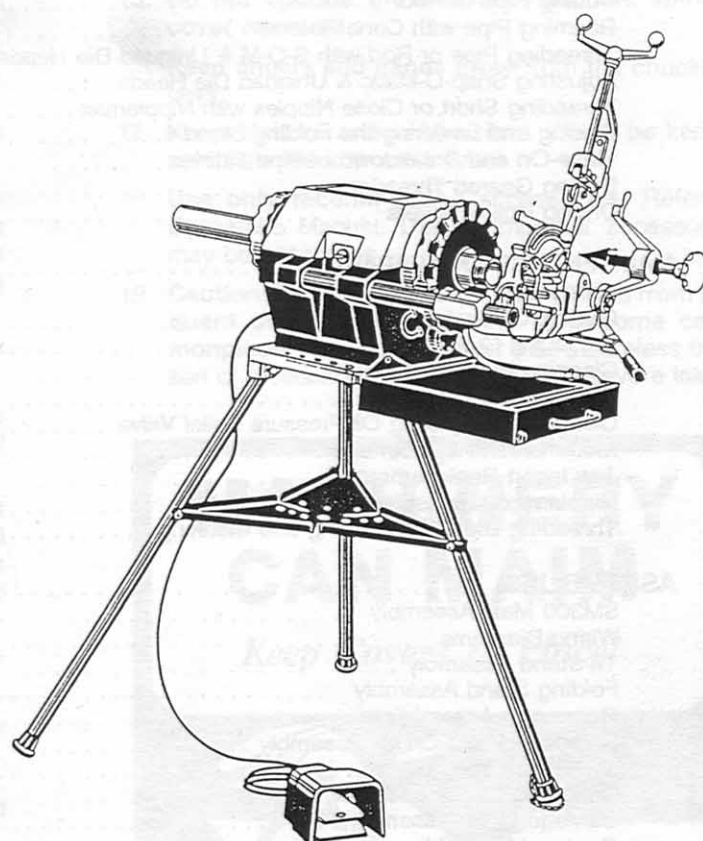
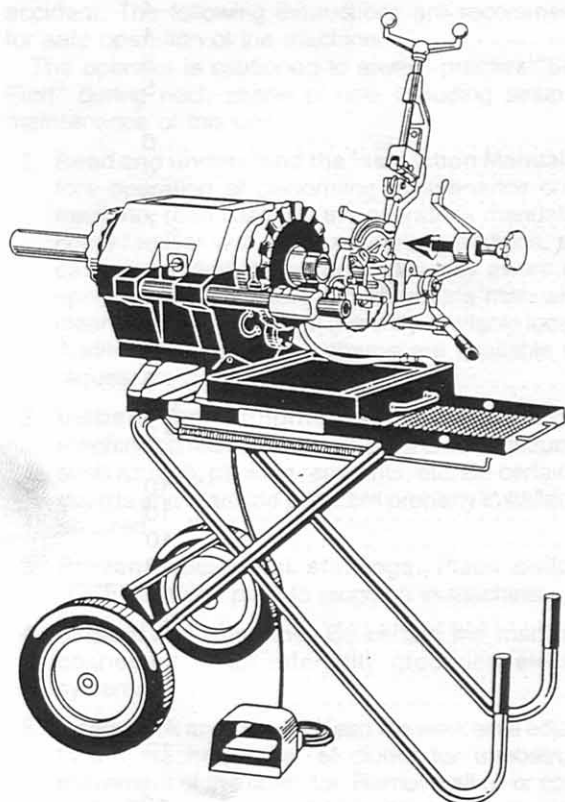


Operator's Manual and Parts Catalog

SUPERMATIC 300



WARNING

Before operating this unit, read and understand the Operator's Manual. Become familiar with the potential hazards of this unit.



WERKZEUGE-TOOLS-OUTILLAGE®

ROTHENBERGER

The tools professionals use!

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ORDERING SPARE PARTS & ACCESSORIES

Manufacturing Part Numbers shown throughout this Manual. To order Spare Parts, please use Order Codes from the enclosed separate Parts Price List.

OPERATOR SAFETY INSTRUCTIONS

This metalworking machine is designed for threading, cutting, reaming, beveling and grooving pipe. To accomplish each of these functions requires dexterity and mechanical skills, as well as sound safety habits.

Although this machine is manufactured for safe, dependable operation, it is impossible to anticipate those combinations of circumstances which could result in an accident. The following instructions are recommended for safe operation of the machine.

The operator is cautioned to always practice "Safety First" during each phase of use, including setup and maintenance of this unit.

1. **Read and understand the Instruction Manual.** Before operating or performing maintenance on this machine, read carefully the operator's manual. Become familiar with the machine's operations, applications and limitations. Be particularly aware of its specific hazards. Store the operator's manual in a clean area and always at a readily available location. Additional copies at no charge are available upon request from the factory.
2. **Inspect the equipment.** Prior to starting the machine, check the movable parts for obstructions such as rags, packing remnants, etc. Be certain that guards and machine parts are properly installed and secured.
3. **Prevent accidental startings.** Place switch in "OFF" position prior to plugging in machine.
4. **Ground the machine.** Be certain the machine is connected to an internally grounded electrical system.
5. **Keep work area clean.** Keep the work area adjacent to the machine clear of clutter for unobstructed movement of the operator. Remove all oil or coolant spills. Remove shavings from chip tray as required to maintain proper operating clearance.
6. **Use pipe supports.** It is mandatory to use floor mounted pipe stands for long, heavy work.
7. **Wear proper clothing.** Loose clothing can get easily tangled in moving parts. When operating machine, do not wear unbuttoned jackets, loose sleeve cuffs, gloves, neckties, long hair, etc. Safety glasses and shoes should be worn.
8. **Secure machine and work.** Make certain that the machine is bolted to a heavy work bench or proper stand.
9. **Always maintain machine.** Keep machine clean and cutting tools sharp for safe, dependable operation. Follow lubricating instructions. Report any unsafe condition for immediate correction.

moving parts or material being worked on. Switch should always be accessible to operator.

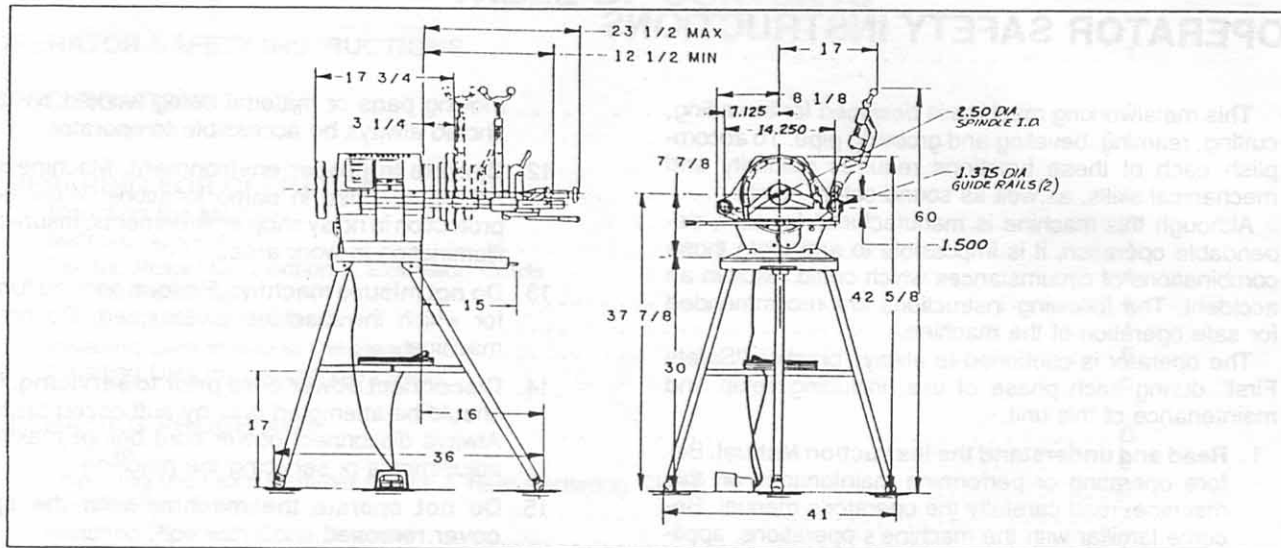
12. **Operate in proper environment.** Machine should not be operated in damp locations. Wear hearing protection in noisy shop environments. Insure proper illumination in work area.
13. **Do not misuse machine.** Perform only the functions for which the machine is designed. Do not force machine.
14. **Disconnect power cord prior to servicing.** Repair should be attempted only by authorized personnel. Always disconnect power cord before making any adjustments or servicing the machine.
15. **Do not operate the machine with the spindle cover removed.**
16. **Keep fingers and hands away from the chucking jaws.**
17. **Keep visitors away.** All visitors should be kept a safe distance from work area.
18. **Use only recommended accessories.** Refer to Operator's Manual. Use of improper accessories may be hazardous.
19. **Caution: Do not allow familiarity gained from frequent use of your machine to become commonplace.** Always remember that a careless fraction of a second is sufficient to inflict severe injury.

MACHINERY CAN MAIM

Keep Covers In Place!



SM-300 SPECIFICATIONS



THREADING CAPACITY

Galvanized & Black Pipe	1/8" thru 2"
Bolt (Mild Steel)	3/8" thru 2"

CHUCKING CAPACITY 1/8" thru 2 3/8" Dia.

CUTTING CAPACITY

Pipe	1/8" thru 2"
Bolt (Mild Steel)	3/8" thru 1"

REAMING CAPACITY, PIPE

Cone Reamer	1/8" thru 2"
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CUTTING OIL SUMP CAPACITY 1 Gal.

SPINDLE SPEED No load. 43.0 RPM

THREADING SPEEDS

Thrdng 1" Black Pipe	18.5 Seconds
Thrdng 2" Galvanized Pipe	18.5 Seconds

CUTTING SPEED

Cutting-off 2" Galvanized Pipe	7.0 Seconds
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MOTOR CURRENT CONSUMPTION

115V. No load	5 Amps
115V. Thrdng 2" Galvanized Pipe	12.5 Amps
230V. No load	3 Amps
230V. Thrdng 2" Galvanized Pipe	7 Amps

MOTOR . . 115V. 15 Amp. or 230V. 7.5 Amp. Universal AC/DC, 1/2 HP 2-brush.

SWITCH, OPERATING Heavy-duty bump-proof, oil and water tight, REV-OFF-FWD

SWITCH, FOOT Heavy-duty oil and watertight with safety guard, ON-OFF

NOISE LEVEL 115V. or 230V. Machines ("A" scale, slow response): 86 dB. Max.

GEARBOX . . Helical gears with 32.73 reduction. Total reduction including Spindle Gear: 400.94

SHIPPING WEIGHT (less dieheads and accessories): 91 LBS.

With Tristand, Carriage, Cutter, Reamer & Oil Sump: 190 LBS.

SM-300 ACCESSORIES

FOLDING STAND

Part No. 05610: An innovative patented portable stand (US Patent #4611823) that folds into a dolly for wheeling machine right to the work.

TRI-STAND

Part No. 22650: A sturdy but lightweight machine stand. Legs fold up and held by a chain lock. Can be Used with the Wheeled Transporter listed below.

SUPER JACK PIPE STANDS

Part No. 10640: A heavy duty tubular steel stand with V-Head and adjustable height of 27"-50".

Part No. 00101: A heavy duty tubular steel stand with Ball Transfer Head and adjustable height of 27"-50".

BENCH & TRUCK MOUNT ADAPTER

Part No. 22110: A sturdy elevated platform for mounting your SM-300 to a bench or a truck. Allows the positioning of the Oil Pan under the Carriage Assembly.

RETROFIT KIT

Part No. 05603: Converts your SM-300 Power Drive into a threading machine. Consist of an Oil Pump, Oil Line, and Oil Pan Assemblies.

RoGROOVE ROLL GROOVING TOOL

Part No. 45000: A light, portable roll grooving machine complete with adapter plate for easy mounting on your SM-300.

NIPPLEMAX NIPPLE CHUCK

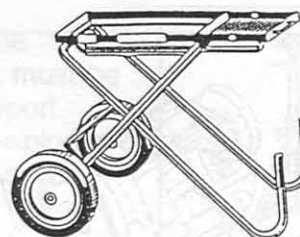
Part No. 00088: An internally gripping nipple chuck to produce short or close-thread nipples. Faster and more economical to use than threaded adapter systems. For 1/2" to 2" schedule 40 pipe.

WHEELED TRANSPORTER

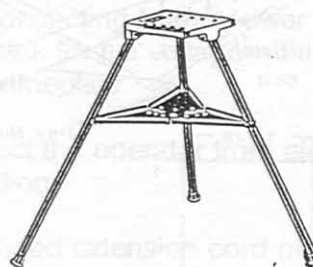
Part No. 10400: An inexpensive way to move the SM-300 on Tri-Stand from one location to another. Simply slide the Transporter arms with 12" wheels into the SM-300, fold up the legs of the Tri-Stand, and "drive" the unit using the legs of the Tri-Stand as a handle.

OTHER ACCESSORIES

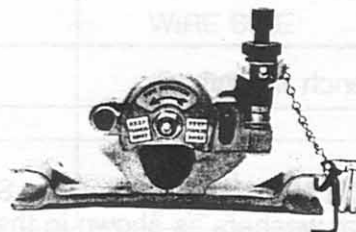
For additional accessories not listed, see our latest Family Catalog, we will be happy to send you a copy.



Folding Stand



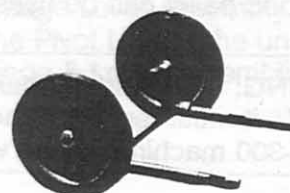
Tri-Stand



RoGroove



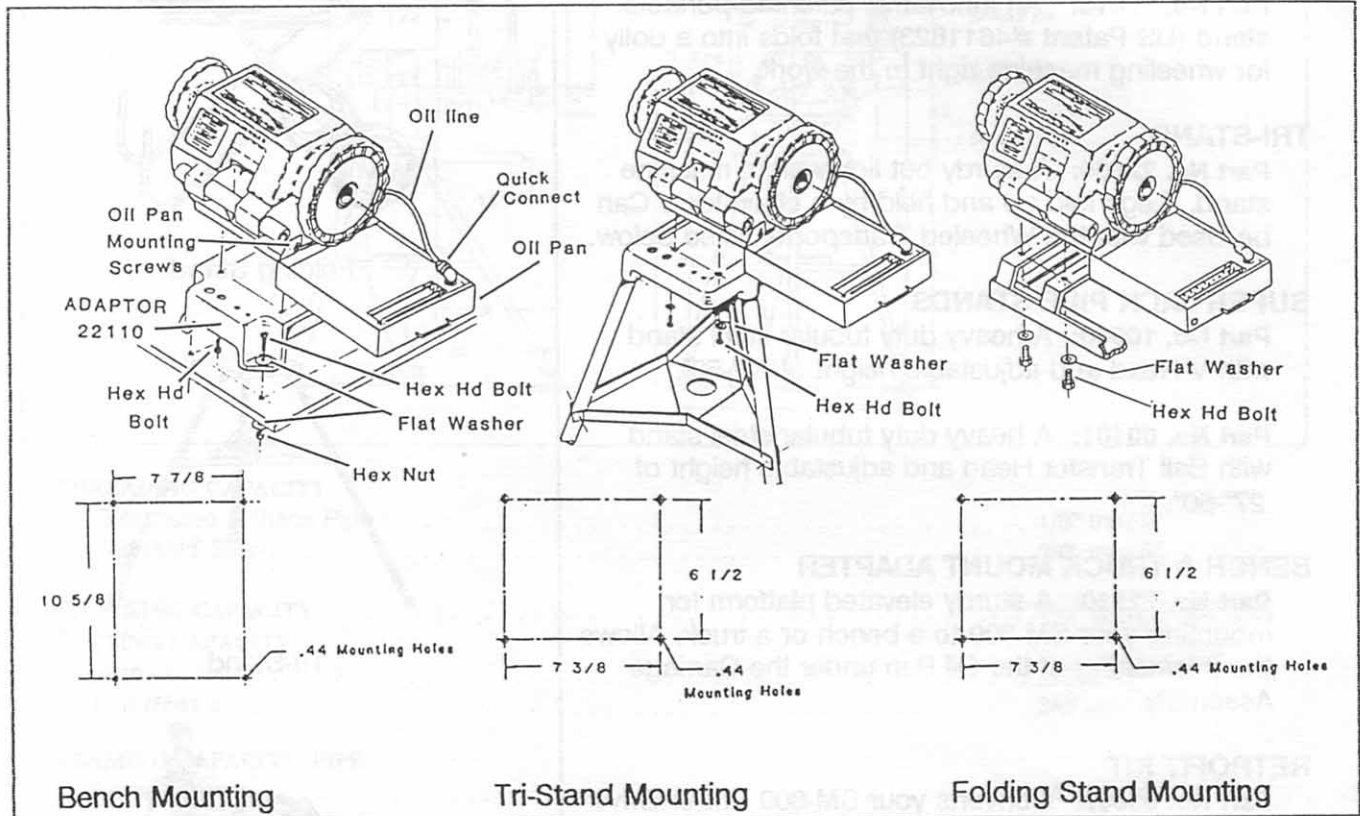
Nipplemax



Wheeled Transporter

PREPARING FOR OPERATION

MOUNTING THE MACHINE



BENCH MOUNTING: Bolt the SM-300 machine securely to the Bench Mount Adaptor with four bolts and flat washers as shown in the illustration. The bolts used in shipping to attach the SM-300 to the wood pallet can be used. Note that the front of the SM-300 must be mounted flush with the Adaptor to clear the Oil Pan. When mounting to a bench, use flat washers to lift the motor end of the machine 1/2" higher than the carriage end to assure oil drainage into the Oil Pan.

TRI-STAND MOUNTING: Bolt the SM-300 machine securely to the Tri-Stand Assembly with four bolts and flat washers as shown in the illustration. The bolts used in shipping to attach the SM-300 to the wood pallet can be used. Note that the front of the SM-300 must be mounted flush with the Tri-Stand Plate to clear the Oil Pan. One leg of the Tri-Stand must be positioned under the center of the Oil Pan as shown.

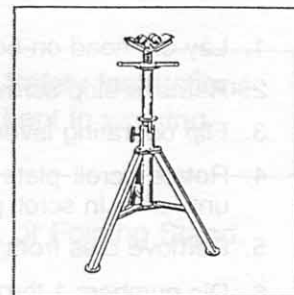
FOLDING STAND MOUNTING: Bolt the SM-300 machine securely to the Folding Stand with four bolts and flat washers as shown in the illustration. The bolts used in shipping to attach the SM-300 to the wood pallet can be used. The Oil Pan must be oriented toward the front of the Folding Stand.

WARNING: The Folding Stand is shipped in the collapsed state under spring tension. TO AVOID INJURY, it must remain in the collapsed state with safety lock engaged during the installation of the SM-300 machine! Read warning and operating instructions on the nameplate.

PREPARING FOR OPERATION cont'd.

MATERIAL SUPPORT

For operator safety, good thread quality, and to avoid damage to the machine, a material support system such as the Super Jack shown, must be used with pipe or tubing longer than five (5) feet. This material support system must be adjusted to the same center height as the machine spindle. Improperly adjusted support system will damage the threading dies and chucking jaws, resulting in poor thread quality.



POWER CONNECTION

Check the nameplate of the SM-300 for the correct voltage before connecting to the power supply. This machine requires a 15 Amp fuse and circuit for safety. Also check for full voltage with a voltmeter. Voltage must be within 5% of the stated voltage on the nameplate.

GROUNDING: The machine must be grounded while in use to protect the operator from electric shock. Check the receptacle of the power source for proper grounding.

EXTENSION CORD: To protect the motor from overheating, a grounded extension cord of sufficient capacity must be used:

POWER	CORD LENGTH	WIRE SIZE
115 V.	50 Feet or Less	# 12-3
	50 - 100 Feet	#10-3
230 V.	50 Feet or Less	# 14-3
	50 - 100 Feet	# 12-3

OIL PAN INSTALLATION

Attach the Oil Pan to the base of the machine by hooking it on to the two screws under the Front Chuck (see illustrations on page 3). Connect the Oil Pump Hose to the Oil Pan with the quick-connect fitting provided. No priming of the Oil Pump is necessary since it is self-priming.

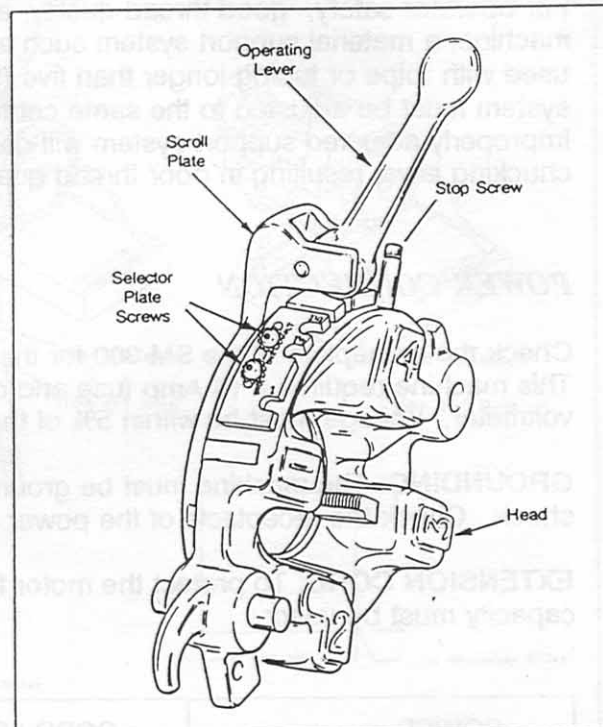
CARRIAGE AND LEVER INSTALLATION

Slide the Carriage on the two Carriage Support Bars. Attach the Carriage Lever Assembly by sliding the Collar on the Rear Support Bar and tighten Set Screw. Fasten the Pivot Link to the underside of the Carriage with a Shoulder Screw provided (see illustration of Carriage & Lever Assemblies on page 18).

PREPARING FOR OPERATION cont'd.

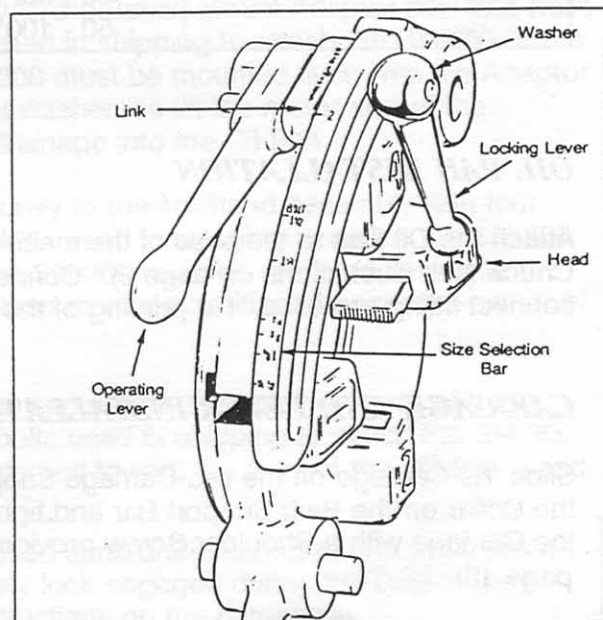
INSTALLING DIES IN SNAP-O-MATIC DIE HEAD

1. Lay die head on bench with numbers face up.
2. Remove stop screw with 3/16" Allen wrench.
3. Flip operating lever to open position.
4. Rotate scroll plate with operating lever clockwise until slots in scroll plate and head line up.
5. Remove dies from die head.
6. Die numbers 1 through 4 must agree with those on die head.
7. Insert dies until die pins are seated in scroll slots.
8. Rotate scroll plate with operating lever towards selector plates, and replace stop screw.
9. For bolt threads, engage operating lever pin in selector plate slot marked "1 1/2 BOLT."
10. If oversize or undersize threads are required, use 5/32" Allen wrench to loosen selector plate screws. Slide selector plate in direction of over or under size mark on plate. Tighten selector plate screws.
11. To install die head, slip die head onto carriage die head pin.



INSTALLING DIES IN UNIQUAD DIE HEAD

1. Lay die head on bench with numbers face up.
2. Flip operating lever to OPEN position.
3. Loosen locking lever approximately three turns.
4. Slide operating lever all the way to end of slot in the OVER direction indicated on size selection bar.
5. Remove dies from die head.
6. Die numbers 1 through 4 must agree with those on die head.
7. Insert dies until die pins are seated in scroll slots.
8. Slide operating lever until index line on link is aligned with proper size mark on size selection bar.
9. Tighten locking lever. For bolt threads, align index line with BOLT line, 1 1/2" on size selection bar.
10. If oversize or undersize threads are required, set the index line in direction of OVER or UNDER size mark on size selection bar.
11. To install die head, slip die head onto carriage die head pin.



OPERATING PROCEDURE

START-UP

WARNING: The Operator must read and understand the preceding Operator Safety Instructions on page 1 before attempting to operate this equipment. Foot Switch must be kept in working order and used at all times. Failure to do so can result in serious injury.

1. Confirm that machine is mounted properly to a substantial Bench, Tri-Stand, or Folding Stand. See mounting instructions under Preparing for Operation.
2. Check the Oil Pan to make sure there is plenty of clean cutting oil available. Refill if necessary with ROCOOL cutting oil. It is a special oil designed to release anti-weld and anti-wear additives at low machining temperatures encountered during pipe threading.
3. The SM-300 is equipped with two electrical switches, a safety Foot Switch (On-Off), and an Operating Switch (Rev-Off-Fwd or 1-0-2). **The function of these switches are as follows:** The safety Foot Switch is designed to provide the operator with a rapid method of stopping electrical power to the machine if an emergency should occur. Also, it insures that the machine cannot be operated unless the operator is in proper position. DO NOT use the Foot Switch to start and stop the machine during normal operation. That is the function of the Operating Switch!
4. To start the machine, step on the Foot Switch pedal and while maintaining pressure, move the Operating Switch lever to the Fwd position. While the machine is running, check the cutting oil flow. When the Die Head is in the down (threading) position oil will flow through the Die Head. When the Die Head is in the raised position, oil will flow from the bypass Pressure Relief Valve directly into the Oil Pan.

OPERATING THE FRONT HAMMER CHUCK & REAR CENTERING CHUCK

1. Check the status of the Operating Switch, it must be in the OFF position before engaging the Foot Switch. Step on the Foot Switch pedal. During operation of the machine, the Foot Switch pedal must be depressed. In case of an emergency, remove foot from pedal to stop the machine instantly without having to move the Operating Switch to the OFF position.
2. Rotate the Hammer Chuck toward the OPEN position as far as it will go to open Jaws. Likewise, rotate the rear Centering chuck to clear the Spindle opening.
3. Swing the Die Head, Cutter, and Reamer up and out of the way.
4. Insert material into the Spindle opening from either end of the machine. If material is longer than five feet, an adjustable pipe support stand must be used. See Preparing for Operation section for more detail.
5. Lift material with left hand at the rear of the machine and tighten front Hammer Chuck with repeated snaps toward the CLOSE position. This hammering action tightens the Jaws on the material being threaded. Rotate the rear Centering Chuck in the same direction to center and support material for threading.
6. Turn Operating Switch to FWD position to start rotation of the material.
7. To release the material, turn Operating Switch to OFF position, allow Spindle to come to a FULL STOP, and rotate front and rear Chucks toward the OPEN position. The material can now be removed from the Spindle.

OPERATING PROCEDURE cont'd.

CUTTING PIPE OR ROD

IMPORTANT: To avoid damage to Cutter Wheel or Cutter Assembly, never cut into threads or attempt to cut hardened material. Exceeding the bolt cutting capacity will also likely to cause damage.

1. Chuck material to be cut as instructed under Operating the Hammer Chuck. Pull the Telescopic Carriage Lever until Cutter is in the approximate area where the cut is to be made.
2. Lower Cutter over material and turn Cutter Handle counter-clockwise if necessary to retract roller block sufficiently to clear the material. The edge of the Cutting Wheel can now be used for precise positioning.
3. Start cutting by turning Cutter Handle clockwise at a moderate speed, pausing occasionally allow the cutter wheel to "catch up". Forcing the Cutter Handle at an excessive rate of speed will cause pipe distortion, excessive burr, and possible damage to the cutter assembly.

REAMING PIPE WITH CONE REAMER

WARNING: The Cone Reamer has sharp flutes and tip. Keep hands away from these sharp edges to prevent injury.

1. Raise Cutter and Die Head up and lower Reamer down into alignment with pipe.
2. The Cone Reamer can be extended, to ream short lengths, by sliding Reamer Knob toward pipe until it contacts the reamer holder. Rotate Reamer Knob counterclockwise 1/4 turn to lock into position.
3. With pipe chucked and rotating, pull Carriage Lever toward front Chuck to feed Cone Reamer into pipe. Apply light and steady pressure on Carriage Lever, to force reamer against pipe, until all the burr is removed. It is advisable to use a small amount of cutting oil to extend reamer life and improve finish.
4. Move Carriage Lever to the right to move reamer away from pipe, retract reamer, turn operating switch to OFF, and lift reamer into out-of-way position.

THREADING PIPE OR ROD WITH SNAP-O-MATIC & UNIQUAD DIE HEADS

IMPORTANT: It is essential to ream the pipe before threading. Reaming after threading can result in distorted threads.

1. Slide the proper size Die Head on to the Carriage Pin, and lower the Die Head into the Carriage groove for alignment with pipe.
2. **SNAP-O-MATIC DIE HEADS:** Select the correct size notch on the Selector Plate and engage the Operating Lever Pin.
UNIQUAD DIE HEADS: Loosen the Locking Lever, rotate Scroll Plate until index line on link is aligned with correct size mark on size selection bar, and tighten Locking Lever.

OPERATING PROCEDURE cont'd.

CAUTION: When material is inserted into Chuck for threading, it is important to have sufficient length exposed so thread can be completed before carriage gets near the Front Chuck Assembly. Although a Safety Stop is provided on the Rear Support Bar, if the Carriage is allowed to be stopped by the Safety Stop during threading, excessive strain will be put on the machine and damage may result. Also, the thread produced will be unusable.

3. Chuck material to be threaded and while machine is running, pull Carriage Lever toward the left to bring Dies against material. Apply slight pressure on Carriage Lever until a couple of threads have been cut, after which the Die Head will feed itself.
4. Correct thread length is normally obtained when material reaches the outside edge of the threading Dies. At that point, open or disengage Operating Lever to withdraw Dies from the thread.
6. Turn Operating Switch Lever to OFF position and rotate Carriage Handle clockwise to clear the Die Head from the material.

ADJUSTING THE SNAP-O-MATIC & UNIQUAD DIE HEADS

1. Make a thread as instructed above. Check thread size using a Ring Gauge of the correct size and thread form. Before proceeding with Die Head adjustment, be certain that out-of-size condition is not caused by incorrect thread length due to early or late opening of the Die Head.
2. **SNAP-O-MATIC DIE HEADS (Fig. A):** Using a 5/32" allen wrench, loosen the Selector Plate Screws. Slide Selector Plate in the direction indicated to increase or decrease size of thread.

UNIQUAD DIE HEADS (Fig. B): Loosen the locking lever, shift Scroll Plate in the direction indicated to increase or decrease size of thread and tighten locking lever.

3. Repeat the Ring Gauge test and adjust again if

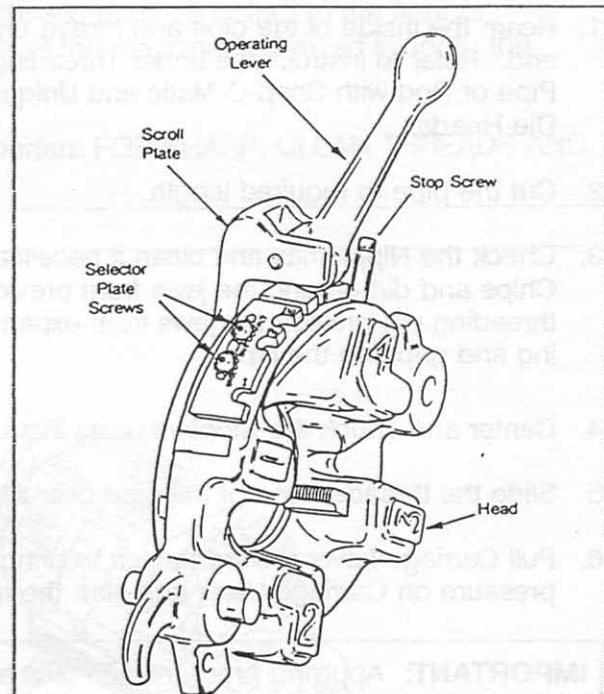
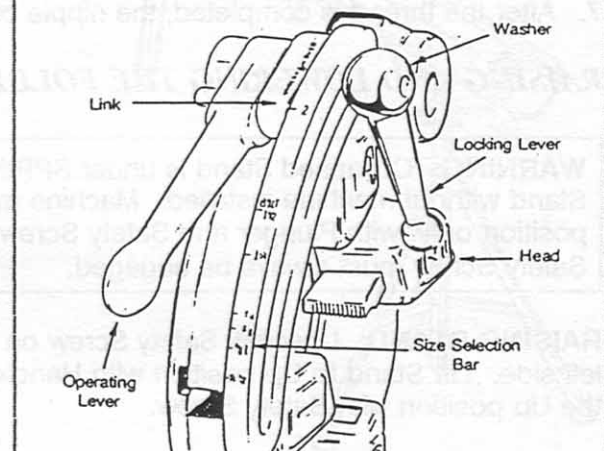


Fig. A

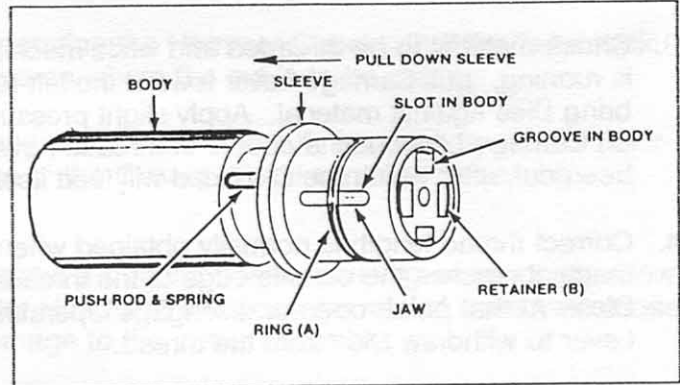


OPERATING PROCEDURE cont'd.

THREADING SHORT OR CLOSE NIPPLES WITH NIPPLEMAX

IMPORTANT: Reaming before threading is necessary to prevent slippage of short or close Nipples during threading.

1. Ream the inside of the pipe and thread one end. Refer to instructions under Threading Pipe or Rod with Snap-O-Matic and Uniquad Die Heads.
2. Cut the pipe to required length.
3. Check the Nipplemax and clean if necessary. Chips and dirt around the jaws from previous threading will prevent the jaws from expanding and gripping the pipe.



4. Center and chuck the Nipplemax, as instructed under Operating the Front Hammer Chuck.
5. Slide the threaded end of the pipe over the Nipplemax Jaws as far as it will go.
6. Pull Carriage Lever toward the left to bring threading dies against the nipple. Apply slight pressure on Carriage Lever and start the machine.

IMPORTANT: Applying pressure with dies against nipple BEFORE starting machine, will prevent slippage.

7. After the thread is completed, the nipple can easily be removed by hand.

RAISING AND LOWERING THE FOLDING STAND

WARNING: Collapsed Stand is under SPRING TENSION. To avoid injury, DO NOT raise or lower Stand without machine installed. Machine must be mounted or removed from Stand in DOWN position only, with Plunger and Safety Screw engaged. When transporting Stand in UP position, Safety Screw must always be engaged.

RAISING STAND: Unscrew Safety Screw on right side of Stand and pull spring loaded Plunger on left side. Lift Stand to Up position with Handles and engage the spring loaded Plunger. Secure in the Up position with Safety Screw.

LOWERING STAND: Release Safety Screw on right side of Stand and pull spring loaded Plunger on left side. Push down on Handles to collapse Stand. Secure in down position with Safety Screw.

MAKE-ON AND BREAKDOWN

WARNING: The Supermatic 300 is NOT A MAKE-ON MACHINE. Using the machine for this purpose will damage the Motor and the precision ground Carriage Support Bars, throwing the machine out of alignment and it will void factory warranty.

OPERATING PROCEDURE cont'd.

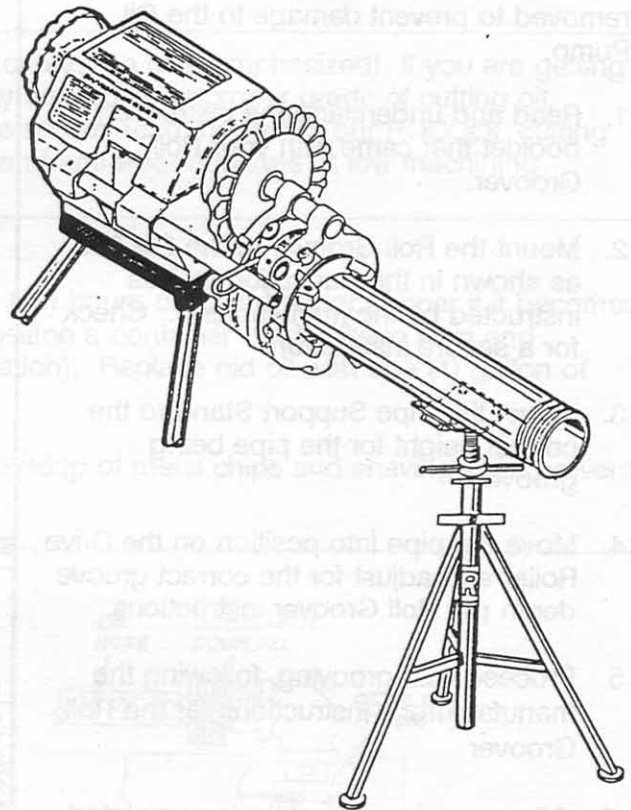
DRIVING GEARED THREADERS

IMPORTANT:

1. When the SM-300 is used to drive a 4" Geared Threader, a sturdy Pipe Support Stand such as the Rothenberger Super Jack, must be used to support the pipe during threading.
2. If the pipe being threaded is larger than 2", the SM-300 must be bolted to the floor or otherwise restrained to resist the full output torque of the machine and avoid injury to the operator.
3. The use of ROCOOL thread cutting oil is also important FOR SHARP, CLEAN THREADS AND LONGER DIE LIFE.

NOTE: If the SM-300 is setup as a threading machine, the Carriage, Cutter, Reamer, Oil Pan, and Carriage Lever Assemblies must be removed to create room for the Geared Threader. For occasional use, the Oil Pump Assembly need not be removed. For extended use however, it should be removed to prevent damage to the Oil Pump.

1. Read and understand the instruction booklet that came with your Geared Threader.
2. Install and adjust the dies for your threading requirement such as size and type.
3. Mount the Geared Threader to the SM-300 as shown in the illustration and as instructed by the manufacturer. Check for a secure installation.
4. Adjust the Pipe Support Stand to the correct height for the pipe being threaded.
5. Move the pipe to be threaded into the Geared Threader up against the dies.
6. Proceed with threading, following the manufacturer's instructions for the Geared Threader.
7. After threading operation is completed, make sure that the motor is **COMPLETELY** stopped before removing the pipe from the Geared Threader.



OPERATING PROCEDURE cont'd.

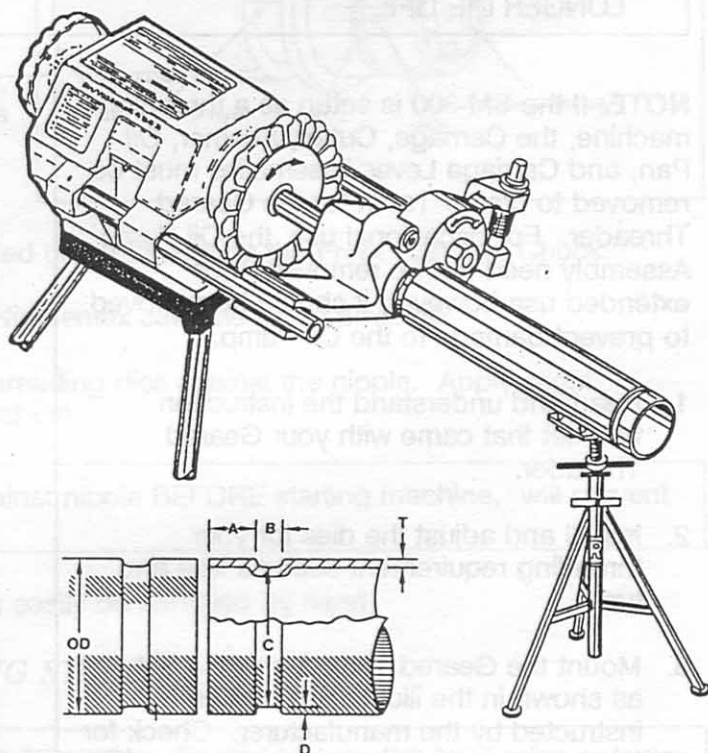
DRIVING ROLL GROOVERS

IMPORTANT:

1. When the SM-300 is used to drive a Roll Groover, a sturdy Pipe Support Stand such as the Rothenberger Super Jack, must be used to support the pipe during roll grooving.
2. If the pipe being grooved is larger than 2", the SM-300 must be bolted to the floor or otherwise restrained to resist the full output torque of the machine and avoid injury to the operator.

NOTE: If the SM-300 is setup as a threading machine, the Carriage, Cutter, Reamer, Oil Pan, and Carriage Lever Assemblies must be removed to create room for the Roll Groover. For occasional use, the Oil Pump Assembly need not be removed. For extended use however, it should be removed to prevent damage to the Oil Pump.

1. Read and understand the instruction booklet that came with your Roll Groover.
2. Mount the Roll Groover to the SM-300 as shown in the illustration and as instructed by the manufacturer. Check for a secure installation.
3. Adjust the Pipe Support Stand to the correct height for the pipe being grooved.
4. Move the pipe into position on the Drive Roller and adjust for the correct groove depth per Roll Groover instructions.
5. Proceed with grooving, following the manufacturer's instructions for the Roll Groover.
6. After grooving operation is completed, make sure that the motor is **COMPLETELY** stopped before removing the pipe from the Roll Groover.



Standard Roll Groove Specifications - Steel and Other IPS Pipe

1 Nom. Size Inches	2 Pipe Outside Dia. O.D.			3 Gasket Seat A ±0.03	4 Groove Width B ±0.03	5 Groove Dia. C		6 Groove Depth (ref. only) D	7 Min. Allow. Wall Thk. T	8 Max. Allow. Flare Dia.
	Basic	+	-			Basic	Tol. +0.000			
1 1/4	1.660	+0.016	-0.016	0.625	0.281	1.535	-0.015	0.063	0.065	1.77
1 1/2	1.900	+0.019	-0.019	0.625	0.281	1.775	-0.015	0.063	0.065	2.01
2	2.375	+0.024	-0.024	0.625	0.344	2.250	-0.015	0.063	0.065	2.48
2 1/2	2.875	+0.029	-0.029	0.625	0.344	2.720	-0.018	0.078	0.083	2.98
3 O.D.	3.000	+0.030	-0.030	0.625	0.344	2.845	-0.018	0.078	0.083	3.10
3	3.500	+0.035	-0.031	0.625	0.344	3.344	-0.018	0.078	0.083	3.60
3 1/2	4.000	+0.040	-0.031	0.625	0.344	3.834	-0.020	0.083	0.083	4.10
4	4.500	+0.045	-0.031	0.625	0.344	4.334	-0.020	0.083	0.083	4.60
4 1/2	5.000	+0.050	-0.031	0.625	0.344	4.834	-0.020	0.083	0.095	5.10
5 1/2 O.D.	5.500	+0.056	-0.031	0.625	0.344	5.334	-0.020	0.083	0.109	5.60
5	5.563	+0.056	-0.031	0.625	0.344	5.395	-0.022	0.084	0.109	5.66
6 O.D.	6.000	+0.056	-0.031	0.625	0.344	5.830	-0.022	0.085	0.109	6.10
6 1/2 O.D.	6.500	+0.063	-0.031	0.625	0.344	6.330	-0.022	0.085	0.109	6.60
6	6.625	+0.063	-0.031	0.625	0.344	6.455	-0.022	0.085	0.109	6.73

MAINTENANCE AND REPAIR

LUBRICATION

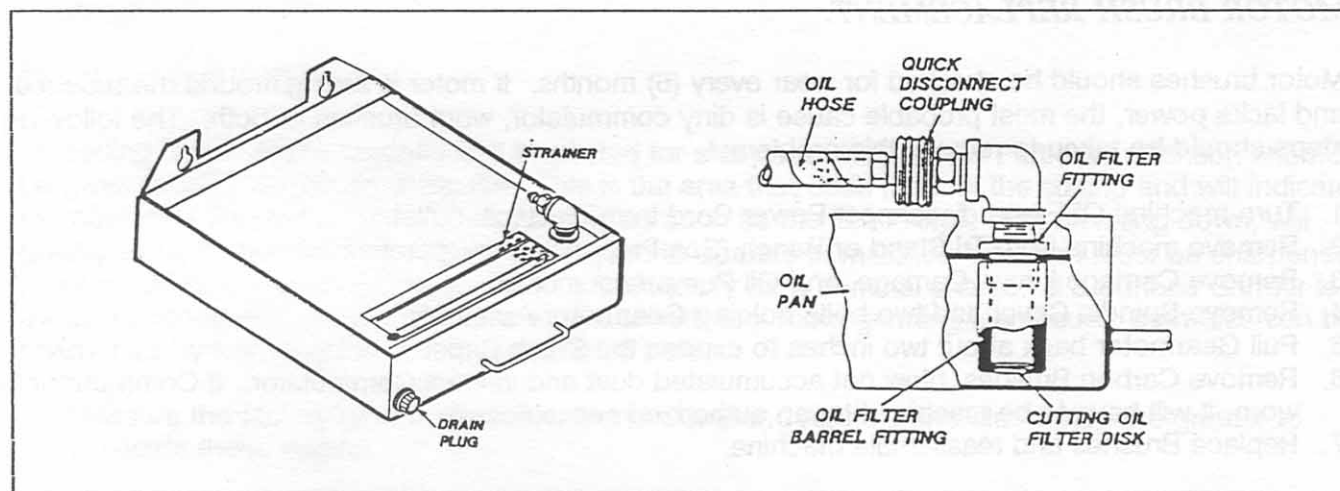
WARNING: ALWAYS UNPLUG POWER CORD BEFORE SERVICING MACHINE! If any maintenance is required other than what is listed below, take machine to an authorized Rothenberg warranty repair center or contact the factory for a return authorization.

1. SPINDLE BEARINGS are permanently lubricated and require no maintenance.
2. CARRIAGE SUPPORT BARS should be cleaned and oiled frequently with light weight oil.
3. MOTOR AND GEAR BOX is permanently lubricated and require no maintenance.
4. SPINDLE GEAR. The spindle gear is lubricated with a heavy, open gear grease. It has self-lubricating metallic solids to provide long term lubrication. Additional grease should be added every six (6) months. To access the Spindle Gear, remove spindle cover and apply grease with a stiff brush.

CUTTING OIL SYSTEM

IMPORTANT: The use of proper thread cutting oil cannot be over emphasized! If you are getting poor thread quality and short die life, it is very likely caused by improper grade of cutting oil, over-used cutting oil, or water contaminated oil. We recommend the use of our ROCOOL cutting oil. It is a special oil designed to release anti-weld and anti-wear additives at low machining temperatures encountered during pipe threading.

1. **REPLACE THE CUTTING OIL** after every forty (40) hours of operation, or sooner if it becomes dirty or contaminated with water. To drain oil, position a container under Drain Plug and unscrew Plug (see illustration for Drain Plug location). Replace old oil with one (1) gallon of ROCOOL oil and replace the Drain Plug.
2. **CLEAN CHIP TRAY FREQUENTLY.** Excessive buildup of metal chips and shavings can prevent Carriage movement and block the Strainer.



MAINTENANCE AND REPAIR cont'd.

CUTTING OIL SYSTEM cont'd.

3. **CLEAN THE FILTER DISK** and remove the sediment from the bottom of the Oil Pan if the oil flow to the Die Head becomes restricted. During threading, the material and the threading dies must be flooded with cutting oil! Oil flow restriction happens when the sediment in the Oil Pan reaches the bottom of the Oil Filter. To clean the Filter Disk:
 - a. Disconnect the Oil Hose from the Oil Pan at the Quick Disconnect Coupling.
 - b. Remove accumulated metal shavings from the Oil Pan Tray with a rag or brush. To prevent injury, DO NOT remove shavings by hand! Remove the perforated strainer by removing the two retaining screws.
 - c. Drain the cutting oil by placing a container under the drain plug and removing the plug.
 - d. Grip the Filter Barrel inside the oil pan with a plier thru the large rectangular opening. Unscrew the elbow with the fitting above and remove the filter barrel. Clean or replace the filter disk.
 - e. Clean the Oil Pan inside of fine metal particles and sediment with a rag or a brush..
 - f. Replace the Filter Barrel, the Strainer and the Drain Plug. Reconnect the oil hose and pour one (1) gallon of ROCOOL cutting oil into Oil Pan.
4. **CLEAN AND ADJUST OIL PRESSURE RELIEF VALVE.** The Oil Pressure Relief Valve must be cleaned periodically to avoid loss of pressure through the die head. Low cutting oil pressure will result in poor thread quality and reduced die life. The Oil Pressure Relief Valve is located next to the Oil Pump:
 - a. Remove Locking Nut, Setscrew, Spring, and Ball from Valve Assembly. Check and clean all components and reassemble.
 - b. Adjust oil flow by turning Slotted Setscrew clockwise to increase flow and counterclockwise to decrease it. After adjustment is completed, tighten Locking Nut.

MOTOR BRUSH REPLACEMENT.

Motor brushes should be checked for wear every (6) months. If motor is arcing around the brushes and lacks power, the most probable cause is dirty commutator, worn brushes or both. The following steps should be taken to remedy this problem:

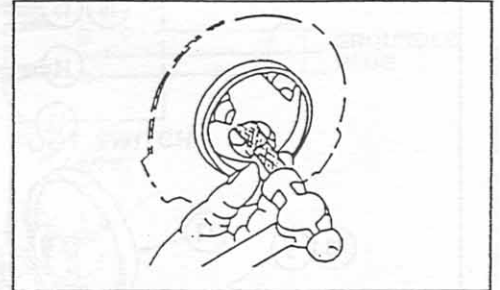
1. Turn machine OFF and disconnect Power Cord from electrical outlet.
2. Remove machine from Tri-Stand or Bench (See Preparing For Operation on page 3.)
3. Remove Carriage Lever, Carriage, and Oil Pump Assemblies.
4. Remove Spindle Cover and two bolts holding Gearmotor Assembly.
5. Pull Gearmotor back about two inches to expose the Brush Caps.
6. Remove Carbon Brushes, blow out accumulated dust and inspect Commutator. If Commutator is worn, it will have to be machined by an authorized service center.
7. Replace Brushes and reassemble machine.

MAINTENANCE AND REPAIR cont'd.

JAW INSERT REPLACEMENT

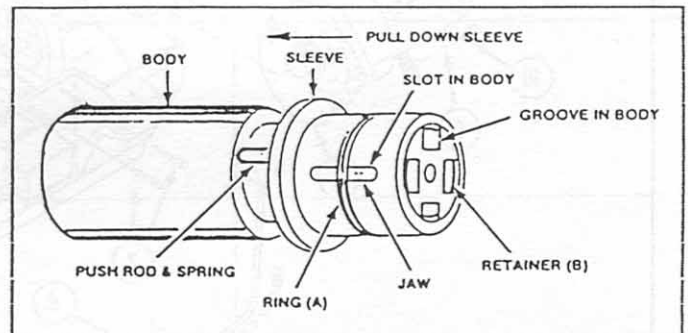
IMPORTANT: Wire brush the teeth on the Jaw Inserts daily. This will prevent material slippage and excessive wear on the jaws. During cleaning, check the jaws for wear.

1. Unplug the machine and remove Spindle Cover.
2. Remove Retaining Ring holding the Hammer Chuck Grip and pull Grip off Chuck Body. Rotate Scroll Plate to expose Jaw Inserts.
3. Using a large flat blade Screwdriver, rotate Slotted Pins counterclockwise approx. three (3) turns.
4. Using new Jaw Inserts as push pins, tap out old Jaw Inserts with a small hammer, replacing old Inserts in the process.
5. Retighten Slotted Pins, replace Hammer Chuck Grip, and reinstall Retaining Ring.



NIPPLEMAX JAW REPLACEMENT

1. Pull down Sleeve.
2. Remove Retainer from Body with a screwdriver. Don't distort wire.
3. Pull up Sleeve to remove it from Body.
4. Remove Jaws from inside of Sleeve and remove Ring to clean Slots.
5. Clean jaws, Grooves and Slots and put in new Jaws.
6. Put sleeve with Jaws on Body. If it was necessary to remove Ring to clean Slots, put Ring on Body.



THREADING DIES

Threading dies must be cleaned and inspected for sharpness frequently. Particular attention should be given to the Lead Angle of the die. This is the area that does most of the cutting and will indicate the need for sharpening. Prompt sharpening as soon as the Lead Angle start breaking down, will greatly extend die life. Threading dies designed to operate in matched sets, and must be sharpened as sets. Sharpening service is provided by the factory for a nominal charge. If a Surface Grinder is available, along with an operator who is familiar with tool room grinding techniques, then dies can be sharpened by following the procedure outlined below.

1. Measure the factory ground Rake Angle and Compound Angle of the die. Setup the grinder to duplicate these angles.
2. With each sharpening, grind the Rake Angle to remove .005"-.007" of material. This will increase the Step dimension by the same amount.

NOTE: Use plenty of coolant during grinding to prevent burning and softening the cutting edge.