# OPERATION & SERVICE MANUAL

## Model: 8398-010
## 65 Ton (58 Metric Ton)
## Rhino Axle Jack
SN 12351-10 and On

01/2021 – Rev. 03

ColumbusJACK/Regent
1 Air Cargo Pkwy East
Swanton, OH 43558

Phone: 614.443.7492
Web: www. columbusjack.com
Email: sales@ columbusjack.com

| REVISION | DATE | TEXT AFFECTED |
|---|---|---|
| 01 | 07/2019 | Original release |
| 02 | 04/2020 | Modified Parts List |
| 03 | 01/2021 | Modified Parts List |

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This product can not be modified without the written approval of Tronair, Inc. Any modifications done without written approval voids all warranties and releases Tronair, Inc., it suppliers, distributors, employees, or financial institutions from any liability from consequences that may occur. Only Tronair OEM replacement parts shall be used.

## 1.0 PRODUCT INFORMATION

### 1.1 DESCRIPTION

65 Ton (58 Metric Ton) Rhino Axle Jack

### 1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

### 1.3 MANUFACTURER

ColumbusJack/Regent
1 Air Cargo Pkwy East
Swanton, Ohio 43558 USA

Telephone: 614.443.7492
Fax: 614.444.9337
E-mail: sales@columbusjack.com
Website: www. columbusjack.com

### 1.4 SPECIFICATIONS

| | |
|---|---|
| Capacity | 65 Ton (58 Metric Ton) |
| Minimum Height | 4.5 in (11.43 cm) |
| Hydraulic Lift | 24 in (60.96 cm) |
| Maximum Height | 28.5 in (72.39 cm) |
| Operating Pressure | 6900 psi (478 bar) |
| Relief Valve Pressure | 7590 psi (523 bar) |
| Reservoir Capacity | 5 gal (18.9 l) |
| Air Requirements | |
| Pressure | 80 psi (5.5 bar) min |
| Flow | 40 scfm min |
| Estimated Weight | 3100 lbs (1406 kg) |

## 2.0 SAFETY INFORMATION

### 2.1 USAGE AND SAFETY INFORMATION

To insure safe operations please read the following statements and understand their meaning. Also refer to your equipment manufacturer's manual for other important safety information. This manual contains safety precautions which are explained below. Please read carefully.

**WARNING!** — Warning is used to indicate the presence of a hazard that ***can cause severe personal injury, death, or substantial property damage*** if the warning notice is ignored.

**CAUTION!** — Caution is used to indicate the presence of a hazard that ***will or can cause minor personal injury or property damage*** if the caution notice is ignored.

### 2.2 PRODUCT SAFETY

Make sure all personnel involved with this jack read and understand these instructions before using.

**CAUTION!**

**Do Not Exceed 5 miles per hour when towing jack.**

**WARNING!**

**Each jack is operated independently and aircraft must be raised evenly to provide stability. Failure to use safe jacking practices may result in equipment damage and injury to personnel. Personnel not involved in jacking the aircraft must remain clear of the immediate area. Other work should not be performed until jacking is completed and aircraft is stabilized. Do not work under suspended loads unless required. Failure to follow strict safety precautions may result in equipment damage and injury or death to personnel. When jacking operations are completed and aircraft is stabilized, necessary personnel may complete required maintenance actions under aircraft.**

**The jack is designed to lift only vertical loads with a maximum weight of 65 tons (58 metric tons). Do not use jack for lifts exceeding the weight or design limits. Failure to comply can result in injury or death to personnel and/or severe damage to the jack and aircraft.**

## 3.0 PREPARATION PRIOR TO FIRST USE

### 3.1 GENERAL INSPECTION

If the jack is crated, uncrate and remove shipping straps or packing material. Inspect for physical damage and missing parts.

## 4.0 TRAINING

### 4.1 TRAINING REQUIREMENTS

The employer of the operator is responsible for providing a training program sufficient for the safe operation of the unit.

### 4.2 TRAINING PROGRAM

The employer provided operator training program should cover safety procedures concerning use of the unit in and around the intended aircraft at the intended aircraft servicing location.

### 4.3 OPERATOR TRAINING

The operator training should provide the required training for safe operation of the unit.

***NOTE: Maintenance and Trouble Shooting are to be performed by a skilled and trained technician.***

## 5.0 OPERATION

### 5.1 BLEED PROCEDURE

Using air or hand pump cycle cylinder rams several times.

### 5.2 PRE-OPERATION PROCEDURE

1. Perform visual inspection, by checking for oil leakage.
2. Check for loose, damaged or missing parts.
3. Remove reservoir dipstick/cap and check oil level.

### 5.3 LIFTING PROCEDURE (MANUAL HAND PUMP)

1. Fully loosen ram locknut and open release valve one-half turn to collapse jack ram. Close and hand tighten the release valve.
2. Maneuver jack into position under the load lift point.
3. If required, screw down caster retraction device for additional clearance between jack pad and adapter.
4. Fit pump handle into pump rocker arm; operate manual pump with long, smooth strokes of handle to partially lift ram directly under and within approximately two (2) inches below load lift point.
5. After jack is firmly positioned under load, operate manual pump until load is lifted as required. Screw locknut down against cylinder head to mechanically secure the lifted load. When jack is raised and locknut is set for final positioning, release hydraulic pressure.

### 5.4 LIFTING PROCEDURE (PNEUMATIC MOTOR DRIVEN PUMP)

**CAUTION!**

**Jack pump release valve must be fully closed at all times during any operation involving the air driven hydraulic pump and/or air valve.**

1. Fully collapse jack ram, fully close and tighten jack pump release valve.
2. Connect a 90-110 psi air supply hose to the air inlet port.
3. Rapidly raise the jacking arm by actuating the air valve lever 45º counter-clockwise. This directs pressurized air into the hydraulic fluid reservoir forcing the fluid out of the reservoir and into the cylinder which causes the ram to extend and lift the jacking arm.
4. When the jacking arm is within approximately one (1) inch of the jacking point on the aircraft, move the air valve lever back to its neutral (centered) position to stop jack arm motion.
5. Energize the air powered pump by depressing the large palm button on its top. This will cause the jacking arm to raise at a slower rate during the final approach of the jacking arm to the aircraft jacking point.
6. After making certain that the aircraft point and jacking arm socket are properly seated, again depress the palm button on top of the air powered pump to lift the aircraft wheel to the desired height.
7. When desired height is reached, release palm button to stop jack lift. Screw locknut against top of cylinder.

5.5 LOWERING PROCEDURE

1. Raise ram approximately 1/16 inch to relieve settled weight load and unscrew locknut.
2. Slowly open release valve.

**CAUTION!**

**Rate of load descent is proportionate to degree of release valve opening and the amount of load on the ram.**

3. With release valve open, jack will lower under load, ram will collapse until load is free, and weight of jack will be supported on caster assemblies.

**CAUTION!**

**Maintain locknut clearance of approximately 1 in (2.54 cm) during lowing procedure.**

4. Withdraw jack from load and fully collapse ram by actuating the air valve clockwise 45º. This directs pressurized air into the chamber between the ram piston and the cylinder end cap causing the ram to retract and the jacking arm to lower rapidly.
5. Close and tighten release valve.
6. Return wheels, using hand adjusting screws, to normal towing attitude.

5.5 RELIEF VALVE SETTING

1. Position jack under a jack tester.
2. Fully close relief valve.
3. Raise lifting arm until fully extended. Open Release valve and lower arm 1.00 to 1.25 inches.
4. Apply 65 tons to cup adapter using jack tester.
5. Operate air pump and check relief valve setting. If incorrect, remove plug and adjust relief valve (68-71 tons.

**CAUTION!**

**Use care not to set valve more than 10% above rated capacity.**

**WARNING!**

**DO NOT EXCEED 71 tons (63.4 metric tons).**

**CAUTION!**

**Check to ensure that the hydraulic ram does not contact ram stop during test.**

6. Operate hand pump and check relief valve setting. If incorrect, remove plug and adjust relief valve to 68-71 tons.
7. Remove load.
8. Fully retract hydraulic ram assembly.
9. Remove jack from tester. Jack is now ready for service.

## 6.0 TROUBLE SHOOTING

If operational troubles are encountered, refer to the Trouble Shooting Chart which lists the most commonly occurring problems and gives information which will facilitate location of trouble source and determination of remedial action.

| TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|
| External fluid leakage at pump piston or pump body | Damaged packing, backup ring, piston, or pump body | Remove piston and inspect piston and pump body for damage. Replace defective parts. Replace removed packing and backup ring |
| | Damaged packing between pump body and manifold | Remove pump body from manifold and inspect for damage. Replace defective parts. Replace o-rings |
| External fluid leakage at ram | Damaged backup ring, packing or inner cylinder wall | Withdraw ram as a unit from cylinder. Inspect for defective parts. Replace o-rings |
| Jack fails to lift or fails to lift rated load with operation of pump | Incomplete closure of release valve | Fully Tighten release valve. |
| | Low fluid level | Fill to correct fluid level |
| | By-pass valve improperly adjusted | Test and adjust relief valve |
| | Obstructed fluid suction passages | Remove manifold, hand pumps and pistons. Blow passages clear with compressed air; flush with clean fluid, reassemble and fill with hydraulic fluid. |
| | Broken compression spring or steel ball seat in pump body | Remove pump body from manifold. Remove and replace defective springs or balls |
| Ram will not fully elevate when pump is operated | Low fluid level | Fill to correct fluid level |
| | Leaking pump check valve | Remove pump body from manifold. Remove and replace defective springs or balls |
| Ram will not support load after pump-up | Internal pressure leakage at ram static or dynamic seals | Check for external leakage, if present; replace defective seal. If no external leakage is observed remove cylinder bearing and check for oil inside chamber. If oil is present change o-ring and backup ring |
| | Leaking pump check valve | Remove pump body from manifold. Remove and replace defective springs or balls |
| | Pressure leakage past release valve | Test and adjust relief valve. Replace if necessary |
| Rams elevate and fall with each manual pump stroke | Incomplete closure of release valve | Fully Tighten release valve |
| Pump inoperative or difficult to operate | Air lock or vacuum in reservoir due to clogged breather passage in air vent or clogged suction strainer in reservoir | Remove air vent assembly and/or suction strainer and clear obstruction |
| Pump-up satisfactory, but pump pressure fails to by-pass at maximum ram extension or with overload applied | By-pass valve improperly adjusted | Test and adjust relief valve |

## 7.0 MAINTENANCE

### 7.1 SPECIAL MAINTENANCE INSTRUCTIONS

There are no special maintenance instructions for this jack.

### 7.2 SHOP AIDS AVAILABLE

915-EB .....Adjuster Assembly

### 7.3 OVERHAUL KITS AVAILABLE

Soft Kit.....KC8398
Repair Kit .....KD8398

## 8.0 PROVISION OF SPARES

8.1 SOURCE OF SPARE PARTS

Spare parts may be obtained from the manufacturer:

Columbus**Jack**/Regent
1 Air Cargo Pkwy East
Swanton, Ohio 43558 USA

Telephone: 614.443.7492
Fax: 614.444.9337
E-mail: sales@columbusjack.com
Website: www. columbusjack.com

8.2 RECOMMENDED SPARE PARTS LISTS

Reference the following page(s) for Replacement Parts and Kits available.

## 9.0 IN SERVICE SUPPORT

Contact Columbus Jack. for technical services and information. See Section 1.3 – Manufacturer.

## 10.0 GUARANTEES/LIMITATION OF LIABILITY

1. ColumbusJACK Corporation, (Seller) warrants each new product of its manufacture to be free from defects in material or workmanship, under proper, reasonable and normal use and service, and for a period of twelve (12) months after date of shipment from Seller's Swanton, OH. USA facility.
2. Where Buyer claims an alleged defect in material or workmanship and so advises Seller in writing within ten (10) days after discovery thereof, then and in such event, Buyer shall return said equipment, transportation prepaid, to the Seller, provided such return is timely and within twelve (12) months form date of original shipment. This warranty and liability of the Seller is expressly limited solely to replacement of repair of defective parts or goods, and return at Buyer's expense to Seller after find by Seller the product was defective prior to original shipment or, at the option of Seller, to making refund to Buyer of the purchase price for said product.
3. It is further expressly understood and agreed that:
   a. THERE IS NO WARRANTY, representation of condition OF ANY KIND, express or implied, (INCLUDING NO WARRANTY OF MERCHANT-ABILITY OR OF FITNESS) EXCEPT THAT THE MATERIAL SHALL BE OF THE QUALITY SPECIFIED HEREIN, and none shall be implied by law. Except as otherwise provided herein, quality shall be in accordance with seller's specifications. Final determination of the material for the use contemplated by Buyer is the sole responsibility of Buyer and Seller shall have no responsibility in connection with such suitability, and
   b. The Buyer's sole and exclusive remedy shall be repair or replacement of defective parts by the Seller. Should the goods, in the judgment of Seller, preclude the remedying of the warranted defects by repair or replacement, the buyer's sole and exclusive remedy shall the be the refund of the purchase price, and
   c. Seller shall not be liable for prospective profits or special, indirect or consequential damages, nor shall any recovery of any kind against Seller be greater in amount than the purchase price of the specific material sold and causing the alleged loss, damage or injury. Buyer assumes all risk and liability for loss, damage or injury to persons or property of Buyer or others arising out of use or possession of any product or part sold hereunder, and
   d. The Seller shall in no way be deemed or held to be obligated, liable or accountable upon or for any guarantees or warranties, express or implied, or created by statute or by operation of law or otherwise, in any manner of form beyond its express agreement above set forth, and
   e. No warranty herein shall apply to any product which shall have been repaired or altered, unless such alteration or repair has been made by Seller or where, after return to and inspection by Seller, the product is found by Seller to have been subject to misuse, negligence or accident, and
   f. No warranty of any nature is made by Seller as to any component forming a part of the product sold and Buyer shall receive only such warranties offered by such other manufacturer pertinent to such component, and
   g. Seller does not assume nor does Seller authorize any other person to assume for it any other liability or make any warranty in connection with the sale of its products.

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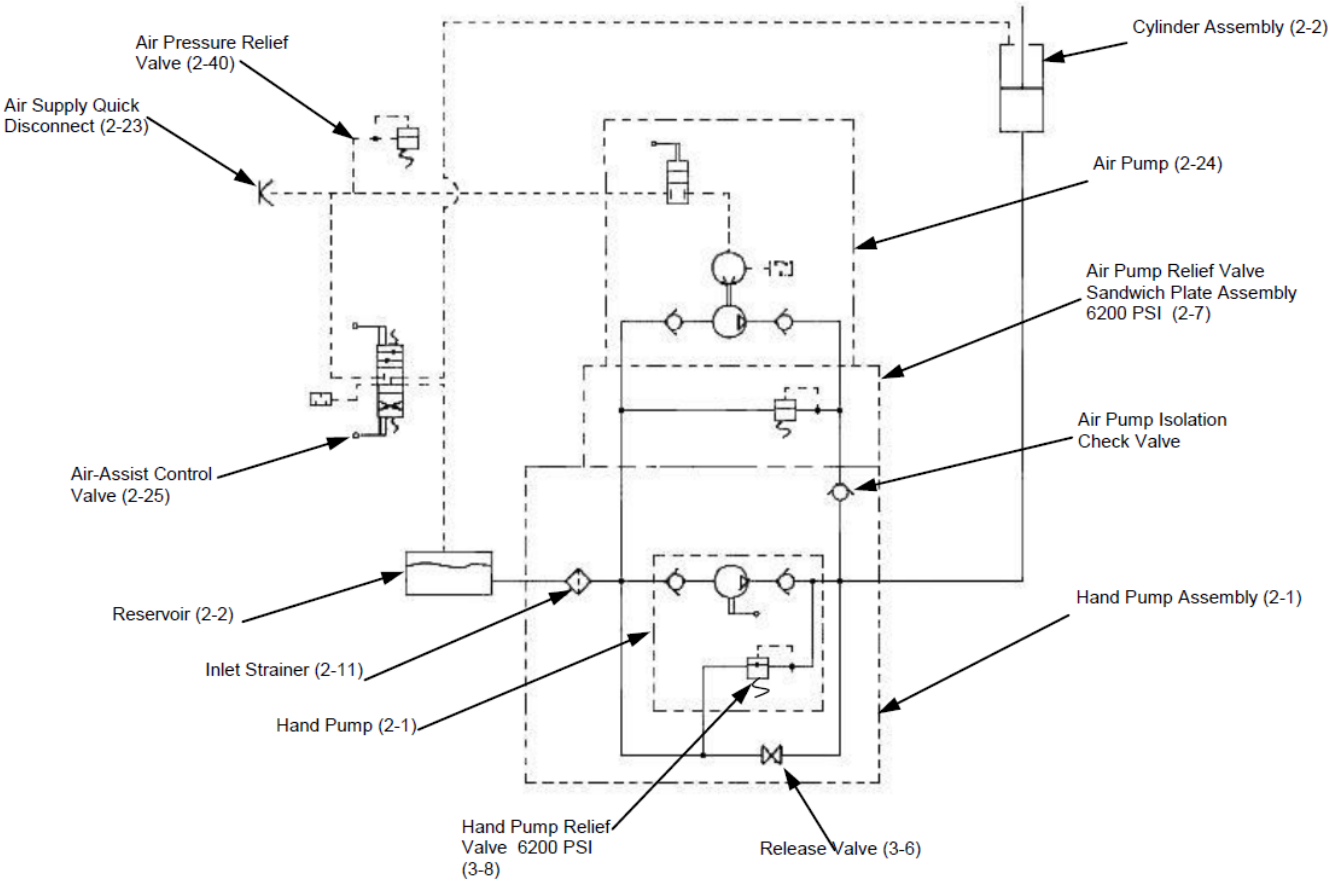
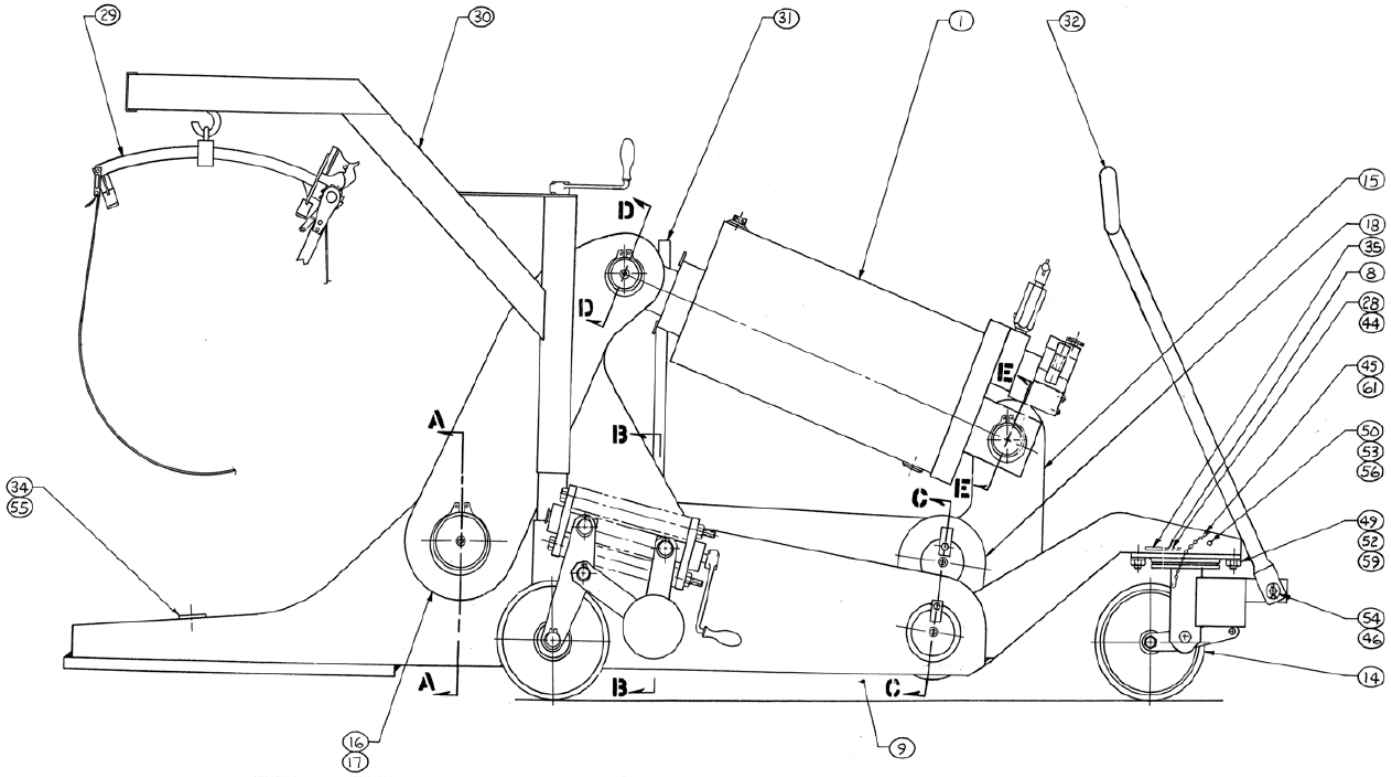
## 11.0 APPENDICES

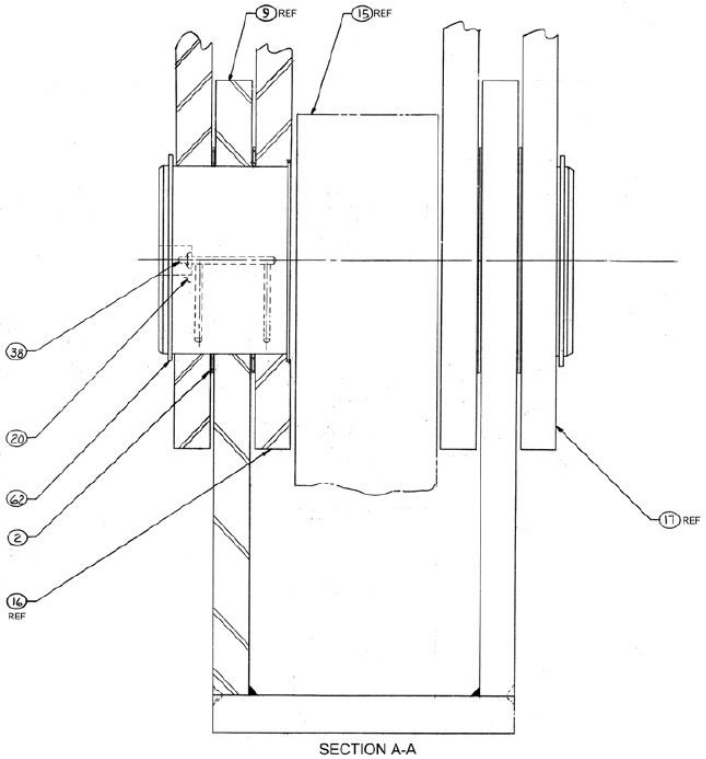
APPENDIX I Routine Jack Maintenance Bulletins


Air Pressure Relief Valve (2-40)
Air Supply Quick Disconnect (2-23)
Cylinder Assembly (2-2)
Air Pump (2-24)
Air Pump Relief Valve Sandwich Plate Assembly 6200 PSI (2-7)
Air Pump Isolation Check Valve
Air-Assist Control Valve (2-25)
Reservoir (2-2)
Inlet Strainer (2-11)
Hand Pump (2-1)
Hand Pump Assembly (2-1)
Hand Pump Relief Valve 6200 PSI (3-8)
Release Valve (3-6)

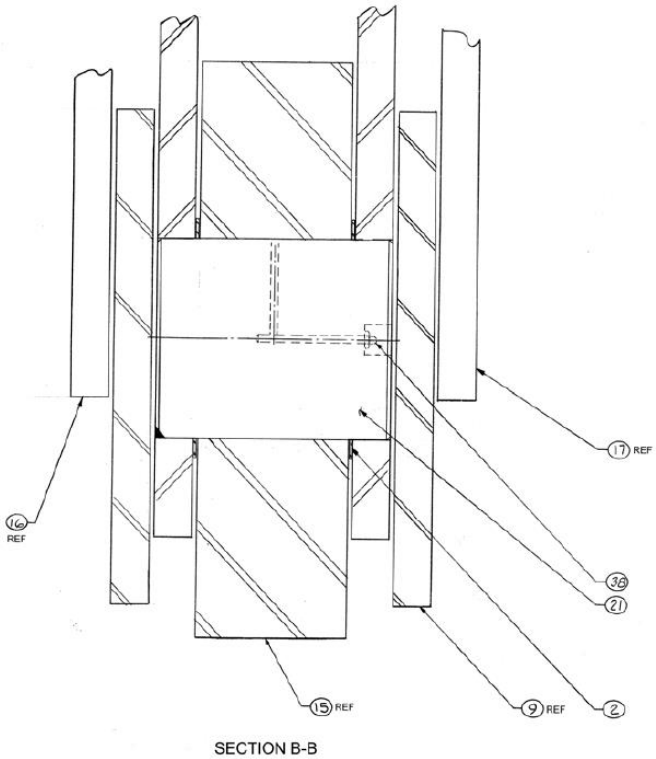
# Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**



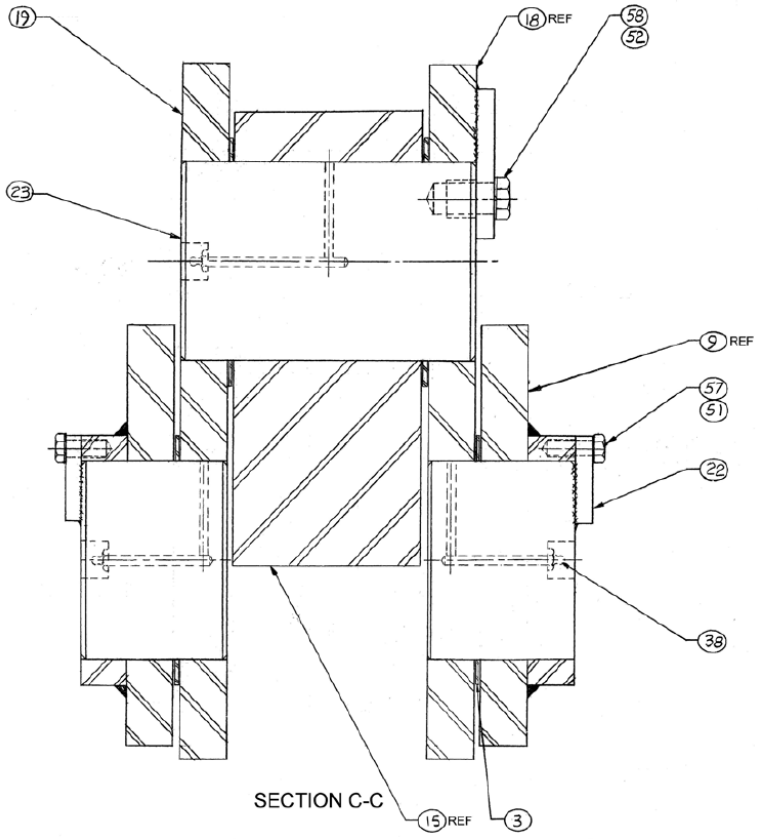

SECTION A-A



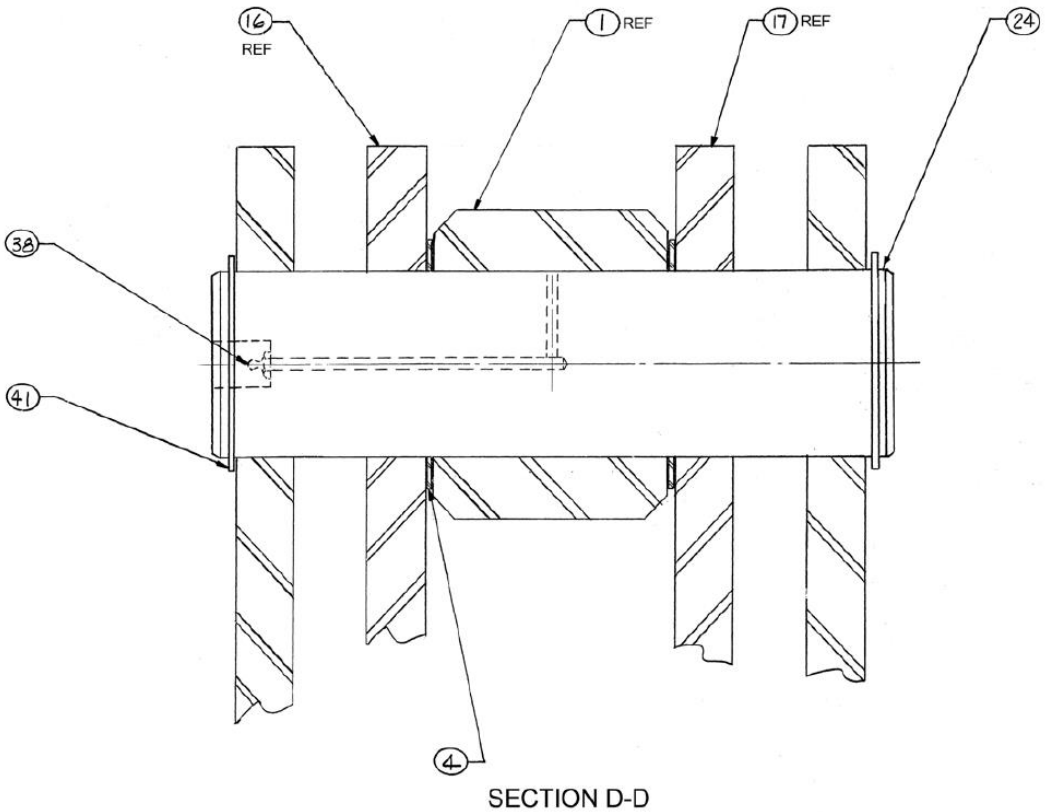

SECTION B-B

# Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**



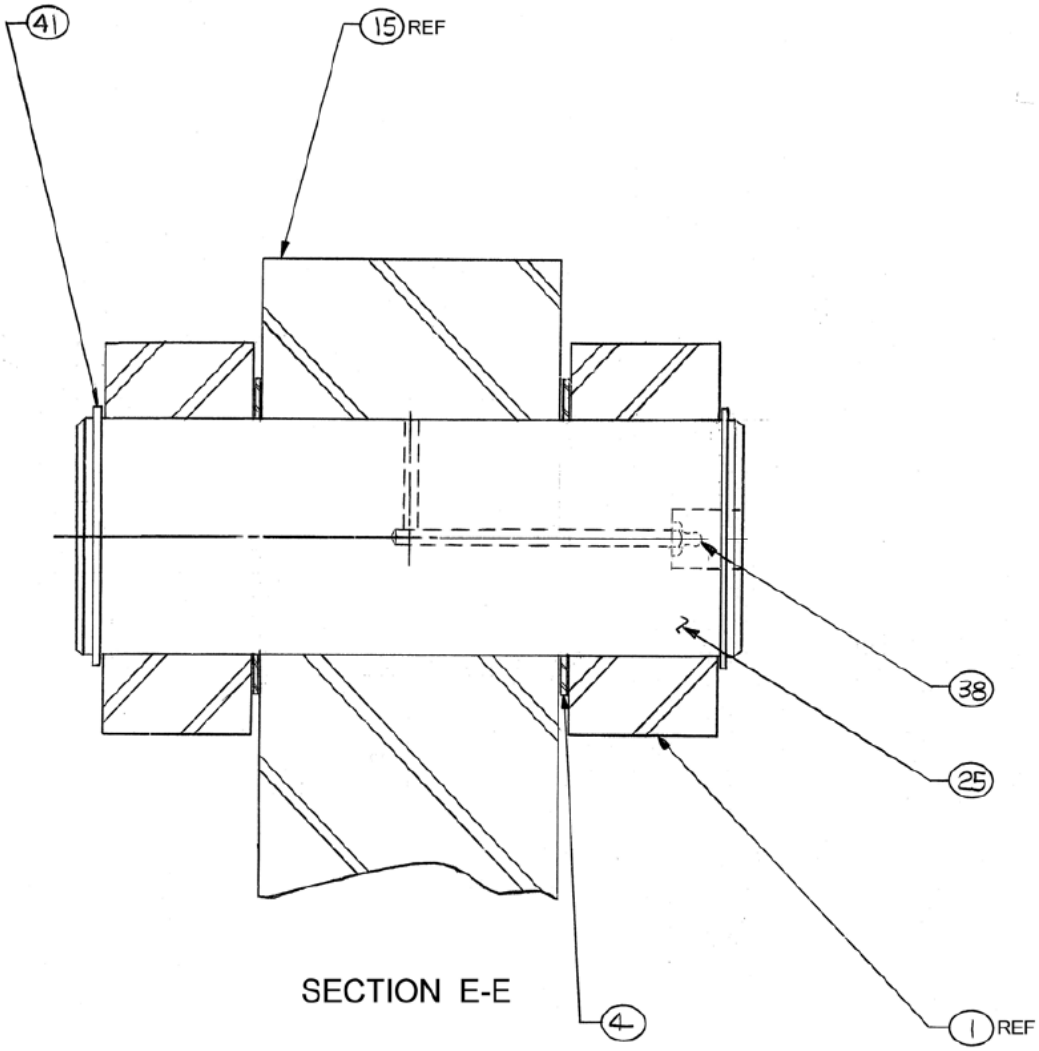

SECTION C-C




SECTION D-D

# Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**



# Parts List

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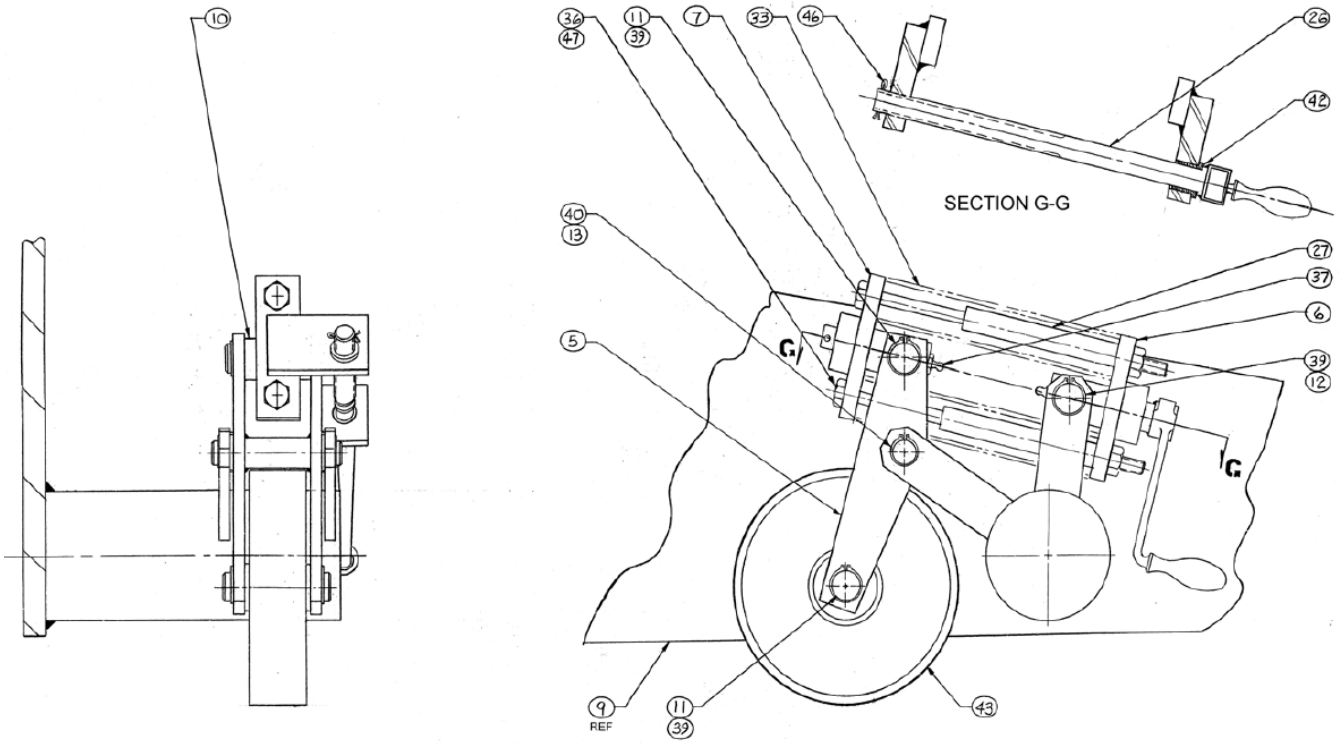


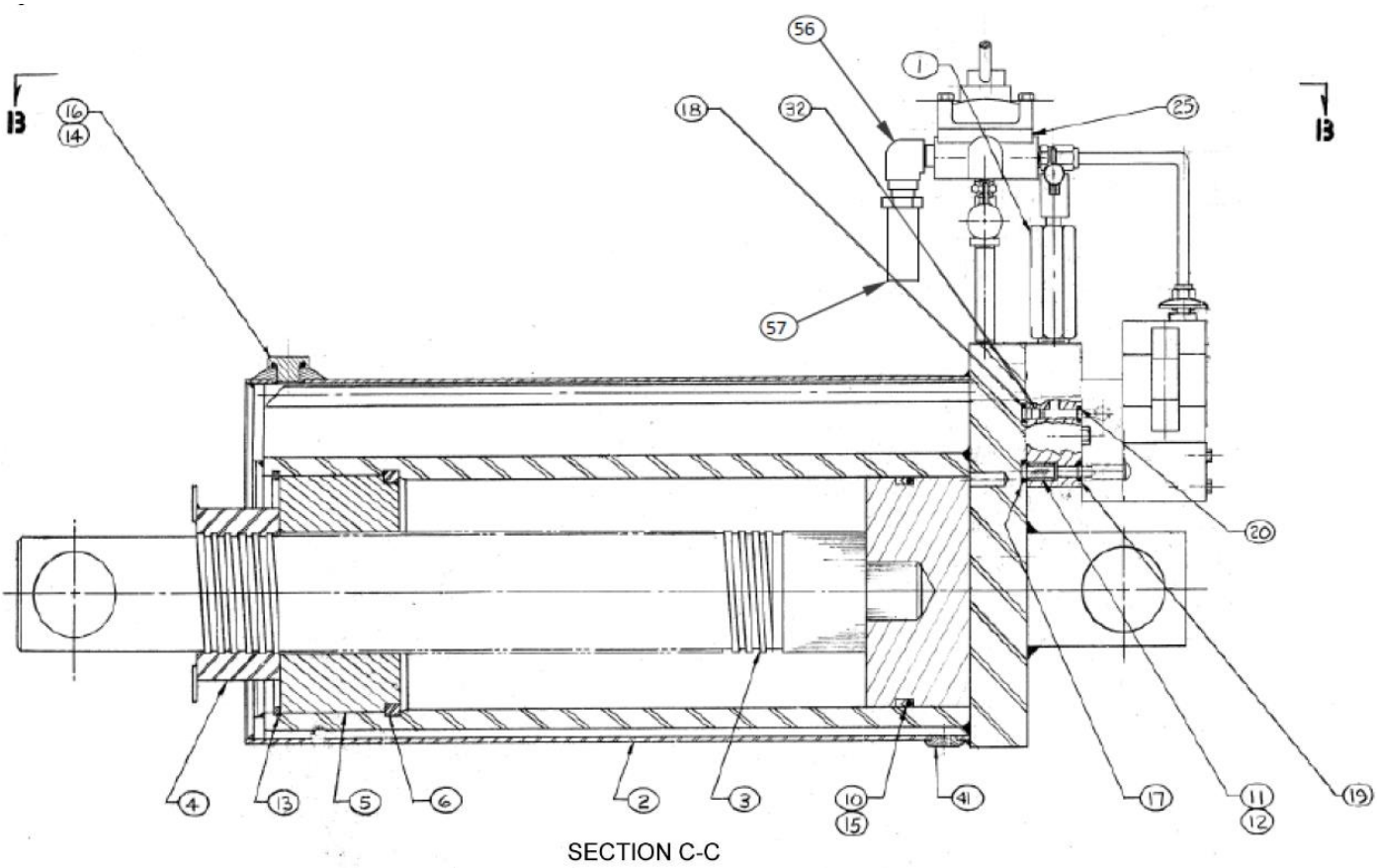
# Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**

| Item | Part Number | Description | Qty |
|---|---|---|---|
| 1 | 8389S-C | Cylinder Assembly | 1 |
| 2 | 8398-121-1 | Spacer | 6 |
| 3 | 8398-121-2 | Spacer | 4 |
| 4 | 8398-121-3 | Spacer | 4 |
| 5 | 8398-125 | Caster Horn | 2 |
| 6 | 8398-126 | Spring Support | 2 |
| 7 | 8398-127 | Spring Support | 2 |
| 8 | 8398S-130 | Instruction Plate | 1 |
| 9 | 8398-150 | Frame | 1 |
| 10 | 8398-132 | Bushing | 4 |
| 11 | 8398-116 | Pin, Caster Bracket | 4 |
| 12 | 8398-117 | Pin, Caster Spring | 2 |
| 13 | 8398-118 | Pin, Caster Bracket Pivot | 2 |
| 14 | 8398-400 | Swivel Caster Assembly | 1 |
| 15 | 8398S-101 | Lifting Arm | 1 |
| 16 | 8398R-102.1 | Bell Crank, RH | 1 |
| 17 | 8398R-102.2 | Bell Crank, LH | 1 |
| 18 | 8398R-104.1 | Link, Rear | 1 |
| 19 | 8398R-104.2 | Link, Rear | 1 |
| 20 | 8398R-110 | Pin, Frame Bell Crank | 2 |
| 21 | 8398R-111 | Pin, Lift Arm Bell Crank | 1 |
| 22 | 8398R-112 | Pin, Rear Link Frame | 2 |
| 23 | 8398R-113 | Pin, Rear Link Lift Arm | 1 |
| 24 | 8398R-114 | Pin, Bell Crank Ram | 1 |
| 25 | 8398R-115 | Pin, Lift Arm Cylinder | 1 |
| 26 | 8398R-124 | Screw | 2 |
| 27 | 8398R-135 | Tube | 4 |
| 28 | 915-176 | Nameplate | 1 |
| 29 | 5923-D | Sling Assembly, (Optional) | 1 |
| 30 | 5923-E | Crane Assembly, (Optional) | 1 |
| 31 | 915-23K | Pump Handle | 1 |
| 32 | 916-157-53 | Towbar | 1 |
| 33 | 916-184-39 | Spring | 4 |
| 34 | R-3357 | Cup Adapter | 1 |
| 36 | 916-364 | Screw | 4 |
| 37 | 487-50100 | Grease Fitting | 4 |
| 38 | 487-50020 | Grease Fitting | 7 |
| 39 | 356-80125 | Snap Ring | 12 |
| 40 | 356-80100 | Snap Ring | 4 |
| 41 | 356-80300 | Snap Ring | 4 |
| 42 | 450A5972 | Bearing | 2 |
| 43 | 450A5973 | Caster Wheel | 2 |

# Hydraulic Assembly - Parts List

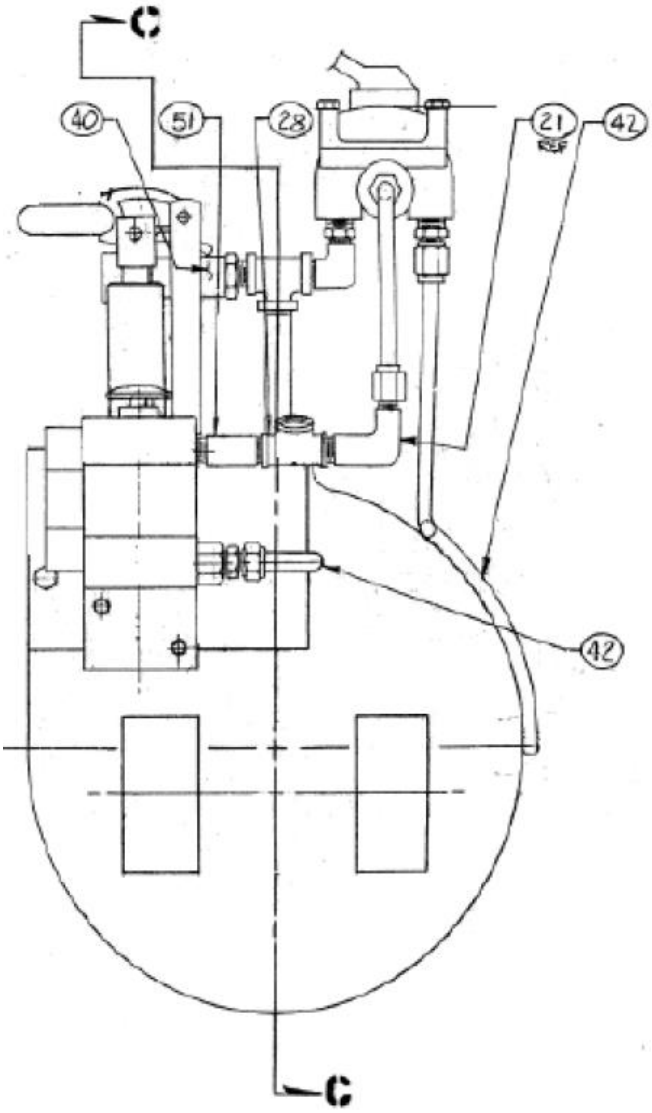
**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**

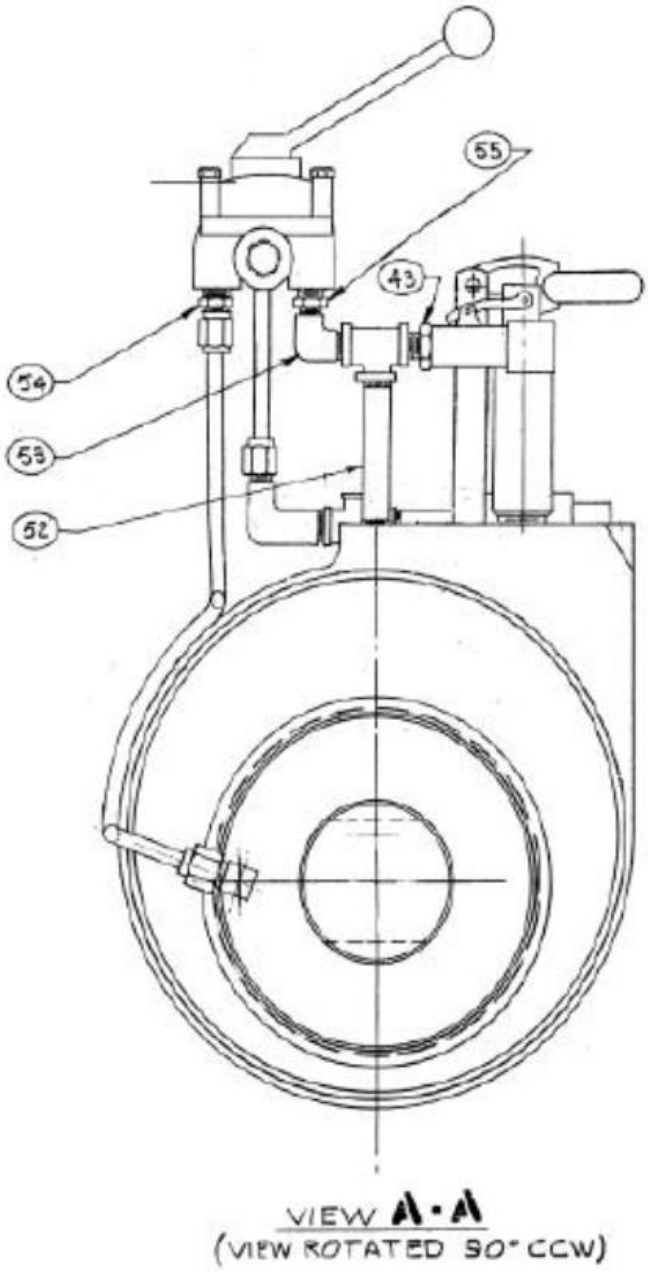



SECTION C-C

# Hydraulic Assembly - Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**



# Hydraulic Assembly - Parts List

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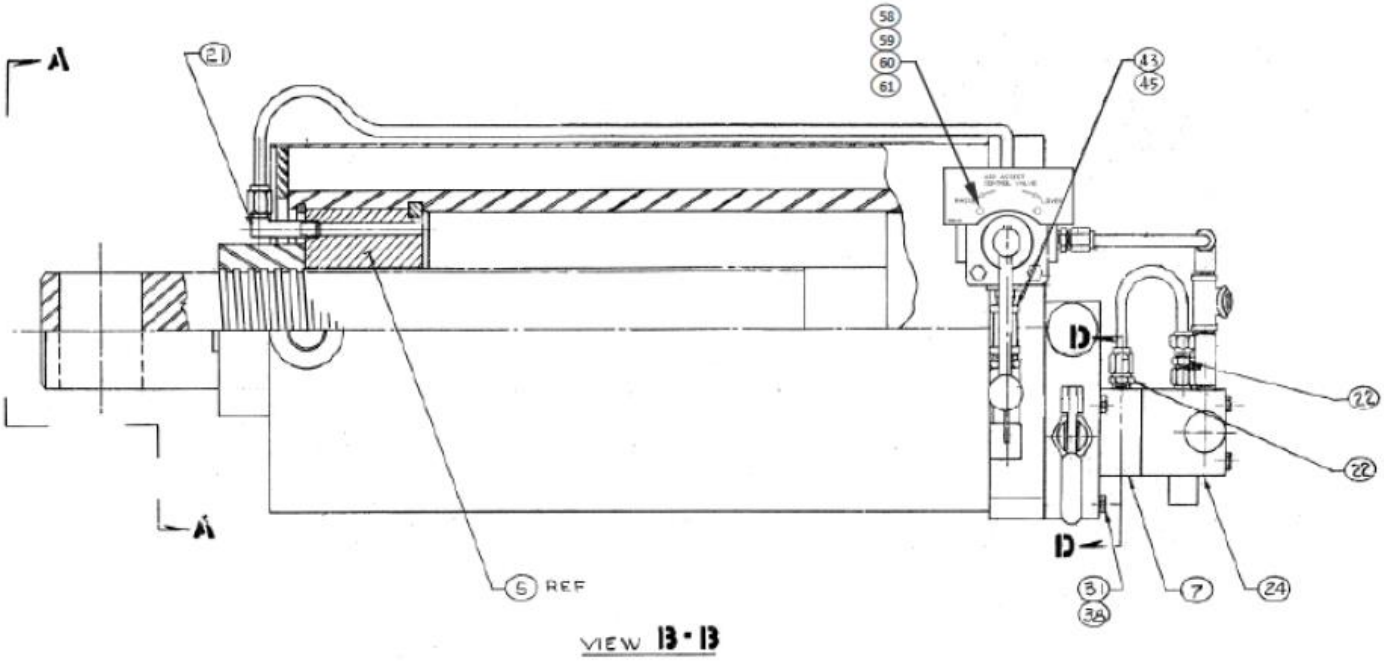
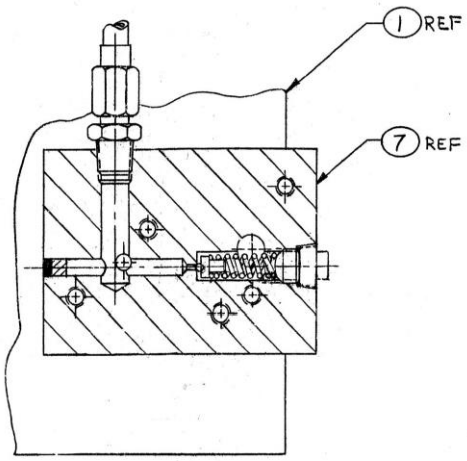



VIEW B-B




SECTION D-D

# Hydraulic Assembly - Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**

| Item | Part Number | Description | Qty |
|---|---|---|---|
| | **8398S-C** | **Hydraulic Assembly**; *consist of:* | |
| 1 | 8389R-D | Hand Pump Assembly | 1 |
| 2 | 8398R-200 | Cylinder-Reservoir | 1 |
| 3 | 8398R-202 | Ram | 1 |
| 4 | 8398R-203 | Locknut | 1 |
| 5 | 8398R-205 | Bushing | 1 |
| 6 | 8398R-207 | Retaining Ring | 1 |
| 7 | 8398S-215 | Adapter Assembly | 1 |
| 10 | 916-44-7.561 | Backup Ring | 1 |
| 11 | 916-7 | Oil Screen | 1 |
| 12 | 916-10 | Oil Screen Spring | 1 |
| 13 | 915-150.25-8.56 | Snap Ring | 1 |
| 14 | 915-124U | Filler Plug | 1 |
| 15 | 611-44344 | O-Ring | 1 |
| 16 | 611-21521 | O-Ring | 1 |
| 17 | 611-01601 | O-Ring | 1 |
| 18 | 611-01401 | O-Ring | 1 |
| 19 | 611-11211 | O-Ring | 1 |
| 20 | 611-11011 | O-Ring | 1 |
| 21 | 456-30604-A | Male Elbow, Ex Long | 2 |
| 22 | 457-10604-A | Male Connector | 3 |
| 24 | 450A5736 | Air Pump | 1 |
| 25 | 450A5977 | Air Valve | 1 |
| 28 | 485-40404 | Run Tee | 1 |
| 31 | 371-16200 | Hex Head Cap Screw | 3 |
| 32 | 378-14160 | Socket Head Cap Screw | 3 |
| 38 | 346-10024 | Lockwasher | 3 |
| 40 | 450A5663 | Safety Valve | 1 |
| 41 | 488-00006 | Pipe Plug | 1 |
| 42 | SST-10060 | Stainless Tube | A/R |
| 43 | 485-50604 | Reducer | 1 |
| 51 | 483-40416 | Pipe Nipple | 1 |
| 52 | 450A5979 | Pipe Nipple | 1 |
| 53 | 483-00606 | Male Elbow | 1 |
| 54 | 457-10608-A | Male Connector | 2 |
| 55 | 485-50806 | Pipe Thread Reducer | 1 |
| 56 | 485-00808 | Male Elbow | 1 |
| 57 | 450A5550 | Muffler | 1 |
| 58 | 8398S-66 | Nameplate | 1 |
| 59 | 345-11010 | Flat Washer | 2 |
| 60 | 346-10010 | Lock Washer | 2 |
| 61 | 372-10060 | HHCS | 2 |

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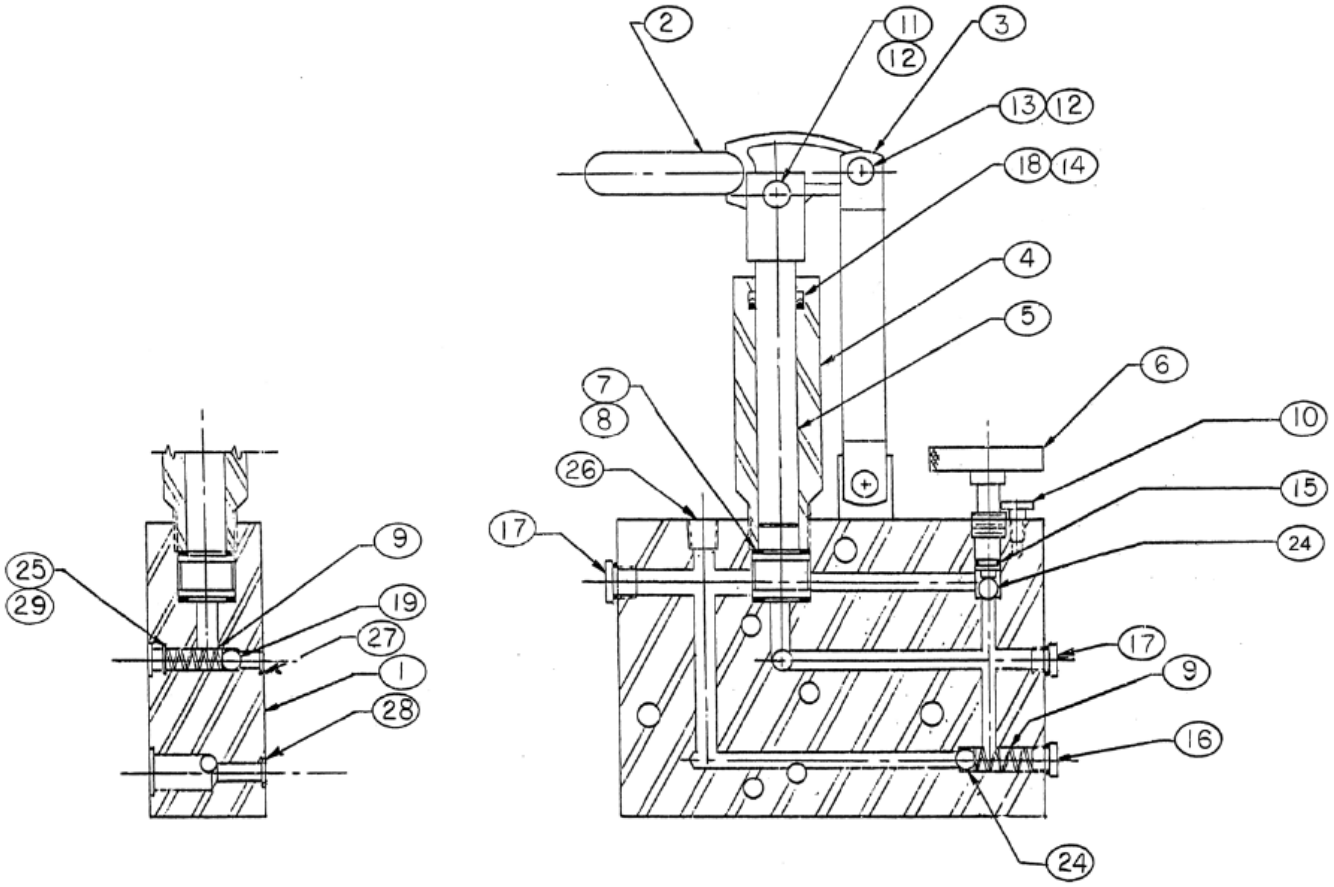
# Hand Pump Assembly - Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**



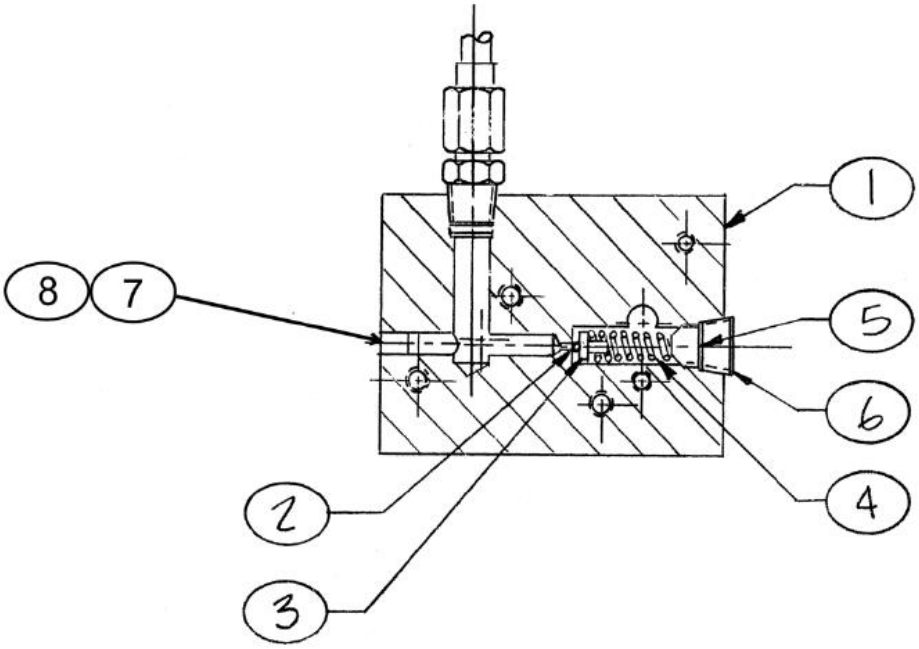
# Hand Pump Assembly - Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**

| Item | Part Number | Description | Qty |
|---|---|---|---|
| | **89398R-D** | **Hand Pump Assembly**; *consist of:* | |
| 1 | 8398R-300 | Manifold Block | 1 |
| 2 | 915-75 | Rocker Arm | 1 |
| 3 | 915-151.42 | Link | 1 |
| 4 | 915-179 | Pump Body | 1 |
| 5 | 915-74C | Piston | 1 |
| 6 | 916-292 | Release Valve | 1 |
| 7 | 915-17 | Gasket | 2 |
| 8 | 915-16A-6 | Valve | 1 |
| 9 | 916-185-9 | Compression Spring | 2 |
| 10 | 916-35 | Release Lock | 1 |
| 11 | 321-14330 | Clevis Pin | 1 |
| 12 | 322-03240 | Cotter Pin | 3 |
| 13 | 321-14250 | Clevis Pin | 2 |
| 14 | 611-11511 | O-Ring | 1 |
| 15 | 611-01101 | O-Ring | 1 |
| 16 | 488-30006 | Plug | 1 |
| 17 | 488-30004 | Plug | 2 |
| 18 | 915-127.13 | Backup Ring | 1 |
| 19 | 216-1-20 | Ball, Steel | 1 |
| 24 | 216-1-24 | Ball, Steel | 2 |
| 25 | 356-90038 | Snap Ring | 1 |
| 26 | 915-28 | Pipe Plug | 1 |
| 27 | 611-11011 | O-Ring | 1 |
| 28 | 611-11211 | O-Ring | 1 |
| 29 | 345-11008 | Flat Washer | 1 |

# Adapter Assembly - Parts List

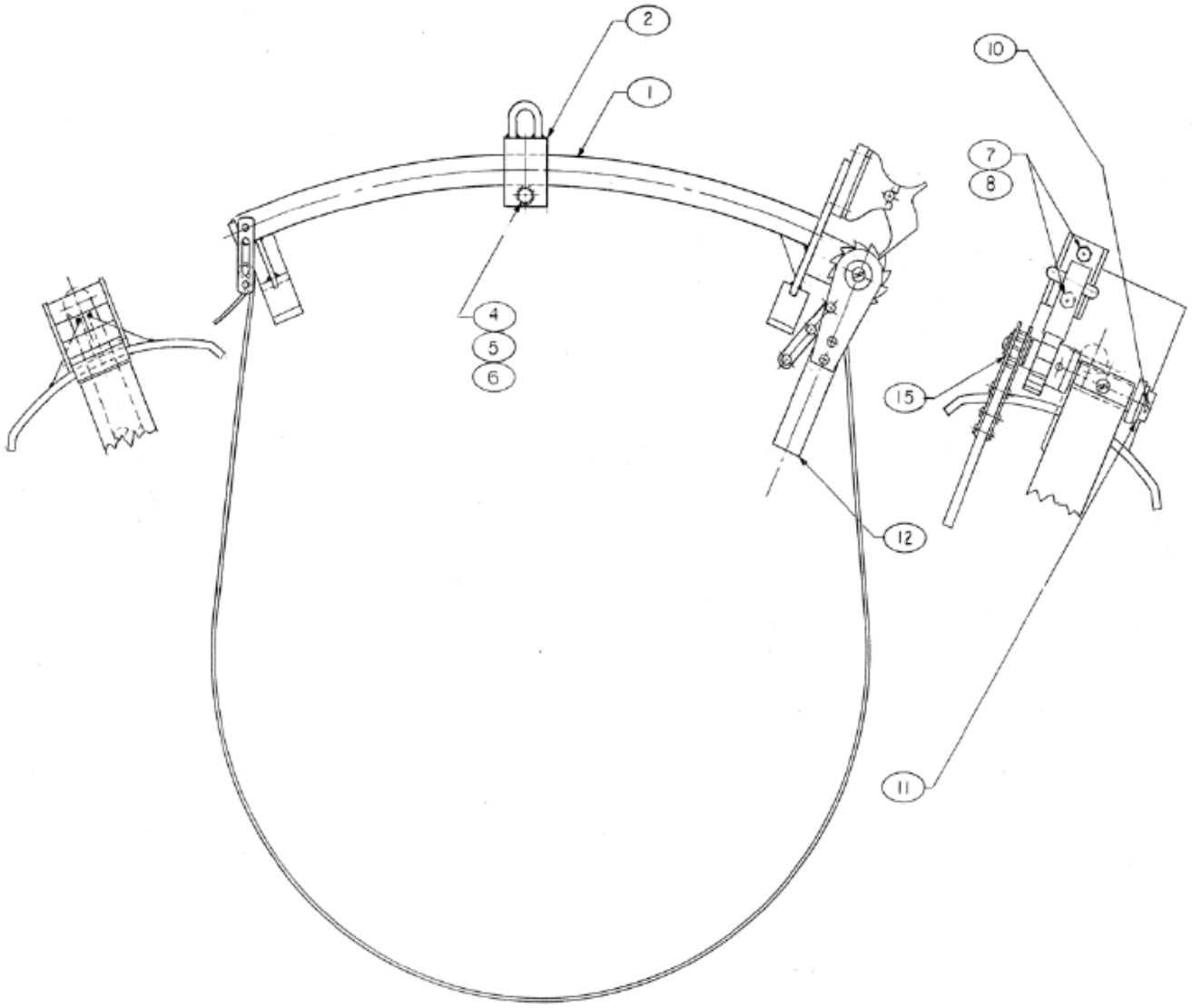
**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**




| Item | Part Number | Description | Qty |
|---|---|---|---|
| | **8398S-215** | **Adapter Assembly**; *consist of:* | |
| 1 | 8398S-210 | Adapter Plate | 1 |
| 2 | 216-1-10 | Ball, Steel | 1 |
| 3 | 8398S-212 | Ball Guide | 1 |
| 4 | 450A5808 | Spring, Die | 1 |
| 5 | 312-18041 | Set Screw | 1 |
| 6 | 488-00006 | Pipe Plug | 1 |
| 7 | 216-1-20 | Ball, Steel | 1 |
| 8 | 312-16031 | Set Screw | 1 |

# Sling Assembly (Optional) - Parts List

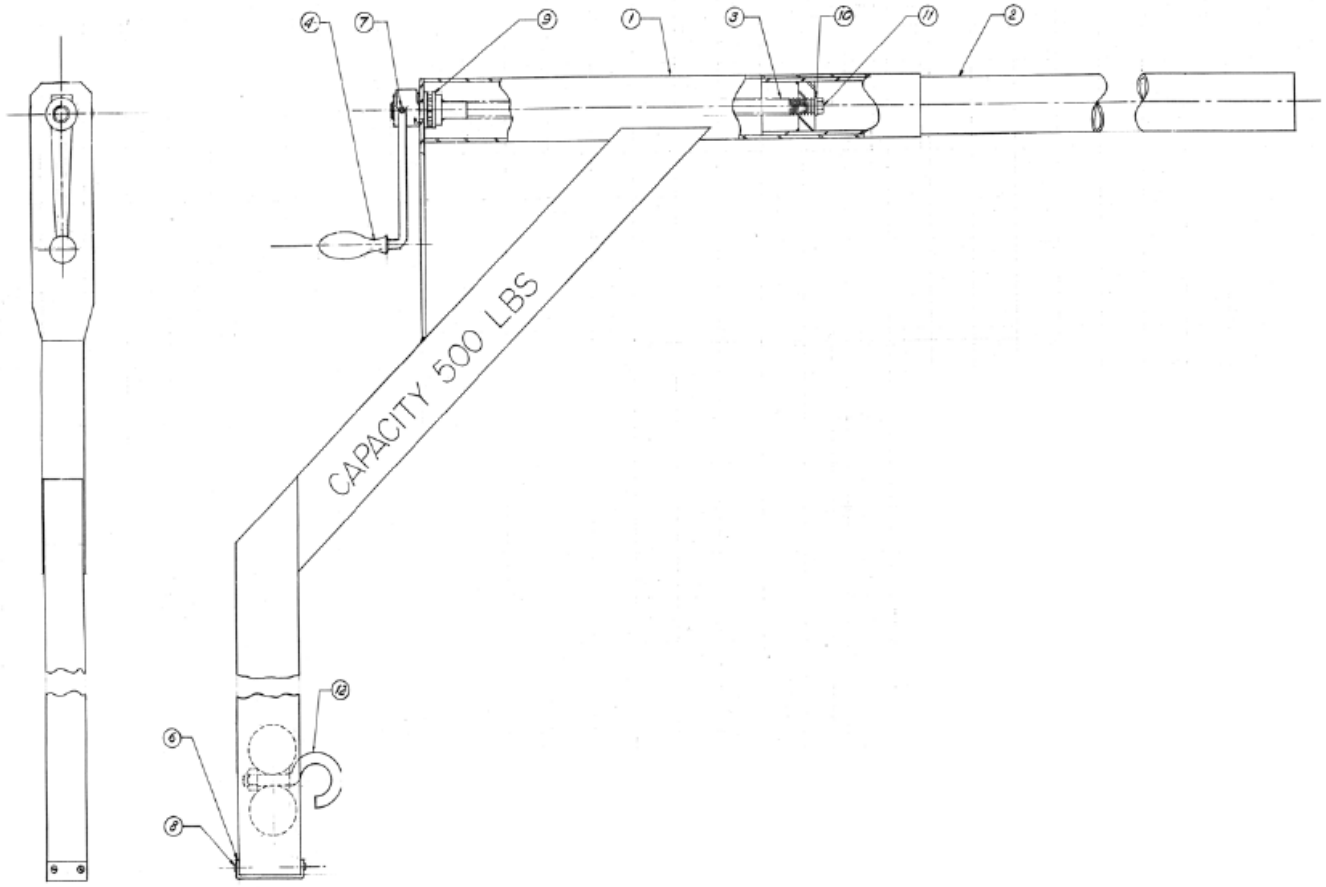
**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**




| Item | Part Number | Description | Qty |
|---|---|---|---|
| | **5923-D** | **Sling Assembly (Optional)**; consists of: | 1 |
| 1 | 5923-29 | Frame | 1 |
| 2 | 5923-30 | Shackle | 1 |
| 4 | 372-20180 | Hex Head Cap Screw | 1 |
| 5 | 333-32000 | Hex Locknut | 1 |
| 6 | 5923-48 | Spacer | 1 |
| 7 | 371-12050 | Hex Head Cap Screw | 2 |
| 8 | 346-10016 | Lockwasher | 2 |
| 10 | 322-04480 | Cotter Pin | 1 |
| 11 | 345-11056 | Washer, Flat | 1 |
| 12 | SC-018 | Ratchet Assembly | 1 |
| 15 | 450A7129 | Washer, Flat | 1 |

# Crane Assembly (Optional) - Parts List

**When ordering replacement parts/kits, please specify model, serial number and color of your unit.**




| Item | Part Number | Description | Qty |
|---|---|---|---|
| | **5923-E** | **Crane Assembly (Optional)**; consists of: | |
| 1 | 5923-33 | Frame | 1 |
| 2 | 5923-34 | Tube | 1 |
| 3 | 5923-35 | Screw | 1 |
| 4 | 5923-36 | Handle | 1 |
| 6 | 5923-37 | Cover | 1 |
| 7 | 325-12240 | Spring Pin | 1 |
| 8 | 450A7121 | Round Head Screw, Self Tapping | 4 |
| 9 | 450A5694 | Bearing, Thrust | 1 |
| 10 | 345-11022 | Washer, Flat | 1 |
| 11 | 450A5697 | Hex Head Cap Screw, LH Thread | 1 |
| 12 | 5923-38 | Trolley | 1 |


# APPENDIX I

## Routine Jack Maintenance Bulletins

# Routine Jack Maintenance Bulletin

TO PROVIDE COMPLETE INFORMATION ON SERVICING
ColumbusJACK/REGENT QUALITY GROUND HANDLING EQUIPMENT

**BULLETIN RJM 102 – PROCEDURE FOR WINTERIZATION OF HYDRAULIC AIRCRAFT JACKS**

The following procedures should be utilized for optimum operational characteristics when using jacks at various temperature extremes:

1. Above 0ºF (-18ºC) Use MIL-PRF-5606, or equal, with no further additive required.
2. At 0º to -20ºF (-18ºC to 29ºC) Use a mixture of 75% MIL-PRF-5606, or equal, and 25% kerosene.
3. Below -20ºF (-29ºC) Use a mixture of 50% MIL-PRF-5606, or equal, and 50% kerosene.

Due to most company, safety, or union regulations which restrict employees from working out-of-doors below -30ºF (-34ºC), there is a lack of experience beyond this point. It is permissible, however, to increase the percentage of kerosene up to 100%. As the ambient temperature increases, MIL-PRF-5606, should be added back to the system in the appropriate mixture.

The air supply should be clean and dry. At -30ºF (-34ºC), the air pump will start to react sluggishly and continue to operate less efficiently as the temperature decreases when a normal air supply is used. The problem can be eliminated by using a dry nitrogen source of sufficient capacity.

To ease the operation of the locknut(s) and screw extension, use "Never Freeze" by Snap-On, or equal, and apply liberally to the thread surfaces.

# Routine Jack Maintenance Bulletin

TO PROVIDE COMPLETE INFORMATION ON SERVICING
ColumbusJACK/REGENT QUALITY GROUND HANDLING EQUIPMENT

**BULLETIN RJM 117 – PROCEDURE FOR ADJUSTING CARTRIDGE STYLE RELIEF VALVES**

It is imperative that safety relief valves on all jacks always be set between rated capacity, and rated capacity plus 10% maximum. The following procedure describes how to adjust cartridge style relief valves.

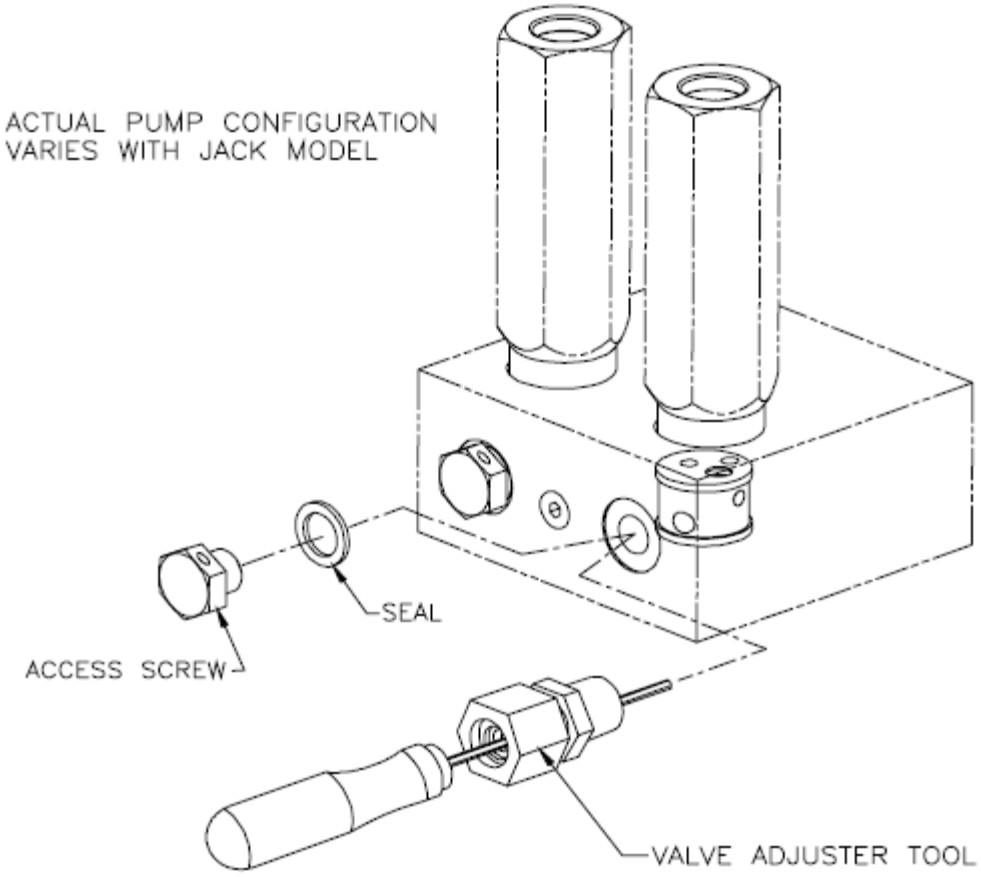
1. Position jack under jack tester.
2. Fully close release valve.
3. Remove access screw and seal. Install valve adjusting tool, Part No. 915-EB. (See illustration)

***NOTE: If tool is not available, disregard this step.***

4. Extend cylinder ram(s):
   a. On single stage jacks, extend the ram approximately half way.
   b. On multiple stage jacks, extend all rams until the smallest ram is extended approximately half way.
5. To set valves:
   a. Using smooth, uniform pump handle strokes, manually pressurize the cylinder while monitoring either jack load gauge or load gauge on tester.
   b. Pump handle shall "drop" or "go soft" at an indicated load between rated load and rated load plus 10% (ex: 50 ton jack should be between 50 and 55 tons).
   c. If safety relief valve is set too high, release pressure and rotate adjusting screw counterclockwise. Repeat above steps until valve is adjusted in range.
   d. If safety relief valve is set too low, release pressure and rotate adjusting screw clockwise. Repeat steps until valve is adjusted in range.

***NOTE: If adjusting tool is not available, it is necessary to relieve pressure completely before removing valve access screw and seal. Then valve set screw can be adjusted using a 1/8 Inch Allen wrench. Valve access screw and seal must be Re-installed before jack can be re-pressurized.***

6. After manual safety relief valve is adjusted, repeat above steps for air of electric pump if applicable.



# Routine Jack Maintenance Bulletin

TO PROVIDE COMPLETE INFORMATION ON SERVICING
ColumbusJACK/REGENT QUALITY GROUND HANDLING EQUIPMENT

**BULLETIN RJM 170 – SUGGESTED PREVENTATIVE MAINTENANCE FOR JACKS**

The following Preventative Maintenance Schedule is provided as a guide to insure that hydraulic aircraft jacks are always ready for operation. The time intervals listed are a general recommendation only. The actual interval used should include factors for the climatic conditions in which the equipment is stored and the frequency of equipment use.

Prior to Operation

1. Inspect for damaged or missing components.
2. Inspect for oil leakage and proper fluid level.
3. Inspect screw extension for mechanical stop.
4. Inspect all snap rings for engagement into grooves.
5. Inspect jack adapter for damage.

Every 6 Months

1. Inspect for worn snap ring grooves.
2. Change hydraulic filters if applicable.
3. If jack has not been used regularly, cycle jack without load.
4. Grease all lube fittings with a general purpose grease.
5. Wipe down ram(s) and screw extension with hydraulic oil.

Every 12 Months

1. Calibrate pressure gauge if applicable per RJM 173.
1. Perform "Recommended Annual Jack Certification Procedure" per RJM 147.

# Routine Jack Maintenance Bulletin

TO PROVIDE COMPLETE INFORMATION ON SERVICING
ColumbusJACK/REGENT QUALITY GROUND HANDLING EQUIPMENT

**BULLETIN RJM 171 – RECOMMENDED HYDRAULIC OILS**

The following hydraulic oils are recommended for use in all ColumbusJACK/Regent products, though any oil compatible with Buna-N seals may be used. Proper oil level should be .5 to 1 inch below the fill port when all rams are collapsed.

Exxon/Mobil Aero HF (MIL-PRF-5606)
Exxon/Mobil DTE-11, -15
NATO Code No. H-538 (MIL-PRF-87257)
Phillips 66 X/C 5606
Royco 783 (Anderol) (MIL-PRF-6083)
Royco 782 (Anderol) (MIL-PRF-83282)
Shell Tellus 10, 15
Shell Aerofluid 31 (MIL-PRF-83282)
Shell Aerofluid 41 (MIL-PRF-5606)
Texaco Regal Oil R & O (32, 46, 100, 150, 220, 320, 460)