



# OPERATION & SERVICE MANUAL

**Model: 7003-015  
Bead Breaker**

10/2020 – Rev. 02

REVISION  
01  
02

DATE  
04/2018  
10/2020

TEXT AFFECTED  
Original release  
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., its 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**

Tire bead breaker

**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**

Maximum Tire Capacity

Diameter ..... 60 in (152.4 cm)  
Width ..... 26 in (66 cm)

Distance Between Ring Segments

Cylinder Retracted ..... 27.8 in (70.6 cm) maximum (Note: first hole is not usable)  
Cylinder Extended ..... 13.9 in (35.3 cm) maximum  
Cylinder Retracted ..... 17 in (43.2 cm) minimum  
Cylinder Extended ..... 3.1 in (7.9 cm) minimum

Maximum Breaking Cylinder Force ..... 35,000 lbs (15,875.7 kg)

Breaking Cylinder Stroke ..... 13.9 in (35.3 cm)

Hydraulic Operating Pressure ..... 1470 psi (101.4 bar)

Relief Valve Setting ..... 1480 psi (102 bar)

Air Requirements:

Air Lin Connection ..... ¼ NPT  
Volume ..... 120 Scfm  
Pressure ..... 90 psi (6.2 bar) minimum

Hydraulic Reservoir Capacity ..... 2 gal (7.6 l)

Length ..... 96.5 in (245.11 cm)

Depth ..... 57.6 in (146.3 cm)

Height – Maximum ..... 45 in (114.3 cm)

Estimated Weight ..... 1500 lbs (680.4 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.

### **3.0 TRAINING**

#### **3.1 TRAINING REQUIREMENTS**

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

#### **3.2 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.

#### **3.3 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.***

To derive maximum service, it is recommended that personnel have an understanding of the equipment before attempting to operate the bead breaker. It is mandatory that the operating procedures herein be followed.

#### 4.0 PREPARATION FOR USE

Proceed as follows to prepare the Bead Breaker for service:

1. Inspect hydraulic reservoir fluid level at fill port. The fluid level should be within ½ in (1.2 cm) to the top of the reservoir with all cylinders in the retracted (collapsed) positions. If necessary, add sufficient hydraulic operating fluid (refer to 6.0 Hydraulic Fluid for proper hydraulic fluid specifications) to fill reservoir to required level.

**NOTE: Reservoir shall be filled only with fresh, clean fluid. Fluid that has been filtered to remove all dirt, sand and other solid matter may be used only in emergency situations. Immediately after emergency operating, flush the hydraulic system with clean hydraulic fluid and fill reservoir to correct level.**

2. Verify airflow lubricator bowl is at least half full of fluid. If necessary, add sufficient fluid by removing the oil fill plug located at the top of the lubricator. Refer to 7.0 Trouble Shooting for proper fluid specification.

During initial operation, verify oil delivery adjustment. To adjust oil delivery, use a slotted screwdriver to turn the adjusting screw in the top of the lubricator.

Leaner – Clockwise

Richer – Counterclockwise

Lubricator should be adjusted to feed approximately two (2) drops of oil per minute.

**NOTE: This is a constant density type lubricator that delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. IF A DIFFERENT RATIO IS DESIRED, YOUR NEEDLE VALVE SETTING CAN BE CHANGED AFTER YOUR INITIAL SETTING.**

3. Inspect the air line filter. Both free moisture and solids are removed automatically by the filter. There are no moving parts.

Manual drain filters must be drained regularly before the separated moisture and oil reaches the bottom of the lower baffle.

The filter element should be removed and replaced when the pressure differential across the filter unit is excessive.

To service the filter element, SHUT OFF AIR SUPPLY and depressurize the unit.

- a. Unscrew threaded bowl.
- b. Unscrew lower baffle and remove filter element and gaskets (2).
- c. Clean all internal parts, bowl and element before reassembling. See polycarbonate bowls cleaning section.
- d. Install element and gaskets (2).
- e. Attach lower baffle and tighten firmly.
- f. Replace bowl seal; lubricate seal to assist in retaining it in position. Use only mineral base oils or grease. DO NOT use silicones.
- g. Screw bowl into body.

#### CAUTION



Polycarbonate bowls, being transparent and tough, are ideal for use with filters and lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, keystone esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and di-ester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

**TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY!**  
**DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.**

**Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occasionally occur.**

4. Apply a light film of lubricating oil to pivot pins and to the outer surface of the ram of the hydraulic cylinders. Wipe away excess oil with a clean, lint free cloth to prevent dust and grit accumulation.
5. Connect the bead breaker to a plant air supply. Insure air line size is at least 3/4" pipe. Air supply should be capable of supplying 120 SCFM at 90 psi minimum at the bead breaker inlet connection.
6. Operate each valve lever to fully extend and retract each cylinder to verify proper operation.

**5.0 OPERATION**

**5.1 BREAK BEADS AND DISASSEMBLE WHEEL/TIRE**

1. Prepare the bead breaker as outlined in 4.0 Preparation for Use.
2. Position all eight segments (Figure 1, Item 9) for the tire size to be worked on, by loosening handle assembly (Figure 5, Item 5).
3. Deflate tire and remove the valve core. Position the wheel inside the frame between the spyders.
4. Position the extension tube assembly (Figure 1, Item 1) in one of the four lock pin (Figure 1, Item 6) positions such that a maximum clearance of two inches is obtained between the tire/wheel and spyder segments. Lock in place using the "T" handled lock pin (Figure 1, Item 6).
5. Raise or lower the spyder segments using the elevation handle until the spyder segment clears the wheel rim around the rim circumference.
6. Extend the bead breaker cylinder using the bead breaker cylinder operating handle until the spyder segments contact the tire on both sides.



**WARNING**

**PERSONNEL MUST KEEP CLEAR OF TIRE AND WHEEL WHEN BREAKING BEADS.**

7. Continue to operate the bead breaker cylinder handle to break tire beads free of wheel rim. Retract bead breaker cylinder ram.
8. Roll tire and wheel out from bead breaker frame.

**5.2 SMALL WHEEL/TIRE**

1. Remove small wheel ramp from top of bead breaker frame and position on floor between adapters as shown in Figure 1. Lock in place with quick release pin provided.
2. Assemble a small wheel spacer to each ring segment as shown in Figure 7.
3. Adjust and operate the bead breaker as described in 5.1.

**6.0 HYDRAULIC FLUID**

The following hydraulic fluids are recommended for use in the bead breaker:

- Tellus 15..... Shell Oil Co.
- MIL-PRF-6083a..... General Petroleum Corp., MILVAC-6083
- Calol Engine Oil-5 ..... Standard Oil Co.
- MIL-PRF-5606..... Shell Oil Co., Aero Shell No. 4
- Texas Regal Oil AA..... R & O), Texas Co.
- Opaline 10W Motor Oil..... Sinclair Co.
- MIL-PRF-83282..... Shell Oil Co.
- Red Line CP Oil ..... Union Oil Co.

Air Supply Lubricator:

Use any detergent SAE #10 automotive engine oil

## 7.0 TROUBLE SHOOTING

1. If operational troubles are encountered, refer to table which lists the most commonly encountered troubles and give information which will facilitate location of trouble source and determination of remedial action.
2. If parts removal, repair or adjustment is necessary, note the following qualifications before proceeding with the required action
3. When removal of hydraulic system interior components is necessary, determine first that the plant air supply has been disconnected from the unit. Then, drain all hydraulic fluid from the bead breaker and proceed with the required disassembly.
4. All removed metallic parts shall be cleaned with solvent and thoroughly dried.

### CAUTION!



**Use solvent only in a well-ventilated area, removed from vicinity of open flame or elevated temperature. Avoid prolonged or repeated contact with the skin and inhalation of toxic solvent vapors, and do not smoke in presence of vapors. Toxic solvents present a danger to health.**

5. The air motor that drives the hydraulic pump is a precision built rotary type motor. The vanes take up their own wear and will last 5,000 – 15,000 hours depending upon speed, method of oiling, operating pressure and the precaution taken in maintaining the motor. The type of shaft seal used does not lend itself to operating pressures above 100 psi.
6. When coupling or connecting the motor to a driven member, avoid any end of side thrust on that shaft and especially do not hammer on shaft itself or on the coupling or pulley you might attach
7. For proper operation and maximum service life, an automatic air line lubricator must be installed in the air line just ahead of the air motor.
8. Lubrication is necessary for all internal moving parts and rust prevention. Excessive moisture in the air line can cause rust formation in motor and might also cause ice to form in muffler due to expansion of air thru the motor. The moisture problem can be corrected by installing a moisture separator in the line and also by installing an after cooler between the compressor and air receiver.
9. It is very IMPORTANT that the air motor not be allowed to “run-free” at high speeds with no load and improper lubrication. Running under these conditions can cause excessive internal heat buildup, loss of internal clearances and rapid motor damage.
10. If the motor is sluggish or insufficient try flushing with solvent. To flush unit, disconnect air line and muffler and add several teaspoons of solvent.
11. Rotate the shaft by hand in both directions for a few minutes, reconnect the air line and slowly apply pressure until there is no trace of solvent in exhaust air. Flush unit in a well-ventilated area. Eye protection is recommended. Keep face away from exhaust port and do not flush unit with flammable solvent. Re- lubricate the motor with a squirt of oil in the chamber. If the vanes need replacing or foreign materials are present in motor chamber, an experienced mechanic may remove the end plate opposite the drive shaft end. Do not pry with a screwdriver. It will dent the surface of the plate and body causing leaks. A puller tool should be used which will remove the end plate while maintaining the position of the shaft. New vanes should have the edge with the corners cut on an angle or the notched edge (if reversible) towards the bottom of the vanes’ slot.
12. Recommended solvent for air motors and lubricated pumps is Gast Flushing Solvent Part No. AH255, or any non-toxic, non-flammable industrial cleaning solvent. DO NOT USE KEROSENE.



### DANGER

**To prevent explosive hazard, do not drive this air motor with combustible gases.**



### CAUTION

**Plastic, rubber and composition materials may be damaged by chemical action if exposed to solvents. Handle such materials with care during the cleaning procedure.**

13. If unit requires more than installation of a service kit, it is usually quickest and least expensive to send the unit for repair.
14. Cotter pins, spring pins, o-rings, backup rings, bolts, washers, seals and gaskets must be replaced if removed and shall not be cleaned or reinstalled, use only new parts.
15. All damaged or defective parts shall be replaced; detail rework of bead breaker parts is not considered reliable or safe.
16. After trouble shooting and corrective action, and prior to use of the bead breaker, prepare the bead breaker for operation as outlined in 4.0 Preparation Prior Use.



**7.0 TROUBLE SHOOTING** *(continued)*

<b>TROUBLE</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
External fluid leakage at extend/retract ram	Damaged backup rings, packings or ram sealing segment assembly, surface	Remove spider/ring. Remove ram assembly thru rear. Inspect and replace defective parts. Replace O-Ring
Rams fail to travel	Obstructed fluid section passage	Remove suction lines and inspect for obstruction
	Obstructed suction strainer	Remove and replace strainer
	Low fluid level	Fill to correct fluid level
	Relief valve failing to hold pressure	Inspect for failing valve and replace
Rams will not travel full distance	Low fluid level	Fill to correct fluid level
Ram will not break bead after complete pump up	Internal leakage past ram and outer cylinder	Remove adapter assembly and end cap. Remove ram assembly thru rear. Inspect and replace defective parts
	Relief valve malfunction or low setting	Correct valve setting or replace
All rams inoperative	Improper air supply	Insure proper input air power is available
	Relief valve malfunction	Correct valve setting or replace
Elevation cylinder will not remain in position	Leaking check valve	Remove valve and remove possible contamination under valve seat or replace valve
Pump-up satisfactory, but pump pressure fails to by-pass at maximum ram extension or with over load applied	Relief valve set too high	Adjust relief valve
	Inoperative relief valve	Remove and replace

**8.0 PROVISION OF SPARES**

**8.1 SOURCE OF SPARE PARTS**

Spare parts may be obtained from the 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

**8.2 RECOMMENDED SPARE PARTS LISTS**

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

**8.3 OVERHAUL KITS AVAILABLE**

Seal Kit KC7003-015

**9.0 IN SERVICE SUPPORT**

Contact Tronair, Inc. for technical services and information. See Section 1.3 – Manufacturer.

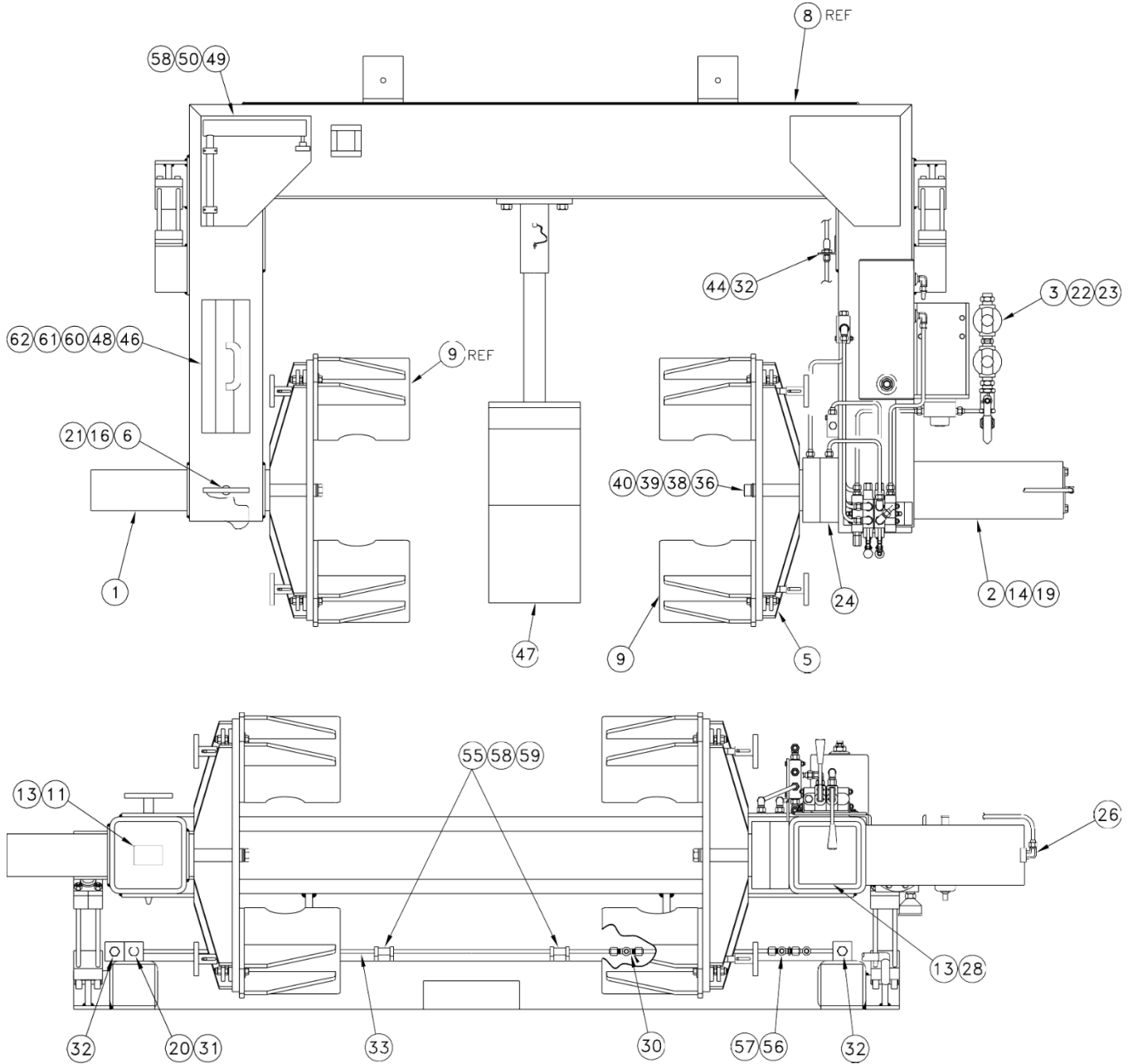
## **10.0 GUARANTEES/LIMITATION OF LIABILITY**

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.

The obligations of ColumbusJACK expressly stated herein are in lieu of all other warranties or conditions expressed or implied. **Any unauthorized modification of the ColumbusJACK products or use of the ColumbusJACK products in violations of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by ColumbusJACK will immediately void any warranty, express or implied and ColumbusJACK disclaims any and all liability for injury (WITHOUT LIMITATION and including DEATH), loss or damage arising from or relating to such misuse.**

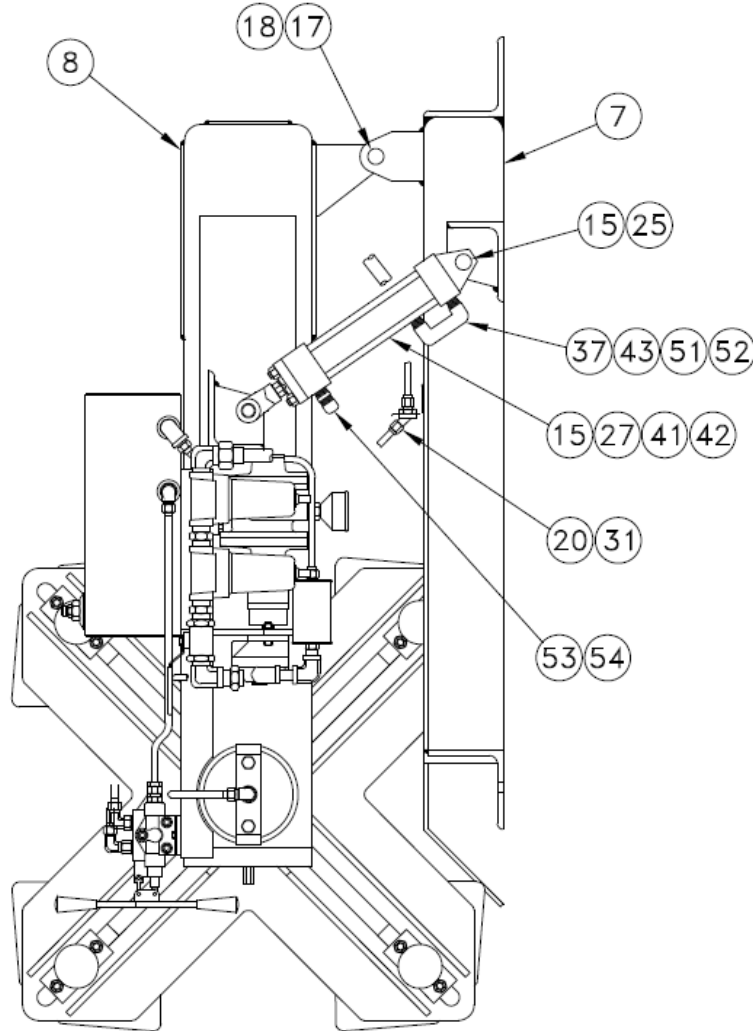
### Parts List

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



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



ITEM	PART NUMBER	DESCRIPTION	QTY
1	7003-AV	Extension Tube Assembly	1
2	7003-BC	Cylinder Assembly	1
3	7003-BG	Pneumatic Assembly	1
5	9324-AF	Spyder Assembly	1
6	7003-30	Pin	1
7	7003-51	Base	1
8	7003-50	Frame	1
9	9324-H	Segment Assembly	8
11	916-47	Nameplate	1
13	450A6984	Drive Screw	8
14	378-20380	Socket Head Cap Screw	4
15	450A5583	Pivot Pin	4
16	450A6404	Pan Head Screw	1
17	321-26059	Clevis Pin	2
18	322-04400	Cotter Pin	2

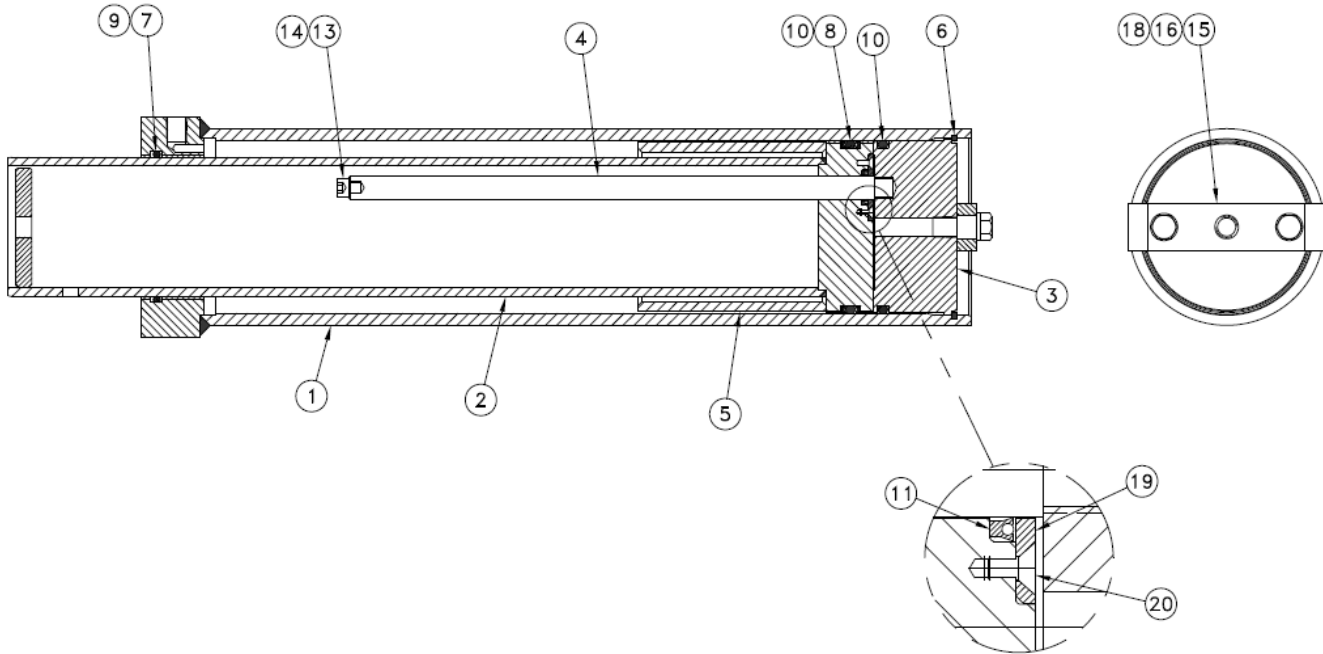
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ITEM	PART NUMBER	DESCRIPTION	QTY
19	346-10032	Lockwasher	4
20	450A5731	Hose Assembly	2
21	345-11006	Flat Washer	1
22	346-10020	Lockwasher	3
23	372-14060	Hex Head Cap Screw	3
24	7003-58	Spacer	1
25	7003-59	Spacer	8
26	456-20606-A	Long Male Elbow	1
27	7003-56	Cylinder Assembly	2
28	7003-55	Operating Instructions	1
30	482-20606-A	Bulkhead Branch	1
31	482-30606-A	45 Degree Elbow	2
32	482-00606-A	Bulkhead Union Elbow	4
33	SST-13849	Tube, Stainless	A/R
36	378-26240	Socket Head Cap Screw	1
37	485-00808	Street Elbow	2
38	345-11048	Flat Washer	1
39	346-10048	Lockwasher	1
40	9324-22	Bushing	1
41	450A6449	Rod Clevis, Female	2
42	7003-123	Stud	2
43	456-10608-A	Male Elbow	2
44	450A6451	Hose Assembly	3
46	450A6452	Steel Storage Box	1
47	7003-J	Small Wheel Ramp	1
48	7003-S	Paddle Spacer Assembly	1
49	9324-T	Spacing Tool	1
50	450A5586	Spring Clip	3
51	483-10808	Pipe Nipple	2
52	484-00808	Female Pipe Elbow	2
53	485-50806	Reducer	2
54	456-10606-A	Male Elbow	2
55	450A6453	Tube Clamp	4
56	482-10606-A	Bulkhead Run Tee.	1
57	466-10606-A	Swivel Nut Elbow	1
58	310-10040	Round Head Screw	7
59	346-10010	Lockwasher	4
60	372-12060	Hex Head Cap Screw	4
61	345-11016	Flat Washer	4
62	346-10016	Lockwasher	4

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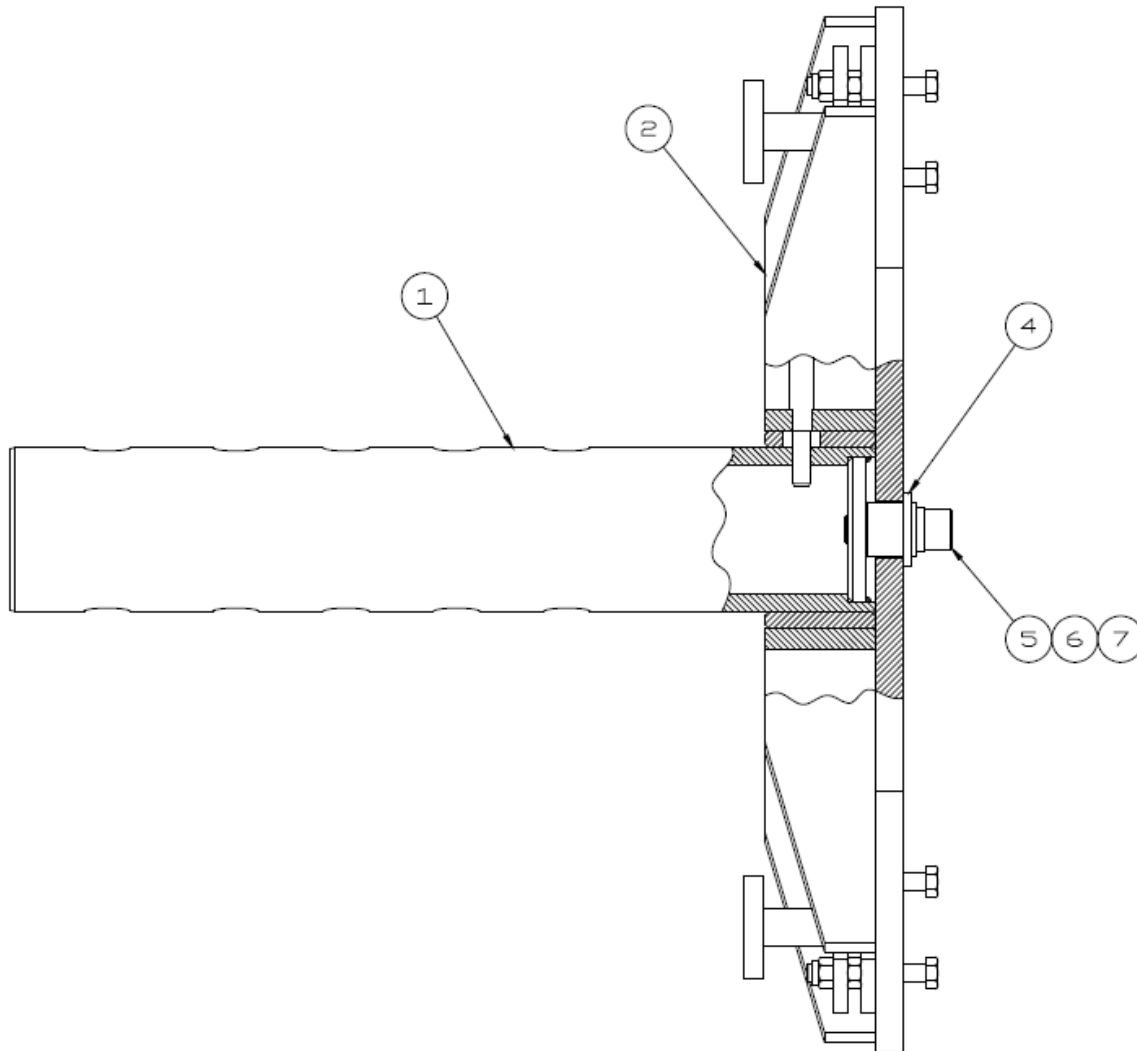
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ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>7003-BC</b>	<b>Cylinder Assembly</b> ; consists of:	REF
1	7003-41	Cylinder Weldment	1
2	7003-46	Ram	1
3	7003-43	End Cap	1
4	7003-44	Guide Rod	1
5	7003-8	Stop Tube	1
6	915-150.18-5.810	Snap Ring	1
7	916-45-4.436	Backup Ring	1
8	916-44-4.937	Backup Ring	2
9	611-34834	O-Ring	1
10	611-42842	O-Ring	2
11	450A5764	Polypak Ring	1
13	377-16030	Socket Head Cap Screw	1
15	9323-9	Key	1
16	371-20100	Hex Head Cap Screw	2
18	346-10032	Lockwasher	2
19	7003-47	Retainer	1
20	450A5709	Flat Head Cap Screw	4

### Parts List

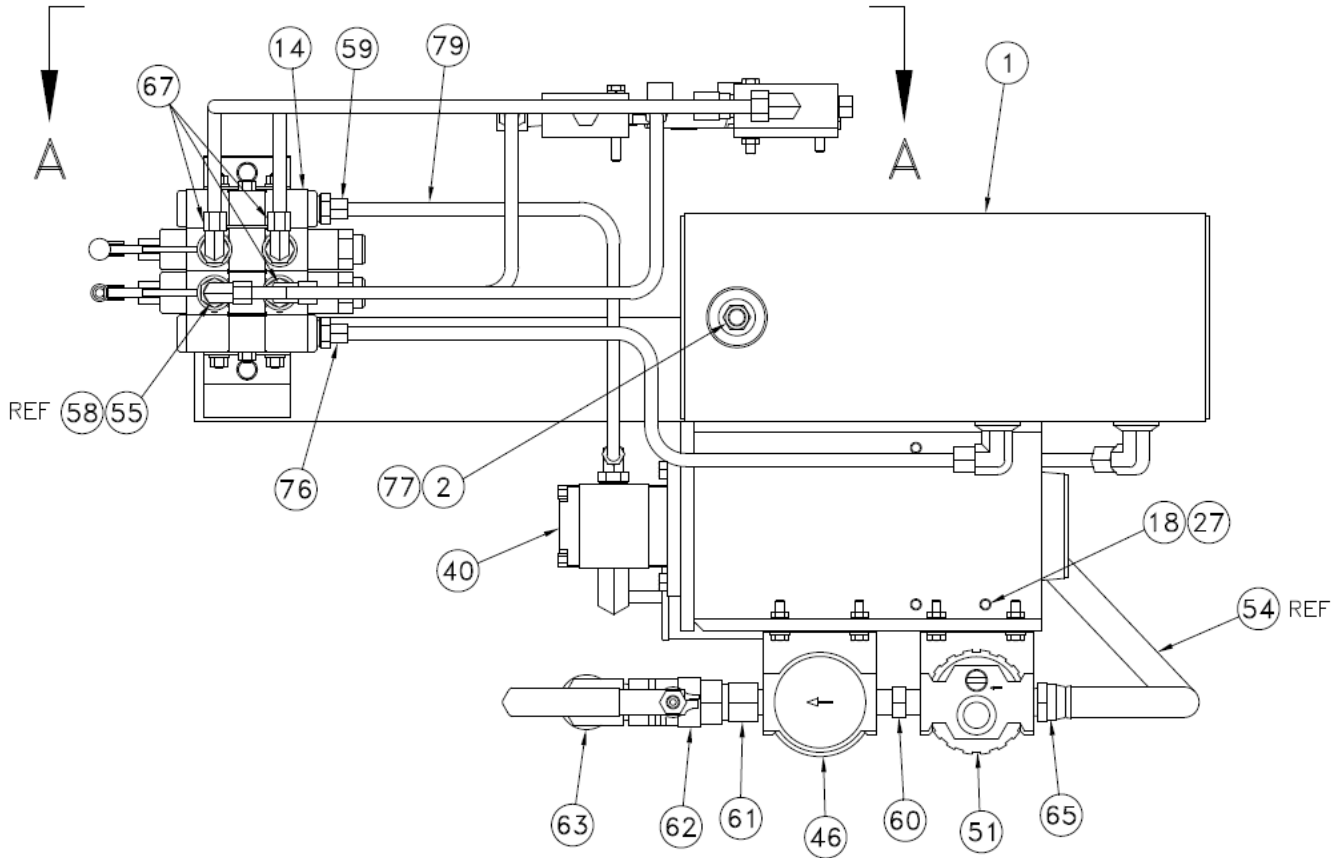
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ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>7003-AV</b>	<b>Extension Tube Assembly</b> ; consists of:	REF
1	7003-64	Extension Tube	1
2	9324-AF	Spyder Assembly	1
4	9324-22	Bushing	1
5	377-26240	Socket Head Cap Screw	1
6	345-11048	Flat Washer	1
7	346-10048	Lockwasher	1

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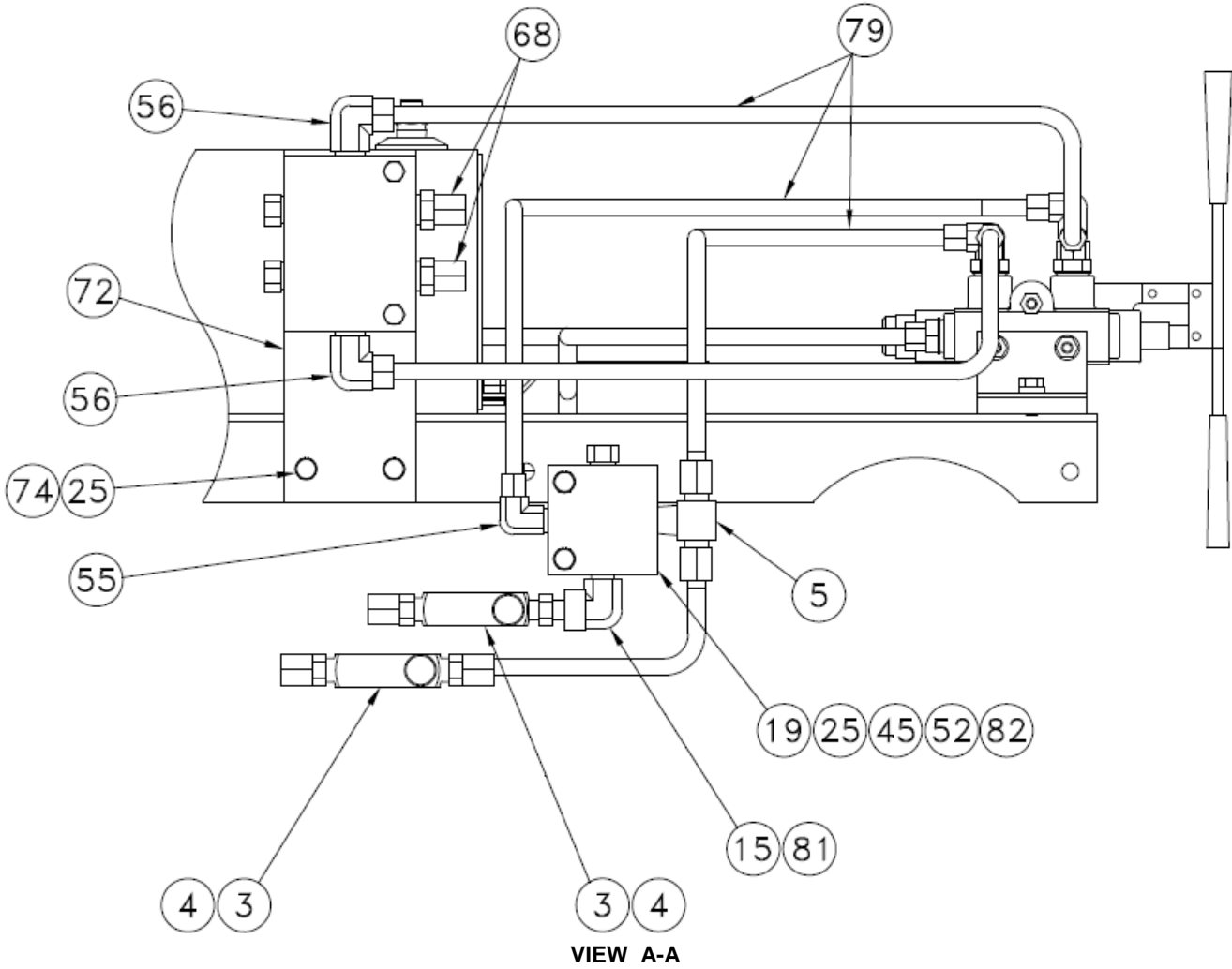
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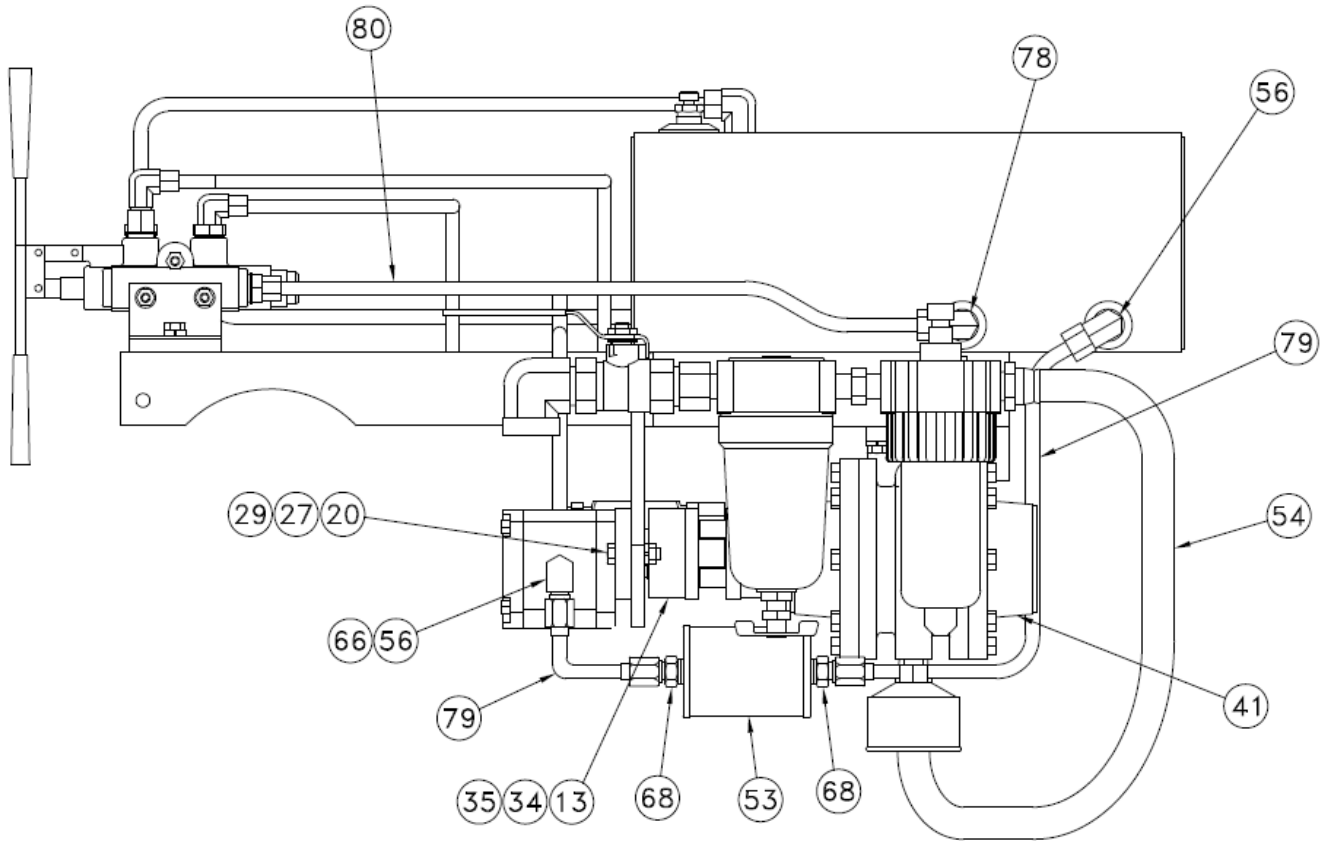
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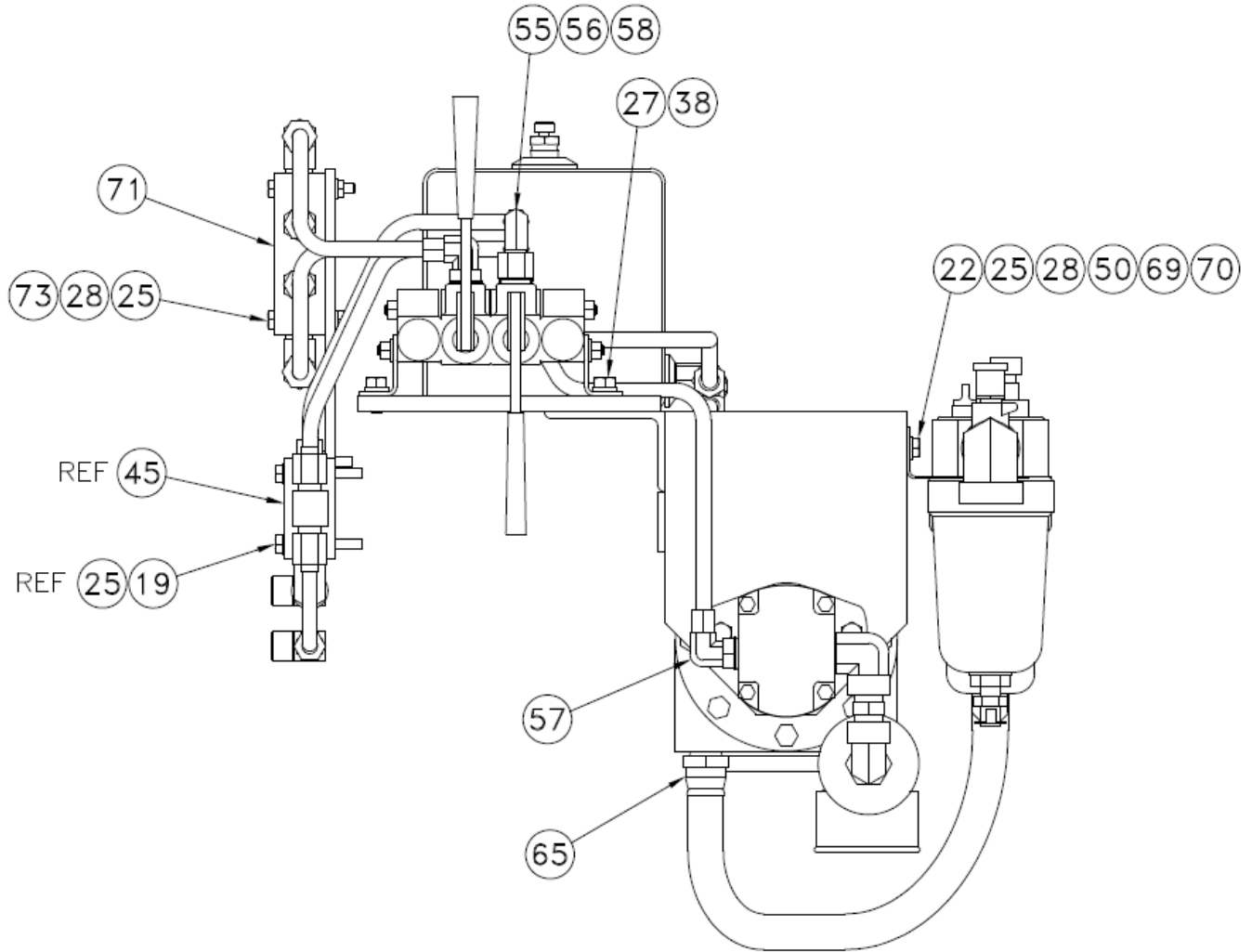
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ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>7003-BG</b>	<b>Pneudraulic Assembly</b> ; consists of:	REF
1	7003-53	Frame, Reservoir	1
2	50B7763	Air Vent	1
3	450A5589	Flow Control	2
4	457-10604-A	Male Connector	3
5	459-10604-A	Tee	1
13	7003-26	Flexible Coupling	1
14	7003-27	Directional Valve, 4-Way	1
15	483-10404	Pipe Nipple	1
18	372-14080	Hex Head Cap Screw	4
19	372-12140	Hex Head Cap Screw	2
20	372-14100	Hex Head Cap Screw	2
22	372-12080	Hex Head Cap Screw	4
25	346-10016	Lockwasher	10
27	346-10020	Lockwasher	6
28	333-41201	Hex Nut	6
29	333-51400	Hex Nut	2
34	450A7259	Key, Square	1
35	450A7260	Key, Woodruff	1
38	372-14050	Hex Head Cap Screw	2
40	450A6337	Pump	1
41	450A6335	Air Motor with Muffler	1
45	450A5590	Check Valve	1
46	450A3233	Air Filter	1
50	450A6446	Mounting Bracket Kit	2
51	450A5498	Lubricator	1
52	450A6397	Hose Assembly	1
53	450A6447	Filter	1
54	450A6399	Air Hose	1
55	456-10604-A	Male Elbow	4
56	456-10606-A	Male Elbow	7
57	450-10608-A	Elbow	1
58	489-30604	Adapter	1
59	452-10606-A	Connector	1
60	483-10808	Pipe Nipple	1
61	483-11208	Pipe Nipple	1
62	450A6400	Ball Valve	1
63	485-01212	Street Elbow	1
65	450A5750	Adapter	2
66	489-31006	Adapter	1
67	450-10606-A	Straight Thread Elbow	3
68	457-10606-A	Male Connector	4
69	345-11016	Flat Washer	4
70	450A6402	Bevel Washer, Square	4
71	450A5584	Check Valve	1
72	7003-34	Valve Mounting Plate	1

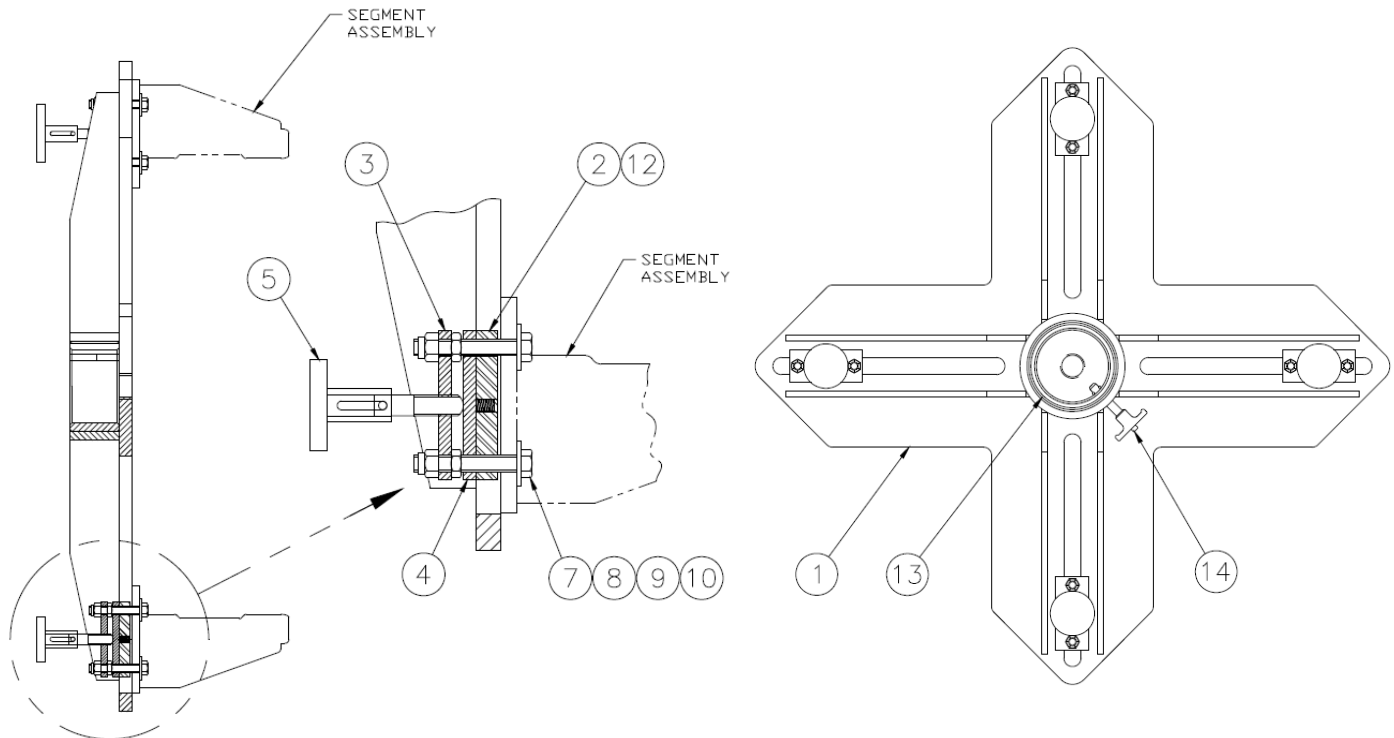
### Parts List

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

ITEM	PART NUMBER	DESCRIPTION	QTY
73	372-12160	Hex Head Cap Screw	2
74	372-12060	Hex Head Cap Screw	2
76	452-10806-A	Connector	1
77	485-51606	Reducer	1
78	456-10806-A	Male Elbow	1
79	SST-10060	Tube, Stainless	A/R
80	SST-12200	Tubel, Stainless	A/R
81	485-00404	Street Elbow	1
82	345-11016	Flat Washer	2

### Parts List

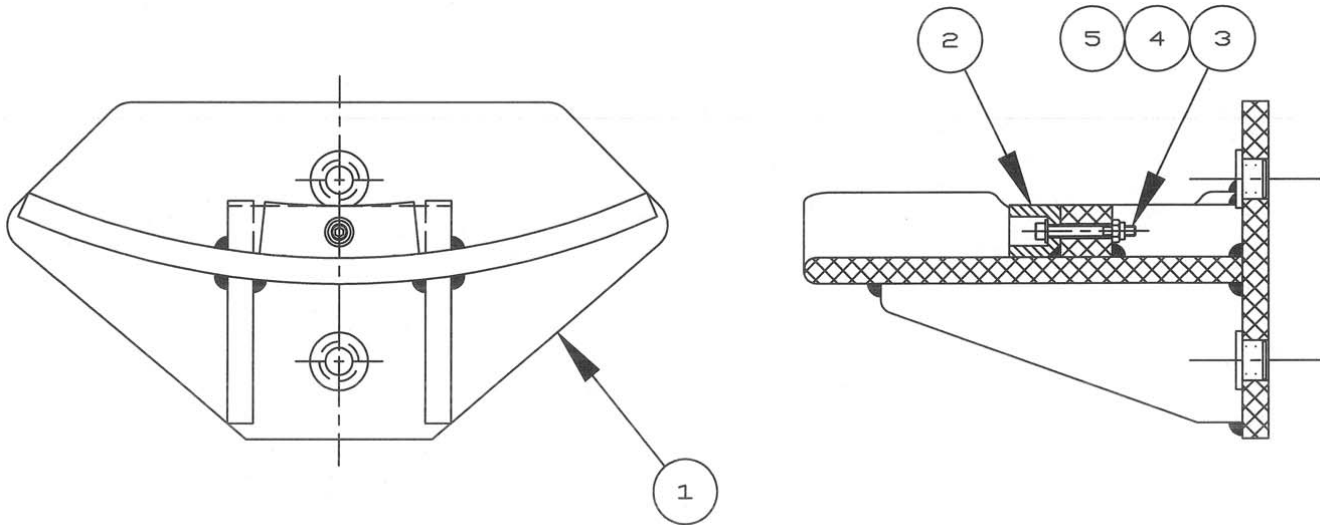
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>9324-AF</b>	<b>Spider Assembly</b> ; consists of:	REF
1	9324-11	Spyder Weldment	1
2	9324-14	Boat	4
3	9324-15	Plate	4
4	9324-16	Plate	4
5	9324-17	Handle Assembly	4
7	371-20260	Hex Head Cap Screw	8
8	345-11032	Flat Washer	8
9	335-42000	Hex Jam Nut	8
10	333-22000	Hex Locknut	8
12	450A5595	Spring	4
13	9324-20	Bushing	1
14	450A6443	Ball Lock Pin	1

### Parts List

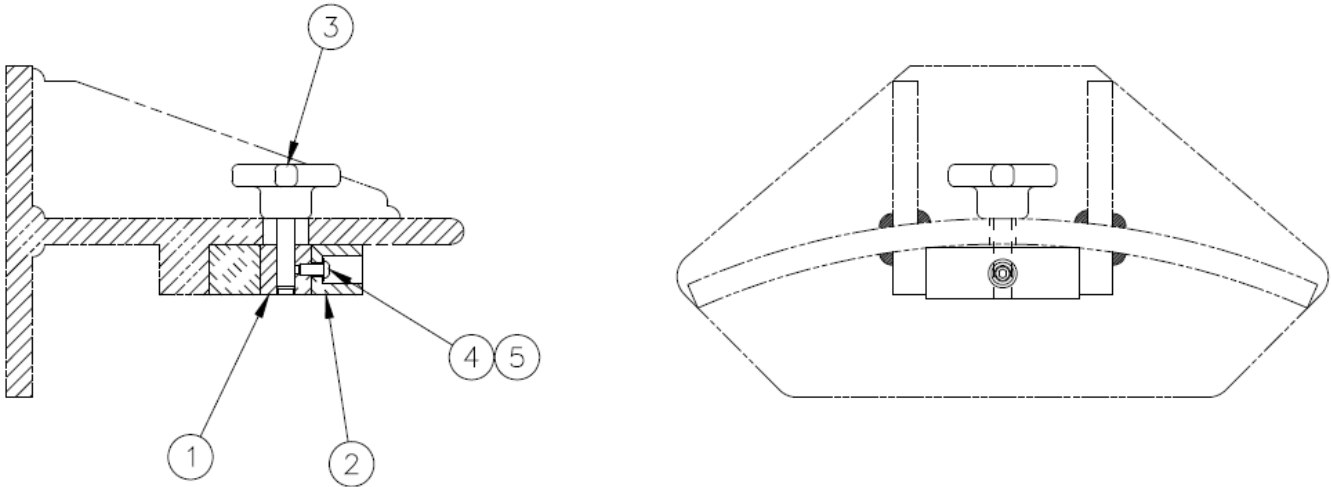
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>9324-H</b>	<b>Ring Segment Set;</b> consists of:	REF
1	9324-8	Segment Weldment	1
2	9324-9	Spacer	1
3	345-11010	Flat Washer	1
4	378-10140	Socket Head Cap Screw	1
5	333-31000	Hex Locknut	1

### Parts List

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

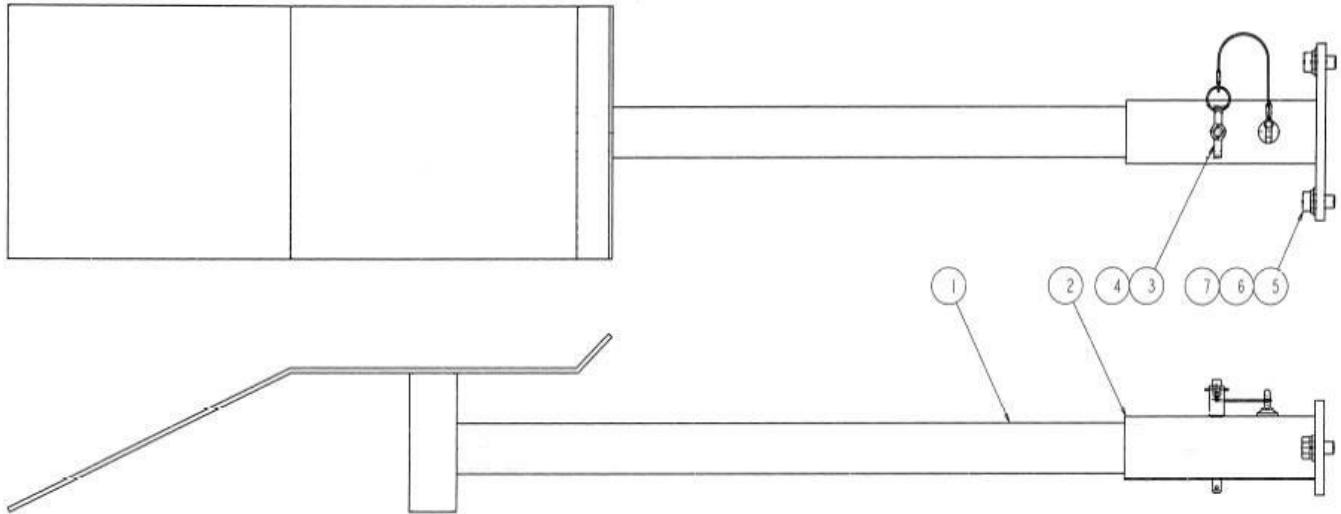


ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>7003-S</b>	<b>Small Wheel Adapter</b> ; consists of:	REF
1	7003-60	Paddle Adapter	8
2	9324-9	Spacer	8
3	450A5609	Hand Knob	8
4	314-10040	Button Head Cap Screw	8
5	345-11010	Flat Washer	8



### Parts List

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



ITEM	PART NUMBER	DESCRIPTION	QTY
	<b>7003-J</b>	<b>Small Wheel Ramp</b> ; consists of:	REF
1	7003-62	Tire Ramp	1
2	7003-63	Ramp Mount	1
3	450A5599	Ball Lock	1
4	450A5604	Cable	1
5	371-2008	Hex Head Cap Screw	2
6	345-11032	Flat Washer	2
7	346-10032	Lockwasher	2