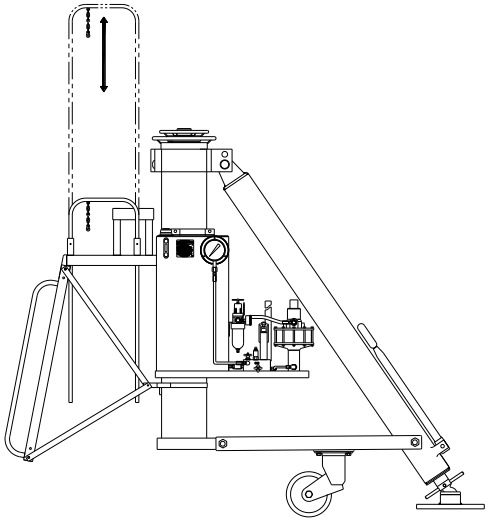
OPERATION & SERVICE MANUAL



Model: 166D1100 (4084-35(2))
40 Ton (35.7 Metric Ton)
Tripod Jack

04/2020 – Rev. 02

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	07/17	Original release
02	04/20	Major revision

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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

40 Ton (35.7 Metric Ton) Tripod Jack

1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

1.3 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

1.4 SPECIFICATIONS

Capacity	40 ton (35.7 metric ton)
Minimum Height	84 in (213.36 cm)
Hydraulic Lift	110 in (279.4 cm)
Screw Extension	12 in (30.48 cm)
Maximum Height	206 in (523.24 cm)
Estimated Weight	2376 lbs (1077.7 kg)
Operating Pressure	3370 psi (232.4 bar)
Relief Valve Pressure	3700 psi (255.1 bar)
Reservoir Capacity	21 gal (79.5 l)
Air Requirements	Pressure: 80 psi (5.5 bar) minimum Flow: 40 Scfm minimum

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 mph (8 kph) 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 40 tons (80,000 pounds). 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.

Casters will carry only weight of jack. Ensure casters compress under aircraft load to prevent injury to personnel and equipment damage.

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.

3.2 SYSTEM BLEED PROCEDURE

1. Break hydraulic line at base of cylinder.
2. Operate pump until oil comes out freely with no air bubbles. Retighten hydraulic line at base of cylinder.
3. Raise ram approximately 6 in (15.24 cm) with pump.
4. Open release valve on pump.
5. If ram fails to raise, repeat steps 1 thru 2 until all air is removed and ram is able to raise upon using pump.

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 PRE-OPERATION PROCEDURE

1. Perform visual inspection, by checking for oil leakage.
2. Check for loose, damaged or missing parts.
3. Check oil level.

5.2 LIFTING PROCEDURE

1. Extension screw should be screwed down and ram should be fully retracted.
2. Position jack under load lifting point.
3. Unscrew the extension screw as required.
4. Close release valve.
5. Adjust leveling footpads as required to level jack.

WARNING!

Maintain approximately 1 in (2.54 cm) clearance between locknut and mating surface during raising and lowering of rams. While the jack is being extended, do not adjust the second stage locknut (smaller) until after the first stage ram (larger) is fully extended. The second stage locknut must stay at the top of the second stage ram until after the first stage is fully extended. Only when the first stage is fully extended, should the second stage locknut be kept about one 1 in (2.54 cm) from its mating surface.

CAUTION!

With no load applied to the jack, it is normal for any stage to extend first. Once a load is applied to the jack, ensure that the first stage ram (larger) is fully extended first, before the second stage ram (smaller) begins to extend. If the jack does not extend in this sequence, the jack should be disassembled to determine the cause of the excessive friction in the ram stages.

6. Fully extend first stage ram (larger). Set first stage locknut.
7. Extend second stage ram (smaller) to desired height. Set second stage locknut

NOTE: Read load gauge to verify that jack limits are not being exceeded.

8. Open release valve to release hydraulic pressure.

5.0 OPERATION *(continued)*

5.3 LOWERING PROCEDURE

1. Close release valve.
2. Operate pump to raise ram until second stage (smaller) locknut is free to rotate.

WARNING!

DO NOT remove any locknut during ram retraction.

3. Slowly open jack release valve and allow second stage ram (smaller) to fully retract.

NOTE: Speed of lowering is controlled by how far release valve is open.

CAUTION!

ALWAYS keep first stage locknut within 1 in (2.54 cm) of cylinder and second stage locknut within one (1) inch of first stage ram as each stage is lowered.

4. With second stage ram fully retracted, rotate first stage locknut up.
5. Allow first stage ram (larger) to fully retract
6. Lower extension screw completely.
7. Raise leveling footpads completely.
8. Remove jack from under airplane.

5.4 RELIEF VALVE SETTING

1. Position jack under a jack tester. Fully extend the first stage ram and partially extend the second stage ram.
2. Loosen nut.
3. Using an Allen wrench, adjust pressure setting to 42 – 44 tons. Clockwise to increase pressure, counterclockwise to decrease pressure.

WARNING!

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

DO NOT exceed 44 tons (39.3 metric ton).

4. Tighten nut.

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
Casters fail to retract fully under load	Dirty casters	Remove casters, clean housing, and reassemble
Jack will not raise	Pump release plunger is open (fluid passing back to reservoir)	Tighten pump release valve. If necessary reopen valve, pump rapidly to flush out foreign matter
	Discharge valve is open	Pump rapidly to flush
	Suction valve is stuck. Lack of fluid	Pump rapidly to flush. Refill fluid reservoir
	Faulty safety valve (set too low or leaks)	Reset or replace spring and reset
Jack will not raise capacity load	Faulty safety valve (set too low)	Reset or replace spring and reset
	High-pressure hose leaks	Tighten or replace
	Release valve leaks	Tighten
	Discharge valve leaks	Reset
	Faulty packing	Replace lift unit packings
	Leaking pump packings	Replace pump packings
Jack will not raise to full height	Lack of fluid	Fill reservoir
	Closed air vent	Open air vent
	Sticking suction valve	Pump rapidly to dislodge
	Clogged fluid screen	Clean fluid screen
Ram rises and falls during each stroke	Discharge valve leaks	Replace ball or spring, reseat or reset
	Air locked	Relieve air pressure in system
Jack will not hold up load	Pump release valve leaks	Tighten valve nut
	Discharge valve leaks	Replace spring or ball. Reface seat. Reseat
	Safety valve leaks	Replace ball. Reseat and adjust
	Faulty ram o-ring	Replace packing
	Faulty ram packing	Replace packing
	Fluid line leaks	Replace high-pressure hose
Jack will not lower the load	Ram safety locknut in wrong place	Rotate nut to top of ram and tighten retaining screw
	Broken pump release plunger	Replace or repair
	Bent ram	Repair
Ram will not completely lower	Ram safety locknut in wrong place	Rotate nut to top of ram and tighten screw
	Damaged ram	Replace lift unit
	Faulty ram ‘V’ packing	Replace packing
	Air under ram	Bleed system
	Restricted fluid passage on return to reservoir	Disconnect one end of hose connection and pump rapidly to flush
Handle works too hard	Wrong position for handle in piston	Change position
	Restricted fluid passage	Disconnect hose and pump to flush line
	Clogged fluid screen	Clean fluid screen
Handle stroke partially wasted	Air in pump cylinder. Suction valve sticks	Open pump release plunger and pump rapidly to flush system
	Clogged fluid screen	Clean fluid screen
	Closed air vent	Open air vent
Handle moves up without effort	Discharge valve leaks, or air in pump cylinder	Open pump release valve and pump rapidly
Handle snaps back	Closed air vent	Open air vent.
	Suction valve sticks	Open pump release valve and pump rapidly
	Clogged fluid screen	Clean fluid screen

7.0 MAINTENANCE

7.1 SPECIAL MAINTENANCE INSTRUCTIONS

It is very important that the top of the second stage ram thread be staked to prevent the removal of the second stage locknut.

WARNING!

The second stage locknut must not be able to be removed by the operator.

7.2 SHOP AIDS AVAILABLE

Contact Columbus**JACK**/Regent Sales for any shop aids.

7.3 OVERHAUL KITS AVAILABLE

Soft Kit 120A1642
Repair Kit 120A1720

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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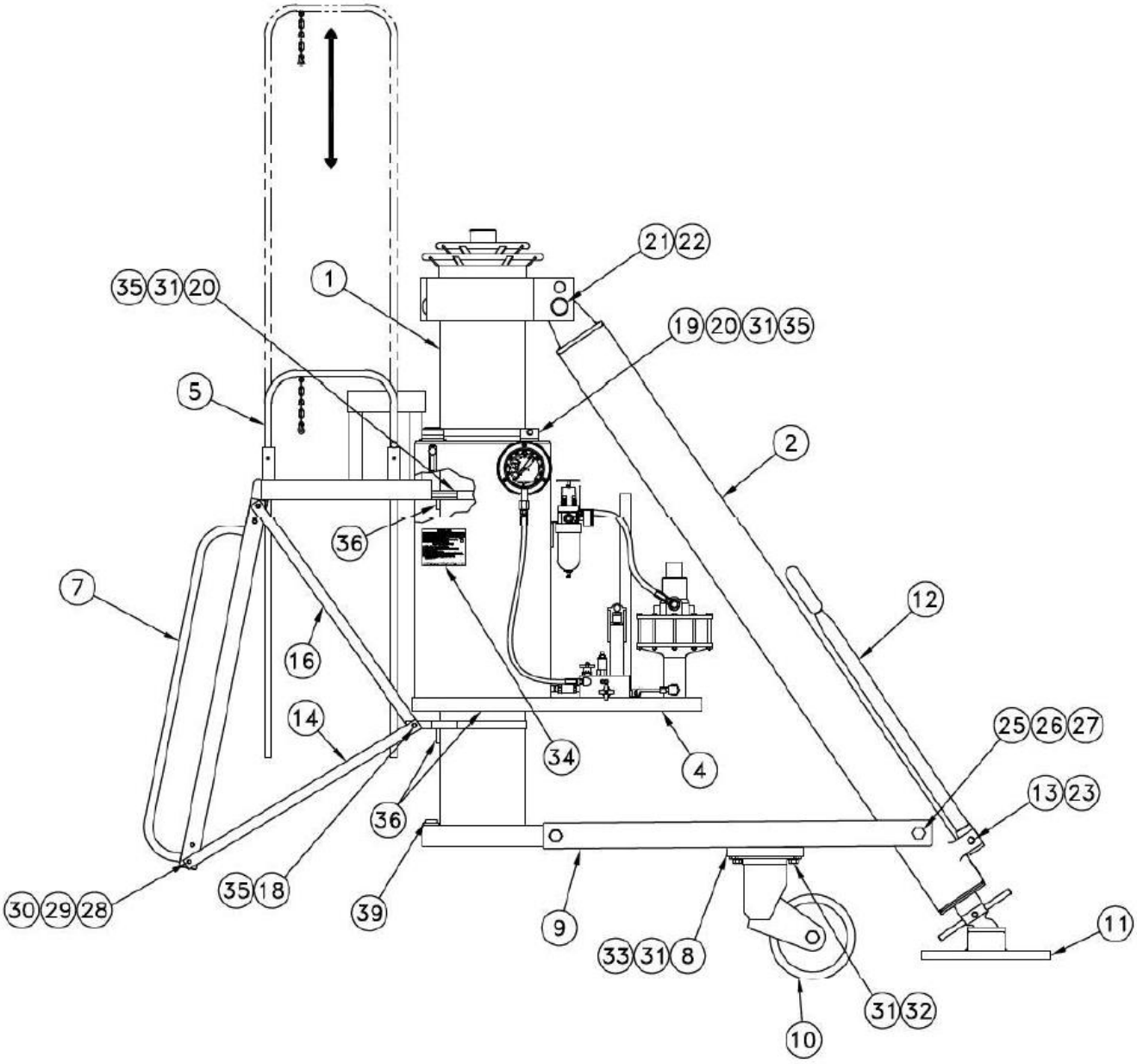
11.0 APPENDICES

APPENDIX I Routine Jack Maintenance Bulletins

Parts List

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



Parts List

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

Item	Part Number	Description	Qty
1	166D1200	Cylinder Assembly	1
2	166D2300-1	Leg Weldment, Towbar	1
3	166D2300-2	Leg Weldment (Not Shown)	2
4	166D1800	Pump and Reservoir Assembly	1
5	166D3203	Platform Assembly	1
7	704D3109	Ladder Top Section	1
8	159B1330	Plate, Caster	3
9	166D1330	Brace	6
10	450A3804	Caster, Swivel with Lock	3
11	704D2304	Foot Pad Assembly	3
12	954C1321	Towbar	1
13	704B1324	Pin, Towbar	1
14	166C1329-1	Brace	2
16	166C1329-3	Brace	2
18	755C1707-17	Bracket Clamp	1
19	755C1707-16	Saddle Clamp	1
20	703C3008	Clamp Strap	4
21	703B1306	Pin	3
22	450A5780	Retaining Ring	6
23	322-06480	Cotter Pin	2
24	450A4100-24	Hose Assembly (Not Shown)	1
25	376-30840	Hex Head Cap Screw	6
26	333-53000	Hex Nut	6
27	346-10064	Lockwasher	6
28	371-16120	Hex Head Cap Screw	12
29	333-41600	Hex Nut	12
30	346-10024	Lockwasher	12
31	346-10032	Lockwasher	32
32	371-20160	Hex Head Cap Screw	12
33	371-20140	Hex Head Cap Screw	12
34	160B603	Plate; Operating Instructions	1
35	333-42000	Hex Nut	10
36	806A1709	Stop Block	4
38	450B9000	Universal Cover (Not Shown)	1
39	450A3303	Bubble Level	1

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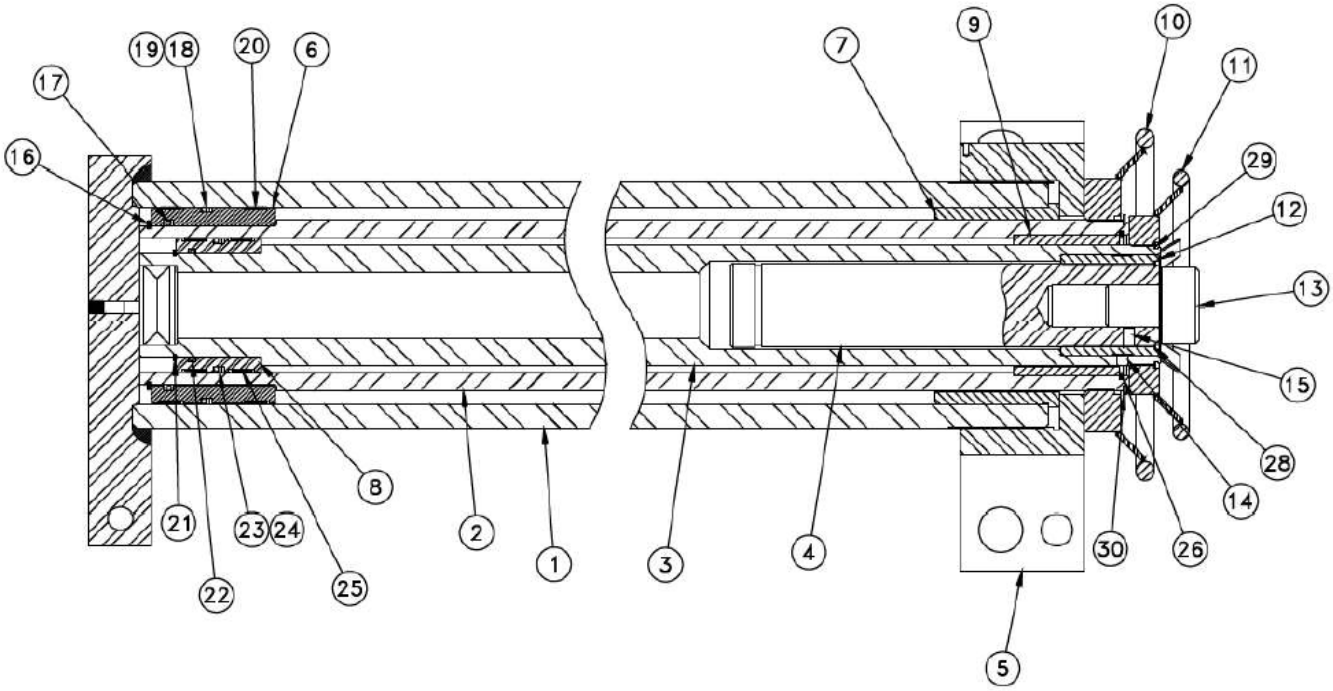

Parts List

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Item	Part Number	Description	Qty
	166D1200	**Cylinder Assembly**; consists of:	
1	166D1201	Cylinder Weldment	1
2	166D1202	Ram, First Stage	1
3	166D1203	Ram, Second Stage	1
4	702C1212	Extension Screw	1
5	166D3206	Head	1
6	703C2204	Bearing, Ram	1
7	703C4205	Bearing, Upper	1
8	940C1209	Bearing, Lower, Second Stage	1
9	940B1205	Bearing, Upper, Second Stage	1
10	938C1103	Handwheel	1
11	938C1101	Handwheel	1
12	702C1211	Nut, Extension Screw	1
13	702C1001	Adapter	1
14	MS51966-156	Set Screw	1
15	312-20041	Set Screw	1
16	356-70650	Retaining Ring	1
17	611-43943	O-Ring	1
18	611-44344	O-Ring	1
19	618-10701	Backup Ring	1
20	450A3707	Wear Ring	2
21	356-70425	Retaining Ring	1
22	611-34734	O-Ring	1
23	611-42942	O-Ring	1
24	618-10561	Backup Ring	1
25	450A3715	Wear Ring	2
26	450A3465	Retaining Ring	1
27	456-10606	Male Elbow	1
28	450A3409	Retaining Ring	1
29	450A3414	Retaining Ring	1
30	450A3417	Retaining Ring	1

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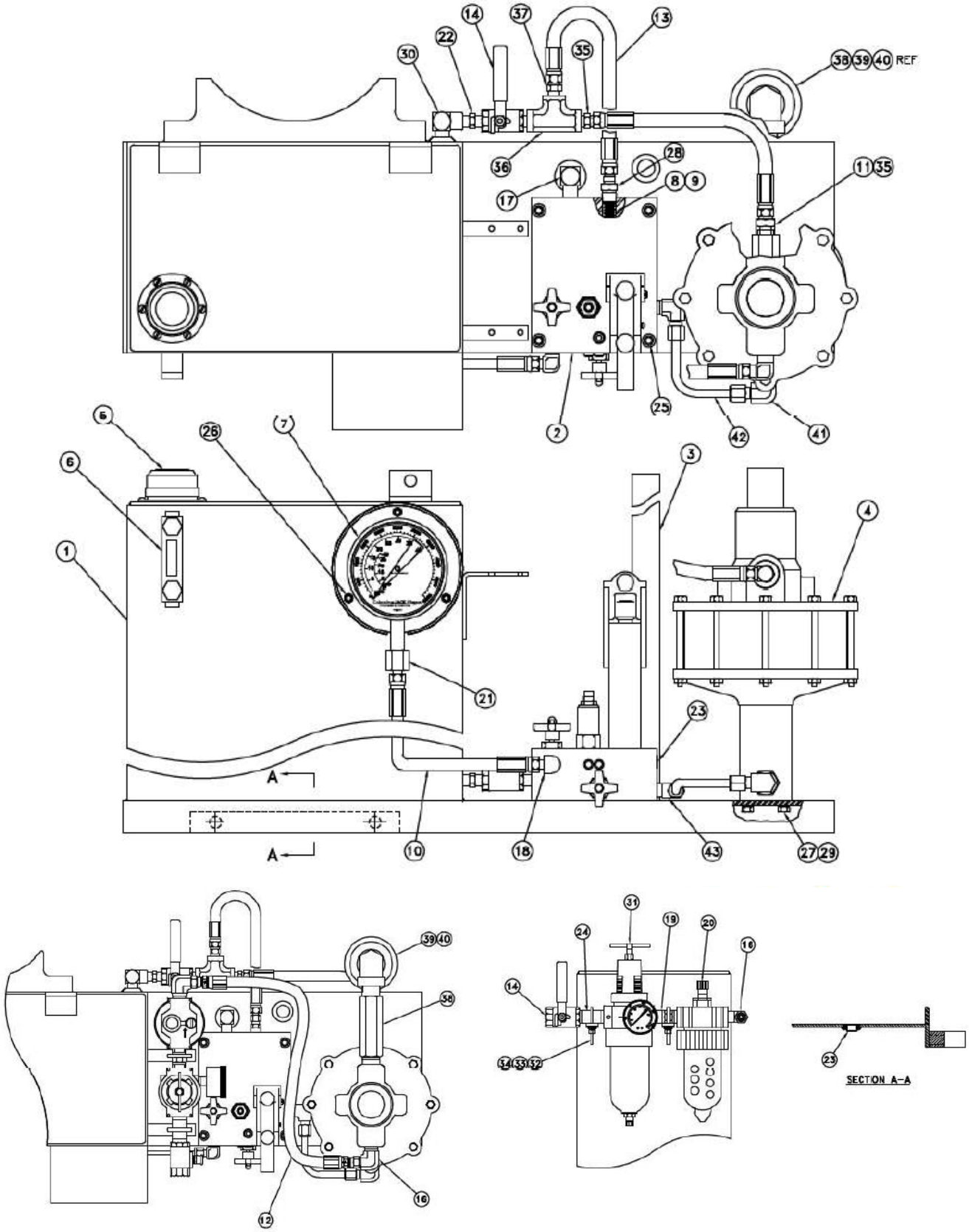

Parts List

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Item	Part Number	Description	Qty
	166D1800	**Pump and Reservoir Assembly**; consists of:	
1	973D1409	Reservoir-Body Weldment	1
2	077D1804	Manifold Assembly	1
3	469B1211	Handle	1
4	450A3341	Pneudraulic Pump	1
5	450A3300	Filler Assembly	1
6	450A3310	Gauge, Fluid Level	1
7	166-3001	Gauge Face Assembly	1
8	CJ69B1225	Spring	1
9	CJ69B1253	Screen	1
10	450A4000-32	Hose	1
11	450A4350-12	Hose	1
12	450A4100-24	Hose	1
13	450A4100-15	Hose	1
14	450A3200	Ball Valve	2
16	456-10608	Male Elbow	4
17	456-10606	Male Elbow	1
18	456-10406-A	Male Elbow	1
19	483-20832	Pipe Nipple	1
20	450A5498	Lubricator	1
21	450A3114	Female Connector	1
22	483-10808	Pipe Nipple	1
23	488-00006	Pipe Plug	2
24	450A3080	Pipe Nipple	1
25	377-16120	Socket Head Cap Screw	4
26	377-12100	Socket Head Cap Screw	3
27	372-16080	Hex Head Cap Screw	4
28	457-10606-A	Male Connector	2
29	346-10024	Lockwasher	4
30	485-00808	Street Elbow	1
31	450A3380	Filter Regulator	1
32	450A3605	U-Bolt and Plate	2
33	346-10016	Lockwasher	4
34	345-11016	Flat Washer	8
35	457-10808	Male Connector	2
36	485-40808	Male Run Tee	1
37	457-10608-A	Male Connector	1
38	450A3083	Pipe Nipple	1
39	450A3084	Female Elbow	1
40	450A3343	Muffler	1
41	456-00608	Male Elbow	1
42	SST-9950	Stainless Tube	AR
43	456-00606	Male Elbow	1

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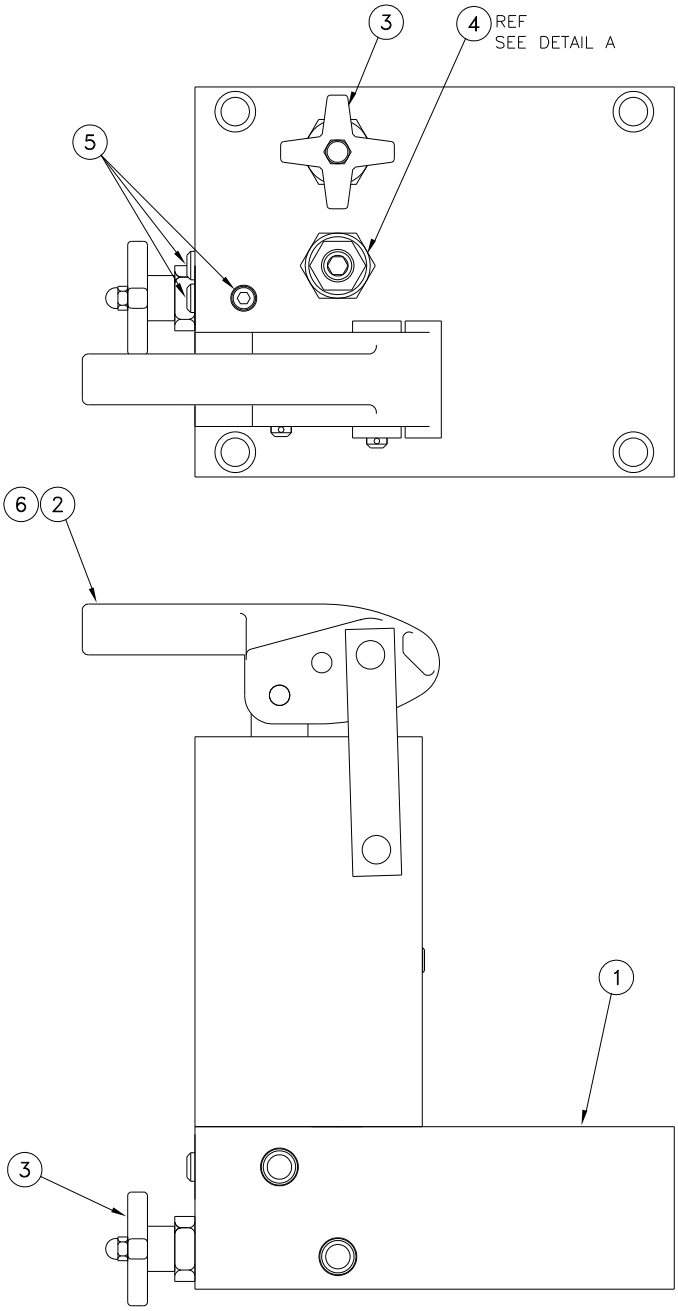

Item	Part Number	Description	Qty
	077D1804	**Manifold Assembly**; consists of:	
1	077D1805	Manifold	1
2	566-03	Pump Assembly	1
3	450A3207	Needle Valve	2
4	450A3208	Relief Valve	1
5	488-00002	Pipe Plug	3
6	377-20120	Socket Head Cap Screw	2

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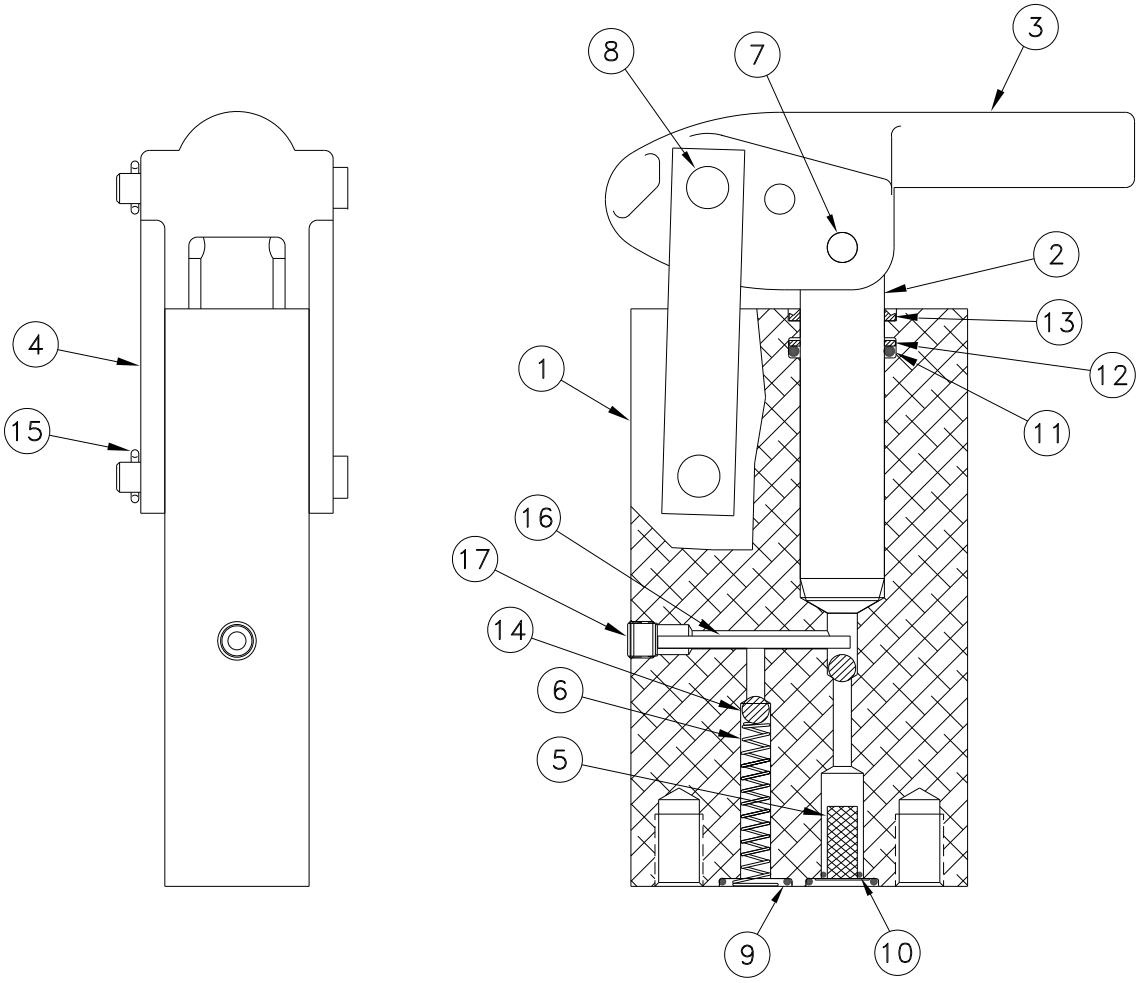

Item	Part Number	Description	Qty
	566-03	**Pump Assembly**; consists of:	
1	30-181	Base, Pump	1
2	70-81	Plunger	1
3	230-23	Fulcrum	1
4	220-19	Link	2
5	250A024-1	Filter Screen	1
6	240-14	Spring	1
7	321-14490	Clevis Pin	1
8	321-14690	Clevis Pin	2
9	611-11311	O-Ring	2
10	611-01201	O-Ring	1
11	611-21221	O-Ring	1
12	618-10171	Backup Ring	1
13	71X7041	Wiper	1
14	216-1-18	Ball, Steel	2
15	322-03160	Cotter Pin	3
16	570-010	Pin	1
17	488-00002	Pipe Plug	1

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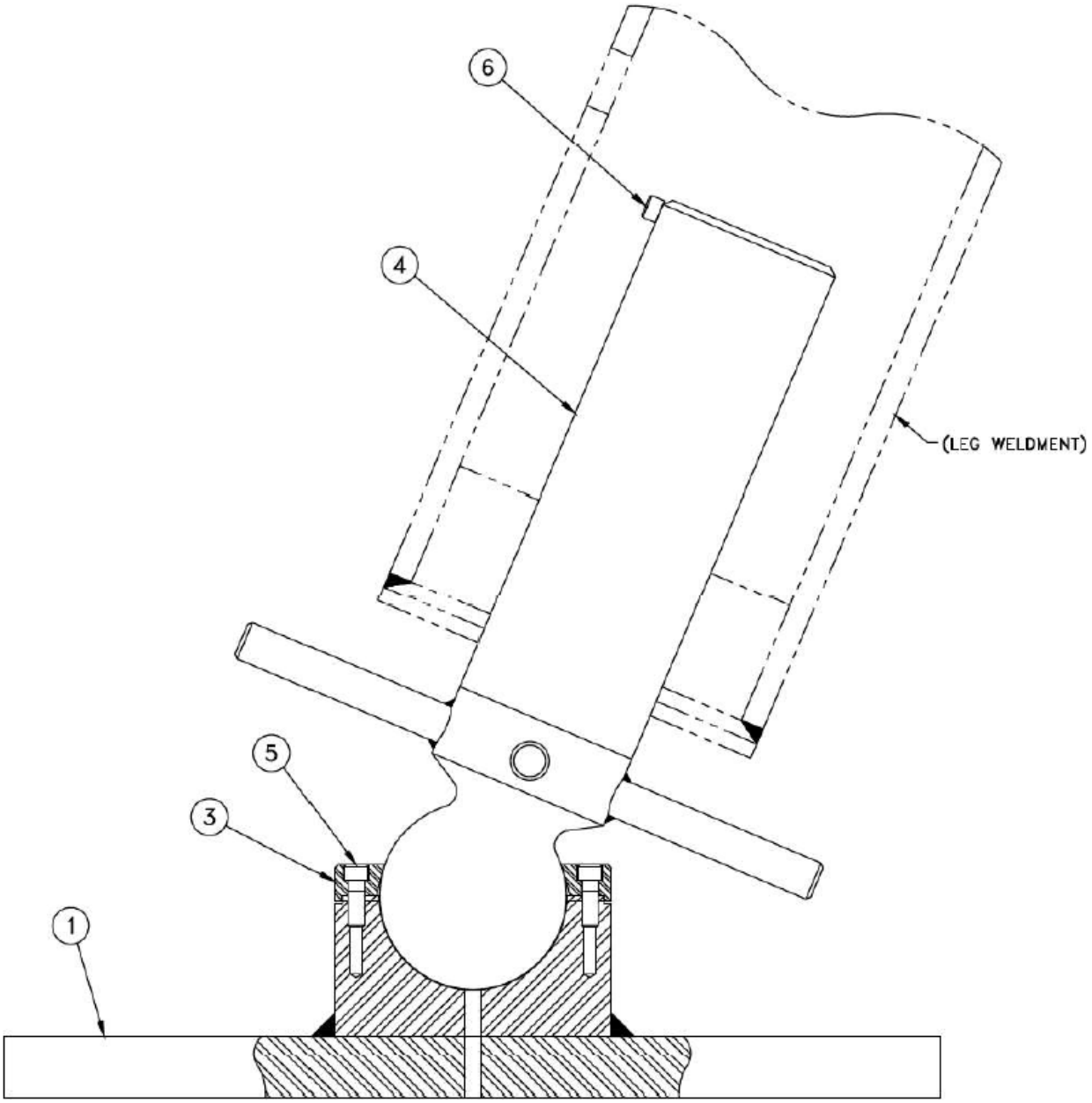

Item	Part Number	Description	Qty
	704D2304	**Foot Pad Assembly**; consists of:	
1	704C1303	Pad Weldment	1
3	704C1305	Retainer	1
4	704D2306	Ball Screw	1
5	377-12060-S	Socket Head Cap Screw	4
6	377-12040-S	Socket Head Cap Screw	1

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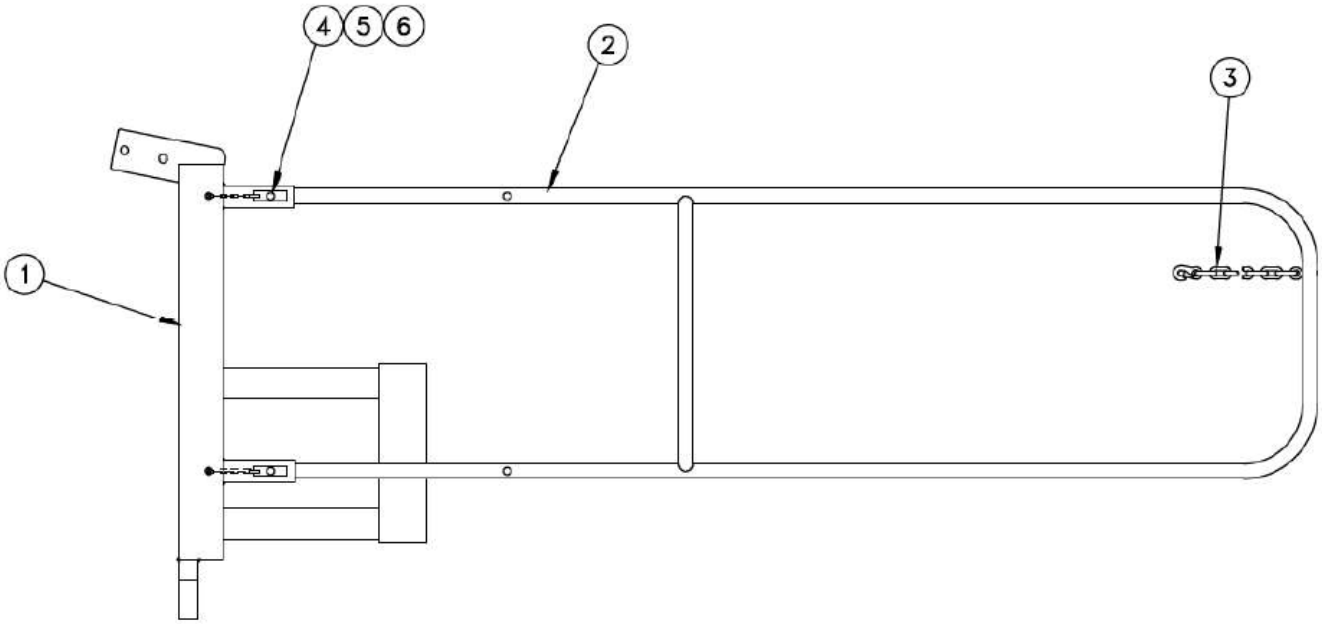


Item	Part Number	Description	Qty
	166D3203	**Platform Assembly**; consists of:	
1	166D3219	Platform Assembly, Weldment	1
2	160D3201	Fence Weldment	1
3	704B3020	Platform Chain	1
4	1504-5	Chain Assembly	4
5	450A6994	Drive Screw	4
6	450A3378	Pin, Quick Release	4

APPENDIX I

Routine Jack Maintenance Bulletins

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.

BULLETIN RJM 116 –SCREW EXTENSION USAGE

When using a jack that has a screw extension, it is advisable that the screw extension be extended as far as possible, and still has the jack roll under the jacking point. If the screw extension is not properly extended, the aircraft may not be able to be raised to the desired height.

A periodic check should be made to the screw extension to ensure that the stop is operating properly to prevent over-extension. To do this, rotate the screw extension counterclockwise until it stops rotating. DO NOT FORCE THE SCREW EXTENSION BEYOND THIS POINT. If the screw extension does not stop rotating, remove it and repair the stop. DO NOT USE WITHOUT THE SCREW EXTENSION STOP WORKING PROPERLY, AS THE JACK COULD FAIL WITH AN OVER-EXTENDED SCREW EXTENSION.

BULLETIN RJM 147 – RECOMMENDED ANNUAL JACK CERTICIFATION PROCEDURE

The following Recommended Annual Jack Certification Procedure is provided as a guide to insure that hydraulic aircraft jacks are always certified for operation. An annual time interval is 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. Recommendations for Suggested Preventative Maintenance can be found in RJM 170.

1. With no external load applied to the jack, fully close release valve and fully extend ram(s) to verify function and the absence of external hydraulic leakage.

WARNING!

DO NOT APPLY PRESSURE AGAINST INTERNAL RAM STOP(S).

2. Open release valve and verify ram(s) retract fully.
3. Position jack under jack tester.

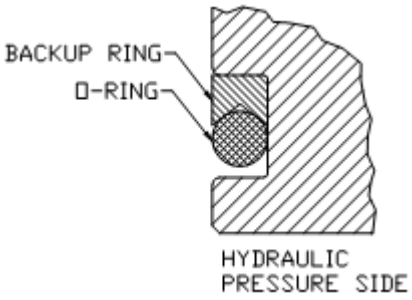
NOTE: For tripod jacks, all leg extensions should be installed on the jack.

4. Close release valve, and extend ram(s) until cup adapter contacts jack tester. Make sure that the ram of a single stage jack is partially extended and that the smaller ram of a multi-stage jack is partially extended.
5. Pressurize the jack against the jack tester. Using a calibrated pressure gauge on either the jack or the jack tester, monitor the pressure until the capacity (operating pressure) of the jack is reached.
6. With the jack pressurized against the jack tester, hold in this position for 3 minutes. Verify that the jack pressure has not decreased, indicating internal leakage.
7. Open the release valve to relieve jack pressure against the jack tester.
8. Set the safety relief valve per jack operation and maintenance manual.

BULLETIN RJM 149 – TEFLON BACKUP RING INSTALLATION PROCEDURE

When installing new Teflon backup rings on a ram or piston of any jack model, the following procedure should be observed to ensure correct installation of the ring. When installing a new backup ring, the corresponding o-ring should always be replaced also.

1. Cut existing o-ring and Teflon backup ring.
2. Clean and visually inspect the groove in the ram or piston for any nicks, scratches of score marks, which could cut the o-ring and backup ring during installation.
3. Check to ensure backup ring is clean and not damaged.
4. Set backup ring on a flat metal surface.
5. Using a propane torch, heat backup ring in a circular motion until backup ring is equally softened and pliable or flexible.
6. Carefully pick-up the HOT Teflon backup ring off the HOT metal plate and stretch the ring enough to fit over the end of the ram (piston).
   NOTE: Make sure the "V" cup portion of the backup ring will face the o-ring. (see figure)
7. If backup ring does not return to size after cooling, re-heat backup ring while on the part, and cool quickly with a cold, wet towel or rag.
8. Check to ensure o-ring is clean and not damaged.
9. Carefully stretch o-ring over the end of the ram (piston). Ensure that the o-ring and the "V" cup of the backup ring are facing each other. (See figure)



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.

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)

BULLETIN RJM 173 – PRESSURE/LOAD GAUGE INFORMATION AND CALIBRATION PROCEDURE

Pressure/Load Gauges are provided on equipment as requested by the customer to give an approximate indication of the load being applied to the unit. All gauges are calibrated at the factory and each gauge includes a special dual-scale face that has been designed and calibrated for the specific unit application. The gauge face indicates both the internal cylinder pressure and the approximate corresponding load in U.S. tons and/or pounds. When multiple stage cylinders are being used, a separate load scale for each stage is provided on the face.

Gauge calibration requirements will vary depending upon the type of unit and the frequency and conditions of operation. In general, axle jack gauges should be calibrated every 6 months, tripod jack gauges should be calibrated every 12 months and testers should be calibrated every 6 months. A recommended gauge calibration procedure is as follows:

1. Remove the gauge from the unit and visually inspect it for any damage.
2. Install the gauge with a master gauge and pumping unit, Model 7172-010 or equivalent.
3. Using the outer pressure scale on the unit gauge, calibrate the gauge as required against the master gauge.
   NOTE: All gauges supplied have an accuracy of 0.5% of the full scale rating of the gauge (Grade 2A, ANSI B40).
4. Install the gauge on the unit.
5. Cycle the cylinder several times to bleed any entrapped air which may have entered the hydraulic system during gauge removal and installation.
6. The unit is now ready for operation.

BULLETIN RJM 229 – OPERATING AND MAINTAING LUBRICATOR PROCEDURE

To fill the lubricator, slowly remove the fill plug (black) by turning counterclockwise. This allows the bowl pressure to vent. The inlet pressure of the of the lubricator must be turned off and depressurized before the fill plug (yellow) is removed. Turn counterclockwise to remove, fill to oil level line.

Use F442, DTE Light, Automatic Transmission Fluid Type A or any good grade light oil compatible with nitrile (Buna) seals

Replace the fill plug (by turning clockwise) and seat firmly. Do not torque excessively. Turn on air supply, and adjust oil drip to 1 drop of oil per 30 strokes of the pump.

To adjust oil drip turn adjustment knob on the top of the lubricator.

- Leaner - clockwise
- Richer - counterclockwise