

REPAIR PROCEDURE – MODEL 6C

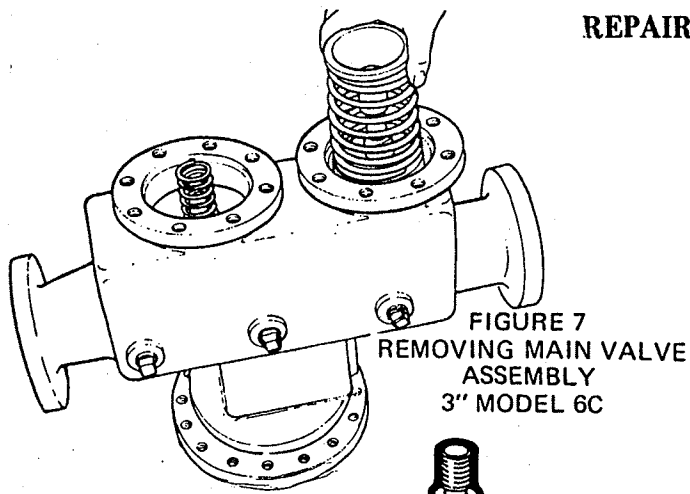
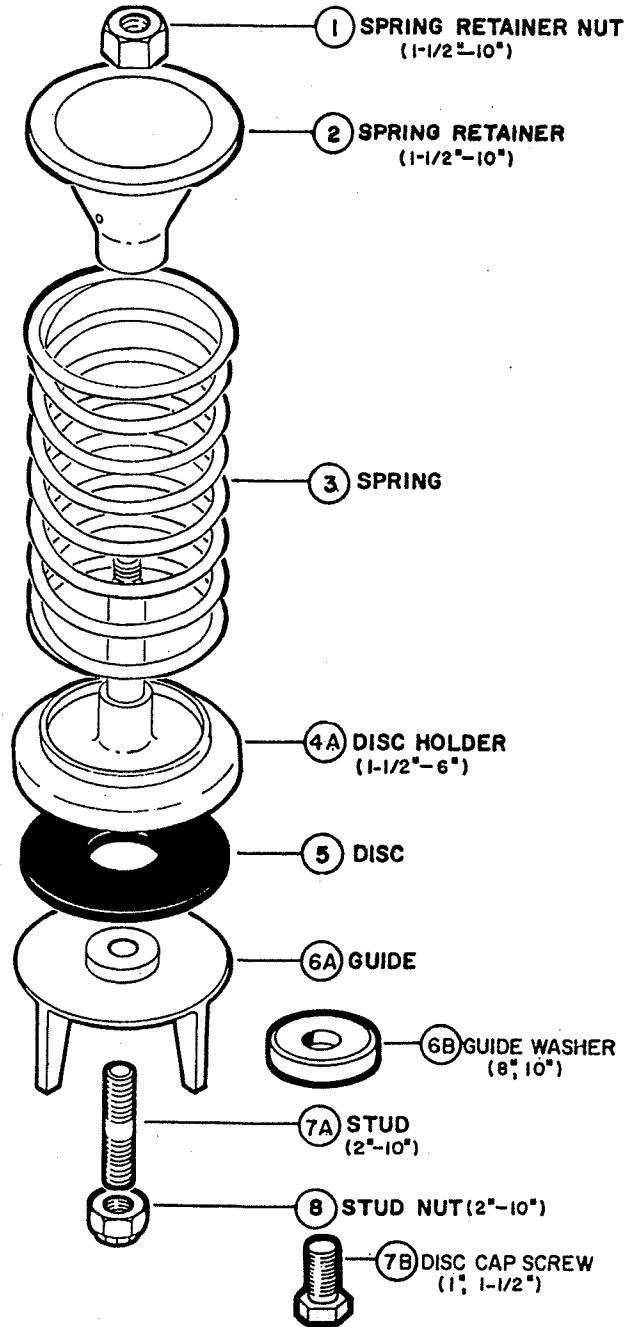
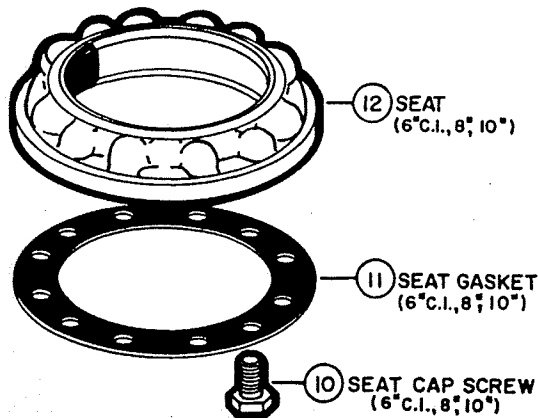
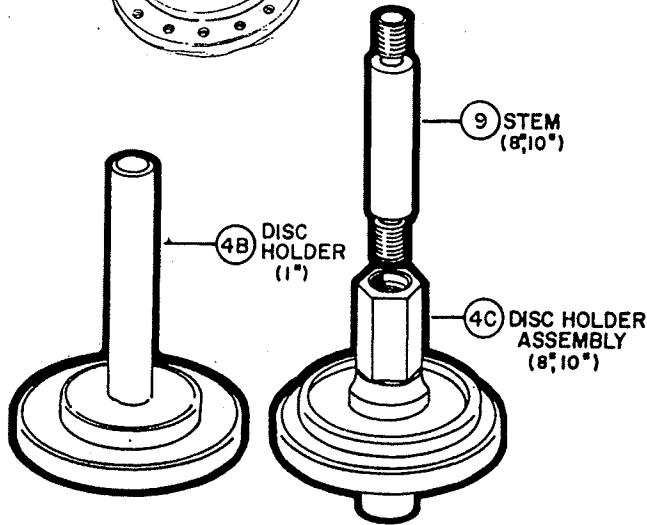


FIGURE 7
REMOVING MAIN VALVE
ASSEMBLY
3" MODEL 6C



REPLACEMENT OF MAIN VALVE RUBBER DISC

1. Close inlet and outlet shutoff valves.
2. Open test cocks 2, 3, 4, to release pressure and drain the backflow preventer.
3. Remove cover cap screws or bolts and nuts,

valve cover and cover gasket or guide plug (1" size). Remove spring (1" size) (3). Caution! Valve spring exerts force directly against plug.

4. Remove main valve assembly (Fig. 7).
5. Remove disc cap screw (1" and 1-1/2" sizes) (7B) or stud nut (2" – 10" sizes) (8). This releases the guide (6A) and guide

washer (8" – 10" sizes) (6B) from disc holder (1" – 6") (4A, 4B), or from disc holder assembly (8", 10") (4C). Stem (8" and 10" sizes) (9) can also be replaced, if necessary

6. Replace disc (5) and reassemble valve guide (6A) to disc holder (4A, 4B) or disc holder assembly (4C).
7. To replace seat gasket (6" CI, 8", 10" sizes), remove seat cap screws (10), seat gasket (11), and seat (12). Install new gasket and replace seat and cap screws.
8. Place valve assembly in body.
9. Replace spring (1" size) (3).
10. Replace plug or cover, using new gasket (1-1/2" – 10" sizes).
11. Replace cap screws or bolts and nuts.

REPLACEMENT OF CHECK VALVE RUBBER DISC (and Seat Gasket – 6" CI, 8", 10")

6C

1. Remove guide plug (1", 1-1/2", 2" sizes) or cover (2-1/2" – 10" sizes). Caution! Valve spring (1", 1-1/2", 2", 3", 4" and 6" bronze case model) exerts force directly against plug or cover.
2. Remove spring (1) (1", 1-1/2", 2", 3", 4" sizes and 6" bronze case model) and valve assembly, or valve assembly including spring (2-1/2", 6" CI, 8", 10" sizes).
3. Remove disc cap screw (3B) (1", 1-1/2" sizes) or stud nut (6). This releases the

- guide (5A) and guide washer (8", 10" sizes) (5B).
4. Replace disc (4) and reassemble guide to disc holder (2A, 2B, or 2C).
5. To replace seat gasket (6" CI, 8", 10" sizes) remove seat cap screws (9), seat gasket (10), and seat (11). Install new gasket and replace seat and cap screws.
6. Place valve assembly in body. Replace spring (1) if separate from valve assembly.
7. Replace guide plug or cover, using new cover gasket. Replace cap screws or bolts and nuts.

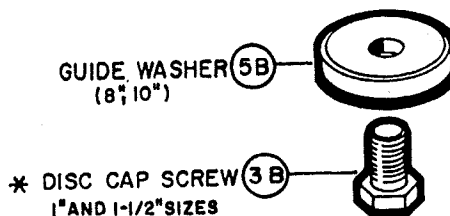
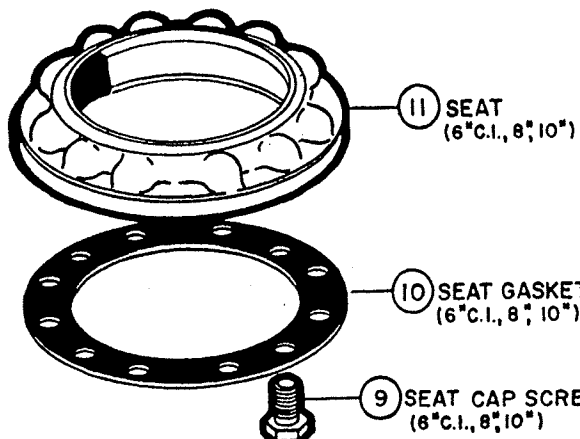
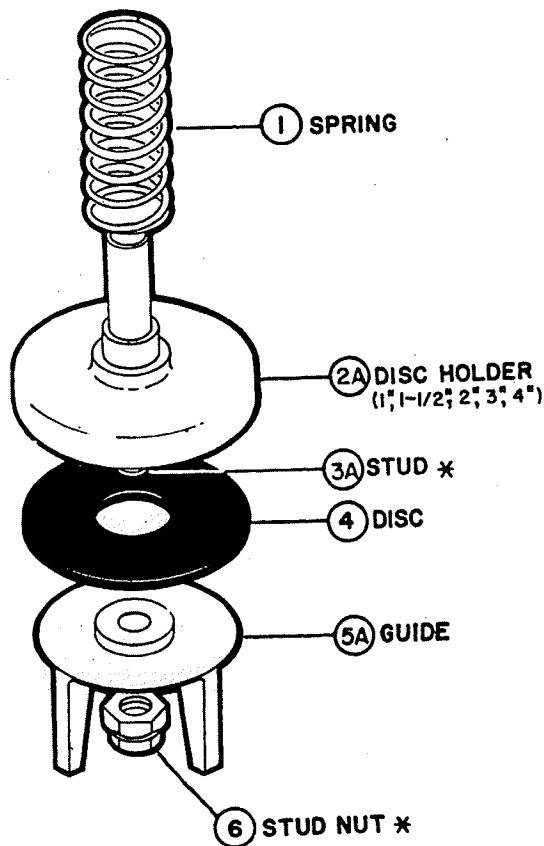
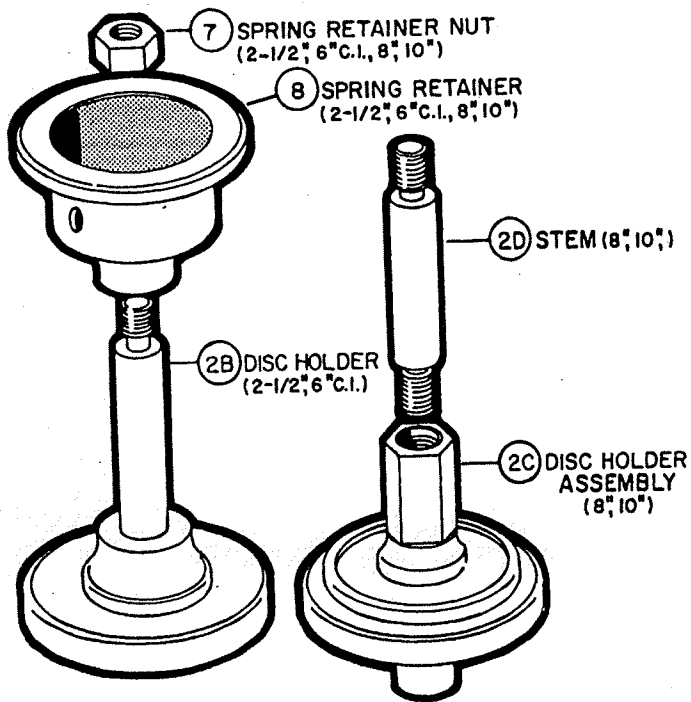


FIGURE 10
TYPICAL CHECK VALVE ASSEMBLY
– BEECO MODEL 6C

REPLACEMENT OF MAIN VALVE SPRING
(1-1/2" - 10").

6 C

1. 1-1/2" - 3" (refer to Figs. 9).
 - a. Loosen spring retainer nut (1).
 - b. Compress spring retainer (2) by hand. Remove spring retainer nut (1).
 - c. Release hand and remove retainer (2) and spring (3).
2. Replacement of Main Valve Spring (4" - 10") (Method optional for 3".)
 - a. Remove cover; leave valve assembly in body.
 - b. Place spring removal plate on main valve spring retainer.
 - c. Attach threaded rods (see chart for proper size) to plate and body flange with nuts provided. On 4" size, screw rod into flange. On 6" - 10" sizes, engage bottom nuts fully. Tighten top nuts against plate.
 - d. Compress spring slightly by tightening top rod nuts. This forces retainer downward to release spring retainer nut.
 - e. Remove spring retainer nut (Fig. 12).
 - f. Gradually loosen top rod nuts to allow spring to relax.
 - g. Remove plate, spring retainer and spring. Remove remainder of valve assembly.

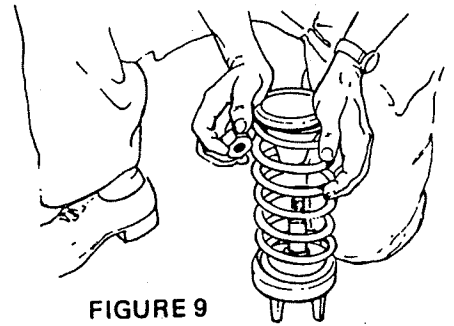


FIGURE 9
REMOVING MAIN VALVE SPRING
(1-1/2" - 3" MODEL 6C)

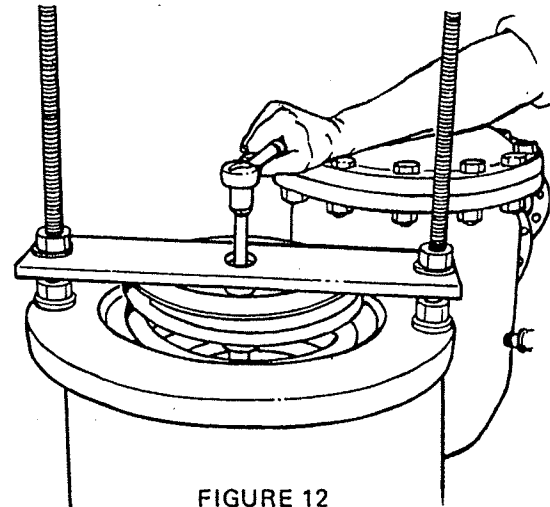


FIGURE 12
REMOVING 8" MAIN VALVE SPRING RETAINER
NUT FOLLOWING INSTALLATION OF SPRING
REMOVAL PLATE AND THREADED RODS

REPLACEMENT OF CHECK VALVE SPRING
(1", 1-1/2", 2", 3", 4", 6" bronze sizes). Spring is released when plug or valve cover is removed.

NOTE: In all sizes, the heavier spring is used on the main or first check valve.

REPLACEMENT OF CHECK VALVE SPRING
(2-1/2", 6" CI, 8", 10" sizes) (See Fig. 10.)

1. Remove valve assembly from body (Fig. 15).
2. Loosen spring retainer nut (7).
3. Compress spring retainer (8) by hand. Remove spring retainer nut.
4. Release hand and remove retainer and spring (1).

REPAIR OF RELIEF VALVES - 1" - 6"

6C

1. Removal

- a. Remove relief valve cover.
- b. Separate diaphragm (11) from body. (Use knife blade to separate it if it adheres).
- c. Remove relief valve lock nut (15).

NOTE: If elbow or other fittings are connected to outlet, remove them first.

- d. Support relief valve from beneath. Tap projecting end of housing (6) at discharge port with soft-faced hammer to

disengage locating pins. Valve assembly will drop through opening at base of body.

NOTE: Should locating pins start to disengage before lock nut is completely removed, support valve assembly before unthreading lock nut completely.

2. Disassembly

- a. Loosen clamp bolt nut (13) slightly. If nut cannot be released by hand, or if clamp bolt turns with nut when wrench applied, disassemble spring as follows:

(1) Insert Allen wrench into hexagonal opening at bottom end of clamp bolt.

(2) Rest valve assembly on seat, and remove clamp bolt nut with second wrench. Hold Allen wrench to prevent clamp bolt from turning.

A second person must press down on lower diaphragm plate at the same time to prevent sudden release of nut. After releasing nut, remove wrenches and allow spring to relax.

- b. Rest assembly on top of seat (1). Compress relief valve spring (9) by pressing down on lower diaphragm plate (12).

c. Partially remove clamp bolt nut, and gradually release spring. Caution! If lower diaphragm plate does not rest against nut, clamp bolt gasket (8) is adhering to upper diaphragm plate (10) and preventing spring release. Tap top plate to release spring. Compress spring again, remove nut completely, and release spring.

- d. Remove the lower diaphragm plate (12), diaphragm (11), upper diaphragm plate (10) and spring (9).

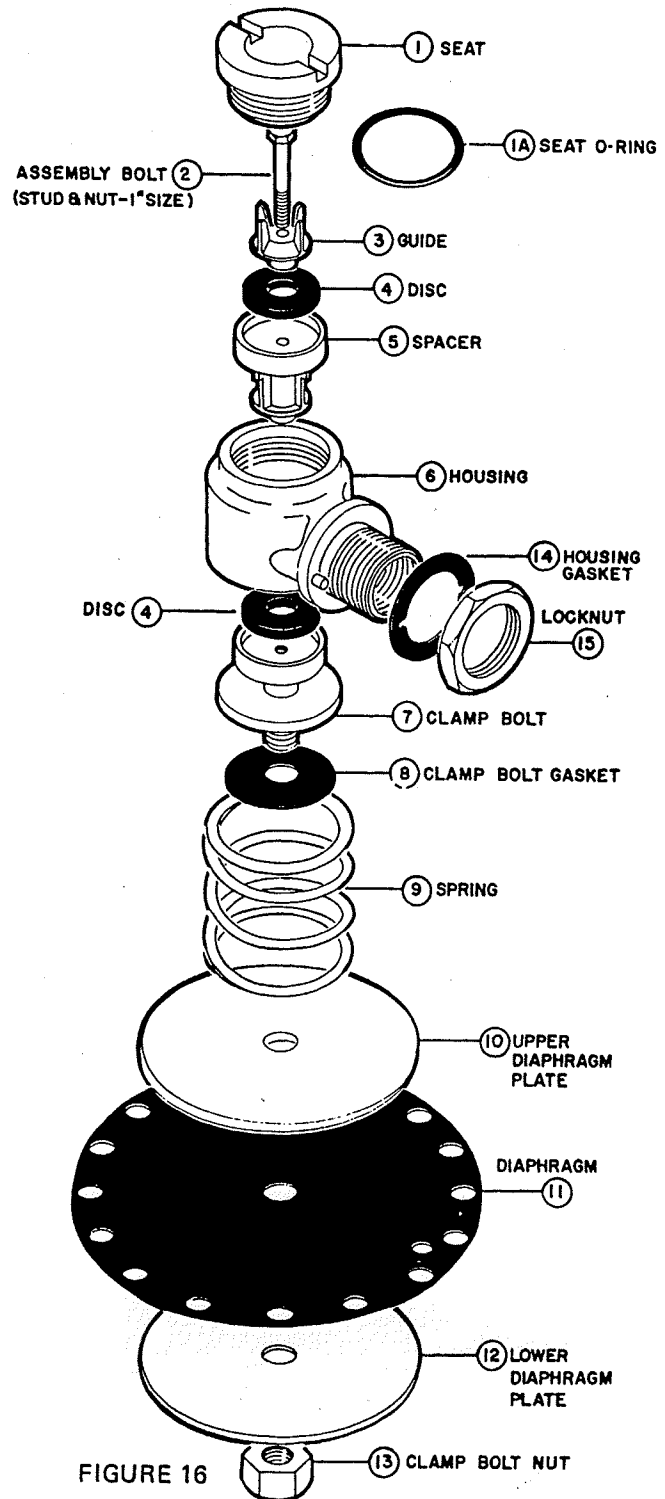


FIGURE 16
RELIEF VALVE ASSEMBLY - BEECO MODEL 6C
(1" - 6" SIZES)

- e. Select a piece of bar stock that will fit in slot on top of relief valve seat (1) and place in vise.
- f. Position slot in seat over bar stock. Turn housing (6) counterclockwise, using an 18" or longer length of pipe, threaded into the housing, to remove seat.

NOTE: Use 3/4" pipe for 1" and 1-1/2" backflow preventer. Use 1-1/4" pipe for 2", 2-1/2" and 3" sizes. For 4" and 6" sizes use 2" pipe. (Standard pipe thread). (Fig. 19).

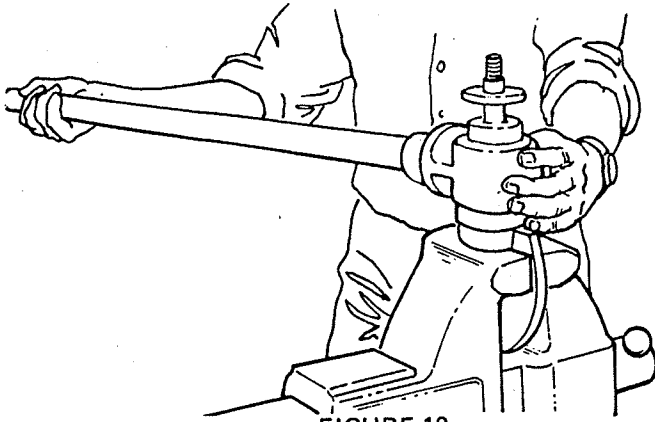


FIGURE 19
REMOVING SEAT FROM HOUSING

- g. On 1" size, unscrew the clamp bolt (7) from the lower end of the stud. (Stud may remain attached to clamp bolt). The guide (3), spacer (5), and stud (2) can then be removed through the top of the housing for final disassembly. Remove upper and lower relief valve discs (4) from the spacer and clamp bolt (7).
On larger sizes, remove the assembly bolt. This releases the guide (3), spacer (5), and clamp bolt (7). Withdraw the guide and spacer through the top of the housing (6).

3. Reassembly

- a. Insert new relief valve discs (4) into the spacer (5) and clamp bolt (7).
b. Insert the assembled spacer, disc, guide and assembly bolt (or stud), into the housing (6) through the top opening.
c. Apply pipe joint compound to threads of relief valve seat (1) and assemble to the housing (6). (If seat is equipped with an O-ring, apply vaseline to O-ring to hold it in slot).
Turn housing over and screw clamp bolt into position over bottom seat of housing. Tighten firmly by using socket wrench on assembly bolt and Allen wrench in end of clamp bolt

NOTE: On 1" and 1-1/2" devices, insert 1/2" drive socket wrench, without socket attached, between projections of relief valve guide. On larger sizes, use appropriate socket on assembly bolt.

- d. Place pencil or ink mark on side of clamp bolt and a matching mark on side of housing bottom seat (see Fig. 21).
e. Tighten seat by placing slot over bar held in vise, using pipe inserted into housing opening, as in step f, disassembly.
f. Continue tightening until pencil marks *just* separate. This assures simultaneous seating of the upper and lower valve discs, for correct operation of the relief valve.
g. Rest partially assembled valve on top of seat (1).
h. Place diaphragm (two thicknesses – 11) between upper (thicker – 10) and lower (thinner – 12) diaphragm plates, aligning diaphragm holes (in particular the hole for water passage through the cored inlet). Install new clamp bolt gasket (8).
i. Place relief valve spring (9) on housing.
j. Center diaphragm (11) and plates (10, 12) over clamp bolt (7). Press down on lower diaphragm plate to compress spring, and replace clamp bolt nut (13). Tighten firmly with wrench.

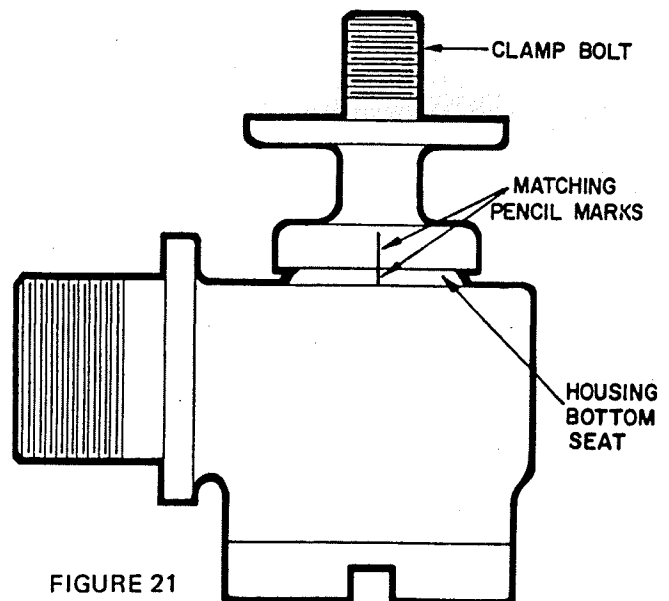


FIGURE 21
MARKING CLAMP BOLT AND HOUSING
BOTTOM SEAT FOR CORRECT DISC SEATING
ADJUSTMENT (1" – 6" MODEL 6C)

REPAIR OF RELIEF VALVES – 8" AND 10"

6C

1. Removal

- a. See step -1. Repair of relief valves (1" – 6" sizes).

NOTE: On 8" and 10" sizes, body may be inverted and relief valve lifted from opening

2. Disassembly

- a. Loosen assembly bolt (6).
- b. Compress spring (12) by pushing down on relief valve housing (3).
- c. Remove assembly bolt (6) with socket wrench. This releases guide (7) and

- d. spacer (9). Allow spring to extend. The housing will now lift away from the inside spacer (13) (Fig. 24).
- d. Loosen lower seat (11) with seat wrench.
- e. Remove lower seat and spacer from housing.
- f. Loosen and remove upper seat (5) with seat wrench.
- g. Loosen and remove clamp nut (16), diaphragm plate (15) and diaphragm (14).

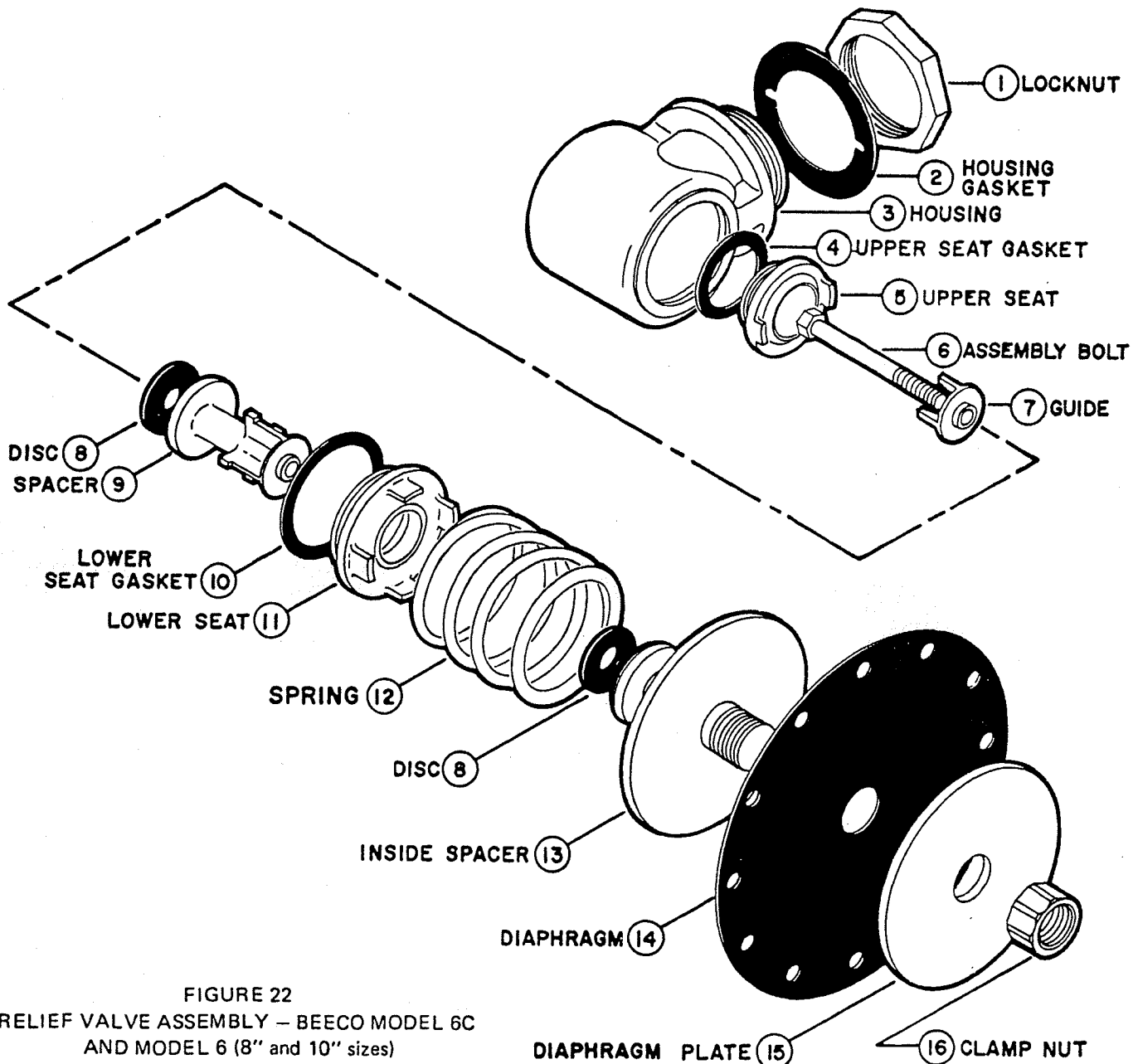


FIGURE 22
RELIEF VALVE ASSEMBLY – BEECO MODEL 6C
AND MODEL 6 (8" and 10" sizes)

3. Reassembly

- a. Replace upper and lower seat gaskets (4 and 10).
- b. Screw upper seat (5) into relief valve housing (3), using seat wrench.
- c. Insert new discs (8) into spacer (9) and inside spacer (13).
- d. Place spacer into relief valve housing (3), and screw lower seat (11) into housing, using seat wrench.

NOTE: To assure correct spacing of the seats, the bottom flange of the spacer should be within $\pm .005$ " of being level with the face of the lower seat (Fig. 25). Lay a straight edge across lower seat with feeler gauge. Check clearance between straight edge and disc spacer with feeler gauge. Back off or tighten lower seat until correct clearance is attained.

- e. Reassemble inside spacer (13), diaphragm (14), diaphragm plate (15) and clamp nut (16). Position diaphragm hole for water passage in proper relation to opening of cored passageway.
- f. Place spring (12) on inside spacer, set housing assembly on this spring, and insert assembly bolt (6) through the guide (7) and spacer.
- g. Compress spring, engage assembly bolt in threads of inside spacer, and tighten bolt. Release spring tension.

4. Assembly of Relief Valve into Body

- a. Replace housing gasket (2) and insert relief valve assembly into body through base, positioning housing outlet in body opening. Engage locating pins.
- b. Screw locknut on housing. Strike cut-out with driver to seat tightly.
- c. Replace relief valve cover, making sure that the inlet water passage holes in the body, diaphragm and cover are aligned.

NOTE: If holes are misaligned, remove valve from body, disassemble diaphragm plates, and spring. Rotate diaphragm to correct position, reassemble valve and place in body.

- d. Replace cover plate and tighten bolts.

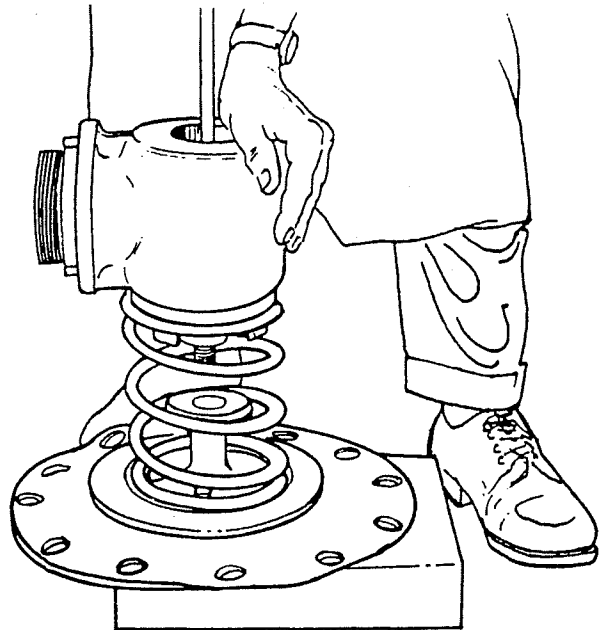


FIGURE 24
REMOVING ASSEMBLY BOLT

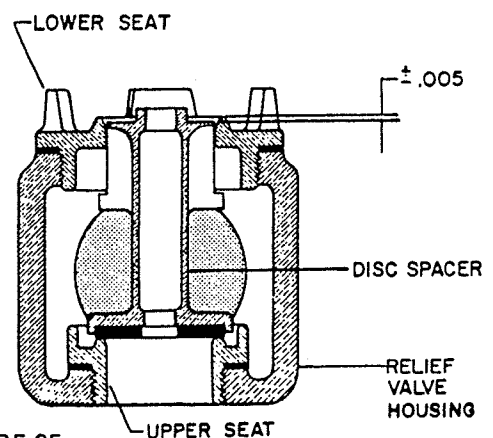
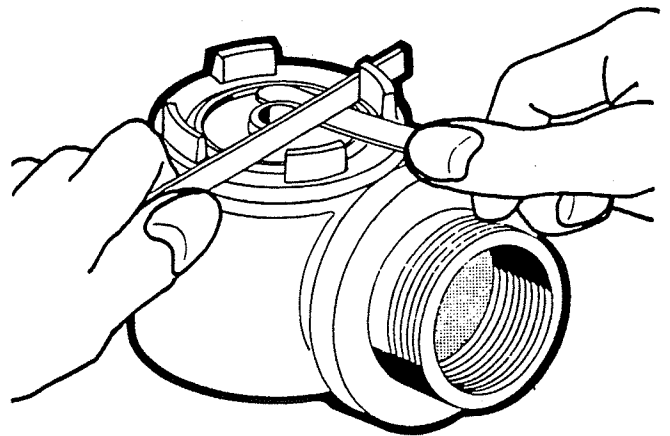


FIGURE 25
GAUGING OPERATION FOR CORRECT SEAT SPACING
(8" AND 10" MODEL 6C)