

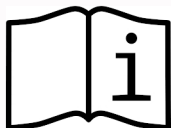
OPERATION MANUAL



ELITE INDUSTRIAL SALES



FACING MACHINE TSM-4501M



01.2017

SERIAL # _____

**For General Questions / Sales / Service
Phone Number: 916-573-7800 or 916-826-5542
www.eliteindustrialsales.com**

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1. INTRODUCTION

Warning:

Elite Industrial Sales is committed to continued product improvement therefore; the machine you received may be slightly different than the one described herein. This manual and the information provided is a basic guide line for our customers. Elite Industrial Sales will do its best to ensure that the information and procedures contained in this manual are correct and up-to-date. However, Elite Industrial Sales cannot guarantee that it is correct for all applications or situations. Furthermore, the contents of this manual are subject to change without notice. It is, therefore, the obligation of the user to read all information in this manual, become familiar with the equipment to be used, and exercise the utmost care in equipment operation. Do not make any modifications to this equipment since this will void all warranty claims, as well as possibly increasing the risk of injury or harm. Also, do not operate this equipment if all parts are not functioning at 100% efficiency. Notify us immediately for any needed repairs.

Note: Elite Industrial Sales can supply all repair and replacement parts necessary for maintenance and operation of this machine. For repair, service or additional information, please contact us:

USA

Elite Industrial Sales (Corporate/Sales/Mfg. Division)

For General Questions / Sales / Service

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www.eliteindustrialsales.com

When you receive it:

Inspect the machine for shipping damage. Be sure you received the parts listed on the invoice. Contact Elite Industrial Sales immediately if there are any errors or questions regarding this machine.

2. SAFETY PRECAUTIONS

The following is a list of general safety guidelines to be considered when operating this tool. Standard safe machining practices should always be followed when operating ELITE INDUSTRIAL SALES Machines.

Before operating this machine, read the entire Operating Instructions.
Inspect machine, cord and accessories for any damage.

Wear Safety glasses, ear plugs, and safety shoes while operating the machine.
Keep your equipment clean and in good condition for maximum protection.
Follow company and OSHA safety rules when operating equipment.

The motor should always be disconnected from the power source whenever servicing the machine or changing cutting inserts, collets, or other components.

SAFETY INFORMATION

WARNING!

MOVING PARTS. Keep hands, loose clothing, and hair away from rotating or moving parts. Unplug all equipment prior to adjusting or servicing.

WARNING!

ELECTRICAL SHOCK. Possible shock if not handled properly.

WARNING!

KEEP DRY. Keep all equipment and components away from any water source.

WARNING!

EYE PROTECTION. Eye protection must be worn while operating or working near facing equipment.

WARNING!

EAR PROTECTION. Ear protection should be worn while operating or working near loud equipment.

3. DESCRIPTION

The TSM-4501M Tube Squaring Machine is designed for facing short tubing and elbows from 1" to 4-1/2" diameter and piping from 1" to 4" with lengths greater than .550". The latch assembly is a self aligning, so it will work with out of round tubing or pipe. This feature will let you take an out-of-round tubing or pipe and face a square end. This machine is portable or may be mounted on a bench for high volume operations.

We also offer two collets: our standard collets for facing micro fitting or short tubing from .20" long and our extended collets for 1" and above. The collets are made from hard Stainless Steel and are designed so the integrity of electro-polished tubing is not affected by their use. Our tool bits are designed to work on the following materials: stainless steel, iconel, hastelloy, carbon steels, aluminum, and a variety of other alloys.

This machine will let you face quickly and squarely every time. You will also find this machine has an unobstructed view of the tool bit and tubing. Our feed indicator will give you precise length every time.

The Standard TSM-4501M-10 Package Includes:

- Operating tool (main body)
- Head Assembly
- Electric drive unit with variable speed
- Custom carrying case
- Two facing tool bits
- Tool kit
- Operating manual

Optional Features:

- Bench mounting hold down kit
- Battery power motor

Specifications:

- Weight (with motor, without collets): 23.4 lbs. (10.6 kg)
- Overall length: 17-1/2 inches (444.5mm)
- Overall height: 10-1/2 inches (266.7 mm)
- Overall width 9-1/2 inches (241.3 mm)
- Motor: 120VAC 60Hz-US style
220VAC 50 Hz-CE compliant

NOTE: THIS MACHINE CAN ALSO BEVEL, GREAT FOR SMALLER PIPE 1/2" – 4"

4. SET UP AND OPERATION

COLLET SET UP

1. When you decided which size tubing or pipe that you are going to use, take collets and put them in the latch assembly, 3 pieces
2. Take your 3/16 Allen head wrench and insert one of the collet pieces into the latch assembly and tighten screw in the collet to latch assembly. Then take the second & third collet and do the same.
3. Now take a piece of tubing or pipe and insert into the collets, you will then adjust the screw of the clamp latch, make sure the clamp is down and secure.

COLLET SIZES:

Standard

Part Number	Description (Inches / mm)
TSM-7101	1" TUBE COLLET / 25.4mm
TSM-7103	1-1/2" TUBE COLLET / 38.1mm
TSM-7104	2" TUBE COLLET / 50.8 mm
TSM-7105	2-1/2" TUBE COLLET / 63.5mm
TSM-7106	3" TUBE COLLET / 76.2mm
TSM-7107	3-1/2" TUBE COLLET (3" PIPE)
TSM-7108	4" TUBE COLLET (3.5" PIPE)
TSM-7109	4-1/2" TUBE COLLET (4" PIPE)
TSM-7110	.75" PIPE COLLET
TSM-7111	1" PIPE COLLET
TSM-7112	1.5" PIPE COLLET
TSM-7113	2" PIPE COLLET
TSM-7114	2.5" PIPE COLLET

Extended

Part Number	Description (Inches / mm)
TSM-7201	1" TUBE COLLET / 25.4mm
TSM-7203	1-1/2" TUBE COLLET / 38.1mm
TSM-7204	2" TUBE COLLET / 50.8 mm
TSM-7205	2-1/2" TUBE COLLET / 63.5mm
TSM-7206	3" TUBE COLLET / 76.2mm
TSM-7207	3-1/2" TUBE COLLET (3" PIPE)
TSM-7208	4" TUBE COLLET (3.5" PIPE)
TSM-7209	4-1/2" TUBE COLLET (4" PIPE)
TSM-7210	.75" PIPE COLLET
TSM-7211	1" PIPE COLLET
TSM-7212	1.5" PIPE COLLET
TSM-7213	2" PIPE COLLET
TSM-7214	2.5" PIPE COLLET

Part Number	Description (Millimeters)
TSM-7119	52mm TUBE COLLET
TSM-7120	57.15mm TUBE COLLET
TSM-7121	60.5mm TUBE COLLET
TSM-7122	69.85mm TUBE COLLET
TSM-7123	82.55mm TUBE COLLET
TSM-7124	88.9mm TUBE COLLET
TSM-7125	95.25mm TUBE COLLET
TSM-7126	101.6mm TUBE COLLET
TSM-7127	107.95mm TUBE COLLET

Part Number	Description (Millimeters)
TSM-7215	52mm TUBE COLLET
TSM-7216	57.15mm TUBE COLLET
TSM-7217	60.5mm TUBE COLLET
TSM-7218	69.85mm TUBE COLLET
TSM-7219	82.55mm TUBE COLLET
TSM-7220	88.9mm TUBE COLLET
TSM-7221	95.25mm TUBE COLLET
TSM-7222	101.6mm TUBE COLLET
TSM-7223	107.95mm TUBE COLLET

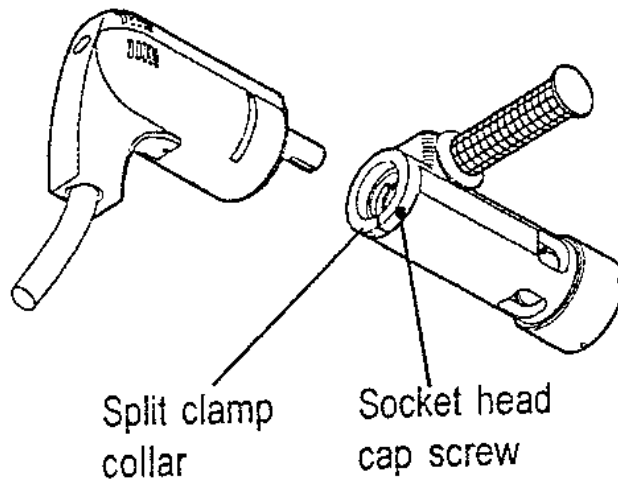
(Please note: some millimeter sizes are also equivalent to standard US standards)
Looking for a special size collet? Contact our sales department for pricing and delivery time.

5. ELECTRIC DRILL MOTOR

The electric motor can be rotated 360 degrees to allow for comfortable machine operation.

TO ROTATE MACHINE:

1. Loosen the socket head cap screw on the split collar.
2. Rotate the motor to the most comfortable and or convenient position.
3. Tighten the socket head cap screw before turning on the machine.



6. TOOL BIT SELECTION

Select the right tool bit for your application. **Note: using the wrong type of tool bit or using dull bits may result in poor performance.**

Remember that these tool bits are design to move the chip away from the tubing; this is done by the angle of the tool bit which helps the chips flow away from the tubing by the radius angle built into the tool bit. It is important to understand the design of the tool bit; you want to set the cutting bit closest to the inside of the tool bit as possible. This will give you the best cutting edge on the tool bit.

TO CHANGE BITS:

1. Unplug the motor from the power source before installing the tool bits.
2. Insert the tool bit into the slot and align the tool bit to the size of tubing or piping to the marking on the cutter head. This will give you a starting point.
3. Make sure the cutting edge is facing "Counter clockwise" and set screws are facing away from cutting edge.
4. Tighten down the set screws.

TOOL BIT SELECTION FOR TSM-4501M:

Part Number	Description
TB-0202	Extended reach standard style
TB-0202-LC	Extended reach laser coated
TB-1506	For use on 316 or 304 stainless
TB-1506-LC	Laser coated for abrasion resistance
TB-1506-TIN	Tin coated for superior heat resistance
TB-5000	For soft and gummy stainless steel tubing
TB-0206	Heavy duty for larger wall thicknesses
TB-0168	Counterbore bit
TB-0167	37.5 degree bevel
TB-6900	"J" bevel 25 degree w/.032 radius
TB-1510	Double sided tool insert (carbide)
TSM-AD-3000	Tool bit adapter/holder for inserts

(Tool bits can be requested with TIN or Laser coating)

NOTE:

Slower speeds produce minimum burrs when working with electro polished stainless tubing.

CAUTION!

Running the drill too fast will harden the stainless steel tubing and quickly damage the tool bits.

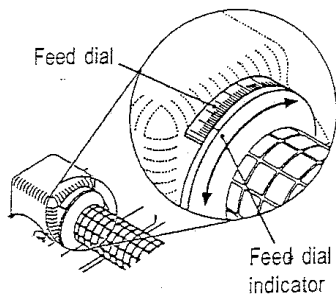
7. FEED HANDLE & FEED DIAL INDICATOR

1. For the comfort and convenience of the operator, the feed handle is located at the back of the machine. Rotate the feed handle “clockwise” was to move tool bit toward tubing.
2. On the inside of the feed handle is a feed dial indicator to control the distance travel with the feed handle. When using this feature, make sure the motor is off; use the feed handle to advance the tool bit forward just until it is in contact with the work piece/tubing.
3. Then move the indicator to zero position, and then turn the tool bit back away from the tubing.
4. Now you can start the motor and feed the handle in “clockwise”, cutting the tubing to desire length. Each mark is .015 increments

FEED DIAL INDICATOR:

The feed dial indicator is only used when a certain amount of travel is needed. Typically, just giving the tube end a 100% clean up is enough.

TO USE FEED DIAL INDICATOR:



1. With the motor off, use the feed handle to advance the tool bit forward just until it contacts the work piece.
2. Holding the cutter against the work piece, rotate feed dial indicator to any reference mark on the feed dial. The feed dial is stamped in .015" increments.
3. Back the tool bit away from the work piece.
4. Start the motor and feed as before using the referenced feed dial setting as a depth of cut guide.

8. MAINTENANCE

GENERAL MACHINE MAINTENANCE

During heavy operation, regularly use a brush to clean chips away from the machine. Wipe the machine down thoroughly when you are through with the machine. Do not spray anything into the electric motor body.

ELECTRIC MOTOR MAINTENANCE

Periodically check the motor brushes for excess wear or damage. Replace as needed. Check the power cord for cuts, tears, or abrasions.

COLLET MAINTENANCE

Keep clamp collets together in their respective sets. When not in use, store in case. Collet repair kits are available from your retailer.

TOOL BIT MAINTENANCE

When possible, leave unused tool bits in their packages to prevent them from being damaged. Please store tool bits that have been taken from their original package in a safe place.

9. WARRANTY

EVERY ELITE INDUSTRIAL SALESMACHINE IS THOROUGHLY INSPECTED AND TESTED BEFORE LEAVING OUR MANUFACTURING FACILITIES. ALL PRODUCTS MANUFACTURED BY ELITE INDUSTRIAL SALESYSTEMS, INC. ARE WARRANTED TO THE ORIGINAL PURCHASER TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP. UNDER NORMAL USE, THE MACHINE IS WARRANTED FOR A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE. THIS DOES NOT INCLUDE TOOL BITS OR OTHER CONSUMABLE ITEMS. SHOULD ANY TROUBLES OR CONCERNS DEVELOP, RETURN THE COMPLETE TOOL PREPAID TO ELITE INDUSTRIAL SALESYSTEMS, INC. OR TO THE NEAREST AUTHORIZED SERVICE CENTER. IF INSPECTION SHOWS THE TROUBLE IS CAUSED BY DEFECTIVE WORKMANSHIP OR MATERIAL, ELITE INDUSTRIAL SALESAT ITS OPTION WILL REPAIR OR REPLACE WITHOUT CHARGE FOR EITHER PARTS OR LABOR. THE PRODUCT WILL BE RETURNED TO THE PURCHASER FREIGHT PREPAID AND BILLED TO THE PURCHASER.

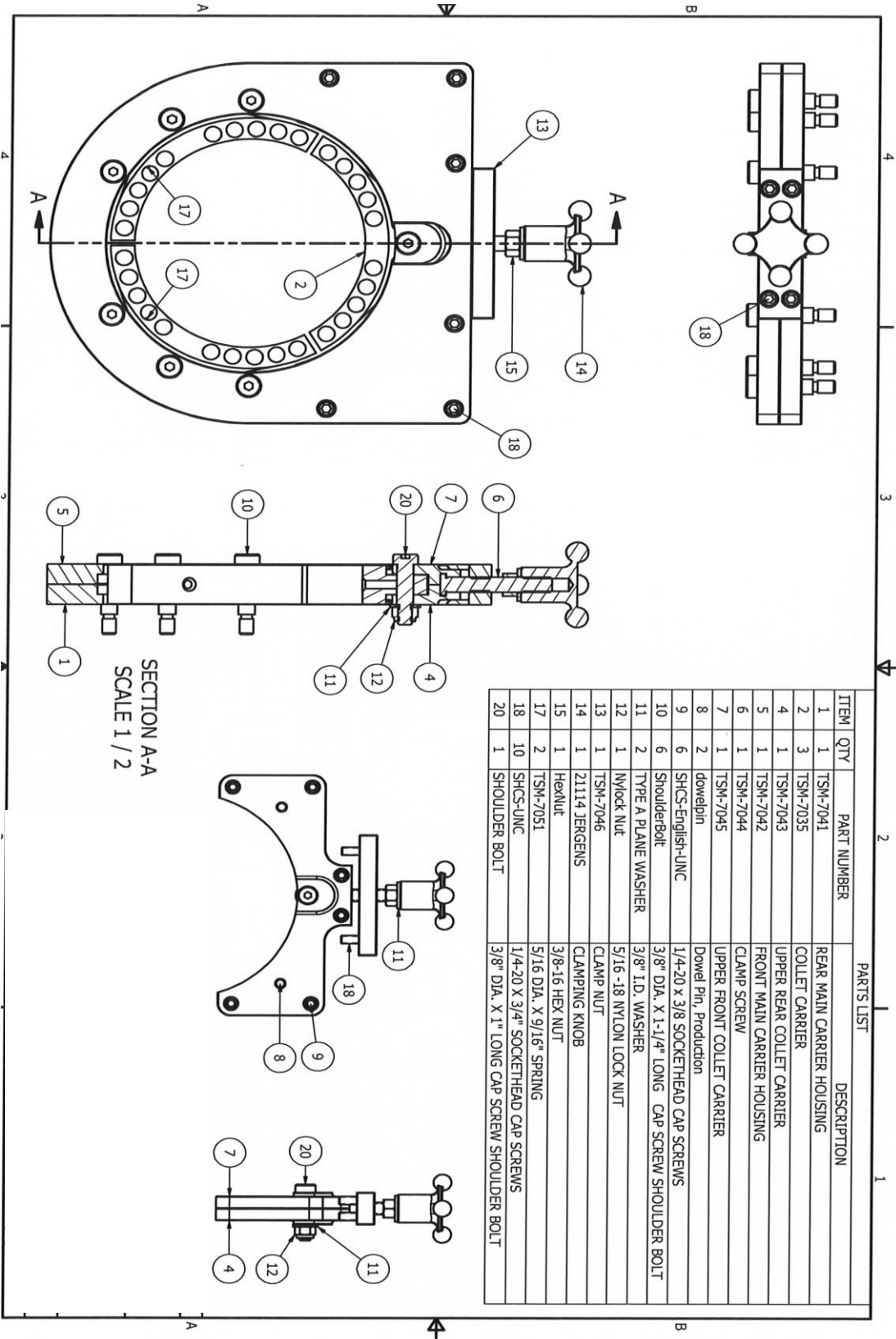
WARRANTY IS TWELVE MONTHS (12MO) 1 YEAR WARRANTY FROM DATE OF PURCHASE. PLEASE REVIEW BELOW INFORMATION REGARDING THE WARRANTY DETAILS. THIS DOES NOT INCLUDE TOOL BITS OR OTHER CONSUMABLE ITEMS.

WARRANTY DOES NOT APPLY IF:

- 1) REPAIRS OR ATTEMPTED REPAIRS HAVE BEEN MADE BY PERSONS OTHER THAN ELITE INDUSTRIAL SALESPERSONAL, OR UNAUTHORIZED SERVICE REPAIR PERSONNEL.
- 2) REPAIRS ARE REQUIRED BECAUSE OF NORMAL WEAR.
- 3) THE TOOL HAS BEEN ABUSED OR INVOLVED IN AN ACCIDENT.
- 4) MISUSE IS EVIDENT, SUCH AS OVERLOADING THE TOOL BEYOND ITS RATED CAPACITY. THE TOOL HAS BEEN USED AFTER PARTIAL FAILURE, OR THE TOOL HAS BEEN USED WITH AN IMPROPER ACCESSORIES.
- 5) THE MOTOR IS DAMAGED DUE TO NOT USING OILER/MISTER WHILE USING (PENDING MOTOR TYPE).

NO OTHER WARRANTY VALID IF EITHER WRITTEN OR VERBALLY IS AUTHORIZED.

10. TSM-4501M EXPLODED VIEWS
AND PARTS LIST

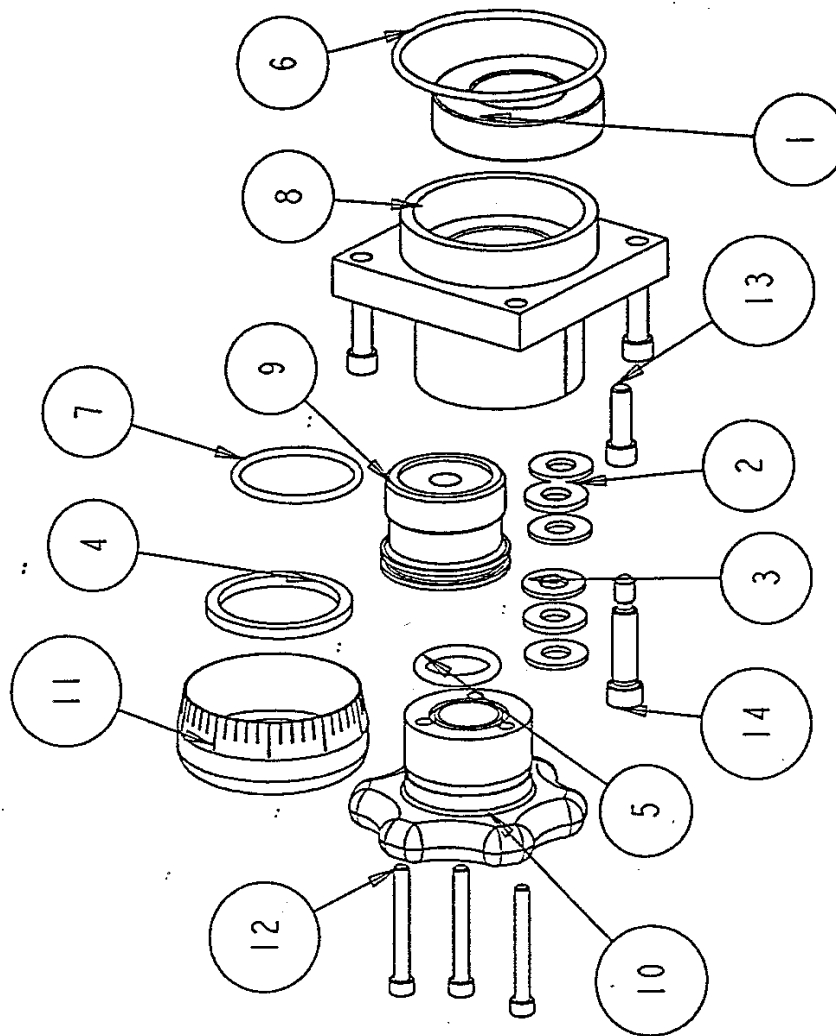


ELITE INDUSTRIAL SALES | TSM-4501M FACING/SQUARING MACHINE

TSM-4500M PART NUMBERS 7/30/97
TSM-7001 RING GEAR
TSM-7002 WORM GEAR
TSM-7003 BEARING
TSM-7004 BEARING
TSM-7005 BEARING
TSM-7006 FRONT SEAL
TSM-7007 BEARING
TSM-7008 THRUST NEEDLE BEARING
TSM-7009 THRUST WASHER
TSM-7010 THRUST NEEDLE BEARING
TSM-7011 THRUST WASHER
TSM-7012 WORM SPACER
TSM-7013 RETAINING SPRING RING
TSM-7014 MACHINE SUPPORT
TSM-7015 MACHINE BASE
TSM-7016 KEENSERT
TSM-7017 O-RING
TSM-7018 O-RING
TSM-7019 O-RING
TSM-7020 MAIN HOUSING
TSM-7021 WORM SHAFT RETAINER CAP NUT
TSM-7022 WORM SHAFT
TSM-7023 MOTOR COUPLING
TSM-7024 FRONT SPACER
TSM-7025 REAR SPACER
TSM-7026 CUTTER SHAFT
TSM-7027 BACK COVER
TSM-7028 FEED SCREW
TSM-7029 FEED KNOB
TSM-7030 SCALE RING
TSM-7031 LOWER BACK HALF HOUSING
TSM-7032 LOWER FRONT HALF HOUSING
TSM-7033 UPPER BACK HALF HOUSING
TSM-7034 UPPER FRONT HALF HOUSING
TSM-7035 COLLET CARRIER
TSM-7036 YOKE
TSM-7037 ROD END
TSM-7038 DOUBLE CAM LOCK
TSM-7040 BUSHING PIVOT OUTER
TSM-7041 BUSHING PIVOT INTER
TSM-7042 BUSHING PIVOT YOKE
TSM-7043 3/8" SHOULDER BOLT 1.25 LONG
TSM-7044 3/8" SHOULDER BOLT 1.00 LONG
TSM-7045 10-32 X 1 1/2" SHCS
TSM-7046 1/4-20 X 3/4" SHCS
TSM-7047 5/16-18 LOCK NUT
TSM-7048 5/16 SHOULDER BOLT 1" LONG
TSM-7049 1/4-20 LOCK NUT
TSM-7050 1/4-20 X 4" SHCS
TSM-7051 SPRING
TSM-7052 1/4-20 X 3/8" SET SCREW
TSM-7053 1/4-20 X 1" SHCS
TSM-7054 WORM KEY

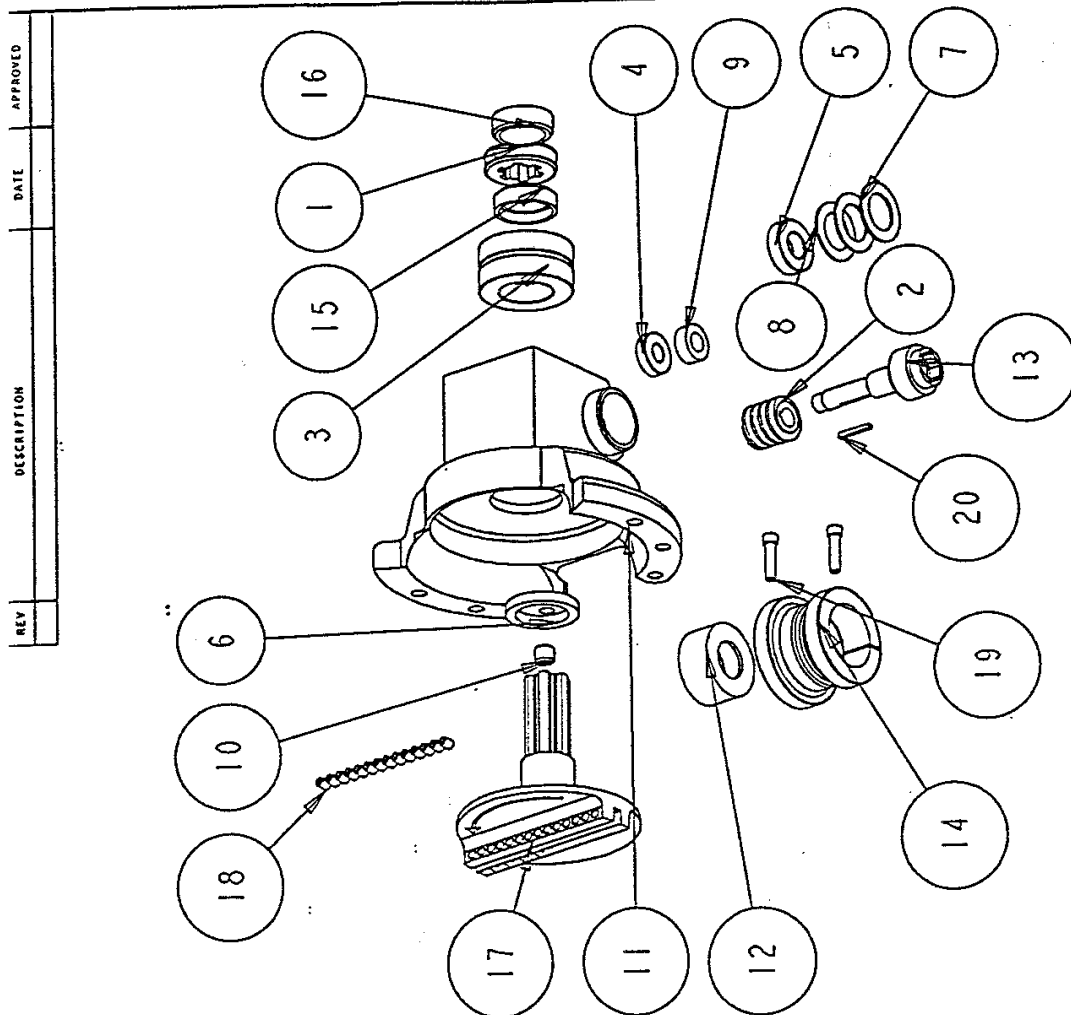
ELITE INDUSTRIAL SALES | TSM-4501M FACING/SQUARING MACHINE

REV	DESCRIPTION	DATE	APPROVED



QTY	PART NUMBER	QTY
1	TSM7007	1
2	TSM7010	2
3	TSM7011	4
4	TSM7013	1
5	TSM7017	1
6	TSM7018	1
7	TSM7019	1
8	TSM7027	1
9	TSM7028	1
10	TSM7029	1
11	TSM7030	1
12	TSM7045	3
13	TSM7046	4
14	TSM7048	1

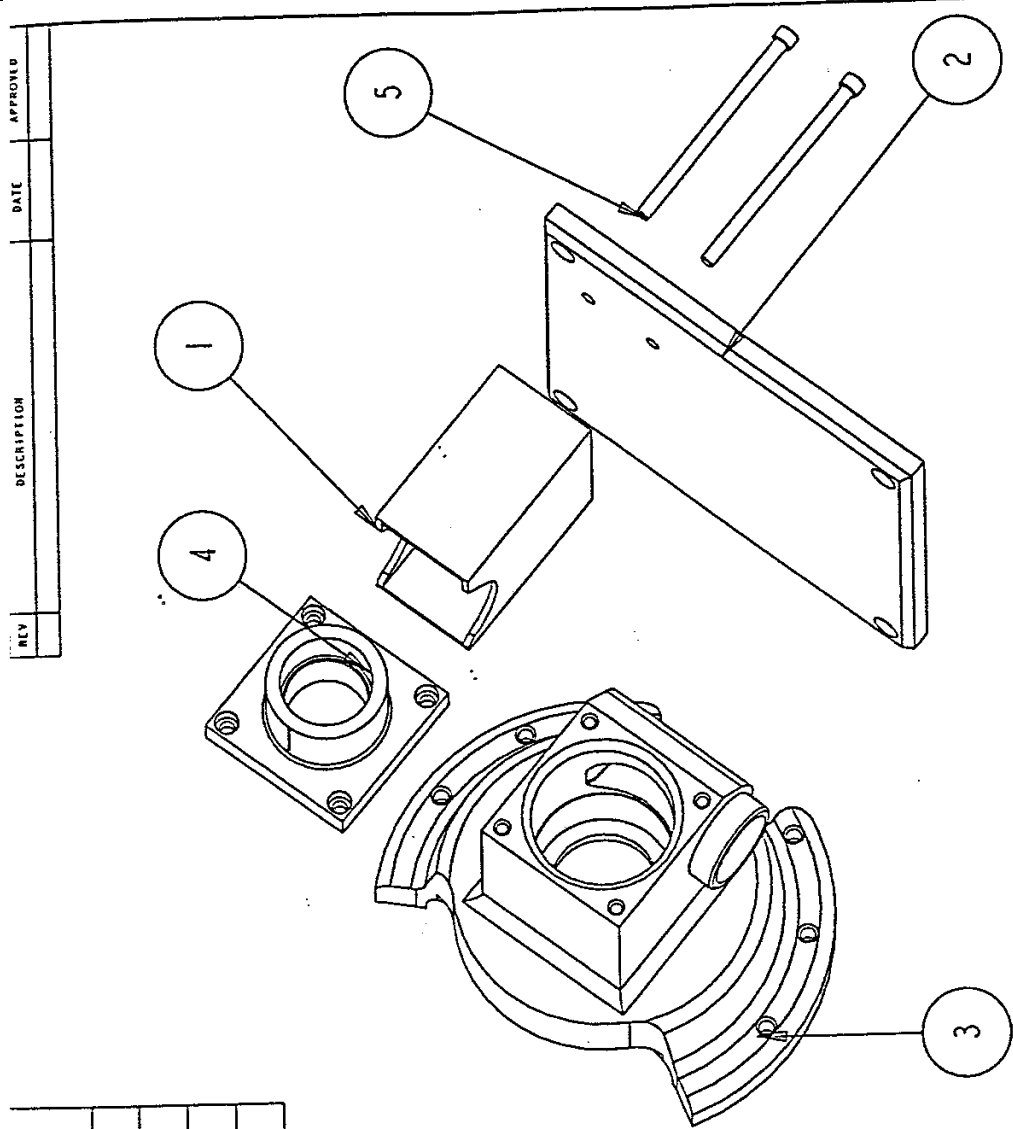
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IND. #	NAME	QUANTITY
1	TSM7001	1
2	TSM7002	1
3	TSM7003	2
4	TSM7004	1
5	TSM7005	1
6	TSM7006	1
7	TSM7008	1
8	TSM7009	2
9	TSM7012	1
10	TSM7016	1
11	TSM7020A	1
12	TSM7021	1
13	TSM7022	1
14	TSM7023	1
15	TSM7024	1
16	TSM7025	1
17	TSM7026	1
18	TSM7052	14
19	TSM7053	2
20	TSM7054	1

ELITE INDUSTRIAL SALES | TSM-4501M FACING/SQUARING MACHINE

INDEX	NAME	QUANTITY
1	TSM7014	1
2	TSM7015	1
3	TSM7020A	1
4	TSM7027	1
5	TSM7050	2



REV	DESCRIPTION	DATE	APPROVED