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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 Collet Adapter Kit is an add on accessory for the Model 304 Tube Squaring Machine.

It replaces the standard Saddle Clamping System for use with existing 400 Series Collets in the range of .750" (19.05 mm) to 4.500" (114.30 mm) tube diameters.

## SPECIFICATIONS

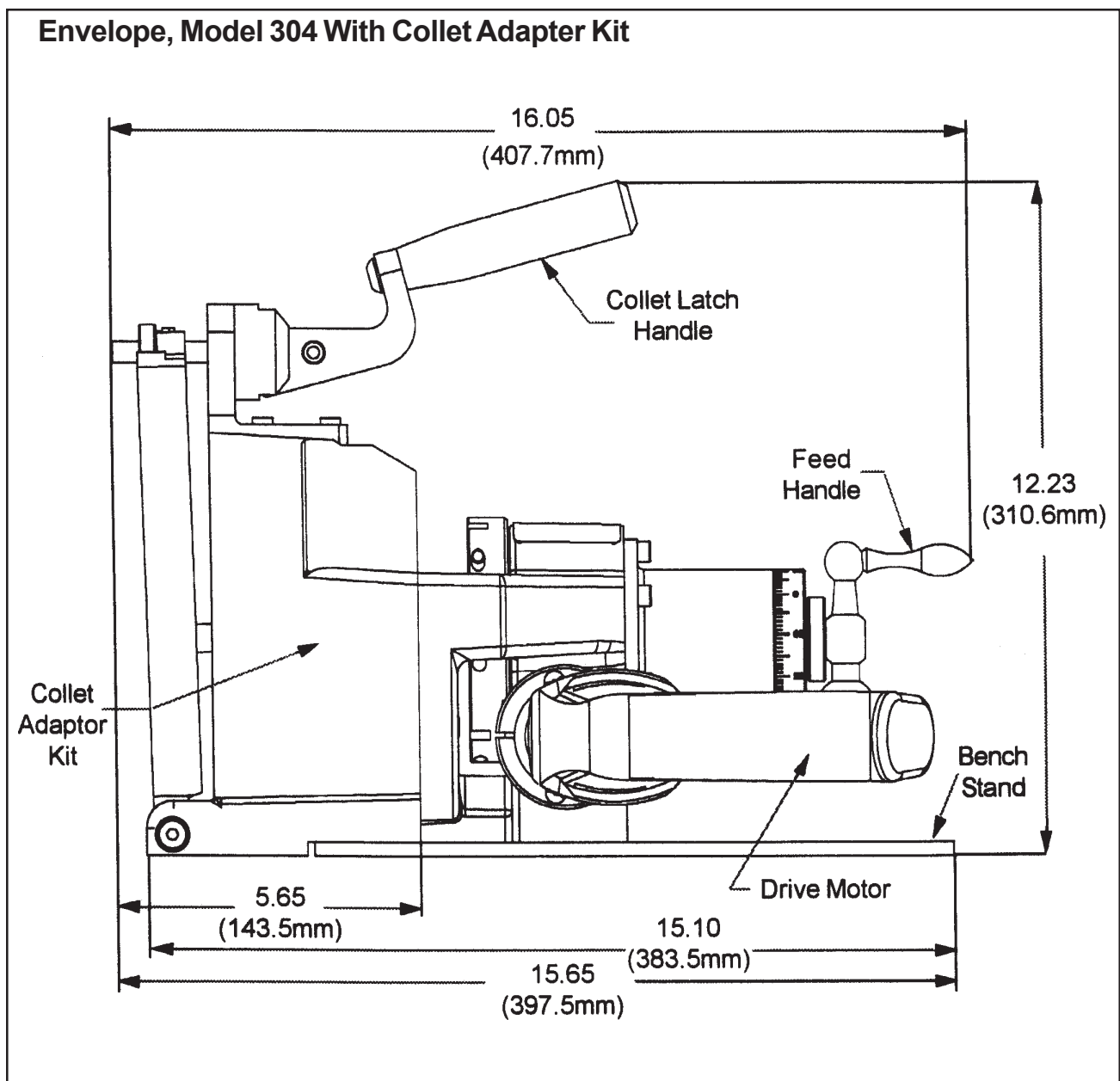
Weight: 30.00 lbs. (13.61 Kg)

Feed Travel: .560" (14.2 mm)

OD Mounting Range: .750" (19.05 mm) to 4.50" (114.3 mm)

Power Requirements: 115 VAC  $\pm$ 10%, 25-60 Hz or 220 VAC  $\pm$ 10%, 25.20 Hz

### Envelope, Model 304 With Collet Adapter Kit



## **MAINTENANCE**

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).

The air supply for the Collet Adapter Kit, 304 with an air motor should include an adequate filter/regulator/lubricator (FRL).

**NOTE:**

The Air Motor warranty is void if damage occurs from contaminated air or lack of lubrication.

If the Collet Adapter Kit, 304 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 cut is completed.

**CAUTION:**

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

Bearing and gears are to be lubricated using Chevron Ultra Duty Grease, EP, NLGI2 or equivalent.

**CAUTION:**

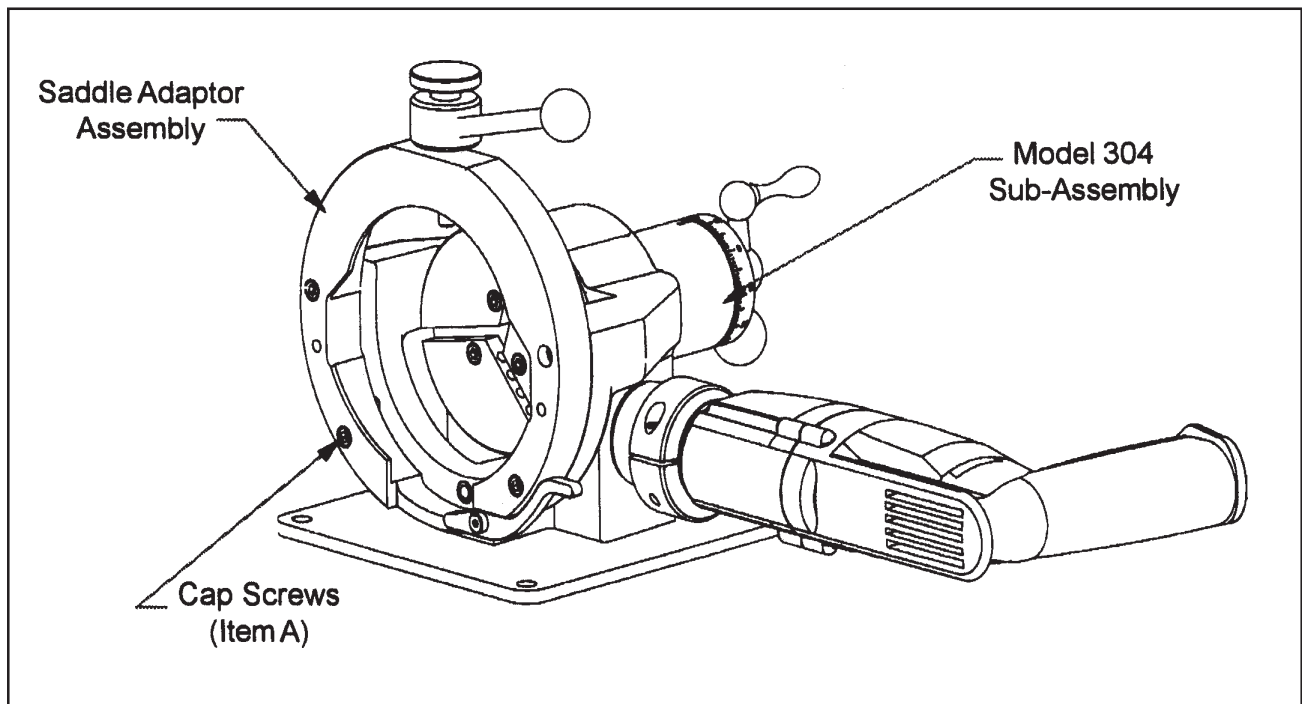
Disassembly of the power unit voids warranty, except when performed by a TRI TOOL Inc. designated repair technician. A letter of designation is required.

## OPERATION

### IN GENERAL

Read the operating instructions carefully before attempting to operate the Model 304 Tube Squaring Machine.

Remove the Saddle Adapter Assembly by loosening the (4) four Cap Screws (Item A) on the front face of the Saddle Adapter.



Mount the Collet Adapter Kit to the face of the 304 Main Housing. Insert (2) two Cap Screws (Item B) from the front of the Collet Adapter and (2) two Cap Screws (Item C) from the front of the (304) Main Housing into the back of the Collet Adapter.

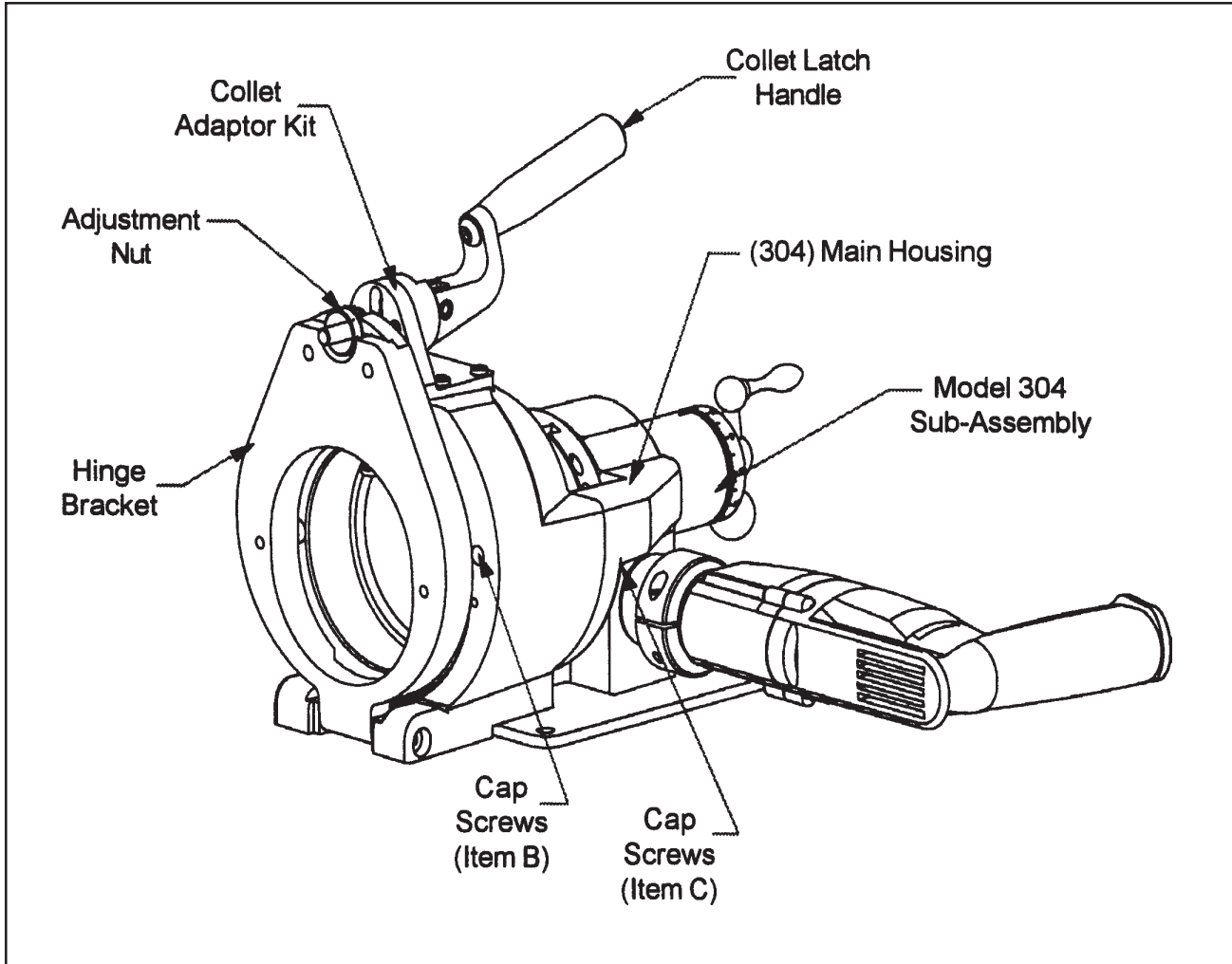
### INSERTING THE COLLET

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

Raise the Handle to release pressure on the Adjust Nut.

Rotate the Adjust Nut until the eyebolt can be raised out of the slot and then the Hinge Bracket may be rotated back and down.

Remove the Pusher Sleeve from the Main Housing.



Remove the Collet, if there is one, from the inside of the Main Housing.

Insert the correct Collet into the Main Housing and then slide the Pusher Sleeve back into the Main Housing and into contact with the Collet.

Rotate the Hinge Bracket back up and let the eyebolt drop back into the slot.

Rotate the Adjust Nut on the eyebolt to secure in the slot.

## COLLETS

Collets		
Decimal Inches	mm Equiv.	Part Number
0.750"	19.05	30-2646
0.984 "	25.00	30-2493
1.000 "	25.40	30-2001
1.050"	26.67	30-2167
1.059"	26.90	30-2765
1.102"	28.00	30-2749
1.188"	30.18	30-2233
1.250"	31.75	30-2113
1.260"	32.00	30-2751
1.311"	33.30	30-2774
1.315"	33.40	30-2002
1.327"	33.70	30-2617
1.339"	34.00	30-2715
1.344"	34.14	30-2785
1.375"	34.93	30-2497
1.438"	36.53	30-2234
1.496"	38.00	30-2494
1.500"	38.10	30-1488
1.563"	39.70	30-1489
1.614"	41.00	30-2626
1.625"	41.28	30-1490



Collets, Continued		
Decimal Inches	mm Equiv.	Part Number
1.645"	41.78	30-2312
1.660"	42.16	30-1491
1.669"	42.40	30-2288
1.681"	42.70	30-1492
1.688"	42.88	30-1493
1.750"	44.45	30-1494
1.752"	44.50	30-1495
1.772"	45.01	30-2313
1.813"	46.05	30-1496
1.875"	47.63	30-1497
1.900"	48.26	30-1498
1.902"	48.30	30-2289
1.904"	48.36	30-2314
1.913"	48.60	30-1499
1.938"	49.23	30-1500

<b>Collets, Continued</b>		
<b>Decimal Inches</b>	<b>mm Equiv.</b>	<b>Part Number</b>
1.969"	50.00	30-1501
2.000"	50.80	30-1502
2.008"	51.00	30-2495
2.063"	52.40	30-1503
2.087"	53.00	30-2718
2.125"	53.98	30-1504
2.188"	55.58	30-1505
2.240"	56.90	30-1506
2.244"	57.00	30-1507
2.250"	57.15	30-1508
2.313"	58.75	30-1509
2.375"	60.33	30-1510
2.382"	60.50	30-1511
2.438"	61.93	30-1512
2.480"	63.00	30-1513
2.492"	63.30	30-1957
2.500"	63.50	30-1514
2.559"	65.00	30-2651
2.563"	65.10	30-1515
2.625"	66.68	30-1516
2.640"	67.06	30-2739
2.688"	68.28	30-1517
2.750"	69.85	30-1518
2.795"	71.00	30-2496

<b>Collets, Continued</b>		
<b>Decimal Inches</b>	<b>mm Equiv.</b>	<b>Part Number</b>
2.813"	71.45	30-1519
2.875"	73.03	30-1520
2.938"	74.63	30-1521
2.992"	76.00	30-1522
2.996"	76.10	30-2290
3.000"	76.20	30-1523
3.004"	76.30	30-1783
3.125"	79.38	30-1524
3.250"	82.55	30-1525
3.307"	84.00	30-2766
3.375"	85.73	30-1526
3.500"	88.90	30-1527
3.508"	89.10	30-1784
3.625"	92.08	30-1528
3.750"	95.25	30-1529
3.875"	98.43	30-1530
3.988"	101.30	30-1959
4.000"	101.60	30-1531
4.016"	102.00	30-2653
4.095"	104.00	30-2767
4.125"	104.78	30-1532
4.250"	107.95	30-1533
4.375"	111.13	30-1534
4.500"	114.30	30-1535

## 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 pipe or tube is slipping in the Collet.**

**Probable causes:**

- The clamping pressure is not tight enough.
- Scale and/or other foreign material is present on the pipe or tube.
- Weld seams, swelling, or bumps are preventing full contact of the Collet.
- Dull tool bits are causing extra force in the axial and/or radial direction.

**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 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 hydraulic motor will not start**

**Probable causes:**

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

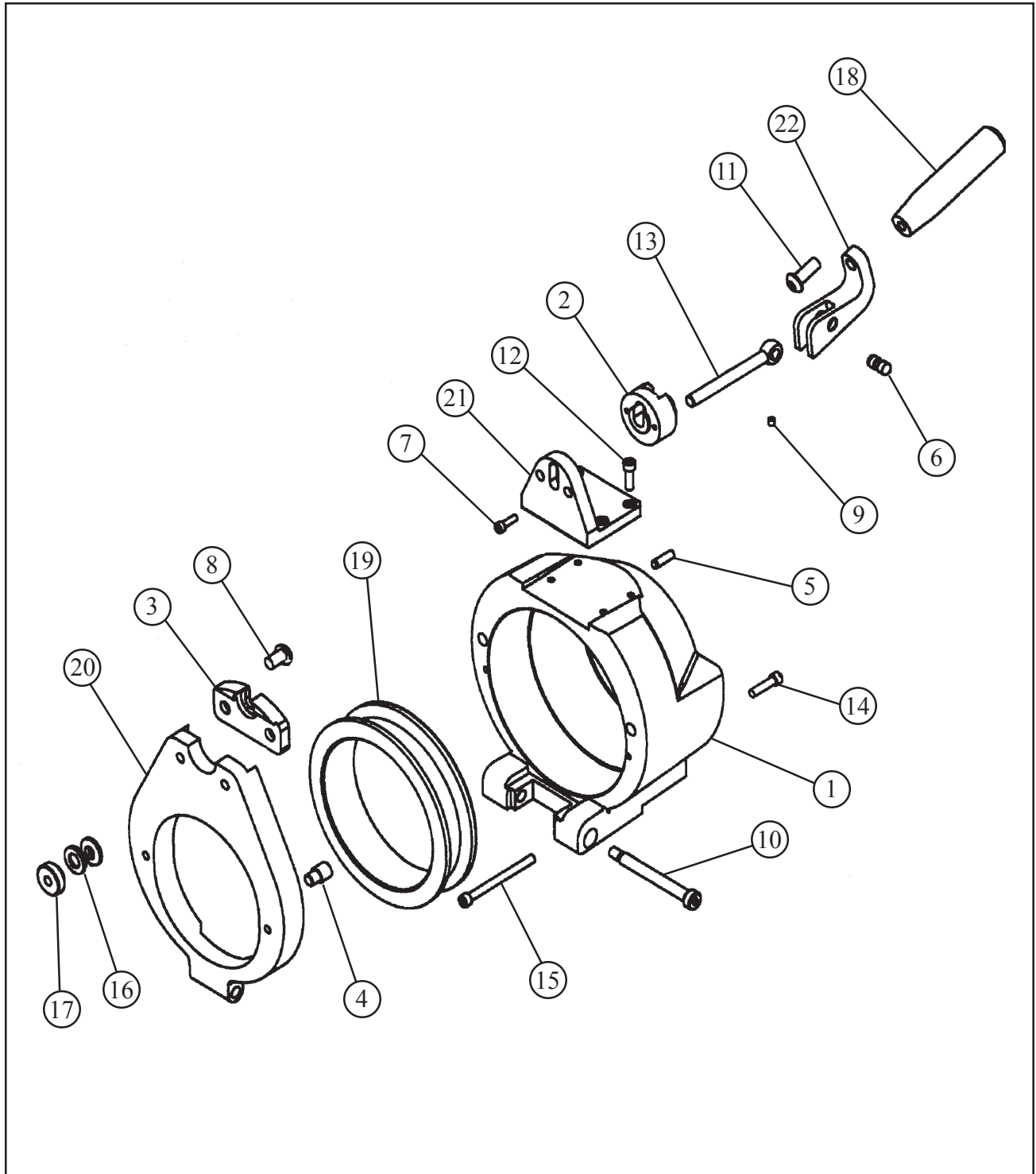
**Problem: The air motor will not start.**

**Probable causes:**

The air power is shut off.  
The air motor is damaged and will not run free.  
The air motor needs lubrication. Add lubrication and do not run the air motor for a few minutes, then try running the motor.  
Tap on the side of the air motor casing lightly with a piece of wood or with a soft rubber mallet just in case the veins may be sticking.  
Sand or other foreign material may be in the veins of the air motor.

ILLUSTRATED PARTS BREAKDOWN

304 COLLET ADAPTER KIT



**TRI TOOL INC.**

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## Parts List, Kit, Collet Adapter Kit (P/N 05-0325)

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1.	19-0836	HOUSING, COLLET ADAPTER	1
2.	20-0633	SHAFT, CLAMP	1
3.	24-1511	PLATE, CLAMP	1
4.	30-2611	BUTTON, SPHERICAL, 1/2" DIA	2
5.	32-0115	PIN, DOWEL, 1/4 DIA X 7/8"	2
6.	32-0260	PIN, MODIFIED	1
7.	33-0029	SCREW, CAP, #10-24 X 5/8"	2
8.	33-0297	SCREW, BUTTON HEAD, 3/8-16 X 5/8"	2
9.	33-0619	SCREW, SET, #10-32 X 1/4", CUP PT	1
10.	33-1061	SCREW, SHOULDER, 3/8 DIA X 3"	1
11.	33-2006	SCREW, BUTTON HEAD, 3/8-16 X 1", SS	1
12.	33-0040	SCREW, CAP, 1/4-20 X 3/4"	4
13.	33-2075	EYEBOLT	1
14.	33-0042	SCREW, CAP, 1/4-20 X 1"	2
15.	33-0050	SCREW, CAP, 1/4-20 X 3"	2
16.	34-0134	WASHER SET, SELF-ALIGN	1
17.	35-0139	NUT, CHECK	1
18.	41-0125	HANDLE	1
19.	44-0500	SLEEVE, COLLET	1
20.	47-1209	BRACKET, HINGE	1
21.	47-1212	BRACKET, CLAMP	1
22.	62-0110	CAM, CLAMP	1
NOT SHOWN:			
		COLLET 400 SERIES	REF
	36-0008	WRENCH, L, 3/16" HEX	1