OPERATIONAL & MAINTENANCE MANUAL

WEIR CONCEPTS INC.

WCM7970 HIGH-LOW PRESSURE PILOT

Version 4.0

7596 Wagner RD NW Edmonton , Alberta CANADA T6E 5B2
780.462.1910 ph 780.462.1959 fax info@weirconcepts.com www.weirconcepts.com

Weir Concepts Inc.

MADE IN ALBERTA, CANADA PRODUCTS

Manufactured and assembled at our Edmonton based facility

DETAILS ARE THE DIFFERENCE BETWEEN ORDINARY AND EXCELLENCE

1. Summary

This manual covers Operation, Maintenance and Troubleshooting and for WC7970 High-Low Pressure Pilot.

2. Technical & Application Data

Working Pressure:

Process Pressure Inlet: 10,000psi

Control Ports: 125psi

NACE Compliant

Full 316SS Construction

CAUTION: Always consult and follow established safety procedures of your facility prior to beginning disassembly of any Weir Concepts product. Ensure that all pressure is exhausted from the system prior to performing any service work. Failure to remove the pressure from the system can result in serious personal injury. Any installation, operation or disassembly/assembly shall be performed by trained personnel using industry best practices**.**

3. Installation

WC7970 can be mounted in any position. Panel mounting optional, see figure 1 for dimensions.

Ensure that supply pressure is connected to the appropriate port for the sensor to trip at increasing or decreasing pressure as required (See Figure 1 for reference). The port not in use becomes the vent port.

Pilot to trip for increasing pressure: Connect supply line to High Port

Pilot to trip for decreasing pressure: Connect supply line to Low Port

See Section 5.3 for Set Pressure adjustment as needed prior to pilot being installed for service.

Figure 1

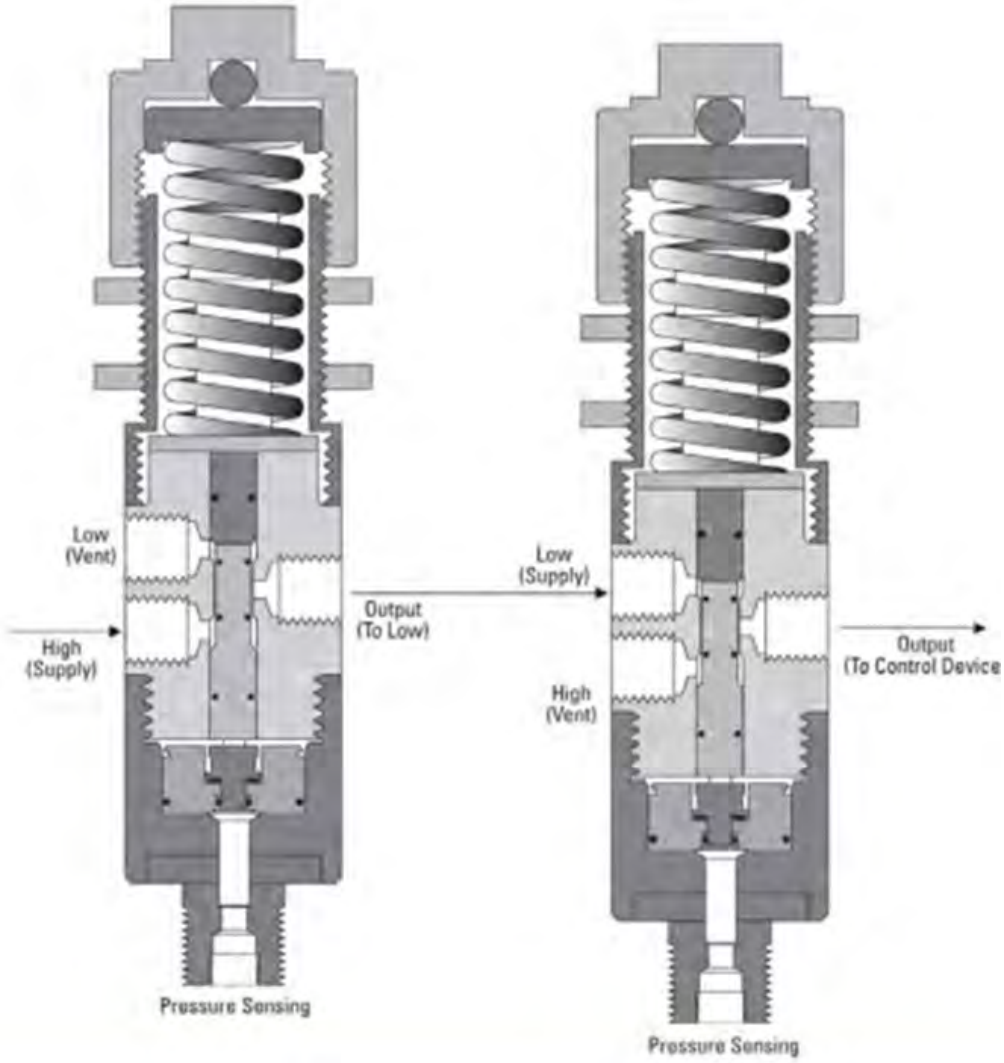


Table 1: WC7970 Specifications

Characteristics		Dimensions
Dimensions		1.750" diameter x 8.0" length
Working	Process Pressure Inlet	10,000 psi maximum (689.5 bar)
	Control Ports	125 psi maximum (8.62 bar)
Connections	Process Pressure Inlet	1/2" - 14 NPT M and 1/8" - 27 NPT F
	Control Ports	1/4" - 18 NPT F
Weight		3.5 lbs. / 1.6 kg
Panel Hole Cutout Size		1 5/8" (39.81mm)

5. Operation & Maintenance

NOTE: Refer to Assembly Drawing & Parts List Below

5.1 PISTON ARRANGEMENT CHANGE OVER INSTRUCTIONS

1. Isolate and depressurize the control system.
2. Disconnect the control circuit instrumentation tubing from control valve, as well as the monitoring process connection from the piston housing.
3. Where possible, remove the WC7970 from the service location to perform the change over in a clean work environment.
4. Loosen the locknut and remove from the adjusting cap.
5. Gently relieve all spring tension by fully unscrewing the adjusting cap allowing access to the storage tube.
6. Unscrew piston housing from the valve body.
7. Turn the piston housing upside down and tap it gently on a flat, clean surface to remove the piston arrangement. The pistons should slide out easily.
8. Thoroughly clean the piston components, including the piston housing and internal bores, using warm water and a liquid detergent. Do not use abrasive tools or acidic cleansers. Dry all components with a cloth or a paper towel.
9. Lightly lubricate all components and seals, and assemble the piston arrangement as desired according to the enclosed detail drawing.
10. When inserting the new piston arrangement into the piston housing, apply even pressure. Press evenly using both thumbs on the piston's outer edges for the insertion of the 1-1/8", 1/2", and 3/16" piston arrangements.
11. For the 1/4" piston insertion, install the 1/4" piston first, using a needle-nosed pliers. Press the other piston components into place.
12. Lightly lubricate the threads of the piston housing, body and spring housing using a grease or substance appropriate for stainless steel.
13. Reassemble the pressure pilot.
14. Adjust the pressure setting to the required pressure, function test and pressure pilot. When the desired setting is achieved, tighten the lock nut securely against the adjusting cap.
15. Connect the instrumentation tubing and the pressure connection to the monitored process.
16. Introduce pressure to the pressure pilot's control circuit and monitored process inlet.
17. Resume normal operation.

5.2 SEAL CHANGE OUT

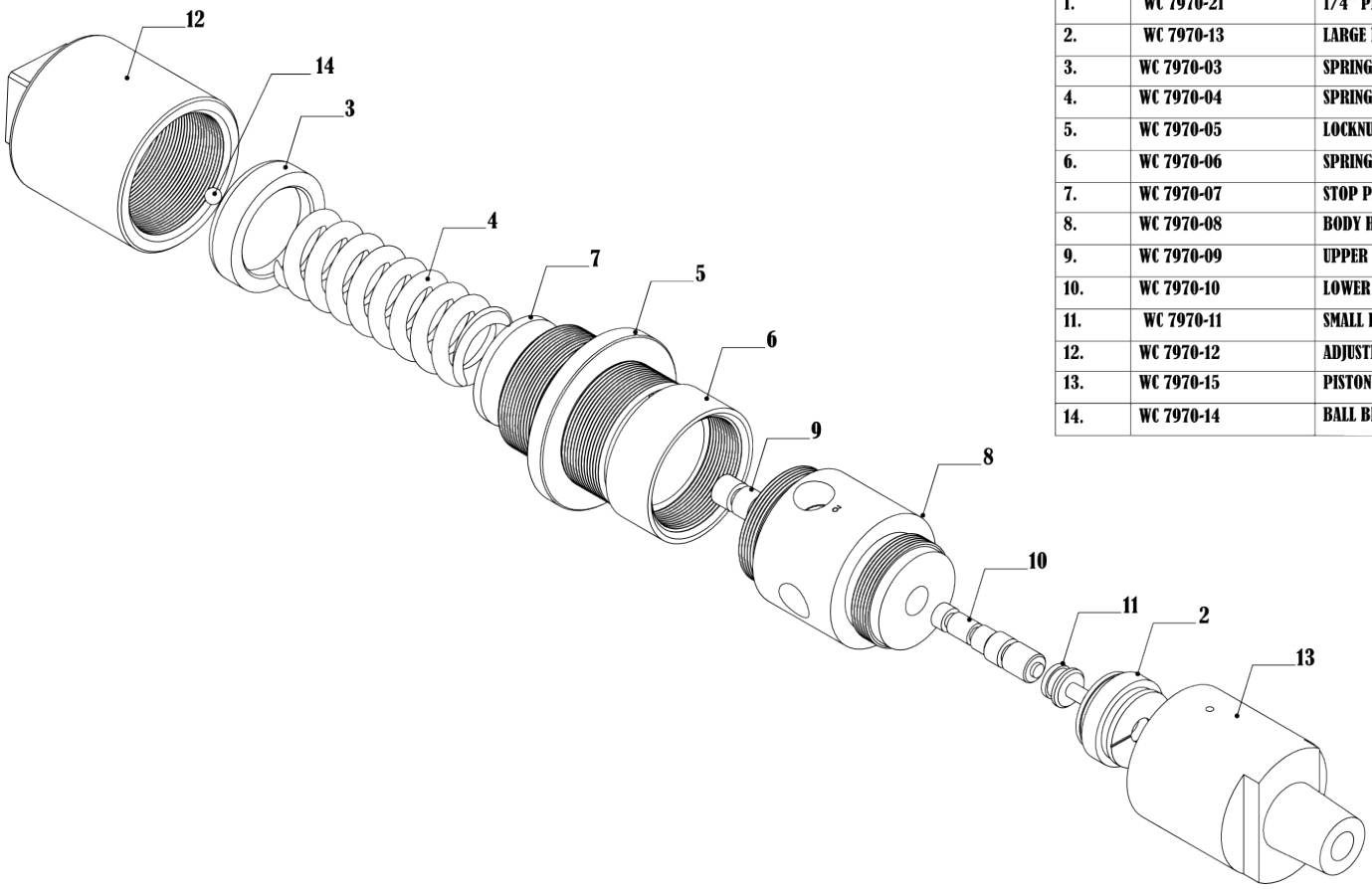
If a rebuild/seal change out only is required. Follow Section 5.1 for piston changeout omitting steps where the piston size is changed.

5.3 SET PRESSURE ADJUSTMENT

Steps 1 and 2 are required if Pilot is already installed and in-use, if not, proceed to Step 3.

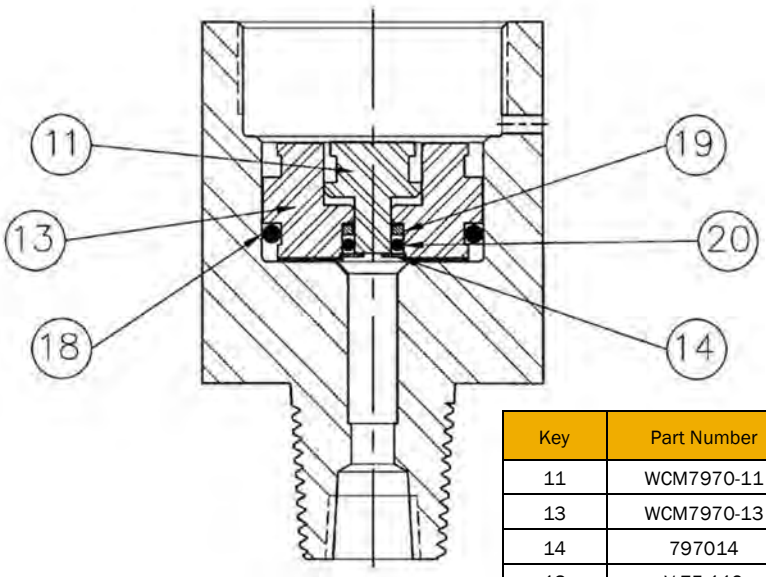
1. Isolate and depressurize the control system.
2. Disconnect the control circuit instrumentation tubing from control valve, as well as the monitoring process connection from the piston housing.
3. Loosen the locknut on adjusting cap.
4. Adjust the pressure setting to the required pressure by turning Adjusting Cap clockwise (increase set pressure) or counterclockwise (decrease set pressure). function test and pressure pilot.
5. When the desired setting is achieved, tighten the lock nut securely against the adjusting cap.

Assembly Drawing & Parts List

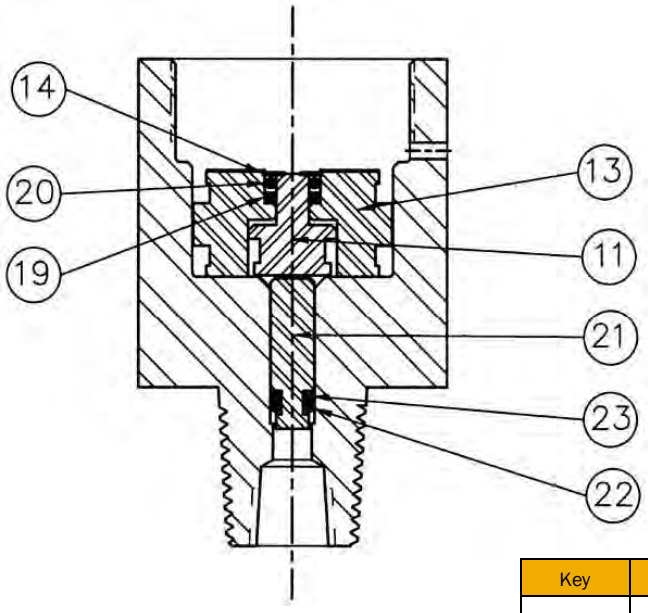


No.	Part Number	Name
1.	WC 7970-21	1/4" PISTON
2.	WC 7970-13	LARGE PISTON
3.	WC 7970-03	SPRING GUIDE
4.	WC 7970-04	SPRING
5.	WC 7970-05	LOCKNUT
6.	WC 7970-06	SPRING HOUSING
7.	WC 7970-07	STOP PLATE
8.	WC 7970-08	BODY HOUSING
9.	WC 7970-09	UPPER STEM
10.	WC 7970-10	LOWER STEM
11.	WC 7970-11	SMALL PISTON
12.	WC 7970-12	ADJUSTING CAP
13.	WC 7970-15	PISTON HOUSING
14.	WC 7970-14	BALL BEARING

Piston Arrangement Change Over Instructions - Assembly Drawing & Parts List



Key	Part Number	Qty.	Description	Material
11	WCM7970-11	1	Small Piston	316 Stainless Steel
13	WCM7970-13	1	Large Piston	316 Stainless Steel
14	797014	1	Snap Ring	304 Stainless Steel
18	V-75-119	1	Seal	Parker HSN
19	TFE-008	1	Back-up Ring	Teflon
20	V-75-008	1	Seal	Parker HSN



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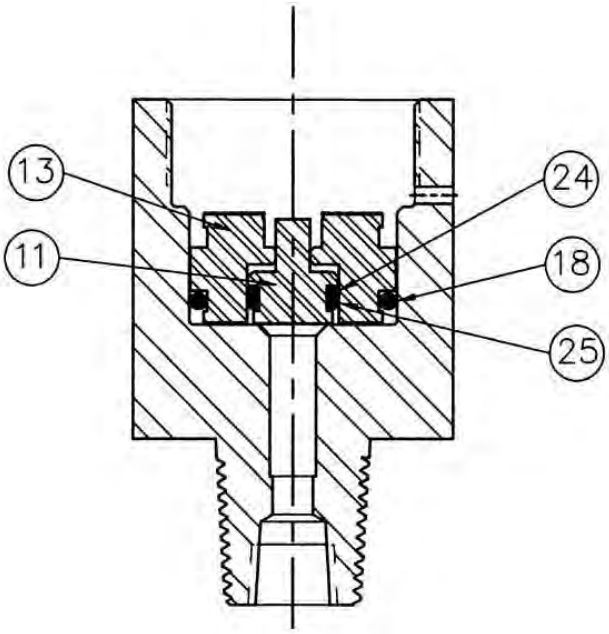
11	WCM7970-11	1	Small Piston	316 Stainless Steel
13	WCM7970-13	1	Large Piston	316 Stainless Steel
14	797014	1	Snap Ring	304 Stainless Steel
19	TFE-008	1	Back-up Ring	Teflon
20	V-75-008	1	Seal	Parker HSN
21	WCM7970-21	1	1/4" Piston	316 Stainless Steel
22	V-75-006	1	Seal	Parker HSN
23	TFE-006	1	Back-up Ring	Teflon

Piston Arrangement Change Over Instructions - Assembly Drawing & Parts List



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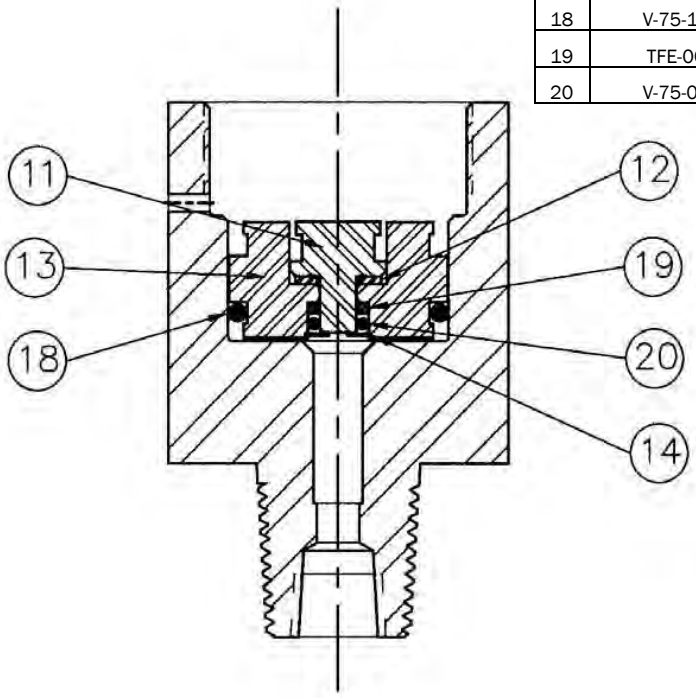
13	WCM7970-13	1	Large Piston	316 Stainless Steel
18	V-75-119	1	Seal	Parker HSN
24	TFE-012	1	Back-up Ring	Teflon
25	V-75-012	1	Seal	Parker HSN



Key	Part Number	Qty.	Description	Material
11	WCM7970-11	1	Small Piston	316 Stainless Steel
14	WCM7970-14	1	Stop Washer	316 Stainless Steel
13	WCM7970-13	1	Large Piston	316 Stainless Steel
26	797014	1	Snap Ring	304 Stainless Steel
18	V-75-119	1	Seal	Parker HSN
19	TFE-008	1	Backup Ring	Teflon
20	V-75-008	1	Seal	Parker HSN

6. TROUBLESHOOTING

Issue	Possible Cause(s)	Corrective Action
Pilot will not trip at increasing or decreasing pressure	Supply pressure connected to incorrect port.	Connect Supply pressure to following ports based on requirement: Trip on Increasing Pressure: Connect supply line to High Port Trip on Decreasing Pressure: Connect supply line to Low Port
Pilot tripping with high frequency	Set pressure too close to operating pressure (not accounting for typical pressure bumps in operating pressure) or not allowing for deadband.	Increase set point to account for typical pressure bumps in operating or allowance for deadband.

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SOLUTIONS FOR YOUR COMPANY NEEDS

HEAD OFFICE:

7596 Wagner RD NW
Edmonton, Alberta CANADA T6E 5B2
info@weirconcepts.com
1.866.462.1910 Toll Free
780.462.1910 ph | 780.462.1959 fax

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