

**Model: 02-7812C0110**  
**5 Ton Single Stage Jack**



04/2014 – Rev. 02

REVISION

01  
02

DATE

09/2008  
04/2014

TEXT AFFECTED

Original Release  
Modified 5.1 Jack Instructions, Parts List

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

## 1.0 DESCRIPTION

The Tronair Single Stage Jack incorporates the following quality features:

- Steel Construction
- Mechanical ram locknut prevents lowering of jack under load
- Mechanical extension
- Single speed, manually operated pump with pressure relief
- Uses standard MIL-PRF-5606 hydraulic fluid.
- Spring loaded retractable wheels

## 2.0 USAGE

The purpose of the jack is to lift the aircraft for maintenance. See Specifications for capacity of jack.

## 3.0 SPECIFICATIONS

- Capacity: 10,000 lbs.
- Closed Height: 54 inches
- Mechanical Extension: 10 inches
- Hydraulic Extension: 30 inches
- Fully Extended: 94 inches
- Weight: 185 lbs

## 4.0 ASSEMBLY INSTRUCTIONS

### 4.1 GENERAL INFORMATION

This product should be assembled and/or repaired using good workmanship practices and proper tools. Bolts and elastic stopnuts should be tightened to a torque not to exceed industry standards for Grade '5' bolts. The 3/8-24 bolts should be tightened to 35 ft-lbs.

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

### 4.2 PRE-USE CHECKS

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

- Generally check over unit to assure the tightness of all nuts, bolts and fittings.
- With rams completely collapsed, check hydraulic fluid level: correct level is one and one-half inch (1 ½ ") below vent, with the hydraulic ram fully retracted. 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.



### CAUTION!

1. **Never put hands between aircraft and jack pad. Aircraft struts may hang up and allow aircraft to suddenly drop.**
2. **Never align jack under aircraft by pounding on jack legs. Dented legs may lead to jack collapse.**
3. **Always lower ram locking nut(s) as aircraft is raised. Be sure ram nut(s) is seated fully after jacking.**
4. **Always raise and lower jacks simultaneously so that aircraft remains level.**
5. **Always use a tail or nose stand for additional stability.**

## 5.0 OPERATING INSTRUCTIONS *(continued)*

### 5.1 JACK INSTRUCTIONS

#### To Raise Aircraft:

1. Place jack on a hard level surface.
2. Raise mechanical extension as close to aircraft jack pad as possible.

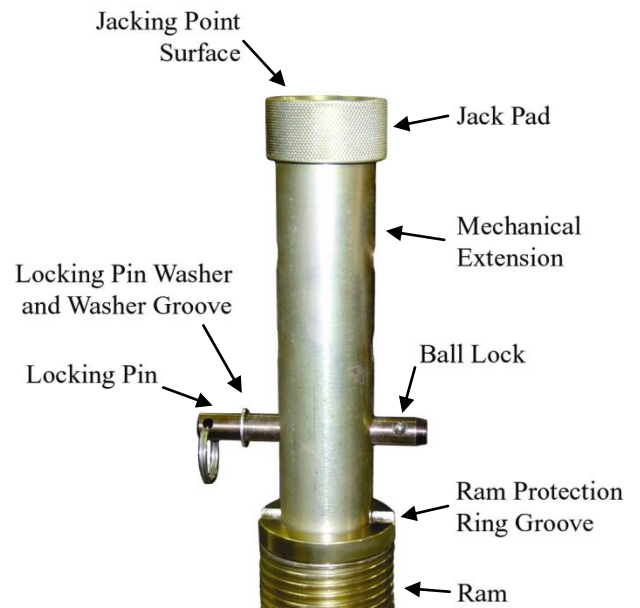


#### WARNING!

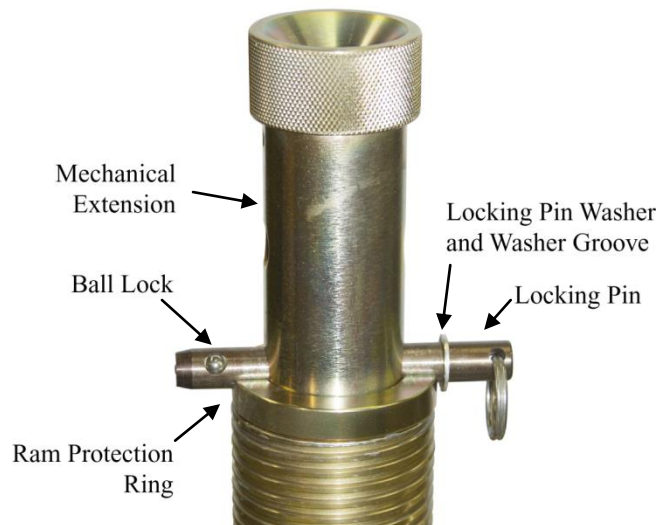
The locking pin **MUST** be placed in the ram protection ring groove and fully through the mechanical extension.

The locking pin washer and ball lock **MUST** be placed outside the ram protection ring.

- Visually inspect the jack prior to every use.
- Do not place extra locking pins in any other hole on the mechanical extension.
- Insure mating surfaces to jack point are free of debris and damage.
- Under no conditions should the locking pin washer or washer groove be inside the ram protection ring groove.
- Under no conditions should the locking pin's ball lock be inside the ram protection ring groove.
- Never use the jack if the ram protection ring is not installed.
- Never use the locking pin without a locking pin washer.
- Never use a locking pin that has been damaged.
- Never use a ram protection ring that has been damaged or deformed.
- Replace ram protection ring if it does not have a radius groove for the locking pin.
- Load test jacks annually.
- Only order replacement parts from Tronair.
- Failure to comply could result in premature failure below certified weight and could cause serious injury including death.



#### Correct Pin Placement



5.1 Jack instructions continued on following page.

5.1 JACK INSTRUCTIONS (continued)

### Incorrect Pin Placements



Washer In  
Ram Protection Ring



Ball Lock In  
Ram Protection Ring

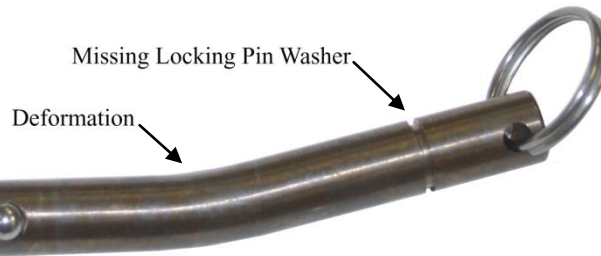


Washer On Top Of  
Ram Protection Ring

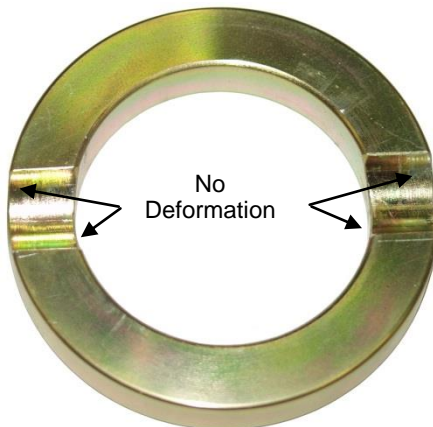


Locking Pin Not In  
Ram Protection Ring  
and top Locking Pin  
in Mechanical Extension  
(use only one pin)

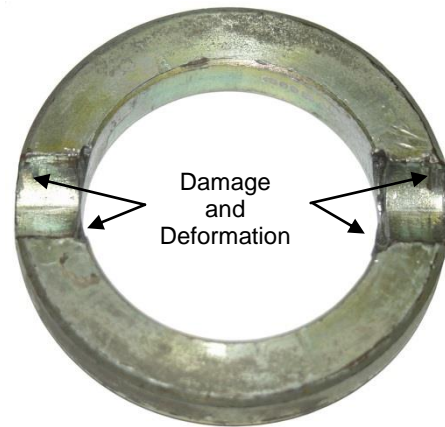
### Results Of Locking Pin In Incorrect Location



### Ram Protection Ring



Acceptable Condition



Unacceptable Condition

3. Close pump release valve and operate pump.
4. Lower ram locknuts as aircraft is raised.

5.1 JACK INSTRUCTIONS *(continued)***To Lower Aircraft:**

1. Lower all jacks simultaneously.
2. If ram locking nut(s) is tight, raise jack slightly to release nut(s).
3. Loosen pump release valve slightly to slowly lower aircraft. Raise locking nut(s), as jack ram(s) lower.

**NOTE: When using the jack during a washing or cleaning operation, the jack should be completely covered to protect it from cleaning solution, dirt and foreign matter that might get on or between the ram and cylinder causing damage to the seals and O-rings.**

**6.0 MAINTENANCE**

## 6.1 GENERAL

- The jack should be stored with some type of cover to protect the jack from liquids (such as Skydrol or cleaning solutions) and other foreign matter that might get on or between ram and cylinder which will damage seals and O-rings.
- 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 both O-rings and backup rings once removed. Cut and damaged rings normally result in fluid leakage.
- If the cylinder bore is found to be rusty, it may be honed to a maximum diameter of 2.629 inches and a surface finish of 16 micro inches. If the pitting in the bore cannot be removed by this process, the jack cylinder must be replaced before the jack can be returned to service.
- At this time, flush old hydraulic fluid and dirt from overall system and replenish with new, clean hydraulic fluid.
- No modifications shall be carried out which adversely affect the compliance of the jack with draft standard 2006/42/EC.

## 6.2 SERVICING JACK

**90-Day Routine Maintenance**

If jack is not being used on a regular basis, every 90 days the jack should be fully extended and retracted to exercise the seals and to prevent rust build up on the cylinder I.D. While ram is extended, clean the threads and spray with DoALL RPM, LPS, or equivalent that is water repellent and will not harm BUNA "N" O-rings.

**To Disassemble Jack For Seal Replacement:**

1. Remove mounting plate (Item 30) by unscrewing three (3) socket head cap screws (Item 24).
2. Raise ram assembly (Item 26) to the point where it can be lifted from the jack cylinder.

**To Reassemble Jack:**

1. Re-assemble in reverse order of above.
2. Spray inside diameter of cylinder and outside diameter of ram (Items 1 and 26) with DoALL RPM, LPS, or equivalent water repellent that will not harm the BUNA "N" O-rings to protect surfaces from rusting when not in use.

**NOTE: To minimize air entrapment under the rams, raise the oil level in the cylinder to chamfer of the cylinder prior to ram insertion.**

## 6.3 REMOVING AND SERVICING PUMP

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

1. Review Appendix I - HC-1948 Hand Pump Part List during the following procedure:
2. Clamp suction (push on) hose and remove hose from pump.
3. Uncouple output hose from pump.
4. Remove two (2) pump mounting bolts. Remove pump.
5. Remove clevis pin assembly.
6. Remove four (4) socket head cap screws.
7. Remove flanges.
8. Remove tube assembly.
9. Replace O-rings and backup ring. (See Appendix I for kits available).
10. Re-assemble in reverse order.

## 6.4 JACK FUNCTION LOAD TEST

**NOTE: If function load testing of this jack is required:**

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%.
4. Test Annually.

## 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 ram(s)	Damaged o-ring, backup ring or inner cylinder wall.	Remove ram(s) 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
Ram(s) 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)
Ram(s) 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

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



## 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.

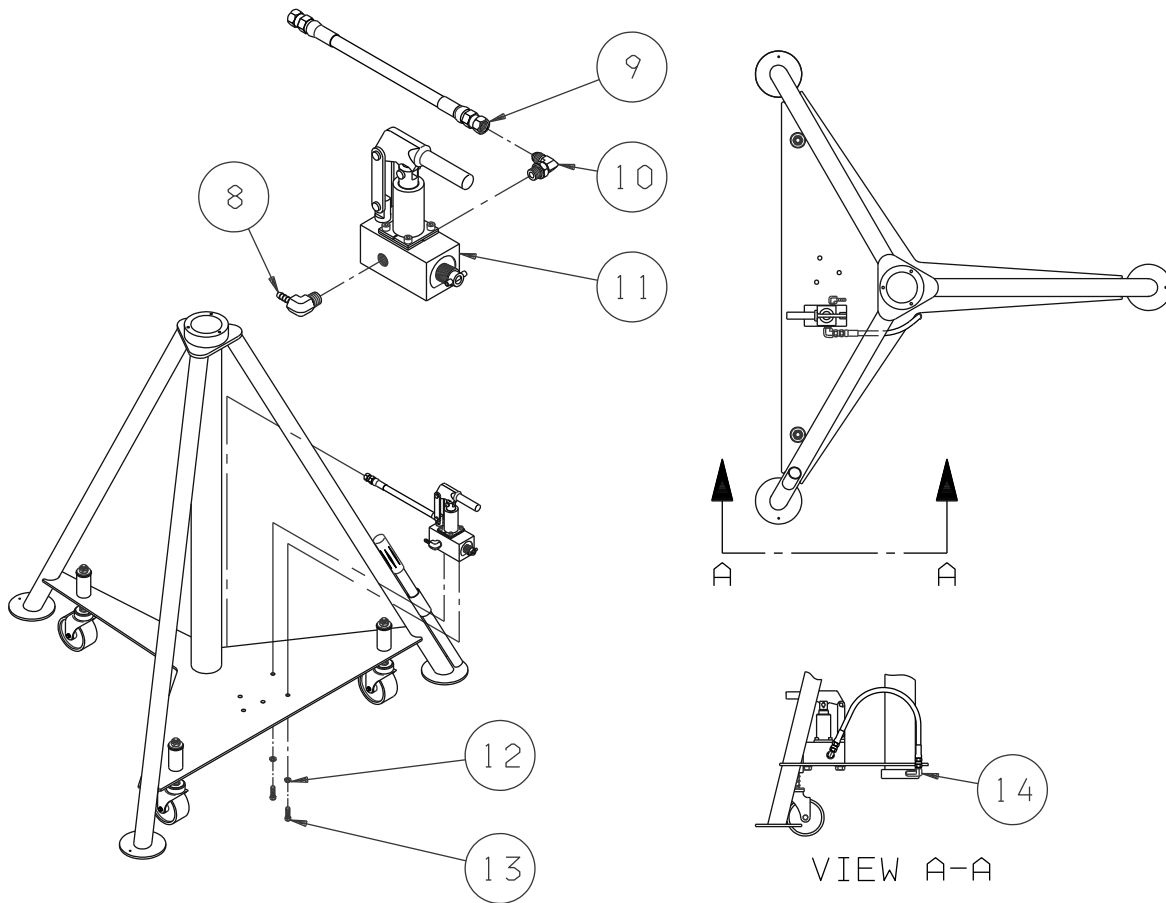
The obligations of Tronair expressly stated herein are in lieu of all other warranties or conditions expressed or implied. **Any unauthorized modification of the Tronair products or use of the Tronair products in violations of cautions and warnings in any manual (including updates) or safety bulletins 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 APPENDICIES

- APPENDIX I Hydraulic Schematic
- APPENDIX II HC-1948 Hand Pump (1950 PSI) Parts List
- APPENDIX III Safety Data Sheet Hydraulic Fluid (MIL-PRF-5606)
- APPENDIX IV Declaration of Conformity
- APPENDIX V Maintenance Schedule

## Parts List

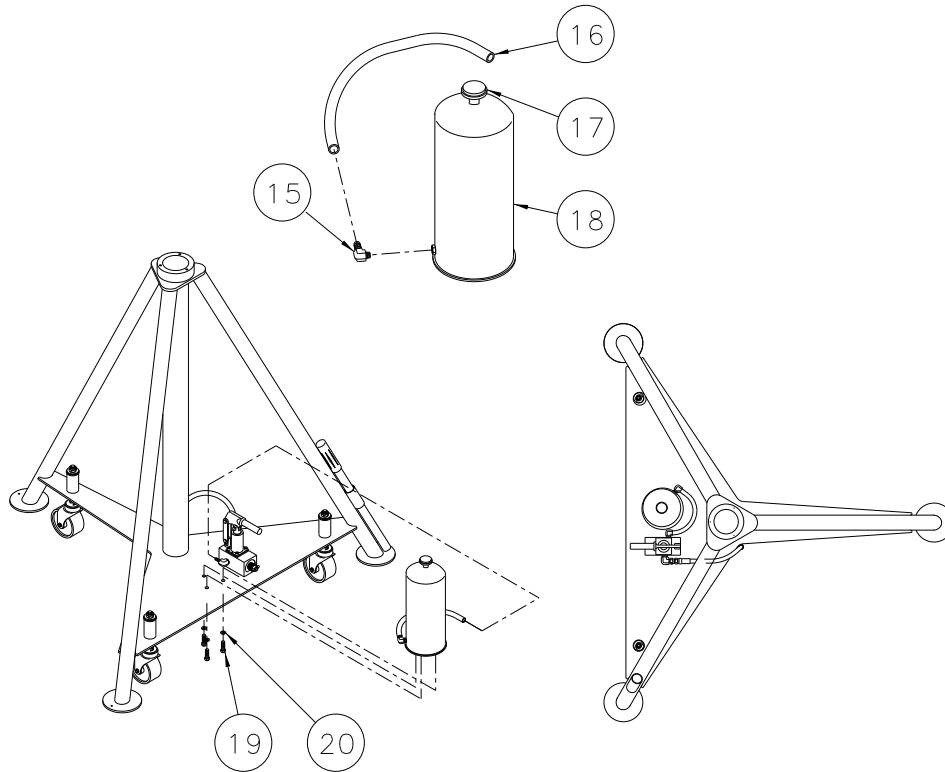
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
8	N-2788-02-S-B	Elbow, 90o Male	1
9	TF-1043-03*15.0	Assembly, Hose, 15" long	1
10	N-2001-05-S-B	Elbow, Straight Thread	1
11	HC-1948	Pump, Hydraulic Hand	1
12	G-1251-1070R	Lockwasher, 3/8 Regular	2
13	G-1100-107010	Bolt, Hex Head, Grade 5, 3/8-16 x 1" long	2
14	N-2004-06-S	Elbow, Extra Long Male	1

## Parts List

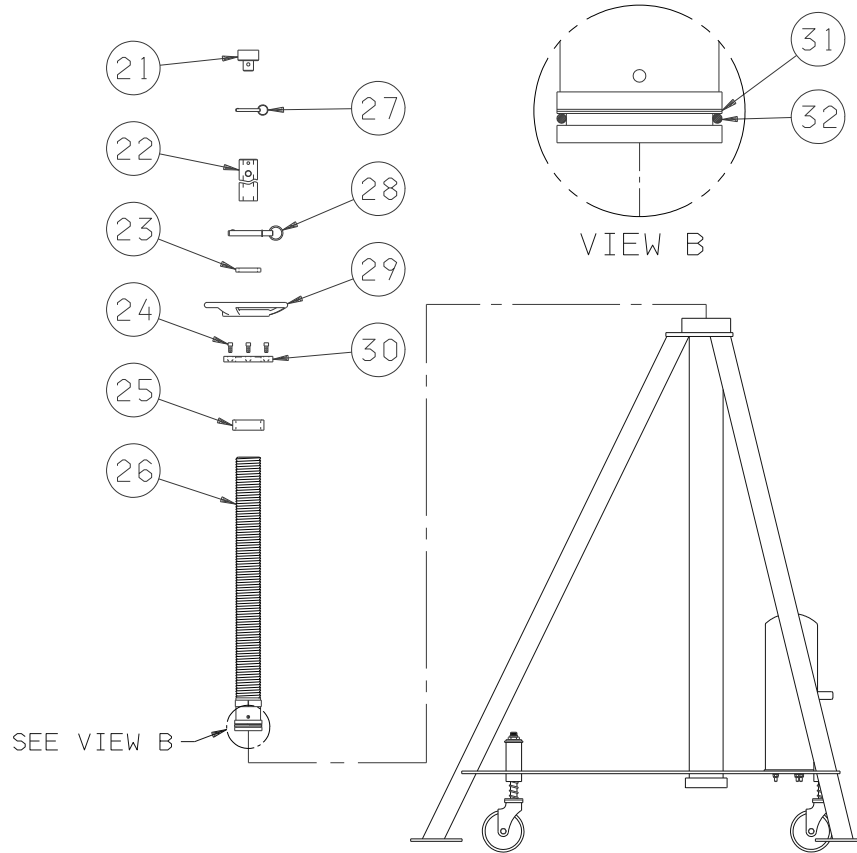
When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
	<b>K-1061-02</b>	<b>Kit, Reservoir Replacement; consists of:</b>	
15	N-2653-01-S-B	Elbow, 90° Male, 1/4 Hose x SAE #4	1
16	TF-1047-01*09.0	Hose, 1/4 Gray x 9" long	1
17	H-1045	Breather	1
18	H-2329	Reservoir, Translucent	1
19	G-1100-105006	Bolt, Hex Head, Grade 5, 1/4 - 20 x 3/4 Long	3
20	G-1250-1050N	Flatwasher, 1/4 Narrow	3

## Parts List

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



Item	Part Number	Description	Qty
21	HJ-532-01	Pad, Jack	1
22	HJ-526-05	Extension	1
23	HJ-536	Ring, Protection	1
24	G-1151-106205	Screw, Socket Head Cap, 5/16-18 x 5/8" long	3
26	HJ-522-04	Assembly, Ram (includes Seals)	1
27	G-1300-25160	Pin, 1/4" diameter x 1~3/4" long, Roll	1
28	G-1318-0825	Pin, 1/2 x 2.5" Model D	1
29	H-2334	Locknut	1
30	HJ-513	Plate, Mounting	1



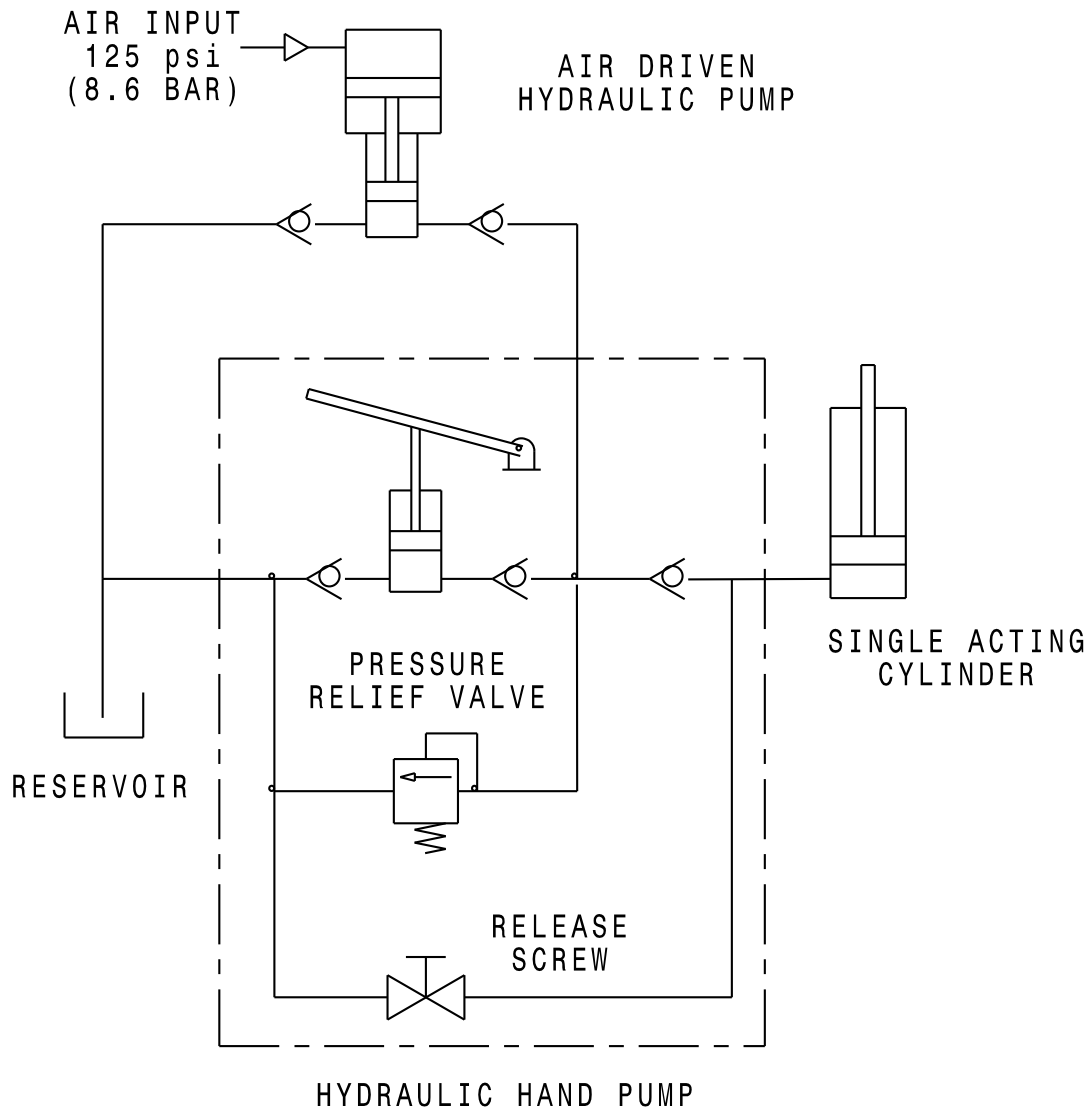
## **APPENDIX I**

### **Hydraulic Schematic**





## Hydraulic Schematic









## APPENDIX II

### Hand Pump Parts List





**Model: HC-1948  
1950 psi Hand Pump**

**\*\*\***

**Parts List  
With Illustrations**

10/2002 – Rev. OR



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**INSTRUCTIONS**

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

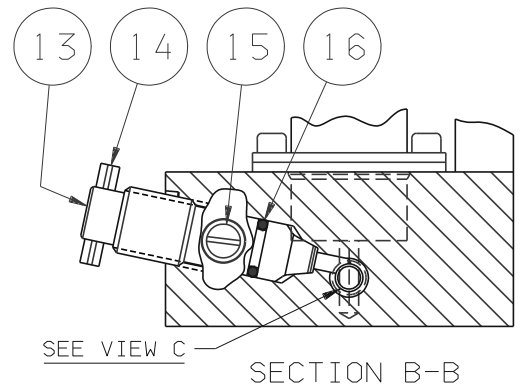
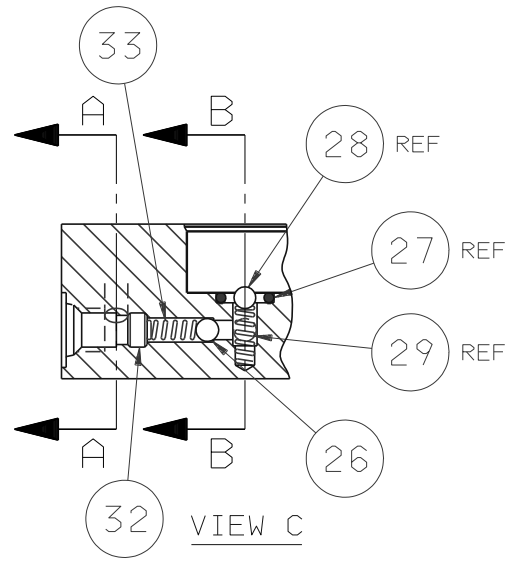
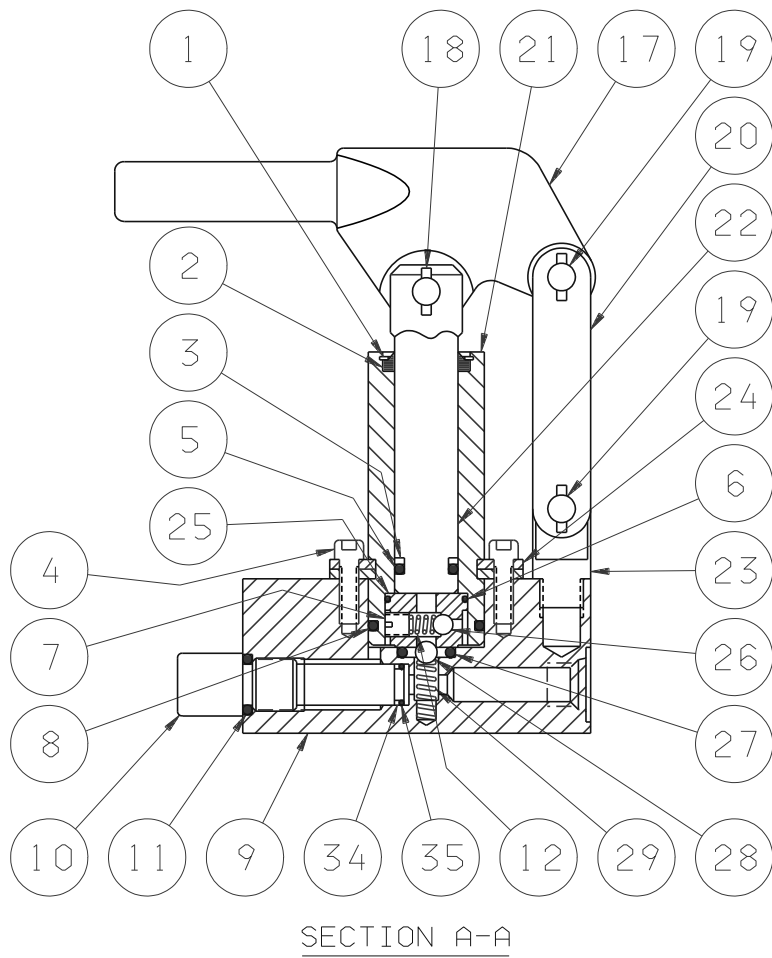
1. Inspect all parts. Replace all worn or otherwise defective parts.
2. Clean all parts prior to re-assembly.
3. Lubricate all O-rings with clean system hydraulic fluid prior to installation.
4. Torque pump screws (Item 4) to 10 ft-lbs.

**Parts List**

Reference Illustration on following page

Item	Part Number	Description	Qty
4	518-000	Screw, Socket Head Cap	4
9	Reference	Pump Body <i>Not Sold Separately</i>	---
10	H-3449	Assembly, Relief Screw	1
24	506-000	Flange Half	4
<i>Not Shown</i>	H-1009-01	Handle	1
	<b>K-1068</b>	<b>Kit, Linkage Replacement; consists of:</b>	
17		Bracket, Pump Handle	1
18		Assembly, Clevis Pin	1
19		Assembly, Linkage Pin	2
20		Strap	2
23		Pivot	1
	<b>K-1778</b>	<b>Kit, Piston/Cylinder Replacement; consists of:</b>	
1		Retainer, Wiper	1
21		Tube	1
22		Piston	1
25		Assembly, Valve Body (Includes Items 7, 12, 25, 26)	1
	<b>K-1906</b>	<b>Kit, Piston/Seal Replacement; consists of:</b>	
3		Ring, Backup	1
5		O-ring, Piston	1
22		Piston	1
	<b>K-3441</b>	<b>Kit, Seal Replacement; consists of:</b>	
2		Wiper, Rod	1
3		Ring, Backup	1
5		O-ring, Piston	1
6		O-ring, Valve Body	1
8		O-ring, Tube Seal	1
11		O-ring, Relief Screw	1
16		O-ring, Release Screw	1
27		O-ring, Outlet Check	1
34		Ring, Backup Relief Screw	1
35		O-ring, Relief Screw	1
	<b>K-3342</b>	<b>Kit, Internal Parts Replacement; consists of:</b>	
12		Spring, Inlet Check	1
26		Ball, Inlet Check	2
28		Ball, Outlet Check	1
29		Spring, Outlet Check	1
33		Spring, Inlet Check	1
	<b>K-3343</b>	<b>Kit, Release Screw Replacement; consists of:</b>	
13		Screw, Release	1
14		Pin, Roll	1
15		Retainer, Screw	1
16		O-ring	1

**Parts List Illustrations**



**WARNING!**



Item 10 (H-2683) 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 (SDS)  
MIL-PRF-5606 Hydraulic Fluid**





## MATERIAL SAFETY DATA SHEET

### SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT

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

#### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION  
3225 GALLOWS RD.  
FAIRFAX, VA. 22037 USA

**24 Hour Health Emergency** 609-737-4411  
**Transportation Emergency Phone** 800-424-9300  
**ExxonMobil Transportation No.** 281-834-3296  
**MSDS Requests** 713-613-3661  
**Product Technical Information** 800-662-4525, 800-947-9147  
**MSDS Internet Address** <http://www.exxon.com>, <http://www.mobil.com>

### SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

#### Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT	64742-47-8	10 - 30%
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	64742-53-6	30 - 60%
HYDROTREATED LIGHT PARAFFINIC DISTILLATES, PETROLEUM	64742-55-8	10 - 30%

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

### SECTION 3 HAZARDS IDENTIFICATION

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

#### POTENTIAL PHYSICAL / CHEMICAL EFFECTS

Combustible. Material can release vapors that readily form flammable mixtures. Vapor accumulation could flash and/or explode if ignited.

#### POTENTIAL HEALTH EFFECTS

If swallowed, may be aspirated and cause lung damage. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May be irritating to the eyes, nose, throat, and lungs. High-pressure injection under skin may cause serious damage.

**Target Organs:** Skin |

**NFPA Hazard ID:** Health: 0 Flammability: 2 Reactivity: 0  
**HMIS Hazard ID:** Health: 0\* 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 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. 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<sub>2</sub>) 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:** Smoke, Fume, Sulfur oxides, Aldehydes, Incomplete combustion products, Oxides of carbon, Phosphorus 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

**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. U.S. regulations require reporting releases of this material to the environment which exceed the 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 Section 3 for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

### 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. Use proper bonding and/or grounding procedures. Prevent small spills and leakage to avoid slip hazard.

**Static Accumulator:** This material is a static accumulator.

### STORAGE

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. Drums must be grounded and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters.

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**EXPOSURE LIMIT VALUES**

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

Source	Form	Limit / Standard			Note	Source
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)		TWA	2000 mg/m <sup>3</sup>	500 ppm	N/A	OSHA Z1
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	Mist.	STEL	10 mg/m <sup>3</sup>		N/A	ACGIH
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	Mist.	TWA	5 mg/m <sup>3</sup>		N/A	ACGIH
HYDROTREATED LIGHT PARAFFINIC DISTILLATES, PETROLEUM	Mist.	STEL	10 mg/m <sup>3</sup>		N/A	ACGIH
HYDROTREATED LIGHT PARAFFINIC DISTILLATES, PETROLEUM	Mist.	TWA	5 mg/m <sup>3</sup>		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/m<sup>3</sup> - ACGIH TLV, 10 mg/m<sup>3</sup> - ACGIH STEL, 5 mg/m<sup>3</sup> - OSHA PEL.

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

**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. Work conditions can greatly effect glove durability; 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

See Sections 6, 7, 12, 13.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

### 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

**Flash Point [Method]:** >82C (180F) [ASTM D-93]

**Flammable Limits (Approximate volume % in air):** LEL: 0.7 UEL: 7.0

**Autoignition Temperature:** >225°C (437°F)

**Boiling Point / Range:** 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 mm<sup>2</sup>/sec) at 40 C | 5.1 cSt (5.1 mm<sup>2</sup>/sec) at 100C

**Oxidizing Properties:** See Sections 3, 15, 16.

### OTHER INFORMATION

**Freezing Point:** N/D

**Melting Point:** N/A

**Pour Point:** -60°C (-76°F)

**DMSO Extract (mineral oil only), IP-346:** < 3 %wt



**SECTION 10 STABILITY AND REACTIVITY**

**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.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**SECTION 11 TOXICOLOGICAL INFORMATION**

**ACUTE TOXICITY**

<b>Route of Exposure</b>	<b>Conclusion / Remarks</b>
<b>Inhalation</b>	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. Based on assessment of the components.
<b>Ingestion</b>	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
<b>Skin</b>	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

**CHRONIC/OTHER EFFECTS**

**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.

Additional information is available by request.

**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 |

<b>SECTION 12</b>	<b>ECOLOGICAL INFORMATION</b>
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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.

<b>SECTION 13</b>	<b>DISPOSAL CONSIDERATIONS</b>
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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.

**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, corrosivity 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** PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, 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. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.



**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

**AIR (IATA):** Not Regulated for Air Transport

**SECTION 15 REGULATORY INFORMATION**

**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

**NATIONAL CHEMICAL INVENTORY LISTING:** AICS, IECSC, DSL, EINECS, ENCS, KECI, PICCS, TSCA

**EPCRA:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** Fire. 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	17, 18, 19
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE (PETROLEUM)	64742-53-6	1, 4, 13, 17, 18
HYDROTREATED LIGHT PARAFFINIC DISTILLATES, PETROLEUM	64742-55-8	1, 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



<b>SECTION 16</b>	<b>OTHER INFORMATION</b>
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N/D = Not determined, N/A = Not applicable

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

Revision Changes:

Section 05: Fire Fighting Measures - Unusual Fire Hazards was modified.  
Section 10: Conditions to Avoid was modified.  
Section 07: Handling and Storage - Handling was modified.  
Section 07: Handling and Storage - Storage Phrases was modified.  
Section 03: HMLS Flammability was modified.  
Section 03: NFPA Flammability was modified.  
Section 06: Accidental Release - Spill Management - Land was modified.  
Section 09: Flash Point C(F) was modified.  
Section 08: Exposure Control was modified.  
Section 15: SARA (311/312) REPORTABLE HAZARD CATEGORIES was modified.  
Section 16: Land Spill was modified.  
Section 14: DOT Technical Name - All was added.  
Section 03: Physical/Chemical Hazard was added.  
Section 14: Proper Shipping Name - Header was added.  
Section 14: Proper Shipping Name was added.  
Section 14: Hazard Class & Division - Header was added.  
Section 14: Hazard Class was added.  
Section 14: UN Number - Header was added.  
Section 14: UN Number was added.  
Section 14: Packing Group - Header was added.  
Section 14: Packing Group was added.  
Section 14: Label(s) - Header was added.  
Section 14: Label(s) was added.  
Section 14: ERG Number - Header was added.  
Section 14: ERG Number was added.  
Section 14: Transport Document Name - Header was added.  
Section 14: Transport Document Name was added.  
Section 14: DOT Technical Name - Open parenthesis was added.  
Section 14: DOT Technical Name - Close parenthesis was added.  
Section 03: Physical/Chemical Hazard was added.  
Section 03: Physical/Chemical Hazards - Header was added.  
Section 14: DOT Footnote was added.  
Section 16: Physical Hazards was added.  
Section 16: Physical Hazards - Header was added.  
Section 16: Precautions was added.  
Section 16: Precautions - Header was added.  
Section 10: Conditions to Avoid was deleted.  
Section 14: LAND (DOT) - Default was deleted.

-----  
**PRECAUTIONARY LABEL TEXT:**

**Contains:** DISTILLATES (PETROLEUM), HYDROTREATED LIGHT  
CAUTION!

**HEALTH HAZARDS**

Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage.

**Target Organs:** Skin |

**PHYSICAL HAZARDS**

Combustible.

## PRECAUTIONS

Use proper bonding and/or grounding procedures.

### FIRST AID

**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.

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

**Oral:** Seek immediate medical attention. Do not induce vomiting. If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

**Skin:** Wash contact areas with soap and water. 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.

### FIRE FIGHTING MEDIA

Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

### SPILL/LEAK

**Land Spill:** Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. 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.

### Use

Not intended or suitable for use in or around a household or dwelling.

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Internal Use Only

MHC: 2A, 0, 0, 0, 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

Tripod Jack  
02-7812C0110

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:

A handwritten signature in cursive script that reads "Patrick Finch". The signature is written in black ink and is positioned above a horizontal line.

Quality Assurance Representative





## **APPENDIX V**

### **Maintenance Schedule**





## Single-Stage Tripod 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:
  - Hydraulic lines; hoses and fittings
  - Hand pump; cylinder, fittings and seals
  - Reservoir; welds and fittings
  - Air operated pump (optional equipment); fittings, air side and oil side seals
- Check jack structure for corrosion, bending, cracking and excessive wear including the following:
  - Ball lock pins
  - Mechanical extension
  - Welded joints; tripod legs, cylinder and foot pads
  - Ram lock nuts; gouge marks and cracks in threads
  - Jack pads
- Check fluid level with rams fully retracted. See manual or reservoir tag 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 air operated pump if equipped (reference air operated pump service manual)
- 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** over pressurize once fully extended
- Apply DoAll, RPM, LPS or equivalent water repellant that is Buna N compatible to the rams
- Open release valve and verify that rams fully retract
- Lubricate casters (if applicable)
- Torque ram retaining cap  
(refer to product Operation and Safety Manual or following page for location and torque specification)

### Annual (12-Month) Maintenance:

- Check hydraulic fluid for contamination (dirt/water) drain and flush if required
- Perform 90-day maintenance checklist
- Capacity test (105% - 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.