SQUIBB TAYLOR INCORPORATED

MANUFACTURED BY FGI INTERNATIONAL

Repair Instructions for Stem and Seal Replacement Kit No. 1660-1011 for the Repair of Models A1660, A1660C and A1661

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KEEP THIS DOCUMENT WITH THE PRODUCT UNTIL IT REACHES THE END USER.

WARNING

Before installation or removal of any Flo-Trol, the system must be purged completely of all product. Use proper safety equipment at all times. An abundant supply of clean water must be readily available and easily accessible as a means of providing IMMEDIATE First Aid treatment of exposure to ammonia. To insure long term safe operation, the manufacturer recommends that under normal service conditions this product should be inspected at least once every five (5) years and be repaired or replaced as required.

CAUTION:	Contact with or inhalation of Liquid Anhydrous Ammonia or LP-Gas or their vapors can cause serious injury or death. Dispersement must be in accordance with local regulations. For the proper handling and storage of Anhydrous Ammonia refer to ANSI Standard K61.1 For the proper handling and storage of Liquified Petroleum Gas refer to NFPA Pamphlet 58.

Replacement of Stem Assembly in the Elbow of the Flo-Trol

Step 1: Be sure that all tank valves are closed before starting maintenance.

Step 2: Purge Flo-trol completely of all product.

Step 3: Remove Flo-trol from the mounting plate or service valve.

Step 4: Remove the Return Spring No. 1660-2070 from handle.

Step 5: Hold retainer No. 1660-5067 down while removing Cotter Pin No. 1700-2027 and Flag No. 1600-2114. Remove the Retainer and Spring No. 1660-2066.

Step 6: Remove Handle No. 1660-2065 and Ratchet No. 1660-5064.

Step 7: Note tab position (location) of Return Stop No. 1660-2063. Remove two (2) Screws No. 1660-2074, then remove the Return Stop.

Step 8: Remove Stem Guide No. 1660C-5063 counter-clockwise with Special Wrench No. 1660C-7000 provided with kit. The Wiper Seal No. 1660C-2052 and O-Ring No. 1593-2001 will come out with the stem guide.

Step 9: Remove Stem No. 1660C-5060. The Nylon Washer (bearing) No. 1660-2077 will come out with the stem. Note the slot position of Ball No. 1660-5053 in the bottom of the elbow. Take care not to disturb this position, as you will need to re-engage the stem to the slot in the same position as when removed. Remove the old nylon washer from stem. Remove the old Gasket No. 1660-2076 from the elbow. Clean unit thoroughly.

Install New Stem Assembly

Step 1: Place new Gasket No. 1660-2076 in counterbore of the elbow. Slide the new Nylon Washer No. 1660-2077 over the stem until the washer rests on the shoulder of the stem. Lubricate the rounded area of the stem just above the washer with a good pump and packing / sealing type lubricant (John Crane Style 279A or equivalent is recommended). Place the stem into the elbow, making sure that the milled flat on the bottom of the stem engages the slot of the ball. The stem should stand erect for the next step.

Step 2: Lightly grease the threads of the stem guide. Note: Seal No. 1660C-2052 and O-Ring No. 1593-2001 should come already assembled to the stem guide by the factory. Push the stem guide over the stem, taking care not to cut the seals, and then engage the threads of the elbow. Tighten the stem guide with the special wrench. Restake in two (2) places between the threads of the elbow and the stem guide.

Step 3: Place Return Stop No. 1660-2063 over pins of the elbow. The tab must be up (toward the top) and to the left of the elbow looking from the front of the FLO-TROL. Install two (2) Screws No. 1660-2074 and tighten them.

Step 4: Place Ratchet No. 1660-5064 over the stem with boss or rounded part facing upward. The ears will settle in or line up to four (4) notches of the return stop. Place lever No. 1660-2065 over stem and onto ratchet, engaging notches with the ears of the ratchet. Do not index the ratchet.

Note: The long side of the handle must be to the left of the tab on the return stop and positioned by the tab. Do not index it yet.

Place Spring No. 1660-2066 over the stem. Place Retainer No. 1660-5067 (boss inside of spring) on top of the spring. Position Flag No. 1600-2114 into the slot of the stem, line up holes, compress spring and install Cotter Pin No. 1700-2027. Bend the legs of the cotter pin to secure it. Connect the Return Spring No. 1660-2070 to the handle. Index the lever and the ratchet several times in order to “lock” them in. Indexing action should be smooth with no restrictions. If restriction occurs, repeat the above procedure - making sure that the ball position or ball seals have not been disturbed.

Replacement of Ball Seals and Elbow to Body Seal

Note: Shut-off should be in the open position.

Step 1: Disconnect the Return Spring No. 1660-2070 from lever. Front body of Flo-Trol should be secured in a bench vise with the rear elbow assembly protruding out or clear for disassembly from the front body itself.

Step 2: Loosen four (4) Nuts No. 1660-2056. While holding the elbow assembly in place, remove the four (4) nuts completely. Remove the four (4) Lock Washers No. 1660-2058 from Bolt No. 1660-2057. Carefully remove elbow assembly from the front body, taking care not to disturb or drop inner components of the elbow assembly.
Note: Four (4) Bolts No. 1660-2057 should remain in front body for reassembly.

Step 3: Remove the O-ring Seal No. 1660-2055 from the groove of the elbow. Remove Spring No. 1660-2073 and Bushing No. 1660-5054 from the elbow.
Note: One Ball Seal No. 1660-3052 should come out with the bushing. Remove the ball seal from the bushing.

Step 4: Remove the ball from the elbow; this can be done easily by carefully indexing the shut-off to the closed position. This allows the ball to fall out. Remove the ball seal in the bottom of the elbow.

Step 5: Clean the ball, bushing and the spring with solvent. Lubricate one ball seal and place it in the bushing, then lubricate the other ball seal and place it in the bottom of the elbow.
Note: Lubrication will help keep the ball seals in place during the next assembly steps.

Step 6: Index the stem back to the open position. The flat side of the stem inside the elbow will be visible. Place the ball over the middle finger of your hand and then inside the elbow at a slight angle until the slot of the ball engages the stem. Then push the ball upward slightly to achieve proper alignment. During this step, take care to insure that the ball stays in place inside the elbow. Place the bushing with the ball seal into the elbow against the ball, taking care that the ball seal stays in place. Next, place the Spring No. 1660-2073 over the bushing. Lubricate the O-ring Seal No. 1660-2055 and place it in the groove of the elbow. Again, lubrication will help keep the O-ring in place during the final assembly step.

Step 7: Line up four (4) holes of the elbow to the bolts which stayed in the holes of the front body during disassembly. Carefully push the elbow assembly over the bolts and against the front body. Install the lock washers over the ends of the bolts. While holding the elbow assembly in place, start two (2) of the nuts onto two bolts and snug them up finger tight. Install the other two nuts in the same manner. Tighten the nuts in a criss-cross pattern to effect a proper seal and to avoid cocking the elbow flange.

Step 8: Connect the return spring to the handle and index it several times to “lock” in the seals. The indexing action should be smooth with no restrictions.

Replacement of Dial Packing

Step 1: Loosen the pointer Screw No. 1600-2016. Remove the Pointer No. 1660-5014 from the valve stem. Clean the exposed end of the valve stem before removing the packing nut. Remove Packing Nut No. 1660-5024 by turning it counter-clockwise.
Note: It is advisable to spray the packing nut with a thread-loosening agent such as WD-40 before attempting removal.

Step 2: Treatment of the packing nut in this manner will help prevent stripping of the threads of the front body during packing nut removal. Using a screw driver or other sharp pointed object, remove the old packing from the front body. Take care not to damage the threads of the front body. The packing retainer should stay in the front body.

Step 3: Clean the stem and packing area thoroughly. Install the new Packing No. 1660-2023 over the stem and onto the front body. Tap the edges down if necessary to allow thread engagement of the packing nut. Lightly grease the threads of the packing nut and install it over the stem into the front body. Snug up the nut using a wrench - then back off 1/2 turn to allow the stem to turn easily for calibration.

Calibrate as Follows

Tighten the pointer on the stem (in any position), rotate the pointer and the stem counter-clockwise until it stops (do not force it). Operate the pointer several times with a right and left rotation to create free movement of the stem and to get a feel for the full open position. Place the pointer in the full open position and loosen the pointer screw. Then turn the pointer to the zero position of the dial, making sure that the stem does not move. Line up the left side of the pointer with the zero position of the dial, then tighten the screw securely. Operate the pointer with the left and right hand movement several times to the full open position. Recheck the pointer alignment to the zero position of the dial. Loosen the screw and reset the pointer if necessary. After the unit is calibrated, turn the pointer clockwise to move the orifice away from the bonnet. Snug up the packing nut to prevent further movement of the stem until the unit is placed back into service.

Replacement of the Strainer and Plug Gaskets

Loosen and remove Strainer Plug No. 1661-5008. Remove the old strainer and the gasket. Clean the strainer plug thoroughly. Place new Strainer No. 1660C-2078 over boss of the strainer plug. Place one (1) Gasket No. 1660-2025 into the counterbore of the front body. Lightly grease the threads of the strainer plug. Install the strainer and the strainer plug into the body and tighten it.

Note: You have been supplied with three (3) additional gaskets (Numbers 1660-2005, 1660-2009 and 1660-2025) which may or may not be required depending on the model or style you are repairing. Follow similar procedures to those in Strainer Plug Removal should you need to replace the spring plug or the stop plug gaskets. All of these plugs are removed counter-clockwise and are tightened clockwise.