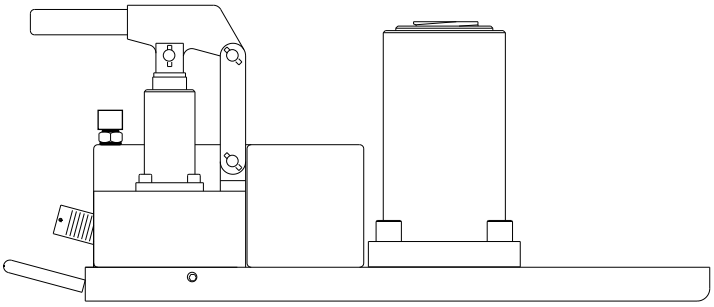
OPERATION & SERVICE MANUAL



Model: 02-7901C0100
25 Ton (22.7 Metric Ton)
Axle Jack

08/2024 – Rev. 04

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

The Tronair Group of Companies: Tronair | EBIS | Columbus Jack | Eagle | DAE | Malabar International

Tronair, Inc.
1 Air Cargo Pkwy East
Swanton, OH 43558

Phone: (419) 866-6301 | 800-426-6301
Web: www.tronair.com
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REVISION	DATE	TEXT AFFECTED
01	01/2011	Original Release
02	03/2013	Modified Parts List
03	12/2016	Modified Parts List
04	08/2024	Major revision

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This product can not be modified without the written approval of Tronair, Inc. Any modifications done without written approval voids all warranties and releases Tronair, Inc., 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

The purpose of this jack is to lift aircraft for maintenance. It has a maximum capacity of 25 tons.

1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

1.3 MANUFACTURER

***TRONAIR*, Inc.**
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

1.4 FEATURES

- Steel construction
- Single stage telescoping ram
- Quick action mechanical extension
- Single speed, manually operated pump
- Uses standard MIL-PRF-5606 hydraulic fluid
- Preset relief/release valve

1.5 SPECIFICATIONS

Vertical capacity ..... 50,000 lb. (22,680 kg)
Minimum closed height ..... 8 in (20.32 cm)
Mechanical extension ..... 5.25 in (13.34 cm)
Hydraulic extension ..... 6 in (15.24 cm)
Maximum height obtainable ..... 19.38 in (49.22 cm)
Weight ..... 60 lb. (224 N)
BUNA 'N' Seals

NOTE: Spacer blocks are 1” or 2” high and change the minimum and maximum height values

2.0 SAFETY INFORMATION

2.1 USAGE AND SAFETY INFORMATION

To ensure 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, and/or substantial property damage*** if the Warning Notice is ignored.

CAUTION!
Caution is used to indicate the presence of a hazard, which will or can cause ***minor personal injury or property damage*** is 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 ASSEMBLY INSTRUCTIONS

4.1 GENERAL INFORMATION

This product should be assembled and/or repaired using good workmanship practices and proper tools.

All replacement parts must be the same as or equal to the original parts supplied.

4.2 PRE-USE CHECKS

Refer to the Parts List and Illustrations section to identify and ensure that all parts are present.

- Generally, check over unit to assure the tightness of all nuts, bolts and screws.
- With rams completely collapsed, check hydraulic fluid level; between 0.50 and 0.75 inches from top of reservoir fitting. Replenish with MIL-PRF-5606 fluid as required.

5.0 OPERATING INSTRUCTIONS

The user should be familiar with the following statements prior to using the jack(s).

CAUTION!

1. **Aircraft jacking adapters must rest in jack pad**
2. **NEVER put hands between aircraft and jack pad.**
3. **ALWAYS open reservoir vent screw before operating.**

5.1 JACK INSTRUCTIONS

To Raise Aircraft:

1. Place jack on a hard level surface.
2. Raise jack as close to aircraft jack pad as possible by screwing out the center mechanical extension.
3. Make sure reservoir vent screw is open.
4. Close pump release valve and operate pump.

To Lower Aircraft:

1. Loosen pump release valve slightly to slowly lower aircraft.

6.0 MAINTENANCE

6.1 GENERAL COMMENTS

- All maintenance and/or repair work should be done using good workmanship practices and proper tools.
- The work area should be clean and free of dirt.
- When O-rings and backup rings are removed, every effort should be made to avoid the contact of tools with the critical surfaces of parts. Surface deformities could cause degradation of seals and failure.
- It is good practice to replace all O-rings and backup rings once removed. Cut and damaged rings normally result in fluid leakage and jack failure.
- At this time flush old hydraulic fluid and dirt from overall system and replenish with new, clean hydraulic fluid.

6.2 SERVICING JACK

To Disassemble Jack

1. Collapse jack ram.
2. Remove vent screw and drain all fluid from reservoir.
3. Remove cap screws surrounding jack cylinder, then remove flange.
4. Lift cylinder from jack base (Operate jack hand pump to help remove cylinder).
5. Push piston assembly through bottom of cylinder.
6. Unscrew piston end cap.
7. Remove all old seals and O-rings and replace with new ones.

To Re-assemble Jack

1. Re-assemble in reverse order of above.
2. Use Loctite 545 on threads of piston end cap.
3. Pre-lube all O-rings and seals with new, clean MIL-PRF-5606 hydraulic fluid.
4. Torque each cap screw to 50-55 ft-lb.

6.3 REMOVING AND SERVICING PUMP

NOTE: If pump is found faulty, call the factory for replacement or replace seals as follows:

1. Review Appendix I - Hand Pump Parts List during the following procedure.
2. Drain all fluid from reservoir.
3. Remove pump from jack.
4. Remove cotter pin from clevis pin.
5. Remove four (4) socket head cap screws.
6. Remove flanges.
7. Remove tube assembly.
8. Replace O-rings and backup ring. (See Appendix I for kits available).
9. Re-assemble in reverse order.
10. Torque each 3/8 socket head cap screw to 20–25 ft-lbs. Torque each ¼ socket head cap screw to 6 to 7 ½ ft-lbs.

6.4 JACK FUNCTION LOAD TEST

1. Take all necessary precautions to prevent injury.
2. Always jack against a load and **never** against the jack itself.
3. Do not exceed a test load equal to the jack rated capacity plus 10%.

7.0 TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	ACTION
Fluid leakage at pump piston or pump body	Damaged backup ring, o-ring, piston or pump body	Remove piston and pump body. Inspect for damage. Replace defective part(s). Replace removed o-ring and backup ring
External fluid leakage at rams	Damaged o-ring, backup ring or inner cylinder wall	Remove rams as a unit from cylinder. Inspect parts. Replace o-ring and defective part(s)
Jack fails to lift rated load	Release valve not closed properly	Fully tighten release valve
	Low fluid level	Fill to correct fluid level
	Pressure relief valve improperly adjusted	Adjust or replace release valve
	Leakage at inlet or outlet check ball	Inspect valve body for wear or replace valve body and check balls
	Vent screw closed	Open vent screw
Rams will not support load after manual or pneumatic pump up	Leaking ram o-ring seals	Check for external leakage, if present replace defective seal and back up ring
	Leaking pressure check valve	Inspect valve body for wear or replace valve body and check balls
	Leaking pressure relief valve	Remove release valve, inspect ball and ball seat in pump block. Replace effective part(s)
Rams raise and fall with each manual pump stroke	Release valve open	Fully tighten release valve
	Inlet check valve not seated or sticking	Pump rapidly to dislodge or replace valve body
	Pressure check valve not seated or sticking	Pump rapidly to dislodge or replace valve body
Jack fails to lower	Ram locknut not loosened	Raise jack ¼ inch and release locknut
	Vent screw closed	Open vent screw
	O-Ring (pinched or rolled)	Replace o-ring and back-up ring, clean up cylinder wall of debris

8.0 PROVISION OF SPARES

8.1 SOURCE OF SPARE PARTS

Spare parts may be obtained from the manufacturer:

TRONAIR, Inc.
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

8.2 RECOMMENDED SPARE PARTS LISTS

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

Recommended Spares:
K-2499.....Cylinder Seal Replacement Kit
K-4777.....Reservoir Vent Kit
K-5162.....Pump Replacement Kit

9.0 GUARANTEES/LIMITATION OF LIABILITY

Tronair products are warranted to be free of manufacturing or material defects for a period of one year after shipment to the original customer. This is solely limited to the repair or replacement of defective components. This warranty does not cover the following items:

a) Parts required for normal maintenance
b) Parts covered by a component manufacturers warranty
c) Replacement parts have a 90-day warranty from date of shipment

If you have a problem that may require service, contact Tronair immediately. Do not attempt to repair or disassemble a product without first contacting Tronair, any action may affect warranty coverage. When you contact Tronair be prepared to provide the following information:

a) Product Model Number
b) Product Serial Number
c) Description of the problem

If warranty coverage is approved, either replacement parts will be sent or the product will have to be returned to Tronair for repairs. If the product is to be returned, a Return Material Authorization (RMA) number will be issued for reference purposes on any shipping documents. Failure to obtain a RMA in advance of returning an item will result in a service fee. A decision on the extent of warranty coverage on returned products is reserved pending inspection at Tronair. Any shipments to Tronair must be shipped freight prepaid. Freight costs on shipments to customers will be paid by Tronair on any warranty claims only. Any unauthorized modification of the Tronair products or use of the Tronair products in violation of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied.

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

10.0 APPENDICES

APPENDIX I	Hydraulic Schematic
APPENDIX II	HC-2744 Hand Pump (7,400 psi) Parts List
APPENDIX III	Safety Data Sheet Hydraulic Fluid (MIL-PRF-5606)
APPENDIX IV	Declaration of Conformity
APPENDIX V	Maintenance Schedule

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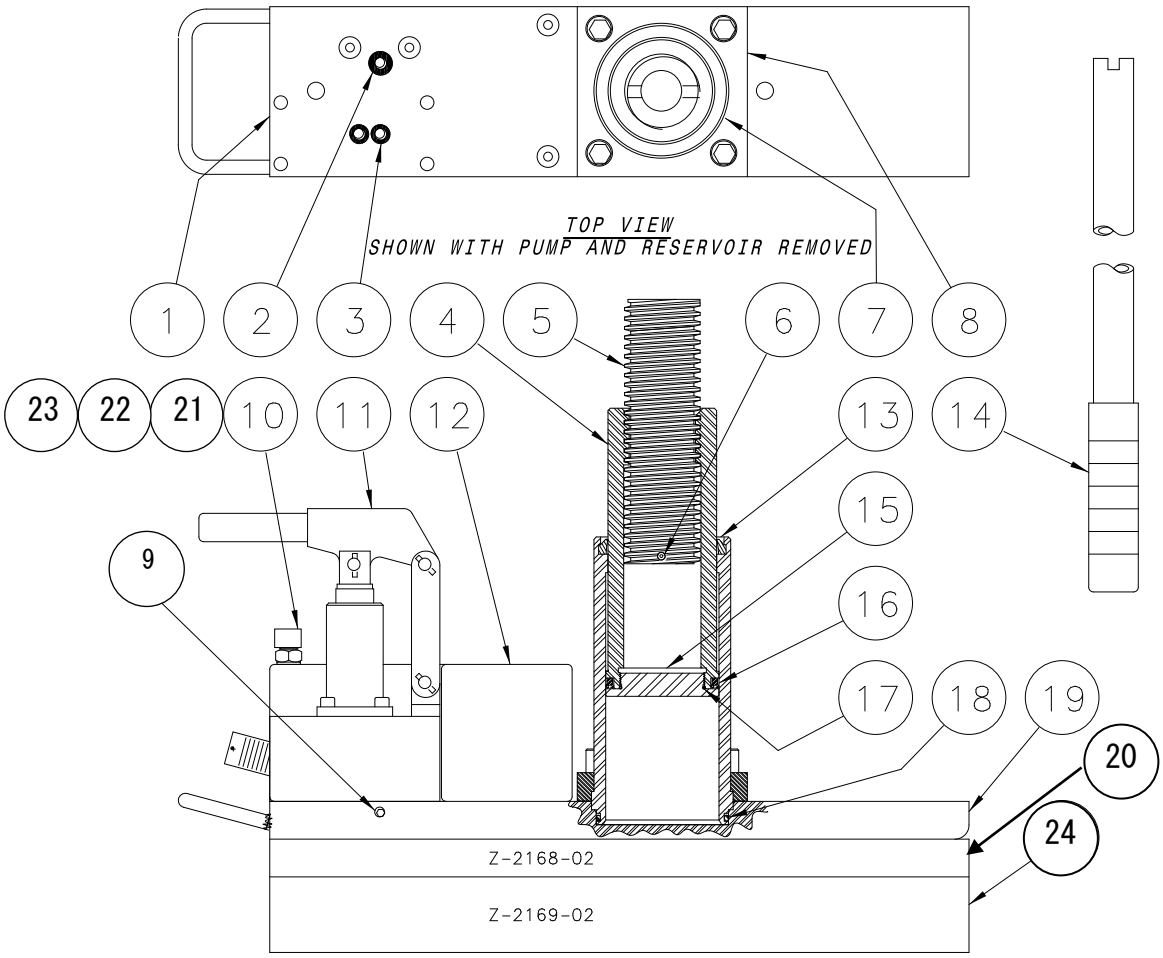
Parts List

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



Item	Part Number	Description	Qty
1	N-2066-02-S-B	PLUG, HEX HEAD WITH O-RING	1
4	TR-1457	TUBE, PISTON	1
5	R-3028	EXTENSION, MECHANICAL	1
6	G-1300-25050	PIN, ROLL	1
7	TR-2469	CYLINDER	1
8	J-2107	RING, CYLINDER RETAINING	1
9	N-2205-02-S	PLUG, HEX HEAD **1/8** NPT	1
14	H-3340	ASSEMBLY, HANDLE	1
15	R-1605	CAP, PISTON END	1
19	Z-2669-02-01	WELDMENT, BASE PLATE	1
	K-2239	**KIT, RESERVOIR REPLACEMENT**; *consists of::*	
2	HC-2000-204	O-RING, SERIES 2	1
10	N-2463-03-S-B	FITTING, REDUCER, #6 SAE MALE TO #4 SAE FEMALE	1
12	Z-2877-01	WELDMENT, RESERVOIR	1
21	HC-2010-904	O-RING, SERIES 3	1
22	R-2765	PLUG, RESERVOIR VENT	1
23	G-1303-13035	PIN, ⅛ X 7/16 LG SST ROLL	1
N/S	G-1151-105210	SCREW, HEX SOCKET HEAD CAP, ¼-20 X 1" LONG	4

Parts List

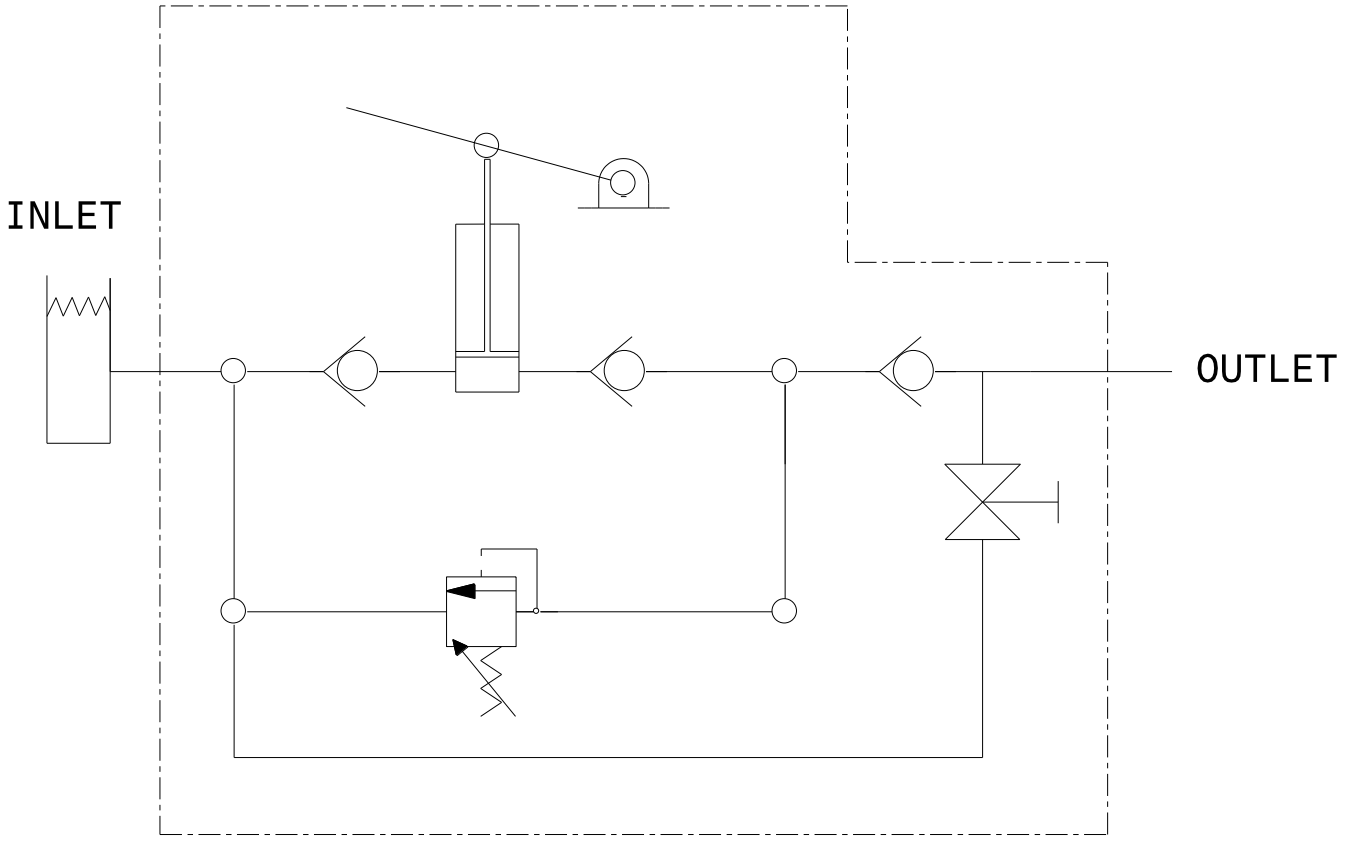
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
	K-4064	**KIT, PUMP REPLACEMENT**; *consists of:*	
3	HC-2008-109	O-RING, SERIES 2	2
11	HC-2744	ASSEMBLY, HYDRAULIC HAND PUMP	1
N/S	G-1151-107210	SCREW, HEX SOCKET HEAD CAP, **3/8** -16 X 1" LONG	4
	K-2499	**KIT, CYLINDER SEAL REPLACEMENT**; *consists of::*	
13	HC-1619-2875	WIPER, RING	1
16	HC-1670-144-B	SEAL, POLYPAK (MINERAL BASE)	1
17	HC-2008-138	O-RING, SERIES 2	1
18	HC-2008-236	O-RING, SERIES 2	1
	K-2557	**KIT, SPACER BLOCK**; *consists of:*	
20	Z-2168-02	ASSEMBLY, 1" EXTENSION BASE BLOCK	1
24	Z-2169-02	ASSEMBLY, 2" EXTENSION BASE BLOCK	1
	K-4777	**KIT, RESERVOIR VENT**; *consists of:*	
10	N-2463-03-S-B	FITTING, REDUCER/EXPANDER	1
21	HC-2010-904	O-RING, SERIES 3	1
22	R-2765	PLUG, RESERVOIR VENT	1
23	G-1303-13035	PIN, ⅛ X 7/16 LG SST ROLL	1
N/S	V-2465	LABEL, VENT SCREW	1

APPENDIX I

Hydraulic Schematic

Hydraulic Schematic



HYDRAULIC SCHEMATIC

APPENDIX II

HC-2744
Hand Pump Parts List

Model: HC-2744
7400 psi
Hand Pump

***

Parts List
With Illustrations

01/2008 – Rev. 01

Tronair, Inc.
1 Air Cargo Pkwy East
Swanton, OH 43558

Phone: (419) 866-6301 | 800-426-6301
Web: www.tronair.com
Email: sales@tronair.com

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Parts List

When ordering Replacement Parts/Kits, please specify Model, Color and Serial Number of your Unit.

This pump is compatible with MIL-PRF-5606/MIL-PRF-83282 Hydraulic Fluids only.

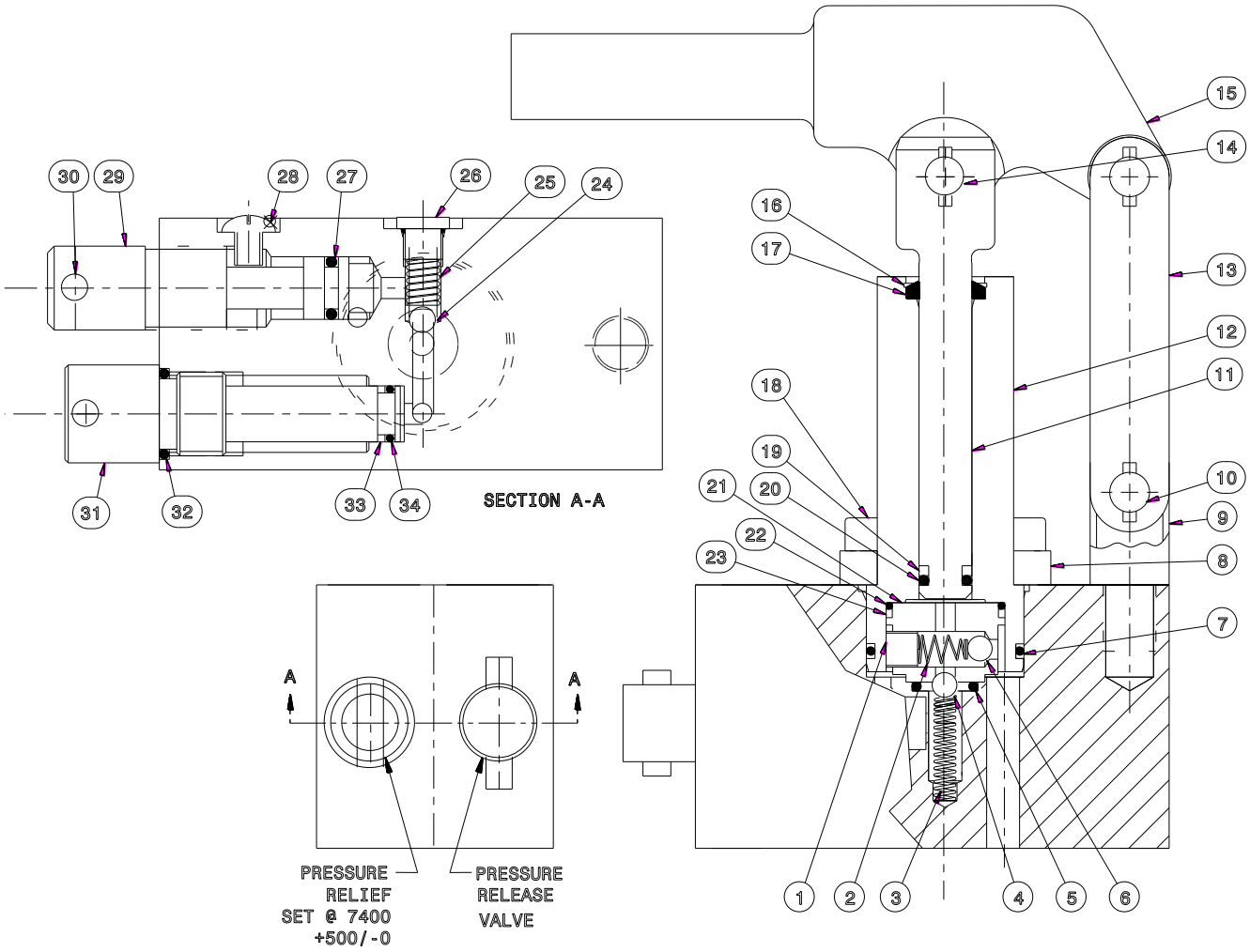
Reference Parts List Illustration on the following page

Item	Part Number	Description	Qty
8	506-034	Flange	1
18	518-034	Screw, Socket Head Cap	4
	K-4215	**Kit, Seal Replacement**; *consists of:*	
5		O-Ring, Outlet Check	1
7		O-Ring, Tube Seal	1
17		Wiper, Rod	1
19		Ring, Backup	1
20		O-Ring, Piston	1
22		O-Ring, Valve Body	1
23		Ring, Backup	1
27		O-Ring, Release Screw	1
32		O-Ring, Relief Valve	1
33		Ring, Back-Up	1
34		O-Ring, Relief Valve	1
	K-1068	**Kit, Linkage Replacement;** *consists of:*	
9		Pivot	1
10		Assembly, Linkage Pin	2
13		Strap	2
14		Assembly, Clevis Pin	1
15		Bracket, Pump Handle	1
	K-4216	**Kit, Internal Parts Replacement;** *consists of:*	
2		Spring, Inlet Check	1
3		Spring, Outlet Check	1
4		Ball, Outlet Check	1
6		Ball, Inlet Check	1
24		Ball	1
25		Spring	1
	K-3875	**Kit, Piston/Cylinder Replacement;** *consists of:*	
11		Piston	1
12		Tube	1
16		Retainer, Wiper	1
21		Assembly, Valve Body (Includes Items 1, 2, 6, 21)	1
	K-3876	**Kit, Piston/Seal Replacement;** *consists of:*	
11		Piston	1
19		Ring, Backup	1
20		O-Ring, Piston	1
	K-4214	**Kit, Release Screw Replacement;** *consists of:*	
28		Retainer, Screw	1
29		Screw, Release	1

NOTE: Entire pump assembly can be purchased as a kit. See Hydraulic Jack Parts list.

Parts List Illustration

This pump is compatible with MIL-PRF-5606/MIL-H-83282 Hydraulic Fluids only.



WARNING

Item 31 (H-3095) is a preset relief valve. Do Not disassemble this valve. Replacement parts are available as a preset relief valve assembly.

APPENDIX III

Safety Data Sheet
MIL-PRF-5606 Hydraulic Fluid

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL AERO HFA**
Product Description: Base Oil and Additives
Product Code: 201550401020, 490110-00, 970584
Intended Use: Aviation hydraulic oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Flammable liquid: Category 4.
Aspiration toxicant: Category 1.

LABEL:
Pictogram:

Signal Word: Danger

Hazard Statements:
H227: Combustible liquid. H304: May be fatal if swallowed and enters airways.

Precautionary Statements:
P210: Keep away from flames and hot surfaces. -- No smoking. P273: Avoid release to the environment. P280: Wear protective gloves and eye / face protection.P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P331: Do NOT induce vomiting. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish.P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

Material can accumulate static charges which may cause an ignition. Material can release vapors that readily form flammable mixtures. Vapor accumulation could flash and/or explode if ignited. Combustible.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	1	Flammability:	2	Reactivity:	0
HMIS Hazard ID:	Health:	1*	Flammability:	2	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYL-P-CRESOL	128-37-0	0.1 - < 1%	H400(M factor 1), H410(M factor 1)
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT	64742-47-8	5 - < 10%	H304
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	64742-53-6	50 - < 70%	H227, H304
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	64742-46-7	20 - < 30%	H304
TRIPHENYL PHOSPHATE	115-86-6	0.1 - < 0.25%	H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Combustible. Pressurized mists may form a flammable mixture.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Phosphorus oxides, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >82°C (180°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: 0.7 UEL: 7.0 [Estimated]
Autoignition Temperature: >225°C (437°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable

regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapor; but may not prevent ignition in closed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with skin. Avoid prolonged breathing of mists and heated vapor. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static

accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be grounded and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
2,6-DI-TERT-BUTYL-P-CRESOL	Inhalable fraction and vapor	TWA	2 mg/m3		N/A	ACGIH
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT [total hydrocarbon vapor]	Non-Aerosol	TWA	200 mg/m3		Skin	ACGIH
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	Mist.	TWA	5 mg/m3		N/A	OSHA Z1
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	Mist.	TWA	5 mg/m3		N/A	ACGIH
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	Mist.	TWA	5 mg/m3		N/A	OSHA Z1
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH
TRIPHENYL PHOSPHATE		TWA	3 mg/m3		N/A	OSHA Z1
TRIPHENYL PHOSPHATE		TWA	3 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions.

Control measures to consider:
Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:
No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:
If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Red

Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.88
Flammability (Solid, Gas): N/A
Flash Point [Method]: >82°C (180°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: 0.7 UEL: 7.0 [Estimated]
Autoignition Temperature: >225°C (437°F)
Boiling Point / Range: N/D
Decomposition Temperature: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: [N/D at 20 °C]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 13.8 cSt (13.8 mm2/sec) at 40 °C | 5.1 cSt (5.1 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -60°C (-76°F) [ASTM D97]
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Open flames and high energy ignition sources.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.

Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	May dry the skin leading to discomfort and dermatitis. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
2,6-DI-TERT-BUTYL-P-CRESOL	Oral Lethality: LD50 0.89 g/kg (Rat)

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

Less volatile component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Components -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be

completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT)

Proper Shipping Name: COMBUSTIBLE LIQUID, N.O.S. (Distillates (Petroleum), Hydrotreated Light)
Hazard Class & Division: COMBUSTIBLE LIQUID
ID Number: NA1993
Packing Group: III
ERG Number: 128
Label(s): NONE
Transport Document Name: NA1993, COMBUSTIBLE LIQUID, N.O.S. (Distillates (Petroleum), Hydrotreated Light), COMBUSTIBLE LIQUID, PG III

Footnote: This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TCSI, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Fire. Immediate Health. Delayed Health.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT	64742-47-8	1, 17, 18
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	64742-53-6	1, 4, 13, 17, 18
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	64742-46-7	1, 4, 17, 18

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H227: Combustible liquid; Flammable Liquid, Cat 4
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Revision Changes:
Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 15: List Citations Table information was modified.
Section 15: National Chemical Inventory Listing information was modified.
Section 14: Marine Pollutant information was modified.
Composition: Component Table information was modified.
Section 08: Exposure Limits Table information was modified.
Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted.

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Internal Use Only

MHC: 2A, 0, 0, 0, 1, 1 PPEC: C

DGN: 2005454XUS (552975)

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APPENDIX IV

Declaration of Conformity

DECLARATION of CONFORMITY

The design, development and manufacture is in accordance with European Community guidelines

Axle Jack
02-7901C0100

Relevant provisions complied with by the machinery:
2006/42/EC

Relevant standards complied with by the machinery:
EN ISO 12100-1

Identification of person empowered to sign on behalf of the Manufacturer:

Patrick Finch

Quality Assurance Representative

Tronair, Inc.
1 Air Cargo Pkwy East
Swanton, OH 43558

Phone: (419) 866-6301 | 800-426-6301
Web: www.tronair.com
Email: sales@tronair.com

APPENDIX V

Maintenance Schedule

TRONAIR® **Maintenance Schedule**

Axle Jacks

Tronair recommends performing preventative maintenance on all jacks,
which should include a 90-day routine inspection and a 12-month load test.

Model Number _____ **Serial Number** _____

Maintenance Performed By _____ **Date** _____

90-Day Maintenance:

- ❑ Check hydraulic system for leaks including the following:
  - Hand pump; cylinder, fittings and seals
  - Reservoir; welds and fittings
- ❑ Check jack structure for corrosion, bending, cracking and excessive wear including the following:
  - Base plate
  - Mechanical extension
  - Hydraulic cylinder assembly
  - Retaining ring (secures the cylinder to the base plate)
  - Jack pads, nose and main gear adapters
  - Spacer blocks
- ❑ Check fluid level with rams fully retracted. See manual for proper level height
- ❑ Extend rams and visually inspect for corrosion, foreign matter, excessive wear and leaks around ram seals. Remove any foreign matter
- ❑ Check paint condition, touch-up areas that are exposed
- ❑ Actuate the hand pump and raise the ram to full extension at least once.
  Do not pressurize hydraulic system once fully extended
  Do not allow jack to miss-stage when raising the rams to full extension
- ❑ Extend rams and visually inspect for corrosion, foreign matter, excessive wear and leaks around ram seals. Remove any foreign matter
- ❑ Open release valve and verify that rams fully retract

Annual (12-Month) Maintenance:

- ❑ Check hydraulic fluid for contamination (dirt/water) drain and flush if required
- ❑ Perform 90-day maintenance checklist
- ❑ Capacity test (110% of jack's rated capacity)

NOTE: The jack may be returned to Tronair for load testing, or sent to a local hydraulic repair shop. Please contact Tronair to obtain a "Return Material Authorization Number" (RMA #) before sending any product to Tronair.