OPERATION & SERVICE MANUAL

Model: 9775-010
3 Ton (2.7 Metric Ton)
Tripod Jack

06/2024 – Rev. 02

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TABLE OF CONTENTS

PAGE

1.0 PRODUCT INFORMATION 1
1.1 DESCRIPTION 1
1.2 MODEL & SERIAL NUMBER 1
1.3 MANUFACTURER 1
1.4 SPECIFICATIONS 1
1.5 FUNCTION 1
2.0 SAFETY INFORMATION 1
2.1 USAGE AND SAFETY INFORMATION 1
3.0 TRAINING 2
3.1 TRAINING REQUIREMENTS 2
3.2 TRAINING PROGRAM 2
3.3 OPERATOR TRAINING 2
4.0 SPECIAL TOOLS AND TEST EQUIPMENT 2
4.1 SPECIAL TOOLS 2
4.2 TEST EQUIPMENT 2
5.0 PREPARATION PRIOR TO FIRST USE 3
5.1 LIFT AND STRUCTURE INSPECTION 3
5.2 HYDRAULIC SYSTEM CHECK 3
5.3 COMPONENT LUBRICATION AND FLUID FILL 3
6.0 OPERATION 4
6.1 OPERATING PRINCIPLES 4
6.2 LIFTING PROCEDURE 4
6.3 LOWERING PROCEDURE 5
7.0 PACKAGING AND STORAGE 5
7.1 PREPARATION FOR SHIPMENT 5
8.0 TROUBLE SHOOTING 6
9.0 MAINTENANCE 7
9.1 OPERATIONAL CHECKOUT 7
9.2 PERIODIC CLEANING 7
9.3 PERIODIC LUBRICATION 8
9.4 PERIODIC INSPECTION 8
9.5 CORRECTIVE MAINTENANCE 9
9.5.1 Disassembly 9
9.5.2 Detail Cleaning 9
9.5.3 Detail Inspection 10
9.5.4 Repair 11
9.5.5 Replacement 11
9.5.6 Assembly Lubrication 11
9.5.7 Assembly 12
9.5.8 Test Procedures 13
10.0 PROVISION OF SPARES 14
10.1 SOURCE OF SPARE PARTS 14
10.2 RECOMMENDED SPARE PARTS LISTS 14
10.3 COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODES 14
11.0 IN SERVICE SUPPORT 14
12.0 GUARANTEES/LIMITATION OF LIABILITY 15
13.0 APPENDICES 15

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

3 Ton (2.7 Metric Ton) Tripod Jack

1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

1.3 MANUFACTURER

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1.4 SPECIFICATIONS

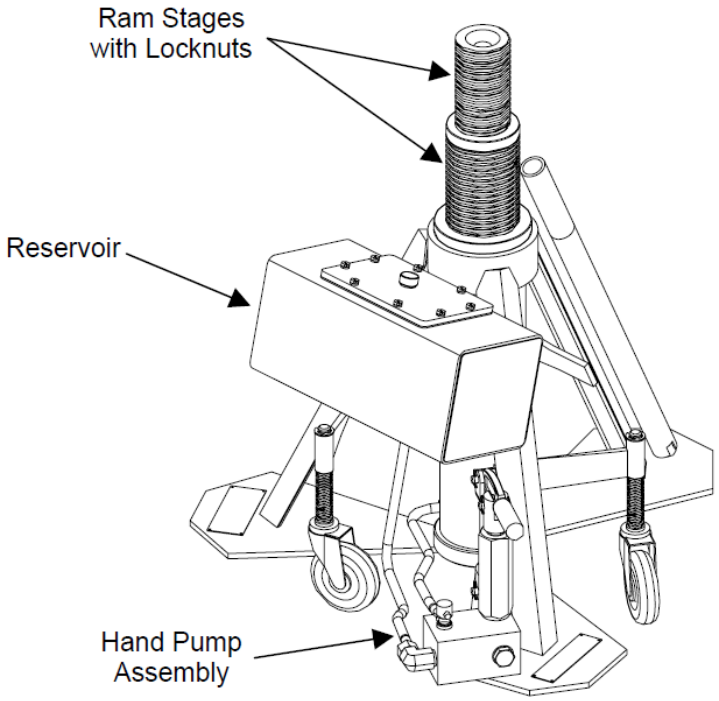
Capacity	3 Ton (2.7 Metric Ton)
Closed Height	16 in (40.64 cm)
Hydraulic Lift	23 in (58.42 cm)
Extended Height	39 in (99 cm)
Operating Pressure	1335 psi (92 bar)
Reservoir Capacity	1 gal (3.79 l)
Recommended Oil Type	MIL-PRF-83282 or equal
Weight (with fluid)	120 lbs (54 kg)

1.5 FUNCTION

The jack assembly is used for aircraft lifting applications with a vertical load capability of 3 tons (6,000 pounds). The jack assembly is a portable, self-contained unit. Major components include a hand pump assembly, cylinder assembly with locknuts and reservoir.

The lifting portion of the jack consists of two rams with locknuts housed in an outer cylinder (part of jack base). The reservoir is provided with an air vent assembly to provide access for fluid fill, level inspection and permits displaced air ventilation for the reservoir.

The manually operated pump assembly is mounted on the tripod footpad and contains both a release valve and relief valve for jack protection.



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.

4.0 SPECIAL TOOLS AND TEST EQUIPMENT

4.1 SPECIAL TOOLS

No special tools are required for operation or maintenance of the jack assembly.

4.2 TEST EQUIPMENT

A static jack tester is recommended during the testing of the jack assembly. The tester should be of at least a 5 ton capacity and have an opening of at least 36 inches.

5.0 PREPARATION PRIOR TO FIRST USE

Prior to use of the jack assembly, read all instructions carefully and follow the procedures listed.

WARNING!

Damaged, defective or suspected parts must be repaired or replaced as outlined in section 9.0 Maintenance before attempting to operate the jack. Defective parts or weak structural points may cause sudden jack failure and/or loss of lift load with attendant danger or injury to personnel in vicinity.

5.1 LIFT AND STRUCTURE INSPECTION

Conduct the following component mechanical preoperational inspection:

- Prior to initial use, after removing jack assembly from storage, when placing a new jack assembly in service and when using a jack assembly which has not been operated for an extended period, conduct maintenance inspection checks detailed in Section 9.4 Periodic Inspection.
- Prior to each use, carefully inspect and verify security and undamaged condition of jack base, reservoir and cylinder-to-footpad weld joints, jack rams and locknuts. Insure locknuts cannot be easily removed from the rams.

5.2 HYDRAULIC SYSTEM CHECK

Conduct the following hydraulic pre-operation inspections:

CAUTION!

Reservoir filler plug vent must be open and clear prior to, and during jack operation to prevent vacuum air-lock and jack malfunction or reservoir return fluid pressure build-up with consequent danger of reservoir rupture.

NOTE: Hydraulic reservoir of a newly-issued jack may be dry; hydraulic system must be filled prior to pressurization.

After initial pump actuation, check the following locations for evidence of hydraulic fluid pressure leakage; there should be no fluid leakage at any point:

a. Pump body base and piston gland
b. Pump-to-reservoir hose
c. Pump-to-cylinder hose
d. Pump release valve
e. Cylinder and ram interfaces

5.3 COMPONENT LUBRICATION AND FLUID FILL

Check and service jack assembly components as follows:

CAUTION!

Rapid wear and probable component breakdown will result if equipment is operated with insufficient lubrication. Do not attempt to operate jack until lubrication points and hydraulic reservoir have been checked and or/serviced.

NOTE: Pre--use lubrication does not eliminate requirement of the next scheduled, periodic lubrication (refer to section 9.3 Periodic Lubrication).

1. Prior to each use, visually examine lubrication points indicated in section 9.3 Periodic Lubrication for evidence of lubricant loss or dry-out; lubrication must be adequate at all points.
2. Prior to use of a jack which has been stored or exposed to environmental conditions of extreme low humidity and high dust level, elevated temperature or high rainfall, thoroughly clean lubricated exterior surfaces, and service lubrication points in accordance with lubrication requirements in section 9.3 Periodic Lubrication.

NOTE: Slotted end of lower pump handle may be mated with pump release valve head for purposes of release valve opening or closure.

3. Open pump release valve approximately one-half turn, manually collapse rams, and verify system hydraulic fluid level as follows:
   a. Remove air vent assembly and inspect reservoir fluid level to ascertain that operating fluid is within one-half inch of bottom of filler plug hole.
   b. If fluid level is low, add sufficient hydraulic operating fluid, specification MIL-PRF-83282 to top off fluid reservoir.
   c. Re-install air vent assembly; make certain that air vent is clear.
   d. With pump release valve open, operate pump handle and both pump rocker arms for ten to twenty pressure (downward) strokes to bleed out and expel trapped air. Then fully close release valve.
   e. After filling a dry reservoir, operate hand pump and cycle jack to full ram extension then back to fully collapsed condition (refer to section 6 Operation); and again check reservoir, adding hydraulic fluid, if necessary to fill reservoir to required level.

6.0 OPERATION

6.1 OPERATING PRINCIPLES

A valve assembly located beneath the pump body and contains a gravity check valve, a spring-loaded check valve, and a relief valve. On the up stroke of the pump piston hydraulic fluid is drawn from the fluid reservoir through the gravity check valve and into the pump body. On the down stroke of the pump piston, fluid is forced under pressure through the spring-loaded check valve to the hydraulic lift cylinder pressure chamber under rams. Fluid pressure at the rams is retained by the spring-loaded check valve and by the closed release valve Pressure may be released and fluid returned to the reservoir by opening the release valve.

6.2 LIFTING PROCEDURE

Proceed as follows to use jack assembly for lifting vertical loads:

NOTE: Jack must be prepared for operation as outlined in section 4.0 Preparation Prior To First Use, prior to use.

1. Remove jack cover.
2. Fully close pump release valve.
3. Maneuver jack into position directly under load lift point. Make certain that jack footpads will rest on a firm, level foundation. If necessary, place flat steel plates under jack footpads to provide secure footing.

WARNING!

Do not attempt to lift loads exceeding 3 tons with this jack; overloading may result in lift failure and/or load loss hazard to personnel in vicinity of lift site.

4. Operate pump handle and pump rocker arm to partially lift jack rams until contact is made with load lift point with no pressure applied.
5. Rotate jack approximately 15º in any direction to minimize jack movement when the load is applied to the casters.
6. Operate the pump to extend the ram until the footpads contact the ground plate under footpads to distribute jack bearing pressure

WARNING!

Maintain approximately 1 inch clearance between locknuts and mating surfaces during raising and lowering of rams.

CAUTION!

Ensure that the first stage ram is fully extended first, before the second stage ram begins to extend when a load is applied to the jack. (It is common for any ram to extend when no load is applied.) 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.

7. After jack is firmly positioned under load, operate jack pump as follows:

NOTE: Properly functioning pump bypass valves will automatically operate at internally-stopped maximum ram extension or under ram overload; actuated pump handle will 'drop; or 'go soft' and lifting will stop when bypass valve is operative. If jack lifting stops before rams are fully extended, an overload is indicated, and pump bypass valve is relieving fluid pressure; in this event, a jack with greater capacity must be used to lift the load.

8. Fully extend first stage ram and set first stage locknut.
9. Extend second stage ram to required height and set second stage locknut.
10. Using notch in lower pump handle, open pump release valve.

6.3 LOWERING PROCEDURE

Proceed as follows to lower the jack under load:

CAUTION!

Rate of load decent is proportionate to degree of release valve opening and lifted load weight.

1. Using notch in lower pump handle close pump release valve.
2. Operate pump handle and pump rocker arm to partially lift second stage ram until second stage locknut is free to rotate.
3. Slowly open pump release valve and allow second stage ram to fully retract.

WARNING!

Maintain approximately 1 inch clearance between locknuts and mating surfaces during raising and lowering of rams.

4. With second stage ram fully retracted:
   a. Close pump release valve.
   b. Operate pump handle and pump rocker arm to partially lift second stage ram until second stage locknut is free to rotate.
5. Slowly open pump release valve and allow second stage ram to fully retract.
6. With second stage ram fully retracted:
   a. Close pump release valve.
   b. Operate pump handle and pump rocker arm(s) to partially lift first stage ram until first stage locknut is free to rotate.
7. Slowly open pump release valve and allow first stage ram to fully retract.
8. When load is self-supported, clear lift cup from load point, withdraw jack from load and fully collapse rams.
9. Fully close and tighten release valve
10. Place jack cover on jack and secure in place

7.0 PACKAGING AND STORAGE

7.1 PREPARATION FOR SHIPMENT

1. Open pump release valve one half turn and manually collapse jack rams. Position jack base in a drain pan of 1 gallon (minimum) capacity.
2. Remove hose from bottom of reservoir. Thoroughly drain hydraulic fluid into drain pan.
3. Install hose to bottom of reservoir.
4. Remove jack from drain pan. Then using a clean cloth, wipe jack exterior free of oily residue.

8.0 TROUBLE SHOOTING

When malfunction occurs during operation or test of the jack assembly, proceed as follows to locate and correct the trouble:

1. Refer to troubleshooting information given in below for probable trouble causes and recommended remedies.
2. Visually inspect site of malfunction; carefully examine for evidence of mechanical or hydraulic system failure (damaged or jammed details; fluid leakage, etc.).
3. Remove hose assembly from reservoir. Drain hydraulic fluid into drain pan. Remove release valve, screw and ball. Remove snap ring, and lift hydraulic ram installation as a unit from outer cylinder. Remove locknuts and telescope ram components to “inside-out” position to facilitate disassembly.
4. Perform required remedial action; replace defective details (refer to section 9.5 Corrective Maintenance).
5. Conduct tests outlined in Section 9.5.8 Test Procedures to ascertain that trouble has been corrected. If necessary, repeat troubleshooting, inspection, corrective action, and test procedures until jack functions satisfactorily.

TROUBLE	PROBABLE CAUSE	REMEDY
Rams fail to lift when pumps are operated; or jack fails to lift rated load	Incomplete closure of release valve	Securely tighten release valve
	Low fluid level	Fill reservoir with proper fluid
	Obstructed fluid suction passage	Remove, drain and disassembly; blow pump passages clear with 15 psi compressed air. Reassembly, flush and fill with clean fluid
	Valve defective	Replace valve assemblies
Rams will not fully elevate	Low fluid level	Fill with proper fluid
	Leaking discharge valve	Replace valve assembly
Rams will not support load	Oil leaks at rams	Remove rams and inspect rams and mating bearing surfaces for damage, grooving, and uneven wear. Replace defective parts; replace packings and backups; and test assembled jack as outlined in Section 9.5.8 Test Procedures
	Leaking discharge valve	Replace valve assembly
	Leaking release valve ball or ball seat in pump block	Remove ball and replace if damaged. Inspect pump block ball seat and reseat if damaged
Rams raise and fall with each pump stroke	Incomplete closure of pump release valve	Securely tighten release valve
	Leaking discharge valve	Replace valve assembly
	Leaking release valve ball or ball seat in pump block	Remove ball and replace if damaged. Inspect pump block ball seat and reseat if damaged
Pumps inoperative or difficult to operate	Vacuum in reservoir due to clogged breather plug	Remove breather plug; thoroughly clean per paragraph
Pumps function to lift rams, then fluid pressure fails to bypass at maximum ram extension or with overload applied	Defective valve assembly	Replace valve assembly
Rams will not lower	Excessively worn, damaged rams	Relieve load with another jack. Remove rams and inspect rams and mating bearing surfaces for damage, grooving, and uneven wear. Replace defective parts; replace packings and; and test assembled jack

9.0 MAINTENANCE

9.1 OPERATIONAL CHECKOUT

For operational checkout of the jack assembly, refer to section 6.0 Operation. For functional testing refer to section 9.5.8 Test Procedures.

9.2 PERIODIC CLEANING

- No specific cleaning schedule is required. However, immediately prior to each scheduled lubrication and inspection (refer to sections 9.3 Periodic Lubrication and 9.4 Periodic Inspection), and whenever accumulation of foreign material, dust, grit and/or gummy deposits are evident, clean applicable surfaces as follows:

WARNING!

Solvent P-D-680, Type II may affect skin, eyes and respiratory tract. Use in a well ventilated area. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact. Keep away from sparks and flames.

Use approved personal protective equipment (goggles/face shield) when using compressed air. Air pressure is restricted to less than 30 psi. Provide protection from flying particles. Do not direct air stream towards self or other personnel.

CAUTION!

Cleaning agents may cause chemical deterioration of composition, rubber, or plastic materials; use solvents, when required, on metallic surfaces only.

Exercise extreme care to avoid introduction of solvents, cleaning agents, or other dilutants into hydraulic system and lubricated areas; dilution of hydraulic fluid medium and/or lubricants will cause eventual rapid wear or component damage.

- Wash exterior painted surfaces on jack structure and pump block with a mild detergent solution; and rinse thoroughly with clear, soft water. Dry all surfaces with clean, lint-free cloth or an air jet nozzle and compressed air at approximately 30 psi pressure.
- Carefully wipe and clean all exterior, accessible metallic surfaces of lift cup and pump assembly with clean, lint-free cloth lightly moistened with dry cleaning solvent, Federal Specification P-D-680, Type II.

NOTE: All removed, cleaned, inspected or new replacement internal hydraulic and pump details shall be coated with hydraulic fluid prior to installation of these parts (refer to section 9.5.6 Assembly Lubrication).

WARNING!

Hydraulic fluid may contain tricresyl phosphate. This additive is poisonous and can be readily absorbed through the skin. Use neoprene gloves and make certain that this oil does not remain on skin. Use in a well ventilated area. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact. Keep away from sparks and flames.

- Clean any removed internal hydraulic and pump details by washing these parts with dry cleaning solvent, Federal Specification P-D-680, Type II; and dry parts thoroughly with clean, lint-free cloth.
- Wipe installed, extended ram surfaces with clean, lint-free cloth dampened with lubricating oil, Specifications MIL-L-7870, to clear away foreign deposits from these areas; and wipe away excess oil residue with clean, lint free cloth.
- Service lubrication points on the assembled jack in accordance with lubrication requirements of section 9.3 Periodic Lubrication.

9.3 PERIODIC LUBRICATION

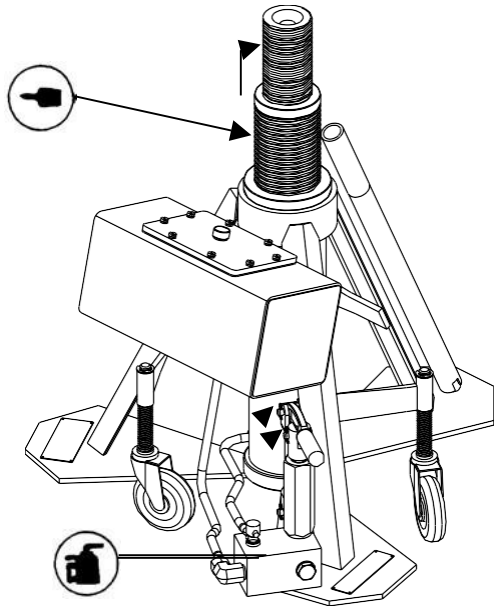
Service jack lubrication points as follows:

CAUTION!

Surplus, external lubricant residue must be cleared to prevent damaging dust and grit accumulation on lubricant-wet surfaces.

NOTE: Internal details of pump assembly and hydraulic cylinder and ram installation are lubricated by hydraulic system fluid medium. No additional service lubrication will be required at these interior surfaces.

- Conduct periodic lubrication of components in accordance with requirements.
- Prior to using jack assembly, conduct pre-use lubrication checks outlined in section 4.3 Component Lubrication and Fluid Fill.
- In addition to periodic lubrication and pre-use checks, lubrication points shall be serviced when respective locations appear dry, show evidence of lubricant run-out, penetration, or dilution, or otherwise indicate a requirement for lubrication servicing.



Jack Lubrication Points

LUBRICATION POINT	SERVICE INTERVAL		LUBRICANT	PROCEDURE
	WEEKLY	MONTHLY		
Pump Rocker Arm and Link Pins	X		Oil: Spec MIL-L-7870	Apply with oil can.
First and Second Stage Ram Exterior Threads		X	Oil: Spec MIL-L-7871	Apply light film with brush

9.4 PERIODIC INSPECTION

INSPECTION POINT	INSPECTION INTERVAL		TEST/INSPECTION	PROCEDURE
	6 MONTHS	1 YEAR		
Cylinder/Jack Base Weld Joint	X		Structural defect and crack check	Visual inspection
Reservoir/Jack Base	X		Structural defect and crack check	Visual inspection
Weld Joint	X		Structural defect and crack check	Visual inspection
Ram Tubes	X		Structural defect and crack check	Visual inspection
Hydraulic System		X	Purge and flush; system cycle and functional verification	Collapse rams, drain fluid reservoir and pump; flush and refill with Specification MIL-PRF-83282 hydraulic fluid; operate and extend/collapse cycle jack; top-off fluid reservoir; and test per section 9.5.8 Test Procedures

9.5 CORRECTIVE MAINTENANCE

The following instructions outline corrective maintenance procedures for the jack assembly. Whenever possible, maintenance disassembly shall be limited to the extent required for performance of inspection, removal, and replacement of defective or suspected components or assemblies.

9.5.1 Disassembly

The jack has been illustrated in two views for clarity. The jack parts list contains, its component parts, and the hydraulic cylinder and ram installation and also the pump assembly parts list and its details. Prior to initiating disassembly, thoroughly drain jack system operating fluid (refer to section 7.1 Preparation For Shipment). Then proceed to disassemble jack in accordance with the following procedures

1. Jack Component and Hydraulic Cylinder (reference parts list). Remove jack components and details in accordance with the following procedures:

   Do not remove nameplate or operating placard unless plate is damaged or illegible. If removal of nameplate is required, carefully record all inscribed jack data for transcription to the replacement plate. Remove pump handle.

CAUTION!

Handle hydraulic cylinder and ram details with care to avoid damage to critical precision-machined ram, bushing and cylinder surfaces.

   a. Prior to removing pump assembly, tilt or invert jack for access to pump-mounting screws, and support weight of pump assembly to relieve load on the screws. Then remove screws and detach pump assembly.
   b. Refer to section 9.5.1 Disassembly for disassembly data on pump assembly.
   c. Remove hose assembly from reservoir. Drain hydraulic fluid into drain pan. Remove snap ring and bushing, grasp and lift hydraulic ram installation as a unit from cylinder. Remove locknuts, and telescope ram components to “inside-out” position to facilitate disassembly.
   d. Remove ram installation parts. Discard packings and backups.

2. Pump. (See parts list) Disassemble pump assembly in accordance with the following procedures:

CAUTION!

Handle pump details with care to avoid damaging critical, precision-machined piston, pump body, and valve surfaces.

   a. Remove links by removing cotter pin and pin. Remove rocker arm by removing cotter pins and pins. Remove piston. Remove and discard packing and backup ring.
   b. Remove release valve, ball, screw, setscrews and balls from pump block. Remove and discard packing and gasket. Remove pump body.
   c. After removing pump body, screw a .25-20 cap screw or thread stock at least 1½ inches long into threaded hole in the valve assembly and lift valve assembly from pump block. Remove and discard top gasket.

9.5.2 Detail Cleaning

Clean disassembled jack details in accordance with cleaning instructions given in section 9.2 Periodic Cleaning.

9.5.3 Detail Inspection

Inspect all parts for damage, distortion, and corrosion. Conduct detail inspection as outlined in Table.

PART	INDEX NO	TEST/CHECK	PROCEDURE
Jack Component and Hydraulic Cylinder Detail Inspection (reference parts list)			
Pump Assembly	10	Detail Inspection	Reference Pump Assembly Detail Inspection
Bushing	6	Visual	Examine for cracked, gouged, or deep scoring
		Excessive wear	Reference Ram and Cylinder Wear Limits
Second and first stage ram	3, 2	Visual	Examine for stripped OD threads or grooved piston-head OD, major or minor ID
		Excessive wear	Reference Ram and Cylinder Wear Limits
Jack structure	1	Visual	Examine for cracks and deformation; defective or leading reservoir or cylinder-to-footpad weld joints, and for grooved or scored cylinder ID surfaces.
		Excessive wear (cylinder)	Reference Ram and Cylinder Wear Limits
Pump Assembly Detail Inspection (reference parts list)			
Pump link	6	Visual	Examine for bending and deformation; and for out-of-round holes
Spring	9	Visual	Examine for cracks and deformation; and for free length of 1½ inches
Oil Screen	8	Visual	Examine for raveled, broken wire mesh; and for deformation, especially at flange end
Pump body	7	Visual	Examine for grooved or scored ID
		Excessive wear	Reference Pump Detail Wear Limits
Balls	21, 22	Visual	Examine for flat spots; and for scratches, nicks and grooves.
Rocker arm	5	Visual	Examine for out-of-round holes
Piston	4	Visual	Examine for grooved or scored minor (wear surface) OD
		Excessive wear	Reference Pump Detail Wear Limits
Pump block	1	Visual	Examine for out-of-round holes; and forscratched, nicked, grooved or deformed seat for release valve ball

PART	INDEX NO	DIMENSION MEASURED	LIMITS (inches)	
			MAX	MIN
Ram and Cylinder Wear Limits (reference parts list)				
Bushing	6	ID	2.998	---
Second Stage Ram	3	Major (piston-head) OD	---	2.385
		Minor (shank OD)	---	2.233
First Stage Ram	2	Major (piston-head) OD	---	3.136
		Minor (shank OD)	---	2.991
		Major (lower bore) ID	2.399	---
Bushing	7	ID	2.247	---
Cylinder	1	ID	3.149	---
Pump Detail Wear Limits (reference parts list)				
Pump Piston	4	Minor (wear surface) OD	---	0.682
Pump Body	7	Wear surface ID	0.703	---

9.5.4 Repair

Except for permissible repair procedures listed herein, detail parts repair is not considered reliable or economical; all non-repairable parts which do not meet inspection requirements, and repairable items which cannot be effectively reworked, shall be replaced (refer to section 9.5.5 Replacement). The following release valve ball seat repair may be accomplished when necessitated by release fluid leakage or ball seat damage at pump block:

1. Reface pump block release valve ball seat, using standard valve seat facing tool.
2. Using brass dowel, mallet, and a type MS15059-2418 ball, form a new seat by rapping lightly at seated ball until 1/64-inch wide rim seat is formed.

NOTE: A new ball shall be installed during reassembly at repair release valve ball seat.

3. Discard ball used for seating operation.
4. Wash repaired seat with dry cleaning solvent, Federal Specification P-D-680, Type II, and dry thoroughly (refer to section 9.2 Periodic Cleaning).

9.5.5 Replacement

Except for permissible pump block release valve ball seat repair outlined in section 9.5.4 Repair, failure to meet inspection requirements will mandate parts replacement; all such defective non-repairable details must be replaced. In addition, note the following replacement qualifications:

1. The following details, if removed from installed positions, shall be replaced with new parts regardless of apparent condition of the removed items:
   a. Nameplate and operating placard
   b. Ram packings and backups
   c. Cotter pins
   d. Pump piston packing and backup ring
   e. Valve and plug gaskets
   f. Release valve packing
2. If pump block release valve ball seat was repaired, replace release valve ball.

9.5.6 Assembly Lubrication

Immediately prior to reassembly, lubricate unassembled details as follows:

WARNING!

Hydraulic fluid may contain tricresyl phosphate. This additive is poisonous and can be readily absorbed through the skin. Use neoprene gloves and make certain that this oil does not remain on skin. Use in a well ventilated area. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact. Keep away from sparks and flames.

1. Immerse packings in hydraulic fluid, specification MIL-PRF-83282. Immerse backups) in hot water not to exceed 180°F for a period of at least 15 minutes, remove with the use of mechanical fingers, and immediately install on ram pistons. Backups should then be allowed to cool for a period of 15 minutes to allow them to contract to normal concentricity before installing in ram cylinders.
2. Coat ID of second and first stage rams, cylinder ID, shank (minor OD) of pump piston, and ID of pump body with hydraulic fluid, specification MIL-PRF- 83282.
3. Using a brush, apply a film of oil, specification MIL-L-7870, to threads first and second stage rams, first and second stage locknuts and pump rocker and link pins.

9.5.7 Assembly

Reassemble in accordance with the following procedures:

1. Pump: Reassemble pump assembly in accordance with the following procedures:
   a. Install valve assembly with upper valve gasket within valve bore of pump block. Note: Threaded hole in valve should face up.
   b. Install packing and backup ring into pump body. Install body into valve bore of pump block.
   c. Install packing onto release valve and gasket onto plug. Install plug, balls, screws and release valve into pump block.
   d. Install piston into pump body. Install rocker arm and link using pins.
2. Hydraulic Cylinder and Jack Component: Reassemble jack details and components in accordance with the following procedures:
   a. Install backups, then packing in ram piston-head grooves of respective ram.

CAUTION!

Mutual concentricity of rams and outer cylinder must be maintained as these parts are mated and assembled; non-concentric assembly of rams or cylinder will result in probable galling and serious damage to cylindrical mating surfaces.

Ram piston-head packings and backups shall be carefully guided into mating inside diameters; forcible ram insertion with protruding packings and backups will cut or chafe these ram seat details, resulting in fluid leakage and jack settling malfunction.

   b. Concentrically align, and fully insert, in turn, second stage ram into underside of first stage ram, carefully guiding second stage seal details into mating underside ram ID surfaces as respective parts are mated.
   c. With second ram partially extended, install locknuts. Peen top of threads of ram to ensure locknut cannot be easily removed.
   d. Concentrically align first stage ram over cylinder bore; carefully guide first stage ram piston-head, packing, and backup into cylinder bore. Fully bottom ram components in jack cylinder; install bushing in cylinder bore with snap ring.
   e. Install first stage locknut on first stage ram. Peen top of thread of ram to ensure locknut cannot be easily removed.
   f. Tilt jack on its side. Install assembled pump assembly. Secure with screws. Install breather plug if removed.
   g. If nameplate was replaced, transcribe all jack data recorded from the removed plate to the new plate, and install nameplate on footpad.
   h. After complete jack reassembly, service jack lubrication points indicated in section 9.3 Periodic Lubrication; fill, bleed and cycle jack hydraulic system as outlined in section 4.3 Component Lubrication and Fluid Fill and conduct jack operation test outlined in section 9.5.8 Test Procedures.

9.5.8 Test Procedures

Testing of the jack assembly requires the use of a static jack tester equipped with a load cell calibrated in tons.

1. Functional Test – Conduct functional test of jack assembly as follows:
   a. Operate jack pump with no load applied to jack until rams have extended to full 23 inch lift, action of pump handle shall feel solid at each pressure stroke.
   b. Open pump release valve and collapse rams with 50 pound load; rams shall collapse fully under this load.
2. External Leak and Static Test – Conduct leakage and static test as follows:

CAUTION!

Do not exceed 3 ton load during test procedure. Exceeding this limit will activate the relief valve. If the tester gauge indicates a sudden drop in load after exceeding the 3 ton load requirement, open the jack release valve and completely collapse the jack rams, then repeat the test, exercising additional caution not to exceed load limit.

   a. Position jack under static tester.
   b. Operate jack pumps slowly until a 3 ton test load is applied to test fixture with rams extended to no more than 22 inches of stroke.
   c. Visually inspect jack exterior for hydraulic fluid leakage at jack rams, pump piston and body, release valve, and pump block.
   d. Maintain 3 ton test load to jack with rams extended to stroke of 22 inches. Jack must maintain and hold load for 5 minutes.
   e. After completion of test, open pump release valve and collapse jack rams.
3. Relief Valve Test/Adjustment (reference parts list) Adjust the relief valve as follows:
   a. Position jack under static tester.
   b. Operate jack pump slowly until a 3 ton test load is applied to test fixture with rams extended to no more than 22 inches of stroke.
   c. Using smooth, uniform pump handle strokes, manually pressurize the cylinder using the pump piston while monitoring load gauge on tester.
   d. Pump handle shall "drop" or "go soft" at an indicated load between 3 and 3.3 tons.
   e. If relief valve is set too high, open release valve to relieve pressure.
      1. Remove plug and insert 1/8 inch Allen wrench through open port into adjusting screw in side of valve
      2. Rotate adjusting screw counterclockwise
      3. Remove Allen wrench and re-install plug
      4. Close release valve
      5. Repeat steps b – d until valve is adjusted within range
   f. If relief valve is set too low, perform steps 1-5 above, only rotate adjusting screw clockwise.

10.0 PROVISION OF SPARES

10.1 SOURCE OF SPARE PARTS

Spare parts may be obtained from the manufacturer:

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

Telephone: (419) 866-6301 or 800-426-6301
Fax: (419) 867-0634
E-mail: sales@tronair.com
Website: www.tronair.com

For Spare Parts, Operations & Service Manuals or Service Needs:
Scan the QR code or visit Tronair.com/aftermarket

10.2 RECOMMENDED SPARE PARTS LISTS

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

Recommended Spares:
450A5708.....Caster
916-185-99.....Compression Spring

10.3 COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODES

General Plug and Mfg. Co.....12502
455 Main St.
Grafton, OH 44044
(440) 926-2411

Parker Hannifin Corp.....1KPD5
Tube Fittings Division
3885 Gateway Blvd.
Columbus, OH 43228
(614) 279-7070

Industrial Caster and Wheel Co.
10027 S. Pioneer Blvd.
Santa Fe Springs, CA 90670
(562) 801-2140

11.0 IN SERVICE SUPPORT

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

12.0 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*.**

13.0 APPENDICES

APPENDIX I Safety Data Sheet (SDS) Hydraulic Fluid

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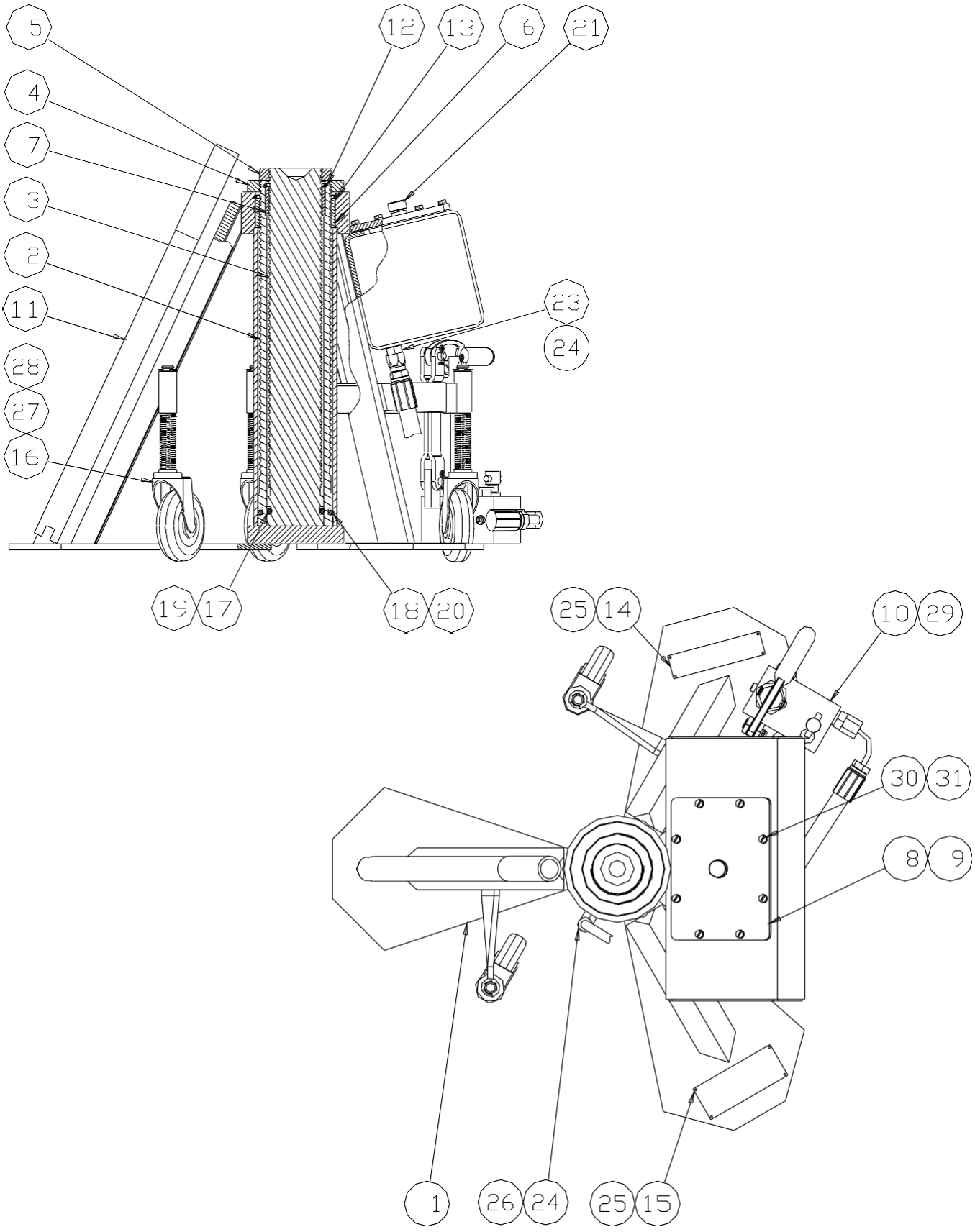
Parts List

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



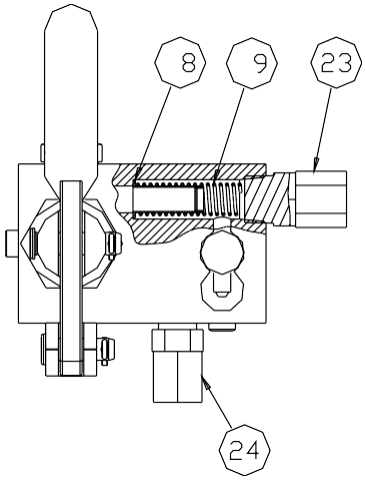
Parts List

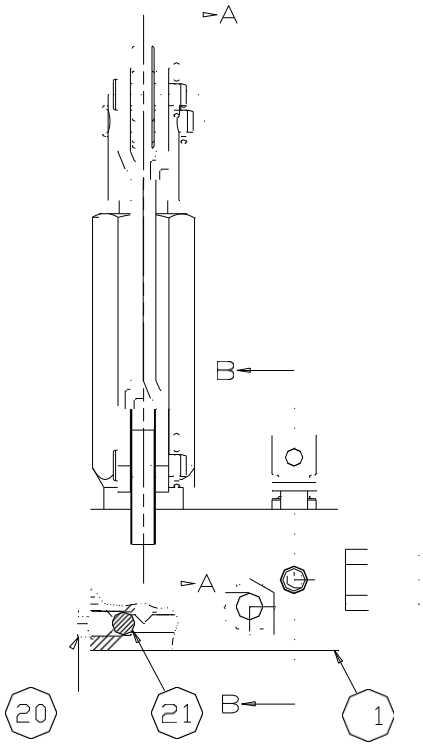
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

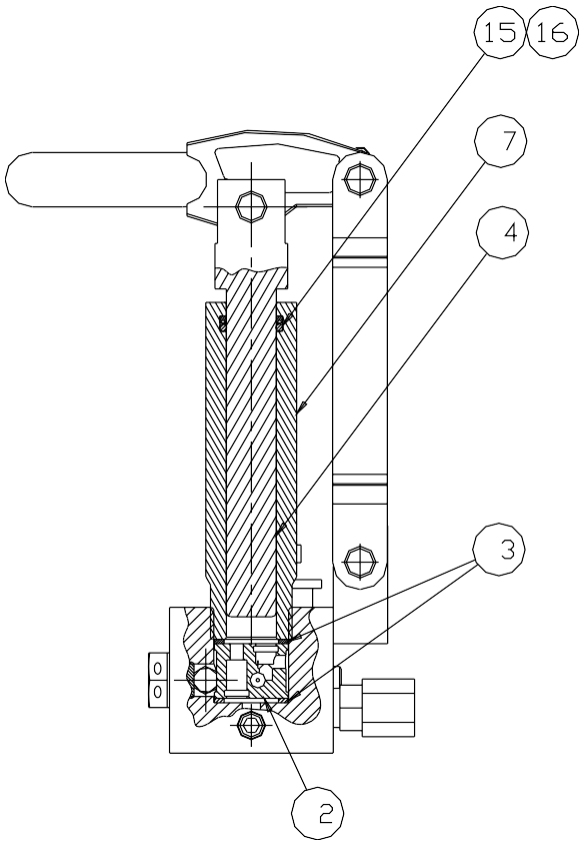
Item	Part Number	Description	Qty
1	9775-1	Cylinder	1
2	9775-2	Ram, First Stage	1
3	9775-3	Ram Second Stage	1
4	9775-4	Locknut, First Stage	1
5	9775-5	Locknut, Second Stage	1
6	9775-6	Bushing, Head	1
7	9775-7	Bushing, Ram	1
8	9775-11	Gasket	1
9	9775-12	Cover.	1
10	9775-HP	Hand Pump	1
11	915-22K	Pump Handle	1
12	915-150.12-2.655	Snap Ring	1
13	915-150.12-3.500	Snap Ring	1
14	915-543	Nameplate	1
15	915-545	Operation Placard	1
16	916-185-99	Caster Spring	3
17	MS28775-329	O-Ring	1
18	MS28775-335	O-Ring	1
19	MS35803-329	Backup Ring	1
20	MS35803-335	Backup Ring	1
21	445686-00-00-07	Breather Plug (12502)	1
23	6-6FTX-S	Male Connector (1KPD5)	1
24	9775-9	Hose Assembly	2
25	MS21318-13	Drivescrew	8
26	6CTX-S	Male Elbow (1KPD5)	1
27	11-3051-53-57-WB	Caster (Industrial Casters)	3
28	MS16633-1050	Retaining Ring	3
29	MS24668-27	Screw, Flat	2
30	MS35338-43	Lockwasher	8
31	372-10040	Screw, Hex Head Slotted (00994)	8
32	9775-10	Jack Cover (Not Shown)	1

Parts List

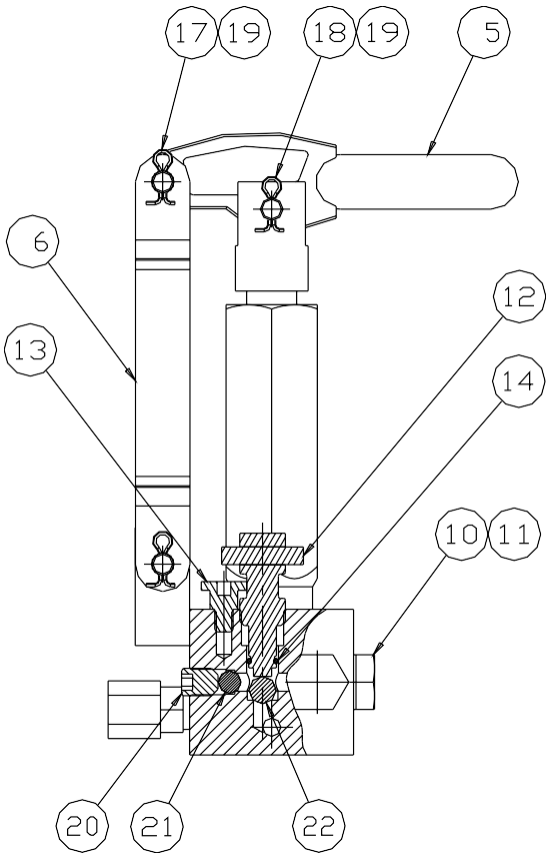
When ordering replacement parts/kits, please specify model, serial number and color of your unit.







SECTION A-A



SECTION B-B

Parts List

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

Item	Part Number	Description	Qty
	9775-HP	**Hand Pump Assembly;** consists of:	
1	9775-25	Pump Block	1
2	915-16A-3	Valve Assembly	1
3	915-17	Gasket	2
4	915-74C	Piston	1
5	915-75	Rocker Arm	1
6	915-151.42	Link	1
7	915-179	Pump Body	1
8	916-7	Screen	1
9	916-10	Spring	1
10	916-21	Plug, Adjusting Screw	1
11	916-22	Gasket	1
12	916-37	Release Valve	1
13	916-35	Lockscrew, Release Valve	1
14	MS28775-011	O-Ring	1
15	MS28775-115	O-Ring	1
16	915-127.13	Backup Ring	1
17	MS20392-4C25	Pin, Headed	2
18	MS20392-4C33	Pin, Headed	1
19	MS24665-317	Cotter Pin	3
20	MS18065-39	Setscrew	2
21	MS19059-2416	Steel Ball	2
22	MS19059-2418	Steel Ball	1
23	6-6FTX-S	Male Connector (1KPD5)	1
24	6FTX-S	Male Connector (1KPD5)	1

APPENDIX I

SAFETY DATA SHEET (SDS)
HYDRAULIC FLUID

SAFETY DATA SHEET

Section 1. Identification

Product name Brayco Micronic 882

SDS # 451700

Historic SDS #: 27009

Code 451700-US03

Relevant identified uses of the substance or mixture and uses advised against

Product use Hydraulic fluid
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Supplier

Castrol Industrial North America, Inc.
150 W. Warrenville Road
Naperville, IL 60563
Product Information: +1-877-641-1600

BP Lubricants USA Inc.
1500 Valley Road
Wayne, NJ 07470
Telephone: (973) 633-2200

EMERGENCY SPILL INFORMATION: 1 (800) 424-9300 CHEMTREC (USA)

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms

Signal word Danger

Hazard statements May be fatal if swallowed and enters airways.

Precautionary statements

Prevention Not applicable.

Response IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage Store locked up.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified Defatting to the skin.
Note: High Pressure Applications
Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency.
See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Synthetic lubricant and additives.

Ingredient name	CAS number	%
1-Decene, homopolymer, hydrogenated	68037-01-4	≥50 - ≤75

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.

Skin contact Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.

Inhalation If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Aspiration hazard if swallowed. Can enter lungs and cause damage. Get medical attention immediately.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treatment should in general be symptomatic and directed to relieving any effects. Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.

Note: High Pressure Applications
Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discolored and extremely painful with extensive subcutaneous necrosis.
Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimize tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.

Specific treatments No specific treatment.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.

Unsuitable extinguishing media Do not use water jet.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products

Combustion products may include the following:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling. Contact emergency personnel.

For emergency responders

Entry into a confined space or poorly ventilated area contaminated with vapor, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Do not swallow. Aspiration hazard if swallowed. Can enter lungs and cause damage. Never siphon by mouth.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

1-Decene, homopolymer, hydrogenated	None.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/ manufacturer and with a full assessment of the working conditions.

Body protection

Use of protective clothing is good industrial practice.
Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.
The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

Appearance

Physical state	Liquid.
Color	Red. [Dark]
Odor	Mild.
Odor threshold	Not available.
pH	Not available.
Melting point	Not available.
Boiling point	Not available.
Flash point	Open cup: 205°C (401°F) [Cleveland.]
Pour point	-55 °C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable. Based on - Physical state
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Density	<1000 kg/m^3 (<1 g/cm^3) at 15°C
Solubility	insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Kinematic: 14 mm^2/s (14 cSt) at 40°C

Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	No specific data.
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Aspiration hazard

Name	Result
1-Decene, homopolymer, hydrogenated	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact No known significant effects or critical hazards.

Skin contact No known significant effects or critical hazards.

Inhalation Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.

Ingestion Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact No specific data.

Skin contact Adverse symptoms may include the following:
irritation
dryness
cracking

Inhalation No specific data.

Ingestion Adverse symptoms may include the following:
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

No testing has been performed by the manufacturer.

Persistence and degradability

Not expected to be rapidly degradable.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC})	Not available.
Mobility	Non-volatile.Liquid.insoluble in water.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

Special precautions for user Not available.

Transport in bulk according to Annex II of MARPOL and the IBC Code Not available.

Section 15. Regulatory information

U.S. Federal regulations

United States inventory (TSCA 8b) All components are listed or exempted.

TSCA 12(b) one-time export: 2,2',6,6'-tetra-tert-butyl-4,4'-methylenediphenol

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification Not applicable.

SARA 313

Form R - Reporting requirements This product does not contain any hazardous ingredients at or above regulated thresholds.

Supplier notification This product does not contain any hazardous ingredients at or above regulated thresholds.

State regulations

Massachusetts None of the components are listed.

New Jersey None of the components are listed.

Pennsylvania None of the components are listed.

California Prop. 65 No products were found.

Other regulations

Australia inventory (AICS) All components are listed or exempted.

Canada inventory All components are listed or exempted.

China inventory (IECSC) All components are listed or exempted.

Japan inventory (ENCS) All components are listed or exempted.

Korea inventory (KECI) All components are listed or exempted.

Philippines inventory (PICCS) All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI) Not determined.

REACH Status The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

Section 16. Other information

National Fire Protection Association (U.S.A.)

History

Date of issue/Date of revision 03/27/2017.

Date of previous issue 11/22/2016.

Prepared by Product Stewardship

Key to abbreviations

ACGIH = American Conference of Industrial Hygienists
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS Number = Chemical Abstracts Service Registry Number
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container

Section 16. Other information

IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OEL = Occupational Exposure Limit
SDS = Safety Data Sheet
STEL = Short term exposure limit
TWA = Time weighted average
UN = United Nations
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.
Varies = may contain one or more of the following 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2

Indicates information that has changed from previously issued version.

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