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SAFETY PRECAUTIONS

IN GENERAL

When using rotating head cutting equipment, basic safety precautions should always be followed to reduce the risk of personal injury.

Operate this tool only in accordance with specific operating instructions.

WARNING: Do not override the deadman switch on the power unit. Locking down, obstructing, or in any way defeating the deadman switch on the power drive unit may result in serious injury.

DRESS CONSIDERATIONS

Use standard safety equipment. Hard hats, safety shoes, safety harnesses, protective clothes, and other safety devices should always be used when appropriate.

Use safety glasses. Do not operate cutting tools without eye protection.

Dress properly. Do not wear loose clothing or jewelry. They can be caught in rotating and moving parts. Avoid slippery floors or wear nonskid footwear. If you have long hair, wear protective hair covering to contain it.

WORK AREA

Keep the work area clean. Cluttered work areas and benches invite injuries.

Consider the work area environment. Keep the area well lit. Keep electrical cords, cables, rags, rigging straps, and etc. clear of rotating equipment. Do not use power-cutting tools in the presence of flammable liquids and gasses.

Keep visitors away. Do not let visitors or untrained personnel at or near operating tools. Enforce eye protection requirements for all observers.

Do not over reach. Keep proper footing at all times.

Stay alert. Watch what you are doing. Use common sense. Do not operate tools when you are tired.

TOOL CARE

Maintain tools with care. Keep tools in good operating condition. Sharp tool bits perform better and safer than dull tool bits. Well maintained tools function properly when needed.

Check for damaged parts. If a tool has malfunctioned, been dropped or hit, it must be checked for damage. Run no-load tests and feed function checks. Do a complete visual inspection.

Electric motors. Use only with proper AC voltage power sources and observe all normal electric shock hazard procedures.

Do not abuse power and control cords. Pulling or running over cords and cables can result in electrical shock hazards and malfunctions. Keep control and power cords out of all cutting fluids and water.

Hydraulic drives. Observe proper procedures for electrically driven power sources. Avoid damage to hydraulic lines. Keep quick-disconnects clean. Grit contamination causes malfunctions.

Air tools. Check the exhaust muffler. Broken or damaged mufflers can restrict air flow or cause excessive noise. Use air motors only with a filtered, lubricated and regulated air supply. Dirty air, low-pressure air or over pressure air will cause malfunctions, including delayed starting.

AREA EQUIPMENT

Secure work. Whenever possible use clamps, vises, chains and straps to secure pipe.

Make sure the tool is secured; it is safer to have both hands free to operate the tool.

TOOL USE

Use the right tool and tool bit for the job. Do not use a tool, which is incorrect for the job you are doing.

Keep the tool bits fully engaged in the tool bit holders. Loose bits are a safety hazard.

Disconnect power supply during setup and maintenance. Use all 'Stop' or Shut off' features available when changing or adjusting tool bits, maintaining the tool, or when the tool is not in use.

Remove adjusting keys and wrenches before applying power to the equipment. Develop a habit of checking the tool before turning it on to make sure that all keys and wrenches have been removed.

Do not force tools. Tools and tool bits function better and safer when used at the feed and speed rate for which they were designed.

Do not reach into rotating equipment. Do not reach into the rotating head stock to clear chips, to make adjustments, or to check surface finish. A machine designed to cut steel will not stop for a hand or an arm.

Handle chips with care. Chips have very sharp edges and are hot. Do not try to pull chips apart with your hands; they are very tough.

Avoid unintentional starts. Do not carry or handle tools with your hand on the operating switches or levers. Do not lay the tool down in a manner that will start the drive. Do not allow the tool to flip around or move when adjusting or changing tool bits.

Store idle tools properly. Disconnect tools from the power source and store in a safe place. Remove tool bits for safe handling of the tool.

GENERAL DESCRIPTION

The Model 308, Tube Squaring Machine is a light-weight portable machine designed for facing and squaring 1.00" to 8.63" (25.4 mm to 219.2 mm) outside diameter tubing with an ability to handle up to .250" (6.4 mm) thick wall.

Beveling and/or inside diameter deburring may also be performed with this machine.

The Model 308 features an integral, variable speed 115 VAC, 60 Hz or a 220 VAC, 50 Hz electric drive.

The Model 308 offers (3) three OD Tube Clamping Adapter Kits:

The 800 Series Collet Adapter Kit uses precision outside diameter Collets to hold the tubing round to accurately square and face with a minimum burr. The tube range is from 4.00" to 8.63" OD (101.6 mm to 219.2 mm dia).

The 400 Series Collet Adapter Kit uses precision outside diameter Collets to hold the tubing round to accurately square and face with a minimum burr. The tube range is from 1.00" to 4.50" OD (25.4 mm to 114.3 mm dia).

The Saddle Adaptor Kit uses OD clamping two-piece saddles. The tube range is from 1.00" to 8.63" OD (25.4 mm to 219.2 mm dia).

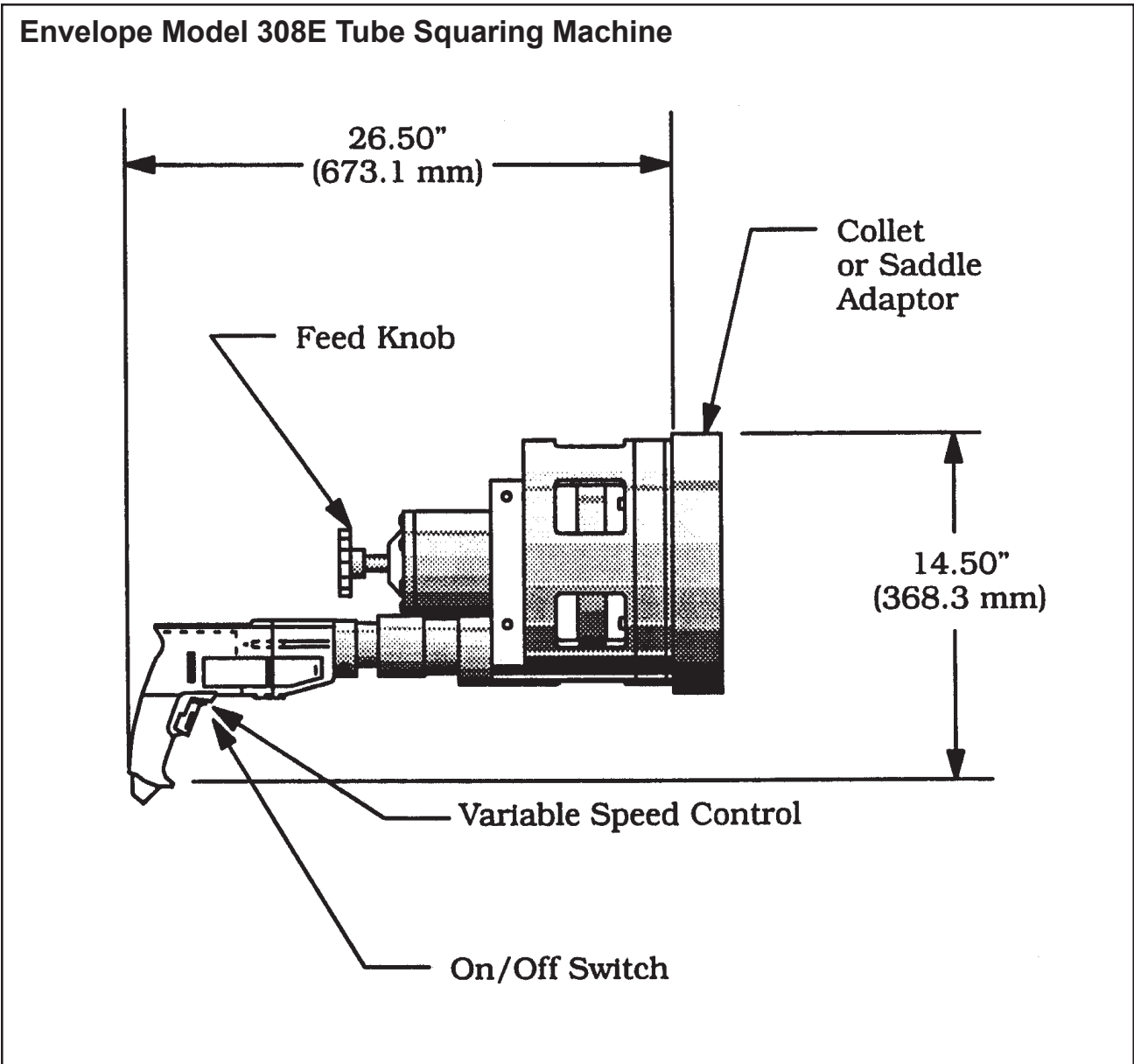
Part No.	Description
01-1327	Model 308E with a 115 VAC, 60 Hz Electric Motor
01-1328	Model 308E with a 220 VAC, 50 Hz Electric Motor

SPECIFICATIONS

Model 308E with electric drive:

Weight: 85 lbs. (39 kg) (varies slightly with Collet size or saddle adapter size)

Power requirements: 115 VAC \pm 10%, 25 to 60 Hz
or 220 VAC \pm 10%, 25 to 50 Hz



MAINTENANCE

IN GENERAL

All components should be cleaned and coated with a light film of oil prior to use.

Use a clean, non-detergent oil, preferably SAE 10 (90 SSU) or lighter.

If the Model 308E is operated in the vertical position (cutting head up), it should be turned upside down and the chips and/or other debris removed after each bevel has been completed.

CAUTION: Tool life may be severely shortened, unless chips and/or debris, that have been deposited on the cutting head during the machining operation, are removed.

Bearings and gears are to be lubricated using “Chevron Ultra-duty grease, EP, NLGI2” (P/N 68-0024)

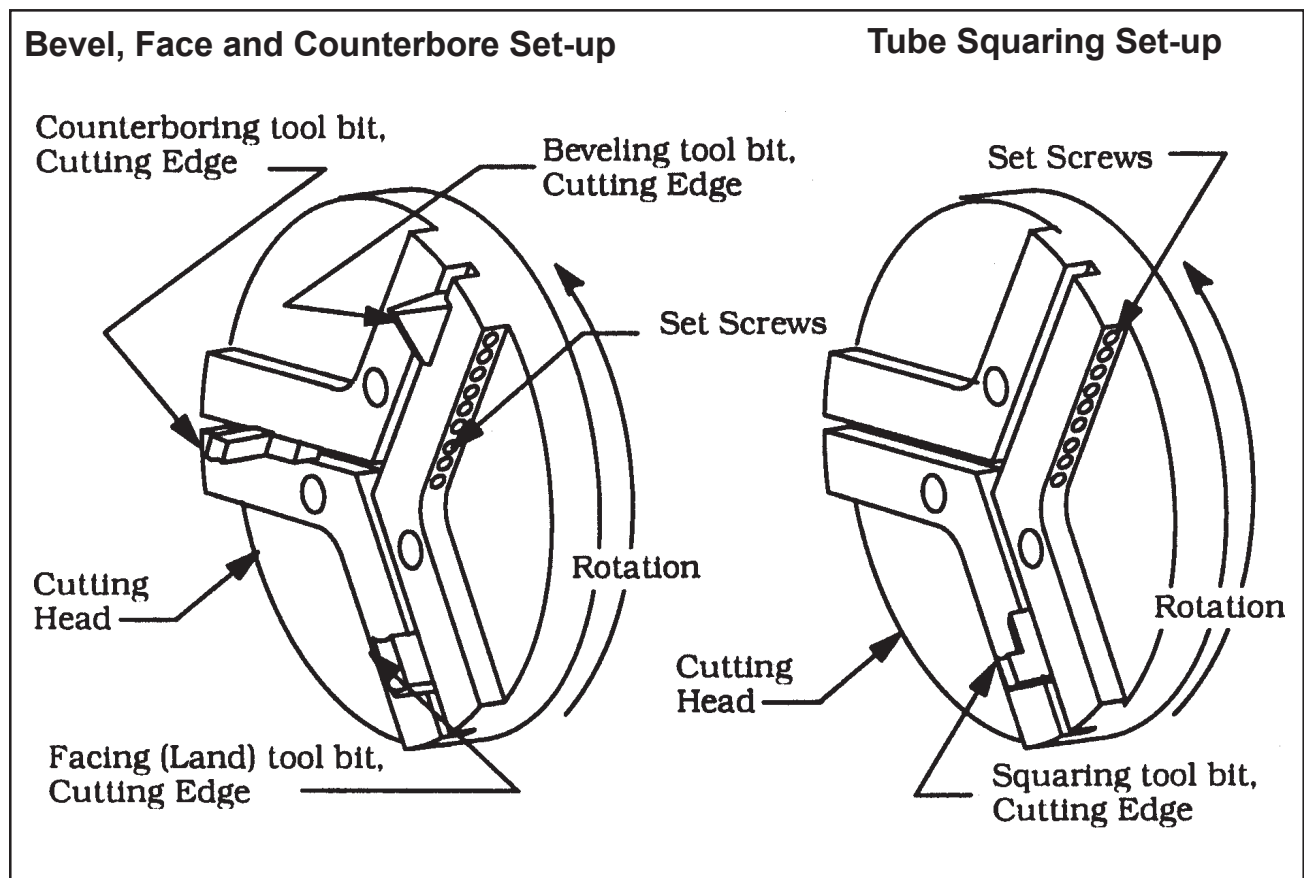
WARNING: Disassembly of a power unit voids warranty, except when performed by a TRI TOOL Inc. designated repair technician.

OPERATION

INSTALLING THE TOOL BIT(S)

Select the tool bit(s) required to machine the end configuration desired.

When performing a tube squaring operation the tool bit may be placed in any one of the three slots.



When performing any separate machining operations such as facing, beveling or counterboring, the tool bit(s) may be installed in any one of the three cutting head slots.

When performing any multiple machining operation such as facing beveling and counterboring, the tool bits should be installed with one in each slot.

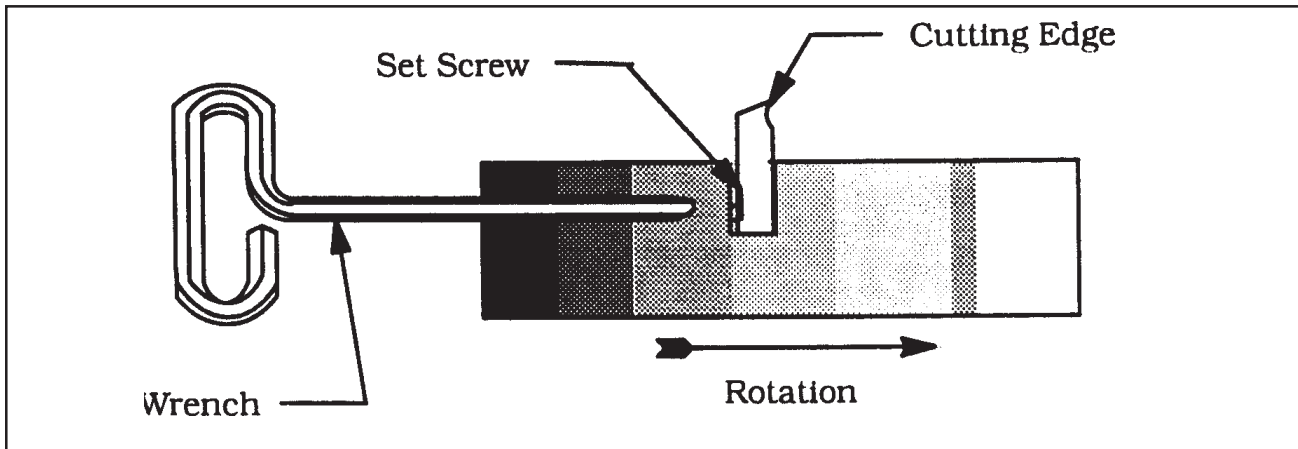
WARNING: Use of dull or improperly designed tool bits or tool bits not manufactured by TRI TOOL Inc. may result in poor performance and may constitute abuse of this machine and therefore voids the TRI TOOL Inc. factory warranty.

Insert the tool bit(s) into the slot(s) in the cutting head.

CAUTION: The cutting edge of the tool bit(s) must be located on the radial centerline. Do NOT install the tool bit(s) backwards.

Tighten the set screws to secure the tool bit(s) to the cutting head.

Adjust the counterbore tool bit radially to control counterbore diameter.



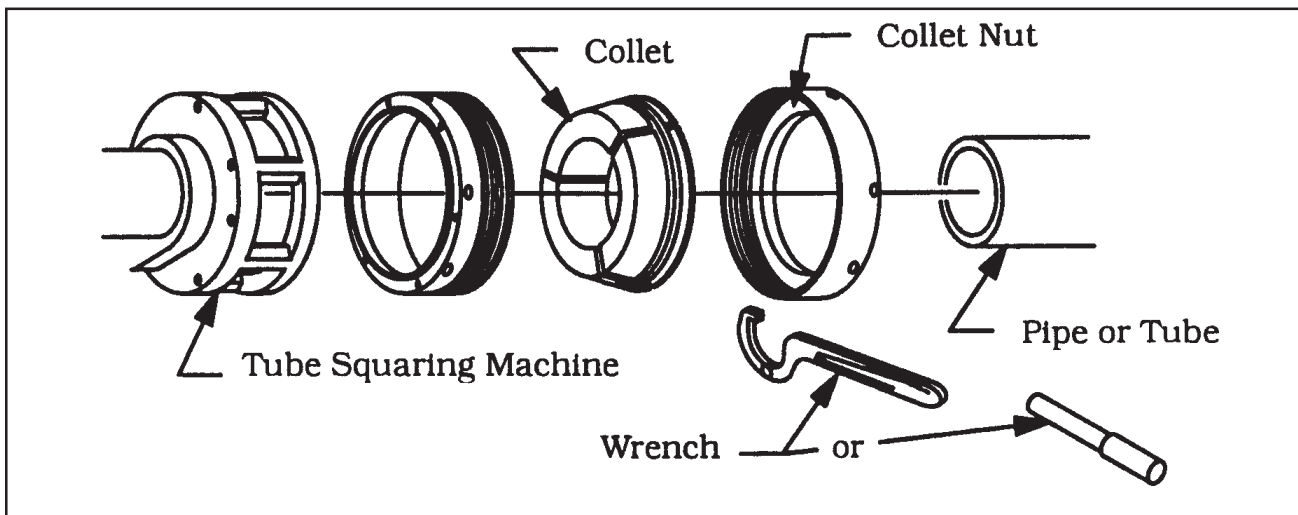
Adjust the bevel tool bit radially to control the counterbore depth to the bevel relationship

INSTALLING THE COLLET

Mount the desired Adapter Kit onto the front of the Model 308. Attach by using the (6) six cap screws from the back of the main housing.

If the Collet Adapter Kit has been attached to the front of the Model 308:

Select the desired collet size for the pipe or tube to be worked on.



Remove the collet nut from the front of the machine and slide the collet in and then replace the collet nut.

INSTALLING A SADDLE

If the Saddle Adapter Kit has been attached to the front of the Model 308:

Select the desired saddle size for the pipe or tube to be worked on.

Slide the lower saddle into the adapter. Secure it in place using (2) two cap screws from the front and (1) one retained screw from the bottom.

Slide the upper saddle into the adapter.

Secure it in place by tightening (1) one shoulder screw from the top. Slide the (2) two retaining plates over the edge of the upper saddle.

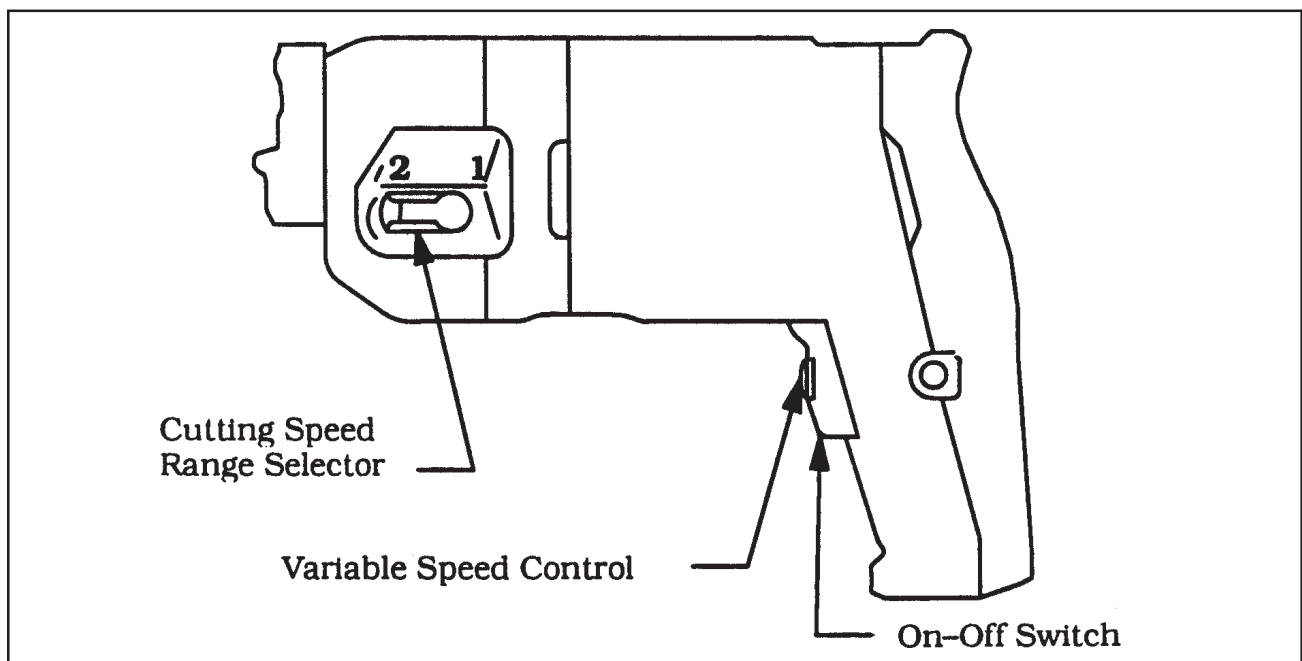
Tighten the (2) two cap screws to retain the upper saddle in the housing.

OPERATION

Place the pipe or tube into the collet.

Verify a clearance of 1/8" (3.2 mm) between the tool bit(s) and the pipe or tube face as held by the collet or saddles.

Tighten the collet nut or close the saddles to secure the pipe or tube once the proper clearance has been verified.



Connect the drive motor to the proper power source.

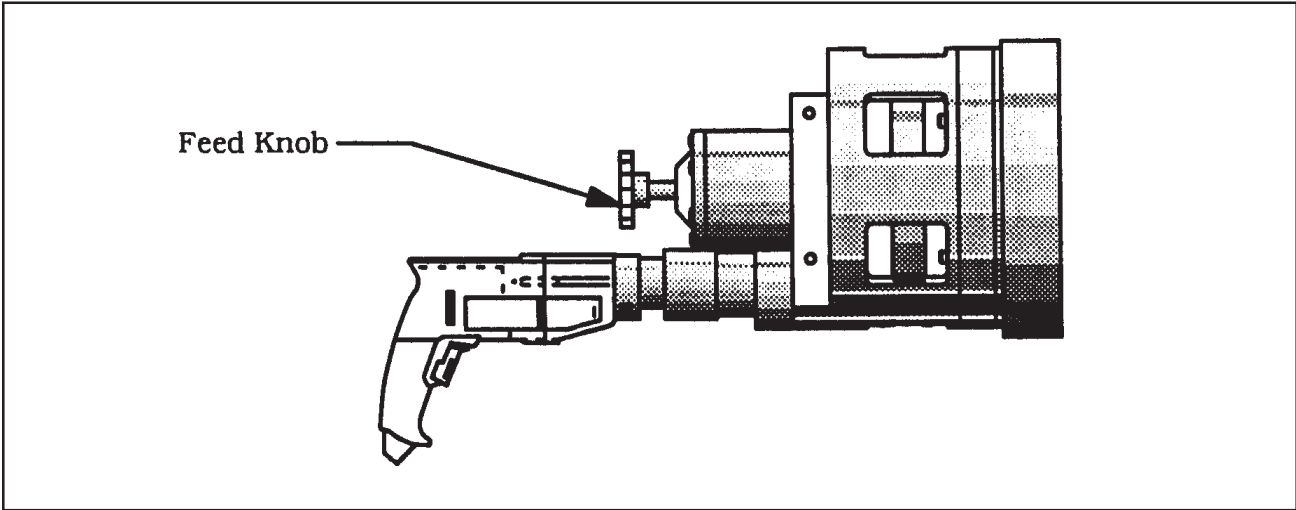
Adjustment of the cutting speed.

Use the speed control to adjust the cutting speed.

NOTE: Do NOT change the cutting speed range selector while the tool is running.

NOTE: Refer to the cutting speeds section for the chart with the recommended cutting speeds.

Rotate the feed knob clockwise to bring the cutting head and pipe closer together.



CAUTION: The actual machining operation begins when the tool bit contacts the tube or pipe.

If the pipe end is not square to the pipe axis, the tool bit will contact only a small segment of the pipe during each revolution.

To avoid cutting tool damage, the feed rate should be very slow until the tool bit is contacting the pipe continually during at least one revolution.

Continue rotating the feed knob clockwise until the end of the pipe is completely machined.

CAUTION: Be careful not to let the tool bit(s) cut into the collets or the collet adapter.

Discontinue feed and allow the cutting head to rotate one to three revolutions to improve the finish of the prep surface.

Rotate the feed knob counter-clockwise to separate the cutting head and the pipe.

Stop the tool rotation.

Release the trigger switch.

Rotate the feed knob counter-clockwise until the cutting head clears the tube or pipe by at least 1/8" (3.2 mm) or more.

Loosen the collet nut or adjustable saddle to release the tube or pipe.

CUTTING SPEEDS AND FEEDS

CUTTING SPEEDS

Tube Size		RPM for 200 in/min (508 cm/min)	RPM for 250 in/min (635 cm/min)	RPM for 300 in/min (762 cm/min)
2"	50.8 mm	32	40	48
3"	76.2 mm	21	27	32
4"	101.6 mm	16	20	24
5"	127.0 mm	13	16	19
6"	152.4 mm	11	14	16
7"	177.8 mm	9	11	14
8"	203.2 mm	8	10	12

Use 200 surface inches per minute (508 surface centimeters per minute) for: Stainless steels in general when no coolant is allowed, all heavy-wall tube and some of the chrome/molybdenum steels.

Use 250 surface inches per minute (635 surface centimeters per minute) for: Mild steels and some thin wall stainless steels when coolants are permitted and applied.

Use 300 surface inches per minute (762 surface centimeters per minute) for: Aluminum and thin-wall mild steel and tube with coolants.

CUTTING FEEDS

Use a very light feed for initial cutting or until a continuous cut has been established. This is very important for longer tool bit life when cutting through a flame cut or out of square pipe or tube ends.

Use adequate feed, .003" to .006" (.08 mm to .15 mm) per revolution thereafter to establish a continuous chip cut. If the feed is too light, only a light stringer chip will be removed. If the feed is too heavy, the drive will start to overload and the chip will start to have a rough edge or rough appearance.

Stainless, which work hardens, must be worked with a heavy enough feed to keep the edge of the tool bit under the work hardened surface [.003" to .006"(.08 mm to .15 mm) feed.] Never allow the tool bit to burnish the surface.

Reduce feeds and speeds will normally minimize chatter problems.

A good rule of thumb for calculation purposes is to produce a .0025" (.64 mm) thick chip per revolution. Actual measurements will show a pseudo thickness of .006" (.15 mm) unless a pin micrometer is used for measure.

NOTE:

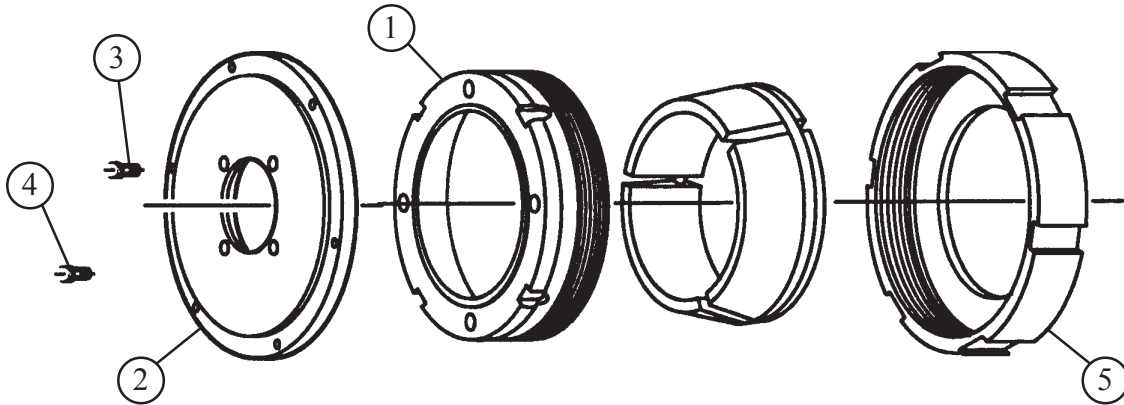
One revolution of the feed knob will advance the cutting head .044"
(1.12 mm).

SADDLE SETS

Saddles				
Pipe Size	Diameter			Collet P/N
	Fraction	Decimal	Metric	
	1 1/2"	1.500"	38.1 mm	67-3817
1 1/2"		1.900"	48.3 mm	67-3818
	2"	2.000"	50.8 mm	67-3819
2"	2 3/8"	2.375"	60.3 mm	67-3820
	3"	3.000"	76.2 mm	67-3821
3"	3 1/2"	3.500"	88.9 mm	67-3822
	4"	4.000"	101.6 mm	67-3823
4"	4 1/2"	4.500"	114.3 mm	67-3824
	6"	6.000"	152.4 mm	67-3825
6"	6 5/8"	6.625"	168.3 mm	67-3826
	8"	8.000"	203.2 mm	67-3827
8"	8 5/8"	8.625"	219.1 mm	67-3828

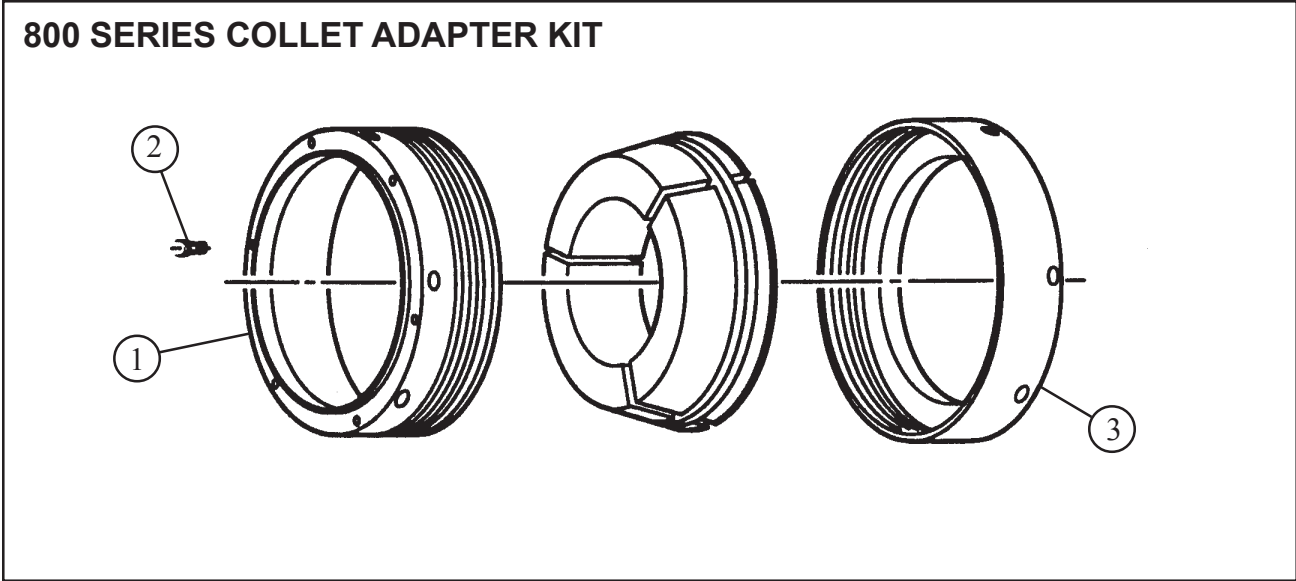
COLLETS ADAPTER KITS

400 SERIES COLLET ADAPTER KIT



400 Series Collet Adapter (P/N 05-0236)

Item No.	Part No.	Description	Qty
1.	27-0104	ADAPTER, COLLET, 400 SERIES	1
2.	27-0224	ADAPTER	1
3.	33-0054	SCREW, CAP, 5/16-18 X 3/4", ZP	4
4.	33-0057	SCREW, CAP, 5/16-18 X 1 1/4", ZP	6
5.	35-0158	NUT, COLLET, 400 SERIES	1
NOT SHOWN:			
	32-0274	PIN	1
	36-0077	WRENCH, SPANNER	1



800 Series Collet Adapter Kit (P/N05-0237)

Item No.	Part No.	Description	Qty
1.	27-0222	ADAPTER, COLLET, 800 SERIES	1
2.	33-0057	SCREW, CAP, 5/16-18 X 1 1/4", ZP	6
3.	35-0236	NUT, COLLET	1
NOT SHOWN:			
	36-0150	WRENCH, COLLET NUT	2

COLLETS

400 Series Collets				
Pipe Size	Diameter			Collet P/N
	Fraction	Decimal	Metric	
	1"	1.000"	25.4 mm	30-2001
3/4"		1.050"	26.7 mm	30-2167
	1 1/4"	1.250"	31.8 mm	30-2113
1"		1.315"	33.4 mm	30-2002
	1 1/2"	1.500"	38.1 mm	30-1488
	1 9/16"	1.56"	39.7 mm	30-1489
	1 5/8"	1.63"	41.3 mm	30-1490
1 1/4"		1.66"	42.2 mm	30-1491
		1.68"	42.7 mm	30-1492
	1 11/16"	1.69"	42.9 mm	30-1493
	1 3/4"	1.75"	44.5 mm	30-1494
		1.752"	44.5 mm	30-1495
	1 13/16"	1.81"	46.1 mm	30-1496
	1 7/8"	1.88"	47.6 mm	30-1497
1 1/2"		1.90"	48.3 mm	30-1498
		1.91"	48.6 mm	30-1499
	1 15/16"	1.94"	49.2 mm	30-1500
	1 31/32"	1.97"	50.0 mm	30-1501
	2"	2.00"	50.8 mm	30-1502
	2 1/16"	2.06"	52.4 mm	30-1503

400 Series Collets, Continued				
Pipe Size	Diameter			Collet P/N
	Fraction	Decimal	Metric	
	2 1/8"	2.13"	54.0 mm	30-1504
	2 3/16"	2.19"	55.6 mm	30-1505
		2.24"	56.9 mm	30-1506
			57.0 mm	30-1507
	2 1/4"	2.25"	57.2 mm	30-1508
	2 5/16"	2.31"	58.8 mm	30-1509
2"	2 3/8"	2.38"	60.3 mm	30-1510
			60.5 mm	30-1511
	2 7/16"	2.44"	61.9 mm	30-1512
		2.48"	63.0 mm	30-1513
	2 1/2"	2.50"	63.5 mm	30-1514
	2 9/16"	2.56"	65.1 mm	30-1515
	2 5/8"	2.63"	66.7 mm	30-1516
	2 11/16"	2.69"	68.3 mm	30-1517
	2 3/4"	2.75"	69.9 mm	30-1518
	2 13/16"	2.81"	71.5 mm	30-1519
	2 7/8"	2.88"	73.0 mm	30-1520
	2 15/16"	2.94"	74.6 mm	30-1521
		2.99"	76.0 mm	30-1522
	3"	3.00"	76.2 mm	30-1523
			76.3 mm	30-1783
	3 1/8"	3.13"	79.4 mm	30-1524
	3 1/4"	3.25"	82.6 mm	30-1525
	3 3/8"	3.38"	85.7 mm	30-1526

400 Series Collets, Continued				
Pipe Size	Diameter			Collet P/N
	Fraction	Decimal	Metric	
3"	3 1/2"	3.50"	88.9 mm	30-1527
		3.51"	89.1 mm	30-1784
	3 5/8"	3.63"	92.1 mm	30-1528
	3 3/4"	3.75"	95.3 mm	30-1529
	3 7/8"	3.88"	98.4 mm	30-1530
3 1/2"	4"	4.00"	101.6 mm	30-1531
	4 1/8"	4.13"	104.8 mm	30-1532
	4 1/4"	4.25"	108.0 mm	30-1533
	4 3/8"	4.38"	111.1 mm	30-1534
4"	4 1/2"	4.50"	114.3 mm	30-1535

Replacement Tension Spring for 400 Series Collets

40-0032 Spring, Tension 3 required per Collet

Replacement Compression Spring for 400 Series Collets

40-0106 Spring, Compression 6 required per Collet

800 Series Collets				
Pipe Size	Diameter			Collet P/N
	Fraction	Decimal	Metric	
	4"	4.000"	101.6 mm	30-2204
	6"	6.000"	152.4 mm	30-2203
	6 3/4"	6.750"	171.5 mm	30-0859
	7"	7.000"	177.8 mm	30-0860
	7 1/2"	7.500"	190.5 mm	30-0861
	7 5/8"	7.625"	193.7 mm	30-0862
	8"	8.000"	203.2 mm	30-0863
8"	8 5/8"	8.625"	219.1 mm	30-0766

Replacement Tension Spring for 800 Series Collets

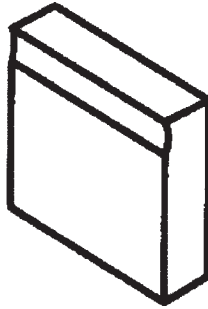
40-0034 Spring, Tension 2 required per Collet

Replacement Compression Spring for 800 Series Collets

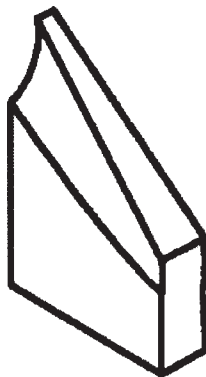
40-0150 Spring, Compression 6 required per Collet

TOOL BITS

TOOL BITS, SQUARING				
Range	Max Wall Thickness	Pipe or Tube Material	M2 Squaring Tool Bit P/N	M42 Squaring Tool Bit P/N
1.00" OD thru 6.750" OD 25.4 mm OD thru 171.5 mm OD	.250" 6.4 mm	CS	99-1479	
1.00" OD thru 6.750" OD 25.4 mm OD thru 171.5 mm OD	.250" 6.4 mm	SS	99-2490	
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	CS	99-1480	
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	SS	99-1445 Durabit 1	99-1331
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	316L	99-1506 Durabit 1	99-3650 99-4491
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	Hastelloy	Durabit 1	99-3650 99-4491
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	Inconel	Durabit 1	99-3650
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	Incoloy	Durabit 1	
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	Tantalum	99-4164	
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	Copper	99-1506	99-3650
2.00" OD thru 8.62" OD 50.8 mm OD thru 218.9 mm OD	.250" 6.4 mm	Titanium		



TOOL BITS, FACING			
Range	Max Wall Thickness	Pipe or Tube Material	Facing (Land) Tool Bit P/N
1.00" OD thru 8.62" OD 25.4 mm OD thru 218.9 mm OD	.250" 6.4 mm	CS	99-0257 99-0789 99-1046*
* HIGH SHEAR			



TOOL BITS, BEVELING			
Range	Max Wall Thickness	Pipe or Tube Material	Beveling Tool Bit P/N
1.00" OD thru 8.62" OD 25.4 mm OD thru 218.9 mm OD	.250" 6.4 mm	CS	99-0333 Durabit 1
		CS, SS	Durabit 7

TROUBLE SHOOTING

Problem: The Tool Bit Chatters

Probable causes:

- The tool bit is loose or overextended.
- The tool bit is damaged.
- The tool holder is too loose in the slides.
- The cutting speed is too fast.
- The clamping pads are loose on the pipe or tube.
- Cutting fluid is required.
- The main bearing pre-load is loose.

Problem: There is excessive Tool Bit wear

Probable causes:

- The pipe or tube material is too hard or abrasive.
- The cutting speed is too fast.
- Cutting fluid is required.
- A dull Tool Bit is causing surface hardening conditions (Stainless pipe or tubing).
- There is scale or other foreign matter on the pipe or tube, which is dulling the tool bit at the start of the cut.
- The tool bit is incorrect for the material being cut.

Problem: The surface finish is rough

Probable causes:

- The tool bit is dull, chipped, etc.
- Metal build-up on the cutting edge of the tool bit is creating a false cutting edge.
- Cutting fluid is required.
- The cutting speed is incorrect.

Problem: The tool holder is not feeding

Probable causes:

- The feed pin is broken or out of position.
- The feed sprocket shear pin is broken.
- The feed screw is stripped.
- The feed nut is stripped.
- The slide rails are too tight.

Problem: There is a loss of air power

Probable causes:

- The air supply pressure is too low.
- The air filter is plugged.
- The air line size is insufficient.
- The air line is too long.

Problem: There is a loss of hydraulic power

Probable causes:

- The hydraulic supply pressure is too low.
- The hydraulic filter is plugged.
- The hydraulic line size is insufficient.
- The hydraulic line is too long.

Problem: The tool bit will not reach the work

Probable causes:

- Incorrect tool blocks are installed for the size of the pipe or tube being worked on.
- Incorrect tool bit is installed.

Problem: The hydraulic motor will not start

Probable causes:

- The hydraulic power supply is shut off.
- The hydraulic motor is damaged and will not run free.

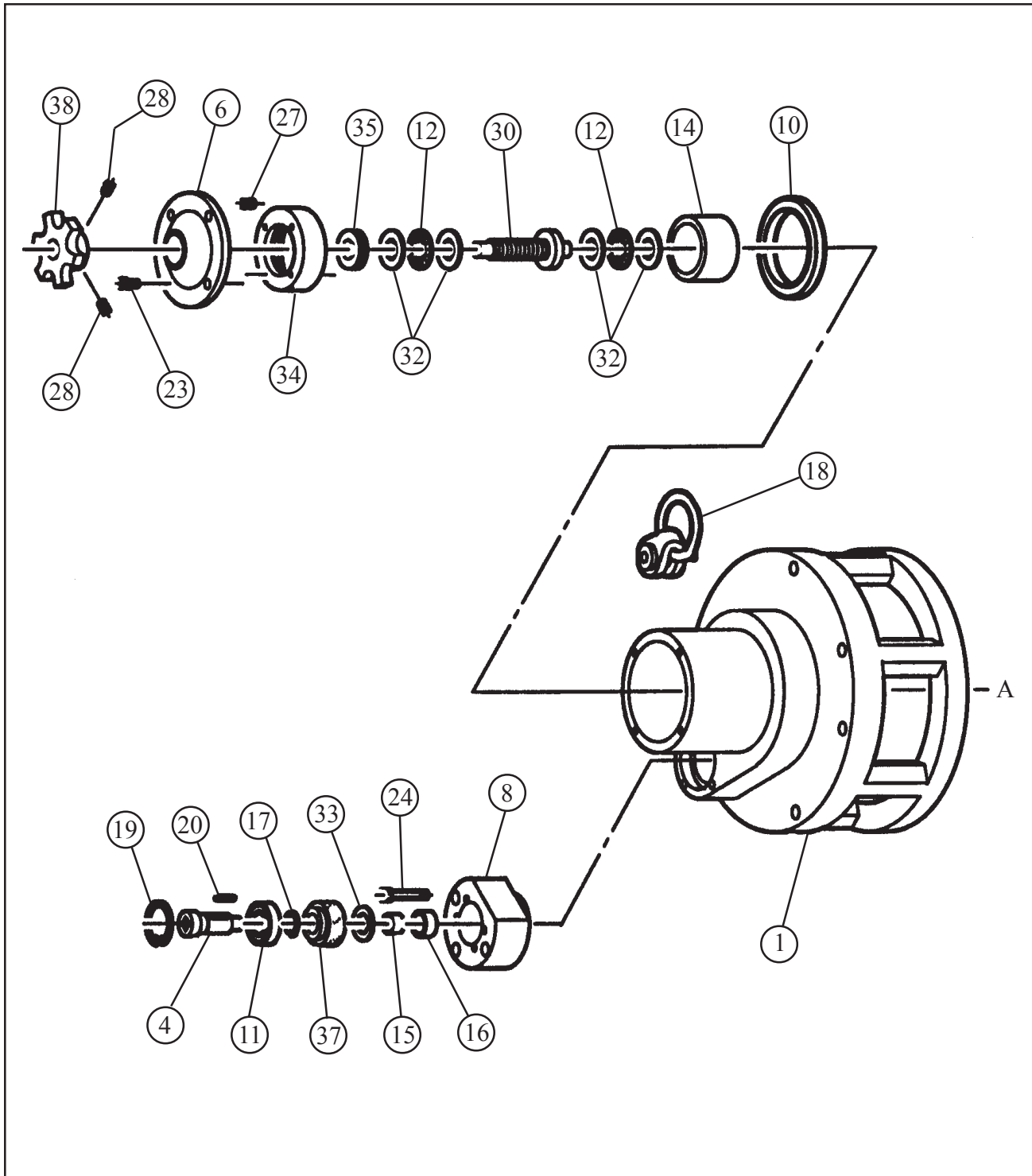
ACCESSORIES

The following accessories are recommended for use with the Model 308, Tube Squaring Machine and are available from TRI TOOL INC.

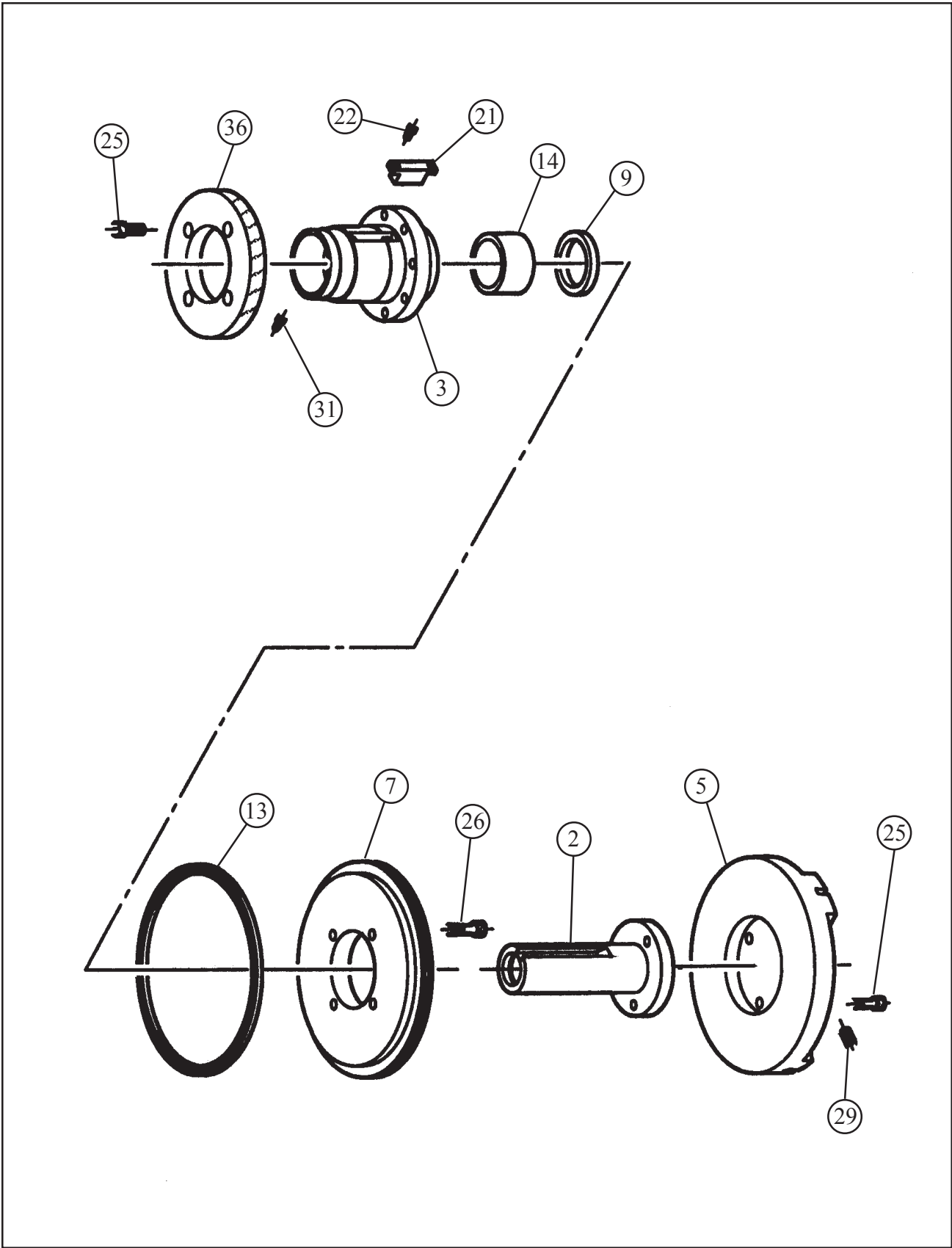
1. An Electric Foot Pedal
2. Collet Kits and Collets
3. Saddle Adapter Kit (P/N 05-0245) and Saddle Sets
4. Air Clamping Kit (P/N 05-1315)
5. Tool Bits for most standard operations.
Tool Bits for special situations are also available on request.

ILLUSTRATED PARTS BREAKDOWN

MODEL 308, TUBE SQUARING MACHINE SUB-ASSY - GROUP 1



MODEL 308, TUBE SQUARING MACHINE SUB-ASSY - GROUP 2



TRI TOOL INC.

Parts List, Model 308E Tube Squaring Machine (P/N 02-2214)

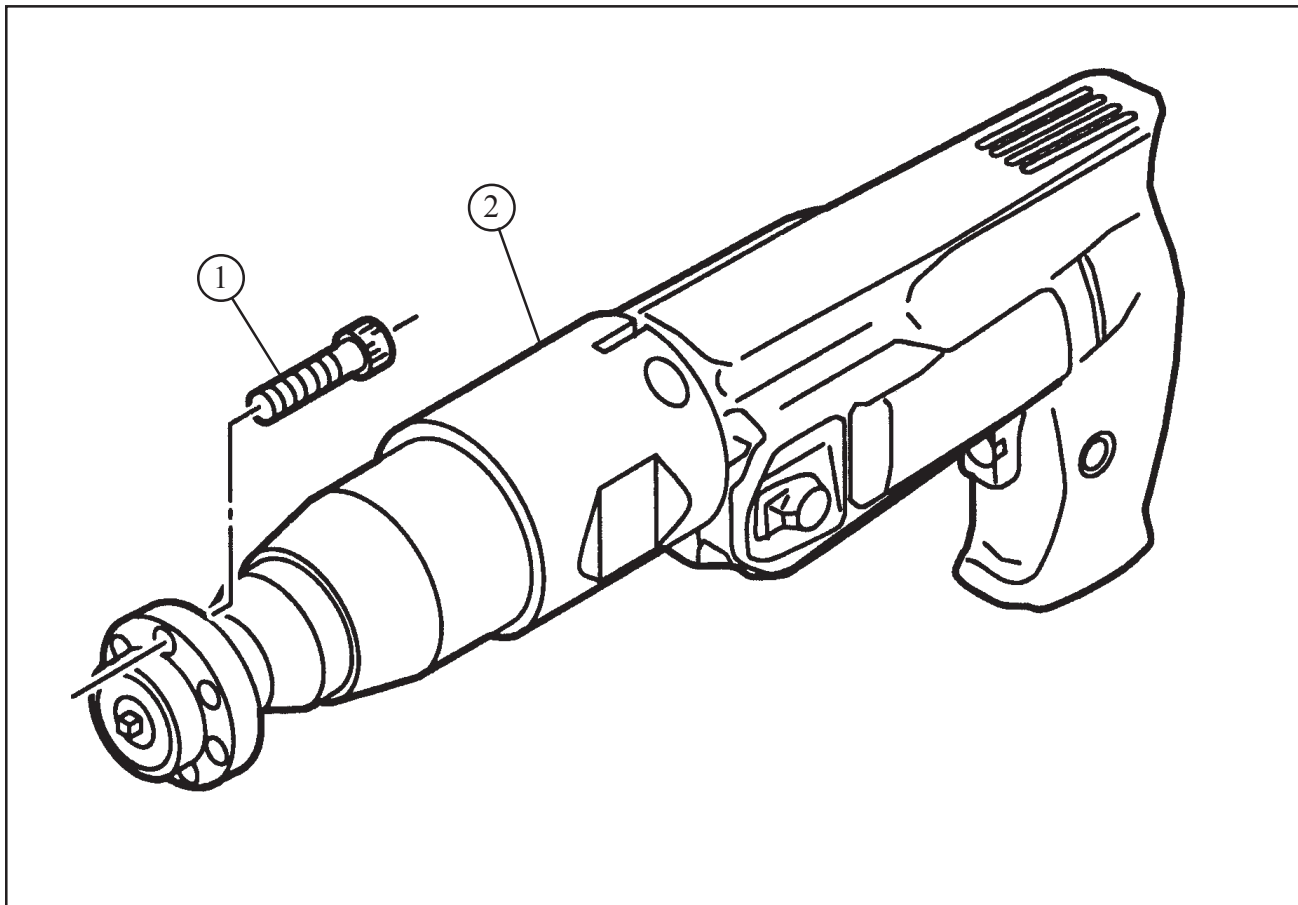
Item No.	Part No.	Description	Qty
1.	19-0737	HOUSING	1
2.	20-0334	SHAFT, INTERNAL	1
3.	20-0592	SHAFT	1
4.	20-0612	SHAFT, DRIVE	1
5.	21-0457	HEAD, FACING	1
6.	24-0573	PLATE ASSY, FEED	1
7.	24-1414	PLATE, END	1
8.	27-0538	ADAPTER, MOTOR	1
9.	28-0160	SEAL, OIL	1
10.	29-0002	BEARING, BALL	1
11.	29-0020	BEARING, BALL	1
12.	29-0067	BEARING, THRUST	2
13.	29-0135	BEARING, BALL	1
14.	29-0185	RACE, INNER	2
15.	29-0186	RACE, BEARING	1
16.	29-0187	BEARING, ROLLER	1
17.	30-0060	RING, RETAINING, EXTERNAL	1
18.	30-0415	RING, HOIST	1
19.	30-1089	RING, RETAINING, INTERNAL	1
20.	31-0037	KEY, 3/16 SQUARE	1
21.	31-0152	KEY, TORQUE	1
22.	33-0019	SCREW, CAP, #8-32 X 3/8", ZP	2
23.	33-0041	SCREW, CAP, 1/4-20 X 7/8", ZP	4
24.	33-0059	SCREW, CAP, 5/16-18 X 1 3/4", ZP	3
25.	33-0071	SCREW, CAP, 3/8-16 X 1", ZP	7
26.	33-0072	SCREW, CAP, 3/8-16 X 1 1/4", ZP	4
27.	33-0469	SCREW, SET, #6-32 X 3/8", CUP PT	4
28.	33-0503	SCREW, SET, 1/4-20 X 1/2", CUP PT	2
29.	33-0507	SCREW, SET, 1/4-20 X 1", CUP PT	27
30.	33-1486	SCREW, FEED	1
31.	33-1949	SCREW, SET, BRASS TIP, 1/4-20 X 1/4"	1
32.	34-0106	WASHER, THRUST	4
33.	34-0302	WASHER, THRUST	1
34.	35-0237	NUT, BEARING RETAINING	1
35.	35-0255	NUT, THRUST	1
36.	39-0784	GEAR, SPUR, DRIVE	1
37.	39-0787	GEAR, SPUR	1
38.	42-0081	KNOB, FEED	1

Model 308, Tube Squaring Machine

Parts List, Model 308E Tube Squaring Machine (P/N 02-2214), Continued

Item No.	Part No.	Description	Qty
NOT SHOWN:			
	36-0008	WRENCH, L, 3/16", HEX	1
	36-0010	WRENCH, L, 1/4", HEX	1
	36-0018	WRENCH, T, 1/8", HEX	1
	60-0080	STAND ASSY	1
	33-0109	SCREW, CAP, 1/2-13 X 2", ZP	4
	34-0020	WASHER, FLAT	4

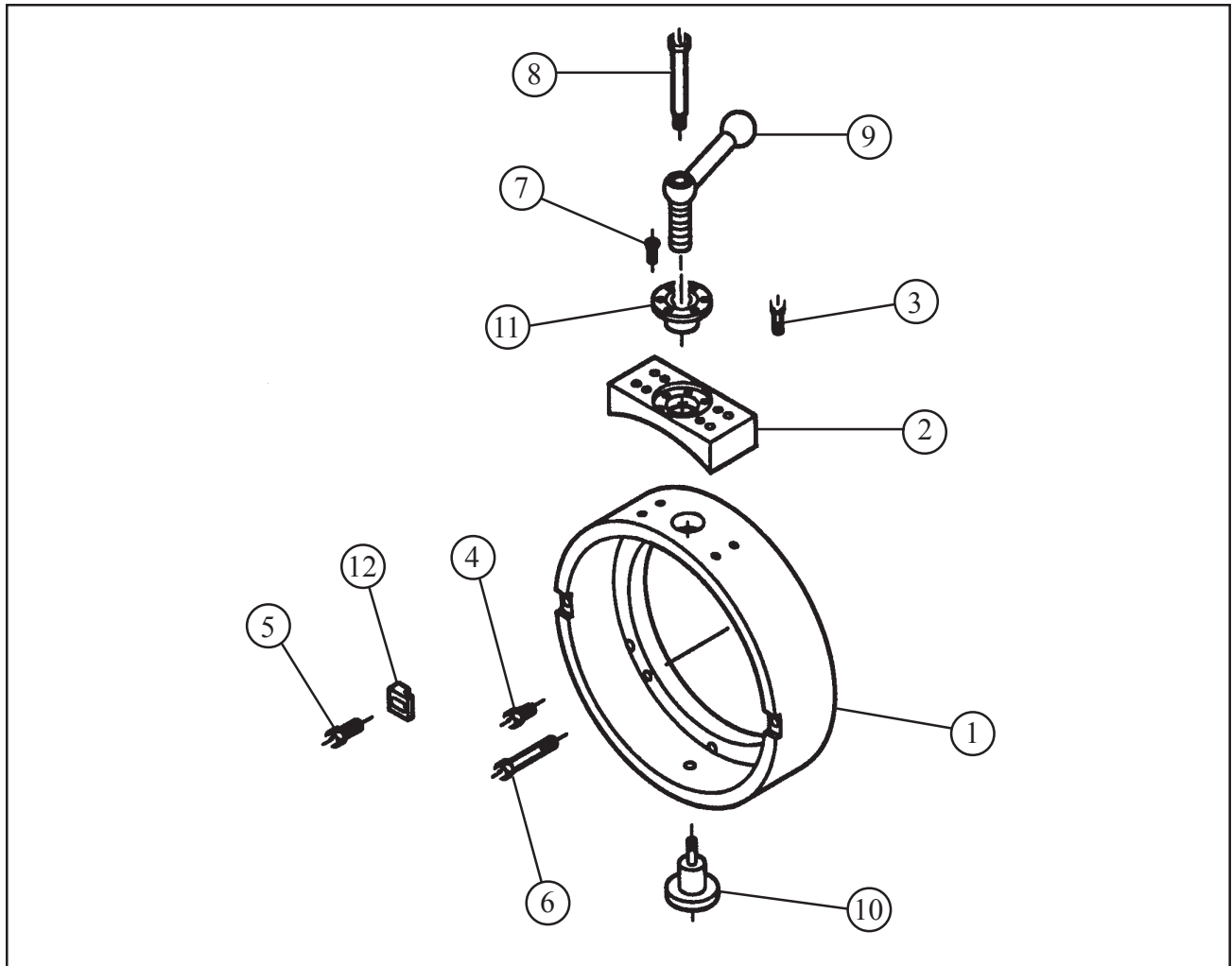
MOTOR ASSY, ELECTRIC



Parts List, Motor Assy, Electric

Item No.	Part No.	Description	Qty
1.	33-0041	SCREW, CAP, 1/4-20 X 7/8", ZP	4
2.	58-0046	MOTOR ASSY, ELECTRIC, 110 VAC, 60 HZ	1
	58-0054	MOTOR ASSY, ELECTRIC, 220 VAC, 50 HZ	1

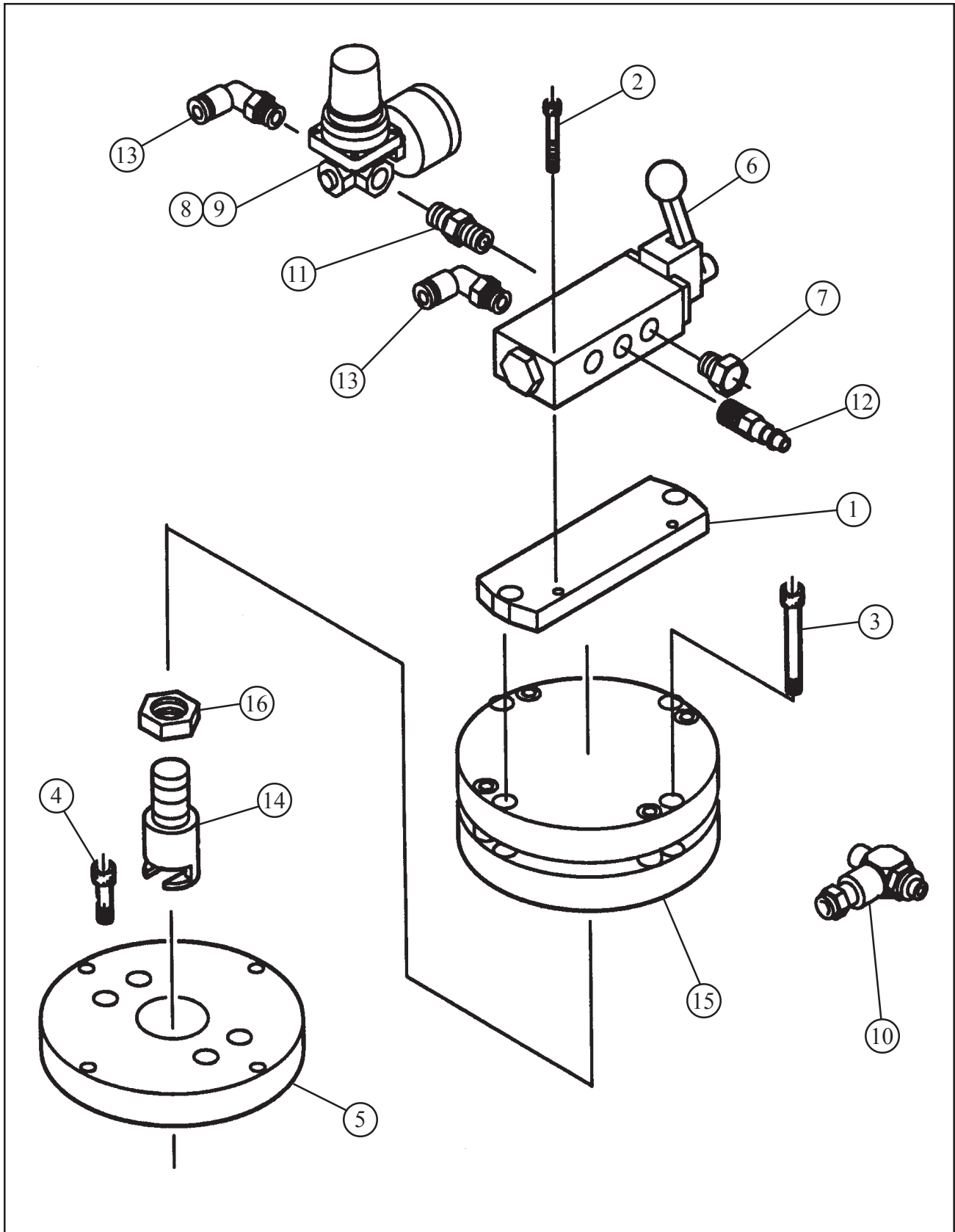
ADAPTER KIT, SADDLE



Parts List, Adapter Kit, Saddle (P/N 05-0245)

Item No.	Part No.	Description	Qty
1.	27-0537	ADAPTER, RING	1
2.	27-0539	ADAPTER, MOUNT	1
3.	33-0056	SCREW, CAP, 5/16-18 X 1", ZP	4
4.	33-0069	SCREW, CAP, 3/8-16 X 3/4", ZP	6
5.	33-0071	SCREW, CAP, 3/8-16 X 1", ZP	2
6.	33-0077	SCREW, CAP, 3/8-16 X 2 1/2", ZP	2
7.	33-0287	SCREW, BUTTON, 1/4-20 X 3/4"	6
8.	33-1970	SCREW, SHLDR, 1/2 DIA X 3"	1
9.	41-0128	HANDLE ASSY, ADJUST	1
10.	42-0163	KNOB, ADJUST	1
11.	45-0249	BUSHING	1
12.	47-1087	BRACKET, RETAINING	2

CLAMPING KIT, AIR



Model 308, Tube Squaring Machine

Parts List, Clamping Kit, Air (P/N 05-1315)

Item No.	Part No.	Description	Qty
1.	24-1459	PLATE, FLOW CONTROL MOUNT	1
2.	33-0034	SCREW, CAP, #10-24 X 1 1/2"	2
3.	33-0050	SCREW, CAP, 1/4-20 X 3"	4
4.	33-0056	SCREW, CAP, 5/16-18 X 1"	4
5.	44-0461	SPACER	1
6.	53-0061	VALVE, 4 WAY, LEVER	1
7.	53-0064	MUFFLER	2
8.	53-0065	VALVE, FLOW CONTROL	1
9.	53-0066	DIAL, FLOW METER	1
10.	53-0067	VALVE, FLOW CONTROL	1
11.	54-0108	FITTING, NIPPLE	1
12.	54-0149	FITTING, QUICK DISCONNECT	1
13.	54-0353	ELBOW, 90 DEG., TUBE	3
	54-0382	CYLINDER ASSY, SHAFT	1
14.	20-0616	SHAFT	1
15.	30-2315	CYLINDER, AIR	1
16.	35-0107	NUT, JAM, 5/8-18	1
NOT SHOWN:			
	54-0201	CAP, PLASTIC	1
	55-0185	TUBE, PLASTIC	8"