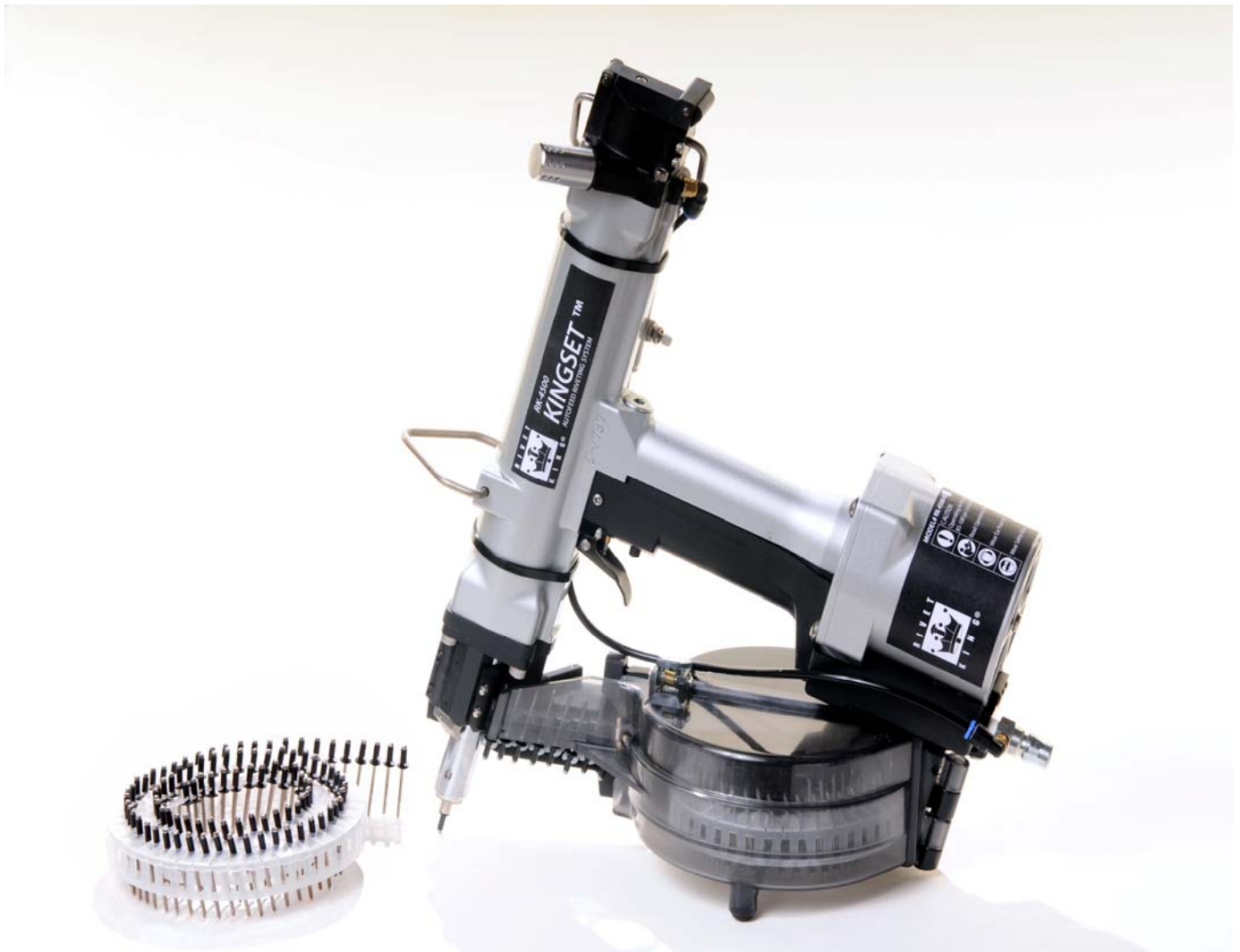




Instruction Manual
RK-4500
Automatic Hand Riveter.
Continuous Riveting Machine.



**FOR SALES, SERVICE OR TECH SUPPORT CALL: 1800-BUY-RIVET
OR 1-800-289-7483**

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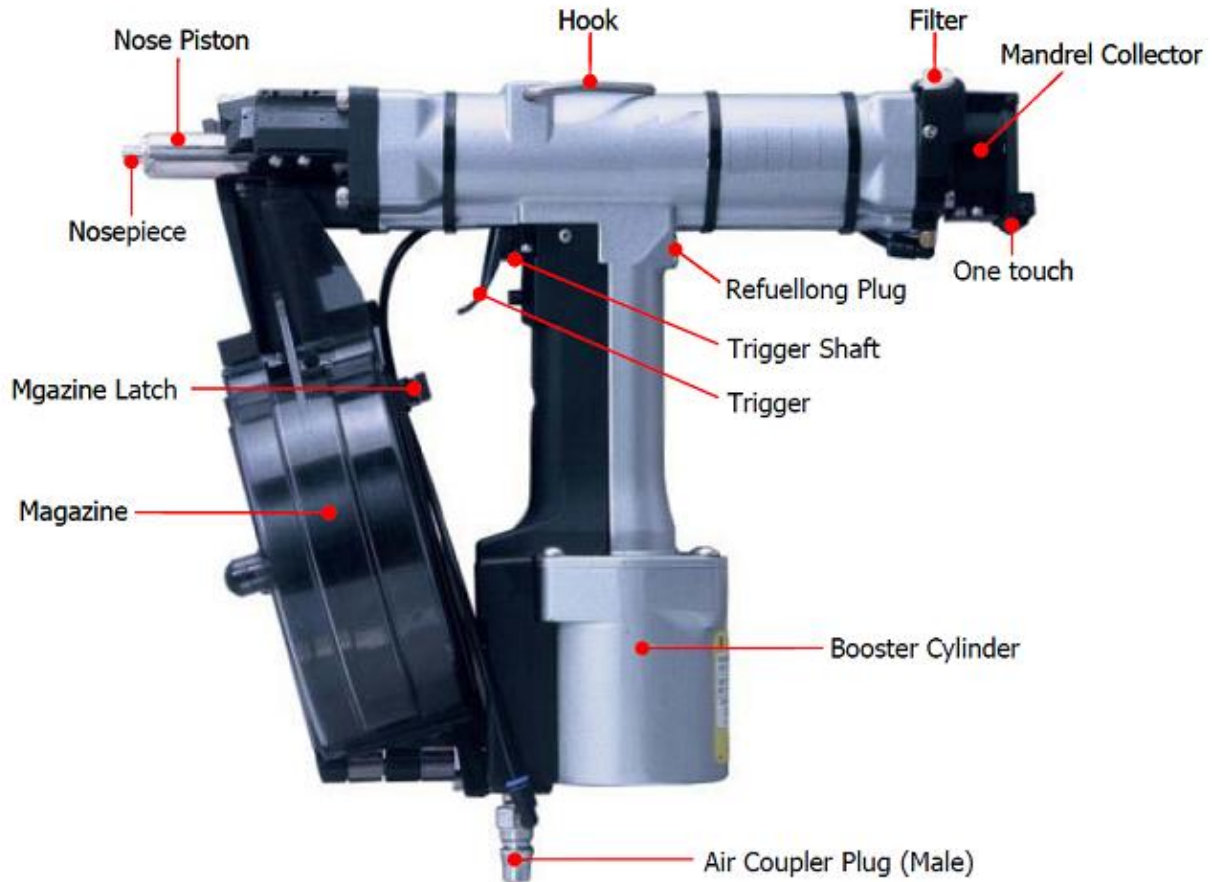
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SAFETY

- ➡ DO NOT USE OUTSIDE DESIGN INTENT OR WITH EQUIPMENT THAT IS NOT RECOMMENDED BY THE MANUFACTURER.
- ➡ 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) OR WITH THE NOSE PIECES OFF THE TOOL
- ➡ ALL MODIFICATIONS CARRIED OUT ON THE TOOL WITHOUT EXPRESS WRITTEN CONSENT OF THE MANUFACTURER SHALL BE DONE SO AT THE CUSTOMERS' SOLE RESPONSIBILITY
- ➡ REFER TO THIS MANUAL BEFORE ATTEMPTING ANY MAINTENANCE OPERATION. DO NOT DISASSEMBLE THIS TOOL BEFORE REFERRING TO THIS MANUAL.
- ➡ AVOID EXCESSIVE CONTACT WITH HYDRAULIC OIL, AS SOON AS POSSIBLE WASH HANDS THOROUGHLY
- ➡ DO NOT EXCEED 6 BAR / 90 PSI INLET PRESSURE, THE USE OF A PRESSURE REGULATOR IS HIGHLY RECOMMENDED
- ➡ INSPECT THE TOOL USING PREVENTIVE MAINTENANCE TECHNIQUES AT REGULARLY SCHEDULED INTERVALS. INSPECT FOR DAMAGE AND FUNCTION BY TRAINED PERSONNEL. THE PLASTIC BODY MUST BE CHANGED WHENEVER THERE IS EVIDENCE OF IMPACT DAMAGE, CHIPPING, OR CRACKING.
- ➡ WEAR SAFETY GLASSES AND ADOPT FIRM FOOTING DURING OPERATION.
- ➡ EXPLAIN HOW TO HANDLE THE MACHINE, AND MAKE SURE THE MANUAL HAS BEEN READ AND CLEARLY UNDERSTOOD.
- ➡ DO NOT USE THE MACHINE IN AWKWARD POSITIONS.
- ➡ BE AWARE OF YOUR SURROUNDINGS DURING OPERATION, DO NOT WORK NEAR DANGEROUS OBJECTS, AND DO NOT ALLOW NON-OPERATING PERSONNEL TO COME NEAR.
- ➡ DO NOT PUT THE FACE NEAR THE AIR EXHAUST DURING OPERATION, OIL OR MANDRELS MAY COME FLYING OUT OF THE EXHAUST, CAUSING EYE INJURY.
- ➡ AVOID GETTING OIL AND GREASE ON THE SKIN, THIS MAY CAUSE INFLAMMATION OF THE SKIN, SO SHOULD BE THOROUGHLY WASHED OFF.
- ➡ DO NOT USE THE MACHINE WHEN THE COVER PLATE IS OFF. THIS MAY RESULT IN TRAPPED FINGERS OR OTHER INJURY.
- ➡ THESE SAFETY PRECAUTIONS ARE DESIGNED TO COVER ALL EVENTUALITIES FORESEEABLE BY THE MANUFACTURER, IN ANY OTHER CIRCUMSTANCE, THE USER IS URGED TO EXERCISE ALL DUE CAUTION.

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-4500 RIVET TOOL		
Air Pressure	75-95 psi	Min/Max
Size	358MM X 303MM X 146MM	
Pull Force	3,400 lbsF	@90psi
Cycle Time	0.9 seconds	Approximately
Noise Level	75 dB(A)	Less than
Weight	5.08 lbs	
Vibration	2.5m/s ²	Less than
Hydraulic Oil	Mobil DTFE 24	
Nose Pieces	1/8, 5/32, 3/16	All material rivets

Standard Rivets

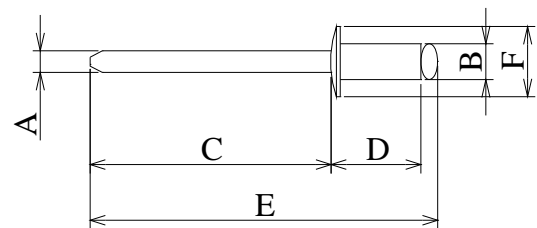
Material

Type of Rivet	Material		Rivet Outer Diameter (mm) (in)		
	Rivet Body	Mandrel	size 4 ($\phi 3.2$) ($\phi 1/8$)	size 5 ($\phi 4.0$) ($\phi 5/32$)	size 6 ($\phi 4.8$) ($\phi 3/16$)
Open	Aluminum	Aluminum	○	○	○
	Aluminum	Steel	○	○	○
	Aluminum	Stainless Steel	○	○	○
Shield	Steel	Steel	○	○	○
	Stainless Steel	Steel	○	○	×
	Stainless Steel	Stainless Steel	○	○	×

(N.B. This does not include articles with a breaking force of greater than 658 kgf)

Dimensions

A :	Suitable size -----	mandrel side tape hole size +0.1mm (Use the size of tape closest to the appropriate size)
B :	size 4 rivet -----	1/8 Inch
	size 5 rivet -----	5/32 Inch
	size 6 rivet -----	3/16 Inch
C :	size 4 rivet -----	1.06 In ~ 1.41 In
	size 5 rivet -----	1.10 In ~ 1.41 In
	size 6 rivet -----	1.14 In ~ 1.41 In
D :	RK-4500KS5 / RK-4500KS5 -----	Maximum 0.88 In
E :	Maximum -----	2.165 In
F :	RK-4500KS5 -----	Maximum 0.32 In
	RK-4500KS5 -----	Maximum 0.40 In
		(N.B. 0.63 In when using LF tape)



For other or special rivets, please consult Industrial Rivet & Fastener Co.

TYPES OF CONNECTING TAPE

DANGER! IN ORDER TO AVOID DAMAGE TO THE RIVETER AND ACCIDENTS, USE ONLY THE RIVET KING CONNECTING TAPE.

TABLE SHOWING TYPES OF TAPE AND TAPE SELECTION OPEN TYPE AND SHIELD TYPE.

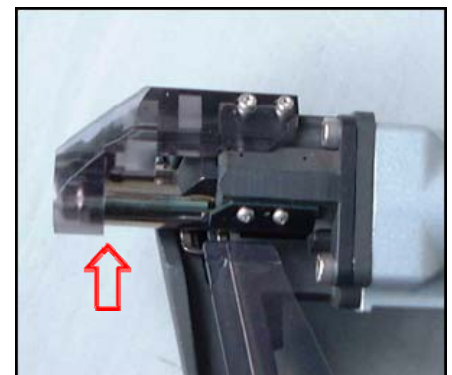
		Connecting Tapes Reference Hole Dimensions	
Type of Tpaе	Rivet Body Diameter	Rivet Body Side	Mandrel Side
KS5			
4A type	.125 In	.119 In	.067 In
4B type	.125 In	.119 In	.071 In
5C type	.157 In	.150 In	.085 In
5D type	.157 In	.150 In	.090 In
KS6			
6E type	.188 In	.183 In	.100 In
6F type	.188 In	.183 In	.110 In
6M type	.188 In	.183 In	.114 In
6H type (for LF)	.188 In	.183 In	.100 In
6L type (for LF)	.188 In	.183 In	.110 In

STANDARD ACCESSORIES

(1) Jet Oiler -----	1 pcs	(7) Single-ended Wrench (15mm) -----	1 pcs
(2) Minus Screwdriver with tube -----	1 pcs	(8) Single-ended Wrench (14mm) -----	1 pcs
(3) Refueling Maintenance Bolt -----	1 pcs	(9) Hexagonal Wrench (5mm) -----	1 pcs
(4) Pipe Spanner -----	1 pcs	(10) Hexagonal Wrench (2.5mm) -----	1 pcs
(5) Nosepiece - 5 (AHR5V2 only) -----	1 pcs	(11) Training Nose Adaptor -----	1 pcs
(6) Jaw Setting Jig -----	1 set	(12) Air Hose Assembly -----	1 pcs

Explanation of (11)

Unlike a single-action riveter, the RK-4500 has a mechanism whereby the nose piston withdraws and feeds the rivet. This means that an inexperienced operator is likely to be pressing the RK-4500 against the work when the nose piston withdraws, and may damage the work with the nose. (11) has been designed to prevent this, but it has the disadvantage that the hole may be difficult to see. The adaptor can therefore be removed when the operator is used to the RK-4500.



Photograph of (11)

PREPARING THE TOOL FOR SERVICE

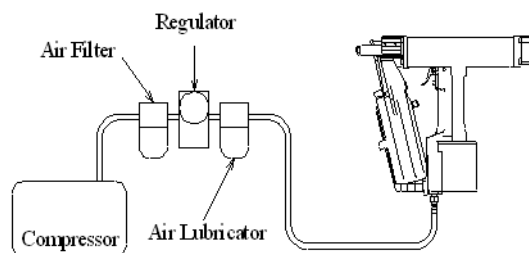
AIR SUPPLY

- The rivet tool is powered by compressed air at an optimum pressure of 5.5 bar (80 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

Caution!

If the air pressure is too high, there is a danger of parts being damaged, While if it is too low, riveting may not be possible.



UNPACKING AND INSPECTION

- ➡ Unpack the tool making sure all components are present. Keep the box and do not damage it. You may wish to use it to send the tool back to us for scheduled maintenance or repair.
- ➡ Check for visible damage to the hydraulic cylinder. Mild abrasions are common in the painting process, however, check for hairline cracks or broken parts which might have occurred during shipping.
- ➡ Fit the air hose (Valve Side) to the base of the tool. Do not over tighten.
- ➡ Check the air pressure service and insure it is between 75-85 PSI. (adjust if necessary)
- ➡ Connect the air hose to the air service line.
- ➡ Test fire the tool without rivets listening to the tool to insure it properly cycles. Check that the only visible moving part (take-up reel located at the back left side of the tool) to insure it spins with each cycle.
- ➡ Disconnect the air hose until ready for riveting.

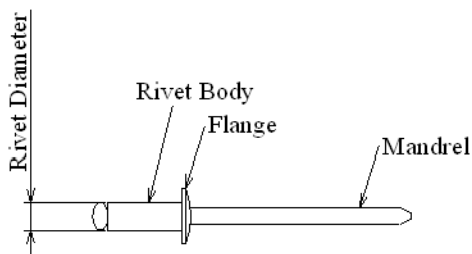
NOSEPIECE — CHECK TO MAKE SURE IT IS THE CORRECT ONE

1. Measure the diameter of the rivet to be placed.
2. Insure the proper nose piece is provided with the tool. (*See Rivet & Nose Piece Selection, page 13*). If the proper nose piece is not provided with the tool, call the sales department.
3. Hand tighten all nose piece connections. Do not over tighten.

4. Change the nosepiece to suit the size of rivet being used.

The nosepiece fitted is the one designated when ordering. The nosepiece should be changed if a different size of rivet is used.

When changing the nosepiece, use the open-end wrench supplied.



5. Areas of maintenance

When using the air-combination, remove the water from the air filter regularly, adjust the regulator air pressure, and check the volume and flow of oil in the oiler. Check for cracks in all parts, looseness of screws and fastenings and seeping or leaking of oil, and ensure that the one touch cycle (automatic rivet setting system) is functioning properly.

Danger!

5.

If too high an air pressure is used, the machine will break, possibly resulting in accident or injury. As a safety device, the machine is equipped with an alarm device near the air inlet. The outlet pressure is set at 80PSI ~ 90 PSI when assembled. The air pressure used must always be between 80PSI ~ 90 PSI (6 ~ 7kgf/cm²).

(Restarting Method)

If the alarm valve comes into operation, restart according to the procedure described below.

- (1) Disconnect the air.
- (2) Adjust the air supply pressure to an appropriate level.
- (3) Connect the air.

MAINTENANCE

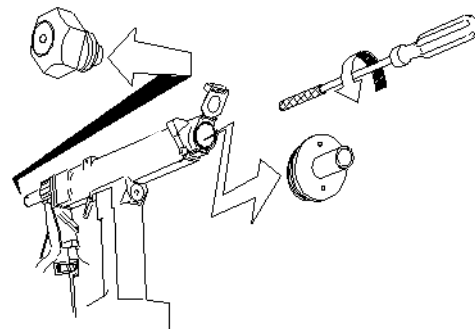
In order to maintain the tool in a safe working order it is important to carry out regular maintenance as prescribed by the manufacturer. A thorough inspection replacement of all seals within the tool should be carried out after 500,000 placings or annually, whichever is the sooner. Item numbers in parentheses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

Daily Maintenance

- Check for air leaks. Any damaged hoses should be replaced
- Lubricate the tool by pouring a few drops of light lubricating oil into the air inlet on the tool
- If there is no pressure regulator, bleed the airline to clear it of accumulated dirt or water before connecting the air hose to the tool. If there is a filter, drain it.
- Check for proper nose piece/mandrel use depending on the size of the rivet nut.
- Remove the mandrel from the front nose assembly and inspect for cracks, wear or other damage. Replace if necessary.
- Check that front nose assembly is fully tightened onto body

1. Clean the 3-piece Jaw from the nosepiece side.

Using the air gun is dangerous, and protective glasses should always be worn. Remove the nosepiece using the spanner set supplied, and remove any metal filings from around the jaw using the air gun. Use a rag to prevent the metal filings from flying around. Check the amount of dirt while doing this and, if necessary, remove the jaw and clean it.



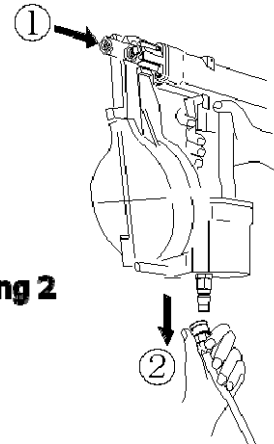
Drawing 1

2. Using the spanner supplied, remove the nosepiece. Attach a maintenance tube to the tip of the Screwdrivers supplied, and remove the slide guide. (Drawing 1)

3. While holding the trigger, affix the nose piston as far back as it will go, and remove the air plug.

(Drawing 2)

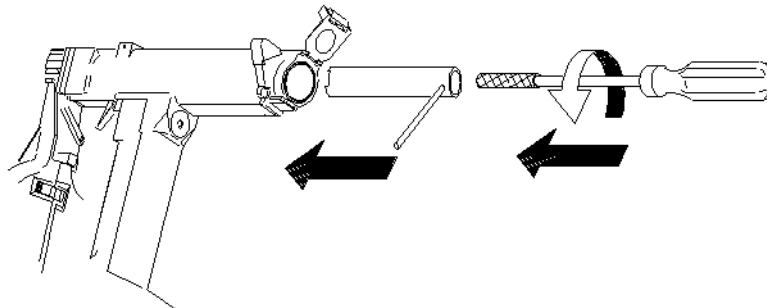
Drawing 2



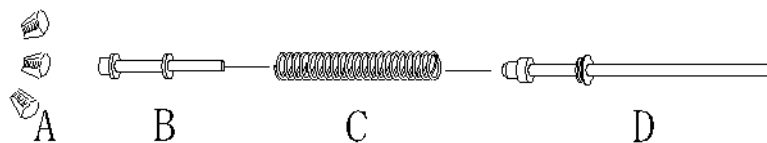
4. Using the pipe spanner and screwdriver supplied, remove (Drawing 3) the slide pipe.
(Drawing 4-D)

Use the pipe spanner by aligning with the jaw case piston at the back and affixing.

5. Hold the machine upside down, and take out the slide pipe (Drawing 4-D), jaw pusher spring (Drawing 4-C), jaw pusher (Drawing 4-B) and jaw (Drawing 4-A).
If grease has caused the jaw to become stuck to the inside, push it out from the nose piston side with the refueling maintenance bolt.



Drawing 3

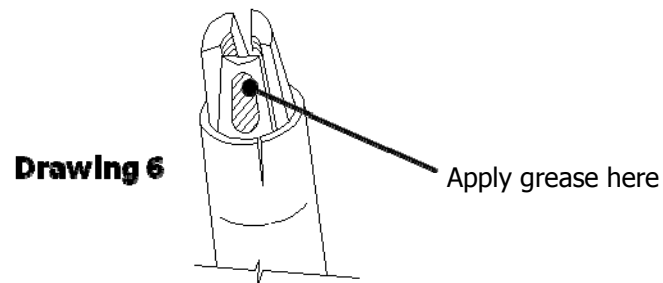
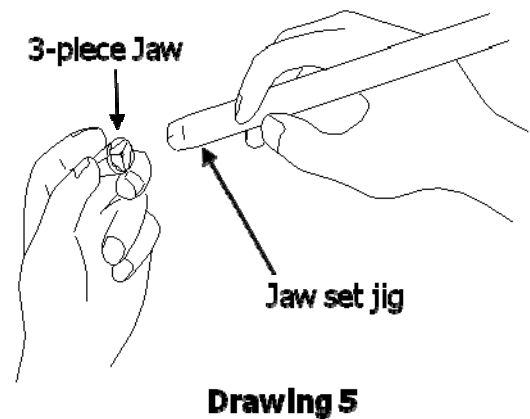


Drawing 4

6. Clean the parts removed with kerosene or the equivalent. Use a wire brush to thoroughly remove any metal filings from the teeth of the jaw. Any filings on the body of the jaw can be removed with an air gun.

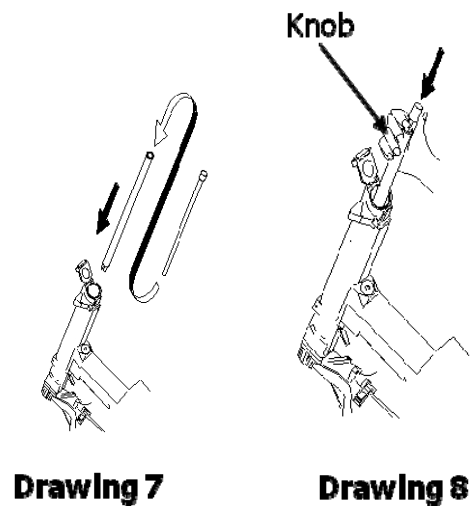
7. Insert 3 jaws into the tip of the tube on the the outside of the jaw Setting Jig.
(Drawing 5, Drawing 6)

As shown in Drawing 6, apply an over-the-counter Molybdenum grease.
(Note that applying grease to the jaw teeth will cause the teeth to slip on the rivets, and may make riveting impossible).



8. Insert the jig, as shown in (Drawing 7).

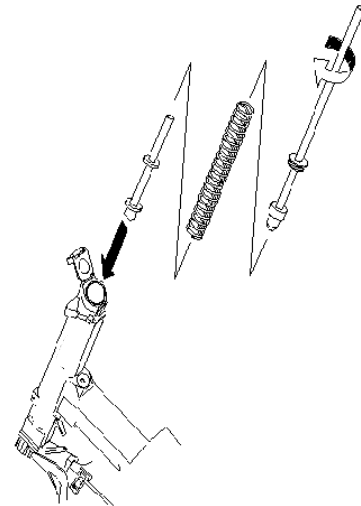
Stop it about 5mm before it touches the end, and press the knob on the inside of the tube.
(Drawing 8)



9. Insert the parts in the order shown in (Drawing 9), and use the screwdriver and pipe spanner supplied to attach the slide pipe.

Caution!

If the slide pipe is tightened too hard, it will be difficult to remove, and could cause damage to the head of the screwdriver.

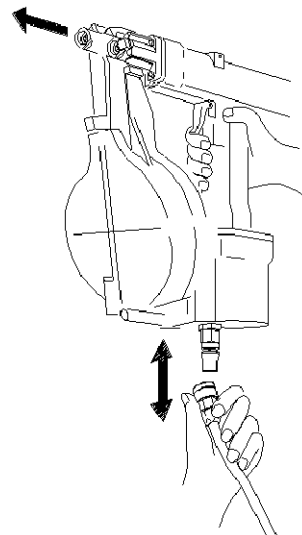


Drawing 9

10. Connect the air coupler, return the air cycle to its starting point, and disconnect the air coupler. (Drawing 10)

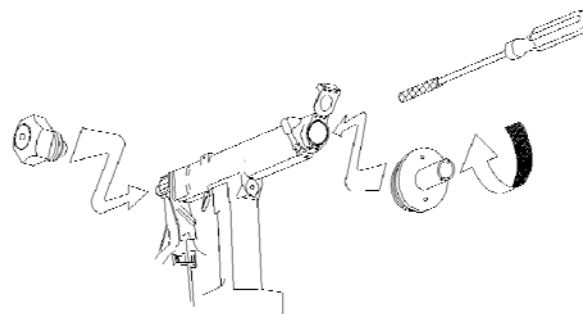
Caution!

When doing this, the nose will come forward, keep the hands clear to avoid injury.



Drawing 10

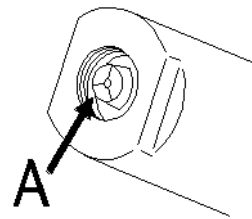
11. Use the supplied screwdriver with tube attached to attach the slide guide inside the cap case. (Drawing 11)
Use the open-end wrench supplied (sizes 14mm and 15mm) to attach the nosepiece.



Air Removing and Refueling Methods

Air release and refueling are needed in the following cases.

- a. Operating speed seems to have slowed
- b. After around 20,000 rivetings.
- c. A gap can be seen in the nose tip (Drawing 1-A) when disconnecting the air coupler.



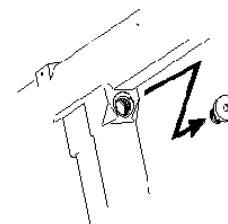
Drawing 1

1. Remove any rivets still attached to the machine, as well as all broken off mandrels. Wipe off any dirt that may be adhering to part (Drawing 1-A).
2. Stop the air supply. (disconnect the air coupler)

Danger!

Always disconnect the air hose when releasing air or refueling.

3. Use the hexagonal wrench (5mm) to remove the refueling plug. (Drawing 2)



Drawing 2

4. Cover the fuel inlet with a rag. (Drawing 3)

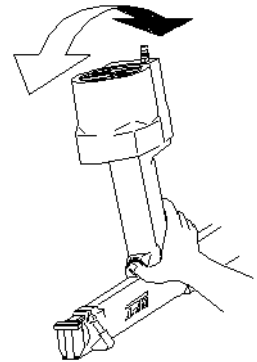


Drawing 3

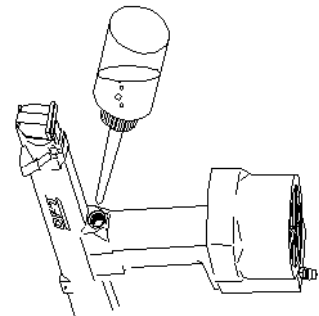
5. With the rag still in place, open the cap, and press hard on the slide pipe with the refueling maintenance bolt. (Drawing 3)

* Check that the gap in Drawing 1-A has disappeared.

6. Cover the fuel inlet with the thumb, and turn the riveter upside down to move the air in the hydraulic chamber into the booster cylinder. (Drawing 4)



7. Bring the fuel inlet slowly back to the top again, and replenish the oil to cover the amount of air bubbles that appear. (Drawing 5)



8. Repeat steps 6 and 7 2 or 3 times until the air bubbles stop appearing, then replenish until just short of overflowing and replace the refueling plug.

Installing the Connecting Tape



- 1) Push the magazine latch towards the magazine and open it.



- 2) Roll up the connecting tape containing the rivets, and put it in the magazine.



- 3) Feed the tip of the tape under the plate spring, and hook the first guide hole on the back of the tape on to the feeding claw.



- 4) Close the magazine to hold the connecting tape in place.



- 5) Connect the air hose and pull the trigger once. A rivet will automatically be fed into the nosepiece.

Removing the Connecting Tape



- 1) Push the magazine latch towards the magazine and open it.



- 2) Still holding the trigger, pull the finished tape upwards.



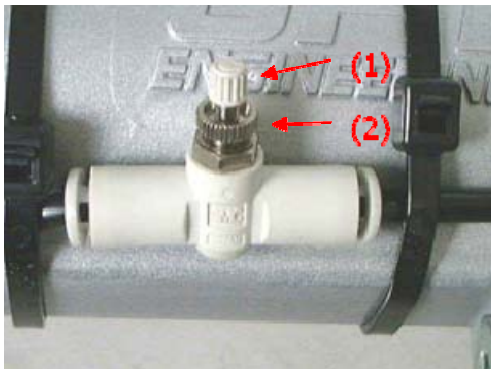
- 3) After removing the tape, release the trigger.



- 4) Turn off the air supply, and always throw away the mandrels in the holder.



Removing the Connecting Tape



- (1) Use the speed controller to raise the vacuum pressure until the rivet is held in place.
- (2) Affix with the nut.

Danger!

Always disconnect the air hose when loading the connecting tape.

The following explanation should be read and clearly understood before starting operations.

TROUBLESHOOTING

RK-4500 Trouble Countermeasures

Problem occurs.



Check air Pressure.

Low

Adjust air
pressure

Restarts



**Repair
Complete**

TROUBLESHOOTING

Symptom	Cause	Action
Nose piston does not stop moving backwards and forwards.	Air was supplied when the trigger's main axis was at the air passage changeover point.	With the air supply connected, pull the trigger for 3 seconds or more.



The mandrels do not break.	Air pressure is too low.	Adjust air pressure to 80PSI ~ 90 PSI.
	Unsuitable rivets (high breaking strength) were used.	After resetting, remove the jaw and rivets.
	There is not enough oil.	Carry out air release and refueling.
	The jaw is worn or loaded.	Clean or replace jaw.
The nose piston stops halfway back.	The mandrel has gone too far inside the Mandrel Collector.	After resetting, open the cap and remove the mandrel.
	The slide pipe or slide guide have come off.	Remove the slide guide and slide pipe. Remove all mandrels from inside, then reassemble. *N.B. If even one is left, the tool will not restart.
The nose piston is stuck at the back position.	There is dirt between the nose piston and jaw case.	Remove the nosepiece, and clean around the jaw with an air blower. *If the trigger is pulled, then the air supply is stopped immediately, a gap will open between the pistons, making cleaning easier.
	Air has accumulated in the hydraulic chamber.	Carry out air release and refueling.
	Air release was insufficient, meaning that a large amount of oil has come in.	Carry out air release and refueling as described in step 5, and check that the gap in Drawing 1-A has disappeared.
	The grease around the 3-part jaw has dried, so the jaw has become stuck to the jaw case.	Clean the jaw, apply Moribden grease to the back of the jaw, then reposition the jaw.
The operating speed has dropped.	Air pressure has dropped.	Wait until the pressure inside the compressor is back to normal.
	Air has accumulated in the hydraulic chamber.	Carry out air release and refueling.
	The grease has dried on one or more parts.	Apply 1 or 2 drops of oil (MOBILE DTE) to the base of the nose piston and coupler, and move 5 ~ 10 times. *Keep an oiler permanently on hand.
The mandrel is jammed.	The nosepiece is the wrong size.	Use a nosepiece which is compatible with the rivets.
	The jaw pusher and slide pipe are the wrong size.	Use a jaw pusher and slide pipe which are compatible with the rivets.
	Incompatible rivets are being used.	Contact the dealer or maker.
The rivets are not being held.	The filter is blocked.	Exchange cotton ball in the filter.
The rivets will not load.	The nosepiece is the wrong size.	Use a nosepiece compatible with the rivets.
	The rivets are not inserted properly in the connecting tape.	Find the problem and correct it. Do not use in the event of damage likely to have an effect on the operation of the tool.
	The plate spring attachment has been removed, causing faulty positioning.	Apply to us or the retailer for repairs.
There is a noise in the coupler area.	The alarm device has been activated.	Check the air pressure, and adjust to the appropriate level.

Parts List

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-1	Nose Piston	1	1

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-80	O-ring S4	5	5



RK4500-2	Jaw Case	1	1
RK4500-3	Trigger Shaft	1	1
RK4500-4	Trigger Cover	1	1
RK4500-5	Trigger Shaft Sleeve	1	1
RK4500-6	Jaw Case Piston	1	1
RK4500-10	High Pressure Piston	1	1
RK4500-12	Trigger Block	1	1
RK4500-13	Ejector Nozzle	1	1
RK4500-14	Diffuser	1	1
RK4500-15	Jaw Pusher Spring	1	1
RK4500-16	Trigger Spring	1	1
RK4500-17	Trigger Pin	1	1
RK4500-18	Tool Hanger - Horizontal	1	1
RK4500-19	Grip Cover	1	1
RK4500-20	Relief Valve Spring	1	1
RK4500-21	Relief Valve	1	1
RK4500-22	Pilot Piston - Trigger	1	1
RK4500-23	Slide Guide	1	1
RK4500-24	Centering Finger	2	2
RK4500-25	Centering Shaft	2	2
RK4500-27	Trigger	1	1
RK4500-28	Diffuser Pin - MCS	1	1
RK4500-29	Centering Spring	2	2
RK4500-30	Alarm Valve Screw	1	1
RK4500-31	Air Valve Supply Tube	1	1
RK4500-32	Air Supply Tube	1	1
RK4500-33	Air Chamber Supply Tube	1	1
RK4500-34	Piston Retract Supply Tube	1	1
RK4500-35	Return Supply Tube	1	1
RK4500-36	Air Valve Shuttle Supply Tube	1	1
RK4500-37	Mandrel Deflector	1	1
RK4500-39	Cap - MCS	1	1
RK4500-40	Latch Box	1	1
RK4500-41	Cap Shaft - MCS	1	1
RK4500-42	Latch Shaft - MCS	1	1
RK4500-43	Latch Spring Receiver - MCS	1	1
RK4500-44	Latch - MCS	1	1
RK4500-46	Magazine Base	1	1
RK4500-48	Indexer Exhaust Bolt	1	1
RK4500-49	Latch Spring - MCS	1	1
RK4500-50	Magazine Pin	1	1
RK4500-78	O-ring S40	2	2
RK4500-79	O-ring JASO3067	1	1

RK4500-81	O-ring P10	1	1
RK4500-82	O-ring P6	2	2
RK4500-83	O-ring S2	3	3
RK4500-85	O-ring P18	2	2
RK4500-86	Mini Y-packing φ8	1	1
RK4500-87	Mini Y-packing φ24	1	1
RK4500-88	Penta Seal φ15	1	1
RK4500-89	Penta Seal φ24	1	1
RK4500-90	Piston Air Seal φ41.5	2	2
RK4500-91	DU Bushing 2408	1	1
RK4500-92	DU Bushing 1810	1	1
RK4500-93	DU Bushing 1508	1	1
RK4500-94	DU Bushing 0404	4	4
RK4500-95	Gasket M5	1	1
RK4500-96	O-Ring S71	1	1
RK4500-97	SUS E-Ring E3	2	2
RK4500-98	SUS E-Ring E2	5	5
RK4500-99	Retaining Ring - Internal	1	1
RK4500-101	Refueling Plug	1	1
RK4500-102	Cap Bolt - SUS M3x35	2	2
RK4500-103	Cap Bolt - SUS M5x16	1	1
RK4500-104	Cap Bolt - SUS M5x20	4	4
RK4500-105	Torx Head Cap Bolt - SUS M5x25	2	2
RK4500-106	Button Head Cap Bolt - SUS M6x16	4	4
RK4500-107	Machince Screw - SUS M3x8	2	2
RK4500-108	Tapping Screw - SUS M3x5	1	1
RK4500-109	Machince Screw - SUS M4x8	1	1
RK4500-110	Machince Screw - SUS M5x8	1	1
RK4500-111	Hexagonal Bolt - SUS M5 x 20	1	1
RK4500-112	Cap Bolt - SUS M4x20	1	1
RK4500-113	Set Screw - SUS M4x8, Cone Point	1	1
RK4500-114	Set Screw - SUS M3x6, Flat Point	2	2
RK4500-115	Cap Bolt - SUS M3x8	2	4
RK4500-116	O-ring S6	1	1
RK4500-117	O-ring JASO2030	1	1
RK4500-118	Push to Connect Male 6mm x M6	4	4
RK4500-119	Push to Connect Male 4mm x M5	1	1
RK4500-120	Push to Connect Elbow 6mm x M5	2	2
RK4500-121	360 Degree Barb Elbow 6mm x M5	2	2
RK4500-122	360 Degree Barb Elbow 4mm x M5	1	1
RK4500-123	Push to Connect Male 6mm x 1/8	1	1
RK4500-124	Nose Piston Hydraulic Seal	1	1
RK4500-125	Wear Ring φ41.5	2	2

Common Parts

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-126	Jaw Case Piston Hydraulic Seal	1	1

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-163	Magazine Latch Pin	1	1



RK4500-127	Steel Ball - 4mm	2	2
RK4500-128	Set Screw - SUS M5x5, Flat Point	1	1
RK4500-129	Machince Screw - SUS M3x5	1	1
RK4500-130	O-ring P28	1	1
RK4500-132	Cap Bolt - SUS M3x8	4	4
RK4500-133	Steel Ball - 3mm	11	12
RK4500-136	Indexer Exhaust Gasket M3	1	1
RK4500-138	Steel Ball - 2mm	1	1
RK4500-139	Cap Bolt - SUS M2.5x12	2	2
RK4500-140	Air Operated Valve	1	1
RK4500-141	Cap Bolt - SUS M3x14	2	2
RK4500-142	Cap Bolt - SUS M3x8	3	3
RK4500-143	SUS E-ring E3	2	2
RK4500-144	Magazine Foot	2	2
RK4500-145	Washer M3	2	2
RK4500-146	Cap Bolt - SUS M3x12	2	2
RK4500-151	Mandrel Collector Housing	1	1
RK4500-162	Magazine Latch	1	1

RK4500-164	Magazine Latch Spring	1	1
RK4500-174	Torx Head Bolt - SUS M3x8	2	2
RK4500-176	360 Deg Barb Elbow 6mm x M5	1	1
RK4500-178	Casing	1	1
RK4500-180	Booster Cylinder	1	1
RK4500-182	Filter Holder	1	1
RK4500-183	Filter Case	1	1
RK4500-184	Cotton Ball	2	2
RK4500-185	O-ring 1A-SS12	1	1
RK4500-402	Vacuum Tube Elbow Fitting	2	2
RK4500-403	Vacuum Adjuster	1	1
RK4500-404	Vacuum Tube - Long	1	1
RK4500-405	Vacuum Tube - Short	1	1
RK4500-406	Cable Tie	2	2
RK4500-407	Coupler Plug - Male	1	1
RK4500-409	Inline Hook	1	1
RK4500-410	Retaining Ring - E-Ring	1	1
RK4500-421	Vacuum Tube Support	1	1

Exclusive Parts

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-11	Valve Block - 5	1	-
RK4500-45	Magazine Cover - 5	1	-
RK4500-47	Cover Plate	1	-
RK4500-51	Centering Finger Base - 5	1	-
RK4500-52	Plate Spring - 5	1	-
RK4500-53	Plate Spring Support - 5	1	-
RK4500-54	Indexer Piston A - 5	1	-
RK4500-55	Indexer Piston B - 5	1	-
RK4500-56	Pawl - 5	1	-
RK4500-57	Indexer Cap - 5	1	-
RK4500-58	Indexer Spring - 5	2	-
RK4500-59	Indexer Buffer Spring - 5	1	-
RK4500-60	Indexer Housing - 5	1	-
RK4500-61	Jaw Pusher - 5	1	-
RK4500-62	Slide Pipe - 5	1	-
RK4500-134	Button Head Cap Bolt - SUS M3x6	2	-
RK4500-135	O-ring P20	2	-
RK4500-137	Cap Bolt - SUS M2.5x10	4	-
RK4500-414	Wear Ring 24mm	1	-

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-417	3-part Jaw - 5	3	-
RK4500-26	3-part Jaw - 6	-	3
RK4500-201	Plate Spring - 6	-	1
RK4500-202	Pawl - 6	-	1
RK4500-203	Indexer Housing - 6	-	1
RK4500-204	Indexer Spring - 6	-	1
RK4500-205	Centering Finger Base - 6	-	1
RK4500-206	Indexer Piston A - 6	-	1
RK4500-207	Indexer Piston B - 6	-	1
RK4500-208	Indexer Cap - 6	-	1
RK4500-209	Indexer Buffer Spring - 6	-	1
RK4500-210	Plate Spring Support - 6	-	1
RK4500-211	Magazine Cover - 6	-	1
RK4500-214	Valve Block - 6	-	1
RK4500-215	Jaw Pusher - 6	-	1
RK4500-216	Slide Pipe - 6	-	1
RK4500-220	O-ring P16	-	1
RK4500-416	Wear Ring ϕ 20	-	3

Assembly Parts

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-603	Nose Assembly - 5	1	-

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-620	Centering Assembly - 5	1	-



RK4500-604	Alarm Valve Assembly - 5	1	-
RK4500-605	Cap Assembly	1	1
RK4500-607	Jaw Case Piston Assembly	1	1
RK4500-608	Trigger Shaft Assembly	1	1
RK4500-609	Trigger Valve Assembly	1	1
RK4500-610	Casing Assembly	1	1
RK4500-611	Nose Piston Assembly	1	1
RK4500-612	Alarm Valve Assembly - 6	-	1
RK4500-613	Nose Assembly - 6	-	1
RK4500-614	Mandrel Collector Housing Assmby	1	1
RK4500-616	Magazine Assembly - 5	1	-
RK4500-617	Magazine Assembly - 6	-	1
RK4500-618	3-piece Jaw Set - 5	1	-
RK4500-619	3-piece Jaw Set - 6	-	1

RK4500-621	Centering Assembly - 6	-	1
RK4500-622	Booster Cylinder Assembly	1	1
RK4500-623	Jaw Setting Jig	1	1
RK4500-638	Nose Piston Sub Assembly	1	1
RK4500-639	Jaw Case Piston Sub Assembly	1	1
RK4500-640	Trigger Valve Sub Assmby	1	1
RK4500-641	Nose Sub Assembly - 5	1	-
RK4500-642	Nose Sub Assembly - 6	-	1
RK4500-643	Mandrel Collector Housing Sub Assembly	1	1
RK4500-644	Casing Sub Assembly	1	1
RK4500-646	Booster Cylinder Sub Assmby	1	1
RK4500-649	Filter Assembly	1	1
RK4500-651	Centering Finger Sub Assembly	2	2

Nosepieces

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-500	Nosepiece - 4 - FINE	Acc	-
RK4500-501	Nosepiece - 4	1	-
RK4500-502	Nosepiece - 5	1	-
RK4500-503	Nosepiece - 6	-	1

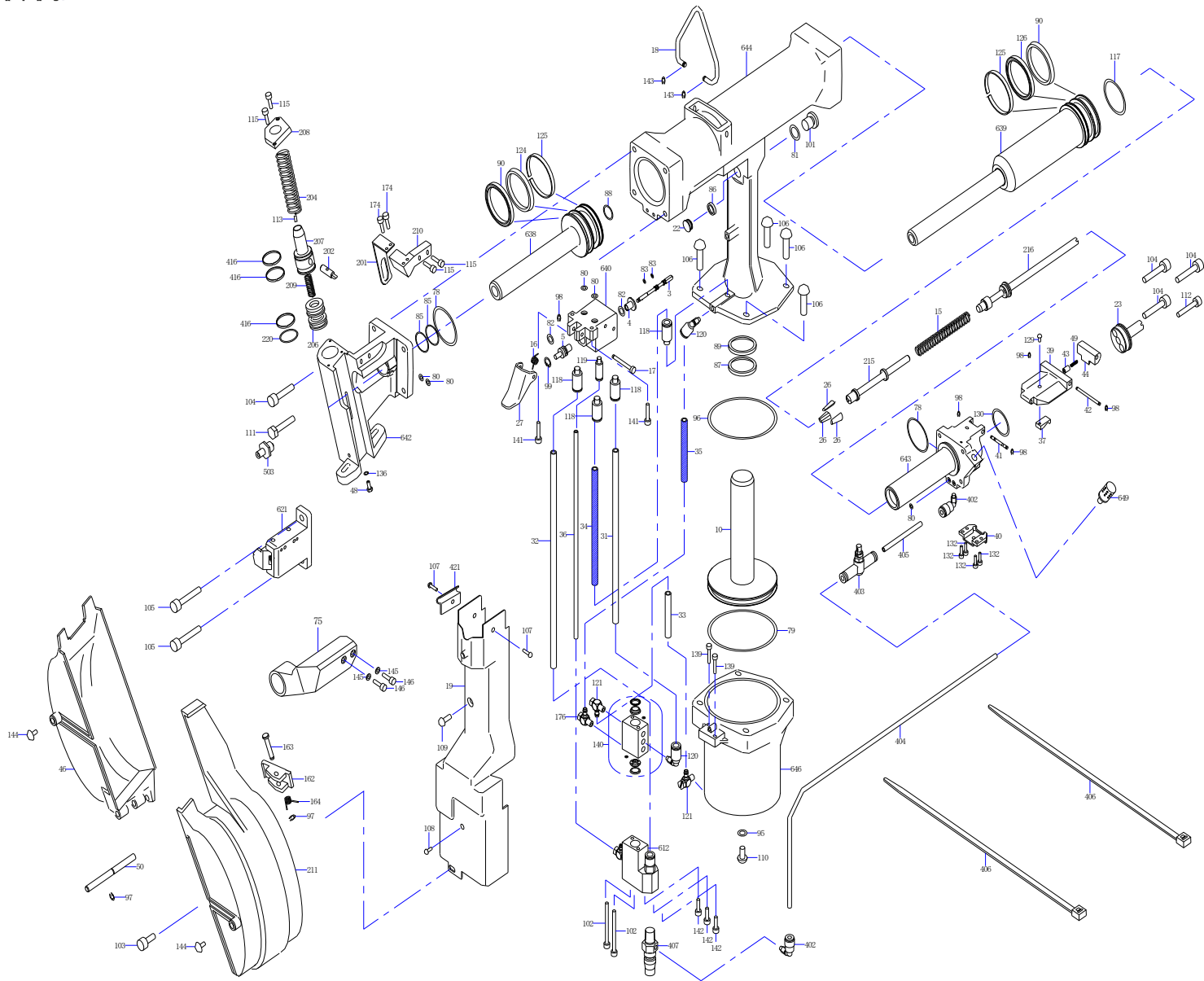
Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-525	Nosepiece - 4 - FINE/FLAT	Acc	-
RK4500-527	Nosepiece - 4 - FLAT	Acc	-
RK4500-528	Nosepiece - 5 - FLAT	Acc	-
RK4500-529	Nosepiece - 6 - FLAT	-	Acc

Accessories

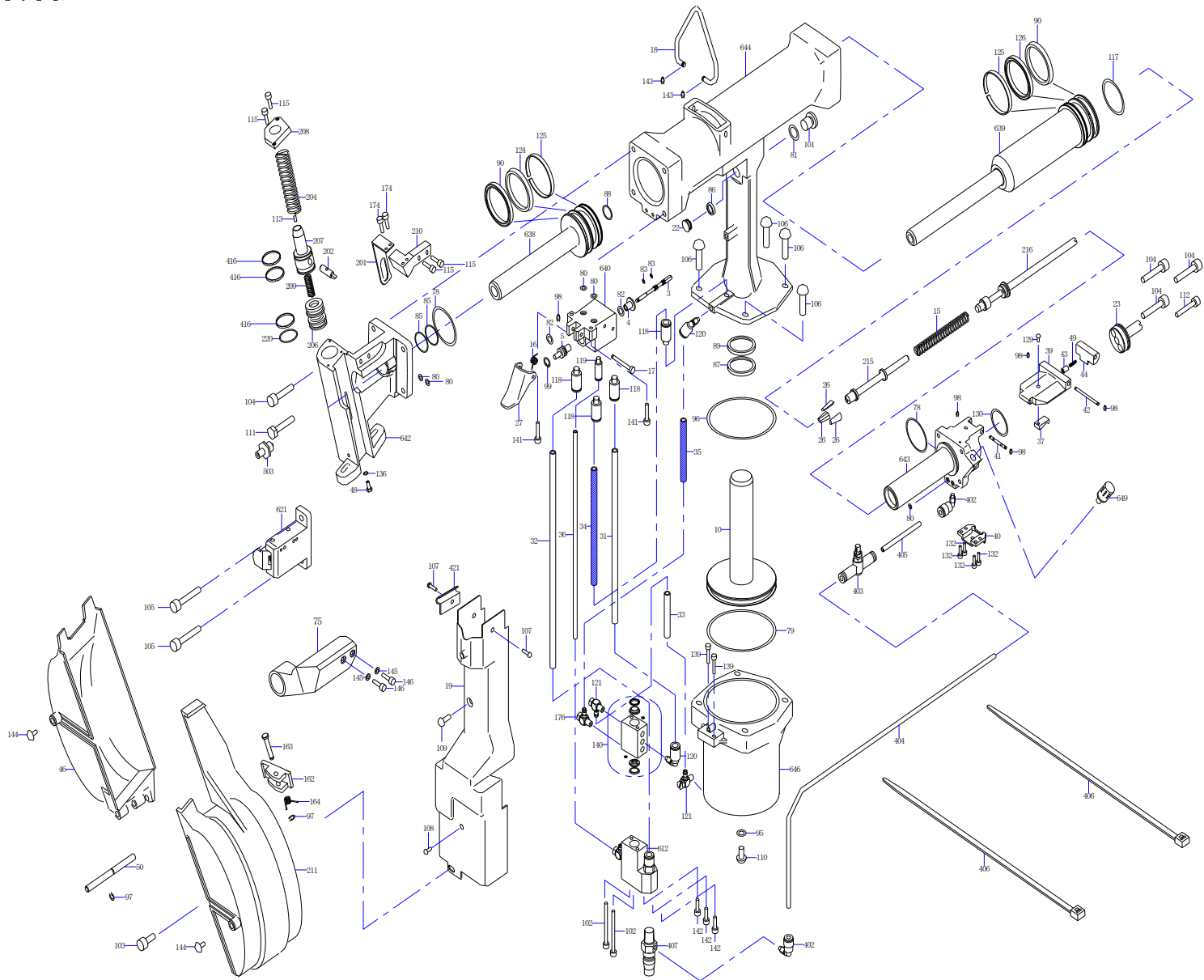
Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-67	Jaw Hold Tube	1	1
RK4500-68	Jaw Pushing Tube	1	1
RK4500-69	Jaw Pushing Knob	1	1
RK4500-70	Pipe Spanner	1	1
RK4500-71	Refuelling Maintenance Bolt	1	1
RK4500-72	Single-ended Wrench (15mm)	1	1
RK4500-73	Single-ended Wrench (14mm)	1	1

Parts No.	Parts Name	Q'ty	
		KS5	KS6
RK4500-74	Minus Screw Driver with Tube	1	1
RK4500-75	Training Nose Adaptor	1	1
RK4500-153	Hexagonal Wrench (5mm)	1	1
RK4500-154	Hexagonal Wrench (2.5mm)	1	1
RK4500-155	Jet Oiler	1	1
RK4500-636	Air Hose Assembly	1	1

PARTS DRAWING KS5



PARTS DRAWING KS6



MSDS

Oil Details



The recommended oil for priming is Mobil DTE 24 available in 0.51 or one gallon containers, or, you can use 30W hydraulic oil. Please see safety data below.

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 hydro treated. 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 toxicity 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

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users. Alteration of this

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

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Prepared by: ExxonMobil Oil Corporation
Environmental Health and Safety Department, Clinton, USA



Warranty Statement:

Industrial Rivet & Fastener Co. Inc. (hereinafter "IRF"), hereby warrants to the initial retail customer and original distributor ("Warrantee") only that its products will be free from defects in material and workmanship for a period of 1 year from the purchase date, provided that the products are used in accordance with "IRF's" instructions as to maintenance, operation and use.

The said warranty does not extend to goods subjected to misuse, neglect, accident or improper installation or maintenance or which have been altered or repaired by anyone other than the seller or its authorized agents.

The warrantee's only remedy and IRF's only obligation in the event of a defect or failure in the products, is that IRF, at its sole option, repair, replace or rework the products, but in no case shall the cost of the foregoing exceed the invoice price of the products.

This warranty shall be void if any person seeking to make a claim for defective or failed products fails to notify IRF within 30 days of receipt of evidence that the product is defective or has failed, or if said person fails to provide IRF with such evidence as is reasonably requested concerning the effect or failure, including without limitation, evidence of the date of purchase and date of installation.

This warranty is in lieu of all other warranties, expressed or implied, including merchantability, or fitness provided for herein. Under no circumstance shall IRF be liable for incidental or consequential damages arising from the defect or failure in its products.

Seller's sole obligation under the foregoing warranty will be limited to, at Seller's option, repair or replacement of the tool (and shipping to the buyer with transportation charges paid to any place within the contiguous 48 states). Returned goods will be evaluated by our warranty repair department and a conclusion will be determined and classified as:

- a) Warranty Repair (free of charge)
- b) Abuse /Neglect (bench fee and/or hourly rate)
- c) Maintenance (Flat Fee)

If inspection by the seller of returned goods shows no breach of the forgoing warranty, Seller's regular conditioning charges (as stated above) apply. Upon this conclusion we will either repair the tool at no cost to you and return it postage paid, or call you to inform you of the repair cost. The repair will need to be approved in writing before any work is performed.

A comprehensive tool service and repair program, for details contact your local area sales representative or call:

Industrial Rivet & Fastener Co.
200 Paris Ave
Northvale, NJ 07647
1-800-BUY-RIVET