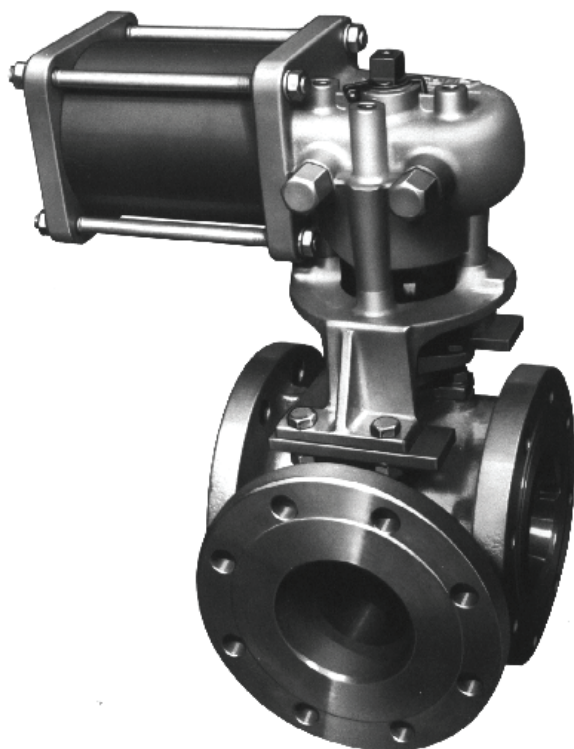


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READ THESE INSTRUCTIONS FIRST!

These instructions provide information about safe handling and operation of the valve.

If you require additional assistance, please contact the manufacturer or manufacturer's representative.

SAVE THESE INSTRUCTIONS!

Addresses and phone numbers are printed on the back cover.

1. GENERAL

1.1 SCOPE OF THE MANUAL

This instruction manual contains important information regarding the installation, operation and maintenance of the Jamesbury™ 3" & 4" (DN80 & 100) ASME Class 150 Standard Bore; Series AM150FD & AM150FB 3-Way Flanged Ball Valves. Please read these instructions carefully and save them for future reference.

WARNING

AS THE USE OF THE VALVE IS APPLICATION SPECIFIC, A NUMBER OF FACTORS SHOULD BE TAKEN INTO ACCOUNT WHEN SELECTING A VALVE FOR A GIVEN APPLICATION. THEREFORE, SOME OF THE SITUATIONS IN WHICH THE VALVES ARE USED ARE OUTSIDE THE SCOPE OF THIS MANUAL.

IF YOU HAVE ANY QUESTIONS CONCERNING THE USE, APPLICATION OR COMPATIBILITY OF THE VALVE WITH THE INTENDED SERVICE, CONTACT NELES FOR MORE INFORMATION.

1.2 VALVE MARKINGS

The valve has an identification plate attached to the bonnet stud (see **Figure 1**).

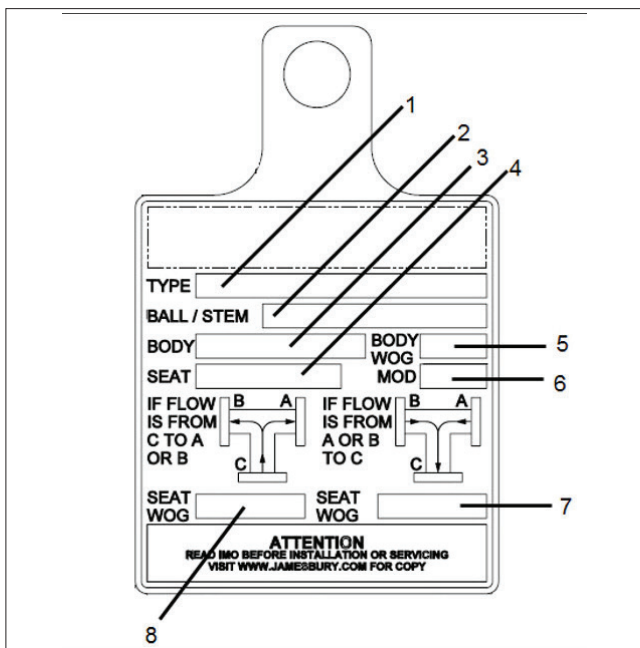


Figure 1. Identification plate

Identification plate markings:

1. Valve catalog code
2. Ball/Stem material
3. Body Material
4. Seat Material
5. Body WOG
6. Model
7. Seat WOG 2
8. Seat WOG 1

1.3 SAFETY PRECAUTIONS

WARNING

DO NOT EXCEED THE VALVE PERFORMANCE LIMITATIONS!

EXCEEDING THE PRESSURE OR TEMPERATURE LIMITATIONS MARKED ON THE VALVE IDENTIFICATION PLATE MAY CAUSE DAMAGE AND LEAD TO UNCONTROLLED PRESSURE RELEASE. DAMAGE OR PERSONAL INJURY MAY RESULT.

WARNING

SEAT AND BODY RATINGS!

THE PRACTICAL AND SAFE USE OF THIS PRODUCT IS DETERMINED BY BOTH THE SEAT AND BODY RATINGS. READ THE IDENTIFICATION PLATE AND CHECK BOTH RATINGS. THIS PRODUCT IS AVAILABLE WITH A VARIETY OF SEAT MATERIALS. SOME OF THE SEAT MATERIALS HAVE PRESSURE RATINGS THAT ARE LESS THAN THE BODY RATINGS. ALL OF THE BODY AND SEAT RATINGS ARE DEPENDENT ON VALVE TYPE AND SIZE, SEAT MATERIAL, AND TEMPERATURE. DO NOT EXCEED THESE RATINGS!

WARNING

BEWARE OF BALL MOVEMENT!

KEEP HANDS, OTHER PARTS OF THE BODY, TOOLS AND OTHER OBJECTS OUT OF THE OPEN FLOW PORT. LEAVE NO FOREIGN OBJECTS INSIDE THE PIPELINE. WHEN THE VALVE IS ACTUATED, THE BALL FUNCTIONS AS A CUTTING DEVICE. DISCONNECT ANY PNEUMATIC SUPPLY LINES, ANY ELECTRICAL POWER SOURCES AND MAKE SURE SPRINGS IN SPRING-RETURN ACTUATORS ARE IN THE FULL EXTENDED/RELAXED STATE BEFORE PERFORMING ANY VALVE MAINTENANCE. FAILURE TO DO THIS MAY RESULT IN DAMAGE OR PERSONAL INJURY!

WARNING

WHEN HANDLING THE VALVE OR VALVE/ACTUATOR ASSEMBLY, TAKE ITS WEIGHT INTO ACCOUNT!

NEVER LIFT THE VALVE OR VALVE/ACTUATOR ASSEMBLY BY THE ACTUATOR, POSITIONER, LIMIT SWITCH OR THEIR PIPING. PLACE LIFTING DEVICES SECURELY AROUND THE VALVE BODY. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE OR PERSONAL INJURY FROM FALLING PARTS (SEE **FIGURE 2**).

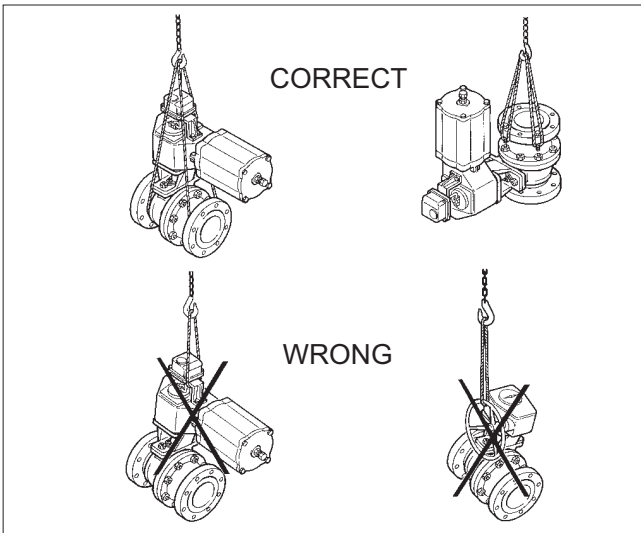


Figure 2. Lifting the valve

2. TRANSPORTATION AND STORAGE

Check the valve and the accompanying devices for any damage that may have occurred during transport.

Store the valve carefully. Storage indoors in a dry place is recommended.

Do not remove the flow port protectors until installing the valve.

Move the valve to its intended location just before installation.

The valve is usually delivered in the open position.

If the valve(s) are to be stored for a long duration, follow the recommendations of IMO-S1.

3. INSTALLATION

3.1 GENERAL

Remove the flow port protectors and check that the valve is clean inside. Clean valve if necessary.

Flush the pipeline carefully before installing the valve. Foreign objects, such as sand or pieces of welding electrodes, will damage the ball and seats.

3.2 INSTALLING IN THE PIPELINE

WARNING

THE VALVE SHOULD BE TIGHTENED BETWEEN FLANGES USING APPROPRIATE GASKETS AND FASTENERS COMPATIBLE WITH THE APPLICATION, AND IN COMPLIANCE WITH APPLICABLE PIPING CODES AND STANDARDS. CENTER THE FLANGE GASKETS CAREFULLY WHEN FITTING THE VALVE BETWEEN FLANGES. DO NOT ATTEMPT TO CORRECT PIPELINE MISALIGNMENT BY MEANS OF FLANGE BOLTING!

The valve may be installed in any position and offers tightness in both directions. It is recommended, however, that the valve be installed with the insert facing upstream. It is not recommended to install the valve with the stem on the underneath side because

dirt in the pipeline may then enter the body cavity and potentially damage the stem packing (see **Figure 3**).

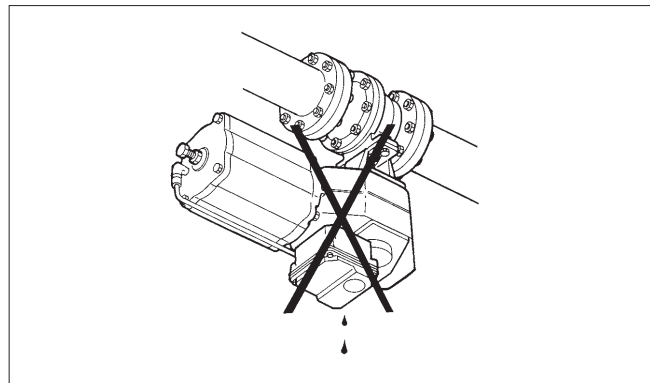


Figure 3. Avoid this mounting position

Refer to the **Section 4, MAINTENANCE** for stem seal adjustment. If there is weepage past the stem seals upon installation, it means the valve may have been subject to wide temperature variations in shipment. Leak-tight performance will be restored by a simple stem seal adjustment described in the **MAINTENANCE** section.

3.3 VALVE INSULATION

If necessary, the valve may be insulated. Insulation must not continue above the upper level of the valve (see **Figure 4**).

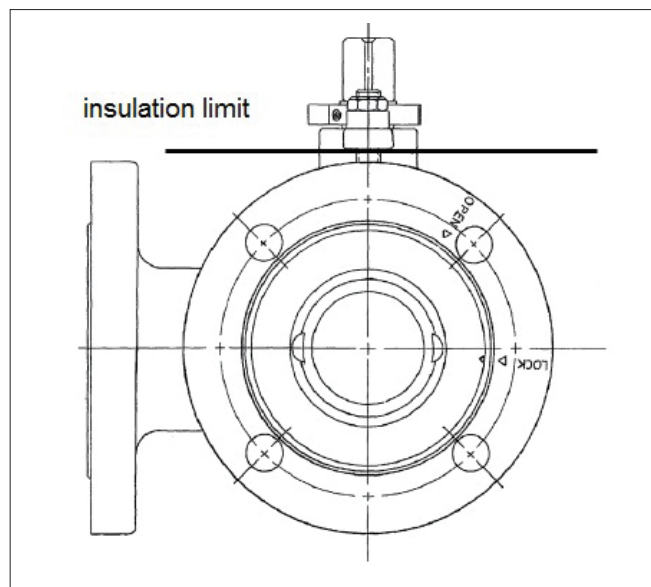


Figure 4. Insulation of the valve

3.4 ACTUATOR

WARNING

WHEN INSTALLING THE ACTUATOR ON THE VALVE, MAKE SURE THAT THE VALVE ASSEMBLY FUNCTIONS PROPERLY. INFORMATION ON ACTUATOR INSTALLATION IS GIVEN IN **SECTION 5** OR IN THE SEPARATE ACTUATOR INSTRUCTIONS.

The actuator should be installed in a manner that allows plenty of room for its removal.

The upright position is recommended for the actuator.

The actuator must not touch the pipeline, because pipeline vibration may interfere with its operation.

In certain cases, it may be considered advantageous to provide additional support to the actuator. These cases will normally be associated with large actuators, extended stems, or where severe vibration is present. Please contact Neles for advice.

3.5 COMMISSIONING

Ensure that there is no dirt or foreign objects left inside the valve or pipeline. Flush the pipeline carefully. Make sure that the valve is fully open when flushing.

Ensure that all nuts, fittings, and cables are properly fastened.

If so equipped, check that the actuator positioner and/or switch are correctly adjusted. To adjust any accompanying device(s) refer to the separate control equipment instruction manuals.

4. MAINTENANCE

4.1 GENERAL

Although Neles *Jamesbury* valves are designed to work under severe conditions, proper preventative maintenance can significantly help to prevent unplanned downtime and in real terms reduce the total cost of ownership. Neles recommends inspecting valves at least every five (5) years. The inspection and maintenance frequency depends on the actual application and process condition. Routine maintenance consists of tightening the stop nut (16) ½ turn periodically to compensate for stem seal wear. If weeping still occurs, tighten another ½ turn.

WARNING

THE VALVE STEM (4) IS SEALED BY THE STEM SEALS. LOOSENING OR REMOVING HEX NUTS (16) WILL RELEASE PIPELINE PRESSURE TO THE ATMOSPHERE. FAILURE TO COMPLETELY REMOVE ANY PIPELINE PRESSURE PRIOR TO LOOSENING OR REMOVING HEX NUTS (16) COULD RESULT IN EJECTION OF STEM (4) FROM THE VALVE, DAMAGE AND/OR PERSONAL INJURY.

Overhaul maintenance consists of replacing seats and seals. A standard repair kit consisting of these parts may be obtained through your authorized NelesDistributor.

NOTE: Repair kits contain two seats (5), two O-rings (31), one body seal (6), two stem seals (7) and one stem bearing (8). The two stem seals (7) are white in color; one upper and one lower.

Refer to the Repair Kit chart (see **Table 1**).

WARNING

AS THE USE OF THE VALVE IS APPLICATION SPECIFIC, MANY FACTORS SHOULD BE CONSIDERED WHEN SELECTING A VALVE FOR A GIVEN APPLICATION. THEREFORE, SOME OF THE SITUATIONS IN WHICH THE VALVES ARE USED ARE OUTSIDE THE SCOPE OF THIS MANUAL.

IF YOU HAVE ANY QUESTIONS CONCERNING THE USE, APPLICATION OR COMPATIBILITY OF THE VALVE WITH THE INTENDED SERVICE, CONTACT NELES FOR MORE INFORMATION.

| TABLE 1 | | | |
|--|----------|----------|----------------------------|
| Repair Kits | | | |
| Valve | PTFE Kit | MTFE Kit | Double Block* & Bleed MTFE |
| 3" AM150FD & FB | RKA-76TT | RKA-76MT | RKD-3MT* |
| 4" AM150FD & FB | RKA-75TT | RKA-75MT | RKD-4MT* |
| * For BUNA-N O-Ring add '52' to the Repair Kit Number. Add '53' for VITON®. | | | |

WARNING

FOR YOUR SAFETY, IT IS IMPORTANT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVAL OF THE VALVE FROM THE PIPELINE OR BEFORE ANY DISASSEMBLY:

WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE FLUID INVOLVED.

DEPRESSURIZE THE PIPELINE AND CYCLE THE VALVE AS FOLLOWS:

- A. PLACE THE VALVE IN THE OPEN POSITION AND DRAIN THE PIPELINE.
- B. CYCLE THE VALVE TO RELIEVE RESIDUAL PRESSURE IN THE BODY CAVITY BEFORE REMOVAL FROM THE PIPELINE.
- C. AFTER REMOVAL AND BEFORE ANY DISASSEMBLY, CYCLE THE VALVE AGAIN SEVERAL TIMES.

4.2 ACTUATED VALVE

It is generally most convenient to detach the actuator and its auxiliary devices before removing the valve from the pipeline. If the valve package is small or if it is difficult to access, it may be more practical to remove the entire assembly.

NOTE: To ensure proper reassembly, observe the position of the actuator and positioner/limit switch with respect to the valve before detaching the actuator.

WARNING

ALWAYS DISCONNECT THE ACTUATOR FROM ITS POWER SOURCE, PNEUMATIC, HYDRAULIC OR ELECTRICAL, BEFORE ATTEMPTING TO REMOVE IT FROM THE VALVE!

WARNING

DO NOT REMOVE A SPRING-RETURN ACTUATOR UNLESS A STOP-SCREW IS CARRYING THE SPRING FORCE!

1. Detach the air supply, electrical supply, hydraulic supply and control signal cables or pipes from their connectors.
2. Unscrew the actuator mounting bracket screws.
3. If the valve assembly has a split no-play (clamped) coupling, loosen the coupling screws.
4. Lift the actuator straight up in line with the valve stem until the coupling between actuator drive and valve stem is completely disengaged.
5. Place actuator in a safe location to avoid damage or personal injury.

4.3 MANUAL VALVE

1. Remove the stem screw (24), the washer (25), loosen the adapter set screw (23) and then remove the "T" handle adapter (22) and handle (15). The handle (15) can be removed from the "T" handle adapter (22) by loosening the second set screw (23). This is not necessary. Lift the handle (22) straight up in line with the valve stem until it is completely disengaged.
2. Place all disassembled handle parts in small basket or bag to prevent damage or loss.

4.4 DISASSEMBLY

The *Jamesbury* breechlock insert is designed to minimize valve disassembly and assembly time. Disassembly requires a compressive load to seat the insert and a 60° rotation to unlock it. Slots are machined into the insert to provide engagement for rotation.

1. Read all **WARNINGS** before performing any work.
2. Be sure to cycle the valve.
3. If not done previously, remove the handle per **Section 4.3**.
4. Note the arrow on the indicator stop pointing to the letters stamped on the bonnet face. (AC) & (AB). Note also, that all three body flanges have been stamped "A", "B", or "C". The insert flange should be stamped "A", the non-insert flange "B" and the third flange "C". This will be important when assembly is performed.

AM150FD & AM150FB-2TR

Remove the indicator stop retaining ring (14), and lift off the indicator stop (12). It may be necessary to turn the stem slightly to take the pressure off the indicator stop against the stop spacer.

5. Loosen and remove the two stop nuts (16), and then the stop spacers (20). It is not necessary to remove the bonnet nuts (10) or the bonnet studs (11) unless desired.
6. Lift off the compression plate (9), the stem bearing (8), and the compression ring (18).
7. Note the groove on the face of the stem. On the AM150FD it is an "L" shape and the AM150FB-2TR is a straight line that starts at the outside and ends at the hole in the middle with a groove across the square, perpendicular to it. This will be important when assembly is performed. Remove the upper stem seal (7), the stem (4) and the lower stem seal (7) being careful not to scratch any sealing surfaces. Proceed to Step 13.

AM150FB & AM150FB-3TR

Remove the hex. head cap screws (56) and lock washers (19).

8. Remove the bracket (51) with spring plunger (52) and bonnet nut (10).
9. Loosen and remove stop nuts (16) and stud spacer (55).
10. Remove top spacer (53) and compression plate (9) with stem bearing (8).
11. Lift off the compression ring (18) and upper stem seal (7).
12. Remove stem (4) and lower stem seal (7) being careful not to scratch any sealing surfaces. It is not necessary to remove the bonnet studs (11) or (50), and the two bonnet nuts (10). Proceed to Step 13.
13. Insert removal: Place the body on a bench with the insert flange facing up. Observe the marks next to the stamped words "OPEN" and "LOCK" on the insert flange face. Also, observe the notch on the insert outside diameter aligned with the mark next to the word "lock", (See **Figure 10**). Disassembly requires a compressive load to seat the insert and a 60° counterclockwise rotation to unlock it. To accomplish this, two slots in the insert are provided.

14. Rotate the insert with a counter-clockwise turning motion until the notch on the insert is aligned with the "open" mark on the valve flange. (See **Figure 11**) **NOTE:** Failure to properly align the notch before insert removal may result in damage to the breechlock tabs.
15. Pull out the insert (2). If the insert does not come out easily, close the ball and with a piece of wood or some other soft material, gently tap the ball from the end opposite the insert. This should unseat the insert.
16. Lift out the body seal (6), seat (5) (and O-ring (31) if double block and bleed), and the ball (3).

NOTE: 3-Way balls have an unbalanced weight distribution. Always be careful when handling the ball to prevent damage to it or the seats.

17. Carefully remove the bottom seat (5) (and O-ring (31) if double block and bleed) out of the body. Do not scratch sealing surfaces in the body.

4.5 CHECKING PARTS

1. Clean all disassembled parts.
2. Check the stem (4) and ball (3) for damage. Pay particular attention to the sealing areas.
3. Check all sealing and gasket surfaces of the body (1) and insert (2).
4. Replace any damaged parts, including any fastener that has been stretched, corroded or heated.
5. Carefully check the insert locking tabs on the insert (2) and the locking groove on the body (1). **NOTE:** If any damage is detected, it is recommended that the valve be directed to a Neles Service Center for maintenance.

NOTE: When ordering spare parts, always include the following information:

- a. Valve catalog code from Identification plate,
- b. If the valve is serialized – the serial number (stamped on the valve body),
- c. From **Figure 5, 6, 7 or 8**; the ballooned part number, part name and quantity required.

4.6 ASSEMBLY

It is advisable to replace seats and seals if complete disassembly and reassembly become necessary. Refer to the Repair Kit chart (see **Table 1**). A good lubricant, compatible with the flow media, **MUST** be applied lightly to the seats, seals, ball and stem to facilitate assembly and ease on initial operation of the valve.

Clean all valve components if not done previously.

Re-inspect all components for damage before reassembling the valve. Look for damage to the seating areas, stem, body and insert; and look for wear in the bearing areas. Replace any damaged parts.

Carefully clean and polish the ball (3) sealing surface: It should be free of all scratches and grooves.

If the ball is slightly damaged, it may be possible to smooth the sealing surface with crocus cloth or equivalent. If deep scratches are present, replace the ball.

1. Slide the valve seat (5) sidewise into the body (1) to below the bonnet opening, and tilt it into place so that the proper surface (note drawing) will be adjacent to the ball (3), being careful not to cut the seat on the corners of the body. If double block and bleed seats are used, lubricate O-ring (31) and place ring in seat before assembling in body. This will keep O-ring in place during assembly.

2. **Ball Assembly - AM150FD**

Place the ball (3) into the valve with one port facing the insert flange "A" and the second port facing the third flange "C", and the ball slot facing the bonnet opening. Insert the stem (4) as a temporary means of holding the ball. Be sure that the "L" shaped groove on the stem face (Disassembly Step #7) is indicating that the ball ports are facing the "A" and "C" flange. Turn the ball 90° clockwise. This provides a closed ball face for inserting the insert seat. Proceed to Step 3.

Ball Assembly - AM150FB

Place the ball (3) into the valve with one port facing the insert flange "A" and the second port facing the third or bottom port "C", and the ball slot facing the bonnet opening. Insert stem (4) as a temporary means of holding the ball. Be sure that the groove in the top of the stem face (Disassembly Step #7) is pointing toward the "A" flange (See **Figure 2**) indicating that the ball ports are facing the "A" and "C" flanges. Turn the ball 90° clockwise. This provides a closed ball face for inserting the insert seat. Proceed to Step 3.

Ball Assembly - AM150FB-2TR & 3TR

Place the ball (3) into the valve with one port facing the insert flange "A" and the angle port facing the "C" flange, and the ball slot facing the bonnet opening. The straight through port will be perpendicular to the "A" and "B" flanges. Insert the stem (4) as a temporary means of holding the ball. Be sure the long groove in the top of the stem is pointing perpendicular to the "A" and "B" flanges and the short groove is facing the "A" flange. This indicates that the ball ports are open to "A" and "C" and closed to "B" port. Turn the ball 90° clockwise. This provides a closed ball face for inserting the insert seat.

3. Insert the second seat (5) with the proper surface facing the ball. If double block and bleed seats are used, assemble same way as body seats in Step 1 above. Insert the body seal (6) with the chamfer away from the ball. Turn the ball 90° counterclockwise to the open position.
4. Wipe a liberal amount of lubricant on the body seal and locking grooves and tabs of the body and insert (2).
5. Place the insert into the body, and align the notch on the insert with the 'OPEN' mark on the valve body so that the breechlock tabs engage without interference, (See **Figure 11**). This alignment should be checked and the proper OPEN position permanently marked on the flange before further assembly takes place. Use caution to ensure that the body seal is not dislodged from its shoulder.
6. Apply a load to the insert to compress the seats, and rotate the insert with a clockwise turning motion until the notch on the insert is aligned with the 'LOCK' mark on the valve flange, (See **Figure 10**).

WARNING

FAILURE TO FULLY ROTATE THE INSERT UNTIL THE NOTCH AND LOCK MARK ARE ALIGNED COULD RESULT IN RELEASE OF VALVE PRESSURE CAUSING DAMAGE AND PERSONAL INJURY!

7. Remove the stem (4) and insert the stem seal (7) into the body with the chamfer on the I.D. facing down. The stem should be tapped into place gently to avoid cutting the seal. The slotted top of the stem will give a visual indication of ball position.

AM150FD "L" shaped slot in stem should be pointing to the "B" and "C" flanges. This indicates the ball is open to these flanges.

The **AM150FB** groove should be facing parallel to the "A" and "B" flanges. This indicates that the ball is closed to these flanges.

The **AM150FB-2TR and 3TR** stems should have the small

groove pointing perpendicular to the "A" and "B" flanges and the long groove pointing to the "A" and "B" flanges. This indicates that the ball is open to "A" and "B" and closed to "C".

If the bonnet studs (11) were removed, they should be screwed into the body so the 1-7/8" protrudes above the body surface. Use a self-curing liquid adhesive (such as Loctite®, etc.) to lock the studs in place. Tighten the bonnet nuts (10) against the body (1).

8. **AM150FD and AM150FB-2TR**

Slide the second stem seal (7), compression ring (18) and stem bearing (8) onto the stem. The chamfer on the I.D. of the stem seal should also be facing down.

9. Fit the bonnet plate (9) over the stem (4), stem bearing (8) and bonnet studs (11). Place a spacer (20) over each bonnet stud (11) and screw down a stop nut (16) over both spacers.
10. Tighten the nuts (16) against the spacer evenly and alternately until the stem seals are seated. Turn each another 3/4 of a turn to insure proper stem seal compression.
11. Noting the word "bottom", assemble the indicator stop (12), aligning the cut-out in the square with the pin in the stem. The arrow stamped on the indicator stop should be pointing to the letters "BC" stamped on the body bonnet face. Fit the retaining ring (14) over the stem and down on top of the indicator stop. Adjust the indicator stop adjusting screws (21) so that the indicator stop positions the ball in the full open and full closed position. For proper alignment, follow these guidelines:
 - A. **Valve Open Position:** Allowable misalignment of the ball port, in relation to the body port should not exceed 1/16".
 - B. **Valve Closed Position:** Scribe a pencil mark on the ball as shown in **Figure 9**. Partially open the valve and measure Dimension "A". Adjust the stops per the dimension in **Figure 9 - Table 2**. Proceed to Step 15.

12. **AM150FB and AM150FB-3TR**

Slide the second stem seal (7), compression ring (18) and stem bearing (8) onto the stem. The chamfer on the I.D. of this stem seal should also be facing down.

13. Fit the bonnet plate (9) over the stem (4), stem bearing (8) and bonnet studs (11) and (50). Place a stud spacer (55) over bonnet stud (11). Screw on stop nuts (16) on both bonnet studs (11) and (50). Tighten the nuts (16) evenly and alternately until the stem seals are seated. Turn each another 3/4 of a turn to insure proper stem seal compression.
14. Place bracket (51) on the bonnet (See **Figures 6 and 8**). Thread a hex. head cap screw into each of the two bonnet holes as shown in both Figures. Before tightening, install the indicator stop (12) and insure that the spring plunger (52) is engaged in the indicator stop slot.
15. Place the "T" handle adapter (22) on the stem with the handle (15) pointing parallel with the "A" and "B" flanges. Tighten the set screws (23).
16. Place the stem screw (24) through the washer (25) and thread the screw through the "T" handle adapter (22) and the handle (15).
17. Rotate the ball with a gentle back and forth motion to build gradually to the full quarter turn. By rotating slowly, the seat lips will flow into place to maintain a permanent seal against the ball. A premature quick turning motion may cut the seat before it has a chance to flow into its proper place.

4.7 TESTING THE VALVE

WARNING

WHEN PRESSURE TESTING, EXERCISE CAUTION AND MAKE SURE ALL EQUIPMENT USED IS IN GOOD WORKING CONDITION AND APPROPRIATE FOR THE INTENDED PRESSURE.

WARNING

BEFORE PERFORMING ANY PRESSURE TESTS CONFIRM THE INSERT (2) IS IN THE "LOCK" POSITION, (SEE **FIGURE 10**).

If the valve is to be tested prior to returning to service, make sure the test pressures are in accordance with an applicable standard.

When testing the valve for external tightness, keep the ball in the half open position.

If testing the valve seat tightness, please contact Neles for advice.

WARNING

WHEN PERFORMING ANY TESTS, NEVER EXCEED THE MAXIMUM OPERATING PRESSURE OR MAXIMUM SHUT-OFF PRESSURE LISTED ON THE IDENTIFICATION PLATE!

5. ACTUATOR MOUNTING

IMPORTANT: When these valves are equipped with an actuator and the actuator is removed to service the valve, **PROPER ALIGNMENT OF THE ACTUATOR DRIVER AND VALVE STEM IS ESSENTIAL WHEN THE ACTUATOR IS REMOUNTED.** In the case of valves and actuators connected with a split no-play (clamped) coupling, tighten the coupling bolts before final tightening of the valve bracket bolts. In the case of valves and actuators with solid, loose-fit couplings, the actuator should be positioned on the valve without any side loading of the coupling in both the open and closed positions before final tightening of the valve bracket bolts.

WARNING

FOR YOUR SAFETY, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN!

BEFORE INSTALLING THE VALVE AND ACTUATOR, BE SURE THE INDICATOR POINTER ON TOP OF THE ACTUATOR IS CORRECTLY INDICATING THE VALVE'S POSITION. FAILURE TO ASSEMBLE THESE TO INDICATE THE CORRECT VALVE POSITION COULD RESULT IN DAMAGE OR PERSONAL INJURY!

WHEN INSTALLING A LINKAGE KIT OR SERVICING THE VALVE/ACTUATOR ASSEMBLY, THE BEST PRACTICE IS TO REMOVE THE ENTIRE ASSEMBLY FROM SERVICE!

AN ACTUATOR SHOULD BE REMOUNTED ON THE SAME VALVE FROM WHICH IT WAS REMOVED. THE ACTUATOR MUST BE ADJUSTED FOR THE PROPER "OPEN" AND "CLOSE" POSITIONS EACH TIME IT IS REMOVED!

THE LINKAGE KITS HAVE BEEN DESIGNED TO SUPPORT THE WEIGHT OF THE NELES ACTUATOR AND RECOMMENDED ACCESSORIES. USE OF THE LINKAGE TO SUPPORT ADDITIONAL EQUIPMENT OR ADDITIONAL WEIGHT SUCH AS PEOPLE, LADDERS, ETC., MAY RESULT IN THE FAILURE OF THE LINKAGE, VALVE, OR ACTUATOR; AND MAY CAUSE DAMAGE OR PERSONAL INJURY!

5.1 OPEN/CLOSE POSITION ADJUSTMENT

NOTE: Refer to the appropriate Installation, Maintenance, and Operating Instructions (IMO) for specific directions on how to adjust the actuator travel stops or limit switch (see **Table 3**).

| Actuator | IMO |
|--|-------------------------------------|
| QPX | 215 |
| VPVL | 553 |
| B1C | 6 BC 71 |
| B1J | 6 BJ 71 |
| BCH | 6 BCH 70 |
| M | 549 |
| ADC | I4400, I4500 or I4600 |
| ESR | I7016 |
| I | I6500, I6600 or I6700 |
| LCR | I1262 |
| LCU | I1263 |
| Q6 | I1227 or I1383 |
| QX | I3000 |
| V | I2100, I2475, I2500, I2700 or I5500 |
| Torq-Handle® | 71 |
| Contact your authorized Neles Distributor for copies of these instructions | |

6. SERVICE / SPARE PART

We recommend that valves be directed to our service centers for maintenance. The service centers are equipped to provide rapid turn-around at a reasonable cost and offer new valve warranty with all reconditioned valves.

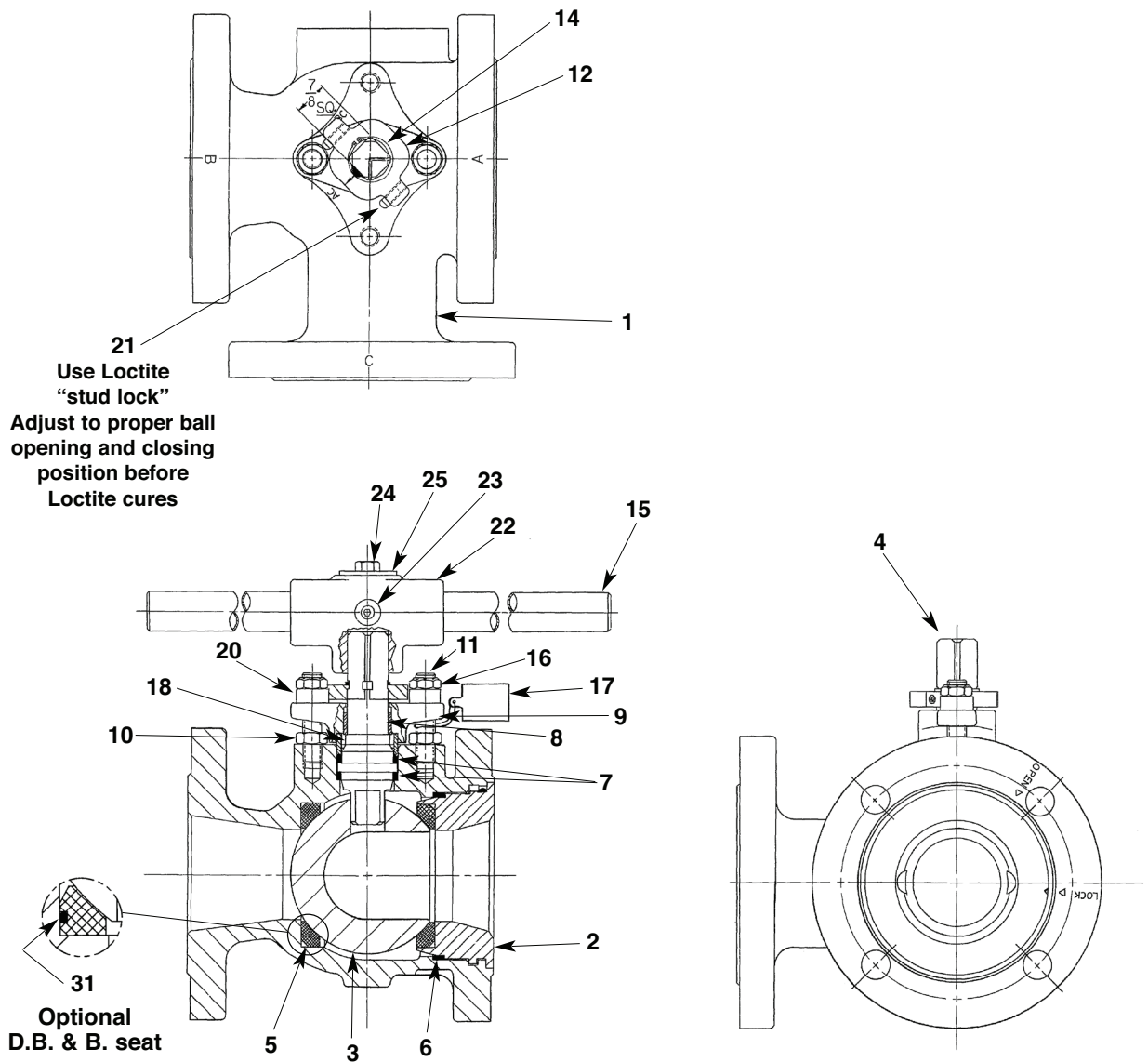
NOTE: When sending goods to the service center for repair, do not disassemble them. Clean the valve carefully and flush the valve internals. Include the material safety datasheet(s) (MSDS) for all media flowing through the valve. Valves sent to the service center without MSDS datasheet(s) will not be accepted.

For further information on spare parts and service or assistance visit our web-site at www.neles.com/valves.

NOTE: When ordering spare parts, always include the following information:

- Valve catalog code from identification plate,
- If the valve is serialized – the serial number (from identification plate)
- From **Figure 5, 6, 7 or 8**, the ballooned part number, part name and quantity required.

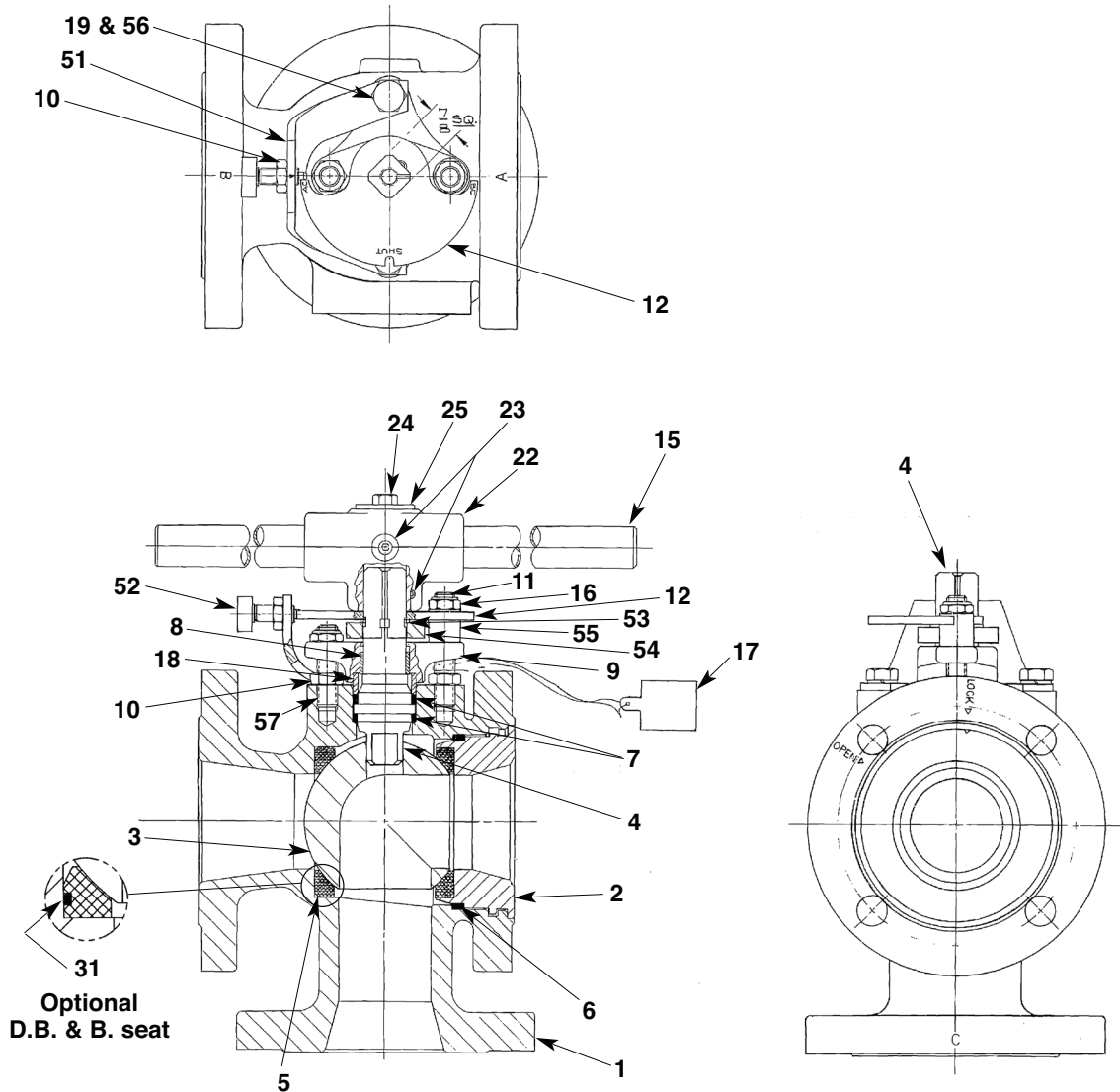
3" & 4" AM150FD



| 3" & 4" AM150FD Parts List | | | | | |
|----------------------------|-------------------|------|----------|--------------------|------|
| Item No. | Part Name | Qty. | Item No. | Part Name | Qty. |
| 1 | Body | 1 | 14 | Retaining Ring | 1 |
| 2 | Insert | 1 | 15 | Handle | 1 |
| 3 | Ball | 1 | 16 | Stop Nut | 2 |
| 4 | Stem | 1 | 17 | I.D. Tag | 1 |
| 5 | Seat | 2 | 18 | Compression Ring | 1 |
| 6 | Body Seal | 1 | 20 | Spacer | 2 |
| 7 | Stem Seal | 2 | 21 | Set Screw | 2 |
| 8 | Stem Bearing | 1 | 22 | "T" Handle Adapter | 1 |
| 9 | Compression Plate | 1 | 23 | Set Screw | 2 |
| 10 | Bonnet Nut | 2 | 24 | Stem Screw | 1 |
| 11 | Bonnet Stud | 2 | 25 | Washer | 1 |
| 12 | Indicator Stop | 1 | 31 | O-Ring (D.B.&B.) | 2 |

Figure 5.

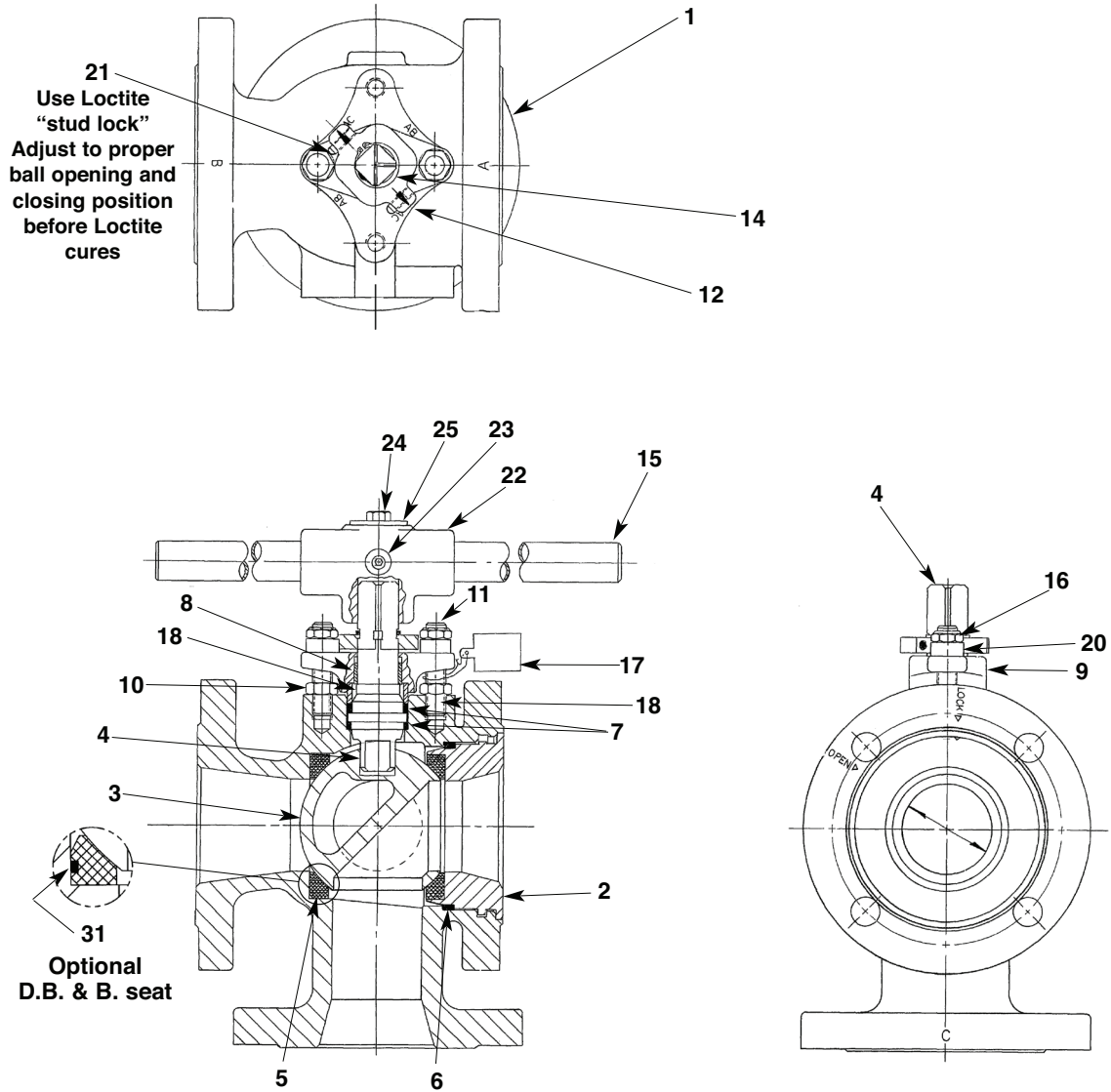
3" & 4" AM150FB



| 3" & 4" AM150 FB | | | | | |
|------------------|-------------------|------|----------|---------------------|------|
| Item No. | Part Name | Qty. | Item No. | Part Name | Qty. |
| 1 | Body | 1 | 18 | Compression Ring | 1 |
| 2 | Insert | 1 | 19 | Lock Washer | 1 |
| 3 | Ball | 1 | 22 | "T" Handle Adapter | 1 |
| 4 | Stem | 1 | 23 | Set Screw | 2 |
| 5 | Seat | 2 | 24 | Hex.Head Cap Screw | 1 |
| 6 | Body Seal | 1 | 25 | Flat Washer | 1 |
| 7 | Stem Seal | 2 | 31 | O-Ring (D.B.&B.) | 2 |
| 8 | Stem Bearing | 1 | 51 | Bracket | 1 |
| 9 | Compression Plate | 1 | 52 | Spring Plunger | 1 |
| 10 | Bonnet Nut | 3 | 53 | Top Spacer | 1 |
| 11 | Bonnet Stud | 2 | 54 | Lower Spacer | 1 |
| 12 | Indicator Stop | 1 | 55 | Stud Spacer | 1 |
| 15 | Handle | 1 | 56 | Hex. Head Cap Screw | 2 |
| 16 | Stop Nut | 2 | 57 | Bonnet Stud | 1 |
| 17 | I.D. Tag | 1 | | | |

Figure 6.

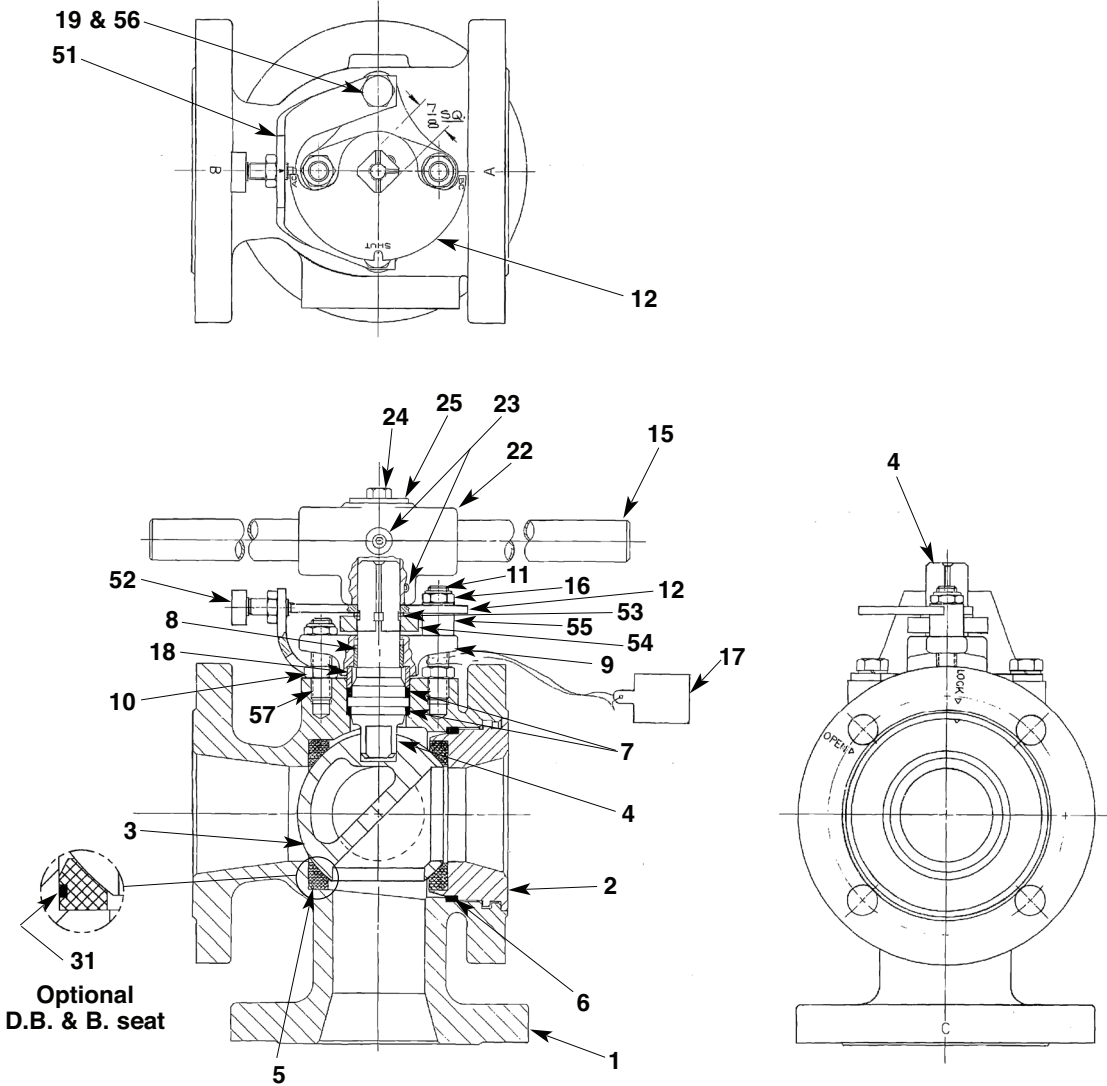
3" & 4" AM150FB-2TR



| 3" & 4" AM150FB-2TR | | | | | |
|---------------------|-------------------|------|----------|--------------------|------|
| Item No. | Part Name | Qty. | Item No. | Part Name | Qty. |
| 1 | Body | 1 | 14 | Retaining Ring | 1 |
| 2 | Insert | 1 | 15 | Handle | 1 |
| 3 | Ball | 1 | 16 | Stop Nut | 2 |
| 4 | Stem | 1 | 17 | I.D. Tag | 1 |
| 5 | Seat | 2 | 18 | Compression Ring | 1 |
| 6 | Body Seal | 1 | 20 | Spacer | 2 |
| 7 | Stem Seal | 2 | 21 | Set Screw | 2 |
| 8 | Stem Bearing | 1 | 22 | "T" Handle Adapter | 1 |
| 9 | Compression Plate | 1 | 23 | Set Screw | 2 |
| 10 | Bonnet Nut | 2 | 24 | Stem Screw | 1 |
| 11 | Bonnet Stud | 2 | 25 | Washer | 1 |
| 12 | Indicator Stop | 1 | 31 | O-Ring (D.B.&B.) | 2 |

Figure 7.

3" & 4" AM150FB-3TR



| 3" & 4" AM150 FB-3TR | | | | | |
|----------------------|-------------------|------|----------|---------------------|------|
| Item No. | Part Name | Qty. | Item No. | Part Name | Qty. |
| 1 | Body | 1 | 18 | Compression Ring | 1 |
| 2 | Insert | 1 | 19 | Lock Washer | 1 |
| 3 | Ball | 1 | 22 | "T" Handle Adapter | 1 |
| 4 | Stem | 1 | 23 | Set Screw | 2 |
| 5 | Seat | 2 | 24 | Hex.Head Cap Screw | 1 |
| 6 | Body Seal | 1 | 25 | Flat Washer | 1 |
| 7 | Stem Seal | 2 | 31 | O-Ring (D.B.&B.) | 2 |
| 8 | Stem Bearing | 1 | 51 | Bracket | 1 |
| 9 | Compression Plate | 1 | 52 | Spring Plunger | 1 |
| 10 | Bonnet Nut | 3 | 53 | Top Spacer | 1 |
| 11 | Bonnet Stud | 2 | 54 | Lower Spacer | 1 |
| 12 | Indicator Stop | 1 | 55 | Stud Spacer | 1 |
| 15 | Handle | 1 | 56 | Hex. Head Cap Screw | 2 |
| 16 | Stop Nut | 2 | 57 | Bonnet Stud | 1 |
| 17 | I.D. Tag | 1 | | | |

Figure 8.

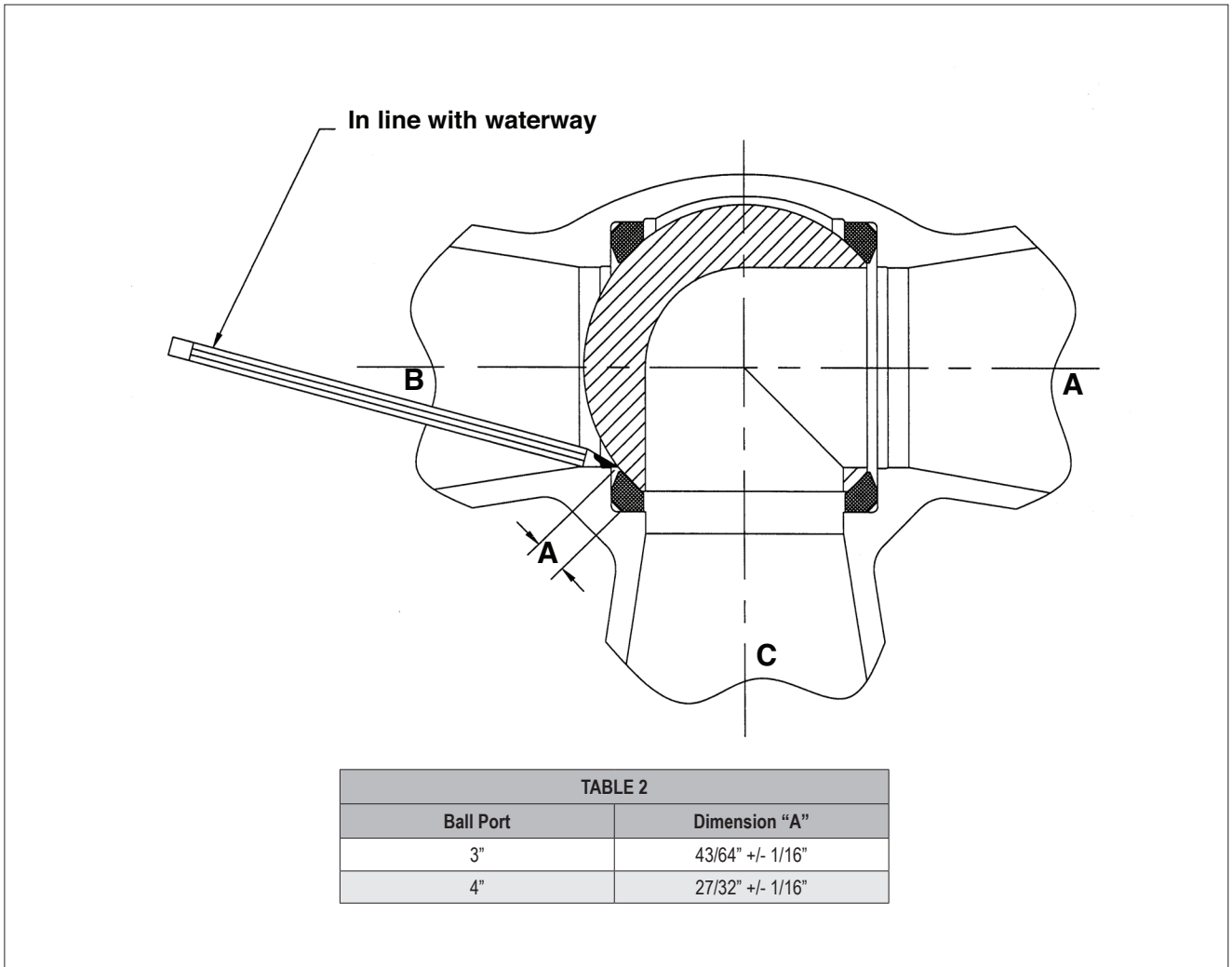


Figure 9.

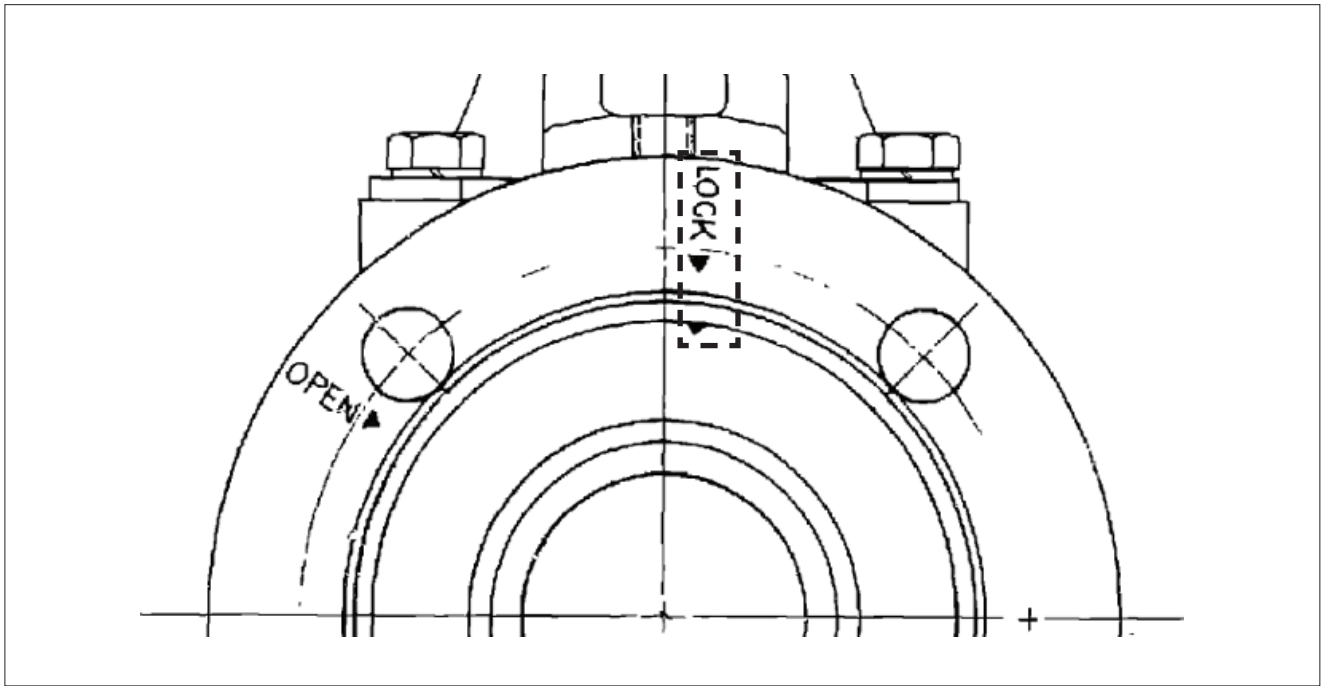


Figure 10. Locked Insert

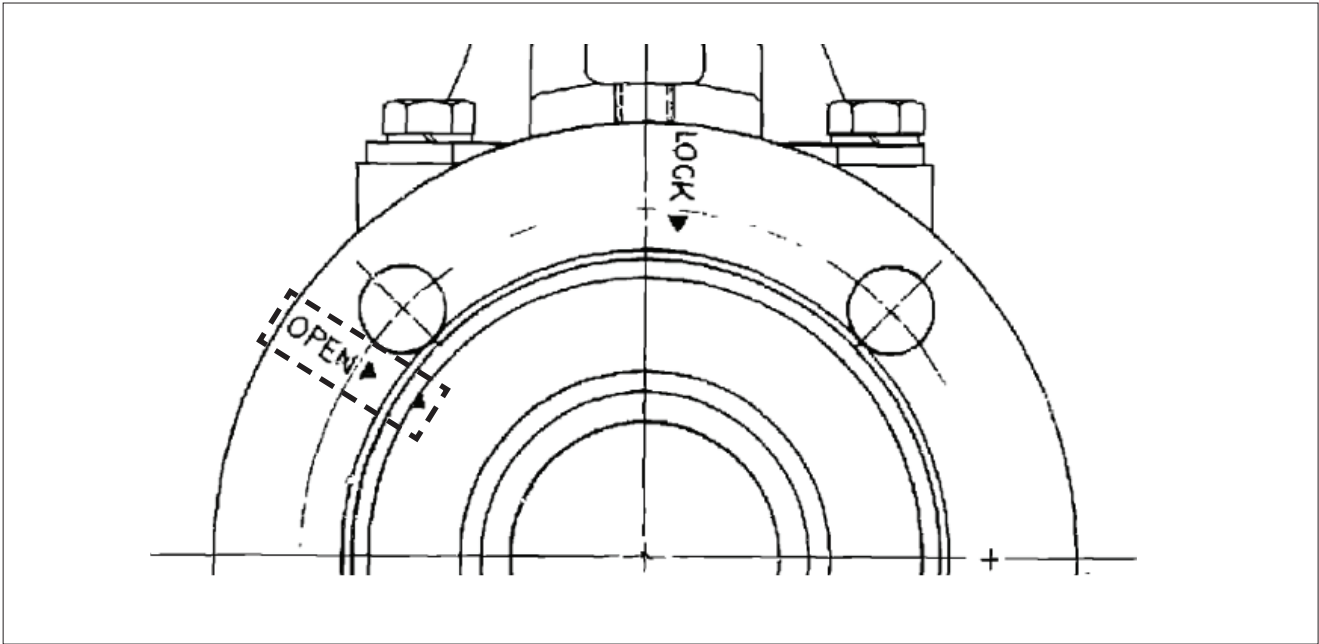


Figure 11. Unlocked (OPEN) Insert

WARNING:

As the use of the valve is application specific, a number of factors should be taken into account when selecting a valve for a given application. Therefore, some of the situations in which the valves are used are outside of the scope of this manual. If you have any questions concerning the use, application or compatibility of the valve with the intended service, contact Neles for more information.

JAMESBURY BRAND 3-WAY FLANGED BALL VALVE, SERIES AM & DM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|----|-----|----|-----|-----|------|----|----|
| 4" | AM | 150 | FB | 2TR | DBB | 2236 | MT | 52 |

| 1 | VALVE SIZE (inch / mm) |
|--------|---------------------------------|
| INCHES | 2, 3, 4, 6, 8, 10, 12 |
| DN | 50, 80, 100, 150, 200, 250, 300 |

| 2 | BODY STYLE |
|----|----------------------|
| | inches (DN) |
| AM | 2" - 4" (DN50 - 10) |
| DM | 6" - 12" (DN150-300) |

| 3 | BODY RATING |
|-----|----------------|
| 150 | ASME Class 150 |

| 4 | PORTS |
|-----------------|----------------------------|
| FB ¹ | Bottom ported flanged body |
| FD ² | Side ported flanged body |

| 5 | CONFIGURATION |
|-----|--|
| - | Basic Design |
| 2TR | 2 position valve with dual ported ball |
| 3TR | 3 position valve with dual ported ball |

| 6 | Special |
|-----|------------------------------|
| DBB | Double block and bleed seats |

| 7 | BODY / TRIM MATERIAL |
|------|---|
| 2236 | Carbon steel body / 316 stainless steel trim |
| 3600 | 316 stainless steel body / 316 stainless steel trim |

| 8 | SEAT / SEAL MATERIAL |
|----|-------------------------------|
| TT | PTFE seat / PTFE seals |
| MT | Filled PTFE Seat / PTFE seals |

| 9 | O-RING / STEM SELECTION |
|----|----------------------------|
| | 2" thru 8" |
| 52 | Buna N |
| 53 | Viton |
| | 6" thru 12" |
| AO | Buna N with operating stem |
| DO | Viton with operating stem |

¹ 2" - 8" only

² Not available with 2TR / 3TR Configuration

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