

RK-753 Series QuickRivet® Tool
Model# RK-753-I



Operations Manual



**Industrial
Rivet &
Fastener Co.**

Your Authorized Distributor:



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SAFETY

- ➡ Do NOT USE EQUIPMENT WITH THIS TOOL THAT IS NOT RECOMMENDED OR SUPPLIED BY INDUSTRIAL RIVET & FASTENER Co.
- ➡ ALWAYS DISCONNECT THE AIR SUPPLY BEFORE ATTEMPTING ANY MAINTENANCE OR ADJUSTMENT/FITTING OF NOSE EQUIPMENT
- ➡ Do NOT OPERATE A TOOL THAT IS DIRECTED TOWARDS ANY PERSON(S)
- ➡ ALL MODIFICATIONS CARRIED OUT ON THE TOOL WITHOUT THE CONSENT OF INDUSTRIAL RIVET & FASTENER Co. SHALL BE DONE SO AT THE CUSTOMERS' SOLE RESPONSIBILITY
- ➡ REFER TO THIS MANUAL BEFORE ATTEMPTING ANY MAINTENANCE OPERATION
- ➡ AVOID EXCESSIVE CONTACT WITH HYDRAULIC OIL, AS SOON AS POSSIBLE WASH HANDS THOROUGHLY
- ➡ Do NOT EXCEED 7 BAR / 100 PSI INLET PRESSURE, THE USE OF A PRESSURE REGULATOR IS HIGHLY RECOMMENDED
- ➡ INSPECT THE MANDREL REGULARLY. WHILE SOME MARKING THROUGH USE IS NORMAL EXCESSIVE PITTING AND DISTORTION MAY CAUSE A MANDREL TO FAIL. A MANDREL THAT FAILS MAY FORCIBLY EJECT FROM THE TOOL. MANDRELS SHOULD BE INSPECTED BEFORE THE RECOMMENDED NUMBER OF PLACINGS BASED UPON THE BROACH LOAD OF THE PARTICULAR APPLICATION. IF YOU ARE UNSURE OF THE BROACH LOAD CONTACT YOUR INDUSTRIAL RIVET & FASTENER Co. REPRESENTATIVE WHO WILL HELP YOU DETERMINE WHAT THIS IS AND THE SAFE NUMBER OF PLACINGS TO EXPECT FROM THE MANDREL

SPECIFICATIONS

The specifications and information contained in this manual are applicable only to the tool with which it was supplied. Industrial Rivet & Fastener Co reserve the right to make any changes without notice as part of Industrial Rivet & Fastener Co policy of continuous improvement.

SPECIFICATIONS FOR RK-753-I™ RIVET TOOL

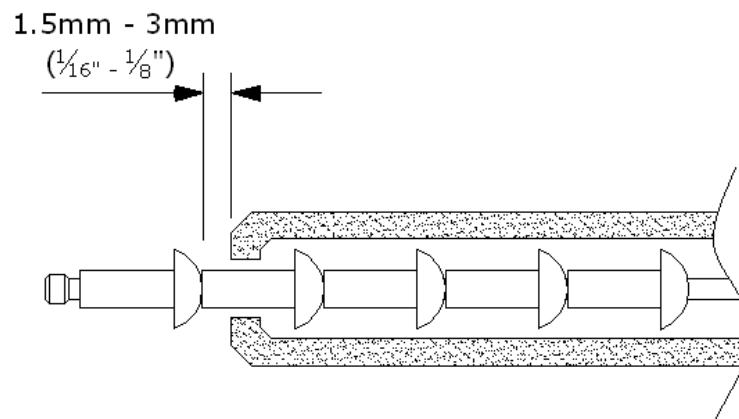
Air Pressure	Min/Max	□ 5 – 7 bar	□ 70 – 100 psi
Free Air Volume Required	@5.1 bar/75psi	□ 2.6 liters	□ .09 ft ³
Stroke	Minimum	□ 30 mm	□
Pull Force	@5.5 bar/80psi	□ 3.89kN	□
Cycle Time	Approximately	□ 1-1.5 seconds	□
Noise Level	Less than	□ 70 dB(A)	□
Weight		□ 1.2kg	□ 2.64 lb
Vibration	Less Than	□ 2.5 m/s ²	□ 8 ft/s ²

SPECIFICATIONS FOR RK-753-I™ INTENSIFIER / BOOSTER

Air Pressure	Min/Max	□ 5 – 7 bar	□ 70 – 100 psi
Intensification Ratio		□ 30 : 1	□

PREPARING THE TOOL FOR SERVICE

1. Check to see if a cursor is present in the barrel, fit a cursor into the barrel (1) if not present ensuring that the spring loaded plunger of the cursor is towards the front of the barrel
2. Fit correct nose assembly for the rivet being placed
3. Connect the hydraulic hose assembly from the tool to the intensifier
4. Connect the trigger/tail jaw supply line into the quick release collet on the pilot valve bolted to the intensifier
5. Connect the main air supply to the rear of the intensifier
6. Open the tail jaws (55) by switching off the air supply through the trigger/tail jaw assembly
7. Load rivets onto mandrel by inserting the mandrel through the tail of the rivets and remove the paper strips
8. Place follower spring onto the mandrel
9. Open front jaw assembly and insert loaded mandrel through the nose assembly until a gap of approximately 1.5mm (1/16") – 3mm (1/8") between the head of the first rivet and the nose assembly is achieved



10. Close tail jaws (24) to grip the mandrel, the tool is now loaded and ready for use

AIR SUPPLY

- The rivet tool is powered by compressed air at an optimum pressure of 5.5 bar (90 psi)
- The use of a pressure regulator filter/lubricator unit within 3 meters of the tool is highly recommended to extend the life of the tool.

Dirt and/or water in the air supply can seriously impact the performance and durability of the tool; damage to the tool caused by contaminated air supply is not covered under warranty

MAINTENANCE

In order to maintain the tool in a safe working order it is important to carry out regular maintenance as prescribed by the manufacturer. A thorough inspection replacement of all seals within the tool should be carried out after 500,000 placings or annually, whichever is the sooner. Item numbers in parentheses refer to assembly drawing part numbers

Daily

- Check for air leaks, pay particular attention to the elbow connectors (21) supplying the tail jaws. Any damaged hoses should be replaced
- Lubricate the tool by pouring a few drops of light lubricating oil into the air inlet on the intensifier
- Inspect all mandrels for signs of wear or damage. Discard any mandrels that display signs of excessive pitting or distortion
- Remove front jaw nose assembly and inspect for cracks or other damage
- Inspect and clean the cursor assembly, lubricate with light oil and replace with the spring loaded end of the cursor toward the threaded end of the barrel. If the cursor is inserted the wrong way round, the tool will not feed rivets. Carry out the following steps to reorient the cursor
 - Loosen screws (35) and remove end cover (20)
 - Remove screw (18) seals (19) and cover (17) note there are two seals one either side of the cover
 - Remove circlip (15) rear plug (16) turret assembly (22) with jaws (24) spring (23) and jaw housing (25)
 - Insert a mandrel through the barrel nut (13) holding onto the bulb end and feed the mandrel up and through the barrel. The mandrel will pull the cursor out of the barrel to be inserted correctly.

Weekly

- Carry out procedures as per daily maintenance instructions above
- Clean and inspect the tail jaws for signs of damage or wear (groove running through the jaw serrations). Follow the instructions above to re-orient the cursor to access the tail jaws in the tail jaw cylinder. Reassemble the tail jaws with a light coating of grease on the outer face that contacts the jaw housing. Do not allow grease to contaminate the grooved inner face of the jaws as mandrel slippage may result.
- Check the oil level in the reservoir, the oil should be approximately ½" below the plexiglass cover plate fitted to the intensifier. If the tool requires topping up with oil on a regular basis check for leaking seals or damaged hoses and couplings

MAINTENANCE

Follow the instructions below to perform annual service and replacement of seals, item numbers in parentheses refer to assembly drawing part numbers on page 8.

Tail Jaw Cylinder

- Using an Allen Key*, remove one cap head Screw **5** ensuring that any trapped air in the tail jaw cylinder is exhausted. Remove the second cap head Screw **5**.
- Pull out Rear Plug **47**.
- Extract air tail jaw components, comprising Tail Jaw Piston Assembly **51**, Spring **35**, Jaws **34** and Jaw Housing **41**.
- Remove plug at rear of piston assembly using an Allen Key* and a bar through the large slot in the turret.
- Clean out turret using a 4.7mm (3/16") drill and replace plug using a non-hardening sealing compound, e.g. Loctite® Multi-gasket 574*.
- Remove piston seal 'O' Ring **10**.
- Grip Barrel **44** in a vice using soft jaws* to avoid damage.
- Using a box spanner*, unscrew Barrel Plug **45**, preventing Barrel **44** turning by using an open ended spanner*.
- Disconnect Air Tail Jaw Concertina Tube **54** from Head Assembly and pull Tail Jaw Cylinder **46** from tool.
- Remove 'O' Ring **13**, Rubbing Strip **40** and Barrel Return Spring **37**.
- Free length of Spring **35** should be 38.1mm (1.5"). Replace if necessary.
- Coat the tail jaws with Moly Lithium grease before assembling.
- Assemble in reverse order of dismantling.

Hydraulic Body

- Remove Tail Jaw Cylinder **46** as described earlier.
- Grip Head Assembly **56** in vice using soft jaws* to avoid damage, undo Stroke Limiter **39**.
- Using an Allen Key*, loosen Screw **3** clamping the Switch Block **55** to the Barrel **44**.
- Using an Allen Key*, remove the Switch Block **55** & O Ring **21**, by undoing the securing Screw **4**.
- Hold the tool firmly and pull the Barrel **44** from the body (a small quantity of hydraulic oil may be ejected from inside body).
- Remove Piston **38** carefully so as not to damage body bore.
- Remove Lip Seal **15**.
- Lip Seal **16** is difficult to remove without damaging, but can remain in place during cleaning (provided it is not affected by cleaning process). If however, Lip Seal **16** requires renewing proceed as follows:
- Using spatula*, prise out Lip Seal **16** from Head Assembly **56**, taking care not to damage head cavity and bores. The removed Lip Seal **16** MUST be discarded.
- To replace Lip Seal **16**, unscrew existing Bleed Plug **43** until inside face is level with internal bore of the Head Assembly **56**. This will provide a smooth passage for insertion of new Lip Seal **16** through rear of body.
- Ensure the Lip Seal **16** is well greased and the correct way round with the open end of the seal facing the rear tail jaws.
- Complete assembly in reverse order of dismantling.

TAIL JAW ON/OFF VALVE

- The unit is designed so that minimum of servicing is required during the life of the tool.
- If it is necessary to dismantle valve, proceed as follows:
- Remove Switch Block 55 as described in section "Hydraulic Piston".
- Using a screwdriver*, carefully remove the Chrome Star-lock Washer 22 from Air Tail Jaw Spool 49 and discard washer.
- Extract Air Tail Jaw Spool 49 from Switch Block 55.
- Taking care not to damage the Air Tail Jaw Spool 49, remove the 'O' Rings 11.
- Clean spool and refit new 'O' Rings 11 using assembly bullet* and insert into Switch Block 55, noting its orientation.
- Fit New Chrome Star-lock Washer 22 by clamping in vice using a soft jaw vice to prevent damage. DO NOT USE UNDUE FORCE.

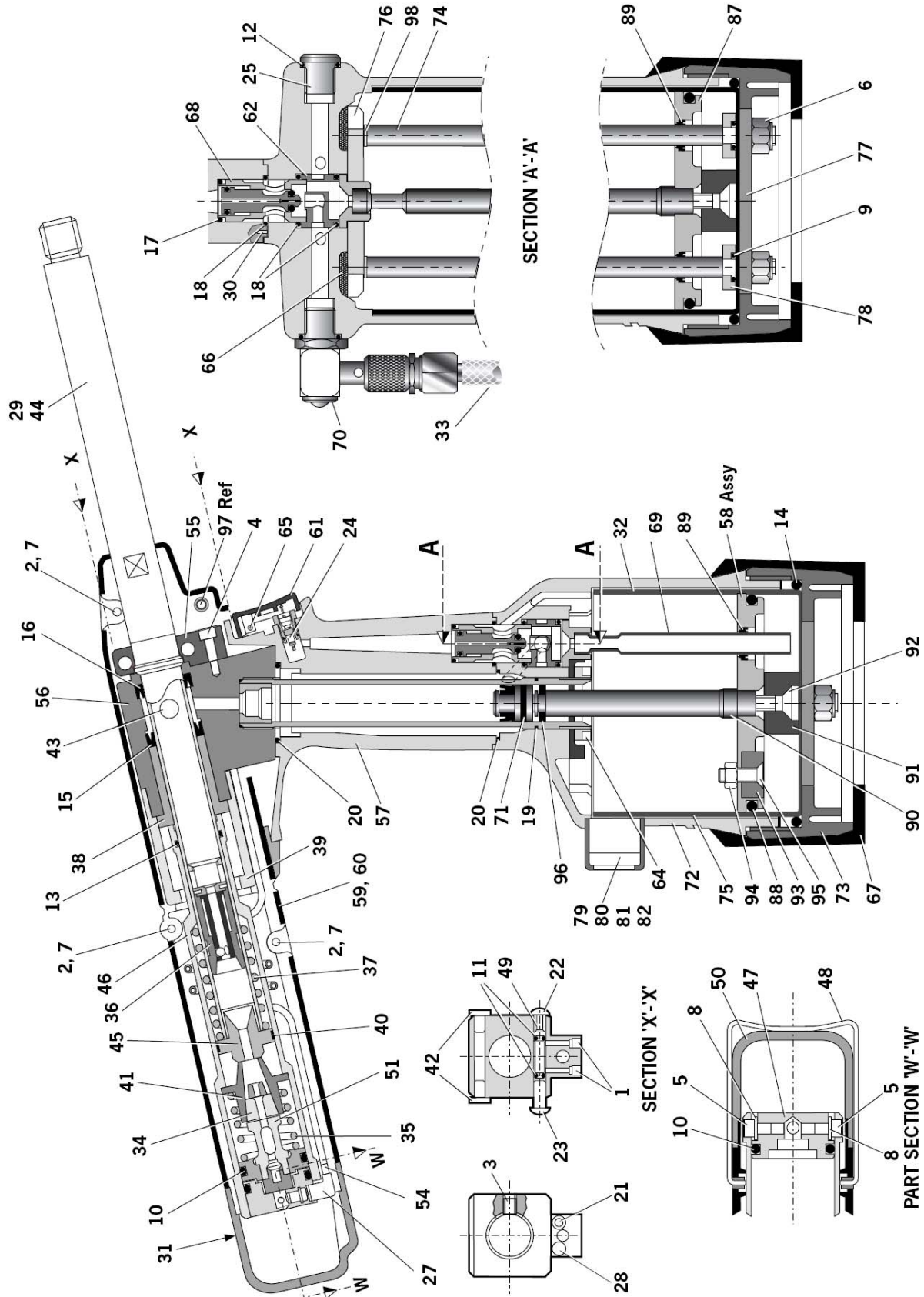
PNEUMATIC PISTON ASSEMBLY

- Clamp the Body **72** of the inverted tool across the air inlet bosses in a vice fitted with soft jaws.
- Pull off the Rubber Boot **67**.
- Using the peg spanner* unscrew Base Cover **73**.
- Unscrew Locknuts **6** (2 off) and remove the Base Plate **77**.
- Remove the Cylinder Liner **75**, together with Sealing Washers **78** (2 off) and 'O' Rings **9** (2off).
- Remove Pneumatic Piston Assembly **58** from Body **72** together with 'O' Ring, Lip Seal (3 off) and Guide Ring.

VALVE SPOOL ASSEMBLY

- Remove Pneumatic Piston Assembly **58** and Intensifier Seal Assembly **71** as described immediately above.
- Using the 'T' spanner* and 'T' spanner spigot* undo Clamp Nut **64** and remove it together with Top Plate **76**, Tie Rods **74** and Transfer Tube Assembly **69**.
- Release the tool from the vice and separate Body **72** with 'O' Ring **20** from Handle Assembly **57**.
- Pull off the Head Assembly **56** from Handle Assembly **57** and remove 'O' Ring **19** from the intensifier tube.
- Push out Valve Seat **62** together with both 'O' Rings **18** (2 off).
- Remove all the components of Valve Spool Assembly **68**.
- Finally remove 'O' Ring **18** out of the handle counter bore.

General Assembly RK7532 Standard Handle/Hose Assembly



TROUBLESHOOTING

Symptom	Possible Cause	Remedy	Page Ref
Tool will not place fastener	Low air pressure.	Increase air pressure	
	Lack of lubrication.	Lubricate tool at air inlet point	
	High broach load.	Check fastener grip and application hole size	
	Check for correct size mandrel.		
	Worn or broken tail jaws.	New tail jaws	
	Tail jaws switched off.	Switch on tail jaws	
Air in hydraulic system.	See 'Priming Procedure'	29	
'Mandrel Slip' - jaws will not grip mandrel	Worn or dirty tail jaws.	Clean or renew as necessary	
	' Insufficient air pressure/volume.	Increase air pressure/volume	
	' Tail jaw switch inoperable.	Replace switch	
	' Air leaks to tail jaws.	Renew 'O' Rings 10 on Piston Assembly 51	
	Mandrel broken and not reaching tail jaws.	Replace mandrel	
Defective non-return valve.	Replace non-return valve		
Jaws will not release mandrel	Dirty tail jaws or jaw housing.	Clean and lubricate	
	Faulty tail jaw switch.	Replace 'O' rings	
Fasteners will not feed through nose jaws	Tail jaws not switched on.	Switch on tail jaws	
	Worn tail jaws.	Renew tail jaws	
	Cursor orientation incorrect.	Refit, ensuring correct orientation	
	Incorrect nose jaws.	Fit correct nose jaws	
	Mandrel follower spring not fitted.	Fit correct mandrel follower spring	
	Incorrect gap between fastener head and nose jaws when loaded.	Set gap to 1.5mm - 3mm (1/16" - 1/8") See 'Loading the Tool'	10
	Cursor sticking.	Clean and oil cursor	
	Weak outer spring around cursor.	Renew cursor	
Incorrect mandrel follower spring fitted.	Fit correct mandrel follower spring		
Excessive tail jaw wear	High broach load.	Check application hole size and thickness and fastener grip capability	
Feeding more than one fastener at a time	Mandrel slip.	Check as for 'Mandrel Slip', stage 2	
	Incorrect gap between fastener head and nose jaws when loaded	Set gap to 1.5mm - 3mm (1/16" - 1/8") See 'Loading the Tool'	10

Industrial Rivet & Fasteners Co. offers a comprehensive tool service and repair program, for details contact your local area sales representative or call direct:



200 Paris Avenue
Northvale, NJ 07647
Tel: (201) 750-1040
Fax: (201) 750-1050



MSDS for Mobile DTE SERIES PNEUMATIC OIL

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MOBIL DTE SERIES
SUPPLIER: EXXONMOBIL OIL CORPORATION
3225 GALLOWES RD.
FAIRFAX, VA 22037
24 - Hour Health and Safety Emergency (call collect): 609-737-4411
24 - Hour Transportation Emergency:
CHEMTREC: 800-424-9300 202-483-7616
LUBES AND FUELS: 281-834-3296
Product and Technical Information:
Lubricants and Specialties: 800-662-4525 800-443-9966
Fuels Products: 800-947-9147
MSDS Fax on Demand: 713-613-3661
MSDS Internet Website: <http://www.exxon.com>, <http://www.mobil.com>

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: PET. HYDROCARBONS AND ADDITIVES
GLOBALLY REPORTABLE MSDS INGREDIENTS:
None.
See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

Under normal conditions of use, this product is not considered hazardous according to regulatory guidelines (See section 15).
EMERGENCY OVERVIEW: Amber Liquid. Note: Pressurized mists may form a flammable mixture. DOT ERG No. : NA
POTENTIAL HEALTH EFFECTS: Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation.
For further health effects/toxicological data, see Section 11.

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.
SKIN CONTACT: Wash contact areas with soap and water. Remove and clean oil soaked clothing daily and wash affected area.
INJECTION INJURY WARNING: 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.
INHALATION: Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapor or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.
INGESTION: Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.
SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Note: Pressurized mists may form a flammable mixture.
COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides,



aldehydes and other decomposition products, in the case of

MSDS for Mobile DTE SERIES PNEUMATIC OIL (cont...)

incomplete combustion.

Flash Point C(F): > 200(392) (ASTM D-92).

Flammable Limits (approx.% vol.in air) - LEL: 0.9%, UEL: 7.0%

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention. No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.

SPECIAL PRECAUTIONS: Prevent small spills and leakages to avoid slip hazard.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

When mists/aerosols can occur, the following are recommended: 5 mg/m³ (as oil mist)- ACGIH Threshold Limit Value (TLV), 10 mg/m³ (as oil mist) - ACGIH Short Term Exposure Limit (STEL), 5 mg/m³ (as oil mist) - OSHA Permissible Exposure Limit (PEL)

VENTILATION: If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.

RESPIRATORY PROTECTION: If mists are generated, and/or when ventilation is not adequate, wear approved respirator.

EYE PROTECTION: If eye contact is likely, safety glasses with side



MSDS for Mobile DTE SERIES PNEUMATIC OIL (cont...)

shields or chemical type goggles should be worn.
SKIN PROTECTION: Not normally required. When splashing or liquid contact can occur frequently, wear oil resistant gloves and/or other protective clothing. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid

COLOR: Amber

ODOR: Mild

ODOR THRESHOLD-ppm: NE

pH: NA

BOILING POINT C(F): > 316(600)

MELTING POINT C(F): NA

FLASH POINT C(F): > 200(392) (ASTM D-92)

FLAMMABILITY (solids): NE

AUTO FLAMMABILITY C(F): NA

EXPLOSIVE PROPERTIES: NA

OXIDIZING PROPERTIES: NA

VAPOR PRESSURE-mmHg 20 C: < 0.1

VAPOR DENSITY: > 2.0

EVAPORATION RATE: NE

RELATIVE DENSITY, 15/4 C: 0.871

SOLUBILITY IN WATER: Negligible

PARTITION COEFFICIENT: > 3.5

VISCOSITY AT 40 C, cSt: 32.0

VISCOSITY AT 100 C, cSt: 5.3

POUR POINT C(F): < -18(0)

FREEZING POINT C(F): NE

VOLATILE ORGANIC COMPOUND: NE

DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only

NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.

CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.

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

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil.



The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did

MSDS for Mobile DTE SERIES PNEUMATIC OIL (cont...)

not alter the observed effects.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative products.

ECOTOXICITY: Available ecotoxicity data (LL50 >1000 mg/L) indicates that adverse effects to aquatic organisms are not expected from this product.

MOBILITY: When released into the environment, adsorption to sediment and soil will be the predominant behavior.

PERSISTENCE AND DEGRADABILITY: This product is expected to be inherently biodegradable.

BIOACCUMULATIVE POTENTIAL: Bioaccumulation is unlikely due to the very low water solubility of this product, therefore bioavailability to aquatic organisms is minimal.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

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 hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity. The unused product is not formulated with substances covered by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

14. TRANSPORT INFORMATION



MSDS for Mobile DTE SERIES PNEUMATIC OIL (cont...)

USA DOT: NOT REGULATED BY USA DOT.
RID/ADR: NOT REGULATED BY RID/ADR.
IMO: NOT REGULATED BY IMO.
IATA: NOT REGULATED BY IATA.
STATIC ACCUMULATOR (50 picosiemens or less): YES

15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this product is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.
EU Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling not required.
Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, and DSL.
U.S. Superfund Amendments and Reauthorization Act (SARA) Title III: This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".
SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.
This product contains no chemicals subject to the supplier notification requirements of SARA (313) toxic release program.
The following product ingredients are cited on the lists below:
CHEMICAL NAME CAS NUMBER LIST CITATIONS *

ZINC (ELEMENTAL ANALYSIS) (0.08%) 7440-66-6 22
ZINC ALKYL DITHIOPHOSPHATE 68649-42-3 22
(0.67%)

- REGULATORY LISTS SEARCHED ---
1=ACGIH ALL 6=IARC 1 11=TSCA 4 16=CA P65 CARC 21=LA RTK
2=ACGIH A1 7=IARC 2A 12=TSCA 5a2 17=CA P65 REPRO 22=MI 293
3=ACGIH A2 8=IARC 2B 13=TSCA 5e 18=CA RTK 23=MN RTK
4=NTP CARC 9=OSHA CARC 14=TSCA 6 19=FL RTK 24=NJ RTK
5=NTP SUS 10=OSHA Z 15=TSCA 12b 20=IL RTK 25=PA RTK
26=RI RTK

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.
Code key:CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

16. OTHER INFORMATION

USE: HYDRAULIC OIL
NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES ARE NOT FORMULATED TO CONTAIN PCBS.
Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INDUSTRIAL LABEL
Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: A, TRN: 602623-00, ELIS: 400431, CMCS97: 970972, REQ: US - MARKETING, SAFE USE: L
EHS Approval Date: 04NOV2002

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