

GH-BETTIS
OPERATING & MAINTENANCE INSTRUCTIONS
DISASSEMBLY & ASSEMBLY
FOR THE
T5XX-SR X-12 & T5XX-SRX-12-S*
SPRING RETURN SERIES
PNEUMATIC ACTUATORS

*-S INDICATES SPECIAL STOP ADJUST SCREW
IN THE POWER CYLINDER

PART NUMBER: 72010

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1.0 INTRODUCTION

- 1.1 This service procedure is offered as a guide to enable general maintenance to be performed on GH-Bettis T5XX-SRX-12 "Scotch-Yoke!" type pneumatic series actuators.
- 1.2 The maximum recommended service interval for this actuator series is six hundred twenty five (625) cycles or five years. Storage time is counted as part of the service interval.

COMPLETE ACTUATOR REFURBISHMENT
REQUIRES THAT THE ACTUATOR
BE DISMOUNTED FROM THE VALVE

2.0 BASIC TOOLS

All tools are American Standard inch. Large adjustable wrench, two each large standard screwdriver, small standard screwdriver with sharp edges removed, strap wrench, putty knife, 1-3/8 " crowfoot wrench, pipe wrench, 1/4 " drift punch, 24 oz. bail peen hammer, Allen wrench set, pry bar, 1/2" drive socket set, torque wrench (up to 5000 inch pounds), razor sharp cutting instrument, non-corrosive leak testing solution, and non-hardening thread sealant.

3.0 REFERENCE GH-BETTIS MATERIALS

- 3.1 Assembly Drawing 39804 for T5XX-SRX-12(CW) actuator failing closed.
- 3.2 Exploded Detail Drawing Part Number 72101.
- 3.3 General Operating & Maintenance Instruction Part Number 71584.

4.0 GENERAL

- 4.1 Numbers in parenthesis, indicate the bubble number (reference number) used on the GH-Bettis Assembly Drawing and actuator parts list.
- 4.2 This procedure is written using the stop screw side of the housing (1-10) as a reference and this side will be considered the front side of the actuator.
- 4.3 Refer to Chart number I for actuator weights.
- 4.4 Mating parts should be marked for ease of reassembly, i.e. spring cartridge to housing and cylinder to housing.
- 4.5 When removing seals from seal groove, use a small standard screwdriver with the sharp edges rounded off or use a commercial seat removing tool.
- 4.6 Use a non-hardening thread sealant on all pipe threads.
- 4.7 Disassembly should be done in a dean area on a work bench.

4.8 LUBRICATION REQUIREMENTS

4.8.1 Use Dow Corning Molykote 44, medium grade.

5.0 GENERAL DISASSEMBLY

- 5.1 Remove all operating pressure from actuator power cylinder (2-10), allowing the spring to stroke. The spring will rotate the yoke to the fail position.
- 5.2 Remove all piping and accessories mounted on the actuator.
- 5.3 Mark the stop screws (1-60) left and right. The setting of the stop screws (1-60) should be checked and setting recorded before stop screws are loosened or removed.
- 5.4 Remove actuator from valve and valve mounting bracket.
- 5.5 Remove socket cap screws (1-180) from position indicator (1-170) yoke weather cover (3-130) and remove position indicator/yoke weather cover.

6.0 SPRING CARTRIDGE REMOVAL

- 6.1 When the spring cartridge is installed on the actuator the spring is under compression. **DO NOT** remove the spring cartridge until the actuator has the "pre-load" removed. Due to the weight and size of the spring cartridge (4-10), it should be supported during removal.
- 6.2 Spring cartridge "pre-load". Apply nominal operating pressure to the pressure inlet port located in the cylinder end cap (2-30). Locate the stop screw (1-60) that is on the opposite side of the housing from the spring cylinder (4-10). Loosen jam nut (1-120). Unscrew and remove the stop screw (1-60) and the gasket seal (3-110). Remove pressure from the pressure inlet port.
- 6.3 **WARNING:** Under no circumstances should the spring cartridge be cut open as the spring is pre-loaded with the end caps and cylinder welded around the loaded spring.
- 6.4 Remove the hex nuts (10-200) from the back side of the spring brace (10-240). The remaining hex nuts (10-200) may be left on the brace rods (4-80). The brace rods (4-80) will not be removed from the spring cartridge (4-10).
- 6.5 Remove the socket head screw (4-60), lockwasher (4-50), and the nut retainer (4-40) between the large hex nuts on outboard end of the spring cartridge (4-10).
- 6.6 Alternately loosen the two large hex nuts on the outboard end of the spring cartridge (4-10). These nuts are welded to the tie bars that extend through the spring cartridge and screw into the spacer (10-250). Unscrew the tie bars until the spring cartridge is free from the spacer. Care should be taken so that the tie bars are not pulled back into the spring cartridge.

- 6.7 To keep from inadvertently pulling the tie bars back into the spring cartridge use two each one inch -8 UNC hex nuts and thread them on to the spring cartridge tie bars. Place the spring cartridge (4-10) to one side.
- 6.8 The removal of ferry cap screws (10-220) and spacer (10-2.50) is not required to service actuator.

7.0 PRESSURE CYLINDER DISASSEMBLY

- 7.1 Remove breather (4-30) from inner end cap (2-40).

7.2 OUTER END CAP REMOVAL

- 7.2.1 Outer end cap (2-30) with adjustable stop screw will be disassembled per the following steps:

7.2.1.1 Loosen and thread jam nut (2-130) all the way back to the welded nut.

7.2.1.2 Loosen and remove socket cap screws (2-200) from adapter (2-190).

7.2.1.3 Remove adapter (2-190) and the adjustable stop screw assembly (2-210).

7.2.1.4 Thread the adjustable stop screw (2-110) from adapter (2-190).

7.2.1.5 Remove the o-ring seal (3-140) from the adapter (2-190).

7.2.1.6 Remove the thread screw seal (3-160) and washer seal (3-170) from the adjustable stop screw (2-110).

7.2.1.7 Proceed to step 7.2.3.

- 7.2.2 Outer end cap (2-30) without the adjustable stop screw, will be disassembled per the following step:

7.2.2.1 Unscrew and remove socket head cap screw (2-120), lockwasher (2-110), and nut retainer (2-100).

- 7.2.3 Remove heavy hex nuts (2-90) from tie bars (2-60).

- 7.2.4 Remove outer end cap (2-30). The fit between the cylinder (2-10) and the outer end cap is very tight. Break the outer end cap free by tapping with a breaker bar on the lip provided on the end cap.

- 7.2.5 Remove outer end cap o-ring seal (3-60).

- 7.3 Remove the outer end cap tie bar o-ring seals (3-30).

- 7.4 Pry inner end cap (2-40) away from the housing (1-10). Break the inner end cap free from the cylinder (2-10) by tapping with a breaker bar on the lip provided on the end cap.

- 7.5 Remove the cylinder (2-10). When slicing the cylinder off of the piston, cant the cylinder 15° to 30° degrees to the piston rod.
- 7.6 Remove the piston T -seal set (3-90).
- 7.7 Remove the split ring retainer (2-80) and the split ring (2-70) from the outboard side of the piston (2-20).
- 7.8 Remove the piston (2-20) from the piston rod (2-170). The piston will slide off of the piston rod and tie bars (2-60).
- 7.9 Remove the two sets of tie bar to piston T -seals (3-80) from the piston.
- 7.10 Remove the piston rod o-ring seal (3-40) from the piston rod (2-170).
- 7.11 Remove the split ring retainer (2-80) and the split ring (2-70) from the inboard side of the piston.
- 7.12 Remove the inner end cap o-ring seal (3-60).
- 7.13 Slide the inner end cap (2-40) off the tie bars (2-60) and piston rod (2-170).
- 7.14 Remove the tie bar to inner end cap o-ring seals (3-30) from the inner end cap (2-40).
- 7.15 Remove rod seal (3-70) from inner end cap (2-40).
- 7.16 Remove rod bushing (2-50). The bushing will slide off of the end of the piston rod.
- 7.17 Unscrew the tie bars (2-60) from the housing (1-10). Flats are provided on the outboard end of the tie bars for wrench placement. DO NOT use a pipe wrench on the tie bars as it will mark the bar and cause seal leakage. This step is optional as the tie bars can be left in the housing.

8.0 HOUSING GROUP DISASSEMBLY

- 8.1 Unscrew push rod (4-20) from yoke pin nut (1-30) and remove from housing.
- 8.2 Unscrew piston rod (2-170) from yoke pin nut (1-30) and remove. Flats are provided on the outboard end of the piston rod for wrench placement. DO NOT use a pipe wrench on the piston rod as it will mark the rod and cause seal leakage.
- 8.3 Remove four cover/spring brace hex cap screws (10-210) and gasket seals (3-100).
- 8.4 Remove cover hex cap screws (1-90) and gasket seals (3-100).
- 8.5 Remove the housing cover (1-20). Spring brace (10-240) will come off with cover as cover pins (10-230) fit securely. The cover will have a very tight fit. It is not necessary to remove cover pins (10-230)/(1-130) or separate housing cover from spring brace (10 -240).

- 8.6 Remove the yoke to cover o-ring seal (3-50) from the cover.
- 8.7 Remove the top two yoke rollers (1-50) and roller spacer (1-110) from the top of the yoke pin (1-40).
- 8.8 Remove the yoke pin (1-40).
- 8.9 Remove the yoke pin nut (1-30).
- 8.10 Remove the lower two yoke rollers (1-50) and roller spacers (1-110) from the bottom of the yoke and housing.
- 8.11 The yoke (1-160) can now be removed by lifting it from the housing.
- 8.12 Remove the remaining stop screw (1-60), stop nut (1-120), and gasket (3-110).
- 8.13 Remove the housing to yoke o-ring seal (3-50) from the housing.
- 8.14 Using putty knife, remove both the end cap gaskets (3-10) and the cover gasket (3-20).
- 8.15 It is not necessary to remove the cover/housing grease fittings (1-70), the pipe plug (1-80), snubber valve (1-190), ferry cap screws (10-220), spacer (10-250), or the final end cap gasket (3-10), to service the actuator.

9.0 GENERAL RE-ASSEMBLY

- 9.1 Remove all old seals and gaskets, taking care not to scratch or damage seal grooves.
- 9.2 Before starting the assembly of an actuator, all parts should be thoroughly cleaned, inspected and de-burred. Particular attention should be directed to threads, sealing surfaces and areas that will be subjected to sliding motion.
- 9.3 After inspection, the parts should be carefully cleaned to remove all dirt, gaskets and other foreign material.
- 9.4 Coat all seals with lubricant, before installing into seal grooves.
- 9.5 T-seal set installation - The T-seal is composed of one rubber seal and two split skive-cut back- up rings.
 - 9.5.1 Install the T -seal into the seal groove.
 - 9.5.2 Install a back- up ring on each side of the T -seal.
 - 9.5.3 When installing the back- up rings, do not align the skive- cuts.
 - 9.5.4 If the back-up rings are too long and the rings overlap beyond the skive-cuts, then the rings must be trimmed with a razor sharp instrument.

10.0 CENTER HOUSING GROUP RE-ASSEMBLY

- 10.1 If removed install drain plug (1-80) in actuator housing (1-10).
- 10.2 Take all the yoke rollers (1-50) and check to see if they will run (move) freely thru the-tracks in the bottom of the housing and the housing cover.
- 10.3 Coat one of the yoke o-ring seal (3-50) with lubricant and install into the housing (1-10).
- 10.4 Inside the housing (1-10) apply lubricant to the tracks and yoke bore and orientate the housing with the yoke bore nearest you.
- 10.5 Apply lubricant to the slots in the upper/lower yoke arms and the lower bearing surf ace.
- 10.6 Install the yoke (1-160) into 0 the housing (1-10) as follows: Arrange the yoke arm to approximately a 45° degree position in either direction and lower into the housing. The hub with tapped holes faces up. Rotate the yoke back to approximately the mid-stroke (center) position.
- 10.7 Apply lubricant to all surfaces of two of the yoke rollers (1-50) and two roller spacers (1-110). Place one yoke roller in the track in the bottom of the housing and position it under the slot in the yoke arms. Place a roller spacer (1-110) on top of the bottom yoke roller (1-50). Place a second yoke roller on top of the roller spacer in the slot in the lower yoke arm. Place another roller spacer (1-110) on top of the second yoke roller (1-50) and align the holes in the roller spacer and the yoke rollers.
- 10.8 Coat the upper and lower surfaces of the yoke pin nut (1-30) with lubricant and insert into position between the yoke arm, parallel to the track in the housing. Align the yoke pin hole with the yoke rollers and roller spacers.
- 10.9 Lubricate the yoke pin (1-40) and insert through the yoke pin nut (1-30), the two yoke rollers (1-50) and the two roller spacers (1-110).
- 10.10 Apply lubricant to all the surfaces of the two remaining yoke rollers (1-50) and two remaining roller spacers (1-110). Place one roller spacer on top of the yoke pin nut (1-30) then install the third yoke roller (1-50). Place the last roller spacer on top of the third yoke roller (1-50). Place the fourth and final yoke roller on to the yoke pin.
 - 10.10.1 The top roller will remain above the yoke arm and will engage the cover track when cover is installed.
- 10.11 Lubricate the piston rod (2-170) and slide into the right hand side of the housing and screw into the yoke pin nut (1-30). (DO NOT TIGHTEN) Flats are provided on the outboard end of the piston rod. These flats should be used to put a wrench on to tighten the piston rod. DO NOT use a pipe wrench on the piston rod, as it will cause seal leakage.
- 10.12 Lubricate the push rod (4-20) and slide into the other side of the housing and screw into the yoke pin nut (1-30).

- 10.13 Place gaskets (3-110) and jam nuts (1-120) on the stop screws (1-60). Install both assemblies into the housing.
- 10.14 Apply a thin coating of lubricant to both sides of the housing cover gasket (3-20).
- 10.15 Apply a thin coat of lubricant to the housing gasket surface.
- 10.16 Place the housing cover gasket (3-20) on the housing (1-10).
- 10.17 Coat the remaining yoke o-ring seal (3-50) with lubricant and install in cover (1-20).
- 10.18 Apply lubricant to the yoke bore and the track in the housing cover (1-20).
- 10.19 Apply lubricant to the yoke upper bearing surface.
- 10.20 Install the housing cover (1-20) and spring brace (10-240) being careful not to damage the gasket (3-20) or yoke o-ring seal (3-50).
- 10.21 Install the cover screws (1-90) and seal gasket (3-100). LEAVE FINGER TIGHT - DO NOT TIGHTEN.
- 10.22 Do this step only if you have pulled the cover pins (1-130) or if you are replacing the cover pins. Drive the two pins (1-130) thru the cover (1-20) and into the housing (1-10) until the pin is flush with the cover.
 - 10.22.1 The pins are deeply grooved at one end, tapering to a smooth diameter at the other end. The pin should be installed smooth end first.
- 10.23 Do this step only if you have pulled the spring brace/cover pins (10-230) and separated the cover and spring brace. Place the spring brace (10-240) into position and drive the two (2) pins (10-230) thru the brace and cover, into the housing.
- 10.24 Install brace cover screws (10-210) and seal gaskets (3-100). Torque to 21.5 foot pounds.
- 10.25 Tighten the cover screws (1-90) and brace cover screws (10-210), torque to 21.5 foot pounds.
- 10.26 Apply lubricant to the new rod bushing (2-50), install it over the piston rod and slide it up into the housing. The new rod bushing is contained in the GH-Bettis service kit.
- 10.27 Tighten the piston rod (2-170) to a torque of approximately 150 foot pounds or 20.7 kilogram-meters. Flats are provided on the outer end for wrenching purposes.
- 10.28 Tighten the push rod (4-20) securely with a strap wrench.
- 10.29 Rotate the yoke to a position that will leave a minimum of the piston rod (2-170) protruding from the actuator housing.

11.0 ADJUSTABLE STOP SCREW PRE-ASSEMBLY

- 11.1 Do this section for those actuators equipped with an adjustable stop screw.
- 11.2 Apply a light coating of lubricant to the threads of adjustable stop screw assembly (2-210).
- 11.3 If removed thread on hex jam nut (2-130) onto adjustable stop screw assembly (2-210).
- 11.4 Install countersunk washer seal (3-170) and thread screw seal (3-160) onto the adjustable stop screw assembly (2-210). The countersink of washer seal (3-170) should face the thread screw seal (3-160). Thread these items until they are up against the hex jam nut (2-130).
- 11.5 Lightly lubricate the o-ring groove area on the adapter (2-190).
- 11.6 Lightly lubricate the o-ring seal (3-140) and install into o-ring groove on adapter (2-190).
- 11.7 Thread the adapter (2-190) onto adjustable stop screw assembly (2-210).

12.0 PRESSURE CYLINDER RE-ASSEMBLY

- 12.1 Coat the rod seal (3-70) with lubricant and install, lip first, into the recess provided in the inner end cap (2-40).
- 12.2 Coat the end cap gasket (3-10) with lubricant on both sides and install over the piston rod and rod bushing.
- 12.3 Coat two tie bar o-ring seals (3-30) with lubricant and install into the inner end cap (2-40).
- 12.4 Slide the inner end cap (2-40) over the piston rod (2-170) and the rod bushing (2-50), protruding from the housing. Install with the large raised boss toward the housing (flat side outward). The pressure inlet port should be toward the top of the actuator.
- 12.5 Apply lubricant to the end cap o-ring seal (3-60) and install on the inner end cap (2-40).
- 12.6 Apply lubricant to two sets of piston tie bar T-seal components (3-80) and install into the piston internal seal groove. Refer to step 9.5 for proper installation instructions.
- 12.7 Apply lubricant to the piston o-ring (3-40) and place onto the piston rod (2-170).
- 12.8 Coat the ends of the piston rod (2-170) with lubricant.
- 12.9 Install the two halves of the split ring (2-70) into the inner most groove in the piston rod and retain with one of the split ring retainers (2-80) retaining ring groove away from piston..

- 12.10 Slide the piston (2-20) onto the piston rod against the split ring (2-70). Ribbed section of piston must face away from housing.
- 12.11 Install the two halves of the remaining split ring (2-70) onto the piston rod and retain with the split ring retainer (2-80).
- 12.12 Coat the piston T seal components (3-90) with lubricant and install into the piston external seal groove. Refer to step 9.5.
- 12.13 If removed, apply lubricant to the threads and end of the tie bars (2-60), (end without wrench flat), and install by carefully threading tie bars through the piston (2-20) and inserting through the inner end cap (2-40) and screwing into the housing (1-10). Lubricate all exposed surfaces of piston rod and tie bars.
- 12.14 Apply a light coat of lubricant to the bore of the cylinder (2-10).
- 12.15 Slide the lubricated cylinder (2-10) over the piston (2-20) and onto the inner end cap (2-40). When sliding the cylinder over the piston seal cant cylinder 15° to 30° degrees to piston rod, make certain the back-up rings (components of the piston seal) are seated into the seal groove. Should the back-up rings or seal member be pinched between the piston and cylinder, the components could be damaged, becoming a potential source of leakage. Do NOT hammer on ends of the cylinder.
- 12.16 Apply lubricant to two end cap tie bar o-ring seals (3-30) and install into the outer end cap (2-30).
- 12.17 Apply lubricant to the outer end cap cylinder o-ring seal (3-60) and install onto the outer end cap (2-30).
- 12.18 Install the outer end cap (2-30) onto the tie bars and into the end of cylinder (2- 10).
- 12.19 Outer End Cap With Adjustable Stop Screw
 - 12.19.1 Install the two tie bar nuts (2-90) on the tie bars (2-60), using them to draw all of the cylinder components into position. Torque alternately, in 50 ft lb. increments until a final torque of 100 ft lbs. plus or minus 10% percent has been achieved. It is necessary that the flats on the hex nuts (2-90) be aligned and parallel before the adapter (2-190) can be installed. It is permissible to exceed the 100 foot pound figure to align the hex nut flats.
 - 12.19.2 Rotate the adjustable stop screw assembly counterclockwise until end of CCW travel.
 - 12.19.3 Insert the adapter and adjustable stop screw assembly (2-110) into the outer end cap (2-30).
 - 12.19.4 Retain the adapter with socket head cap screws (2-200).
 - 12.19.5 Tighten jam nut (2-130).

12.20 Outer End Cap Without Adjustable Stop Screw

- 12.20.1 Install the two tie bar nuts (2-90) on the tie bars (2-60), using them to draw all of the cylinder components into position. Torque alternately, in 50 ft. lb. increments, until a final torque of 100 foot pounds plus or minus 10% percent has been achieved.
- 12.20.2 Install the nut retainer (2-100), securing in place with the retainer screw (2-120) and lockwasher (2-110). It is necessary that the flats on the hex nuts (2-90) be aligned and parallel before the nut retainer can be installed. It is permissible to exceed the 100 foot pound figure to align the hex nut flats.

13.0 SPRING CARTRIDGE INSTALLATION

- 13.1 Make sure that the stop screws (1-60) have not been screwed in to the point that “pre-load” will be created on the spring cartridge.
- 13.2 If removed, install end cap gasket (3-10), spacer (10-250), ferry cap screws (10-220) and tighten screws. Torque to 150 foot pounds.
- 13.3 Remove the safety nut from the spring cartridge tie bars.
- 13.4 Install the gasket (3-10) onto the spring cartridge (4-10) and over the tie bars.
- 13.5 Place the spring cartridge (4-10) on to the push rod (4-20) and align the spring cartridge tie bars with the holes in the spacer (10-250). Also align the brace rods (4-80) with holes in the spring brace (10-240).
- 13.6 Screw the tie bars into the spacer (10-250). Alternately tighten tie bar nuts in 50 foot pound increments until the spring cartridge is firmly against the spacer plate and tighten to 100 foot pounds plus or minus 10% percent.
- 13.7 Install the nut retainer (4-40), the lockwasher (4-50), and the socket cap screw (4-60). It is necessary that the flats on the hex nuts be aligned and parallel before the nut retainer can be installed. It is permissible to exceed the 100 foot pound figure to align the hex nut flats.
- 13.8 Install the hex nuts (10-200) onto the brace rods (4-80) and tighten.

13.9 POSITION INDICATOR ORIENTATION

- 13.9.1 For spring to close actuators (clockwise) rotate the yoke to the full clockwise (cw) position (as shown on the clockwise assembly drawings) position the yoke weather cover (3-130)/position indicator (1-170) on the yoke with the pointer facing the front and perpendicular with the piston rod (2-170), secure with the socket head cap screws (1-180).
- 13.9.2 For spring to open actuators (counter-clockwise), rotate the yoke to the full counter clockwise (ccw) position (as shown on the counter clockwise assembly drawings), position the yoke weather cover (3-130)/position indicator (1-170) on the yoke with the pointer facing the right and parallel with the piston rod (2-170), secure with the socket head cap screws (1-180).

14.0 ACTUATOR TESTING

14.1 Leakage Test -General

14.1.1 All areas, where leakage to atmosphere may occur, are to be checked using a leak testing solution.

14.1.2 All leak testing will use the nominal operating pressure (NOP) as listed on the actuator nametag or from Chart number 2 of this procedure.

14.2 Before testing for leaks, alternately apply and release NOP pressure to the pressure side of the pistons to stroke the actuator fully. Repeat this cycle approximately five times. This will allow the new seals to seek their proper working attitude.

14.3 Leakage Test - Procedure

14.3.1 Apply NOP pressure to the pressure port in the outer end cap (2-30).

14.3.2 Apply a leak testing solution to the following areas:

14.3.2.1 Joint between the outer end cap (2-30) and the cylinder (2-10). Checks cylinder to end cap o-ring seals

14.3.2.2 Around the tie bar nuts on the cylinder end cap(2-30). Checks tie bars to end cap o-ring seals.

14.3.2.3 The breather port hole in the inner end cap (2-40). Checks piston to cylinder, piston to tie bar, and piston to piston rod seals.

14.3.3 Remove pressure from pressure inlet port in the outer end cap (2-30).

14.3.4 If excessive leakage across the piston is noted (generally a bubble which breaks three seconds or less after starting to form), the actuator must be disassembled and the cause of leakage must be determined and corrected.

14.3.5 If an actuator was disassembled and repaired, the above leakage test must be performed again.

14.4 OPERATIONAL (FUNCTIONAL) TEST.

14.4.1 This test is used to verify proper function of the actuator and is to be done off of the valve or when the valve stem is not coupled to the actuator yoke.

14.4.2 Adjust the pressure regulator to the pressure rating indicated in Column "B" of Chart 2 for the model actuator being tested.

14.4.3 Apply the above pressure to the actuator pressure inlet ports and allow the actuator to stabilize. The actuator should stroke a full 90° degrees travel.

14.4.4 Any jumpy or jerky operation, not attributed to seal drag or limited flow capacity, must be corrected and the above test performed again.

14.4.5 Remove pressure from the pressure inlet port(s).

15.0 RETURN TO SERVICE

15.1 Install breather (4-30) in the inner end cap (2-40).

15.2 If removed, install the snubber (1-190) in the housing cover.

15.3 Re-install actuator to valve mounting bracket and valve.

15.4 Adjust both stop screws (1-60) back to settings recorded in step 5.3.

15.5 Tighten both stop nuts (1-120) securely, while holding stop screw (1-60).

15.6 All accessories, including solenoid valves, positioners, pressure switches, etc., should be hooked up and tested for proper operations and replaced, if found defective.

15.7 Refer to General Operating & Maintenance Instructions for -12 Trim Series Actuators Part Number 71584 for actuator start-up procedures.

CHART NO. 1

WEIGHTS FOR T5XX-SRX

| ACTUATOR MODEL | APPROXIMATE WEIGHT (POUNDS) | | | |
|-------------------|-----------------------------|------|------|------|
| | SR1 | SR2 | SR3 | SR4 |
| T516-SRX | 1382 | 1155 | 993 | 1004 |
| T520-SRX | 1497 | 1270 | 1108 | 1119 |

CHART NO. 2

PRESSURE REQUIREMENTS & LIMITATIONS
T5XX-SRX SPRING RETURN

PNEUMATIC ACTUATOR

| ACTUATOR MODEL | NOMINAL | MAXIMU | MAXIMUM | MAXIMU | COLUMN "B" OPERATING SELECTION PRESSURE |
|-------------------|--------------------|-------------------------|----------------------|--------------------------|---|
| | PRESSURE _(NOP) | M PRESSURE _(MOP) | STATIC TEST PRESS | M PRESSURE _(MAAP) | |
| T516-SR1 | 187 | 240 | 250 | 32 | 117 |
| T516-SR2 | 135 | 220 | 250 | 85 | 85 |
| T516-SR3 | 78 | 180 | 250 | 108 | 49 |
| T516-SR4 | 66 | 175 | 250 | 114 | 43 |
| T520-SR1 | 118 | 150 | 150 | 20 | 75 |
| T520-SR2 | 85 | 135 | 150 | 53 | 55 |
| T520-SR3 | 49 | 115 | 150 | 68 | 32 |
| T520-SR4 | 42 | 115 | 150 | 71 | 28 |

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