

WILROY™

SERIES OF METERING PUMPS

CONVERSION KIT INSTRUCTION MANUAL



WILLIAMS
MILTON ROY

CONVERSION KIT INSTRUCTIONS

1.0 STROKE ADJUSTER

Refer to Figure 3 for the following procedure:

- 1.1 Using a 3/16" hex wrench, remove the drain plugs (Fig. 1, item 150) at the bottom of the Wilroy™ pump, and drain the pump of all oil.
- 1.2 Using a 1/16" hex wrench, remove the set-screw (350) from the stroke adjuster knob (310). Remove the e-clip (330). Unscrew and remove the stroke adjuster knob.
- 1.3 Using a 1/16" hex wrench, remove the set-screw (320) from the stroke adjuster body (260). Then remove the control rod subassembly—consisting of components 225 (if applicable), 355 and 340—do not disassemble any subassemblies unless otherwise stated. NOTE: The sleeve (225) is not used on the Wilroy™ 5M.
- 1.4 Using a 1-1/4" wrench, unscrew the stroke adjuster body subassembly—consisting of components 250, 265, 280, 260 and 300—and remove it. The washer (230) may stick inside the Wilroy™ housing—verify that it is also removed.
- 1.5 Using a small screw driver, pry the calibration ring (290) off of the knob (310) as seen in Figure 2. **There are several components in the conversion kit that look similar to the existing components, be sure to set aside all components EXCEPT for the knob (310).**
- 1.6 The stroke adjuster body subassembly—consisting of components 250, 265, 280, and 260—is factory assembled. Slide the piston (240) into the bore insert (265).
- 1.7 Apply O-ring lubricant (or supplied grease) to the outside surface of the O-rings, (250) and (280). Insert the washer (230) into the recess of the bore insert (265) using some grease to hold it in place.
- 1.8 Carefully screw the stroke adjuster body subassembly into the Wilroy™ housing, so that the washer (230) does not fall out of the recess in the bore insert (265). There should be a gap of approximately .030 inches between the Wilroy™ housing and the hex portion of the stroke adjuster body. If the gap is greater than this, the washer probably fell out of the recess in the bore insert. If this is the case, remove the stroke adjuster body subassembly and reinsert the washer into the recess of the bore insert.
- 1.9 Using a 1-1/4" deep socket torque wrench, tighten the stroke adjuster body subassembly to 25 ft-lbs (34 N-m). DO NOT OVERTIGHTEN, as this may cause binding of the internal components.

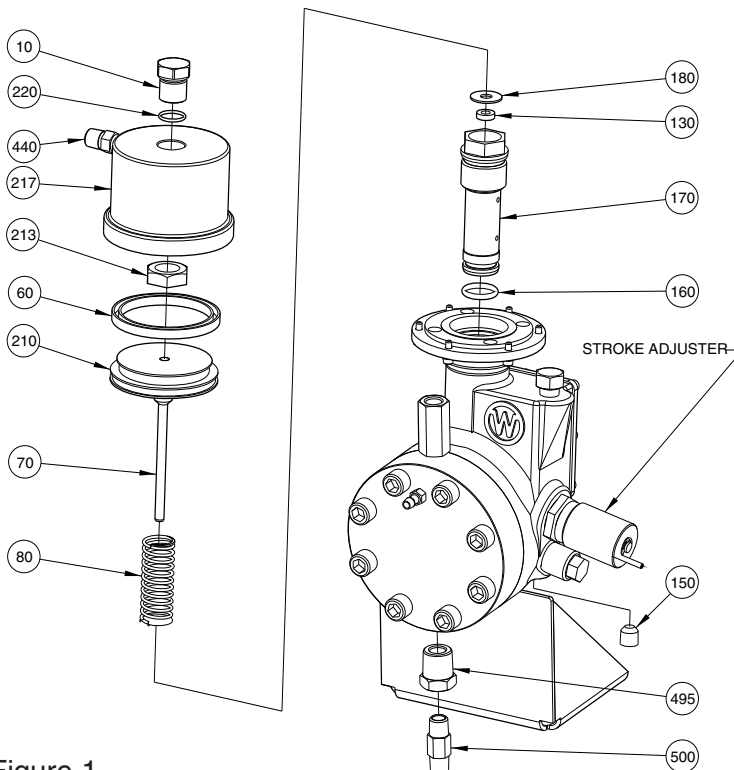


Figure 1

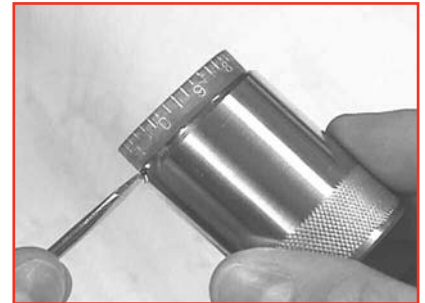


Figure 2

REQUIRED TOOLS AND MATERIALS:

- Hex wrenches: 1/16", 9/64" and 3/16"
- Socket torque wrench (capable of 25 ft-lbs or 34 N-m) with 1-1/8" socket and 1-1/4" deep socket
- Flat-blade screwdriver, 1/8"
- PTFE pipe thread tape
- Thread sealing compound
- Silicone grease (Williams G321M1)
- Removable thread-locking adhesive
- Super glue
- Adhesive surface primer

Figure 3

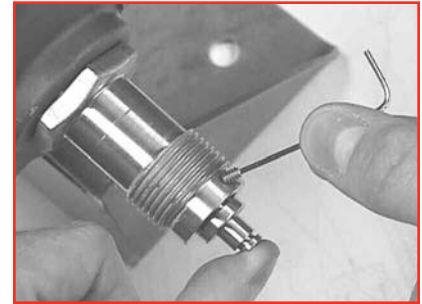
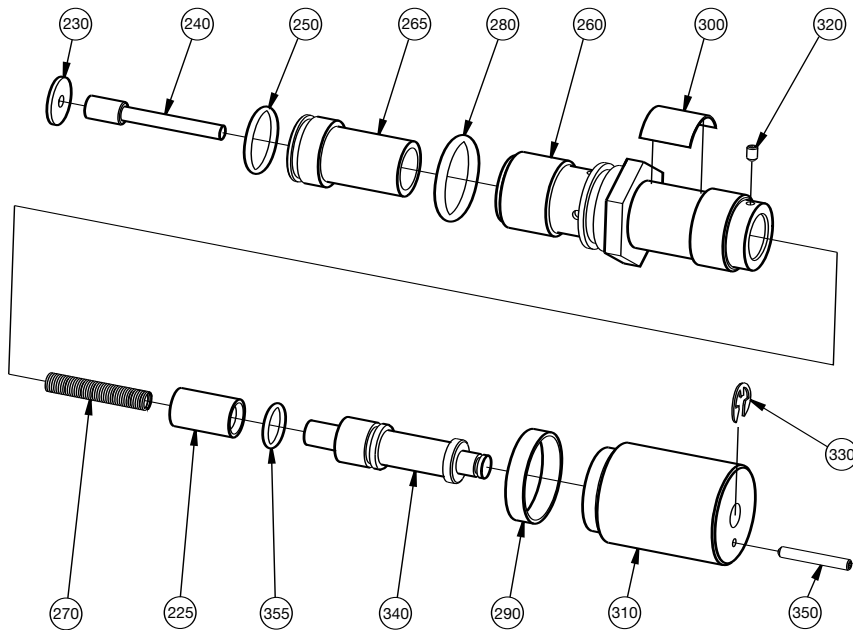


Figure 4



Figure 5

- 1.10 Remove the vinyl cap from the stroke adjuster body.
- 1.11 Insert the spring (270) through the stroke adjuster body (260) and slide it over the piston (240).
- 1.12 The control rod subassembly—consisting of components 225 (if applicable), 355 and 340—is factory assembled. NOTE: The sleeve (225) is not used on the Wilroy™ 5M. Apply O-ring lubricant (or supplied grease) to the outside surface of the O-ring (355).
- 1.13 Insert the control rod subassembly into the stroke adjuster body (260).
- 1.14 Apply a removable thread-locking adhesive to the set-screw (320). With the control rod subassembly fully inserted, thread the set-screw (320) into the stroke adjuster body (260) as seen in Figure 4. Screw the set-screw into the stroke adjuster body until it contacts the control rod (340), then back the set-screw out 1/2 of a turn.
- 1.15 Slide the calibration ring (290) onto the knob (310), being sure to orient the numbers as seen in Figure 2. Screw this subassembly onto the stroke adjuster body (260) until the knob bottoms out. There should be a gap of approximately .080 inches between the calibration ring and the hex portion of the stroke adjuster body.
- 1.16 Press the e-clip (330) into the groove of the control rod (340), so as to retain the knob (310).
- 1.17 With the knob (310) bottomed out, place a mark on the top of it, near the calibration ring (290) as seen in Figure 5.
- 1.18 Unscrew the knob a few turns and glue the calibration ring to it, making sure that the number zero is aligned with the mark on the knob (See Figure 5).
- 1.19 Using a 5/16" shaft, roll the capacity label (300) about its shorter axis, so as to give the label an initial curvature (do not remove the adhesive backing at this time).
- 1.20 Unscrew the knob nine complete turns from its bottomed out position. Using an adhesive surface primer, clean the top surface of the stroke adjuster body (260). Remove the adhesive backing of the label (300) and affix it to the top of the stroke adjuster body. Make sure that the numbers on the label are oriented as seen in Figure 5. Align the 10% dash mark with the edge of the calibration ring (290).
- 1.21 Adjust the knob (310) to the desired setting and insert the set-screw (350) into the knob. Thread the set-screw into the knob until it contacts the stroke adjuster body (260). Tighten the set-screw so as to lock the knob in place.

2.0 MOTOR CYLINDER

Refer to Figure 1 for the following procedure:

- 2.1 Using a 9/64" hex wrench, remove the 6 screws and washers which secure the motor cylinder (217).
- 2.2 With the screws removed, all of the following components are loose. Remove the motor cylinder subassembly—consisting of components 10, 220, 440, 217 and 213. Remove the piston/plunger subassembly—consisting of components 60, 210 and 70. Remove the motor cylinder spring (80). Remove the washer (180) which sits in the upper recess of the bore cartridge.
- 2.3 Using a 1-1/8" socket wrench, remove the bore cartridge subassembly—consisting of components 130, 170 and 160. **There are several components in the conversion kit that look similar to the existing components, set aside all components EXCEPT for the spring (80) and the motor cylinder assembly—consisting of components 10, 220, 440, 217 and 213.**
- 2.4 The bore cartridge subassembly—consisting of components 130, 170 and 160—is factory assembled. Apply O-ring lubricant (or supplied grease) to the outside surface of the O-ring (160).
- 2.5 Insert the bore cartridge subassembly into the Wilroy™ housing and tighten, using a 1-1/8" socket torque wrench, to 25 ft-lbs (34 N-m).
- 2.6 It is CRITICAL that the pump is filled with oil at this step. Fill the pump with Mobil SHC-524, Mobile DTE 13M or an appropriate equivalent. The oil fill level is approximately 3/8" below the top of the oil fill hole.
- 2.7 Insert the washer (180) followed by the spring (80) into the recess of the bore cartridge.
- 2.8 The piston/plunger subassembly—consisting of components 60, 210 and 70—is factory assembled. Apply supplied grease (Williams G321M1) to the outside surface of the u-cup seal (60) and to the inside surface of the motor cylinder (217).
- 2.9 Insert the piston/plunger subassembly into the bore cartridge.
- 2.10 Slide the motor cylinder subassembly—consisting of components 10, 220, 440, 217 and 213—over the piston/plunger subassembly and attach it to the Wilroy™ housing using the 6 screws and washers.

3.0 CHECK VALVE

Refer to Figure 1 for the following procedure:

- 3.1. Remove the suction check valve (500) and the reducer bushing (495), if applicable, from the pump. NOTE: The reducer bushing is not used on the Wilroy™ 5M. **There are several components in the conversion kit that look similar to the existing components, set these components aside.**
- 3.2. Install the reducer bushing (495), if applicable, and the suction check valve (500) from the conversion kit, being sure to apply thread sealing compound **AND** PTFE pipe thread tape to all connections. Make sure that the end of the check valve with the internal hex is screwed into the pump (or reducer bushing, if applicable).



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