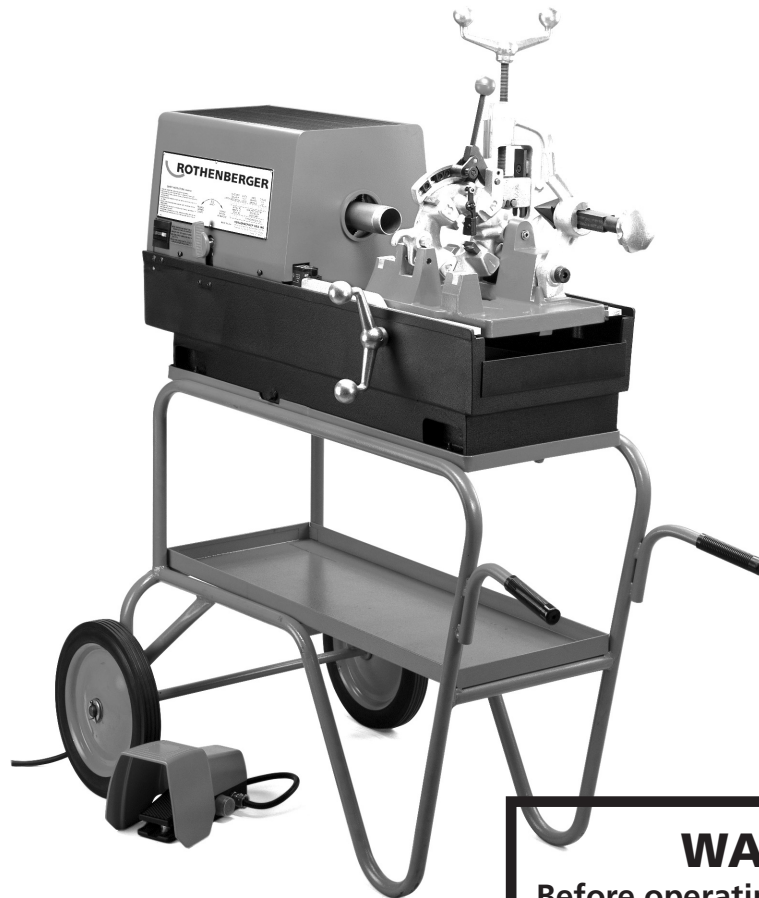


Operator's Manual and Parts Catalog

COLLINS CLASSIC 22A & Supermatic 2000-22A



WARNING

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

ROTHENBERGER

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ORDERING SPARE PARTS

To order Spare Parts, please use the part numbers provided in this user manual.

OPERATOR SAFETY INSTRUCTIONS

WARNING

This metalworking machine is designed for threading, cutting, reaming, beveling and grooving pipe with accessories made or authorized by ROTHENBERGER. Modifying machine in any way and/or using devices not made or authorized by ROTHENBERGER could result in serious injury and void ROTHENBERGER's warranty and liability.

REMEMBER

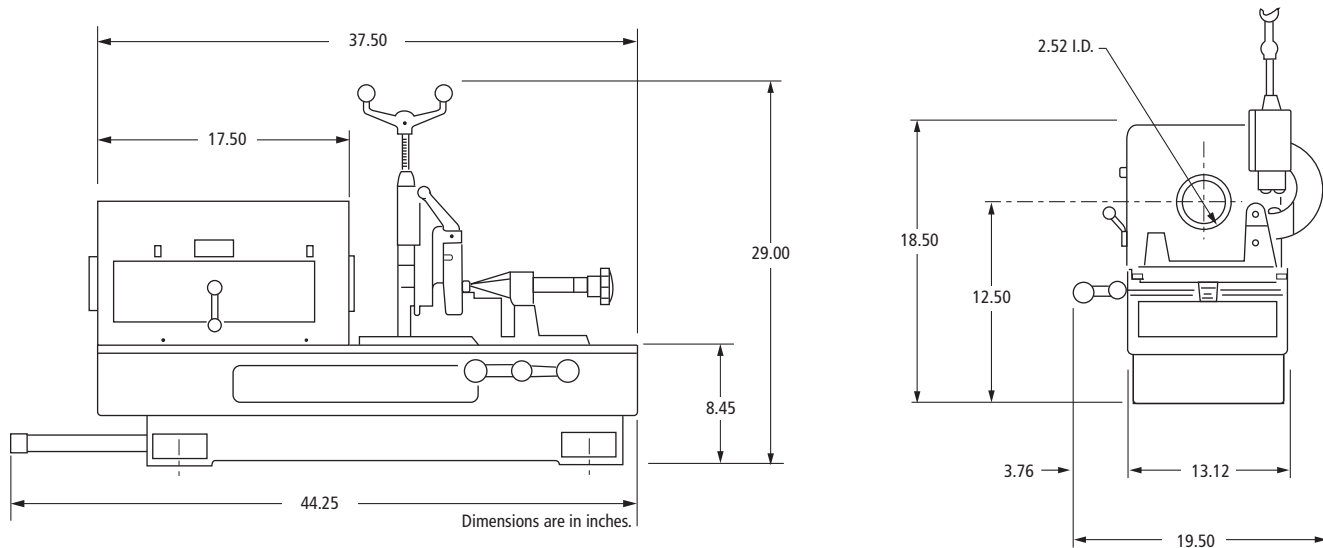
- Operate machine from switch side only.
- Do not disconnect or block footswitch.
- Do not wear gloves, loose clothing or neckties.

1. **Read and understand the Operator's 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 workbench 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.
10. **Keep alert.** Do not operate machine if ill or drowsy from medication or fatigue. Avoid horse-play around equipment and keep bystanders a safe distance from equipment.
11. **Operate on switch side only.** Machine should be operated on switch side only. Never reach across 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!





Technical Specifications

- Threading Capacity
Pipe..... 1/8" thru 2"
Bolt..... 1/4" thru 2 1/4"
- Cutter
Wheel type with sliding roller block
Cutting capacity: Pipe..... 1/8" thru 2"
Bolt 1/4" thru 1"
- Reamer
Adjustable 5-flute cone-type, right-hand
Reaming Capacity: Pipe 1/8" thru 2"
- Chuck
High-speed automatic chuck with 8 replaceable and reversible jaws, 4 in front and 4 in rear.
- Oil Pump
Gerotor-type, reversible on right and left machines
- Switch, Operating
Single-phase machines: heavy-duty, drum-type, release-off-thread
Three-phase machines: heavy-duty, rotary-type, release-off-thread 1, thread 2
- Switch, Foot
Heavy-duty, oil and watertight, with safety guard, ON-OFF
- Switch, Directional (right & left machine only)
rocker-type, right-off-left
- Motor
Single-Phase
a 115V AC/DC, 50-60 Hz, 20 amps, 1/2 HP, 6-brush universal type
b 230V AC/DC, 50-60 Hz, 10 amps, 1/2 HP, 6-brush universal type
Three-Phase (optional, available at extra cost)
a 230V AC, 50 or 60 Hz, 5.8/4.7 amps, 2/1 1/2 HP, 3400/1700 rpm, two-speed induction-type
b 380/440V, AC, 50 or 60 Hz, 6.1/3.9 amps, 2.7/2 HP, 2800/1400 rpm, two-speed induction-type
- Spindle RPM (free-running)
Standard or right & left single-phase machine:
72 rpm with standard gearbox
54 rpm with optional low speed gearbox
100 rpm with optional high speed gearbox
Right & left three-phase machine:
60 rpm (thread 1), 120 rpm (thread 2)

- Noise Level
Single-phase machines: 84 dB max. ("A" scale, slow response)
Three-phase machines: 81 dB max. ("A" scale, slow response)
- Gearbox
Standard or right & left single-phase machine;
Helical gear construction with 13.1:1 reduction (optional low speed gearbox has 16.7:1 and high speed gearbox has 9.6:1 reduction.)
Right & left three-phase machine:
Helical gear construction with 3.84:1 reduction
- Shipping Weight (less die heads)
Single-phase machines: 235 lb.
Three-phase machines: 265 lb.

Standard Equipment

- Thread Cutting Oil 1 gal. Thred-O-Matic Oil
Allen Wrenches 1/8", 5/32", 3/16", 7/32", 1/4", 5/16", 3/8", 1/2"

Accessories

- Grooving/Chamfering Head (No. 12200) 3/4" – 2"
Reaming/Chamfering Head (No. 13384) 3/4" – 2"
Nipple Chuck (No. 00089) 1/2" – 2"
Pipe Support (No. 13894).....for long work
Ball Bearing Pipe Support (No. 13206); and
Pipe Support Fittingusing 1" and 1 1/4" pipe, a stationary pipe stand can be assembled for extra long work
Baffle Plate (No. 1984)mounts in oil sump to prevent oil spillage
Machine Cover (No. 1985) durable fitted, vinyl/canvas cover
Oil Spout Assembly (No. 12267) carriage-mounted flex hose for additional oiling

Stands

- No. 00045 wheel stand with tray and 14" rubber tire wheels
No. E-239 wheel stand with enclosed cabinet, and 14" rubber tire wheels

Die Heads

Automatic Opening R04200221R

Range:

pipe: $\frac{1}{2}$ " – 2"

bolt: $\frac{1}{4}$ " – 2 $\frac{1}{4}$ " (6-52mm)

See Die Tables 1, 7, and 9.

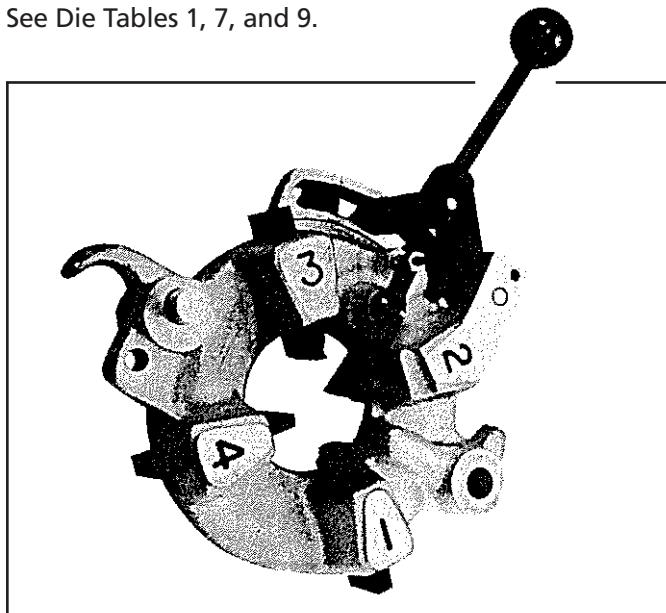


Figure 1

Snap-O-Matic R04200066R (1 - 2)

R04200063R (1/2 - 3/4)

Range:

pipe: $\frac{1}{8}$ " – 2"

bolt: $\frac{1}{4}$ " – 2 $\frac{1}{4}$ " (6-52mm)

Models Available:

Mono.....	$\frac{1}{8}$ "
Dual.....	$\frac{1}{4}$ " – $\frac{3}{8}$ ", $\frac{1}{2}$ " – $\frac{3}{4}$ ", 1" – 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " – 2"
Quad.....	1" – 2"

See Die Tables 2, 3, 4, 6, 7, 9.

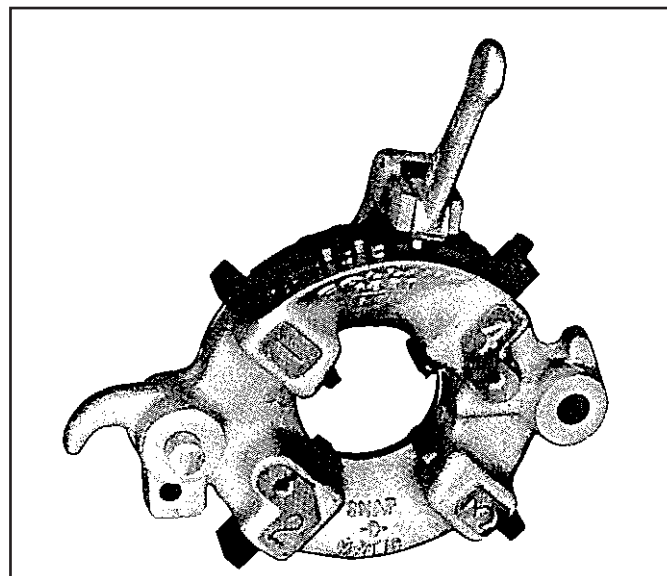


Figure 2

Uniquad R04200222R

Range:

pipe: $\frac{1}{8}$ " – 2"

bolt: $\frac{1}{4}$ " – 2 $\frac{1}{4}$ " (6-52mm)

See Die Tables 1, 3, 4, 6, 7, 9.

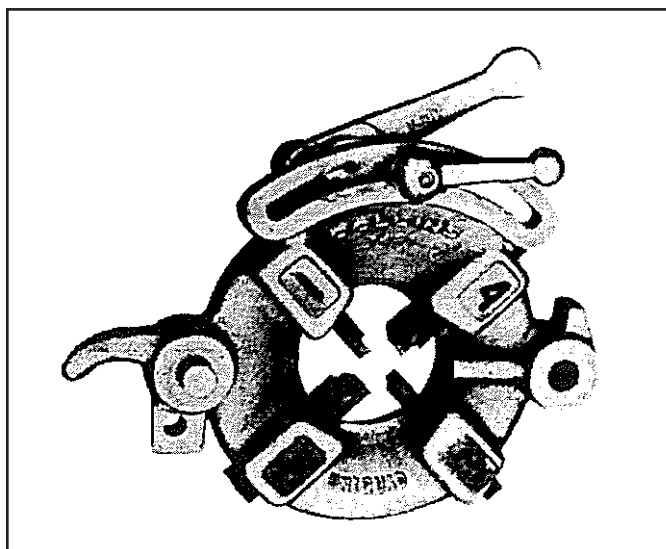


Figure 3

Die Head R04200470R

Beveling, grooving, or saran cutting head.

Range: $\frac{3}{4}$ " – 2" pipe

See Die Tables 8 and 10.

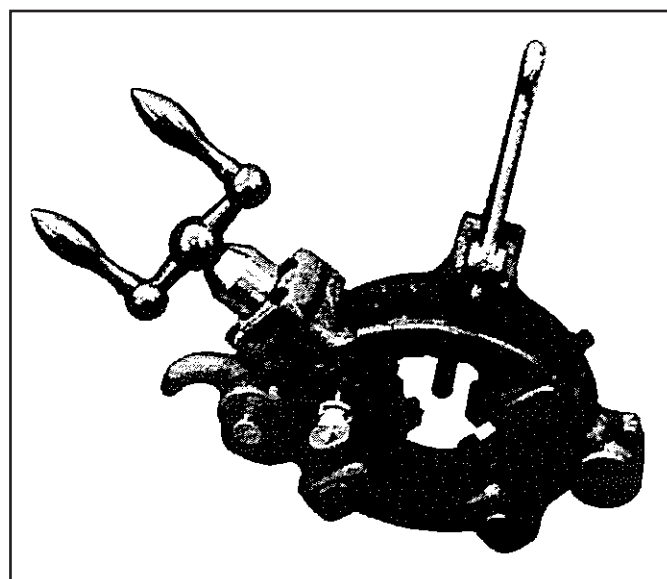


Figure 4

Die Tables

Right-hand die numbers shown. For left-hand dies, use right-hand die numbers and add "LH". (Example: 2581-LH)

* indicates thread forms available in Left-Hand.

Table No. 1

1/8" – 2" Universal Pipe Dies

	1/8"	1/4" - 3/8"	1/2" - 3/4"	1" - 2"
NPT*	2581	2582	2583	2584
NPSM	2581-1	2582-1	2585	2586
NPT (SS)	12776	12777	12778	12779 (1"-1 1/4") 12780 (1 1/2"-2")
BSPT*	2611	2612	2613	2614
BSPP*	2611-1	2612-1	2613-1	2614-1

Table No. 2

1/8" – 2" Snap-O-Matic Pipe Dies

	1/8"	1/4" - 3/8"	1/2" - 3/4"	1" - 2"
NPT*	2591	2592	2593	2584
NPSM	2591-1	2592-1	2588	2589 (1"-1 1/4") 2590 (1 1/2"-2")
NPT (SS)	2591-S	2592-S	2593-S	12779 (1"-1 1/4") 12780 (1 1/2"-2")
BSPT*	2601	2602	2603	2614
BSPP*	2601-1	2602-1	2603-1	2614-1

Table No. 3

Acme General Purpose Dies

1/2"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"
13551	13552	13553	13554	13555	13556	13557	13558	13559

Table No. 4

Trapezoidal Metric Dies

14mm	16mm	18mm	20mm	22mm	24mm	26mm	28mm	30mm	32mm	36mm
13570	13571	13572	13573	13574	13575	13576	13577	13578	13579	13580

Table No. 6

1/2" – 2" British Electric Conduit

1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
2670	2671	2672	2673	2674	2675

Table No. 7

Metric Bolt Dies*

Metric Size	Metric Pitch	Part No.	Metric Size	Metric Pitch	Part No.	Metric Size	Metric Pitch	Part No.	Metric Size	Metric Pitch	Part No.
6	1	2701	11	1.5	2706	20	2.5	2711	30	3.5	2715
7	1	2702	12	1.5	2735	22	1.5	2740	32	1.5	2744
8	1	2731	12	1.75	2707	22	2.5	2712	33	3.5	2716
8	1.25	2703	14	1.5	2736	24	2	2741	36	4	2717
8	1.50	2750	14	2	2708	24	3	2713	39	4	2718
9	1	2732	16	1.5	2737	25	2	2745	40	1.5	2747
9	1.25	2704	16	2	2709	25	1.5	2746	42	4.5	2719
10	1	2733	18	1.5	2738	27	2	2742	45	4.5	2720
10	1.5	2705	18	2.5	2710	27	3	2714	48	5	2721
11	1	2734	20	1.5	2739	30	2	2743	50	1.5	2748
									52	5	2722

Table No. 8
Beveling, Grooving, and Saran Bits

	Centering Dies	Grooving & Cutting Bits	Cutting Bit	Double Bevel Bit 45°	Double Bevel Bit 37.5°	Saran Tools
3/4"	12416	12205	12206	12269	12212	12219
1" - 2"	2760	12205	12206	12269	12212	12219

Explanation of thread forms:

NPT	National Pipe Taper
NPSM	National Pipe Straight Mechanical
NPTSS	National Pipe Taper for Stainless Steel
BSPT	British Standard Pipe Taper
BSPP	British Standard Pipe Parallel
UNC (NC)	United National Coarse
UNF (NF)	United National Fine
BSW	British Standard Whitworth
BSF	British Standard Fine
BEC	British Electrical Conduit

Table No. 9
Universal Bolt Dies

	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"
UNC*	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513
UNF*	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533
BSW*	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633
BSF	2650	—	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661

	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/4"
UNC*	2514	2515	2516	2517	2518	2519
UNF*	2534	2535	2536	2537	2538	—
BSW*	2634	2635	2636	2637	2638	2639
BSF	2662	—	2663	—	2664	—

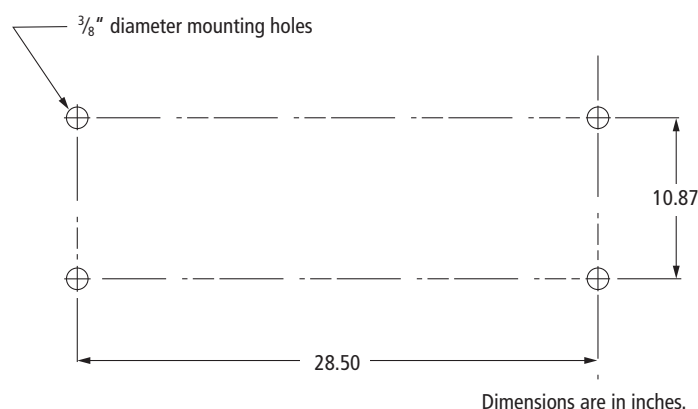
Table No. 10
Reaming and Chamfering Tools, 3/4" - 2"

Centering Dies	30° Reaming, 25° Chamfering Tool	10° Reaming 37.5° Chamfering Tool	10° Reaming 30° Chamfering Tool
13390	13310	13779	13944

Preparing for Operation

Mounting

Be sure the machine is solidly mounted on the stand or substantial bench. Holes in the base are provided for this purpose.



When bench mounting, to assure oil draining into the sump, mount motor end of machine 3/8" higher than the other end.

When mounting on the stand, place motor end of machine over the wheel end of stand, which is built higher for proper oil drainage.

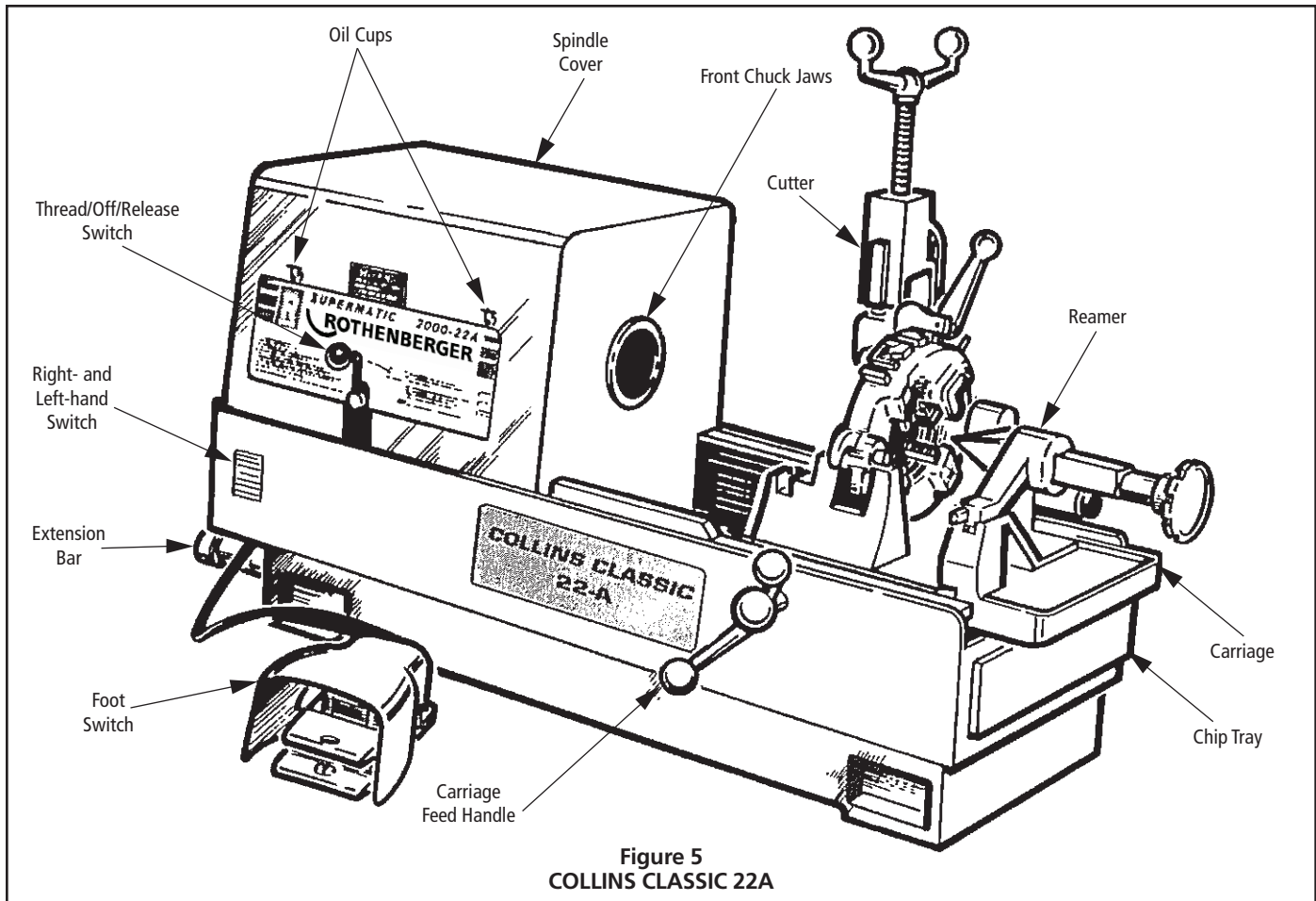
Power

Use proper electric current as shown on nameplate.

To prevent power loss, grounded extension cord of sufficient capacity must be used.

To avoid electric shocks when operating in the field, connect the ground wire of the extension cord.

Power	Cord Length	Wire Size
115V	below 50' 50' - 100'	12-3 10-3
220V 1 Phase	below 50' 50' - 100'	14-3 12-3



Operating Procedure

WARNING

Operator should be thoroughly familiar with preceding Safety Precautions before attempting to operate this equipment.

1. Mount machine on a stand or bench as instructed.
2. Pour one gallon of Thred-O-Matic oil into the oil sump. Thred-O-Matic oil is a special oil designed to stand up under the high speed operation of this machine. Other oils will have a tendency to break down, causing excessive die wear and poor thread quality. If Thred-O-Matic oil is not available, use a high quality equivalent dark, sulphur-base thread cutting oil. Oil pump is self-priming; therefore no priming is needed.
3. For first 10 days of operation, lubricate the spindle bearings every 4 hours with SAE 30 lubricating oil.
4. Your COLLINS 22A is equipped with two electrical switches; a safety foot switch, and a THREAD/OFF/RELEASE (T.O.R.) switch. COLLINS right- and left-hand 22As have a third switch; a right- and left-hand directional switch. 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. The THREAD/OFF/RELEASE switch is the main operating switch. The THREAD position closes the jaws and rotates the spindle. The OFF position stops the machine. The REVERSE position opens the jaws. The REVERSE position is spring-loaded to return to the OFF position. The right- and left-hand switch changes the direction of the motor and therefore the direction of the spindle.

5. After making proper electrical connection, step on foot switch and move THREAD/OFF/RELEASE switch to THREAD position in order to check oil flow. When die head is in the down position, oil will flow through the die head. If up, oil will flow from bypass pressure relief valve.

Chucking Pipe or Rod Standard 22A

1. Step on foot switch. While operating the machine, the foot switch will be depressed, providing power to the machine. If an emergency occurs, remove foot from switch.
2. Turn T.O.R. switch to RELEASE to open jaws.

3. Release T.O.R. switch, and it will return to OFF position.
4. Swing die head, cutter, and reamer up and back to out-of-way position.
5. Insert material into chuck from either front or rear position for desired length to be cut.

Note: For long pieces of pipe or rod, use No. 10640 Superjack Pipe Stand.

6. Move T.O.R. switch to THREAD position. (Pipe will be chucked automatically and will rotate.)

Right and Left 22A

1. Turn T.O.R. switch to RELEASE to open jaws.
2. Push directional switch to desired type of thread (right-hand or left-hand).

Note: Make sure there is no pipe in the machine before proceeding to Step 3.

3. Again, turn T.O.R. switch to RELEASE position and jaws will cycle to OPEN position.
4. Insert pipe or rod into chuck from either front or rear and position for desired length to be cut.
5. Move T.O.R. switch to THREAD position.
6. To reposition for opposite threading direction, follow Steps 1-5.

Note: Machine must be at a full stop before using left and right Directional Switch.

Threading Pipe or Rod (Right-hand)

1. Slip the proper size die head onto the carriage pin, and lower the head into the carriage groove.
2. On Uniquad heads, close operating handle; on Snap-O-Matic heads, select the correct size and engage the operating handle pin. On automatic die heads, pull operating lever forward to cock spring-loaded plunger.
3. Turn carriage handle counterclockwise to bring dies against stock.
4. With T.O.R. switch in THREAD position, and the safety footswitch depressed, apply slight pressure on carriage handle until a few threads have been cut, after which the head will feed itself automatically.
5. Correct thread length is normally obtained when stock reaches the outside edge of chasers. When pipe is still rotating, open head.

CAUTION

While threading, open die head before carriage reaches full length of travel. If carriage strikes base, excessive strain is put on the machine and damage may result.

6. Move T.O.R. switch to OFF position and turn carriage handle clockwise to clear the die head from the pipe.

Threading Pipe or Rod (Left-hand)

Note: Left-hand threading operation possible only on 22A's with right- and left-hand option.

1. Reverse chuck jaws for left-hand threading. (Follow Steps 1-5 under "Right and Left 22A".)
2. Install left-hand dies into die head. (See "Installing Dies.")

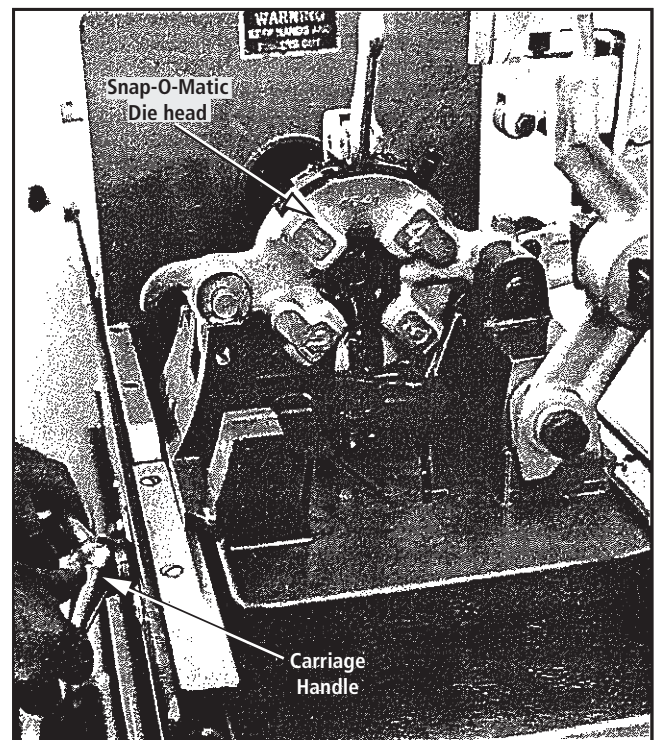


Figure 6
Threading Pipe or Rod

3. Slip the proper size die head onto the carriage pin, and lower the head into the carriage groove.
4. Slide die head retainer pin through opening in carriage to hold die head.
5. Follow right-hand threading instructions, Steps 1-6.

Cutting Pipe or Rod

1. With pipe properly chucked and with cutter, reamer and die head in out-of-the-way position, operate carriage handle until cutter is over area of pipe to be cut.
2. Move T.O.R. switch to THREAD and depress safety switch.
3. With roller block retracted to fit over pipe or rod, bring cutter down and turn cutter handle (Fig. 7) clockwise to force cutter wheel against stock to make cut.

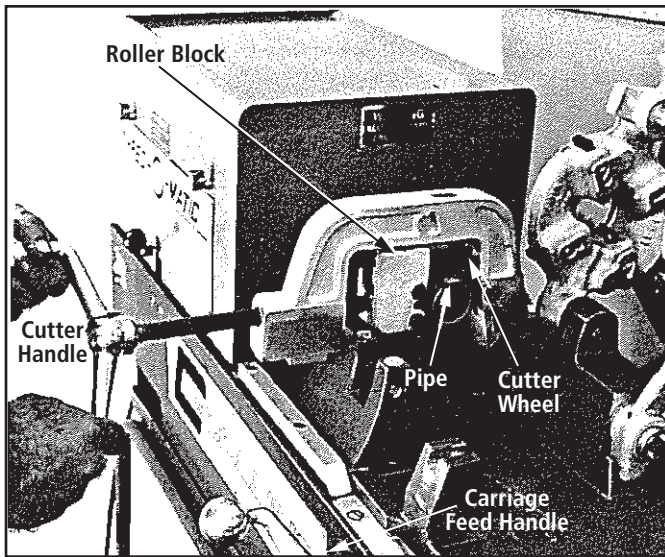


Figure 7
Cutting Pipe

Note: This machine will cut $\frac{1}{8}$ " through 2" pipe or $\frac{1}{4}$ " through 2 $\frac{1}{4}$ " rod. NEVER cut into threads, as this may cause damage to cutter wheel.

- When pipe is cut, move T.O.R. switch to OFF and raise cutter to out-of-way position.

Removing Pipe from Chuck

- Put T.O.R. switch in RELEASE position to open jaws.
- Release T.O.R. switch; it will return to OFF position.
- Pull pipe from either front or rear of machine.

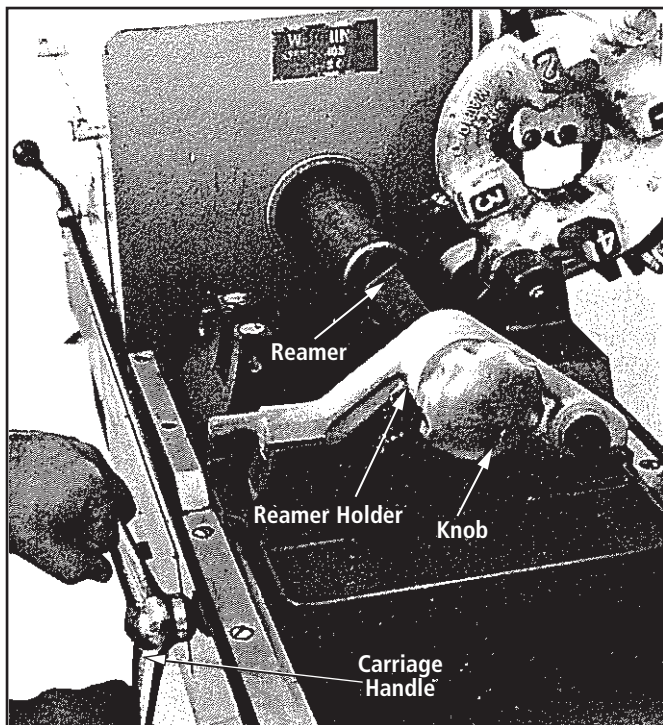


Figure 8
Reaming Pipe

Reaming Pipe

- A reamer (Fig. 8) is provided to remove burrs from inside diameter of cut pipe. To use reamer, raise cutter and die head. Swing reamer down into alignment with pipe.
- Reamer can be extended toward pipe, if necessary, by sliding reamer knob toward reamer arm until contact with reamer holder. Twist reamer knob to left $\frac{1}{4}$ turn to lock in position.
- With pipe chucked and rotating, turn carriage handle counterclockwise so that flutes of reamer enter pipe. Momentarily apply pressure to handle to force reamer against pipe to remove burrs.
- Retract reamer and turn T.O.R. switch to OFF. Place reamer in out-of-way position.

Installing Dies in Uniquad Die Head (R.H. & L.H.)

The Uniquad Die Head (Fig. 9) requires a set of four dies to thread pipe ranging from $\frac{1}{8}$ " through 2". One set of dies is required for each of the following pipe size ranges: ($\frac{1}{8}$ "), ($\frac{1}{4}$ " and $\frac{3}{8}$ "), ($\frac{1}{2}$ " and $\frac{3}{4}$ "), and (1" through 2"). Bolt threading requires a separate set of dies for each bolt size.

- Lay die head on bench with numbers facing up.
- Flip operating lever to OPEN position.

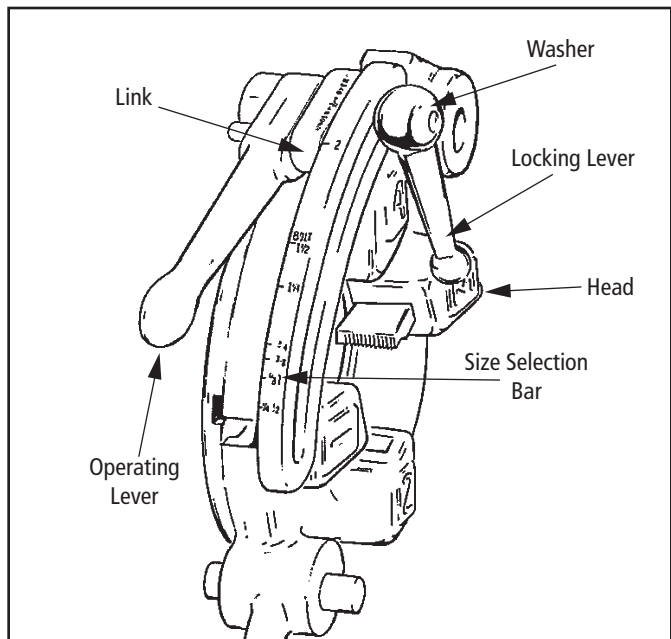


Figure 9
Uniquad Die Head

- Loosen locking lever approximately three turns.
- Slide operating lever all the way to end of slot in the OVER direction indicated on size selection bar.
- Remove dies from die head.
- 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, 1½" 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.

Installing Dies in Snap-O-Matic Die Heads (R.H. & L.H.)

The Snap-O-Matic Die Heads (Fig. 10) are available in the following models and sizes:

Mono.....	1/8"
Dual.....	(1/4" – 3/8"), (1/2" – 3/4") (1" – 1 1/4"), (1 1/2" – 2")
Quad	(1" – 2")

One set of dies are required for each of the pipe size ranges shown above. Bolt threading requires a separate set of dies for each bolt size.

1. Lay die head on bench with numbers facing 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.

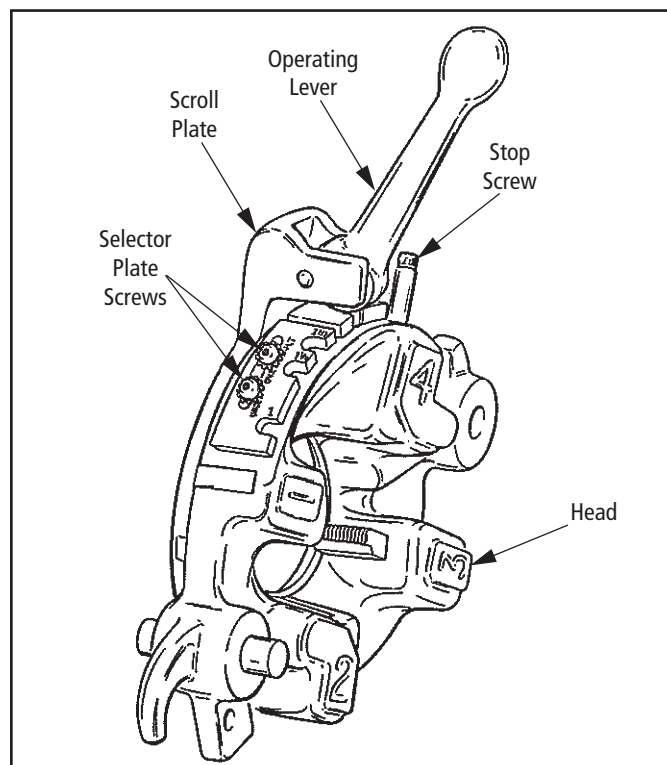


Figure 10
Snap-O-Matic Die Head

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 selector "1½ / 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 Automatic Opening Die Head (R.H. & L.H.)

The Automatic Die Head (Fig. 11) requires two sets of dies to thread pipe ranging from ½" through 2". One set of dies is required for each of the following pipe size ranges: (½" and ¾") and (1" through 2"). Bolt threading requires a separate set of dies for each bolt size.

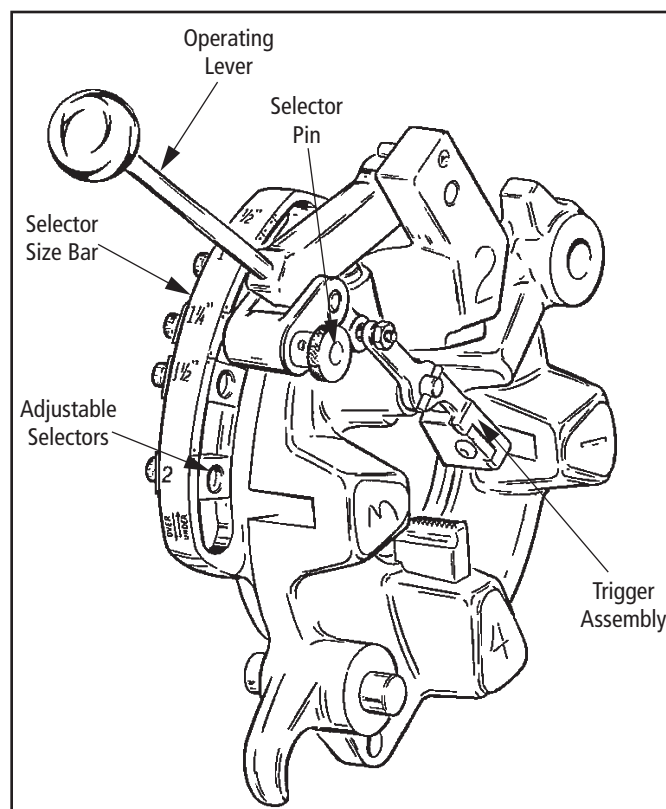


Figure 11
Automatic Opening Die Head

1. Make sure trigger assembly is released.
2. Disengage selector pin and swing it up, out of the way.
3. Lay head down with numbers up.
4. Rotate selector size bar to OPEN position.

5. Remove die segments Nos. 1, 3 and 4. Move die segment No. 2 until die pin can freely travel in outer scroll slot.
6. Rotate selector size bar counterclockwise until No. 2 die segment pin is free and can be removed from die head.
7. Die numbers 1 through 4 must agree with those on die head.
8. Slide No. 2 die segment in die head slot as far as possible. Rotate selector size bar clockwise until it stops. Push segment 2 into the die head as far as possible.
9. Insert segments 1, 3 and 4.
10. Rotate selector size bar counterclockwise and engage selector pin.
11. For bolt threads, engage selector pin in 1½" setting.
12. If oversize or undersize threads are required, use $\frac{3}{16}$ " or $\frac{5}{32}$ " Allen wrench and loosen adjustable selector screws approximately two turns. Move adjustable selector in direction of over or under size mark on selector size bar. Tighten screw.

Note: *Factory setting marked on the right-hand edge of the adjustable Selector.*

Threading with Automatic Opening Die Head (R.H. & L.H.)

Note: *Two different thread length gauges are used on the trigger for NPT (#12693) and BSPT (#12554).*

CAUTION

Do NOT lean over automatic opening die head, as opening lever could strike face when automatically opening.

1. Install the die head on carriage pin.
2. Find the correct adjustable size selector and engage the selector pin.
3. Pull operating lever forward to cock the spring-loaded plunger.
4. Insert stock through the spindle from either the front or rear of the machine.
5. After stepping on foot switch, turn T.O.R. switch to THREAD.
6. Apply slight pressure on carriage handle until a few threads have been cut, after which the head will automatically feed itself.
7. When the correct thread length is obtained, the die head will open automatically, at which time, move carriage away from stock.
8. Move T.O.R. switch to OFF.

Continuous Threading

1. Remove thread length gauge from the trigger.
2. Lift the trigger set screw out of its socket and rotate the trigger 45° to get it out of the way.
3. Follow Steps 2 - 6 of THREAD CUTTING (see page 9).
4. When the correct thread length is obtained, open die head by moving operating lever toward the rear and move carriage away from the stock.
5. Move T.O.R. switch to OFF.

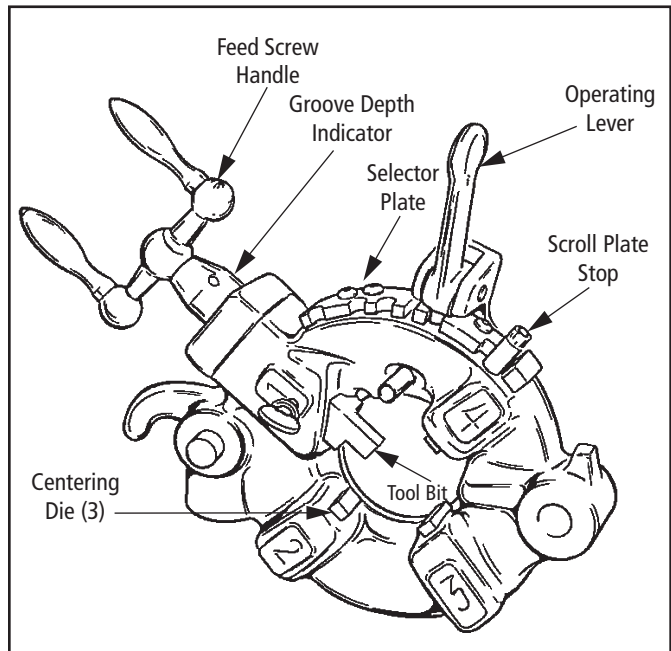


Figure 12
Die Head #12200

Installing Centering Dies in Die Head #12200

The 12200 die head uses three centering die segments. Refer to Die Tables Nos. 8 and 10 for correct centering dies.

1. Lay die head on bench with numbers facing up.
2. Remove stop screw with $\frac{3}{16}$ " Allen wrench.
3. Rotate scroll plate with operating lever to OPEN position.
4. Remove dies from die head.
5. Die numbers 2 through 4 must agree with those on die head.
6. Insert dies until die pins are seated in scroll slots.
7. Rotate scroll plate with operating lever towards selector plates and replace stop screw.
8. If oversize or undersize adjustment is required, use $\frac{5}{32}$ " Allen wrench to loosen selector plate screws. Slide selector plate in direction of over or under size mark on plate. Tighten selector plate screws.

Installing Tool Bits in Die Head #12200

All tool bits are used in the No. 1 die slot opening on the 12200 die head. Refer to Die Tables Nos. 8 and 10 for correct tool bit.

1. Mount head on carriage pin.
2. Insert tool bit into the No. 1 die slot opening on No. 12200 die head.
3. Rotate feed screw handle counterclockwise slowly until tool bit engages. Continue to rotate until handle stops.
4. To replace tool bit, rotate feed screw handle clockwise until tool bit disengages. Pull tool bit out of die head slot.
5. Advance the tool slowly as the tool breaks through the pipe. Let the pipe turn 2-3 revolutions when it breaks through, in order to obtain a clean cut-off and to avoid tool breakage. After cut-off, advance the tool until the groove depth indicator size mark matches the guide line. Turn the feed screw one turn clockwise to finish the groove to the correct diameter. Let the pipe rotate 2-3 revolutions to clean up the groove.
6. Retract tool bit by turning the feed screw handle counterclockwise until it stops. Retract the centering dies by disengaging and moving the operating lever away from the operator until it stops. Move carriage away from pipe and stop machine.
7. For grooving, check groove diameter. (GO/NO-GO gauges are available from COLLINS.)

Operating Die Head #12200 for Grooving, Beveling, or Saran Cutting

Note:

- A. *Always retract Tool Bit before operating machine.*
- B. *Ensure adequate COLLINS oil is present during machining.*

1. Install head on carriage pin.
2. Turn feed screw handle all the way counterclockwise until it stops.
3. Disengage operating lever from selector plate and push it back against the scroll plate stop to retract centering dies.
4. Make certain the pipe end to be machined is positioned close to the front jaws.
5. Chuck pipe in the machine as previously instructed and position die head over pipe by using carriage feed handle.
6. Pull operating lever towards the operator in order to engage in proper size slot of selector plate.
7. Feed the tool bit in the same manner that you would operate a lathe. Use a slow, even feed rate.

Note: Do not plunge tool into pipe.

A continuous chip will curl off and away from the tool at the proper feed. Excessive feed causes breakdown of the cutting edge which will decrease tool life or damage the tool.

Excessive feed is indicated by:

- a) Poor surface finish
- b) Bluish-colored chip due to excessive heat generation
- c) Chips crowd and build up on the tip of the tool, instead of spiraling off away from the tool.

NIPPLEMAX, 1/8" – 2"

Threading Nipples

1. Ream the inside of the pipe and thread one end with threading machine.
2. Cut the pipe to required length.
3. Chuck the Nipplemax in the front chuck, being careful to mount it centered.
4. Put the already-threaded end of the pipe on the Nipplemax.
5. **IMPORTANT:** Press the die head with dies against the pipe firmly, **BEFORE** switching on the machine.
6. After the thread is completed, the nipple can be easily removed by hand.

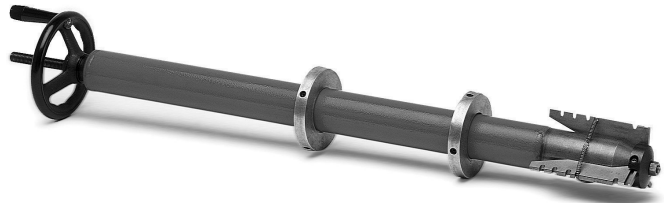
Notes:

- A. *The pipe end which will be put on the Nipplemax should be reamed to remove all I.D. burrs.*
- B. *The nipple should be put completely on the Nipplemax.*
- C. *Jaws slots and grooves should be kept clean.*
- D. *Do not start machine until dies contact the nipple, to avoid slipping.*

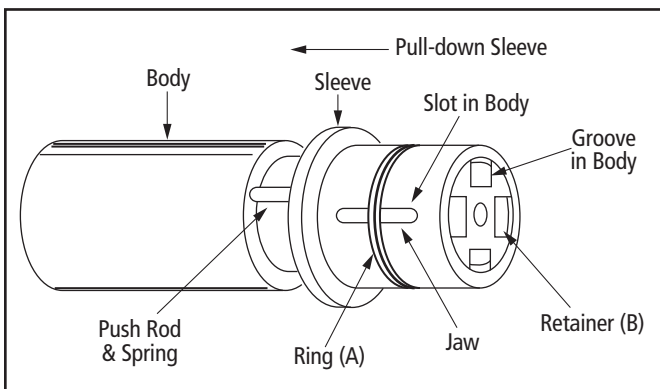
How to Replace Jaws in Nipplemax:

(see close-up view)

1. Pull down sleeve.
2. Remove retainer (b) 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.
6. Put in new jaws.
7. Put sleeve with jaws on body. If it was necessary to remove ring (a) to clean slots, put ring (a) on body.



Part No.	Description
00089	Nipple Max Kit, 1/2"-2", with Extension Bar
00190	1/2" Chuck
00191	3/4" Chuck
00192	1" Chuck
00193	1 1/4" Chuck
00194	1 1/2" Chuck
00195	2" Chuck
00199	Shank, for Nipple Max Chucks



“Making-On” Pipe Fittings and Valves

The 22A may be used to assemble pipe fittings and valves onto the threaded end of a pipe, using a heavy-duty 18” pipe wrench.

WARNING

Using wrenches larger than 18” could damage machine base.

1. Retract carriage to farthest position away from front chuck.
2. Insert pipe into chuck and position the end of the pipe to be assembled close to the front jaws.

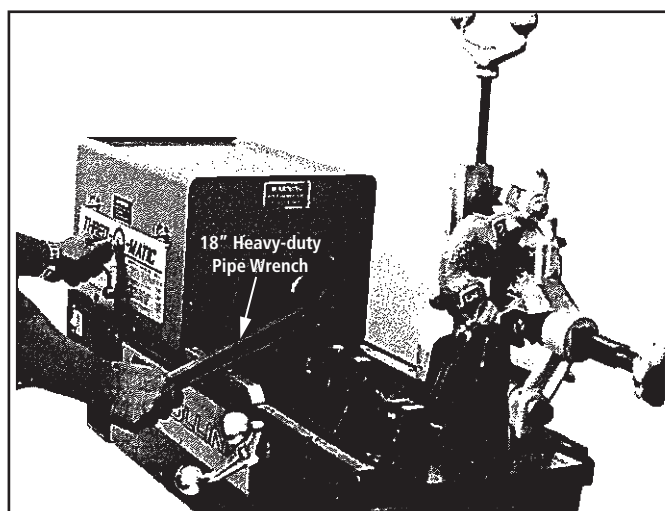


Figure 17
“Making-on”

3. Move T.O.R. switch to THREAD, and chuck pipe.
4. Return T.O.R. switch to OFF.
5. Hand-tighten fitting on the end of the pipe.
6. Place 18” pipe wrench under fitting and tighten pipe wrench jaws.
7. Rest handle portion of pipe wrench on the make-on bar (see Fig. 17).

WARNING

Make-on in right threading direction only.

8. Put T.O.R. switch in THREAD position.
9. When desired length is reached, turn T.O.R. switch to RELEASE.
10. Remove pipe wrench and pipe with fitting.

“Breakdown” Pipe Fittings and Valves

The 22A may be used to break loose pipe fittings and valves on the end of pipe.

Note: Breakdown feature not included on 22A's with three-phase motors.

CAUTION

Operate in right-hand threading direction only.

1. Insert pipe through rear chuck and position fitting near jaws.
2. Put T.O.R. switch in THREAD position, and chuck pipe.
3. Return T.O.R. switch to OFF position.
4. Slide extension bar out.
5. Place 18” pipe wrench under fitting and tighten pipe wrench jaws.
6. Rest handle portion of pipe wrench on extension bar (Fig. 18).
7. Put T.O.R. switch in THREAD position.
8. When fitting is removed, put T.O.R. in OFF position.



Figure 18
Breakdown

Using a Universal Shaft

WARNING

Using a universal drive shaft on the 22A is not recommended. See 141 Geared Threader Kit.

Oil Spout Assembly (R04200156R)

By removing the $\frac{1}{8}$ " pipe plug in the back of the carriage die head pin, the oil spout assembly may be easily mounted to provide additional oiling during reaming and cutting operations.

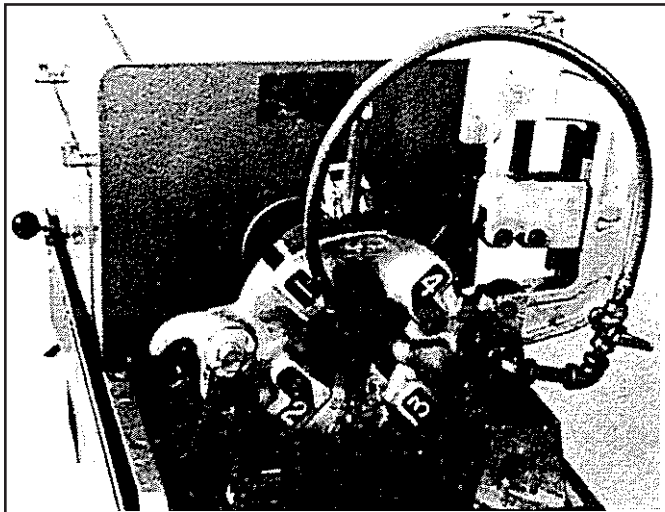


Figure 19
Oil Spout Assembly

Baffle Plate (#1984)

For elimination of oil spillage while transporting the 22A, the baffle plate fits in oil sump under chip tray to contain threading oil.

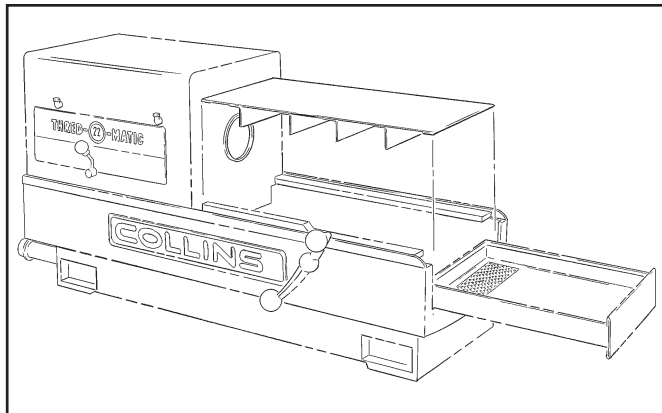


Figure 21
Oil Sump Baffle Plate

Machine Cover (#1985)

The form-fitting cover slips easily onto the 22A and snaps together to protect machine from dust, rain and snow.

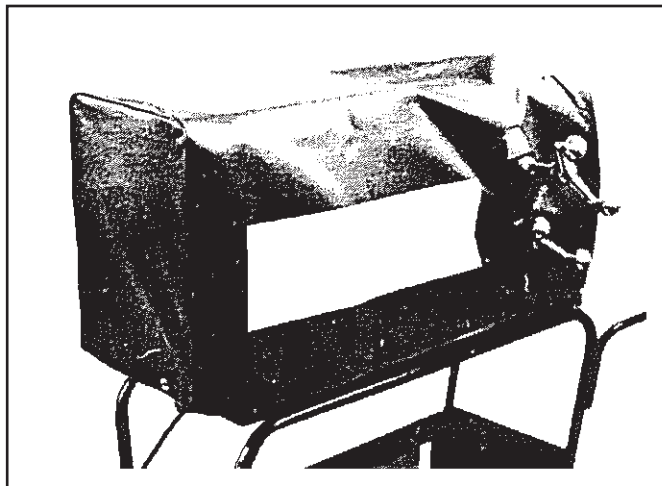


Figure 24
Machine Cover

Maintenance Instructions

WARNING

Always unplug power cord before servicing machine.

Note: If any maintenance is required other than that listed below, take machine to an authorized COLLINS Warranty Repair Center or return to factory.

Oil Cups

Note: For first 10 days of operation, lubricate the spindle bearing every 4 hours with SAE 30 lubricating oil.

After the first 10 days, refill oil cups with SAE 30 every 8 hours of operation.

Threading Oil Maintenance

Note: For clean threads and long die life, always use COLLINS threading oil.

Change threading oil every 40 hours of use or when threading oil has become contaminated or dirty.

1. To drain oil, position a container under drain plug and remove plug.
2. When oil has drained out, use a rag to clean oil sump of chips and sediment.
3. Remove all debris around oil filter.
4. Replace drain plug and pour 1 gallon of COLLINS oil into oil sump.

Oil Pressure Adjustment

To increase or decrease oil flow through die head:

1. Loosen locking nut.
2. To increase pressure, turn set screw clockwise.
3. To decrease pressure, turn set screw counterclockwise.
4. After adjustment, tighten locking nut.

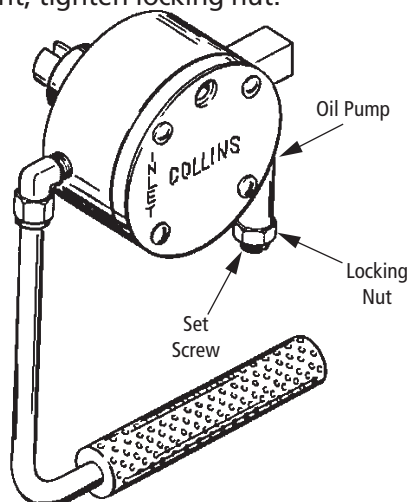


Figure 25
Oil Pressure
Adjustment

Carriage Rails and Gear

Keep clean and lubricate frequently with machine oil.

Ring Gear

Remove spindle cover and check ring gear every six months to see if additional "Fil-Mo-Plate" spray lubricant needs to be applied.

Motor

Check motor brushes for wear every six months. If motor lacks power due to a dirty commutator, use a commutator cleaner stick or fine emery cloth.

Lubrication is not required as all motors have sealed ball bearings.

Gear Case

It is permanently lubricated and requires no maintenance.

Brake Band

If slippage of stock should occur after wire brushing jaws, then:

1. Stop machine.
2. Remove spindle cover.
3. Tighten brake adjustment bolt.
4. Start machine.
5. Turn switch OFF and spindle should coast one revolution. If not, repeat Steps 3, 4 and 5.
6. Replace spindle cover.

When threading cast iron pipe, the brake band must be adjusted properly to prevent the pipe from slipping in the jaws. Keep the jaws clean.

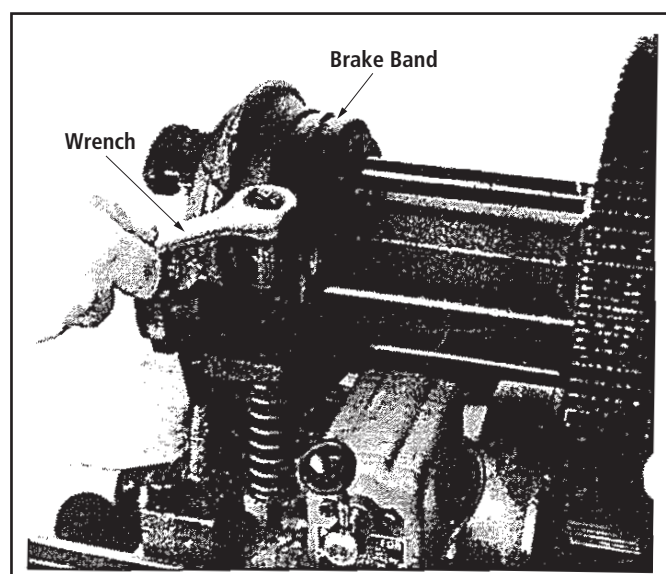


Figure 26
Brake Band Adjustment

Jaws

Keep clean with wire brush to avoid slippage.

To replace jaws:

1. Unplug machine.
2. Remove spindle cover.
3. Remove jaw retaining rings and slide jaws off shaft.

Note: *If machine has been used for only right-hand threading, reverse jaws and remount on jaw shafts so that the unused side faces spindle opening.*

4. Inspect jaw shaft keys for wear.
5. Install replacement jaws so that single row jaws are opposite each other and doubles are opposite each other. Also alternate single and double jaws between front and rear chucks (see Fig. 28).

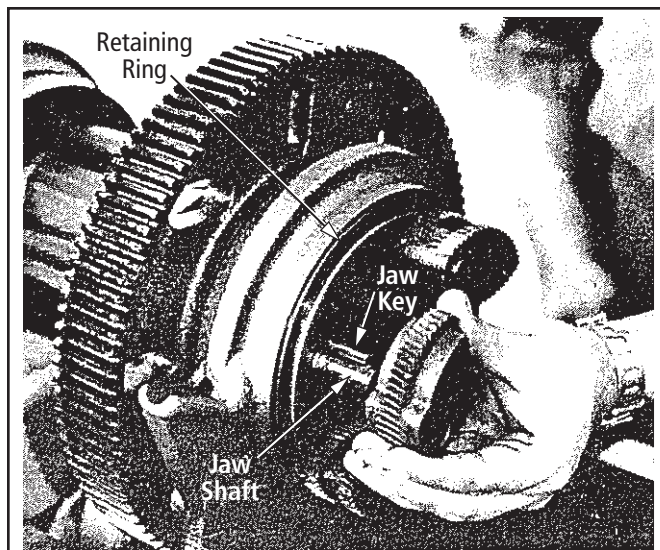


Figure 27
Jaw Replacement

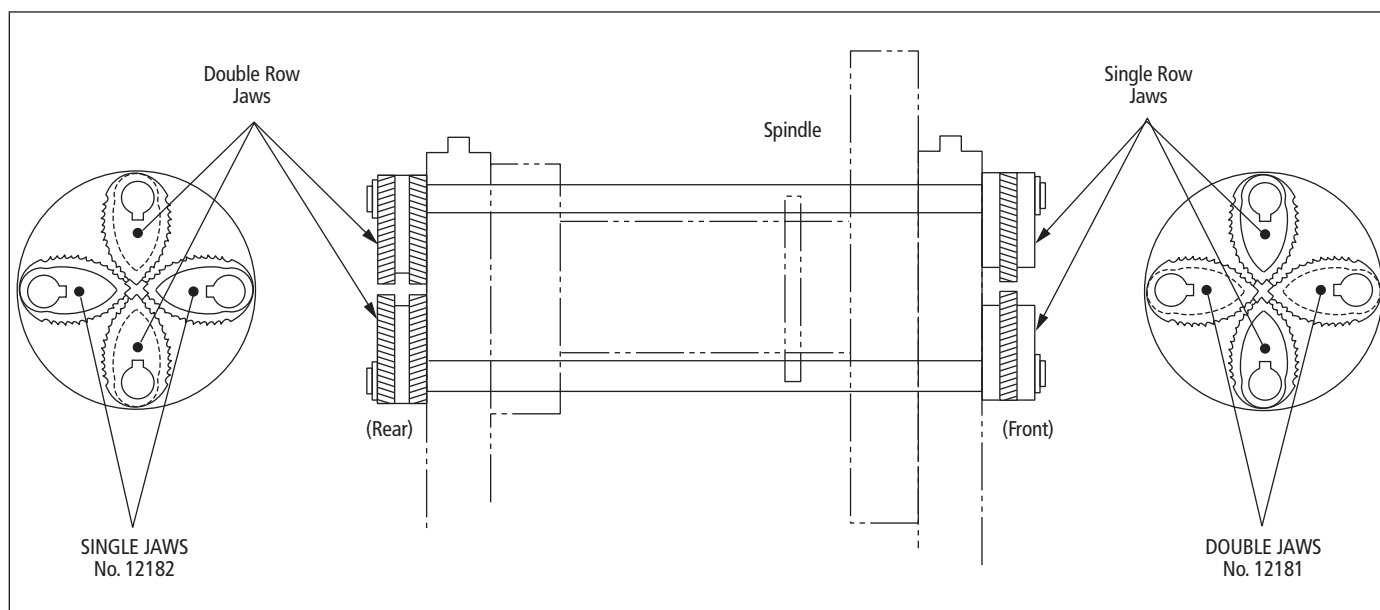
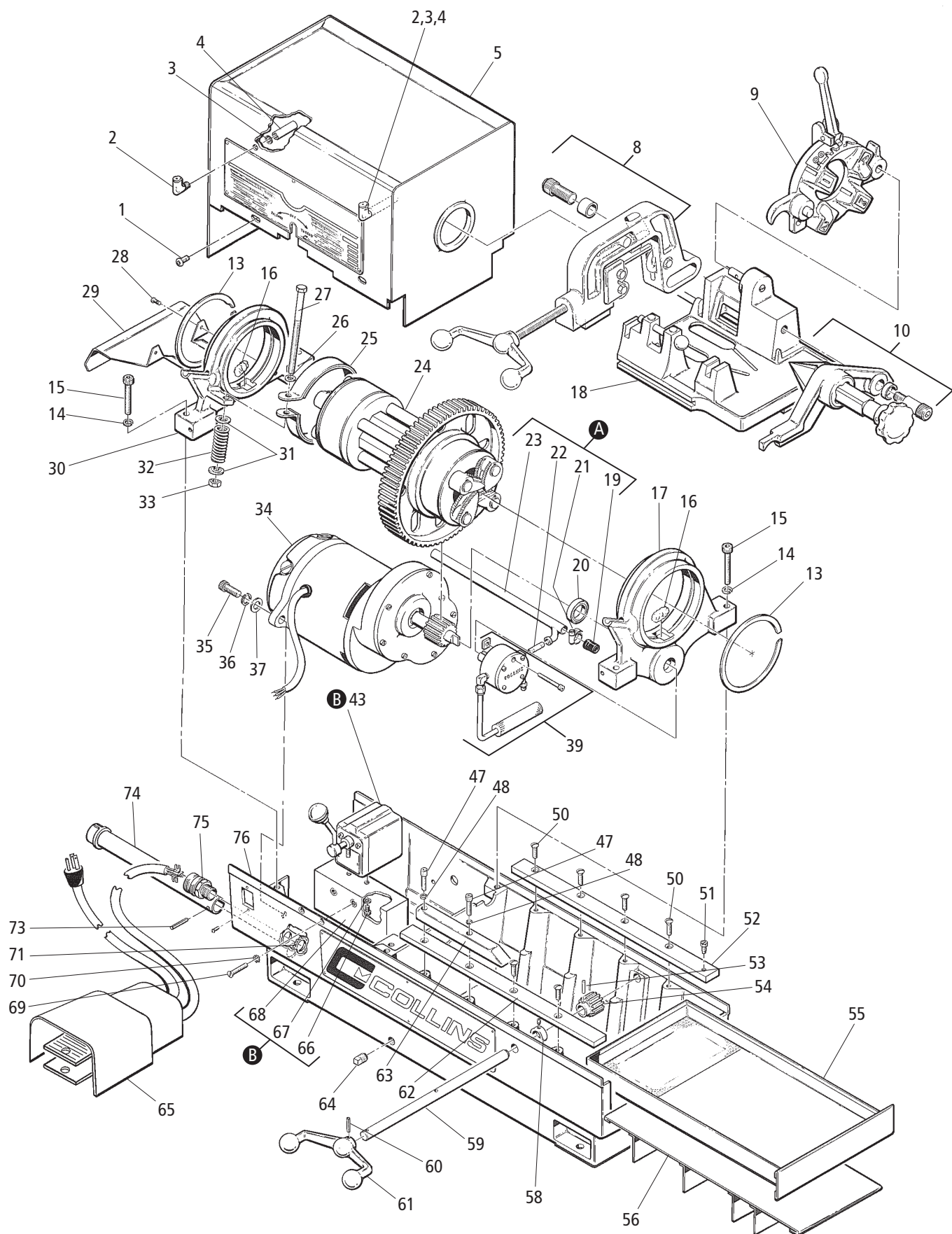


Figure 28
Jaw Positioning

Dies

Keep sharp and free of chips at all times. Sharpening service is provided at the factory for a nominal charge. As all sets of dies are matched, send in complete set for sharpening.

Standard 22A Main Assembly



Standard 22A Main Assembly

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Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	R04201142R	Screw, cap, soc self-lock, G-104-S, 1/4"–20 x 5/8" ...	4	36	R04201071R	Lock washer, helical, C-110-M, spring, 5/16"	2
2	R04201619R	Cup, lubricating oil, 12172	2	37	R04201088R	Washer, flat, DA-103-W, wide, 5/16"	2
3	R04201080R	Washer, lock, int., CB-110-A, tooth, 5/16"	2	39	R04201651R	Oil pump ass'y, std, 12276	1
4	R04201620R	Extension, oil cup, 12173	2	43	R04201297R	Switch ass'y, 1ph, 22A, 1221	1
5	R04201311R	Cover, spindle, 1243-1, 1ph, 22A.....	1			(see sub-assembly "B")	
8	R04200159R	Cutter ass'y, wheel type, 13370, 1/8" - 2"	1	47	R04201116R	Screw, cap, soc hd, F-108, 1/4"–20 x 1 1/4"	2
		(see detailed assembly)		48	R04201068R	Lock washer, helic. spring, C-109-HC, 1/4" H-C	2
9	—	Die head assemblies	1	50	R04201101R	Screw, cap, soc. flat hd, E-105, 1/4"–20 x 3/4"	6
		(various types; see detailed assemblies)		51	R04201218R	Screw, self-tap, sltd, 1/4"–20 x 1/2", NE-702-F	1
10	R04200160R	Assembly, cone reamer, 12127	1	52	01229-R	Rail, base, rear, 22A	1
		(see detailed assembly)		53	R04201257R	Pin, spring, U-711, 3/16" x 1"	1
13	R04201293R	Ring, retaining, 1212, 22A spindle	2	54	R04201382R	Gear, spur, 12T, 1623, 22A carriage	1
14	R04201074R	Lock washer, helic. sprg, C-113-HC, 1/2" H-C	4	55	R04201300R	Tray, chip, 1227	1
15	R04201133R	Screw, cap, soc hd, F-511, 1/2"–13 x 2 1/2"	4	56	R04200155R	Plate, oil sump baffle, 01984 (accessory)	1
16	R04201605R	Wick, oil reservoir, 12006-3, 1"	2	58	R04201405R	Collar, carriage feed, 2122, rod, 22A	1
17	01226	Spindle block, front, 22A	1	59	R04201309R	Feed shaft, 22A carriage, 1238, feed	1
18	—	Carriage assemblies (various types;	1	60	R04201246R	Spring pin, 1/4" x 1 1/2", replace P-9061A pin.....	1
		see detailed assemblies)		61	R04201287R	Handle, operating, 1111, carriage & cutter	1
19	R04201375R	Sleeve, oil line, 22A, 1564.....	1	62	01229-F	Rail, base front, 22A.....	1
		(see sub-assembly "A")		63	R04201402R	Make-on bar, 22A, 2061	1
20	R04202245R	Ball bearing, 6203 2NSE, -NVC3, 1018-1	1	64	R04201284R	Plug, pipe, 3/8" NPT, 1020 base drain	1
21	R04201377R	Clamp, hose, oil line, sleeve 1568	1	65	R04200161R	Foot switch & cord, 115V, 13840 1ph US	1
		(see sub-assembly "A")		66	R04201211R	Screw, mach., sltd, L-1100, rhd, 1/4"–20 x 1/4"	2
22	R04201618R	Nipple, 1/8" x 1 3/4", 12145	1	67	R04201069R	Lock washer, helical, C-109-M, spring, 1/4"	2
		(see sub-assembly "A")		68	R04201334R	Resistor ass'y, 115V, 1345-1, 1ph, 22A.....	1
23	R04201374R	Oil line telesc., 1562, 22A	1		R04201335R	Resistor ass'y, 230V, 1346-1, 1ph, 22A	1
		(see sub-assembly "A")		69	R04201101R	Screw, cap, soc flat hd, E-105, 1/4"–20 x 3/4"	2
24	R04201403R	Spindle assembly, std, 2090	1	70	R04203226R	Lock washer, ext. tooth, CD-109-A, c'sunk, 1/4"	2
25	R04201754R	Brake band sub ass'y, 22A/SM2000, 12603	2	71	R04203205R	Locknut, electr, SM4000, 8769	1
26	R04201088R	Washer, flat, DA-103-W, wide 5/16"	1	73	R04201260R	Pin, spring, U-918, 1/4" x 1 1/2"	1
27	R04201316R	Screw, cap, hex, 1258, 22A brake band.....	1	74	R04201286R	Bar ass'y, breakdown, 1030, 22A	1
28	R04201222R	Screw, self-tap, dltd, pan #10-24 x 1/2", NF-503-F..	2	75	R04201343R	Bushing, strain relief, 1376.....	1
29	R04201312R	Shield, motor, 1244, 22A	1	76	R04201310R	Base, 1ph, 22A, 1241.....	1
30	01225	Spindle block, rear, 22A.....	1				
31	R04201315R	Washer, spring seat, .328DX1.125DX.062, 1255....	2				
32	R04201314R	Spring, 22A brake band, 1254, friction band.....	1				
33	R04201035R	Nut, hex, 5/16"–18, B-102	1				
34	R04201318R	Motor & gearcase ass'y, 1300, 115V, 1ph, 22A ...	1				
		(see detailed assemblies)		A	R04215050R	Pump and oil line assembly, std, 22A	
	R04201319R	Motor & gearcase ass'y, 1300-1, 230V, 1ph, 22A		B	12039	Contrlr & resistor ass'y, 115V, 1ph 22A	
35	R04201121R	Screw, cap, soc hd, F-206, 5/16"–18 x 1"	2		R04212038R	12038 Operating switch & resistor ass'y, 230V	

Sub-Assemblies

A	R04215050R	Pump and oil line assembly, std, 22A
B	12039	Contrlr & resistor ass'y, 115V, 1ph 22A
	R04212038R	12038 Operating switch & resistor ass'y, 230V

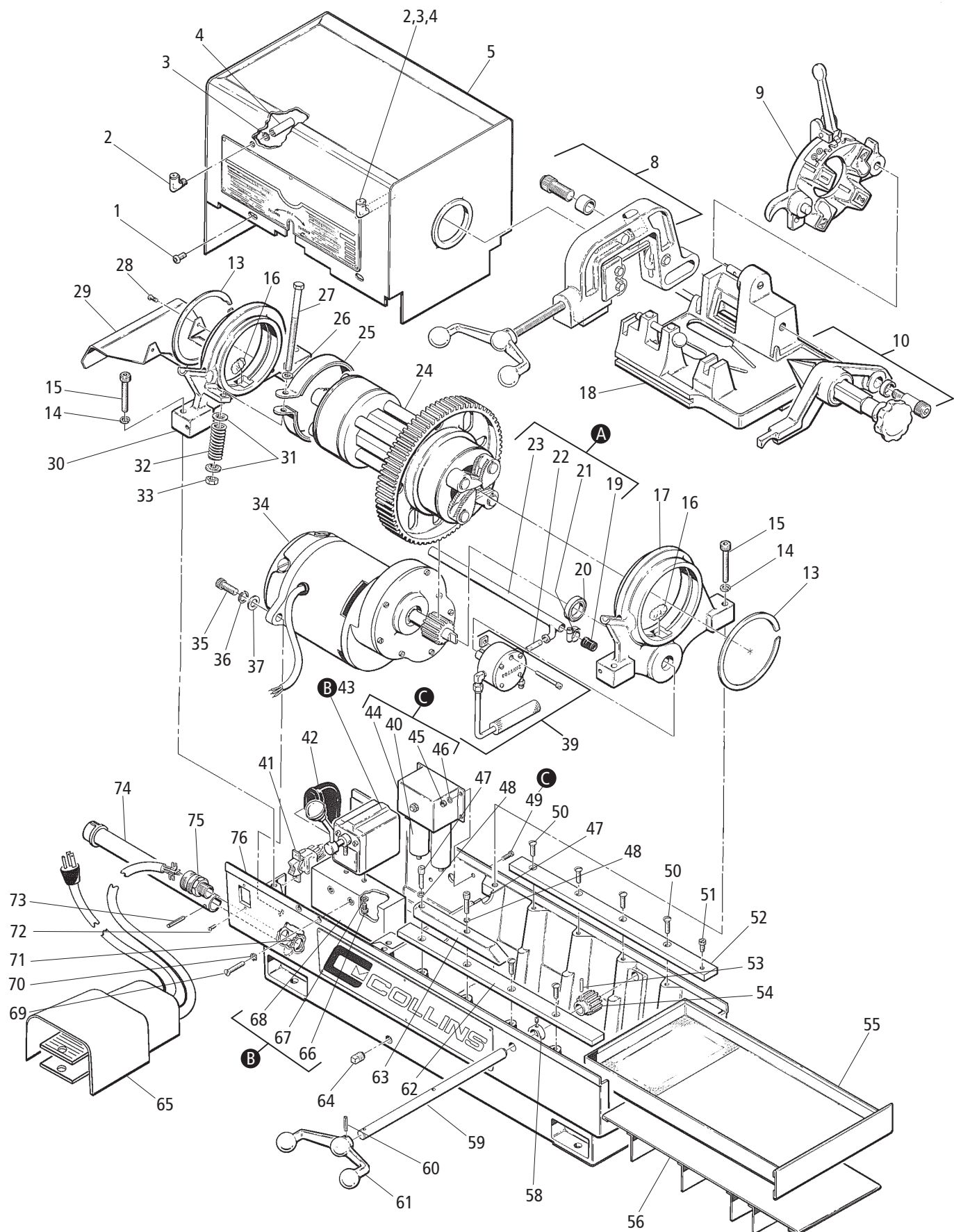
Note: Telescopic Oil Line Kit #15040R replaces Previous Oil Line Kit #01557-1 & Valve #01540 starting with Serial No. #4225 (Aug. 1997).

Supermatic 2000-22A

In addition to the parts listed above, the Supermatic 2000-22A Machines contain the following items:

1. A Central Lubricating System with Oil Reservoir
2. A System-On Light
3. Hour Meter

Right and Left 22A Main Assembly



Right and Left 22A Main Assembly

COLLINS CLASSIC

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	R04201142R	Screw, cap, soc self-lock, G-104-S, 1/4"-20 x 5/8"	4	47	R04201116R	Screw, cap, soc hd, F-108, 1/4"-20 x 1 1/4"	2
2	R04201619R	Cup, lubricating oil, 12172	2	48	R04201068R	Lock washer, helic. sprg, C-109-HC, 1/4" H-C	2
3	R04201080R	Washer, locking, int., CB-110-A, tooth, 5/16"	2	49	—	(see Optional Accessories)	
4	R04201620R	Extension, oil cup, 12173	2	50	R04201101R	Screw, cap, soc flat hd, E-105, 1/4"-20 x 3/4"	6
5	R04201311R	Cover, spindle, 1243-1, 1ph, 22A	1	51	R04201218R	Screw, self-tap, sltd, 1/4"-20 x 1/2", NE-702-F	1
8	R04200159R	Cutter ass'y, wheel-type, 13370, 1/8" - 2"	1	52	01229-R	Rail, Base Rear, 22A	1
		(see detailed assembly)		53	R04201257R	Pin, spring, U-711, 3/16" x 1"	1
9	—	Die head assemblies (various types and sizes;	1	54	R04201382R	Gear spur, 12T, 1623, 22A carriage	1
		see detailed assemblies)		55	R04201300R	Tray, chip, 22A, 1227	1
10	R04200160R	Assembly, cone reamer, 12127	1	56	R04200155R	Plate, oil sump baffle, 01984 (accessory)	1
		(see detailed assembly)		58	R04201405R	Collar, carriage feed, 2122, rod, 22A	1
13	R04201293R	Ring, retaining, 1212, 22A spindle	2	59	R04201309R	Feed shaft, 22A carriage, 1238, feed	1
14	R04201074R	Lock, washer, helic. sprg, C-113-HC, 1/2" H-C	4	60	R04201246R	Spring pin, 1/4" x 1 1/2", replace P-9061A pin	1
15	R04201133R	Screw, cap, soc head, F-511, 1/2"-13 x 2 1/2"	4	61	R04201287R	Handle, operating, 1111, carriage & cutter	1
16	R04201605R	Wick, oil reservoir, 12006-3, 1"	2	62	01229-F	Rail, base front, 22A	1
17	01226	Spindle block, front, 22A	1	63	R04201402R	Make-on bar, 22A, 2061	1
18	—	Carriage assemblies (various types;	1	64	R04201284R	Plug, pipe, 3/8" NPT, 1020 base drain	1
		see detailed assemblies)		65	R04200161R	Foot switch & cord, 115V, 13840, 1ph US	1
19	R04201375R	Sleeve, oil line, 22A, 1564	1		13839	Switch and cord assembly, foot, 230V	1
		(see sub-assembly "A")		66	R04201211R	Screw, machine, sltd, L-1100, rhd, 1/4"-20 x 1/4" ...	2
20	R04202245R	Ball bearing, 6203 2NSE, -NVC3, 1018-1	1	67	R04201069R	Lock washer, helical, C-109-M, spring, 1/4"	2
21	R04201377R	Clamp, hose, oil line, sleeve, 1568	1	68	R04201334R	Resistor assembly, 115V, 1345-1, 1ph, 22A	1
		(see sub-assembly "A")			R04201335R	Resistor assembly, 230V, 1346-1, 1ph, 22A	1
22	R04201618R	Nipple, 1/8" x 1 3/4", 12145	1	69	R04201101R	Screw, cap, soc flat hd, E-105, 1/4"-20 x 3/4"	2
		(see sub-assembly "A")		70	R04203226R	Lock washer, ext. tooth, CD-109-A, c'sunk 1/4"	2
23	R04201374R	Oil line, telesc., 1562, 22A (see sub-ass'y "A")	1	71	R04203205R	Locknut, electr, SM4000, 8769	1
24	R04201404R	Spindle assembly, R&L 22A 2100	1	72	M-707	Screw, directional sw. att., #6-32 x 1/2"	2
25	R04201754R	Brake band sub ass'y, 22A/SM2000, 12603	2			oval head machine	
26	R04201088R	Washer, flat, DA-103-W, wide 5/16"	1	73	R04201260R	Pin, spring, U-918, 1/4" x 1 1/2"	1
27	R04201316R	Screw, cap, hex, 1258, 22A brake band	1	74	R04201286R	Bar ass'y, breakdown, 1030, 22A	1
28	R04201222R	Screw, self-tap, dltd, pan #10-24 x 1/2, NF-503-F	2	75	R04201343R	Bushing, strain relief, 1376	1
29	R04201312R	Shield, motor, 1244, 22A	1	76	R04201310R	Base, 1ph, 22A, 1241	1
30	01225	Spindle block, rear, 22A	1				
31	R04201315R	Washer, spring seat, .328Dx1.125Dx.062, 1255	2				
32	R04201314R	Spring, 22A brake band, 1254, friction band	1				
33	R04201035R	Nut, hex, 5/16" -18, B-102	1				
34	R04201318R	Motor & gearcase ass'y, 1300, 115V, 1ph, 22A	1				
		(see detailed assemblies)		A	R04215050R	Pump & oil line assembly, std, 22A	
	R04201319R	Motor & gearcase ass'y, 1300-1, 230V, 1ph, 22A		B	12039	Contrlr & res assembly, 115V, 1ph 22A	
		(see detailed assemblies)			R04212038R	12038 Operating switch & resistor ass'y, 230V	
35	R04201121R	Screw, cap, soc hd, F-206, 5/16" -18 x 1"	2	C	14154	Filter assembly, radio interference suppression	
36	R04201071R	Lock washer, helical, C-110-M, spring, 5/16"	2			per MIL-STD-826. See Optional Accessories,	
37	R04201088R	Washer, flat, DA-103-W, wide 5/16"	2			items #40, #44, #45, and #49 listed below.	
39	R04201652R	Oil pump ass'y, R&L, 12277	1				
40	—	(see Optional Accessories)					
41	R04201903R	Switch, directional, 13340	1				
42	R04201313R	Cover, rockerswitch, R&L, 1246, 22A	1				
43	R04201297R	Switch assembly, 1ph, 22A, 1221	1				
		(see sub-assembly "B")					
44	—	(see Optional Accessories)					
45	—	(see Optional Accessories)					
46	—	(see Optional Accessories)					

Sub-Assemblies

A	R04215050R	Pump & oil line assembly, std, 22A
B	12039	Contrlr & res assembly, 115V, 1ph 22A
	R04212038R	12038 Operating switch & resistor ass'y, 230V
C	14154	Filter assembly, radio interference suppression
		per MIL-STD-826. See Optional Accessories,
		items #40, #44, #45, and #49 listed below.

Optional Accessories

Not Included in #14037 or #13792

40	FA-7457	Filter, RF interference	2
44	1339	Enclosure, interference filter	1
45	B-132	Nut, enclosure att., #10-24 hex	2
46	CB-107	Washer, lock, enclosure att., #10	2
49	K-908	Screw, enclosure att.	1

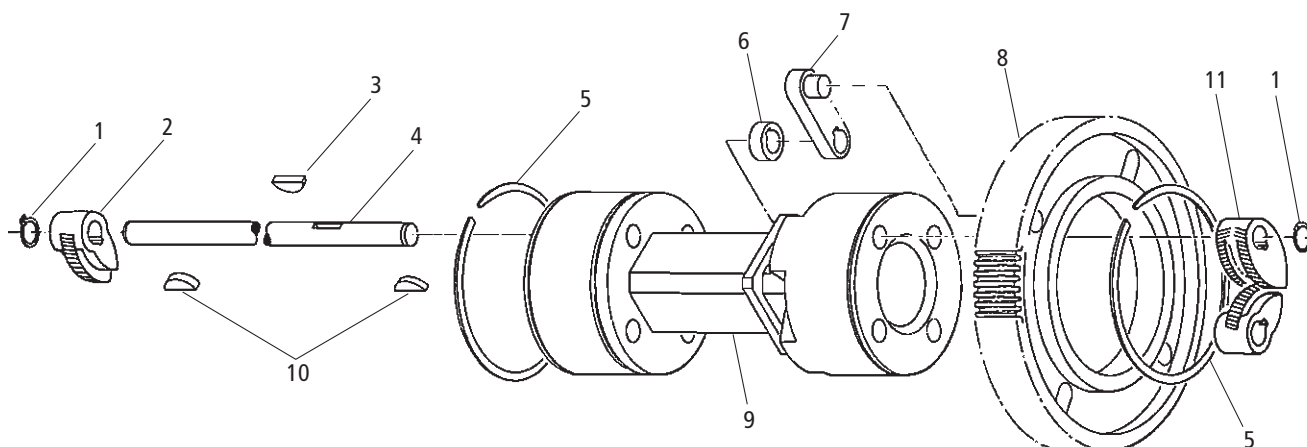
Note: Telescopic Oil Line Kit #15040R replaces Previous Oil Line Kit #01557-1 & Valve #01540 starting with Serial No. #4225 (Aug. 1997).

Supermatic 2000-22A

In addition to the parts listed above, the Supermatic 2000-22A Machines contain the following items:

1. A Central Lubricating System with Oil Reservoir
2. A System-On Light
3. Hour Meter

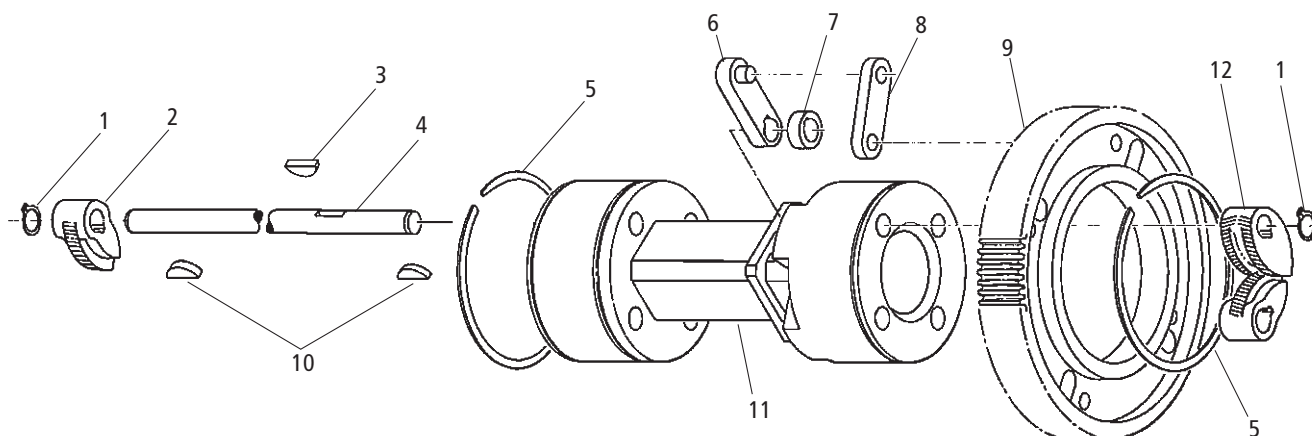
Standard 22A Spindle Assembly #R04201403R



Item	Part No.	Description	Qty
1	R04201275R	Retaining ring, ext., .042x.635 ID Y-5100-68.....	8
2	R04201624R	Jaw, chuck, dbl R&L, 12181, 22A.....	4
3	R04201269R	W-807 Key, Woodruff, 1/4" x 7/8" 1218, 22A.....	4
4	R04201295R	Jaw shaft, 1214, std, 22A.....	4
5	R04201293R	Retaining ring, 1212, 22A spindle.....	2
6	R04201294R	Spacer, jaw lever, 1213-4, 22A spindle.....	4

Item	Part No.	Description	Qty
7	R04201302R	Lever & pin assembly, jaw, 1230 std, 22A.....	4
8	R04201296R	Gear, spindle, std 22A, 1216.....	1
9	R04202274R	Spindle, 22A, 1211.....	1
10	R04201270R	W-808 Key, Woodruff, 1/4" x 1", 1217, 22A.....	8
11	R04201625R	Jaw, chuck, sgl, R&L, 12182, 22A.....	4
	R04201623R	Jaws, set of 8, 12180, 22A	

Right and Left 22A Spindle Assembly #R04201403R

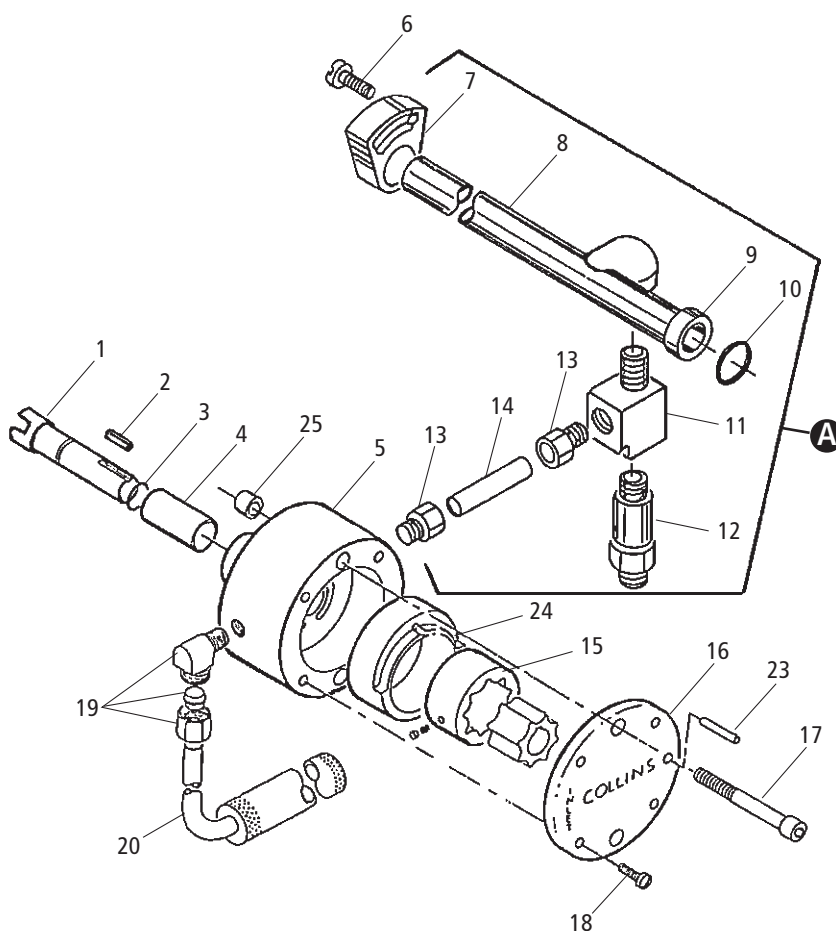


Item	Part No.	Description	Qty
1	R04201275R	Retaining ring ext., .042x.635 ID Y-5100-68.....	8
2	R04201624R	Jaw, chuck, dbl R&L, 12181, 22A.....	4
3	R04201269R	W-807 Key, Woodruff, 1/4" x 7/8" 1218, 22A.....	4
4	R04201306R	Jaw shaft, R&L, 22A.....	4
5	R04201293R	Retaining ring, 1212, 22A spindle.....	2
6	R04201303R	Lever & pin ass'y, jaw 1230-1, right/left, 22A.....	4
7	R04201294R	Spacer, jaw lever, 1213-4, 22A spindle.....	4

Item	Part No.	Description	Qty
8	R04201307R	Lever link, jaw, R&L, 1236, 22A.....	4
9	R04201308R	Gear, spindle, R&L, 1237-1, 22A spindle.....	1
10	R04201270R	W-808 Key, Woodruff, 1/4" x 1", 1217, 22A.....	8
11	R04202274R	Spindle, 22A, 1211.....	1
12	R04201625R	Jaw, chuck, sgl, R&L, 12182, 22A.....	4
	R04201623R	Jaws, set of 8, 12180, 22A	

Pump and Oil Line Assemblies

Standard #R04215050R & R&L #R04202058R



Note: Telescopic Oil Line Kit #15040R replaces Previous Oil Line Kit #01557-1 & Valve #01540 starting with Serial No. #4225 (Aug. 1997).

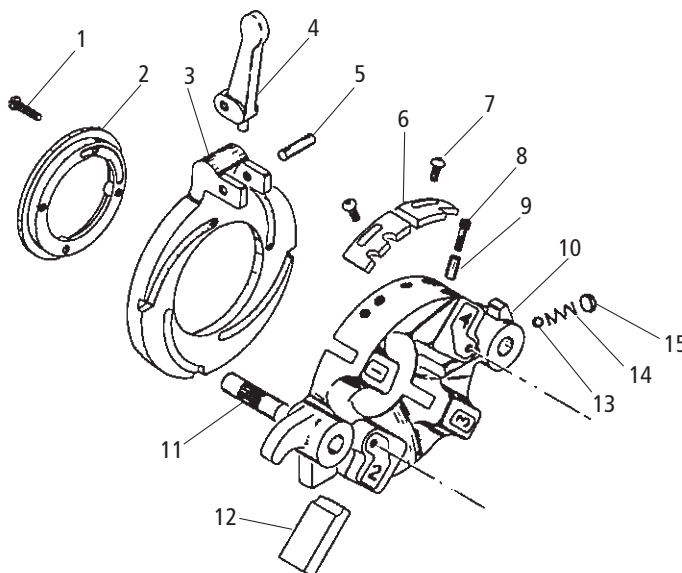
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
A	R04215040R	Oil line assembly, telescopic, 22A		13	R04205134R	Connector, tube, 22085.....	2
1	R04201631R	Drive shaft, 12199.....	1	14	20351	Tubing, plastic, clear, 0.312D x 0.062W	3"
2	R04201225R	Pin, dowel, 1/8" x 5/8", 0103	1	15	R04201658R	Geroter assembly, std, 12293.....	1
3	R04201256R	Pin, spring, U-711, 3/16" x 3/4"	2	16	12318	Cover, oil pump housing, std 22A.....	1
4	R04201257R	Pin, spring, U-711, 3/16" x 1"	2		R04201630R	Cover, oil pump R&L, 12198	1
5	R04201628R	Housing, oil pump std., 12196.....	1	17	R04201118R	Screw, cap, soc self-lock, F-112-S, 1/4"-20 x 2 1/4"	1
	R04201629R	Housing, oil pump std., 12197.....	1	18	R04201223R	Screw, self-tap, sltd, PH #8-32 x 5/8", NG-405-D.....	1
6	R04201223R	Screw, button head, #8-32 x 5/8", long.....	1	19	R04201460R	Elbow, strainer, slve, nut, 04058, incl. sleeve & nut... 1	
7	15031	Clamp, hose, plastic, 5/8"	1	20	R04201370R	Strainer ass'y, oil pump, 1550-1, 22A	1
8	R04201374R	Oil line, telescopic, 1562, 22A.....	1	21	R04201650R	Plunger, friction, pump, 12275	1
9	18051	Seal, bushing, oil line, 22A	1	22	R04201651R	Oil pump ass'y, std, 12276	1
10	R04201694R	Seal, O-ring, 12458	1	23	R04201241R	Pin, grvd, 1/8" x 3/8", P-502-B.....	1
11	22086	Tee, pipe, MP 1/8 x FP 1/8 x FP 1/8	1	24	12272	Ring, eccentric, R&L, 22A oil pump	1
12	R04215030R	Valve assembly, press. relief, SM300/22A	1	25	R04201971R	Spacer, mounting, oil pump, 13455	1

Snap-O-Matic Die Head Assemblies 1/8" – 2"

Dual Snap-O-Matic Die Heads: 1/8", 1/4" & 3/8"; 1/2" & 3/4"; 1" & 1 1/4"; 1 1/2" & 2"

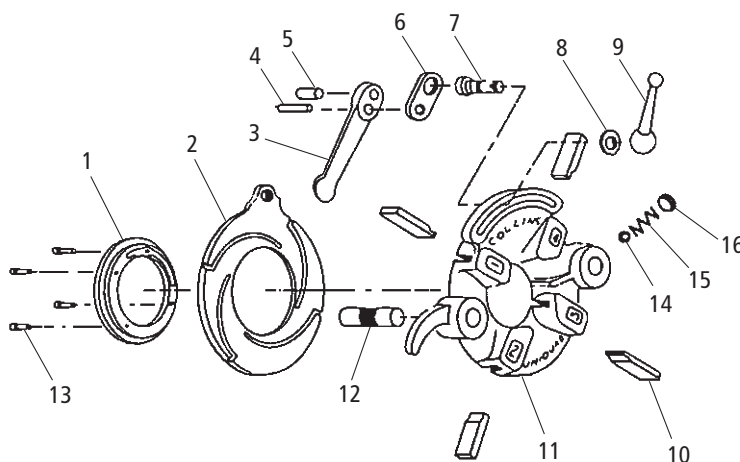
Quad Snap-O-Matic Die Head: 1" – 2"

Item	Part No.	Description
1	R04201065R	Lock washer, helic, sprg, C-107-HC, #10 H-C
	R04201108R	Screw, cap, soc hd, F-053, #10-24 x 3/4"
2	R04201361R	Retainer, scroll, 1433, plate, 1 - 2" die hd
	R04201399R	Retainer scroll, 1673, plate, 1/8" - 3/4"
3	R04201383R	Plate, scroll, SOM, 1632, 1" - 2"
	R04201391R	Plate, scroll, SOM, 1642, 1/8" - 3/4"
4	R04201384R	Lever, operating, 1633, SOM die head
5	R04201231R	Pin, dowel, 5/16" x 1 1/4", O-406
6		Selector Plate:
	R04201385R	1634-1, 1 1/4", 1 1/2" NPT
	R04201386R	1635-1, 1" NPT
	R04201387R	1635-2, 1 1/4" NPT
	R04201388R	1636-1, 1 1/2" NPT
	R04201389R	1636-2, 2" NPT
	R04201392R	1644-1, 1/2" NPT
	R04201393R	1644-2, 3/4" NPT/BSPT
	R04201394R	1645, 1/4" - 3/8" NPT/BSPT
	R04201395R	1646, 1/8" NPT/BSPT
7	R04201142R	Screw, cap, soc self-lock, G-104-S, 1/4"-20 x 5/8"
8	R04201115R	Screw, cap soc hd, F-107, 1/4-20 x 1"
9	R04201861R	Spacer, scroll plt stop, 13113
10	01631	Housing, threading, head SOM, 1" - 2"
	01641	Housing, threading, head SOM, 1/8" - 3/4"
11	R04201359R	Pin, die head, 1431-1
12	—	Dies, set of 4, specify size and type (see Die Tables)
13	R04201922R	Ball, bearing, 5/16" dia., 13385
14	R04201636R	Spring compression die, 12220 head
15	R04201617R	Plug, expans, .375 dia., 12135



Uniquad Die Head Assembly 1/8" – 2"

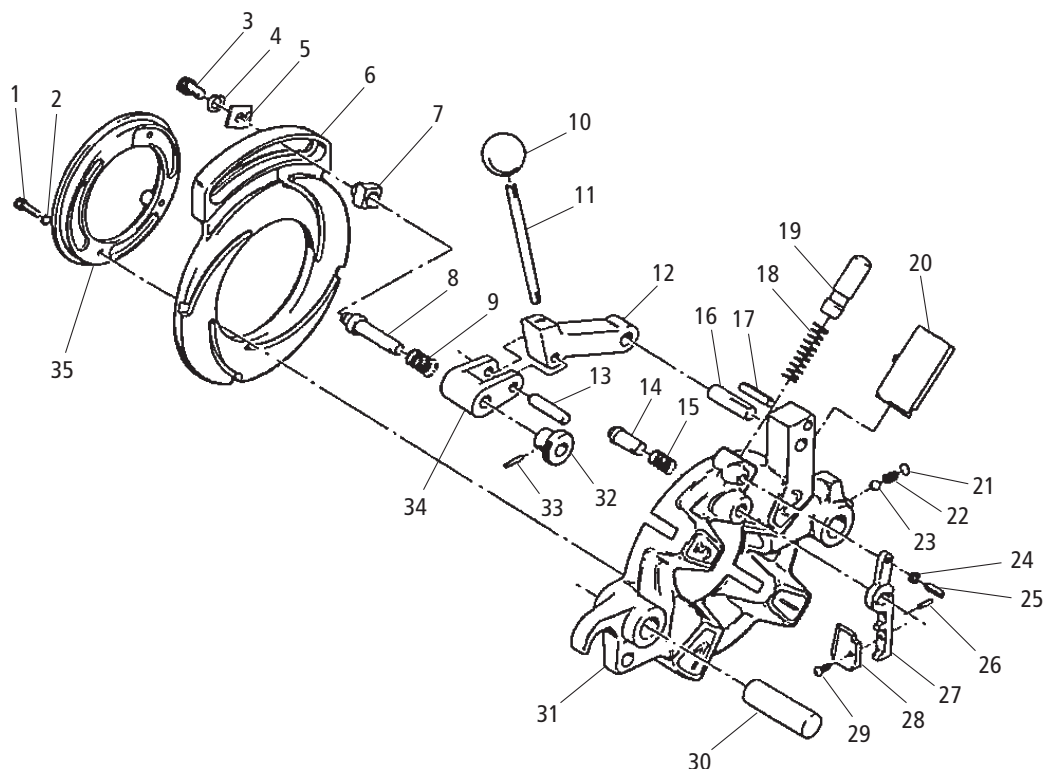
Item	Part No.	Description
1	R04201361R	Retainer scroll, 1433, plate, 1 - 2" die head
2	R04201360R	Plate, scroll, Uniquad, 1432 die head
3	R04201363R	Lever, operating, Uniquad dhd, 1437 die head
4	R04201232R	Pin, dowel, 5/16" x 1 1/2", O-407
5	R04201240R	Pin, dowel, 1/2" x 1 1/8", O-702
6	R04201411R	Lever, operating, link, 2183, Uniquad die head
7	R04201410R	Screw, link pivot, 2182, Uniquad die head
8	R04201095R	Washer, flat, DA-204-N, narrow 3/8"
9	R04201362R	Lever, locking unique, 1436, scroll plate
10	—	Dies, set of 4, specify size and type (see Die Tables)
11	R04201358R	Housing, die head, Uniquad, 1431, 1/8" - 2" NPT
12	R04201359R	Pin, die head, 1431-1
13	R04201108R	Screw, cap, soc head, F-053, #10-24 x 3/4"
14	R04201922R	Ball, bearing, 5/16" dia., 13385
15	R04201636R	Spring compression die, 12220 head
16	R04201617R	Plug, expans, .375 dia., 12135



Automatic Die Head Assemblies ½" – 2"

Original Versions through Dec. 1994

#12775 (NPT), #12774 (BSP)

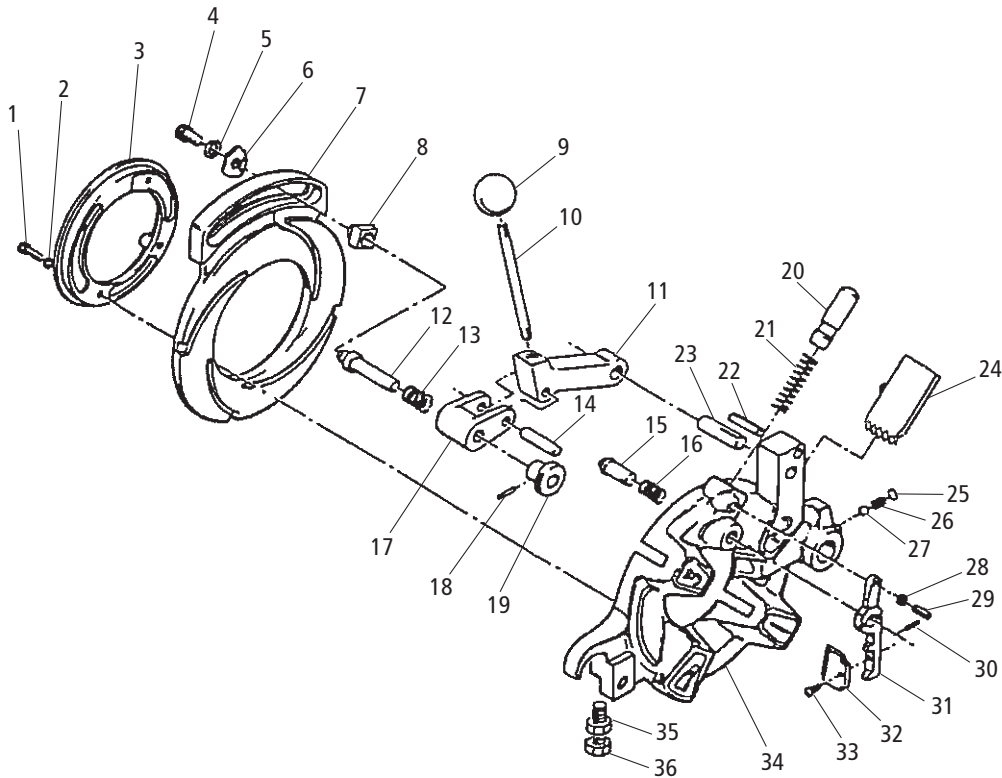


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	R04201108R	Screw, cap, soc head, F-053, #10-24 x ¾"	4	20	—	Set of 4 dies, specify size & type (see Die Tables)	
2	R04201065R	Lock washer, helic. sprg, C-107-HC, #10 H-C.....	4	21	R04201617R	Plug, expans, .375 dia., 12135.....	1
3	R04201136R	Screw, cap, soc hd, F-1003, ¼" - 28 x ½".....	4	22	R04201636R	Spring, compression, die, 12220 head.....	1
4	R04201068R	Lock washer, helic. sprg, C-109-HC, ¼" H-C.....	4	23	R04201922R	Ball bearing, ⅝" dia., 13385.....	1
5	R04201781R	Washer, size selector, auto diehead, 12697	4	24	R04201049R	Nut, hex, #10, 32, B-133	1
6	R04201780R	Scroll plate, 12695.	1	25	R04201185R	Set screw, hex cone, H-959-A, plt #10-32 x ¾"	1
7	R04201779R	Size selector, adjust., 12694.....	4	26	R04201893R	Pin, shear (min. order 6), 13209	4
8	R04201765R	Pin, selector, 12667	1	27	R04201746R	Trigger, scroll plate, 12568 release.....	1
9	R04201767R	Spring, compression, select, 12669 pin	1	28	R04201778R	Gauge, thread length, NPT, 12693	1
10	R04201763R	Knob, 1⅜" dia., reid #R6, 12665	1		R04212554R	Gauge, thread length, 12554, BSPP.....	1
11	R04201764R	Rod, operating lever, 12666.....	1	29	R04201139R	Screw, cap, soc but hd, G-062, #10-32 x ⅝"	1
12	R04201760R	Lever, operating handle, 12660.....	1	30	R04201359R	Pin, die head, 1431-1	1
13	R04201230R	Washer, at dieheads, 52500, 64350.....	1	31	R04201744R	Housing, die head, 12561	1
14	R04201762R	Pin, plunger release, 12664	1	32	R04201766R	Knob, selector pin, 12668	1
15	R04201761R	Spring, compress, trigger, 12662.....	1	33	R04201254R	Pin, spring, U-407, ⅝" x ½"	1
16	12566	Pin, dowel, grooved, ⅜" dia. x 1¼" L.....	1	34	R04201768R	Link, operating lever, 12670	1
17	R04201259R	Pin, spring, U-915-S, ¼" x 1"	1	35	R04201975R	Retainer, scroll plate, 13487.....	1
18	R04201769R	Spring, compress, plunger, 12673	1		01988-16	Key, soc head screw, S arm, ⅜" ***NLA**	1
19	R04201770R	Plunger, die head open, 12674	1		01988-3	Key, soc head screw, S arm, ⅜"	1

Automatic Die Head Assemblies ½" - 2"

Improved US Versions, starting Jan. 1995

#00221 (NPT), #00621 (BSP)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	M0508019F	Screw, cap, soc head, metric.....	4	26	R04201636R	Spring, compression, die head, 12220.....	1
2	M05HC	Lock washer, hi-collar, metric.....	4	27	R04201922R	Ball, bearing, 5/16" dia., 13385	1
3	R04201975R	Retainer, scroll plate, 13487	1	28	M0508027B	Nut, hex jam, metric	1
4	M0610013F	Screw, cap, soc head, metric	4	29	M0508020F	Screw, cap, soc head, metric.....	1
5	M06MC	Lock washer, metric	4	30	R04201893R	Pin, shear, 13209 (min. order 6)	4
6	R04201781R	Washer, size selector, auto diehead, 12697	4	31	12569	Trigger, scroll plt rel, auto dhd, metric	1
7	R04201780R	Scroll plate, 12695.....	1	32	R04201778R	Gauge, thread length NPT, 12693	1
8	12772	Selector, size	4	33	M0508012G	Screw, cap, button head, metric	1
9	R04201763R	Knob, operating lever, 12665	1	34	R04201744R	Housing, die head, 12561.....	1
10	R04201764R	Rod, operating lever, 12666	1	35	M1015050B	Nut, hex jam, metric	1
11	R04201760R	Lever, operating, handle, 12660	1	36	M01988-3	Short arm, hex key, 3mm (not shown)	1
12	R04201765R	Pin, selector, 12667.....	1		M01988-4	Short arm, hex key, 4mm (not shown).....	1
13	R04201767R	Spring, compress, select, 12669 pin	1		M01988-5	Short arm, hex key, 5mm (not shown).....	1
14	R04201230R	Pin, dowel, 5/16" x 1", O-405	1		M1015044A	Bolt, hex head, metric (shown)	1
15	R04201762R	Pin, plunger release, 12664	1				
16	R04201761R	Spring, compress, trigger, 12662	1				
17	R04201768R	Link, operating lever, 12670	1				
18	R04201254R	Pin, spring, U-407, 1/8" x 1/2"	1				
19	R04201766R	Knob, selector pin, 12668.....	1				
20	R04201770R	Plunger, die head open, 12674.....	1				
21	R04201769R	Spring, compress, plunger, 12673.....	1				
22	R04201259R	Pin, spring, U-915-S, 1/4" x 1"	1				
23	12566	Pin, dowel, grooved, 3/8" x 1 3/4" L	1				
24		Dies, set of 4, specify size and type (see Die Tables)					
25	R04201617R	Plug, expands, .375 dia., 12135	1				

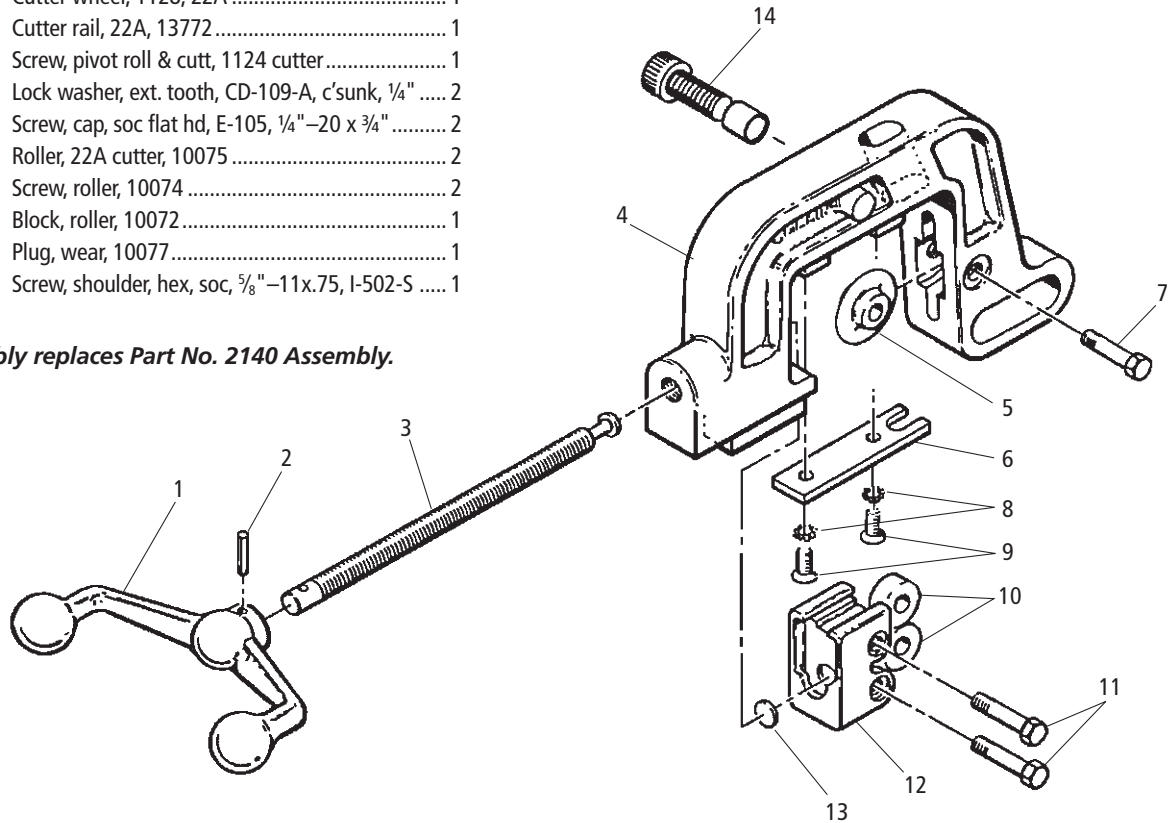
Threading Dies (order by size and type if not listed)

00315	BSPT, ½" & ¾"
00316	BSPT, 1" - 2"
00027	NPT, ½" & ¾"
00028	NPT, 1" - 2"

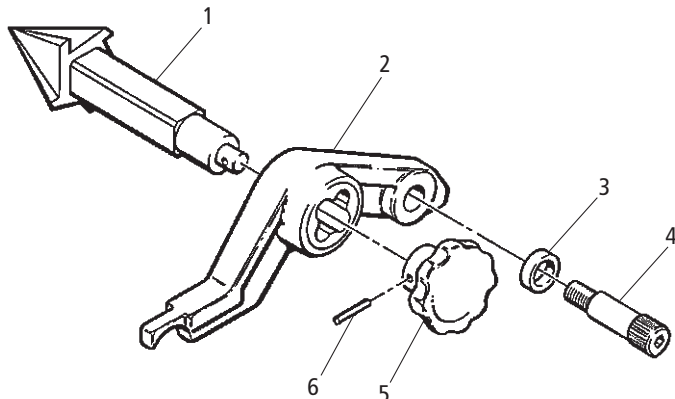
Cutter Assembly #R04200159R

Item	Part No.	Description	Qty
1	R04201287R	Handle, operating, 1111, carriage & cutter.....	1
2	R04201246R	Spring pin, 1/4" x 1 1/2", replace P-9061A pin.....	1
3	R04201598R	Screw, cutter, 10073	1
4	R04202035R	Cutter body, 22A, 13771	1
5	R04200157R	Cutter wheel, 1128, 22A	1
6	R04202036R	Cutter rail, 22A, 13772	1
7	R04201289R	Screw, pivot roll & cutt, 1124 cutter.....	1
8	R04203226R	Lock washer, ext. tooth, CD-109-A, c'sunk, 1/4"	2
9	R04201101R	Screw, cap, soc flat hd, E-105, 1/4" –20 x 3/4"	2
10	R04201600R	Roller, 22A cutter, 10075	2
11	R04201599R	Screw, roller, 10074	2
12	R04201597R	Block, roller, 10072.....	1
13	R04201602R	Plug, wear, 10077	1
14	R04201191R	Screw, shoulder, hex, soc, 5/8" –11x.75, I-502-S	1

Note: This assembly replaces Part No. 2140 Assembly.



22A Adjustable Cone Reamer Assembly #R04200160R



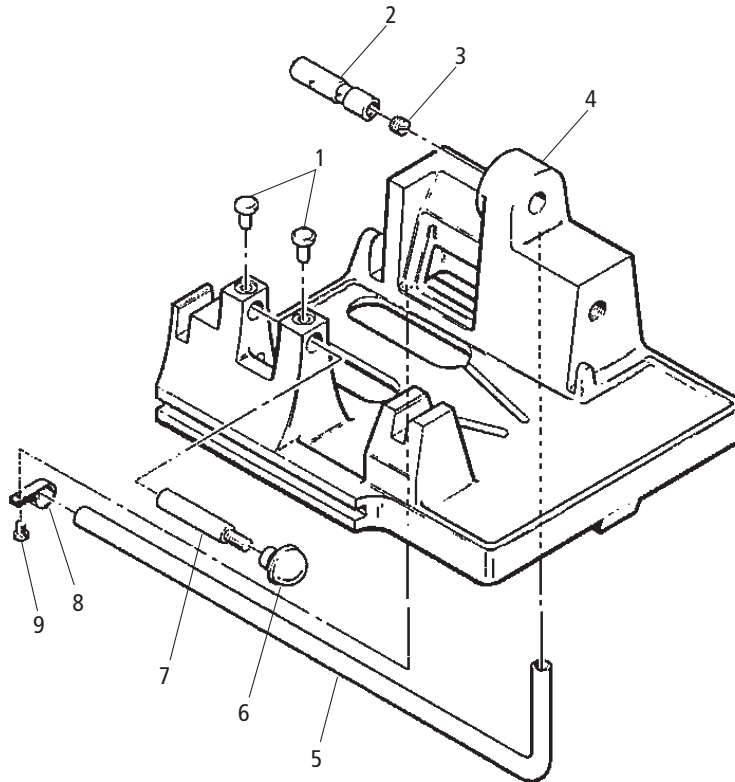
Item	Part No.	Description	Qty
1	R04201894R	Reamer, cone, 5-blade, 13212, 57011	1
2	R04201398R	Holder, cone reamer, 1657	1
3	R04201408R	Spacer, cone reamer, 2133, 2"	1
4	R04201190R	Shoulder screw, hex soc, 3/4"x1 1/2", I-604-SL	1
5	R04201396R	Knob, cone reamer, 1652.....	1
6	R04201243R	Pin, grooved, P-707-A, 3/16" x 1 1/4"	1

Standard 22A Carriage Assembly R04201406R

Item	Part No.	Description	Qty
1	01572	Pin, die head, rest	2
2	R04201407R	Pin, die head holding, 2132, 22A carriage	1
3	R04201878R	Plug, pipe, 1/8", 13140	1
4	1571	Carriage, 22A.....	1
5	R04201376R	Oil line, telesc, 1565, 3/8"	1
6	—	Not on standard assembly	
7	—	Not on standard assembly	
8	R04201373R	Clamp, loop, oillin 1558	1
9	R04201222R	Screw, self-tap, dltd, pan #10–24 x 1/2", NF-503-F....	1

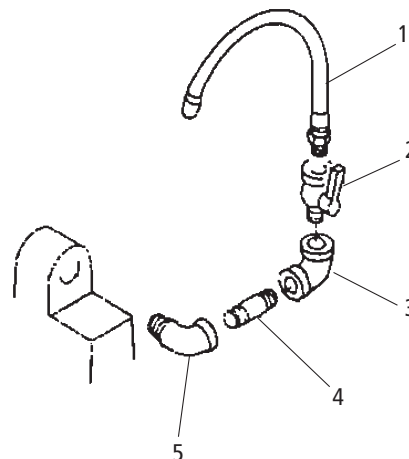
Right and Left 22A Carriage Assembly R04201608R

Item	Part No.	Description	Qty
1	01572	Pin, die head, head rest	2
2	R04201407R	Pin, die head holding, 2132, 22A carriage	1
3	R04201878R	Plug, pipe, 1/8", 13140	1
4	01571	Carriage, 22A.....	1
5	R04201376R	Oil line, telesc, 1565, 3/8"	1
6	R04201609R	Knob, switch handle, 12021.....	1
7	R04202676R	Pin, locking, LH die hd, 1233	1
8	R04201373R	Clamp, loop oillin, 1558.....	1
9	R04201222R	Screw, self-tap, dltd, pan #10–24 x 1/2", NF-503-F....	1



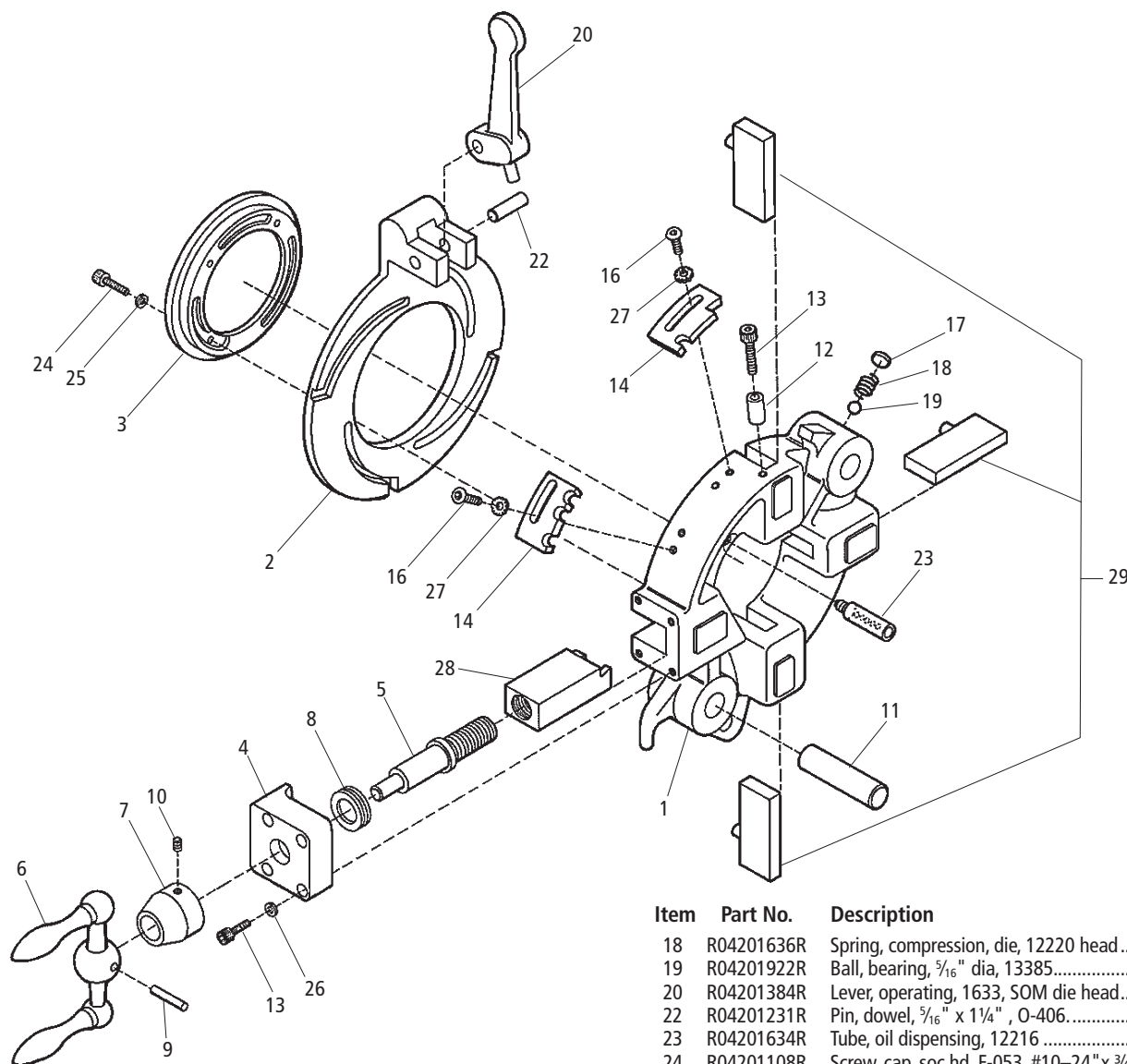
Oil Spout Assembly R042000156R

Item	Part No.	Description	
1	R04201526R	Spout, coolant, non-ctd, 04657, flexible, no-coat.....	1
2	R04201527R	Valve, coolant, spout, 04658.....	1
3	R04201649R	Elbow, 1/8" 90°, 12270	1
4	12169	Nipple, pipe, galv., 0.125x1.50 long.....	1
5	4556	Elbow, street, pipe, 1/8" x 1/8" x 90°	



22A Grooving Head Assembly

R04200471R (3/4" - 1/2") R04200470 (1" - 2")



Item	Part No.	Description	Qty
1	R04201632R	Housing, groover, 1" - 2", 12210.....	1
2	R04201383R	Plate, scroll, SOM, 1632, 1" - 2".....	1
3	R04201361R	Retainer, scroll, 1433, plate, 1" - 2" die head.....	1
4	R04201635R	Bearing block, 12217.....	1
5	R04201612R	Screw, feed, grooving, 12095 tool.....	1
6	R04201633R	Handle, feed screw, 12215.....	1
7	R04201614R	Indicator, blank, 12097, for 13059, 13060, 13061.....	1
8	R04201613R	Bearing, thrust, 12096.....	1
9	R04201242R	Pin, grooved, P-706-A, 3/16" x 1", low CS.....	1
10	R04201150R	Set screw, hex cone, H-103-A, 1/4"-20 x 3/16".....	1
11	R04201359R	Pin, die head, 1431-1.....	1
12	R04201861R	Spacer, scroll plt stop, 13113.....	1
13	R13121115R	Screw, cap, soc hd, F-107, 1/4"-20 x 1".....	5
14	R04201385R	Plate, selector, 1634-1, 1 1/4", 1 1/2" NPT.....	1
	R04201389R	Plate, selector, 1636-2, 2" NPT.....	
15	R04201142R	Screw, cap, soc self-lock, G-104-S, 1/4"-20 x 5/8".....	
16	G-104	Screw, selector plate att., 1/4"-20 x 5/8" button head cap.....	4
17	R04201617R	Plug, expans., .375 dia., 12135.....	1

Item	Part No.	Description	Qty
18	R04201636R	Spring, compression, die, 12220 head.....	1
19	R04201922R	Ball, bearing, 5/16" dia, 13385.....	1
20	R04201384R	Lever, operating, 1633, SOM die head.....	1
22	R04201231R	Pin, dowel, 5/16" x 1 1/4", O-406.....	1
23	R04201634R	Tube, oil dispensing, 12216.....	1
24	R04201108R	Screw, cap, soc hd, F-053, #10-24" x 3/4".....	1
25	R04201065R	Lock washer, helic. sprg, C-107-HC, #10 H-C.....	4
26	R04201068R	Lock washer, helic. sprg, C-109-HC, 1/4" H-C.....	4
27	R04201082R	Washer, locking, ext., CC-109-A, tooth 1/4".....	4
28	—	(see Optional Accessories below)	
29	R04200488R	Die set, ctrg, grv/bev, 02760, 1" - 2" set 3.....	1
	R04200489R	Die set, ctrg, grv/bev, 12416, hd, 3/4" set 3.....	

Optional Accessories (not included in #12200-2)

28	R04200477R	Cutting tool, grooving, 12205, cut-off 3/4" - 2"
	R04200478R	Cutting tool, cut-only 12206, 3/4" - 2"
	R04200479R	Cutting tool, dbl bev, 12212, 3/4" - 2", 37.5°
	R04200480R	Cutting tool, dbl bev, 12269, 3/4" - 2", 45°NLA*
	R04201825R	12878 Cutting tool, 1" - 2", 1st step grooving
	R04202034R	13767 Cutting tool, "J" bevel, 1" - 2"
	R04213310R	13310 Tool bits, API, rmng/bev tool
	R04213944R	13944 Tool bits, API, rmng/bev tool
	R04200481R	Cutting tool, saran, 12219, 3/4" - 2"***NLA*
	R04201915R	Cutting tool, downlined pipe, 13361, 1" - 2"***NLA**
		Grooving, tool, saran pipe, 1" - 2" *NLA* 12219
	13361	Grooving tool, titan plastic-lined pipe, 1" - 2" (sch. 40 max.)

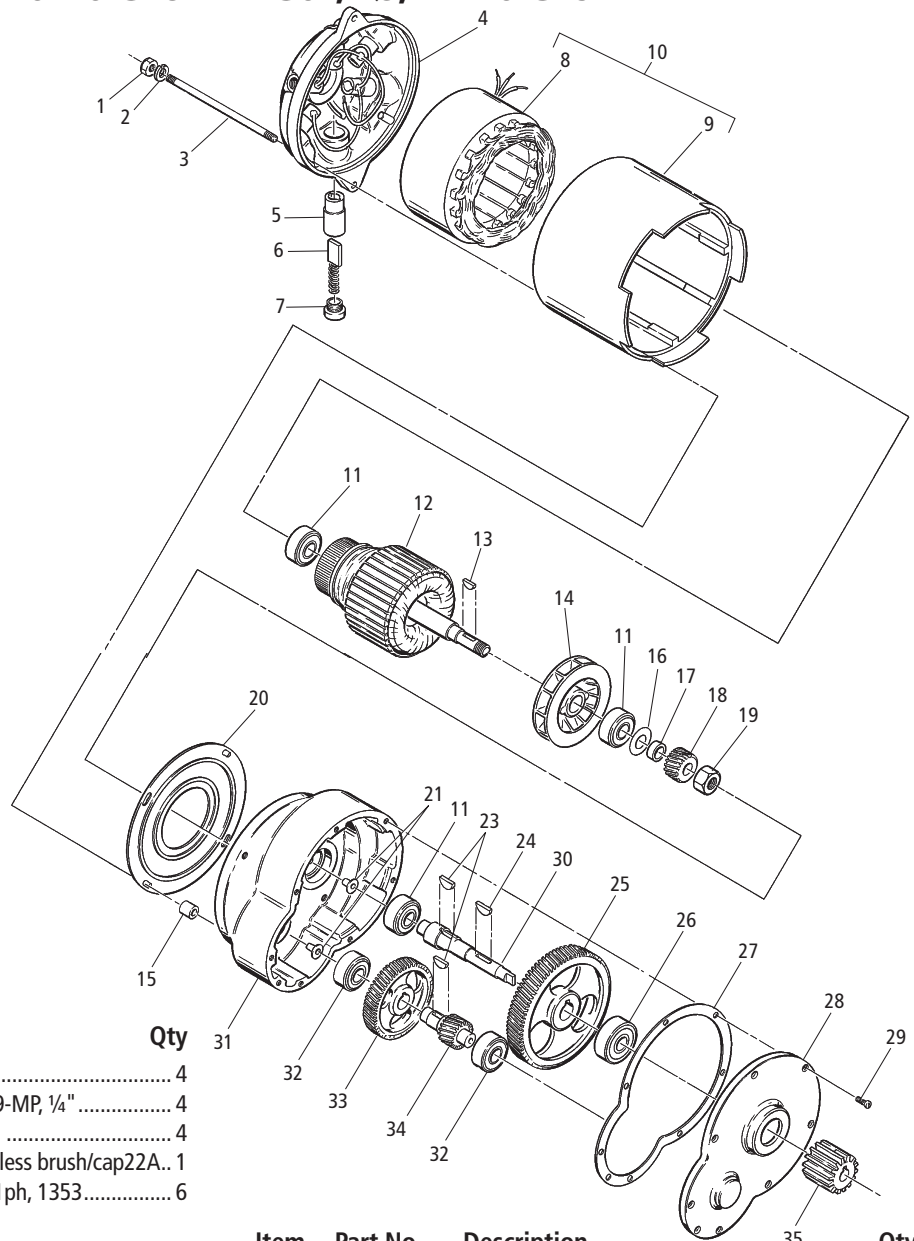
22A Motor and Gearbox Assembly

115V, 1Ø, #R04201318R 230V, 1Ø, #R4201319R

STD SPEED GEARBOX		
24	01394	96 T. Gear
34	01395	22 T. Gear

LOW SPEED GEARBOX		
25	01391	100 T. Gear
34	01388	18 T. Gear

HIGH SPEED GEARBOX		
25	01397	90 T. Gear
34	01398	28 T. Gear

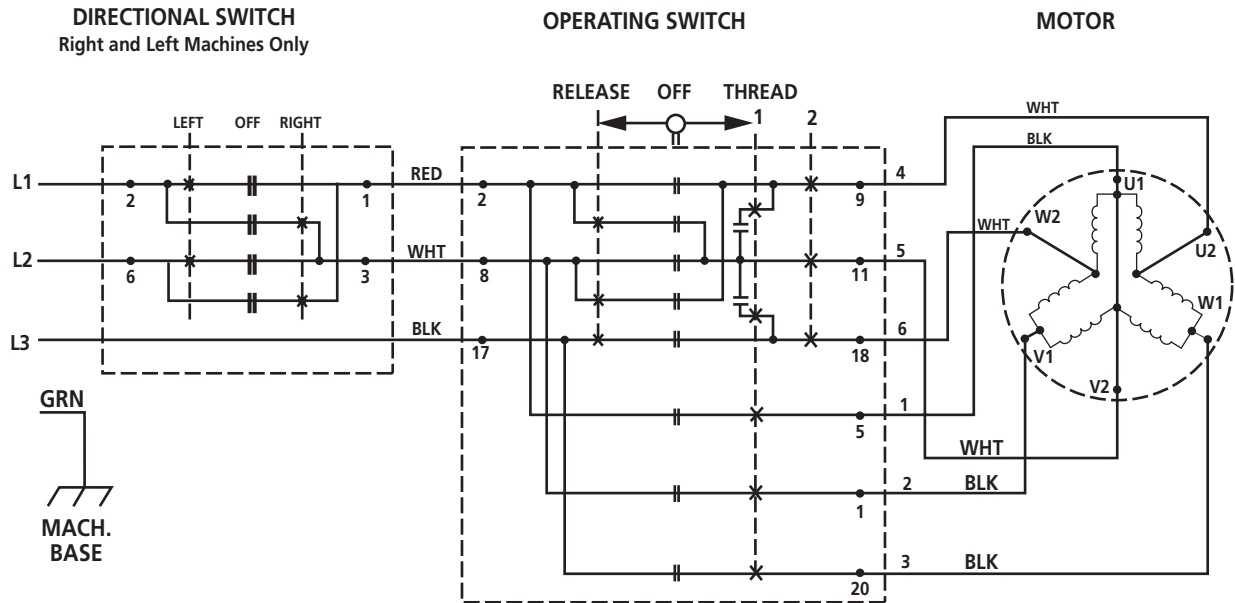


Item	Part No.	Description	Qty
1	R04201033R	Nut, hex, 1/4"-20, B-101	4
2	R04203209R	Lock washer, helic. sprg, C-109-MP, 1/4"	4
3	R04201341R	Tie rod, motor, 22A, 1ph, 1361	4
4	R04201336R	End bell ass'y, less brsh, 1350 less brush/cap22A..	1
5	R04201337R	Holder, brush, for 22A motor, 1ph, 1353.....	6
		(included in item #4)	
6	R04201339R	Brush & spring ass'y, 1ph 1360-1, 22A	6
		(115V and 230V)	
7	R04201338R	Cap, brush holder, 22A, motor, 1ph, 1355.....	6
8	01321	Stator, motor, 115V, 1ph, 22A & E-Z cutter	1
	R04201320R	Stator, motor, 230V, 1ph, 1311, 22A	
9	R04201323R	Housing, stator 1ph (115V & 230V), 22A	1
10	R04201321R	Stator & housing ass'y, 1315, 230V, 1ph, 22A	1
	R04201322R	Stator & housing ass'y, 1320, 115V, 1ph, 22A	1
11	R04202245R	Ball bearing, 6203 2NSE, -NVC3, 1018-1.....	3
12	R04201326R	Armature & fan ass'y, 1327, 230V, 1ph, 22A	1
	R04201327R	Armature & fan ass'y, 1331, 115V, 1ph, 22A	
13	R04201265R	W-405 Key, Woodruff, 1/8" x 5/8"	1
14	R04201331R	Blade, armature fan	1
15	R04201325R	Baffle, retainer, 1325 stator, 1ph, 22A	4
16	R04201328R	Spacer, slinger, 1332, 115/230V, 1ph, 22A	2
17	R04201329R	Spacer, armature, 1333, 115/230V, 1ph, 22A.....	1
18	R04201332R	Gear, helical, armature, 1336, 20T, 22A	1

Item	Part No.	Description	Qty
19	R04201330R	Nut, hex, 9/16"-18, 1334, armature shaft, 22A	1
20	R04201324R	Baffle, stator, 1ph, 1323, 22A.....	1
21	R04201347R	Plug, hole pistc, 22A, gear case 1383-1	2
23	R04201268R	W-806, Key, Woodruff, 1/4" x 3/4"	2
24	R04201270R	W-808, Key, Woodruff, 1/4" x 1", 1217, 22A	1
25	R04201354R	Gear, helical, 96T, 1ph, 1394, 22A.....	1
26	R04201364R	Ball bearing, 6204D, 1392-2	1
27	R04201345R	Gasket, gearcase housing, 13811	1
28	R04201346R	Cover, gearcase, 1ph, 1382, 22A.....	1
29	R04201143R	Screw, cap, soc. but. hdg-105, 1/4"-20 x 3/4"	8
30	R04201348R	Shaft, output gear, 1384, motor, 1ph, 22A.....	1
31	R04201344R	Housing, gearcase, 1ph, 1381, 22A	1
32	R04201333R	1337 Bearing, 201 SFF, Nachi 6201-2NSE C3	1
33	R04201351R	Gear, helical, 60T, 1390.	1
34	R04201355R	Gear shaft, helical, 22T, 1395, 1ph, 22A	1
35	R04201349R	Gear, spur, 15T, 1386, 22A output shaft	1

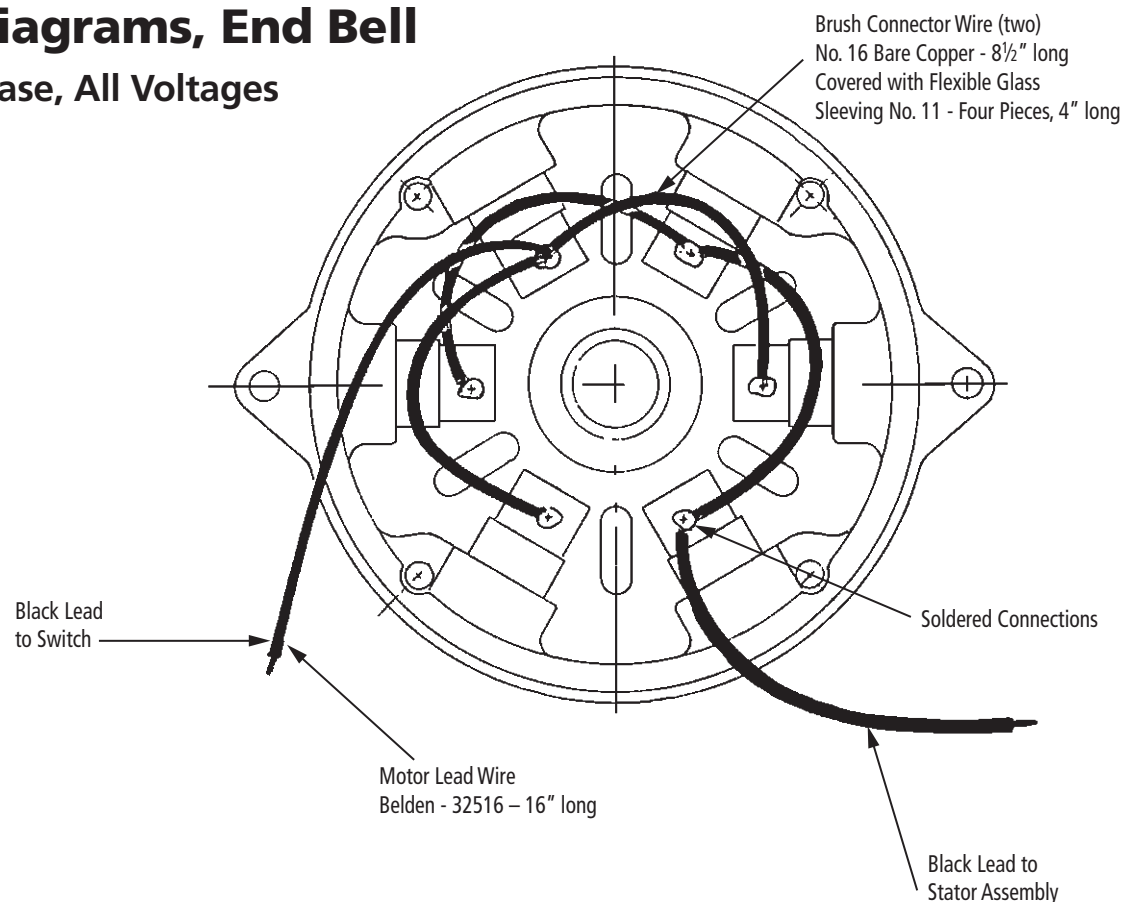
Wiring Diagrams, STD & R&L 22A/SM2000

3-Phase, All Voltages (starting with Machine Serial No. 2100, March 1989)



Wiring Diagrams, End Bell

1-Phase, All Voltages



115V / 230V Single Phase



THREAD SIZES AND SPECIFICATIONS

DIMENSIONS				U. S. STANDARD						BRITISH STANDARD					METRIC				
NOMINAL SIZE		Major Dia. of Thread	Major Dia. of Thread	Pipe Tapered N.P.T.	Pipe Parallel (Conduit) N.P.S.	Bolt, National Course U.N.C.	CONSTANT PITCH		API Casing Long Thread	API Tubing Non-Upset Thread	API Tubing Upset, Reg. Thread	Pipe, Tapered BSPT	Pipe, Parallel BSPP	Conduit BSC (BEC)	Bolt, Whitworth BSW	Bolt, Fine BSF	Coarse ISO	Fine ISO	Metric Conduit
Pipe I.D.	Bolt & Tube O.D.						8 U.N.	12 U.N.											
INCH				THREADS PER INCH						THREADS PER INCH					PITCH IN MM				
		.236	6														1.00		
	1/4	.250	6.35			20									20	26	1.00		
		.275	7																
	5/16	.312	7.94			18									18				
		.315	8									28	28				1.25	1.00	
		.354	9														1.25	1.00	
	3/8	.375	9.52			16									16	20			
1/8		.383	9.73																
		.394	10														1.50	1.00	
1/8		.404	10.27	27	27														
		.433	11														1.50	1.00	
	7/16	.437	11.11			14									14	18			
		.472	12														1.75	1.50	
	1/2	.500	12.7			13									12	16			
1/4		.518	13.16																
1/4		.534	13.57	18	18							19	19						
		.551	14																
	9/16	.562	14.29			12											2.00	1.50	
		.591	15																
		.625	15.87			11													
	5/8	.630	16																
		.656	16.66									19	19				2.00	1.50	1.50
3/8		.669	17																
	3/8	.671	17.05	18	18														
		.709	18																
	3/4	.75	19.05			10		16						16	10	12	2.50	1.50	
		.787	20																
1/2		.825	20.95									14	14						
1/2		.836	21.22	14	14														
		.866	22														2.50	1.50	
	7/8	.875	22.22			9		14							9	11			
		.945	24														3.00	2.00	
		.984	25															2.0 & 1.5	1.50
1		1.0	25.4			8		12						16	8	10			
		1.024	26																
3/4		1.041	26.44									14	14						
3/4		1.046	26.57	14	14														
		1.063	27														3.00	2.00	
		1.102	28																
1 1/8		1.125	28.57			7		12											
		1.181	30																
	1 1/4	1.25	31.75			7		12						16	7	9	3.50	2.00	
		1.26	32																
		1.299	33														3.50	1.50	1.50
1		1.308	33.23	11.5	11.5														
1		1.309	33.25									11	11						
	1 3/8	1.375	34.92			6		12							6	8			
		1.378	35																
		1.417	36														4.00		
		1.457	37																

ROTHENBERGER LIFETIME WARRANTY

ROTHENBERGER USA LLC warrants all our products against defects in material and workmanship for the life of the product. Warranty coverage ends when the product becomes unusable for reasons other than defects in material and workmanship. This warranty covers replacement or repair of defective parts for the lifetime of the products provided that failure is not due to abuse, misuse, abnormal use, or normal wear and tear. Lifetime warranty excludes motors,

switches, and electrical parts, which are warranted for a period of one year from the date of sale. Warranty is null and void if

instructions and operating procedures are not followed or if product has been repaired or altered outside ROTHENBERGER or our authorized service centers.

No other warranty shall apply.

This warranty is in lieu of other warranties, expressed or implied, of merchantability, fitness for a particular purpose, performance or otherwise.



Products must be returned freight prepaid to ROTHENBERGER, Monterey Park, CA or to a ROTHENBERGER independent service center. Hand tools should be returned to the

place of purchase. ROTHENBERGER or their approved independent service center will decide whether a returned product is covered by this limited warranty. ROTHENBERGER liability does not extend beyond the repair or replacement of its product as warranted above. In no event shall ROTHENBERGER be liable for claims based upon breach of expressed or implied warranty, negligence or otherwise for any damages whether direct, immediate, incidental, foreseeable, consequential, or special.