



INSTALLATION, OPERATION, & MAINTENANCE MANUAL

MAINTENANCE MANUAL #: MM-CH002

5-12-08

Rev. A

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QUICK CLEAN CHEMICAL HYDRAULIC VALVES

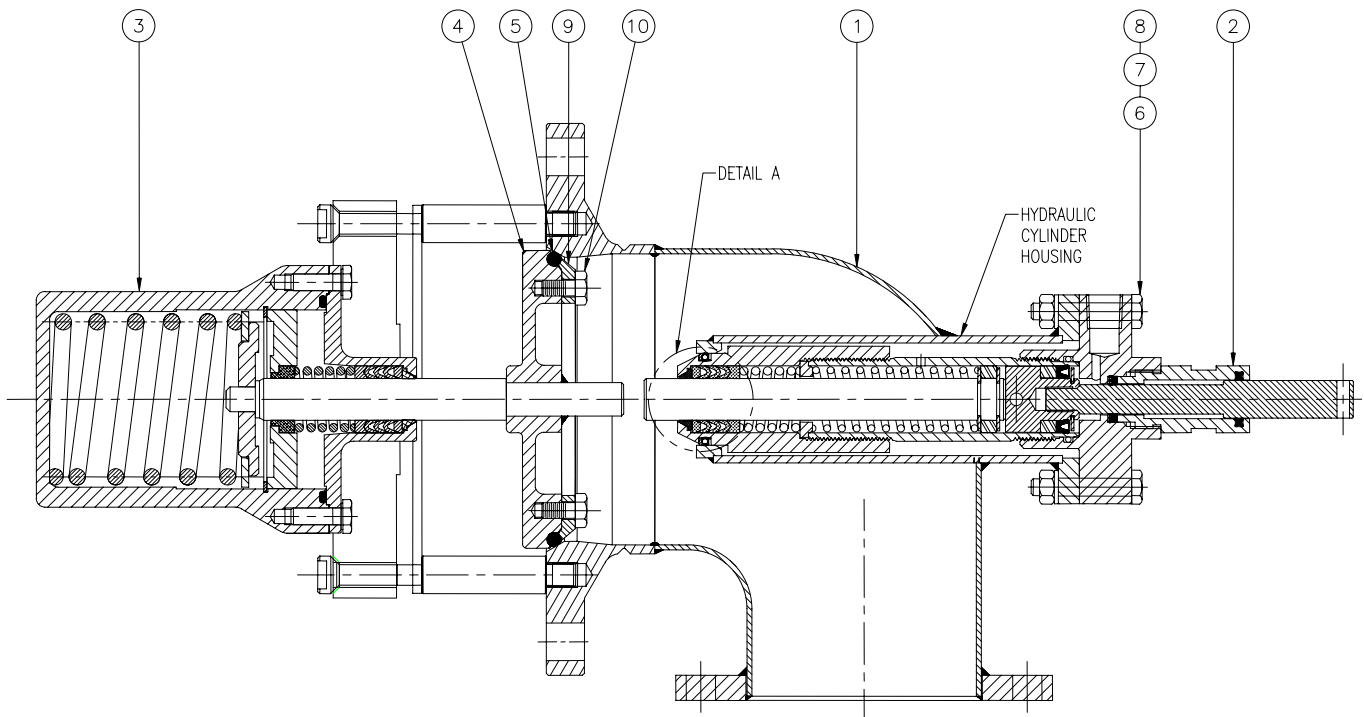
PART NUMBERS (Including, but not inclusive)

CH46861SSTS, CH46874SSTS, CH46867SSTS and
CH46880SSTS



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| NO. | REQ. | PART NUMBER | DESCRIPTION |
|-----|------|-------------|----------------------------|
| 1 | 1 | 35729SS | 4x3 BODY ASMB – THRD. POST |
| 2 | 1 | 35233SSTS | 4x3 ACTUATOR |
| | 1 | 35233SCTS | 4x3 ACTUATOR |
| 3 | 1 | 36054SSTS | SPRING HOUSING ASSEMBLY |
| 4 | 1 | 19254SS | STEM & O-RING HOLDER |
| | 1 | 19254SC | STEM & O-RING HOLDER |
| 5 | 1 | 19033TS | SEAT O-RING |
| 6 | 4 | 9Q4919 | CAP SCREW 1/4-20NCx1-1/2" |
| 7 | 4 | 9Q5844 | LOCKWASHER 1/4" |
| 8 | 4 | 9Q5805 | HEX NUT 1/4-20NC |
| 9 | 1 | 27443SS | RETAINER PLATE |
| 10 | 4 | 9Q4174 | CAP SCREW 1/4-28NFx1/2" |

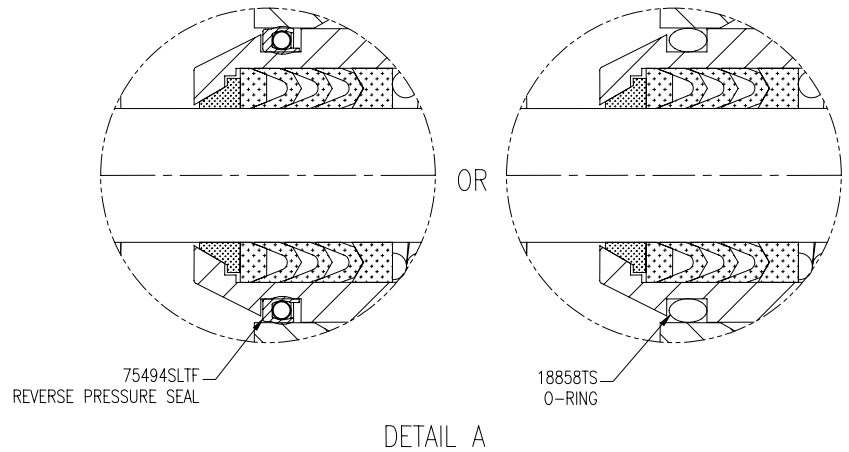





Figure 1

1.0 General

- 1.1 It is strongly recommended that this entire manual be read prior to any operation, disassembly, or assembly of this equipment.
- 1.2 Betts Industries, Inc. provides this manual as a guideline for reference only and assumes no responsibility for personal or property damage that may occur in conjunction with this manual. Betts Industries, Inc. cannot be held responsible for incorrect installation, operation or maintenance of product.
- 1.3 Betts Industries, Inc. recommends all equipment be placed on a regular maintenance schedule that includes the routine replacement of seals and gaskets and visual inspection for leaks and corrosion. The end user must make their own determination and set their own schedule based upon use and environment. In some cases, regulations may dictate the minimum testing frequency of items. Make sure operators are aware of all applicable codes.
- 1.4 Only trained personnel should attempt to perform maintenance on this equipment.
- 1.5 As with any maintenance work, proper safety gear and procedures must be used at all times. A list of hazards may include but are not limited to contents under pressure, loaded springs, residual product, flammable liquid and vapors, pinch points.
- 1.6 Safety alert symbols are used to alert operator to potential personal injury hazards. These symbols are per ANSI 2535.5 and are listed below. Operator **MUST** obey all instructions that follow a safety symbol.

Alerts will be used to indicate known safety concerns. Additional concerns are possible and should be identified and avoided by the operator.

| | |
|---|--|
|  | Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
|  | Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
|  | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. |

- 1.7 Product Warranty shall be void if product is subject to misapplication, misuse, neglect, alteration or damage.
- 1.8 Specific design details described in this document are for reference only and are subject to change without notice. See Betts Industries, Inc. web page for the most recent revision to this document. www.bettsind.com
- 1.9 For additional questions or more detailed technical assistance, contact the Betts Industries, Inc. Sales or Engineering Department at (814)723-1250.

2.0 Description and Intended Use

- 2.1 The Quick Clean Chemical Hydraulic Valve includes a quickly removable Spring Housing Assembly [3] and Hydraulic Actuator [2] for easy inspection and maintenance. Valve part number list includes but not inclusive CH46861SSTS, CH46874SSTS, CH46867SSTS and CH46880SSTS.
- 2.2 With all exposed surfaces made from 316 stainless steel material, the Quick Clean Chemical Hydraulic Valve is designed for use with a wide variety of chemicals.
- 2.3 See Installation, Operation & Maintenance Manual for Spring Housing Assembly (MM-CH001) for instructions on the Spring Housing Assembly in more detail.
- 2.4 A complete information page can be found in our catalog Section 35 Page 7A & 7B. Also available is a wall chart showing all parts; chart number 5VCH03.

3.0 Installation

- 3.1 A flat mounting surface must be provided for the valve seat flange. A Betts mounting pad is recommended; see section 40 of the catalog for details.
- 3.2 Gaskets are also available and are used to seal between the mounting flange and seat flange of the valve. See section 40 of the catalog for details.
- 3.3 When bolting the valve to the mounting pad, care should be taken to be sure to not over compress gasket material. Initial tightening should be done with a star pattern followed by clockwise pattern to ensure even pressure on gasket.
- 3.4 Betts recommends using the HP46982SL hydraulic pump to actuate these valves. These can be found in section 35 of the catalog. The maximum pressure this pump will develop is 4000 psi which corresponds to the maximum hydraulic pressure for the valve.

4.0 Inspection and Testing

- 4.1 After Actuator and Spring Housing Assembly are installed on the valve, open and close valve.
 - 4.1.1 The valve should operate without binding.
 - 4.1.2 Check for leaking fluid from weep hole in Hydraulic Cylinder Housing.
- 4.2 Test Main Seat to ensure proper seal.

5.0 Disassembly and Rebuild Instructions

- 5.1 Remove Cap Screws [6], Lock Washers [7] and Hex Nuts [8] and carefully remove Actuator [2].
- 5.2 Cut or pry the Barrel Cap Reverse Pressure Seal [75494SLTF] or O-ring [18858TS] being very careful not to scratch the sealing surface groove on the Actuator [2].
- 5.3 Clean and flush any product buildup on the exposed shaft and Actuator [2] outside surfaces.
- 5.4 Inspect sealing surface of Actuator [2] groove and bore of Hydraulic Cylinder Housing for scratches or corrosion.

- 5.5 Contact Betts Customer Service if more extensive repairs are required on the Actuator [2] or seat.
- 5.6 Carefully install the O-ring [18858TS] or Barrel Cap Reverse Pressure Seal [75494SLTF] to the Actuator [2], being sure the u-cup faces the correct way – See figure 1.
 - 5.6.1 DO NOT use a screwdriver to stretch the seal or o-ring to install it, press it over the Actuator [2] carefully and with even pressure.
- 5.7 Apply lubricant to Reverse Pressure Seal [75494SLTF] or O-ring [18858TS] and insert the Actuator [2] into the Hydraulic Cylinder Housing and attach the Cap Screws [6], Lock Washers [7] and Hex Nuts [8]; torque to approximately 110 in-lbs.
- 5.8 See MMCH-001 for instructions to install the Spring Housing Assembly.

SEE TROUBLE SHOOTING GUIDE ON PAGE 6

6.0 Troubleshooting Guide

| Problem | Cause | Solution |
|---|--|--|
| Hydraulic fluid leaking from Hydraulic Cylinder Housing | Internal seal failure of Actuator | Contact a Betts distributor to order a replacement actuator. |
| Product leaks into Hydraulic Cylinder Housing | Barrel Cap O-ring or Reverse Pressure Seal compromised. | Replace O-ring or Barrel Cap Reverse Pressure Seal. |
| Product in Spring Housing | See MMCH-001 for Spring Housing Assembly trouble shooting | |
| Valve binds or does not open and close properly | See MMCH-001 for Spring Housing Assembly trouble shooting. | |
| | Product passes packing in Actuator and jams operation. | Contact a Betts distributor to order a replacement actuator. |