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PARTS MANUAL

for
CINCINNATI MILACRON®
MONOSET® CUTTER AND
TOOL GRINDER
MODEL MT

PUBLICATION NO. M-5041-2

CINCINNATI
MILACRON

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IMPORTANT

Carefully read the instructions and safety precautions given in this manual. Do not attempt to service this machine until you have read this manual thoroughly.

At the time of writing, the book was completely up-to-date. However, due to continual improvements in design, it is possible that descriptions contained herein may vary to a slight extent from the machine delivered to you. This merely implies that the machine has been improved to better fulfill your requirements. If there are any questions, you are encouraged to contact the nearest Cincinnati Milacron representative for clarification.

CINCINNATI
MILACRON

Cincinnati, Ohio 45209

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CINCINNATI MONOSET CUTTER AND TOOL GRINDER

HOW TO USE THIS MANUAL

This Parts Manual, for the CINCINNATI Monoset Cutter and Tool Grinder, is arranged and subdivided to provide useful information with a minimum of searching.

The key to easy reference is the Table of Contents. Become familiar with the Table of Contents which will facilitate locating particular information easily.

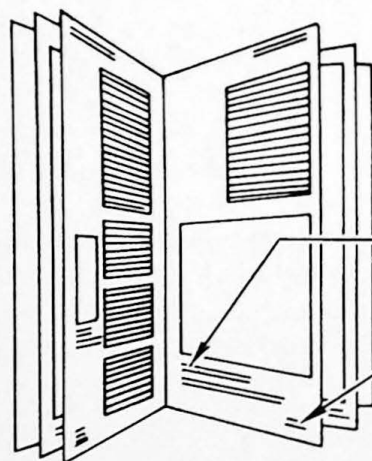
Page numbering follows the outline of the Table of Contents. In the lower outside corner of each page is the chapter number (Roman numeral) and the section within the chapter. Longer sections are divided into subsections. Each of these sections, or subsections, is sequentially page numbered, also in the lower outside corner, beginning with numeral 1.

For the convenience of quickly finding illustrations referred to in the text, all illustrations have the same number as the page on which they appear. For example: Figure I-A-2 is the illustration on page 2 of Section A in Chapter I.

CAUTION

DO NOT ATTEMPT TO
OPERATE MACHINE UNTIL
THE INSTRUCTION MANUAL
FOR THIS MACHINE HAS
BEEN READ THOROUGHLY.

We suggest that the personnel responsible for this machine review the Table of Contents for future quick reference and a broad understanding of the layout of the book. Then read the book through and study the Instructions thoroughly.



RAL-1035

SAFETY PRECAUTIONS

MANUALS

Carefully READ and UNDERSTAND the instruction and service manuals supplied with this machine.

MACHINE PERSONNEL

Only QUALIFIED personnel (operators, servicemen and maintenance men) should operate, service or repair this machine.

DO NOT WEAR loose fitting clothing (with long sleeves), neckties or any jewelry when operating this machine.

DO NOT touch a ROTATING CUTTER or grinding WHEEL.

DO NOT FEEL the edge of a cutter to determine if it is sharp.

USE A BRUSH or shop cloth to clean the machine. DO NOT use compressed air. DO NOT clean the machine while the spindles are running.

PERSONNEL SAFETY EQUIPMENT

WEAR impact resistant SAFETY GLASSES at all times.

WEAR safety shoes.

WEAR GLOVES or use a shop cloth when handling cutters or tools.

WARNING AND INSTRUCTION PLATES

Carefully READ and COMPLY with all machine mounted warning and instruction plates. Do not paint over, alter, deface or remove any plate.

WORKING AREA CONDITIONS

Keep the area around the machine WELL LIGHTED, DRY, in good housekeeping order and FREE from all unnecessary obstructions.

DO NOT use any work platform that is not sturdy or is not covered with an antislip surface.

SAFETY GUARDS

ALL guards and covers MUST be in position on the machine before starting the spindle. (See "ELECTRICAL SAFETY," page f.)

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

SAFETY REGULATIONS

SAFETY PRECAUTIONS (Continued)

The Occupational Safety and Health Act (O. S. H. A.), Regulation 29 C. F. R. , Section 1910.144, has designated a color coding system to identify various areas as follows:

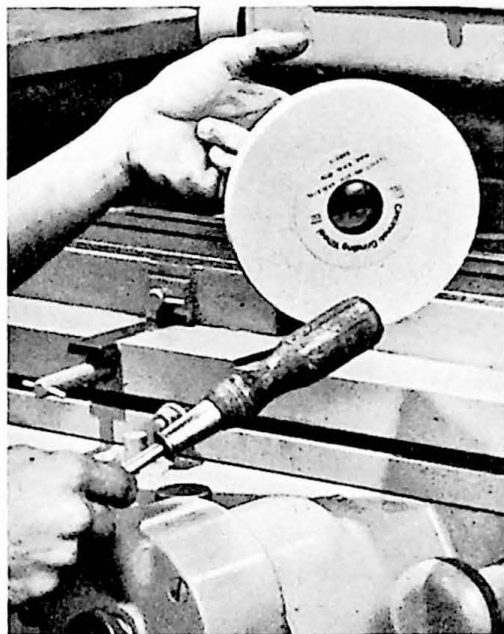
- RED - Shall be used to identify emergency stopping controls (stop buttons and electrical switches).
- ORANGE - Shall be used as the basic color for designating dangerous parts of the machine or energized equipment which may cut, crush, shock, or otherwise injure. To emphasize such hazards when enclosure doors are open, drive belt door, or guards around moving equipment are open or removed exposing unguarded hazards.
- YELLOW - Shall be the basic color for designating caution and for marking physical hazards such as; striking against, stumbling, falling, tripping, and "caught in between". Solid yellow, yellow and black stripes, yellow and black checkers (or yellow with suitable contrasting background) should be used interchangeably, using the combination which will attract the most attention in the particular environment.

COLOR SPECIFICATIONS - Color shall meet the tests specified in Section 3, Color Definitions, of American National Standard Institute, Inc. , (A. N. S. I.) Z53.1 - 1967, Safety Color Code for Marking Physical Hazards.

COMPLY with O. S. H. A. Regulation 29 C. F. R. , Section 1910.93 on Requirements of Dust Exhaust Systems for Dry Grinding.

READ the current issue of the American National Standard Institute, Inc. (A. N. S. I.) SAFETY CODE B7.1 titled "The Use, Care and Protection of Abrasive Wheels."

SETUP AND MOUNTING OF GRINDING WHEEL



RING TEST

Photo No.
8102-40-5

SAFETY PRECAUTIONS (Continued)

DO NOT use a grinding wheel of a larger diameter or thickness than specified for this machine. (Specifications are on page I-A-8).

USE the CORRECT type of wheel for the material to be ground.

DO NOT EXCEED maximum safe speed marked on wheel or on blotter of wheel. Check wheel speed against operating speed of grinder spindle.

DO NOT ALTER hole in wheel or force the wheel on a mandrel or spindle.

INSPECT the grinding wheel for DAMAGE (in transit, due to improper storage, dropping - etc.). Test vitrified wheel for cracks by "ringing." Suspend the clean dry vitrified wheel over a pin, through its mounting hole, then tap the wheel periphery lightly with a nonmetallic implement. An undamaged wheel will emit a clear metallic ring. Resinoid and other organic bonded wheels CANNOT be tested by "ringing" and must be visually inspected.

DO NOT use mounts with a flange that is warped, nicked, sprung, dirty or of the wrong size.

USE clean mounting BLOTTERS (maximum .025" thick) on each side of wheel each time it is mounted, unless blotters have been bonded permanently to wheel. The blotter must cover entire flange contact area. All mounting surfaces must be free of foreign matter.

TIGHTEN the mounting nut ONLY ENOUGH to hold the wheel firmly. Eight foot pounds is sufficient.

DO NOT START the SPINDLE until the wheel guard is in place.

DO NOT use a wheel that has been dropped.

Grind ONLY on FACE of straight wheel. Side grinding is done with cup or dish wheel.

DO NOT FORCE grinding so that the motor slows noticeably or work gets hot.

DO NOT JAM the wheel against the workpiece or the workpiece against the wheel. Bring the two together gently.

GRINDING WHEEL SAFETY

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

SAFETY PRECAUTIONS (Continued)

GRINDING WHEEL SAFETY

DON'T STAND DIRECTLY in front of wheel whenever starting the grinding wheel spindle. Warn other personnel in the immediate area. Allow the wheel to run at operating speed for at least one minute before grinding.

DON'T ALLOW the wheel to be exposed to weather or extreme temperature changes.

HANDLE wheels CAREFULLY and STORE them in a safe place. Protect wheels when not in use.

CHANGING CUTTERS

WEAR GLOVES to hold cutter when removing or inserting in workhead spindle.

DO NOT BUMP grinding wheel with the cutter.

MACHINE AND EQUIPMENT PROTECTION

KEEP tools, cutters, wheel, etc. OFF the machine. Do not use machine as a workbench.

MAINTAIN the machine in GOOD operating CONDITION. REPORT any UNUSUAL sounds, smoke, heat or damaged part to maintenance department.

ELECTRICAL SAFETY

Before removing any guard or cover, OR before working on this machine, turn the machine main electrical disconnect device "OFF," lock it if possible, and TAG IT and ALL start buttons with an "OUT OF ORDER" or "DO NOT START" tag.

BEFORE working on any unit on this machine which is under electrical power, be sure it is not BYPASSED by the machine main electrical disconnect device. If it is, FIRST find its power source, turn it OFF, lock it if possible, and TAG IT and ALL start buttons with an "OUT OF ORDER" or "DO NOT START" tag.

ALWAYS CHECK the ROTATION DIRECTION of the grinding wheel spindle whenever connecting electric power into the machine, or reconnecting the spindle drive motor leads to the machine wiring. Remove grinding wheel and mandrel from spindle before testing. The grinding wheel spindle MUST run CLOCKWISE when viewing spindle from workhead.

SAFETY PRECAUTIONS (Concluded)

WARNING

The wrong direction of rotation tends to loosen the grinding wheel and mandrel which, may cause the mandrel and the grinding wheel to eject from the spindle.

WARNING

CHECK the direction of rotation of the workhead spindle whenever wiring electric power into the machine or when reconnecting the leads of the workhead drive motor to the machine wiring. When the workhead rotation selection switch is in the "RIGHT" position, the workhead spindle should revolve in the clockwise direction, when looking at the rear of the workhead.

Now that you have read these general SAFETY PRECAUTIONS, be sure to read and understand all other warnings and cautions in the other sections of this manual BEFORE attempting to operate or work on this machine.

Operators and maintenance men should read, understand and follow the warnings and cautions given in BOTH the Instruction and Service Manuals.

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CHAPTER I
MACHINE
INFORMATION

CHAPTER I

MACHINE INFORMATION

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MACHINE INFORMATION

INTRODUCTION

READ THE INSTRUCTIONS
FOR THIS MACHINE
THOROUGHLY BEFORE
ATTEMPTING TO WORK
WITH THE MACHINE.

The CINCINNATI MONOSET Cutter and Tool Grinder is a precision machine tool that is used for sharpening, reconditioning and generating certain types of cutting tools. The MONOSET machine can grind straight, tapered and curved surfaces including helical leads; it can grind externally as well as internally; can grind convex and concave radii; and produce a complete new cutter from solid stock. And, as the trademark MONOSET implies, all grinding operations can generally be performed in a single setting or chucking of the workpiece.

Grinding standard cutting tools is routine work for the MONOSET grinder, and easily accomplished - if within the capability of the machine. Since the majority of jobs can be performed on a standard machine, this chapter begins with information about the standard machine - such as features, equipment, specifications, etc.

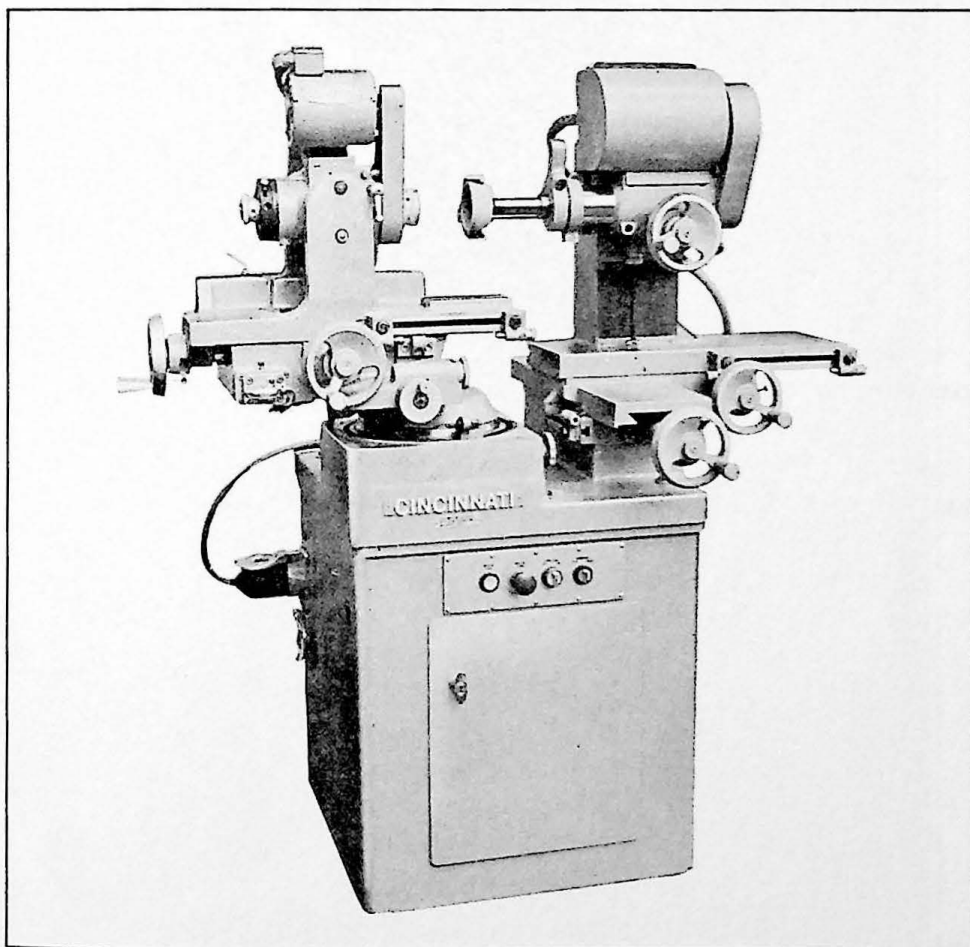


Photo No. 3152-12-57

Figure I-A-3
MONOSET CUTTER AND TOOL GRINDER - LEFT FRONT VIEW

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

STANDARD MACHINE INFORMATION

General Description

The MONOSET grinder consists of a fixed bed and two basic units - the wheelhead unit and the workhead unit - strategically located on the pedestal/base. These units provide 8 axes of

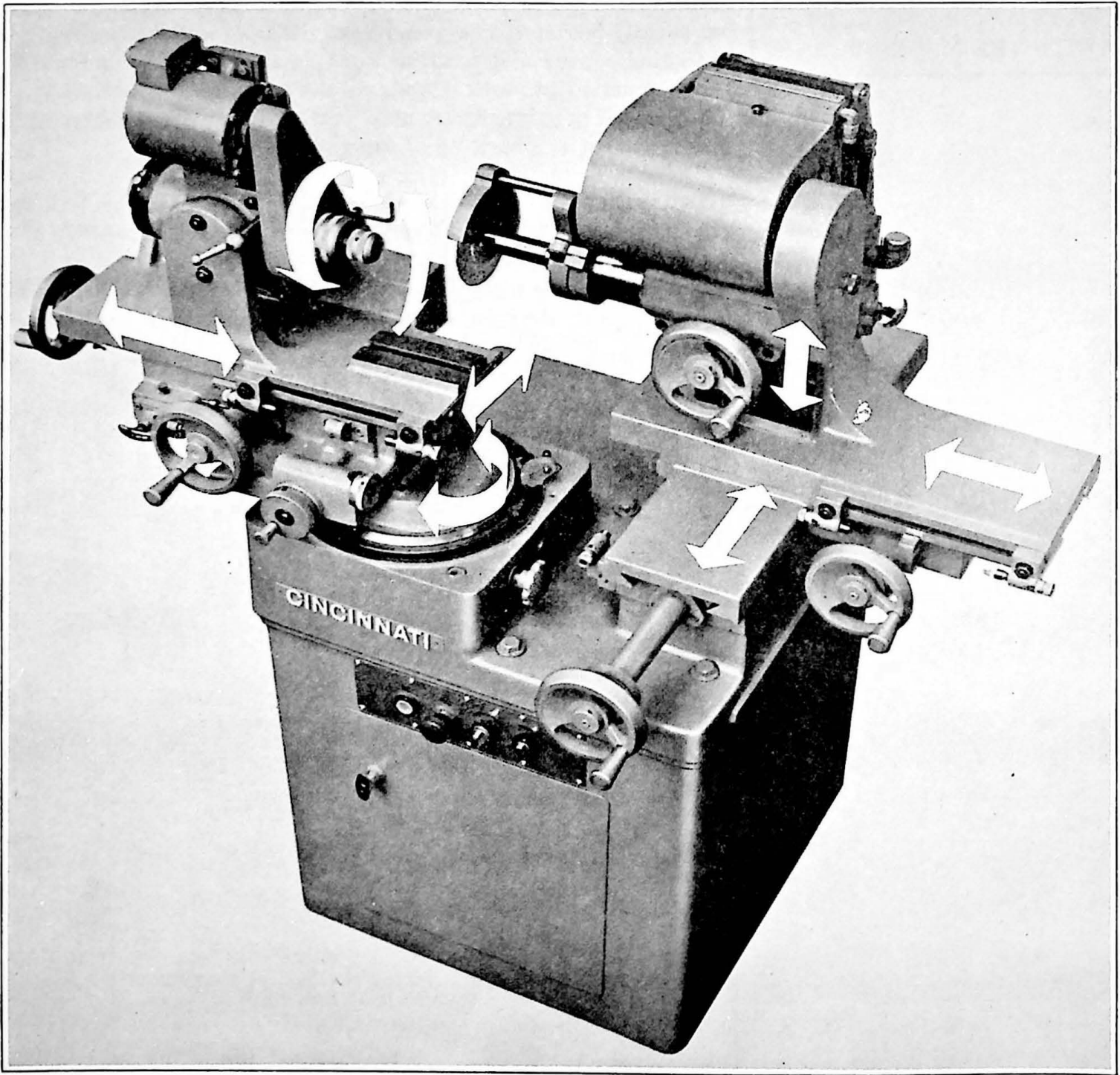


Figure I-A-4
AXES ORIENTATION

Photo No. 3152-12-8-1

STANDARD MACHINE INFORMATION (Continued)

General Description (Continued)

motion (5 linear, 2 swivel, and 1 rotary) that involve 8 separate machine elements as follows:

1. Workhead turntable, swivels through 235 degrees in the horizontal plane.
2. Workhead offset slide, moves 5.25 inches in a horizontal plane.
3. Workhead main slide, moves 5.75 inches in a horizontal plane.
4. Workhead tilt, pivots through 80 degrees in a vertical plane.
5. Workhead spindle, rotates through 360 degrees about its axis.
6. Wheelhead cross slide, moves 7.50 inches in a horizontal plane.
7. Wheelhead longitudinal slide, moves 6.00 inches in a horizontal plane.
8. Wheelhead vertical slide, moves 9.50 inches in a vertical plane.

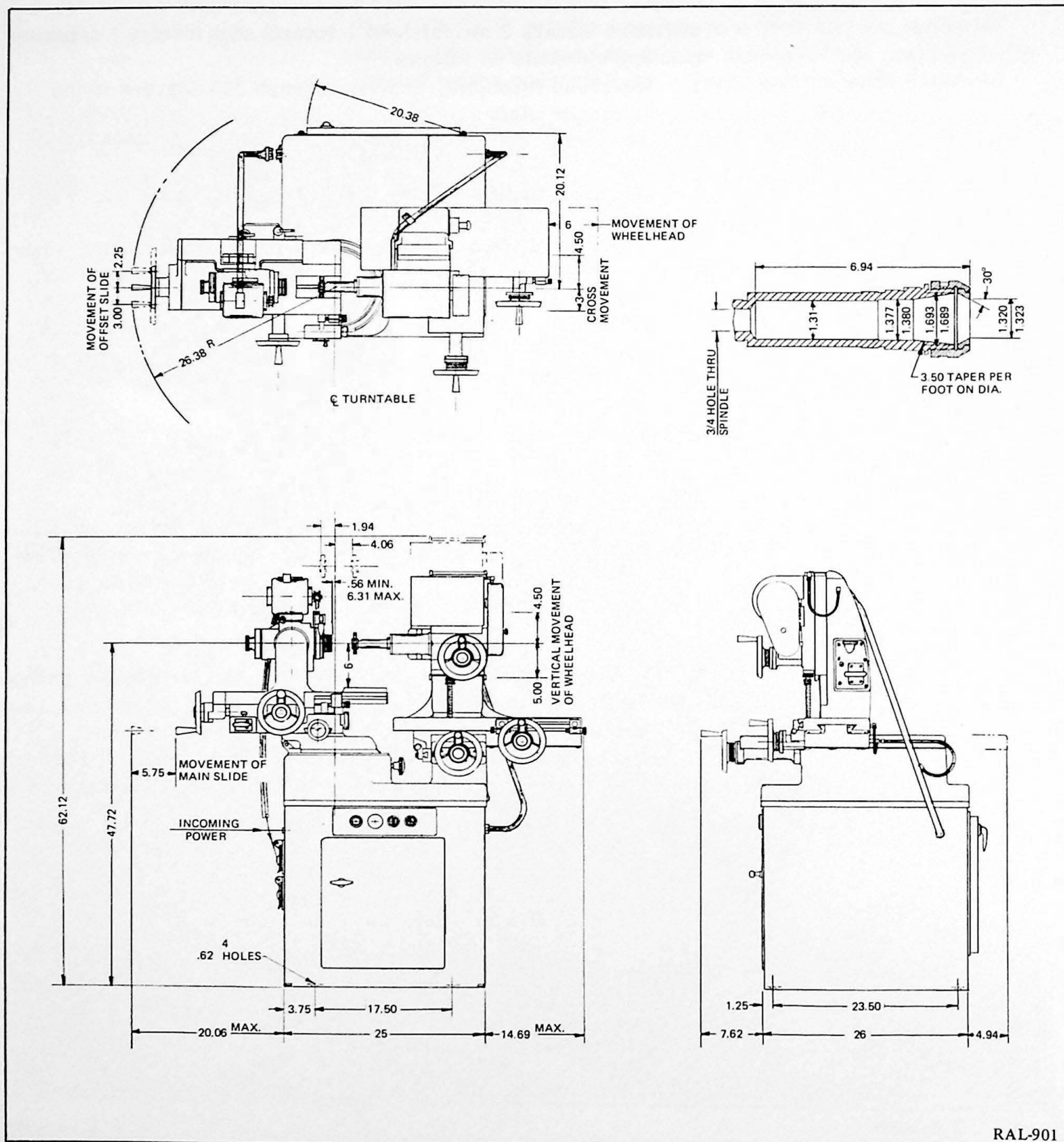
All these elements are capable of independent, individual, operator control that covers a wide range of routine cutter grinding assignments - from simple small tools to large intricate shapes with multiple operations - accurately and efficiently.

This general information, along with the machine specifications and dimensional drawing on the following pages, is to familiarize all personnel concerned about the machine, with the basic capabilities of the MONOSET Cutter and Tool Grinder. Further, it enables them to be better prepared for the detailed instructions that follow.

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

STANDARD MACHINE INFORMATION (Continued)

Standard Specifications



RAL-901

Figure I-A-6
DIMENSIONAL DRAWING

I-A-6

STANDARD MACHINE INFORMATION (Continued)

Standard Specifications (Continued)

CAPACITY	Workhead swing over main slide max. dia.	12"
	Workhead collet hole - max. dia.	1.25"
	Grinding wheel - max. dia.	4"
	Distance between workhead spindle nose and tall center - max. length	6"
	Lead generated by lead mechanism - min.	1.81"
RANGE	Workhead, longitudinal slide movement	5.75"
	Workhead, offset (cross) slide movement - front of center	5.25"
	- rear of center	3"
	Workhead, turntable swivel - max.	235°
	Workhead, vertical tilt	80°
	- above and below center	40°
	Workhead, spindle rotation	360°
	Wheelhead, longitudinal slide movement	6"
	Wheelhead, transverse (cross) slide movement	7.50"
	Wheelhead, vertical movement	9.50"
	- above center	4.50"
	- below center	5"
SPEEDS	Allowable variations of speeds, with spindle running freely and under no load	{ +0%
		{ -8%
	Workhead spindle - 1 speed of	436 rpm
	Wheelhead spindle - 3 speeds of	{ 4000 rpm
		{ 5729 rpm
		{ 8000 rpm

WARNING

Do not run any grinding wheel faster than the manufacturer's maximum speed marked thereon. Refer to the current A. N. S. I. Publication B7.1, "SAFETY CODE FOR THE USE, CARE, AND PROTECTION OF ABRASIVE WHEELS," Section 7.

FLOOR SPACE DATA	Area of base only	25" x 26"
	Area required for machine, including swivel and overtravel movements	60" x 67"
	Height, from floor to center of workhead spindle	47.72"
	Height, overall with wheelhead raised	62.12"
SHIPPING DATA	Net weight (including motors and controls), approx.	1525 lbs.
	Gross weight for domestic shipment, approx.	1800 lbs.
	Gross weight for export shipment, approx.	2100 lbs.
	Shipping case size - length, approx.	40"
	- width, approx.	45"
	- height, approx.	72"
	Shipping case volume, approx.	75 cu. ft.

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

STANDARD MACHINE INFORMATION (Continued)

Standard Equipment Supplied with the Machine (Subject to Change Without Notice)

The equipment on the following list is supplied with a standard machine and is illustrated in a general way in Figure I-A-8. However, these items are subject to change as improvements in technology occur, or for other beneficial reasons.

A - 7 Grinding wheels; with 3/4" mounting hole and the following specifications:

NO.	DIA	WIDTH	TYPE	SHAPE
1	4"	1/16"	1	straight
2	4"	1/8"	1	straight
3	4"	1/4"	1	straight
4	4"	1/2"	1	straight
5	4"	3/4"	5	recessed
6	4"	1/2"	12	dish
7	3-1/2"	1-1/2"	11	flaring-cup

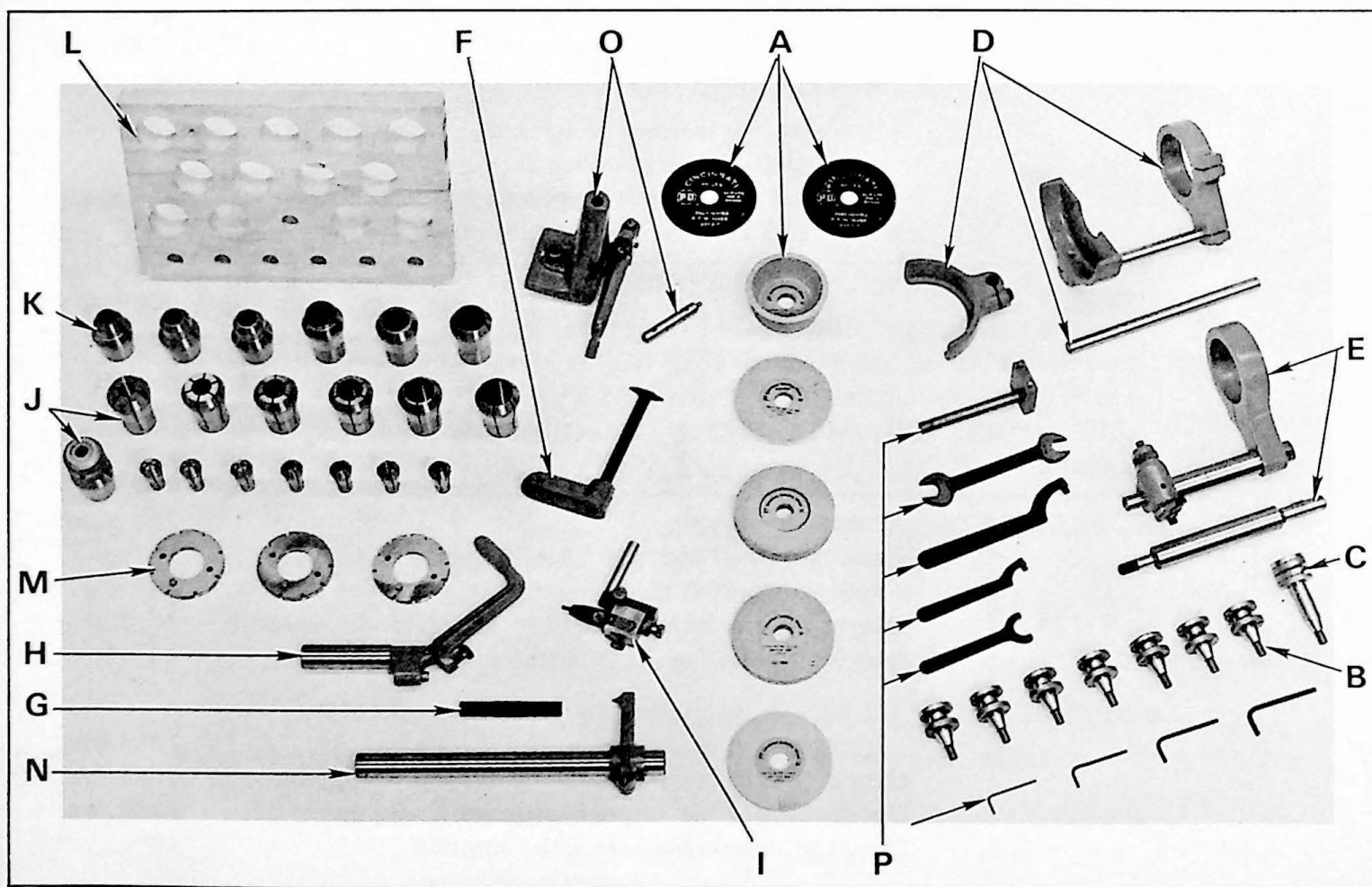


Figure I-A-8
STANDARD EQUIPMENT

Photo No. 3152-11-1

STANDARD MACHINE INFORMATION (Continued)

Standard Equipment Supplied with the Machine (Continued)

- B - 7 Grinding wheel mandrels; one for each wheel supplied.
- C - 1 Grinding wheel extension mandrel; 1-1/2" extension.
- D - 2 Grinding wheel guards; one for types 1, 5 and 12 wheels, and one for type 11 wheels.
- E - 1 Grinding wheelhead toothrest and extension bar for toothrest.
- F - 1 Toothrest centering gage.
- G - 1 Workhead spindle centering gage.
- H - 1 Workrest, lower.
- I - 1 Spring-loaded index pawl for workhead front index.
- J - 13 Straight cylindrical collets for the workhead spindle with hole diameters in inch sizes that accept straight cylindrical diameter workpieces; and, including an adapter ("C" to "A") that accommodates the collets smaller than 1/2" size. The collets are:
 - 7 - Series "A" (Fits into the "C" to "A" collet adapter, which mounts directly into the spindle nose)
1/8", 3/16", 1/4", 5/16", 3/8", 7/16" and 1/2".
 - 6 - Series "C" (Mounts directly into spindle nose)
5/8", 3/4", 7/8", 1", 1-1/8" and 1-1/4".
- K - 6 Taper hole collets, "C" series, for the workhead to accommodate taper shanks of #2, 3 and 4 Morse tapers, and #5, 7 and 9 Brown and Sharpe tapers.
- L - 1 Wooden rack for holding 1 set of cylindrical collets and 1 set of taper collets.
- M - 3 Index plates for the lead mechanism indexing device of 8, 10 and 12 divisions.
- N - 1 Adjustable tail-center support.
- O - 1 Diamond bracket, with workrest, including one mounted diamond.
- P - 1 Set of wrenches.

The standard electrical equipment supplied with the machine is wired in accordance with "J.I.C. (Joint Industrial Council) Electrical Standards for General Purpose Machine Tools," with limited deviations. General information on the motors and controls are:

- 1 - Wheelhead spindle drive motor; 1/2 horsepower, 3600 rpm totally enclosed ball bearing, continuous duty, to operate on 230 or 460 volts, 3 phase, 60 Hertz. (Machine is wired to operate on a single voltage specified at time of order.)

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

STANDARD MACHINE INFORMATION (Continued)

Standard Equipment Supplied with the Machine (Continued)

- 1 - Workhead drive motor; 1/15 horsepower, 1200 rpm, totally enclosed ball bearing, continuous duty, to operate on 230 or 460 volts, 3 phase, 60 Hertz. (Machine is wired to operate on a single voltage specified at time of order.) Motor runs workhead spindle at approx. 436 rpm.
- 1 - Set of controls mounted in rear compartment of base consisting of:
 - a. Two full voltage magnetic starters with thermal overload and undervoltage protection; one for the 1/2 hp grinding wheel spindle motor, and one for the 1/15 hp workhead motor.
 - b. One isolating type transformer with 120 volt fused secondary to supply single phase voltage to the control circuit, and 50 watts for an electric light outlet - light not included.
 - c. One fusible disconnect device.

STANDARD MACHINE INFORMATION (Continued)

Standard Features

The MONOSET grinder is broadly described under General Description without highlighting any particular aspect. Yet, there are certain features about the standard machine that should be pointed out as many of them are not apparent from a casual view. These features are listed here, with a brief explanation, but a more comprehensive write-up will be found in the operating instructions where applicable. By reviewing this list, an operator will visualize better the characteristics that have been engineered into the machine which contribute to his convenience and to efficient tool grinding. They are the ---

- Box-type pedestal; designed at a height that presents the working controls at a convenient and comfortable position for the operator.
- Built-in tool compartment, in the pedestal; readily accessible to the operator at front of the machine.
- Built-in bolt-down pads, inside the pedestal; that can be used whenever desirable or necessary to fasten machine to floor.
- J.I.C. electrical panel and controls that are mounted in a separate compartment at the rear of the pedestal - enclosed but accessible.
- Centralized electrical push button control panel, in a separate compartment of the pedestal, at the operator's position at the front of the machine.
- Rugged base casting, on top of the pedestal, which supports the machine units and provides stability under variable work loads.
- Convenient turntable clamp.
- Micrometer stops on all slides, except workhead offset slide.
- Comfortable and balanced handwheels for all slides.
- Slide ways protected by wipers or curtains.
- Simple lubrication system.
- Workhead offset slide capable of moving the workhead spindle to either side of the turntable swivel point.
- Workhead offset slide that is adjustable through (1) a fast feed handwheel and (2) a fine feed adjustment.
- Direct drive for reversible workhead spindle.
- Workhead spindle that accommodates a modified #40 N.S. taper.
- Workhead with two indexing devices.
- Workhead that tilts and rotates.
- Workhead that is also adjustable in two horizontal planes, by means of the offset and main slides.
- Workhead turntable that swivels.

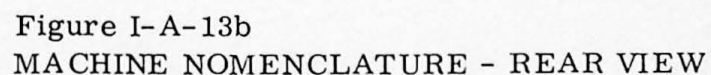
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

STANDARD MACHINE INFORMATION (Continued)

Standard Features (Continued)

- Wheelhead that is adjustable in three planes.
- Preloaded, antifriction, grease-packed, grinding wheel spindle.
- Three speeds for grinding wheel spindle.
- Direct drive for grinding wheel spindle through the non-reversible motor.
- Hinged guard over grinding wheel drive belt.
- Machine control elements conveniently placed for the operator.
- Chrome plated ways for the workhead main slide, plus the longitudinal and cross slide of the wheelhead.
- Hardened and ground lead screws for all slides.
- An adjustable sine-bar lead mechanism for the workhead.
- Antifriction turntable.

Machine Nomenclature



EXTRA COST EQUIPMENT

INTERNAL GRINDING ATTACHMENT - Mounts on bracket of wheelhead. Purchase of this attachment includes; five mounted grinding wheels, a storage rack, two collets (1/8" and 3/16" or 3 and 6 mm), a 4" Universal three-jaw chuck, driving belt, pulley, belt guard, and a centering gage.

GRINDING WHEELS

DIAMETER	THICKNESS	MANDREL SIZE	ABRASIVE* SHAPE NO.
3/16"	1/4"	1/8"	W152
1/4"	1/4"	1/8"	W160
1/2"	1/4"	3/16"	W183
3/4"	3/16"	1/8"	B81
3/4"	1/4"	3/16"	W201
1-1/4"	1/4"	1/4"	W225**

*See current issue of American National Standard Institute, Inc. No. B74.7, "Standard Shapes, Sizes and Identification of Mounted Wheels."

**This wheel is not included in the above package. It must be ordered separately.

1/4" COLLET - For internal grinding attachment collet chuck. Permits use of mounted wheels with 1/4" dia. shanks.

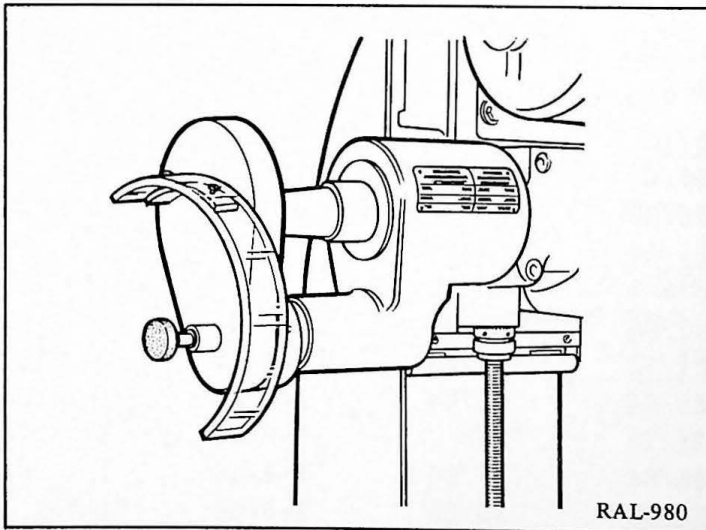


Figure I-B-1a
INTERNAL GRINDING ATTACHMENT

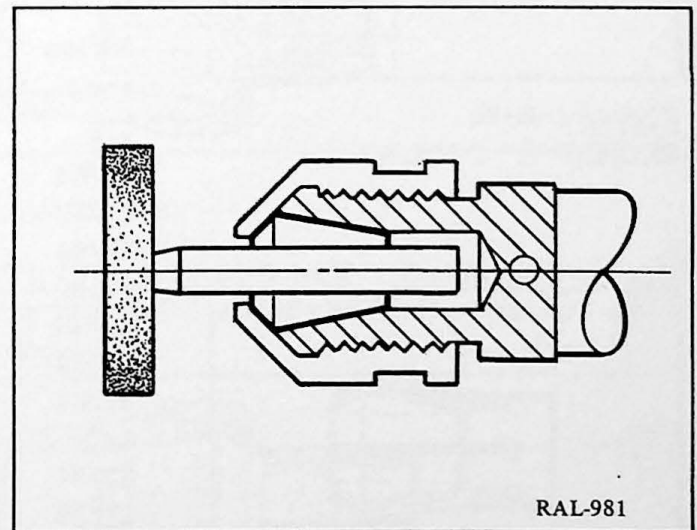


Figure I-B-1b
INTERNAL GRINDING ATTACHMENT
1/4" COLLET

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

EXTRA COST EQUIPMENT (Continued)

4" UNIVERSAL THREE-JAW CHUCK/WITH ADAPTER - This chuck is supplied with internal grinding attachment or may be ordered separately. Chuck jaws are reversible.

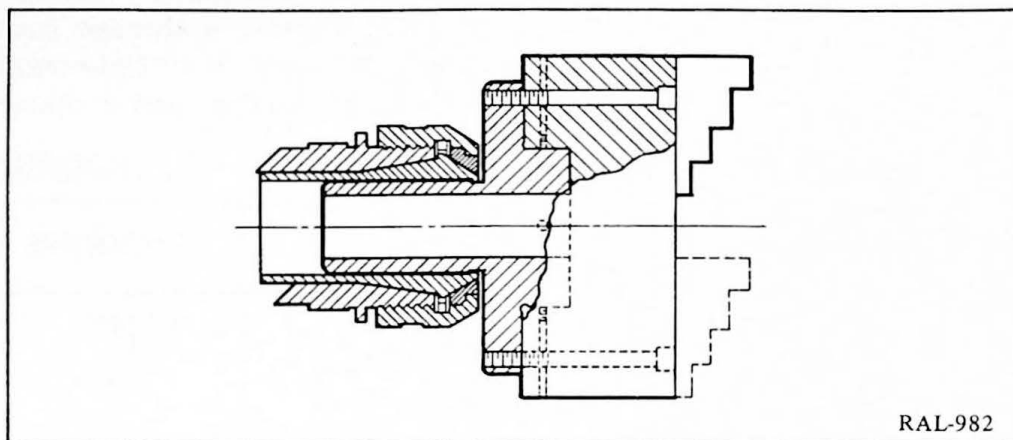


Figure I-B-2a

4" UNIVERSAL THREE-JAW CHUCK

STRAIGHT CYLINDRICAL COLLETS - For workhead spindle nose. Available in 1/64" increments from 1/8" through 1-1/4" hole diameter.

Series "A" Collets - Fits in C to A collet adapter. Sizes 1/8" through 1/2" hole diameter.

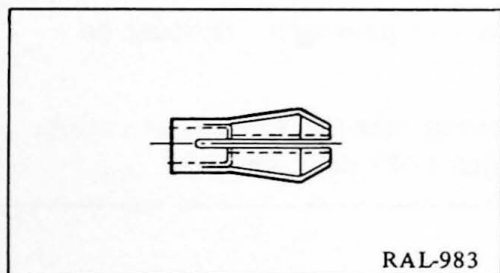


Figure I-B-2b

SERIES "A" COLLET

*1/8	13/64	9/32	23/64	*7/16
9/64	7/32	19/64	*3/8	29/64
5/32	15/64	*5/16	25/64	15/32
11/64	*1/4	21/64	13/32	31/64
*3/16	17/64	11/32	27/64	*1/2

Series "C" Collets - Fits directly in workhead spindle nose. Sizes 3/8" through 1-1/4" hole diameter.

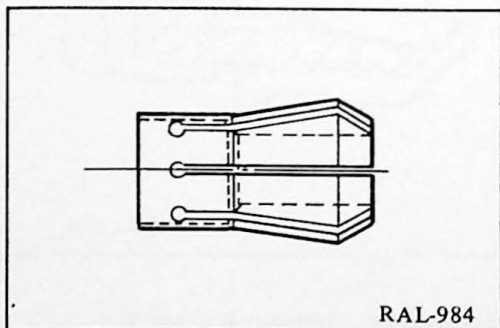


Figure I-B-2c

SERIES "C" COLLET

3/8	9/16	*3/4	59/64	1-3/32
25/64	37/64	49/64	15/16	1-7/64
13/32	19/32	25/32	61/64	*1-1/8
27/64	39/64	51/64	31/32	1-9/64
7/16	*5/8	13/16	63/64	1-5/32
29/64	41/64	53/64	*1	1-11/64
15/32	21/32	27/32	1-1/64	1-3/16
31/64	43/64	55/64	1-1/32	1-13/64
1/2	11/16	*7/8	1-3/64	1-7/32
33/64	45/64	57/64	1-1/16	1-15/64
17/32	23/32	29/32	1-5/64	*1-1/4
35/64	47/64			

*These collets supplied with machine.

EXTRA COST EQUIPMENT (Continued)

"C" TO "A" COLLET ADAPTER - Mounts in workhead spindle nose. Accepts series "A" collets.

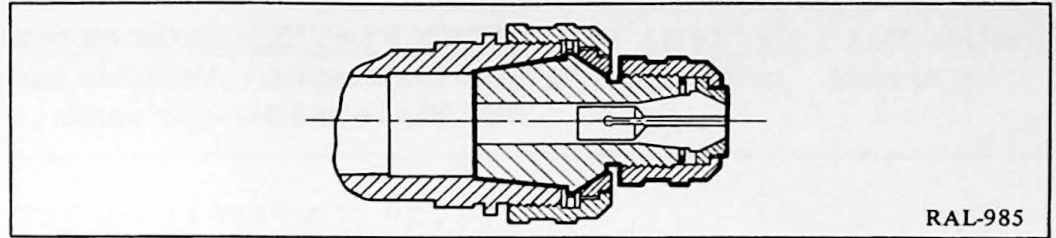


Figure I-B-3a
C TO A COLLET ADAPTER

"C" SERIES TAPER HOLE COLLETS - Mounts in workhead spindle nose. Collets are available for the number *2, *3, and *4 Morse and the number *5, *7, and *9 Brown and Sharpe tapers.

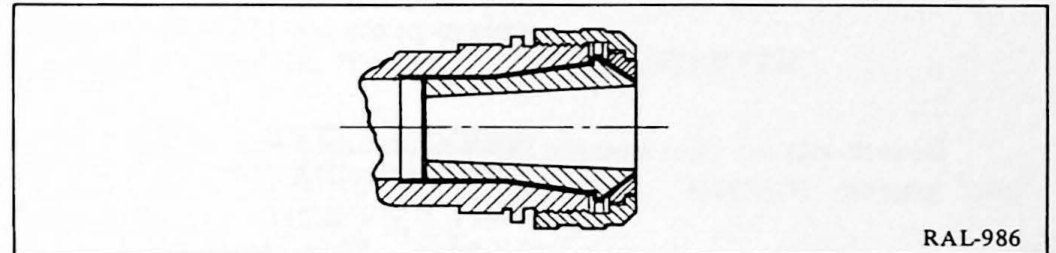


Figure I-B-3b
C SERIES TAPER HOLE COLLETS

SHELL END MILL ADAPTERS - Mounts in workhead spindle nose. Three adapters for cutters with mounting holes of 1/2", 3/4" and 1" diameters.

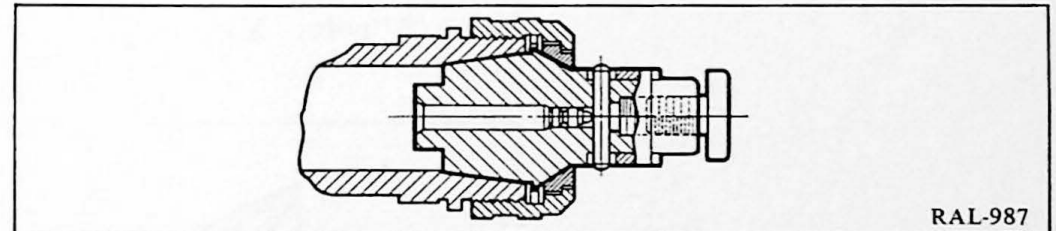


Figure I-B-3c
SHELL END MILL ADAPTERS

STUB ARBORS WITH COLLARS AND NUT - Mounts in workhead spindle nose. Three arbors for cutters with mounting holes of 3/4", 7/8" and 1" diameters.

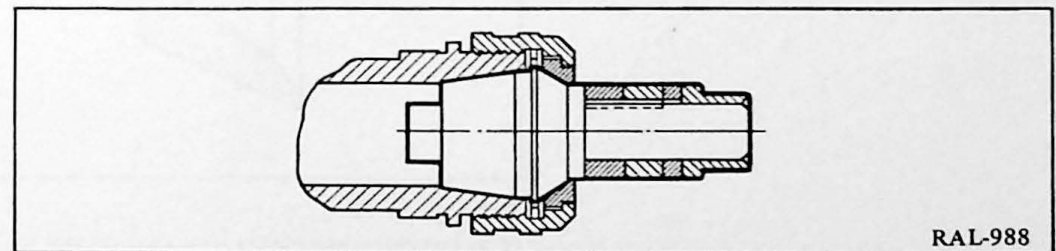


Figure I-B-3d
STUB ARBORS WITH COLLARS AND NUT
*These collets supplied with machine.

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

EXTRA COST EQUIPMENT (Continued)

INDEX PLATES - Mount on rear of workhead for use with the lead mechanism. Available in equally spaced divisions of 15, 18, 20, 22, 24 and 28.

CUTTER COMPENSATION DEVICE - Mounts on rear of workhead. Provides an adjusting means for rotating the cutter with the lead mechanism engaged.

LOW LEAD MECHANISM - This unit must be ordered with the MONOSET machine as it is a built-in feature which provides leads (on the workhead) from $11/16"$ to infinity. (Standard lead mechanism provides leads from $1-13/16"$ to infinity.)

LARGE CUTTER RADIUS GRINDING ATTACHMENT - For radius grinding corners of teeth on side mills, slotting cutters, etc., from approximately 6" to 10" diameter and from $1/2"$ to 1" wide. This attachment consists of an auxiliary arbor, bushings for cutters having a $7/8"$, 1", $1-1/4"$ and $1-1/2"$ (or 16, 22, 27 and 32 mm) diameter holes and a ratchet type tooth rest assembly.

GRINDING WHEEL MANDREL - For mounting grinding wheels with $1/2"$ hole. Mounts in grinding wheel spindle nose.

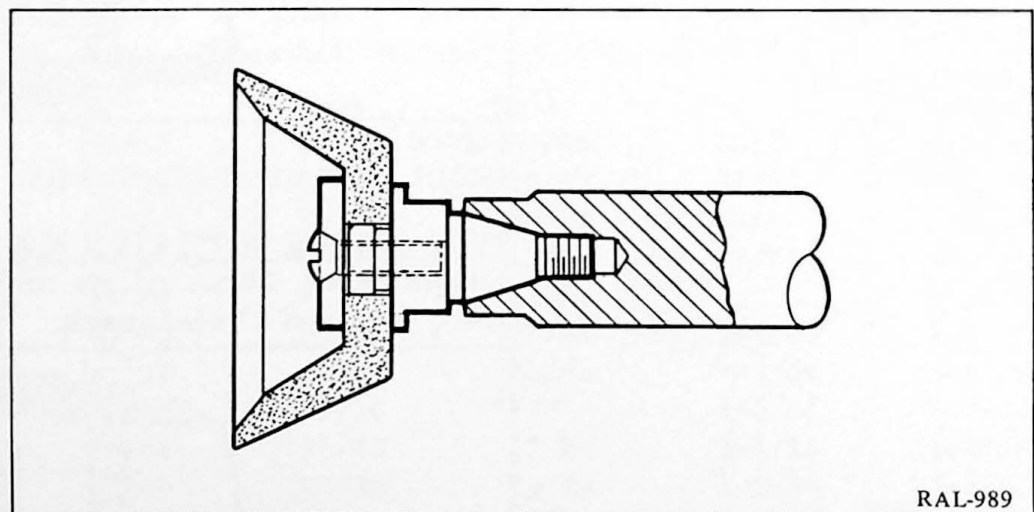


Figure I-B-4
GRINDING WHEEL MANDREL

EXTRA COST EQUIPMENT (Continued)

GRINDING WHEEL SPINDLE COLLET ADAPTER - 1/4" collet and mounted grinding wheel (1-1/4" x 1/4" wide). Mounts in grinding wheel spindle nose.

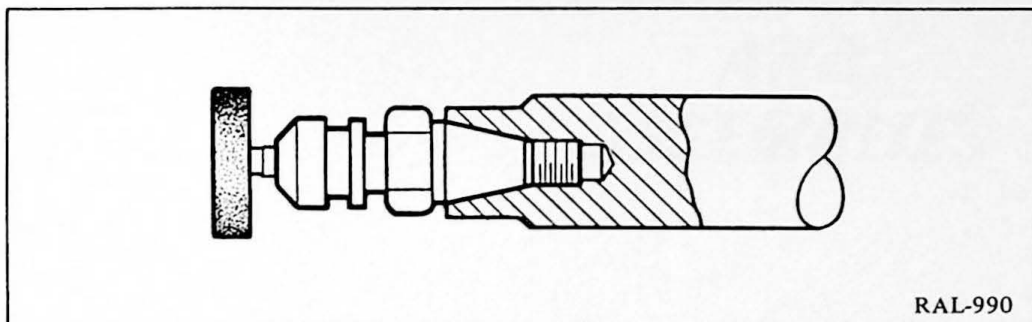


Figure I-B-5
GRINDING WHEEL SPINDLE COLLET ADAPTER

GRINDING WHEELS - Additional wheels may be purchased through the CINCINNATI grinding wheel/CIMCOOL cutting fluid representative in your area.

MOUNTED DIAMOND - Additional mounted diamonds may be purchased for the grinding wheel truing device.

CHAPTER II
PARTS LISTS
AND
ASSEMBLIES

CHAPTER II

PARTS LISTS AND ASSEMBLIES

Table of Contents

Page	Subject
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II-A-3	INTRODUCTION
II-A-4	ORDERING REPLACEMENT PARTS
II-A-6	WHEELHEAD UNIT
II-A-10	INTERNAL GRINDING ATTACHMENT UNIT
II-A-12	WORKHEAD UNIT
II-A-18	TURNTABLE UNIT
II-A-26	BASE UNIT

INTRODUCTION

In this chapter is listed and illustrated each replaceable part for the Model MT MONOSET Cutter and Tool Grinder. The assembly drawings are arranged by major unit:

Wheelhead Unit AW (3 Drawings)

Internal Grinding Attachment Unit BP (1 Drawing)

Workhead Unit GC (3 Drawings)

Turntable Unit FY (4 Drawings)

Base Unit AB (5 Drawings)

In the parts lists accompanying the assemblies, each part is identified by a key number, relating to the assembly drawing in which the part is illustrated, a part number, and the part name. The amount used in that location is also shown.

The procedure for ordering replacement parts is outlined on page II-A-4.

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

ORDERING REPLACEMENT PARTS

You will receive quicker service when ordering replacement parts if the following procedure is adhered to:

1. Be sure to provide the complete COMPANY name (including division name, if appropriate) that is requesting or ordering parts.
2. Also, include the complete COMPANY address - with Zip code.
3. The name of the specific individual, within the plant, who is ordering the parts is very helpful in most cases; especially at time of delivery or as a contact for technical information needed to fulfill the order.
4. The Purchase Order number, or inquiry number, should be clearly stated.
5. List the item(s), units, etc., along with the following information:
 - a. State amount wanted. Specify each individual piece required. If only certain parts of a unit are required, never use the word "complete"; it always raises the question as to how much of the unit to supply. However, in some cases, due to the nature of the parts it will be necessary, and less costly to you, for us to supply additional related pieces, especially if part wanted is obsolete.
 - b. Give part number and name, or description, of part. If ordering parts by number, state source of number - such as:
 - Parts Manual (Manual No._____, Page No._____. Key no._____.)
 - Prior Invoice
 - Part number stamped on part
 - Or, if part number has worn off, send a sketch of the part
6. Include the size and type of machine, along with the complete machine serial number.
 - a. The serial number of the Monoset machine is stamped on the right side of the machine, upper left part of the base.

ORDERING REPLACEMENT PARTS (Continued)

7. Specify how and where to ship. Do not say, "Ship quickest way". Be definite and state the method of delivery, whether Air Mail, Parcel Post, Special Delivery, Express, Motor Freight or Rail Freight.
8. Provide any additional information deemed essential to facilitate supplying the desired part(s).
9. Send your order to:

CINCINNATI MILACRON INC.
SERVICE PARTS DIVISION
PLANT 5
4701 MARBURG AVENUE
CINCINNATI, OHIO 45209

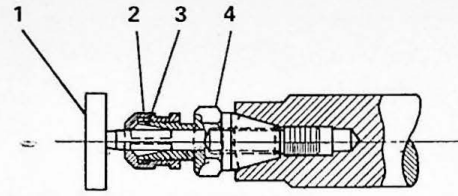
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

WHEELHEAD UNIT AW

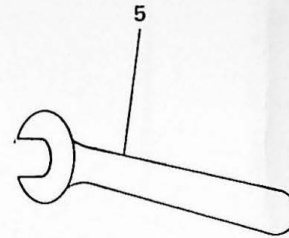
KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AW-1-1	107326	1	Wheel — Mounted, 1/4" x 1-1/4"	AW-1-36	3329289	1	Cover — Guard
-2	109323	1	Nut — Collet	-37			Shaft — Wheel Guard
-3	106604	1	Collet — 1/4" *		325528	1	Standard
-4	120018	1	Adapter — Collet		325542	1	Extended
-5	109229	1	Wrench — 19/32	-38	325099	1	Bracket — Wheel Guard
-6	196461	1	Washer	-39	3462	4	Screw
-7	1439	1	Screw	-40	3329292	1	Scale
-8	107327	1	Mandrel	-41	2209	2	Screw
-9	325602	1	Wrench — Collet	-42	115713	1	Guard — Wheelhead, L.H.
-10	177537	1	Bracket — Roller	-43	101616	1	Screw — Gib
-11	3329277	1	Guard — Belt	-44	115714	1	Gib
-12	325070	1	Pulley — Driver	-45	178271	1	Rivet
-13	641	1	Screw	-46	2302	2	Screw
-14	3397	1	Screw	-47	205346	2	Screw
-15	322299	1	Clamp — Motor	-48	312812	1	Slide — Vertical
-16	3229	1	Screw	-49	115712	1	Guard — Wheelhead, R.H.
-17	325642	1	Nut	-50	112306	1	Clip
-18	3330397	1	Spacer	-51	3486	2	Screw
-19	325645	1	Pulley — Idler	-52	3312	2	Tongue
-20	3329275	1	Screw — Adjusting	-53	325076	1	Washer — Thrust
-21	325081	2	Ring — Retainer	-54	3328993	1	Cap — Dust Seal, Rear
-22	325641	1	Screw	-55	106920	1	Mandrel
-23	3328573	1	Spacer	-56	307298	1	Ring — "O"
-24	325646	2	Bearing — Ball	-57	325078	1	Cap — Dust
-25	325079	1	Belt — Motor	-58	2339	1	Screw
-26	3328992	1	Pulley — Driven	-59	325068	1	Cap — Dust Seal
-27	3280	1	Key	-60	151930	3	Screw
-28	2375	1	Screw	-61	312935	2	Bearing — Ball Angular
-29	260606	1	Washer	-62	325083	1	Ring — "O"
-30	564	1	Nut — Wing	-63	325067	1	Carrier — Spindle
-31	49	2	Screw	-64	322289	1	Spindle — Main
-32			Guard — Wheel	-65	101732	5	Spring
	3329278	1	Standard	-66	2330	2	Screw
	3328905	1	With Flare Wheel	-67	282982	2	Insert
-33	106938	1	Collar — Spacer	-68	3330396	1	Spacer
-34	101756	1	Nut	-69	3198	2	Screw
-35	166822	1	Mandrel				

*See also item Key No. BP-1-11

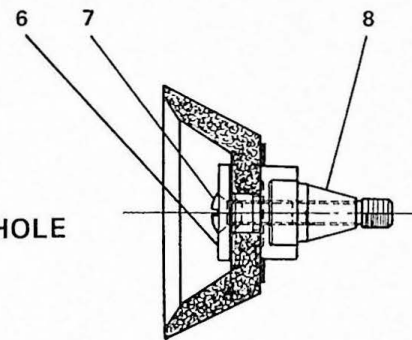
SHANK-MOUNTED
WHEEL ADAPTER
(SEE ALSO DRAWING BP-1)



COLLET AND MANDREL WRENCHES

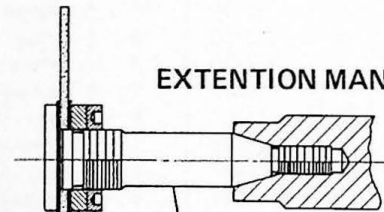


MANDREL FOR
WHEELS WITH 1/2" HOLE



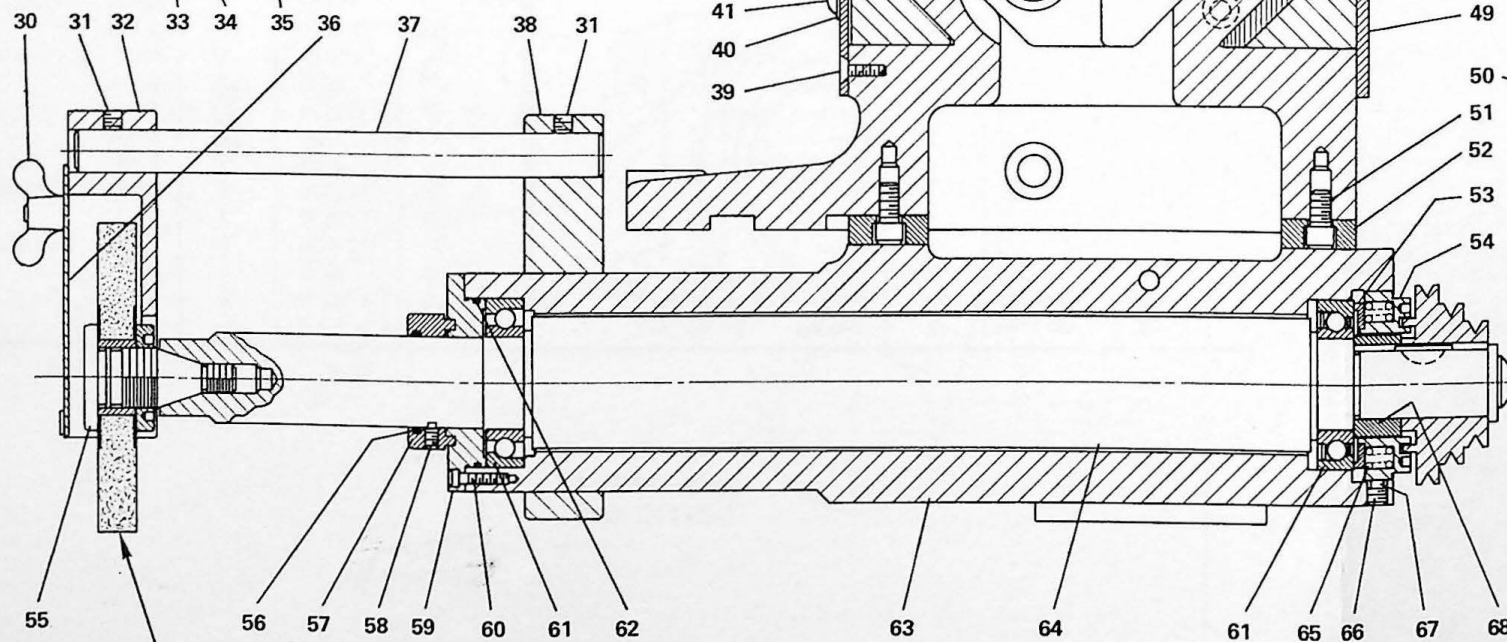
(WHEEL EXAMPLE)

EXTENTION MANDREL



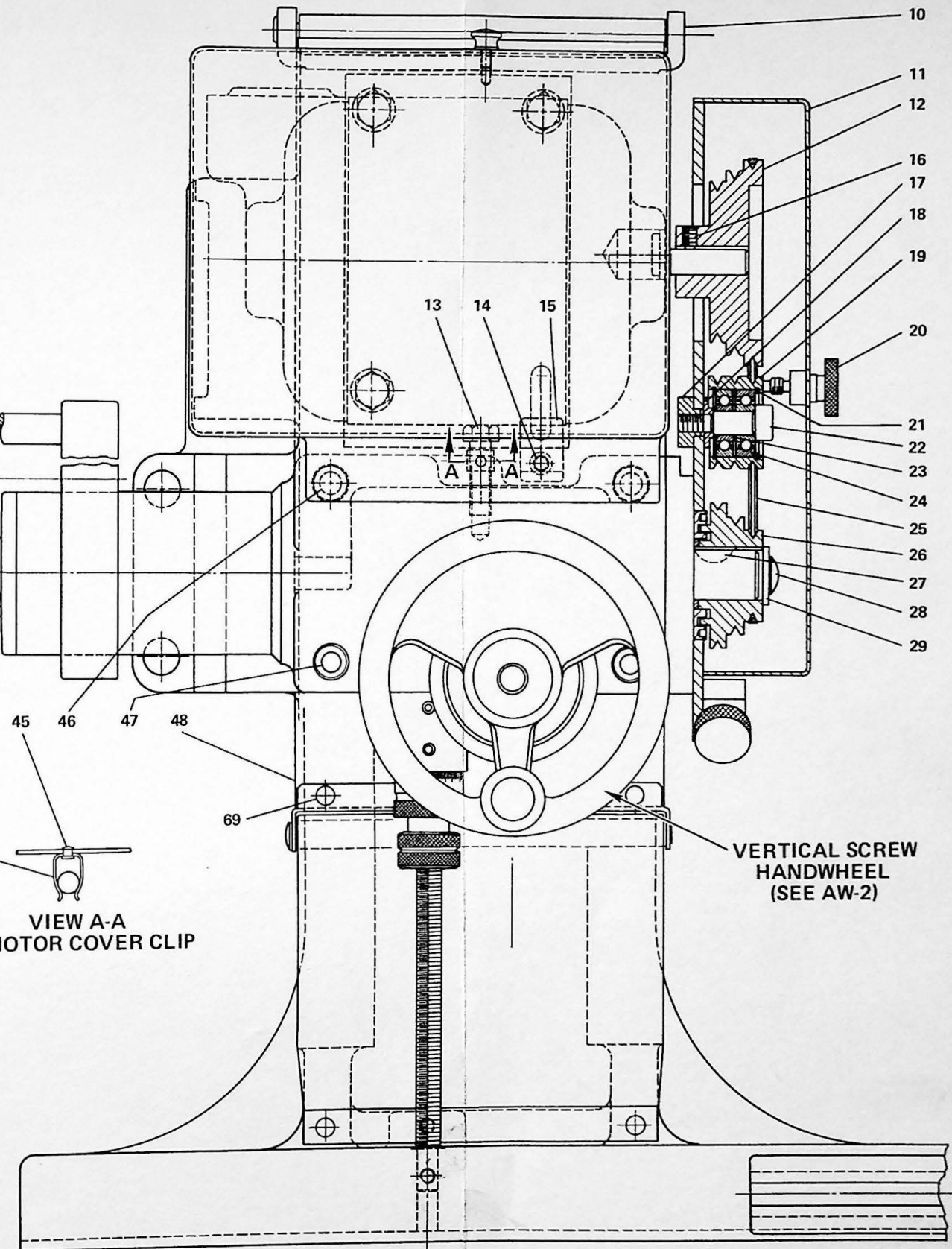
(WHEEL EXAMPLE)

(SEE DRAWING AB-1 FOR POINTER)



SECTION THROUGH SPINDLE

VIEW A-A
MOTOR COVER CLIP



FRONT VIEW

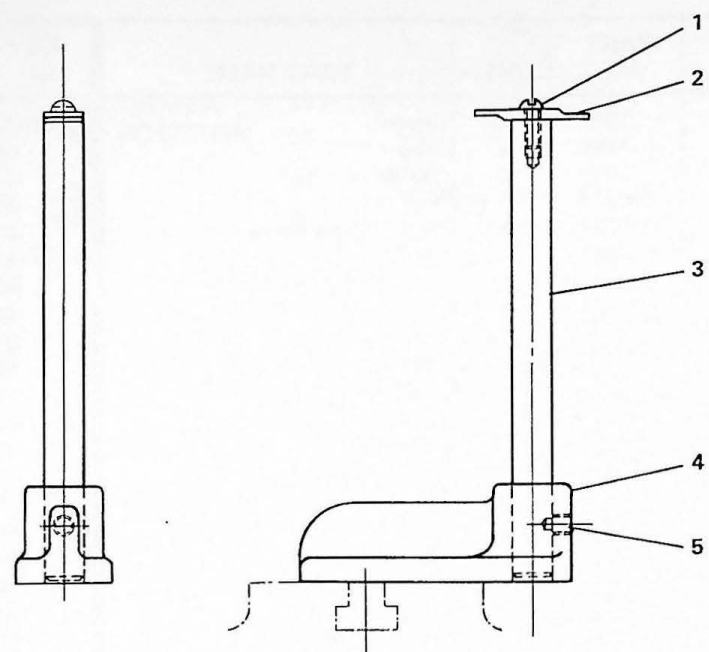
VERTICAL SCREW
HANDWHEEL
(SEE AW-2)

WHEELHEAD **3152-A01-AW-1**

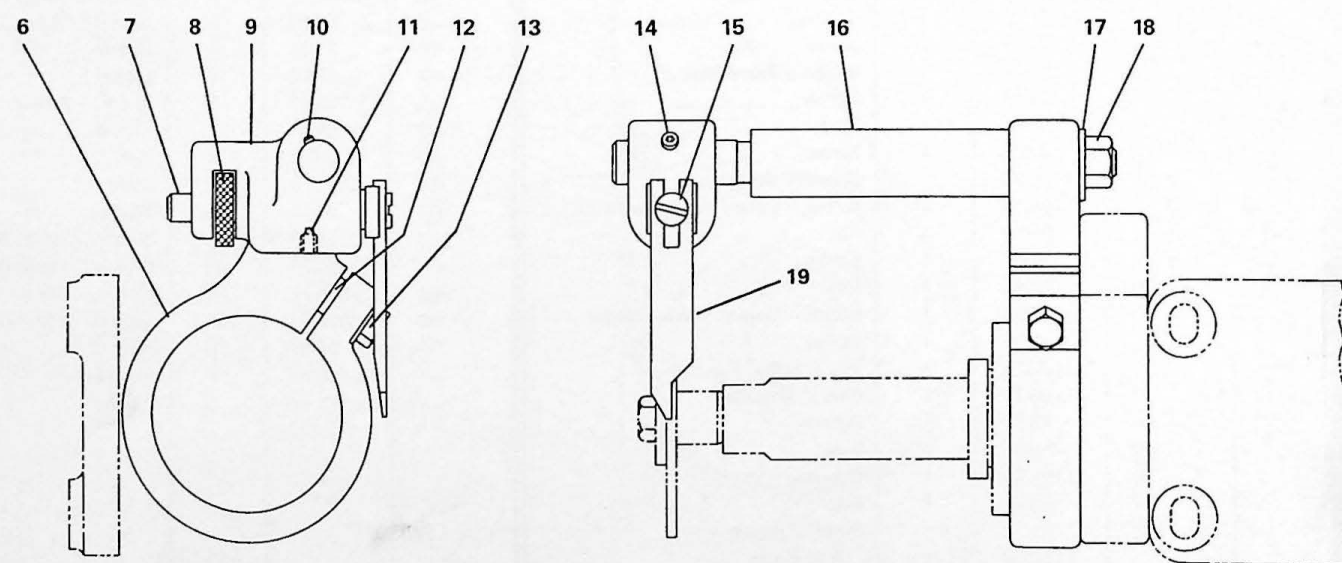
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

WHEELHEAD UNIT AW

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AW-2-1	269682	1	Elbow — 90°	AW-2-38	1917	1	Screw
-2	298665	4	Ring — "O"	-39	3312	1	Tongue
-3	289100-18	1	Hose — Assembly	-40	109170	4	Pin — Guide
-4	312925	2	Plug — Drip	-41	3269	1	Screw
-5	3201	4	Screw	-42	3441	1	Washer
-6	312962	1	Block — Manifold	-43	322280	1	Screw — Vertical Lead
-7	77206	1	Plug — Drip	-44	4243	1	Nut
-8	214304	1	Sleeve	-45	322283	4	Race — Bearing
-9	214294	1	Nut — Compression	-46	402088	2	Bearing
-10	313402	1	Tube	-47	115672	1	Gear — Spiral
-11	3178	4	Screw	-48	345	1	Key
-12	3178	4	Screw	-49	322281	1	Nut
-13	312942	1	Guard — Motor	-50	62522	1	Screw — Thumb
-14	Example	1	Motor — Electric	-51	2196	2	Washer
-15	103317	3	Screw	-52	2386	2	Screw
-16	1029	3	Washer	-53	240130	2	Washer
-17	2277	1	Screw	-54	115673	1	Bushing — Fixed
-18	3198	1	Screw	-55	101327	1	Key — Dovetail
-19	101739	1	Clip — Dust	-56	103323	2	Screw — Dog Point Set
-20	312961	1	Guide — Dust Shield	-57	115674	1	Dial — Micrometer
-21	112451	1	Shield — Dust	-58	115684	1	Bushing — Stop
-22	2237	2	Bushing	-59	106574	2	Nut — Stop Screw
-23	3200	4	Screw	-60	191640	1	Bracket — Dust Shield
-24	3269	1	Screw	-61	112451	1	Shield, Dust
-25	3441	1	Washer	-62	115618	1	Screw — Vertical Stop
-26	641	1	Screw	-63	244020	3	Screw
-27	3518	1	Pointer	-64	322282	1	Plate — Vertical Screw
-28	321276	1	Handwheel	-65	3229	1	Screw
-29	77200	1	Screw — Thumb	-66	115676	1	Clip
-30	3279	1	Key	-67	3198	2	Screw
-31	322276	1	Gear — Feed Shaft	-68	3228	1	Screw
-32	227490	1	Nut	-69	112338	2	Spring — Dust Shield Roller
-33	188285	1	Handle	-70	177530	2	Pin
-34	317175	1	Stud	-71	177535	2	Roller — Dust Shield
-35	115685	1	Dial — Vertical Screw	-72	3539	2	Pin
-36	322275	1	Sleeve — Vertical Feed	-73	176319	2	Pin
-37	311141	2	Bearing				

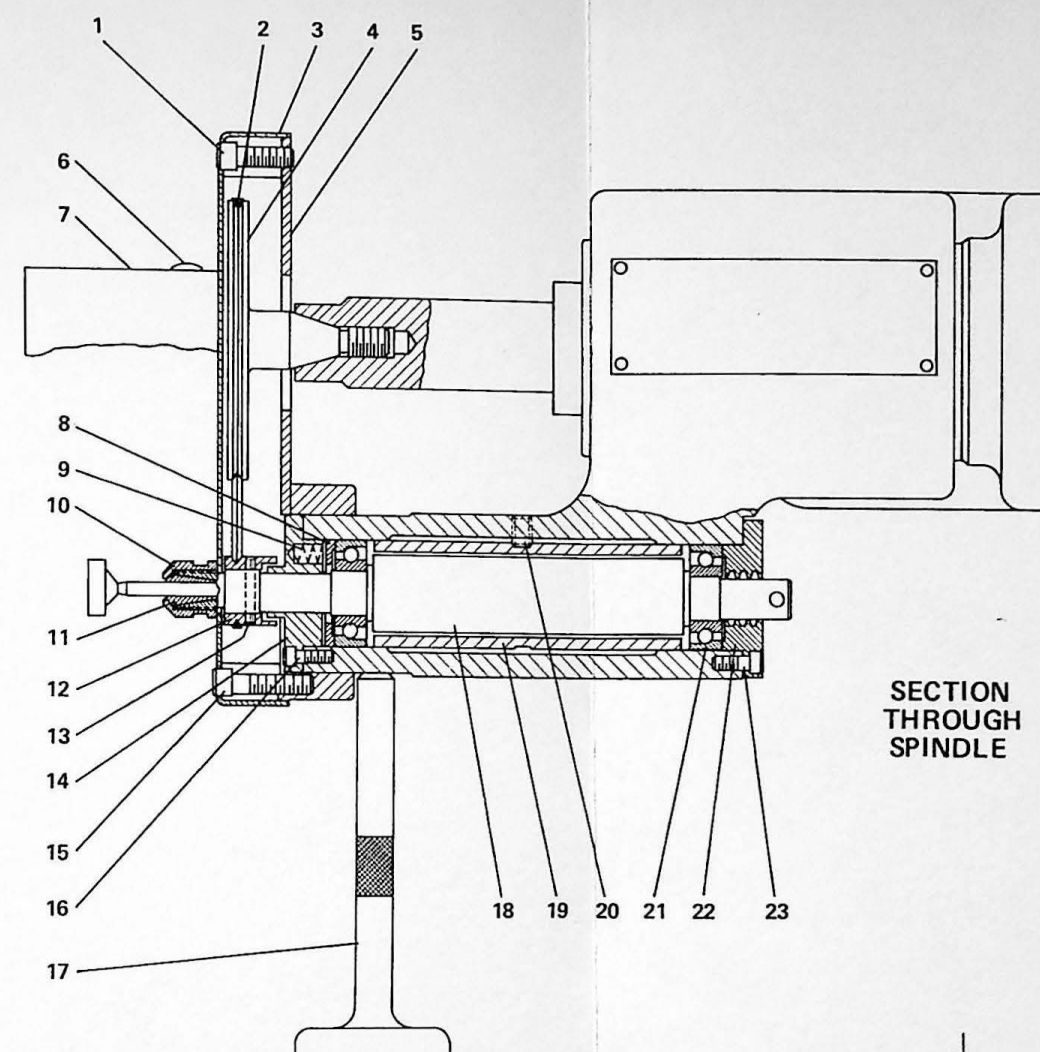
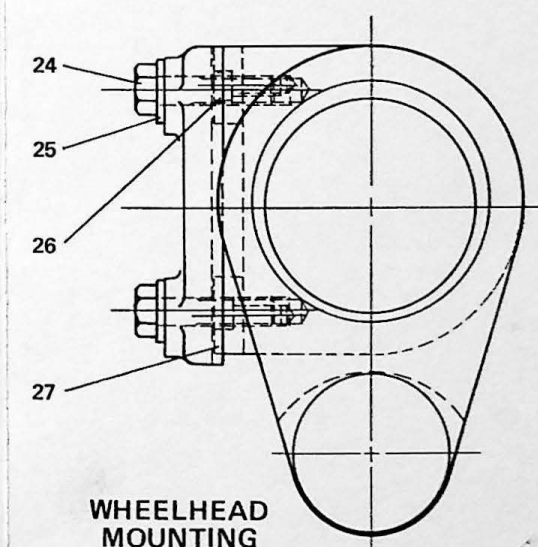


TOOTHREST CENTERING GAGE



TOOTHREST

**WHEELHEAD
3152-A01-AW-3**

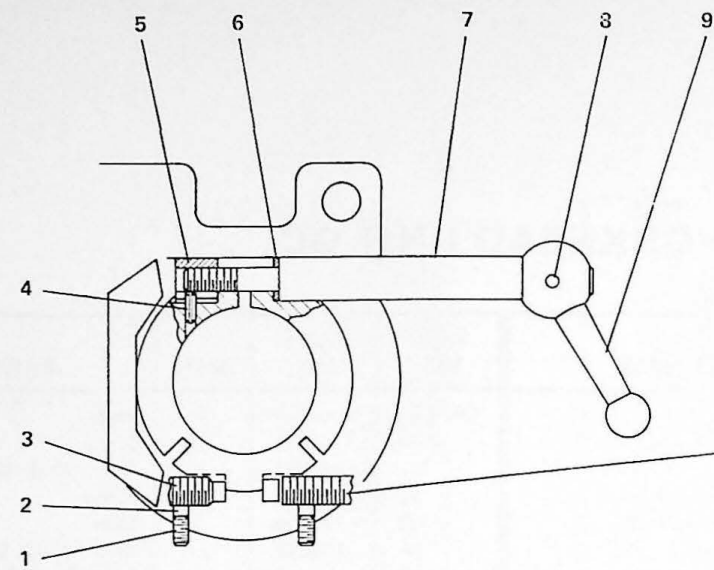
SECTION
THROUGH
SPINDLEWHEELHEAD
MOUNTING

**INTERNAL GRINDING
ATTACHMENT
3152-A01-BP-1**

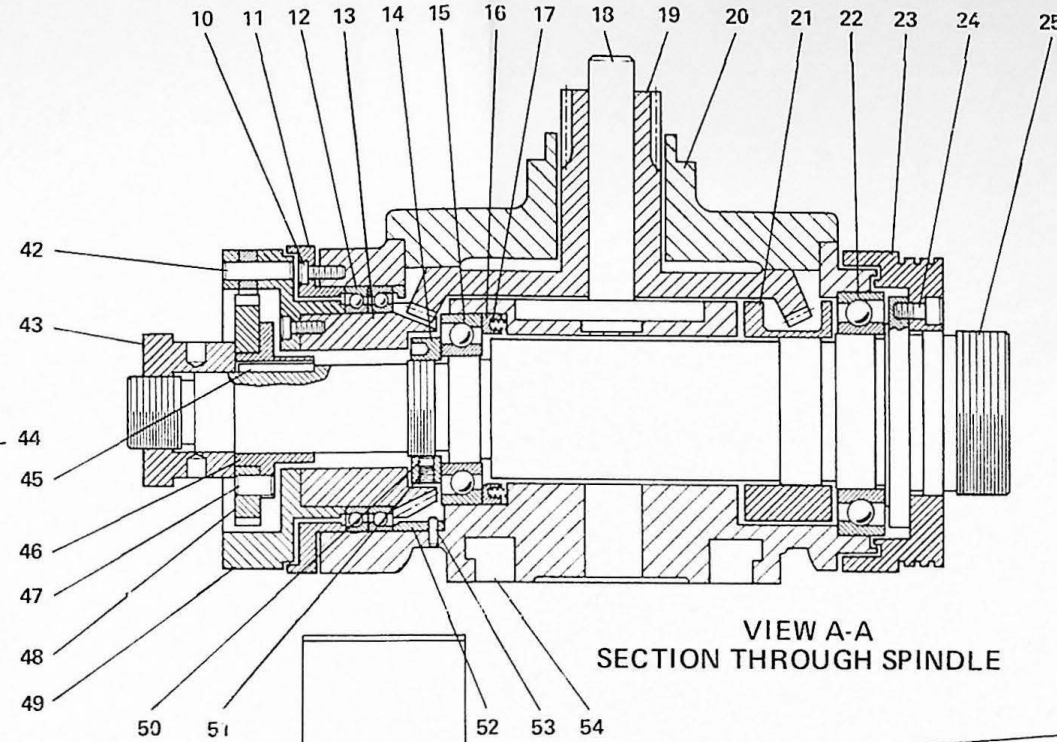
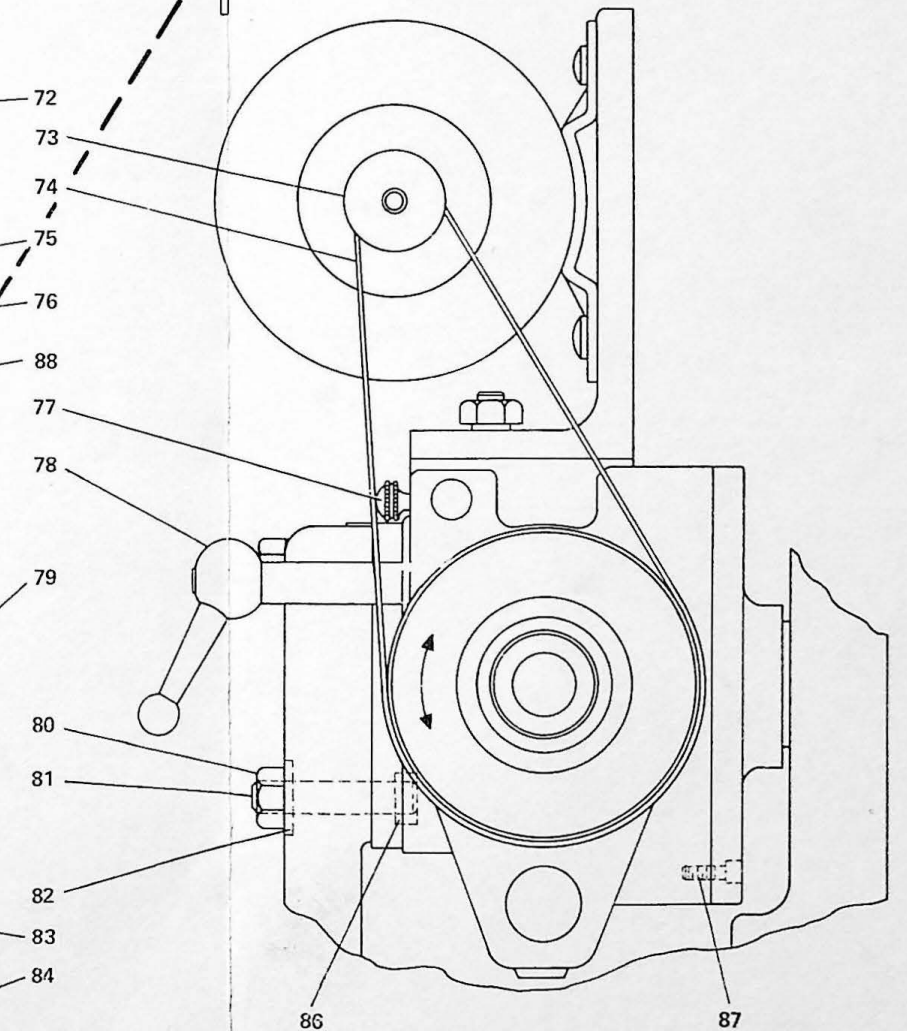
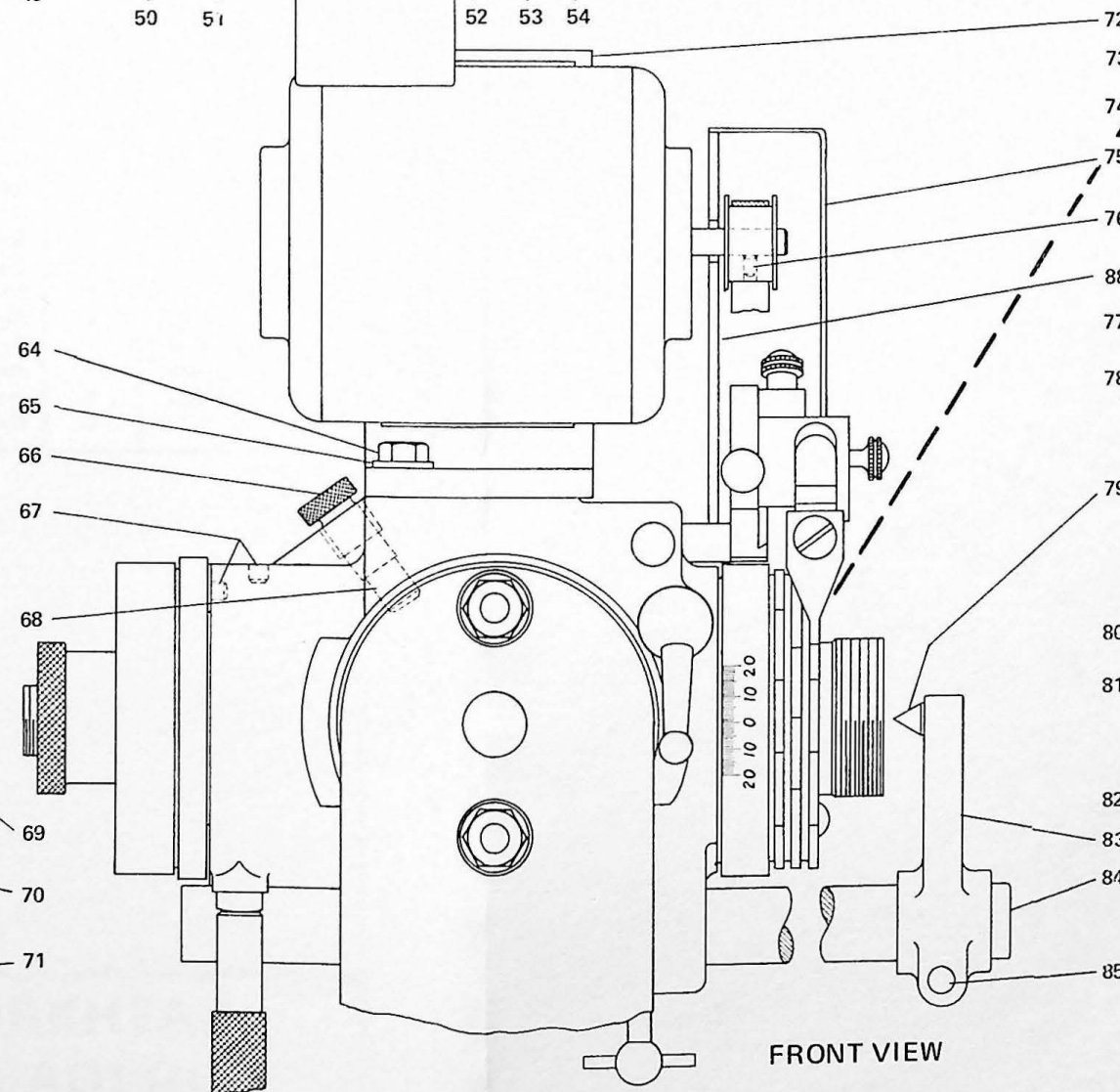
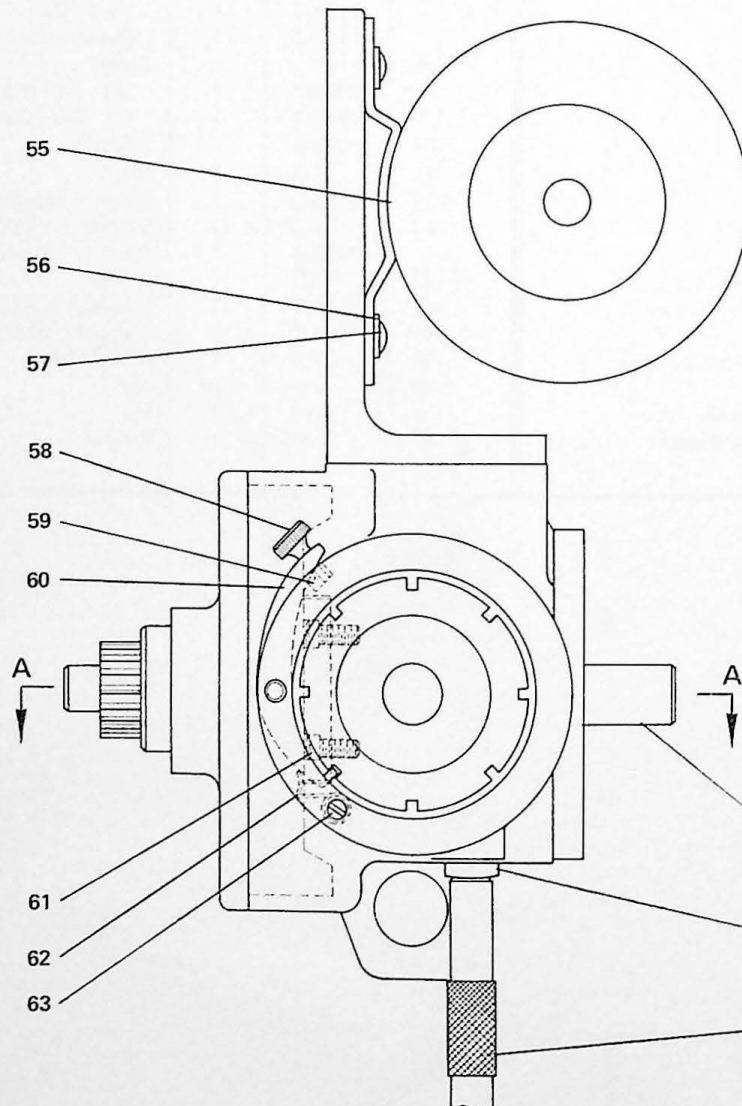
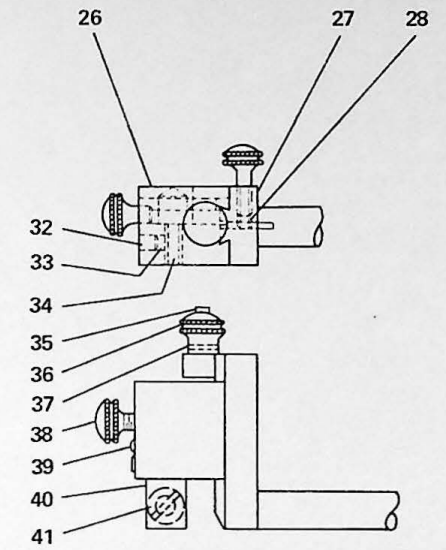
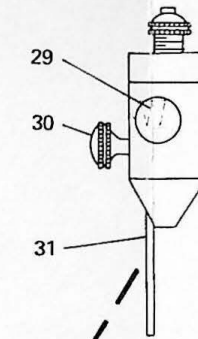
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

WORKHEAD UNIT GC

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
GC-1-1	2331	2	Screw	GC-1-49	315295	1	Support — Index Plate
-2	1994	2	Plug	-50	1550	1	Plug
-3	3233	2	Screw	-51	2330	1	Screw
-4	280416	1	Pin	-52	315294	1	Ring — Fitting
-5	322287	1	Nut — Clamp Screw	-53	3383	1	Pin
-6	230934	1	Washer	-54	315297	1	Housing — Workhead
-7	322286	1	Screw — Spindle Clamp	-55	Example	1	Motor — Electric
-8	147865	1	Pin — Roll	-56	936	4	Washer
-9	78907	1	Lever — Clamp	-57	2370	4	Screw
-10	3199	3	Screw	-58	115630	1	Knob — Latch
-11	315293	1	Flange — Bearing Retainer	-59	115631	1	Latch — Rear Index
-12	315292	2	Bearing	-60	118440	1	Pawl — Index
-13	315296	1	Pinion — Bevel	-61	3203	4	Screw
-14	115634	1	Nut — Spindle Nose	-62	106091	1	Spring — Pawl
-15	181111	1	Bearing — Ball	-63	106097	1	Pin — Spring
-16	115644	1	Washer — Bearing Thrust	-64	49	4	Screw
-17	115642	5	Spring	-65	3441	4	Washer
-18	115650	1	Stud — Bevel Gear	-66	64929	1	Plug
-19	126041	1	Pinion — Gear	-67	1844	2	Plug
-20	115645	1	Cover — Gear Case	-68	3271	1	Plug
-21	322285	1	Clamp — Spindle	-69	106829	1	Stud — Swivel
-22	181112	1	Bearing — Ball	-70	115637	1	Plug — Workhead Setting
-23	315290	1	Cover — Front Spindle	-71	115665	1	Gage — Centering
-24	3221	3	Screw	-72	3333436	1	Bracket — Motor Mount
-25	315282	1	Spindle — Workhead	-73			Pulley — Drive
-26	115621	1	Block — Toothrest Sliding		3336957	1	60 Hz
-27	115622	1	Body — Toothrest		3336958	1	50 Hz
-28	1994	1	Plug	-74	313676	1	Belt — Endless
-29	727	1	Spring	-75	3336960	1	Guard — Belt
-30	2255	1	Screw	-76	2339	1	Screw
-31	115624	1	Blade — Toothrest	-77	3196	1	Screw
-32	2279	1	Screw	-78	78907	1	Lever — Clamp
-33	1994	1	Plug	-79	106848	1	Center
-34	3228	1	Screw	-80	3478	2	Nut
-35	115643	1	Screw — Adjusting	-81	115720	2	Stud
-36	115629	1	Knob — Screw Adjustment	-82	3441	2	Washer
-37	3539	1	Pin	-83	175573	1	Head — Center Support
-38	3196	1	Screw	-84	175574	1	Shank — Center Support
-39	143	1	Pin	-85	105671	1	Screw — Center Support
-40	64899	1	Block — Swivel Blade Holder	-86	106849	2	Clamp — Housing
-41	1650	1	Screw	-87	3218	3	Screw
-42	312374	1	Pin — Index Pawl	-88	3336959	1	Guard — Back
-43	115635	1	Nut — Spindle				
-44	1911	1	Screw				
-45	864	1	Key				
-46	115623	1	Bushing				
-47	3377	1	Pin				
-48			Plate — Index				
	115638	1	8-Position				
	112310	1	10-Position				
	112311	1	12-Position				
	303633	1	14-Position				
	112312	1	15-Position				
	303632	1	16-Position				
	112313	1	18-Position				
	112314	1	20-Position				
	112315	1	22-Position				
	112316	1	24-Position				
	112317	1	28-Position				



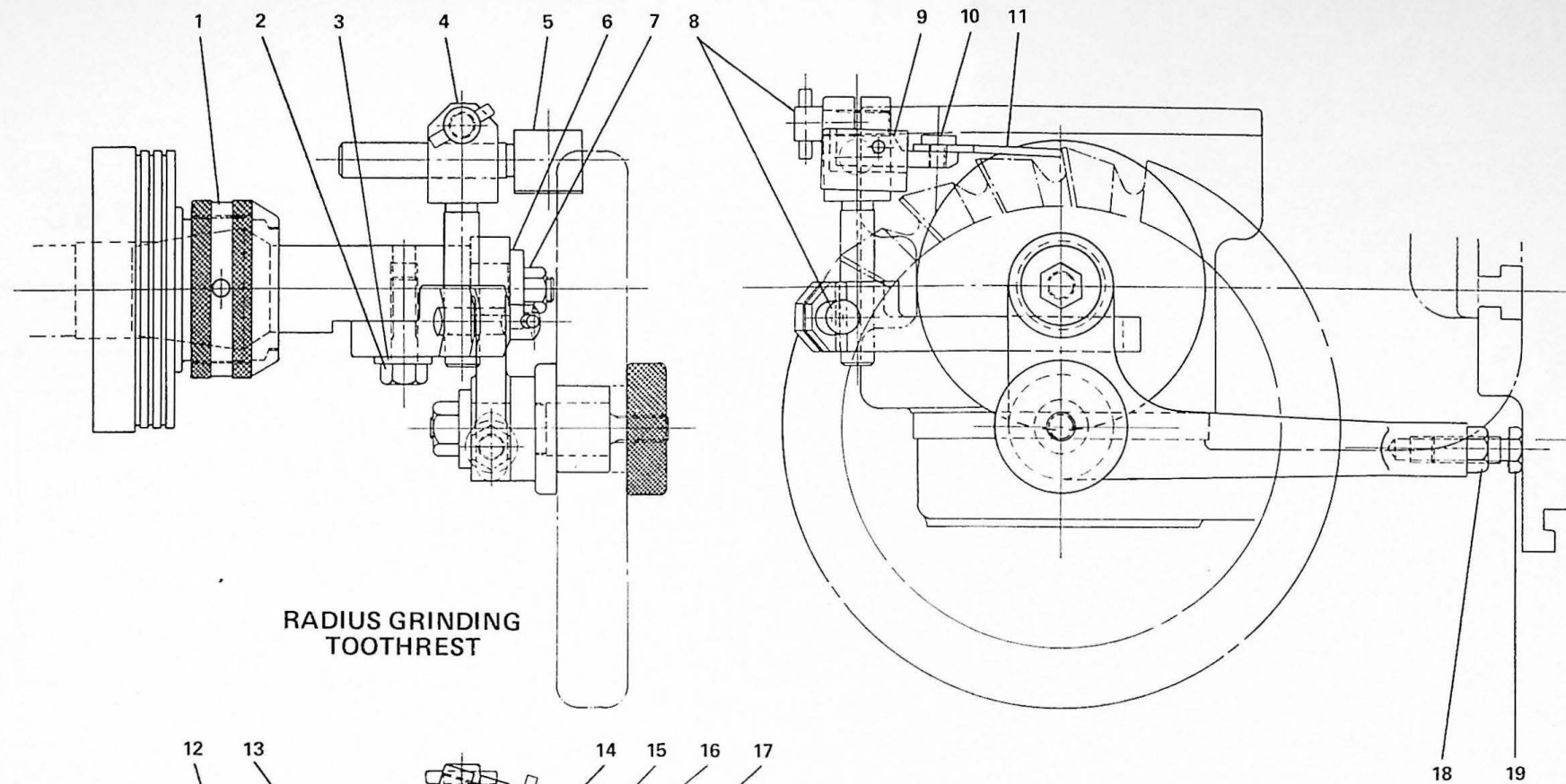
SPINDLE CLAMP

WORKHEAD INDEX
FOR CUTTER POSITION**WORKHEAD
3152-A01-GC-1**

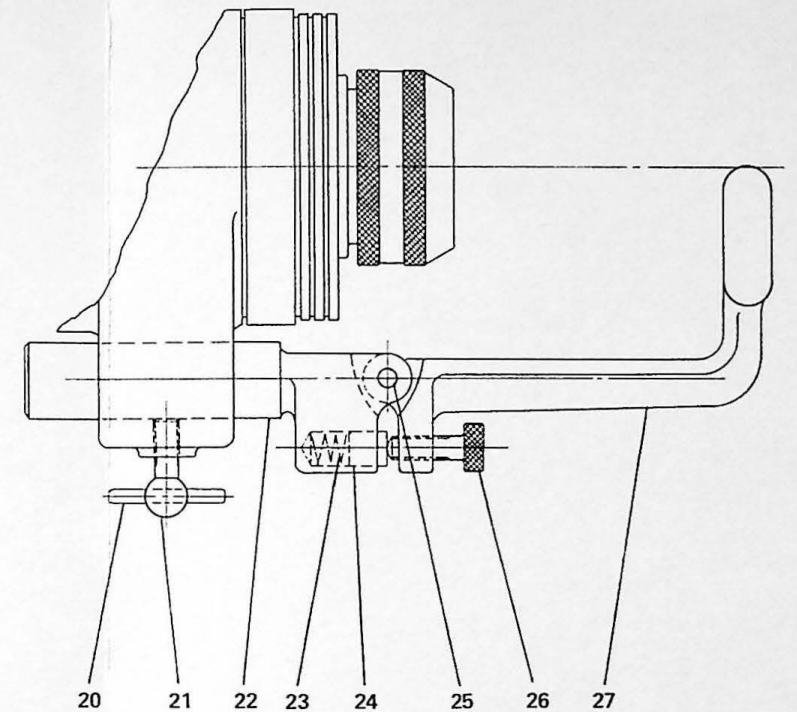
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

WORKHEAD UNIT GC

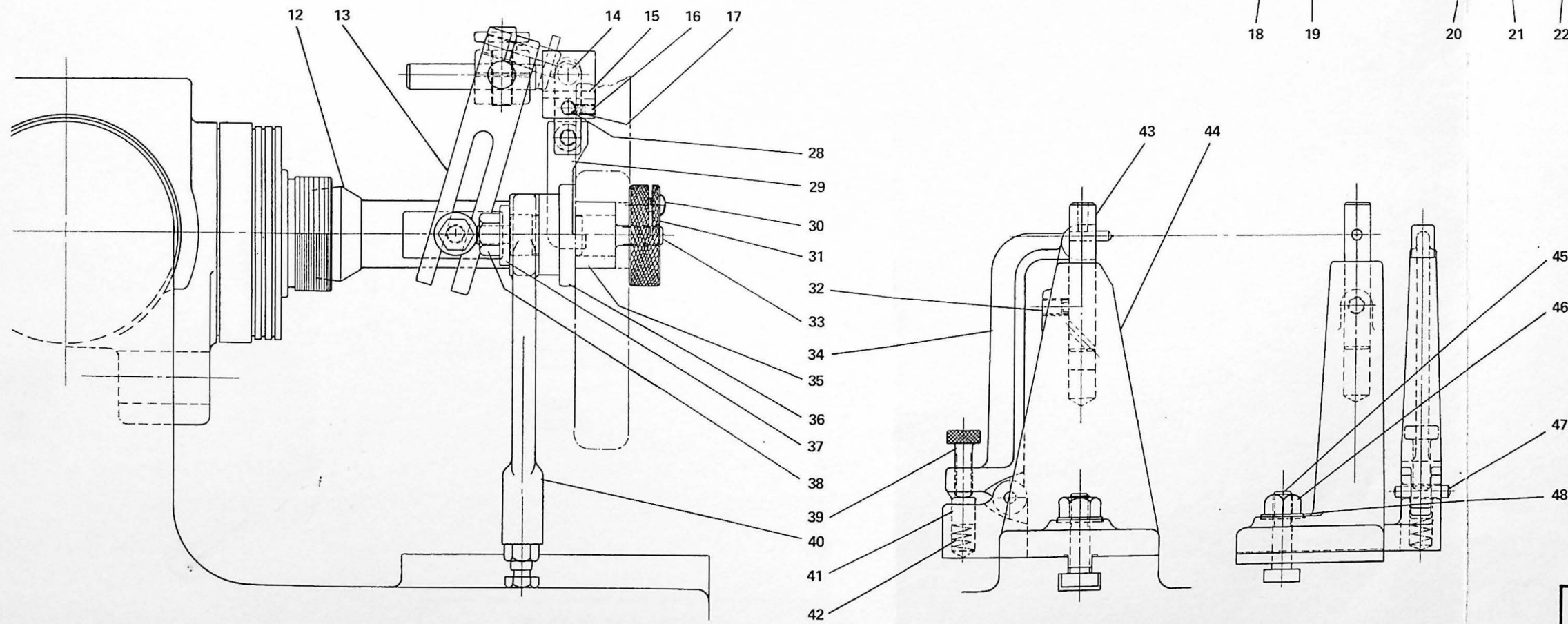
KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
GC-2-1	183686	1	Nut — Spindle	GC-2-29	115661	1	Blade
-2	641	1	Screw	-30	2369	1	Screw
-3	3441	1	Washer	-31	115657	1	Nut — Work Clamp
-4	115660	1	Support — Swivel Block	-32	103333	1	Screw
-5	107963	1	Holder — Swivel Block	-33	115656	1	Stud
-6	82244	2	Washer	-34	115653	1	Arm — Stock Support
-7	644	1	Nut	-35			Bushing — Cutter
-8	115664	2	Screw		107954	1	7/8" Dia.
-9	64899	1	Block — Swivel Blade Holder		107955	1	1" Dia.
-10	1650	1	Screw		107956	1	1-1/4" Dia.
-11	115661	1	Blade		107957	1	1-1/2" Dia.
-12	115658	1	Mandrel		113389	1	Mandrel 3/4" I.D.
-13	115659	1	Support — Toothrest	-36			Collar
-14	727	1	Spring		107958	1	3/4" x 1" Wide Cutter
-15	141	1	Pin		107959	1	1/2" Wide Cutter
-16	2279	1	Screw	-37	82244	1	Washer
-17	1994	1	Plug	-38	3478	1	Nut
-18	2042	1	Nut	-39	103329	1	Screw — Thumb
-19	2283	1	Screw	-40	115655	1	Support — Work
-20	3277	1	Pin	-41	103328	1	Plunger — Stock Support
-21	103319	1	Screw	-42	103327	1	Spring
-22	106859	1	Stem — Stock Support	-43	104475	1	Diamond & Stem
-23	103327	1	Spring	-44	118425	1	Support — Diamond
-24	103328	1	Plunger — Stock Support	-45	3328	1	Bolt — Tee
-25	3304	1	Pin	-46	3478	1	Nut
-26	103329	1	Screw — Thumb	-47	3304	1	Pin
-27	115652	1	Arm — Stock Support	-48	3441	1	Washer
-28	1879	1	Screw				



RADIUS GRINDING
TOOTHREST



STOCK SUPPORT



DIAMOND HOLDER AND STOCK SUPPORT

WORKHEAD
3152-A01-GC-2

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

WORKHEAD UNIT GC

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
GC-3-1	183683	1	Nut — Small Collet Adapter	GC-3-7	183686	1	Nut — Spindle
-2	101694	1	Spring	-8	179031	1	Ring
-3	183684	1	Washer	-9	183687	1	Washer
-4	181926	1	Collets	-10	181918	1	Collets
			(See Selection Chart for Sizes)				(See Selection Chart for Sizes)
-5	128929	1	Adapter — Small Series Coller	-11	170776	1	Flange
-6			Collets (Taper)	-12	157768	1	Chuck (4" Dia. — 3 Jaw Rev.)
	158153	1	No. 5 B & S	-13	----	3	Screw (Supplied with Chuck)
	158152	1	No. 7 B & S				
	106222	1	No. 9 B & S				
	158151	1	No. 2 Morse				
	165670	1	No. 3 Morse				
	106219	1	No. 4 Morse				

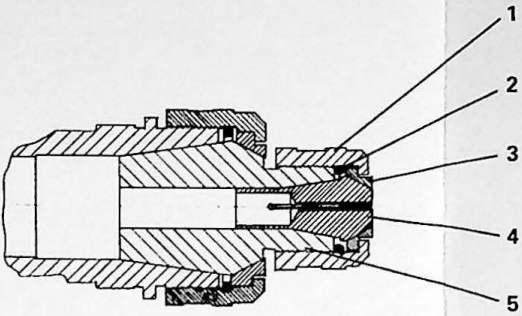
COLLET SELECTION CHART

"A" Series Collets
1/8" - 1/2" Hole

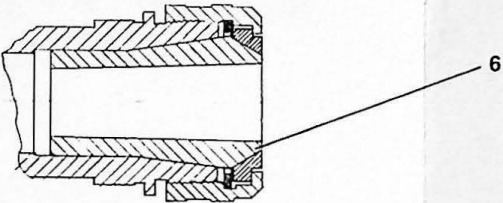
Part No.	Hole Size	Part No.	Hole Size
181926-8	1/8" Hole	181926-21	21/64" Hole
181926-9	9/64" Hole	181926-22	11/32" Hole
181926-10	5/32" Hole	181926-23	23/64" Hole
181926-11	11/64" Hole	181926-24	3/8" Hole
181926-12	3/16" Hole	181926-25	25/32" Hole
181926-13	13/64" Hole	181926-26	13/16" Hole
181926-14	7/32" Hole	181926-27	27/64" Hole
181926-15	15/64" Hole	181926-28	7/16" Hole
181926-16	1/4" Hole	181926-29	29/64" Hole
181926-17	17/64" Hole	181926-30	15/32" Hole
181926-18	9/32" Hole	181926-31	31/64" Hole
181926-19	19/64" Hole	181926-32	1/2" Hole
181926-20	5/16" Hole		

"C" Series Collets
3/8" - 1-1/4" Hole

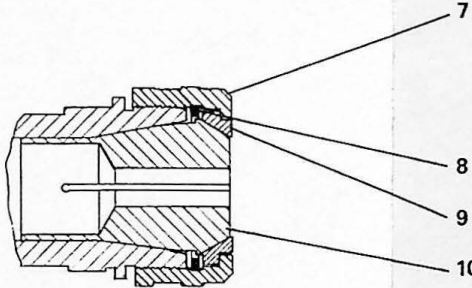
Part No.	Hole Size	Part No.	Hole Size
181918-24	3/8" Hole	181918-51	51/64" Hole
181918-25	25/64" Hole	181918-52	13/16" Hole
181918-26	13/32" Hole	181918-53	53/64" Hole
181918-27	27/64" Hole	181918-54	27/32" Hole
181918-28	7/16" Hole	181918-55	55/64" Hole
181918-29	29/64" Hole	181918-56	7/8" Hole
181918-30	15/32" Hole	181918-57	57/64" Hole
181918-31	31/64" Hole	181918-58	29/32" Hole
181918-32	1/2" Hole	181918-59	59/64" Hole
181918-33	33/64" Hole	181918-60	15/16" Hole
181918-34	17/32" Hole	181918-61	61/64" Hole
181918-35	35/64" Hole	181918-62	31/32" Hole
181918-36	9/16" Hole	181918-63	63/64" Hole
181918-37	37/64" Hole	181918-64	1" Hole
181918-38	19/32" Hole	181918-65	1-1/64" Hole
181918-39	39/64" Hole	181918-66	1-1/32" Hole
181918-40	5/8" Hole	181918-67	1-3/64" Hole
181918-41	41/64" Hole	181918-68	1-1/16" Hole
181918-42	21/32" Hole	181918-69	1-5/64" Hole
181918-43	43/64" Hole	181918-70	1-3/32" Hole
181918-44	11/16" Hole	181918-71	1-7/64" Hole
181918-45	45/64" Hole	181918-72	1-1/8" Hole
181918-46	23/32" Hole	181918-73	1-9/64" Hole
181918-47	47/64" Hole	181918-74	1-5/32" Hole
181918-48	3/4" Hole	181918-75	1-11/64" Hole
181918-49	49/64" Hole	181918-76	1-3/16" Hole
181918-50	25/32" Hole	181918-77	1-13/64" Hole



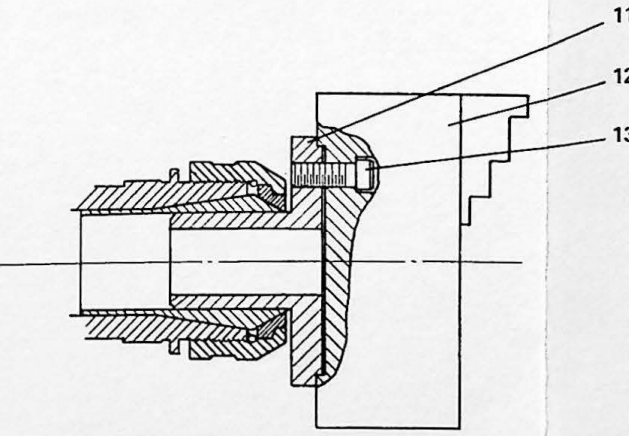
"A" SERIES COLLETS
("A" series collets require collet adapter —Key No. 5)



TAPERED COLLETS



"C" SERIES COLLETS
("C" series collets fit directly into nose of spindle.)



3-JAW CHUCK

ASSEMBLY NOTE

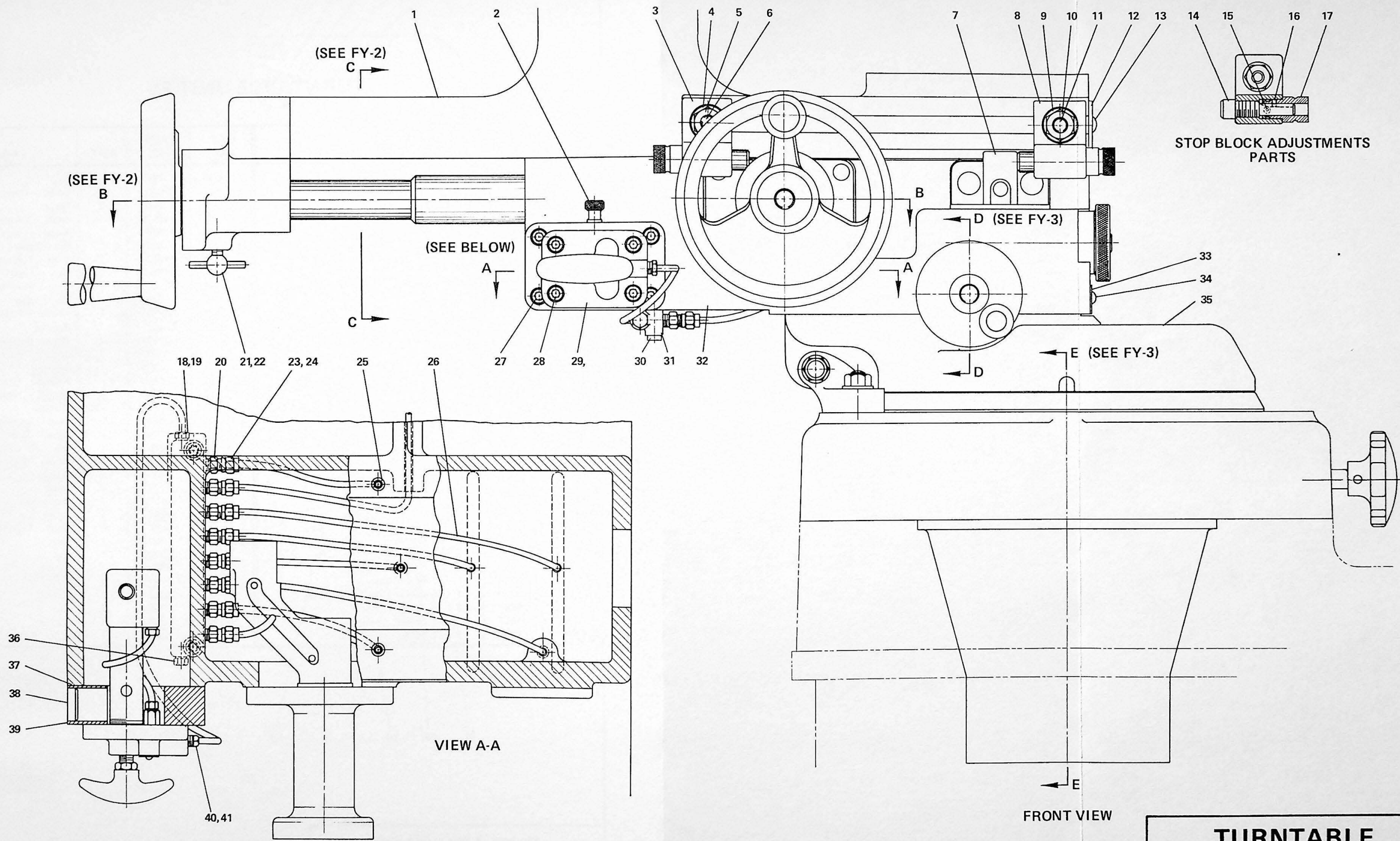
Insert collet nose into nut until it snaps through spring ring, and start nut onto spindle nose before inserting tool.

WORKHEAD
3152-A01-GC-3

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

TURNTABLE UNIT FY

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
FY-1-1	173921	1	Slide — Main	FY-1-22	112305	1	Plug
-2	107976	1	Plug — Oil Fill	-23	214294	8	Nut — Compression
-3	106579	1	Block — Stop, L.H.	-24	214304	1	Sleeve — Compression
-4	3441	1	Washer	-25	77197	4	Bushing
-5	3478	1	Nut	-26	112349	-	Tubing — Oil (List)
-6	3328	1	Bolt — Tee	-27	3397	4	Screw
-7	115599	1	Stop	-28	3218	4	Screw
-8	106582	1	Block — Stop, R.H.	-29	143760	1	Lubricator
-9	3441	1	Washer	-30	3205	2	Screw
-10	3478	1	Nut	-31	112300	1	Block — Junction
-11	3328	1	Bolt — Tee	-32	322295	1	Slide — Intermediate
-12	322298	1	Cover — Slide	-33	322284	1	Scale — Offset Slide
-13	2369	2	Screw	-34	2363	2	Screw
-14	106575	2	Screw	-35	173926	1	Turntable
-15	103321	2	Screw — Set	-36	115596	1	Plug
-16	201112	2	Pin	-37	175541	1	Gasket
-17	106576	2	Dial — Stop Block Inch	-38	115591	1	Gage — Oil Sight
-18	115595	1	Bushing — Compression	-39	179072	1	Block — Oil Filter
-19	214304	1	Sleeve	-40	214300	1	Bushing — Compression
-20	220004	8	Plug — Drip	-41	214304	1	Sleeve — Compression
-21	103319	1	Screw				

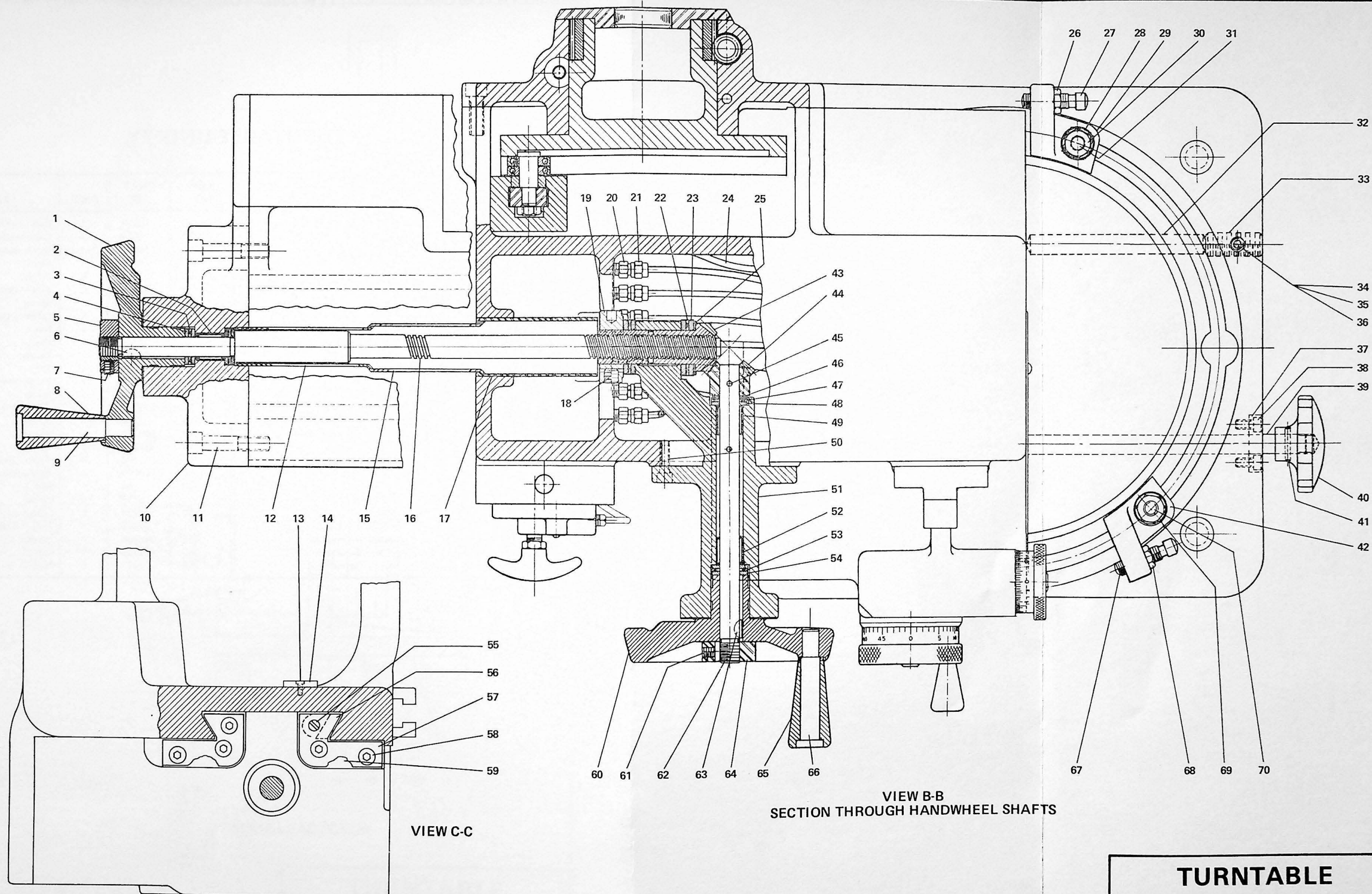


**TURNTABLE
3152-A01-FY-1**

CINCINNATI MONOSET CUTTER AND TOOL GRINDER

TURNTABLE UNIT FY

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
FY-2-1	321276	1	Handwheel	FY-2-36	1962	2	Plug
-2	76357	1	Bearing — Needle	-37	318201	1	Collar — Clamp Shaft
-3	321289	2	Bearing	-38	3218	2	Screw
-4	321291	4	Race — Bearing	-39	115590	1	Shaft — Turntable Clamp
-5	227490	1	Nut	-40	115589	1	Knob
-6	3279	1	Key	-41	2291	1	Pin — Taper
-7	78600	1	Screw	-42	112321	1	Stop — Turntable, R.H.
-8	188285	1	Handle	-43	321295	1	Gear — Feed
-9	317715	1	Stud	-44	123369	1	Gear — Feed Bracket Shaft
-10	115741	1	Bracket — End	-45	2291	1	Pin — Taper
-11	3401	2	Screw	-46	321292	1	Washer — Fitting
-12	107080	1	Tube — 1st Telescopic	-47	321289	1	Bearing
-13	3199	1	Screw	-48	321291	2	Race — Bearing
-14	107048	1	Button — Gage Spindle Centering	-49	76357	1	Bearing — Needle
-15	107081	1	Tube — 2nd Telescopic	-50	3396	4	Screw
-16	321296	1	Screw — Lead	-51	112309	1	Bracket — Feed
-17	107082	1	Tube — 3rd Telescopic	-52	76357	1	Bearing — Needle
-18	2282	1	Screw	-53	321289	1	Bearing
-19	4242	1	Nut	-54	321291	2	Race — Bearing
-20	220004	8	Fitting	-55	311140	1	Screw — Gib
-21	214294	10	Fitting	-56	3330185	1	Gib — Main Slide
-22	312637	2	Bearing	-57	322296	2	Clamp — Wiper
-23	321294	4	Race — Bearing	-58	2370	6	Screw
-24	112349	---	Tubing — Oil (List)	-59	322297	2	Wiper
-25	108941	1	Washer	-60	321276	1	Handwheel
-26	2284	1	Nut	-61	78600	1	Screw
-27	106681	1	Screw	-62	112307	1	Shaft — Feed Bracket
-28	3441	1	Washer	-63	3279	1	Key
-29	112320	1	Stop — Turntable, L.H.	-64	227490	1	Nut
-30	664	1	Nut	-65	188285	1	Handle
-31	3314	1	Bolt — Tee	-66	317175	1	Stud
-32	318200	1	Rod — Turn Table Clamp	-67	106681	1	Screw
-33	2287	2	Screw	-68	2284	1	Nut
-34	1911	2	Screw	-69	3441	1	Washer
-35	1917	2	Screw	-70	3314	1	Bolt — Tee

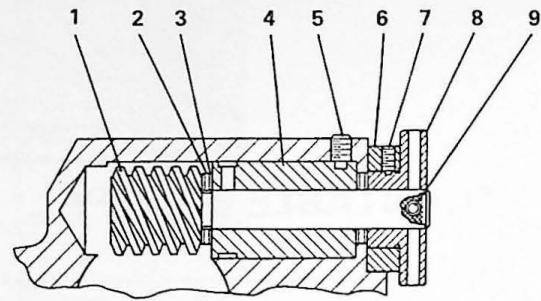


**TURNTABLE
3152-A01-FY-2**

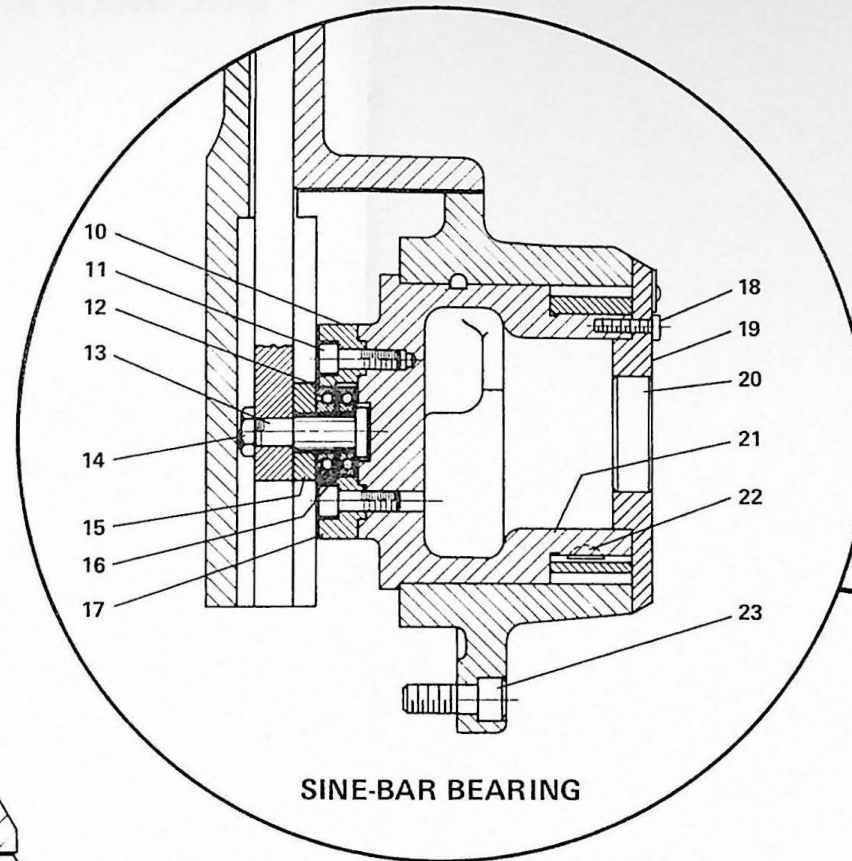
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

TURNTABLE UNIT FY

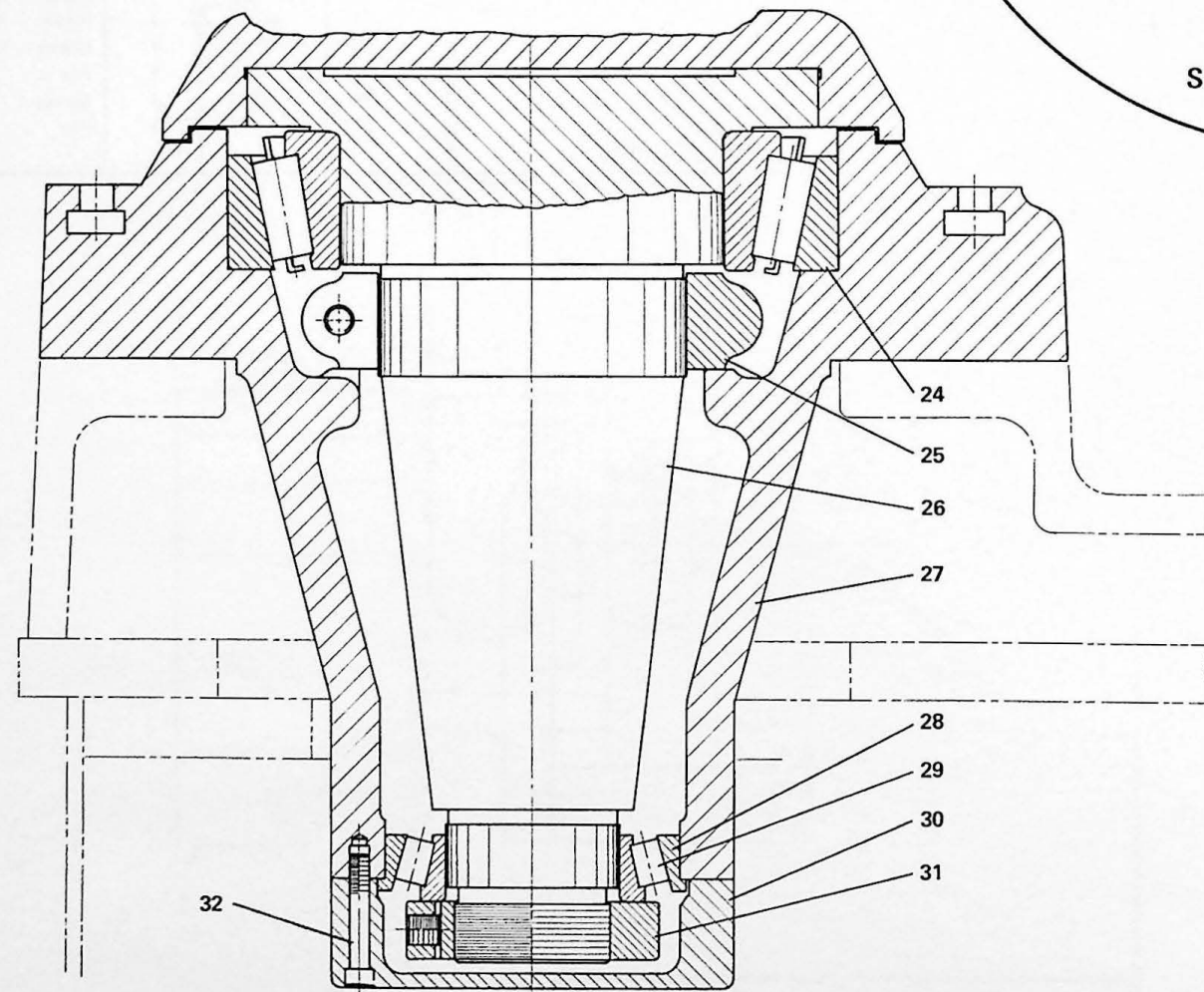
KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
FY-3-1	115737	1	Shaft — Worm	FY-3-28	75973	1	Cup — Roller Bearing
-2	321289	2	Bearing	-29	75972	1	Cone — Roller Bearing
-3	321290	4	Race — Bearing	-30	115597	1	Cap — Bearing
-4	322288	1	Bushing — Eccentric	-31	4251	1	Nut
-5	3228	1	Screw	-32	3217	5	Screw
-6	117677	1	Dial	-33	321288	1	Dial — Offset Screw
-7	106035	1	Screw	-34	78600	1	Screw
-8	321287	1	Knob — Offset	-35	159735	1	Screw — Cup Set Point
-9	174288	1	Pin	-36	111468	1	Nut
-10	120761	1	Rail — Sine-Bar, Upper	-37	3279	2	Key
-11	3396	6	Screw	-38	291909	1	Handle
-12	120751	2	Bearing — Ball	-39	291910	1	Stud
-13	124449	1	Pin — Rack	-40	321285	1	Handwheel
-14	2284	1	Nut	-41	2333	1	Screw
-15	124430	1	Shoe	-42	321284	1	Retainer — Worm
-16	120753	1	Washer	-43	3246	3	Screw
-17	120760	1	Rail — Sine-Bar, Lower	-44	600342	1	Bearing
-18	3199	3	Screw	-45	321289	2	Bearing
-19	109372	1	Plate — Graduated	-46	321290	4	Race — Bearing
-20	73812	1	Plug	-47	106691	1	Gear — Worm
-21	120756	1	Bar — Sine	-48	115735	1	Nut
-22	1266	1	Key	-49	3218	3	Screw
-23	3399	5	Screw	-50	321286	1	Screw — Offset
-24	115598	1	Bearing — Taper	-51	81429	1	Plug — Expansion
-25	318199	1	Clamp — Turntable	-52	226705	1	Screw
-26	178282	1	Stem — Turntable	-53	115724	1	Gib
-27	318148	1	Base — Turntable	-54	3473	1	Nut



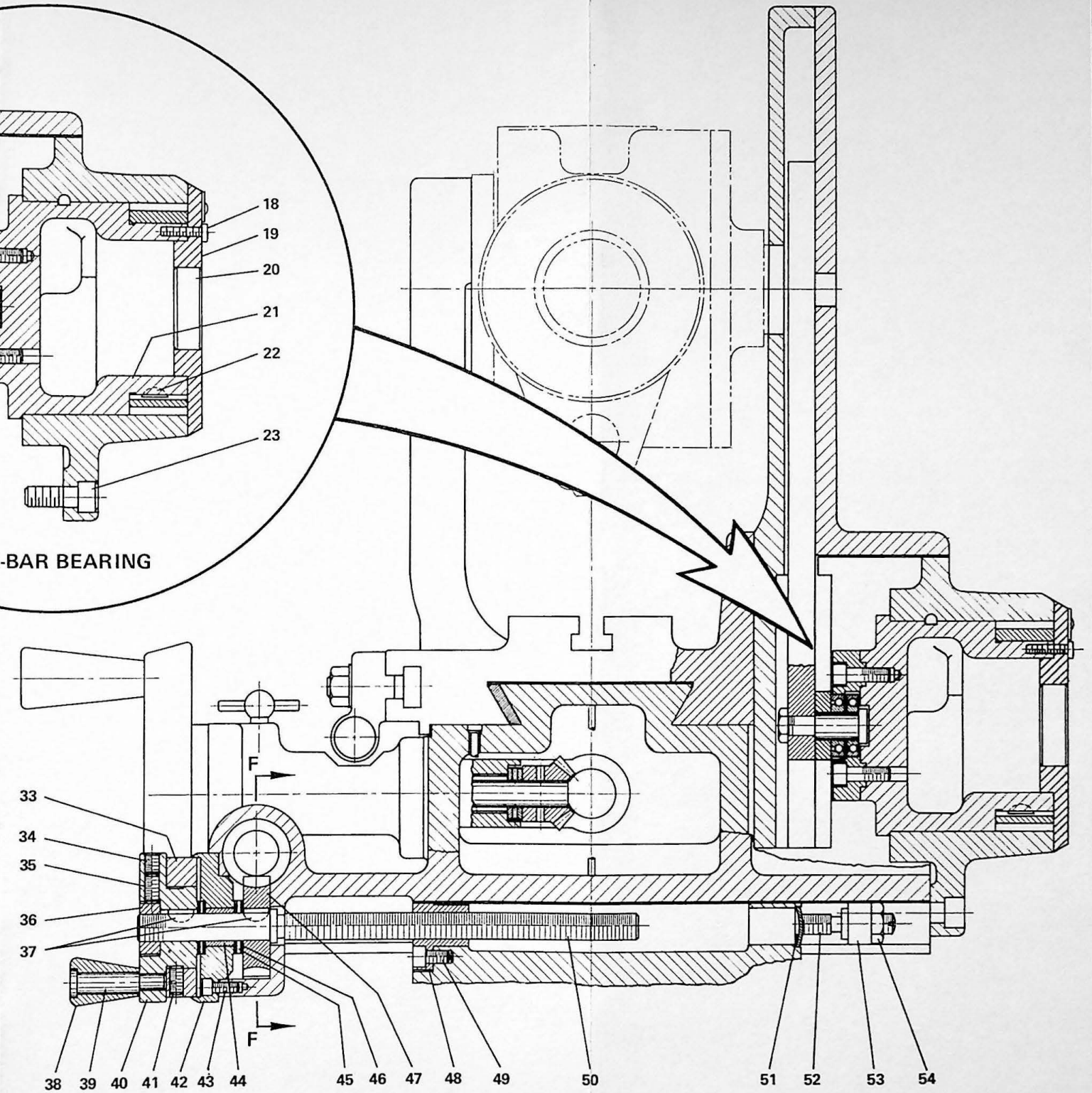
VIEW F-F
SECTION THROUGH OFFSET SLIDE WORM SHAFT



SINE-BAR BEARING



VIEW E-E
SECTION THROUGH TURNTABLE BEARINGS



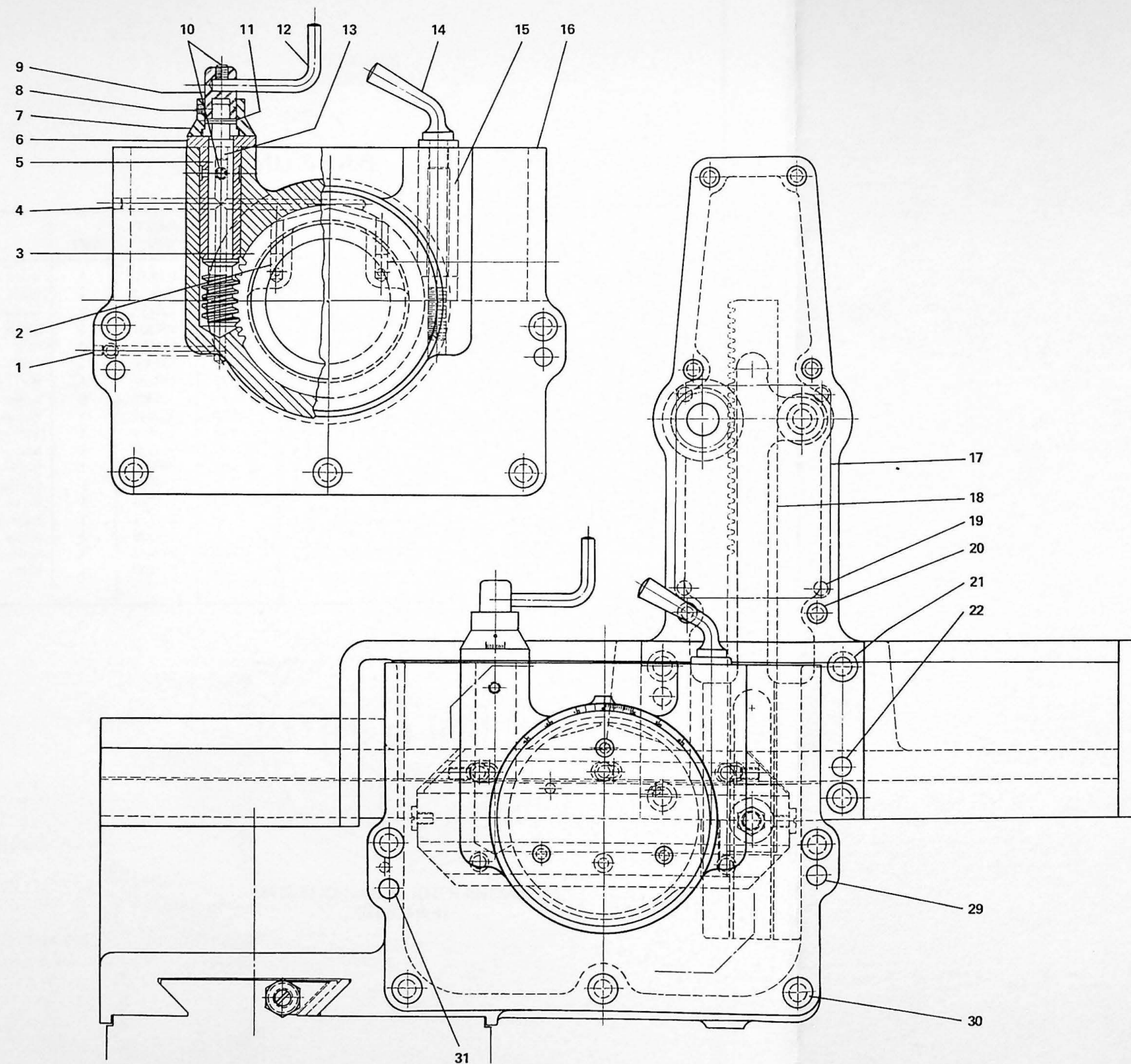
VIEW D-D
SECTION THROUGH OFFSET SLIDE LEAD SCREW

TURNTABLE
3152-A01-FY-3

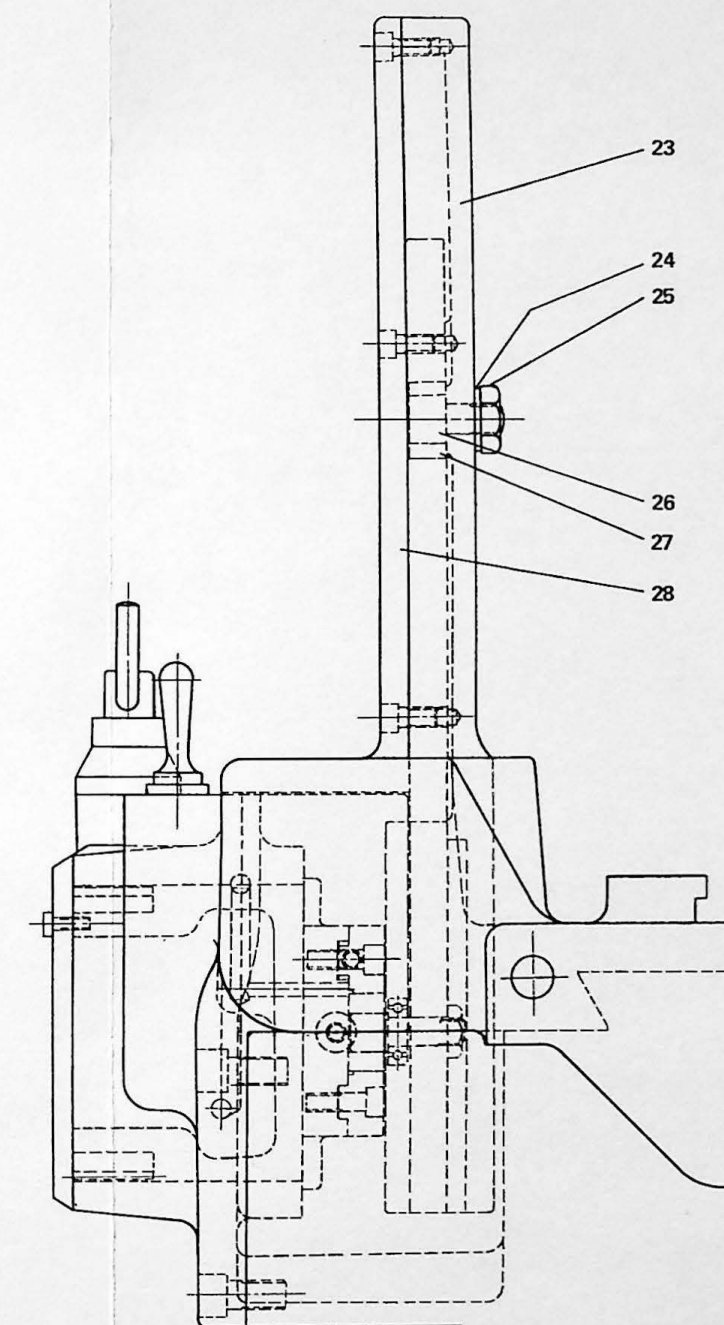
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

TURNTABLE UNIT FY

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
FY-4-1	1844	1	Plug	FY-4-17	170795	1	Plate — Long Lead
-2	97577	2	Plug	-18	126037	1	Rack — Sine-Bar
-3	106766	1	Gear — Spiral, L.H.	-19	2308	4	Screw
-4	1844	1	Plug	-20	3218	6	Screw
-5	106754	1	Shaft — Worm	-21	3400	4	Screw
-6	106752	1	Bushing — Worm Shaft	-22	1384	2	Pin
-7	106749	1	Dial — Worm Shaft	-23	124431	1	Guide — Rack
-8	103321	1	Screw	-24	3441	1	Washer
-9	106751	1	Support — Handle	-25	3473	1	Nut
-10	72640	2	Screw	-26	106782	1	Screw — Eccentric Rack, Guide
-11	3270	1	Pin	-27	106783	1	Roller — Rack Guide
-12	106248	1	Handle — Worm Shaft	-28	115721	1	Cover — Rack Guide
-13	1844	1	Plug	-29	1383	1	Pin
-14	115728	1	Screw — Lock Sine-Bar	-30	3399	7	Screw
-15	115729	1	Bushing	-31	1384	1	Pin
-16	115742	1	Housing — Sine-Bar				



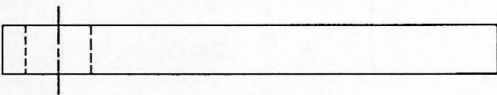
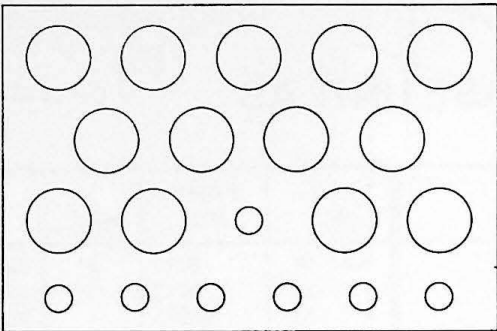
SINE-BAR MECHANISM

**TURNTABLE
3152-A01-FY-4**

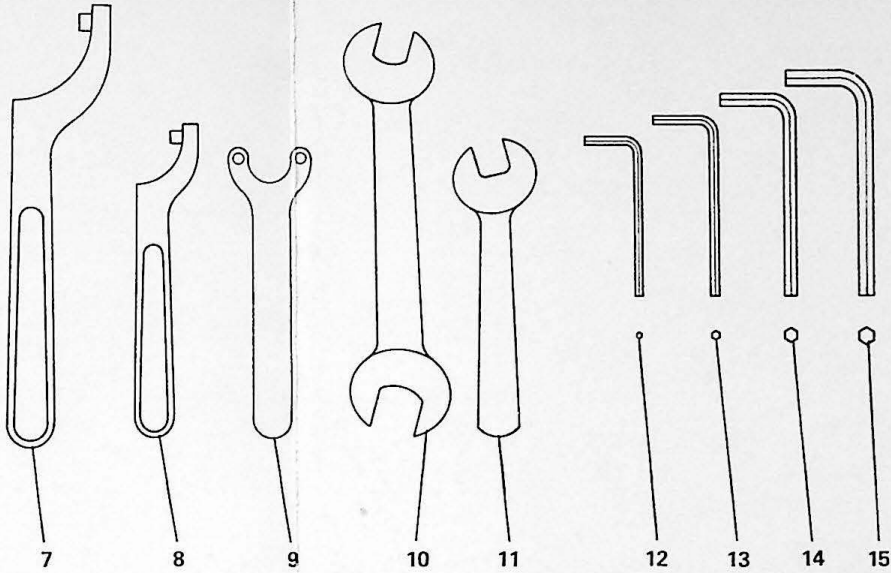
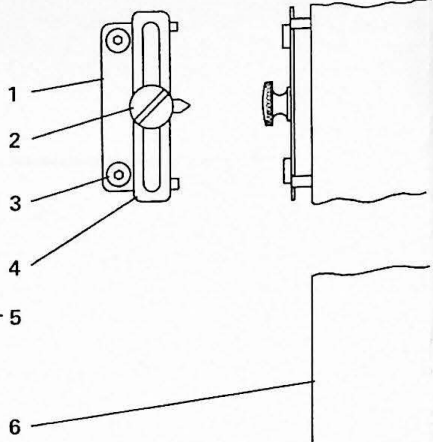
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

BASE UNIT AB

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AB-1-1	112344	1	Guide — Pointer	AB-1-19	106579	1	Block — Stop, L.H.
-2	2278	1	Screw	-20	106582	1	Block — Stop, R.H.
-3	3199	2	Screw	-21	106575	3	Screw — Stop Block
-4	112343	1	Pointer — Column	-22	103321	3	Screw — Set
-5	109232	1	Rack — Collet	-23	201112	3	Pin
-6	318053	1	Column	-24	106576	3	Dial — Stop Block
-7	101758	1	Wrench — Pin Spanner, 2-1/2" Dia.	-25	115702	1	Bar — Stop Block
-8	101759	1	Wrench — Pin Spanner, 1-1/2" Dia.	-26	3397	6	Screw
-9	107388	1	Wrench — Face Spanner, 1"	-27	3441	1	Washer
-10	91898	1	Wrench — Open End, 9/16"-11/16"	-28	3478	1	Nut — Hex
-11	4080	1	Wrench — Open End, 1/2"	-29	3328	1	Bolt — Tee
-12	216584	1	Wrench — Hexagon, 3/32"	-30	106579	1	Block — Stop, L.H.
-13	4053	1	Wrench — Hexagon, 1/8"	-31	311139	1	Pointer
-14	4054	1	Wrench — Hexagon, 5/32"	-32	2369	1	Screw
-15	4047	1	Wrench — Hexagon, 3/16"	-33	318134	1	Slide — Base
-16	3441	2	Washer	-34	2209	2	Screw
-17	3478	2	Nut — Hex	-35	308477	1	Scale — Base
-18	3328	2	Bolt — Tee	-36	311126	1	Base

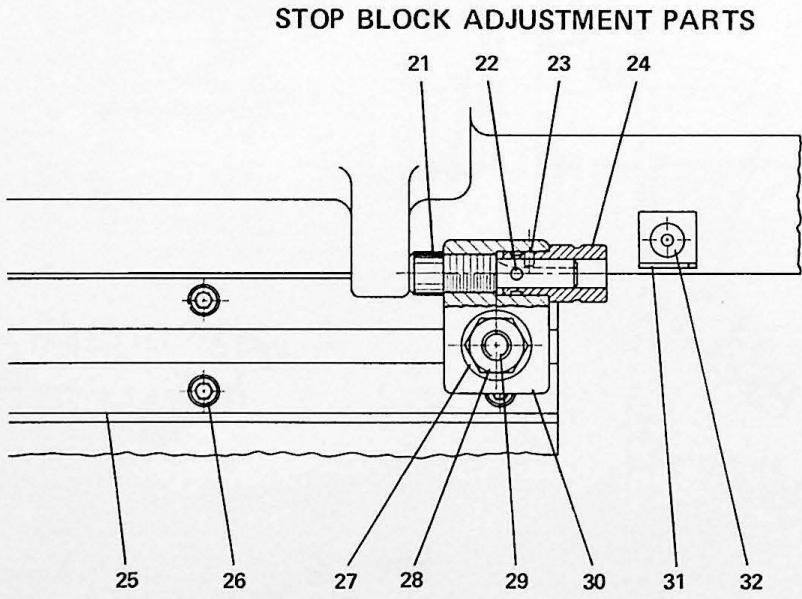


COLLET RACK



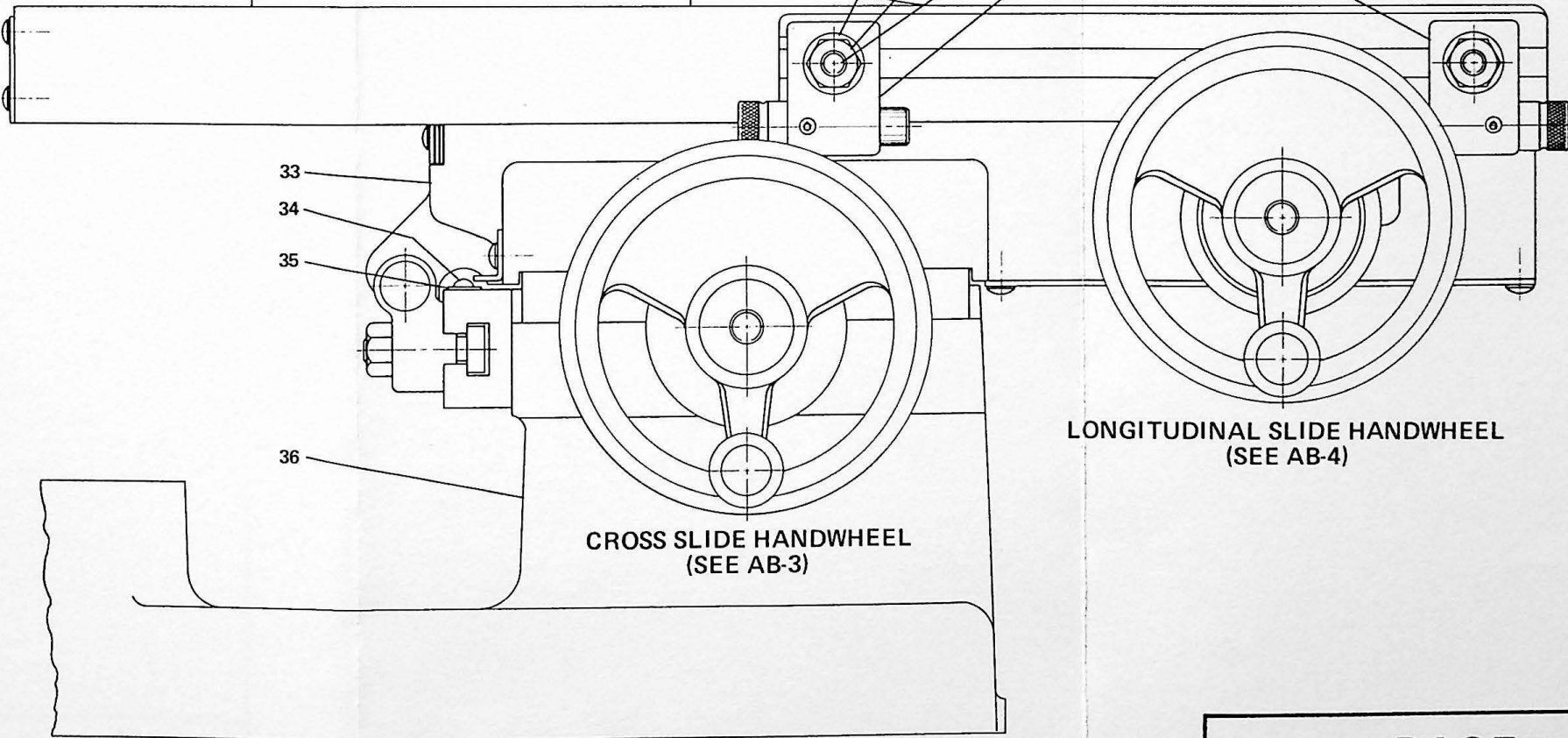
WRENCHES
(SEE ALSO AW-1)

LONGITUDINAL SLIDE STOP BLOCKS



STOP BLOCK ADJUSTMENT PARTS

CROSS SLIDE STOP BLOCK



CROSS SLIDE HANDWHEEL
(SEE AB-3)

LONGITUDINAL SLIDE HANDWHEEL
(SEE AB-4)

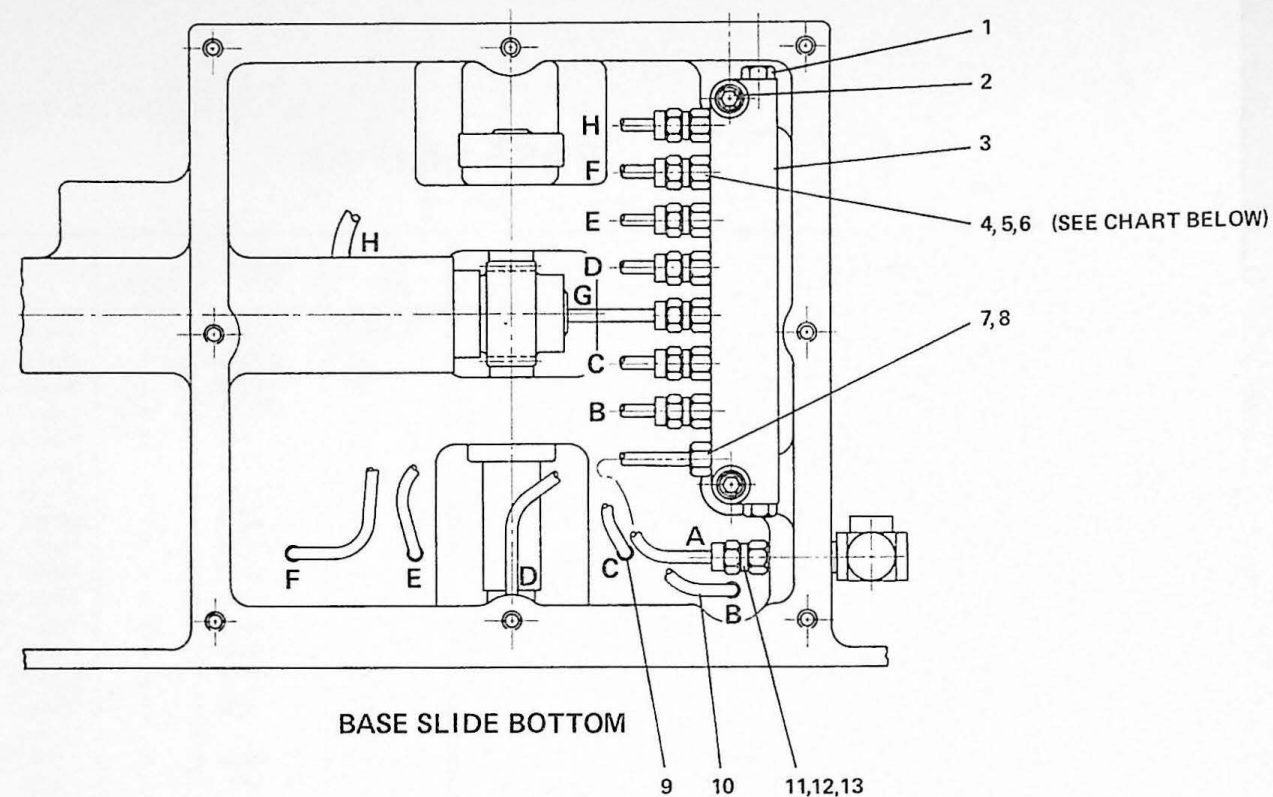
FRONT VIEW

BASE
3152-A01-AB-1

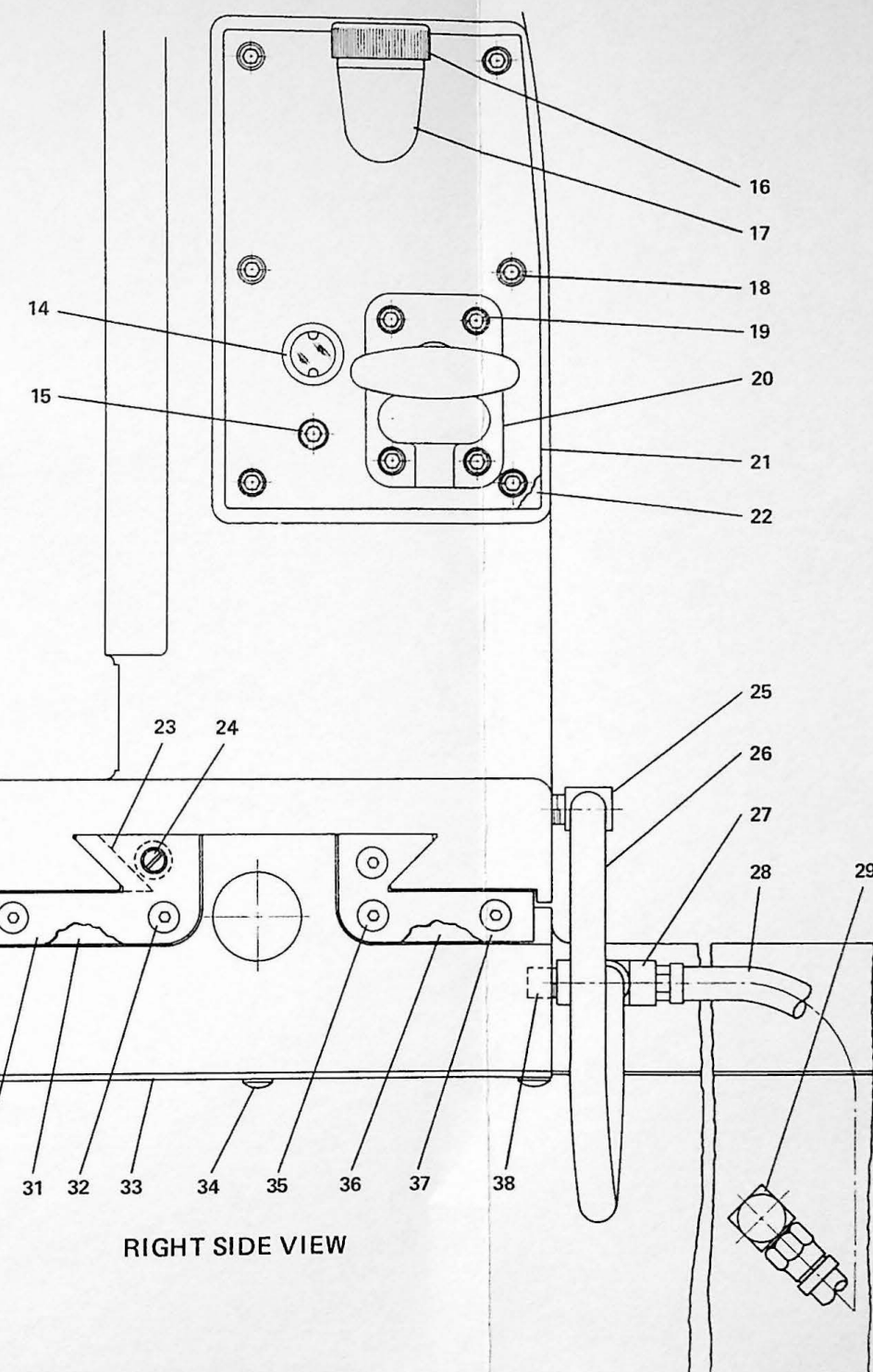
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

BASE UNIT AB

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AB-2-1	115596	2	Plug	AB-2-18	3218	6	Screw
-2	3227	2	Screw	-19	3218	4	Screw
-3	112300	1	Junction — Oil Tubing	-20	96257	1	Pump — Lubrication
-4	214294	7	Nut — Compression	-21	311148	1	Plate — Reservoir
-5	214304	7	Sleeve — Compression	-22	--	1	Gasket (Fit at Assembly)
-6			Plug — Drip	-23	3330184	1	Gib
			(See Chart for Locations)	-24	311140	1	Screw — Gib
	220004	3	#0 Size	-25	263354	1	Fitting — Elbow
	77196	2	#1 Size	-26	289100-20	1	Hose
	220003	2	#2 Size	-27	271251	1	Fitting — Tee
-7	115595	1	Bushing — Compression	-28	289100-18	1	Hose
-8	214304	1	Sleeve — Compression	-29	263354	1	Fitting — Elbow
-9	77197	6	Bushing — Tubing	-30	313612	1	Clamp — Wiper
-10	313604	1	Tubing (list)	-31	313611	1	Wiper
-11	115595	1	Bushing — Compression	-32	2369	2	Screw
-12	214304	1	Sleeve — Compression	-33	311149	1	Plate — Base Slide Cover
-13	214303	1	Adapter	-34	2369	8	Screw
-14	115591	1	Gage — Oil Sight	-35	2369	3	Screw
-15	76644	1	Plug — Pipe	-36	313607	1	Wiper
-16	3986	1	Cup — Oil Filler	-37	313608	1	Clamp — Wiper
-17	211167	1	Filler — Oil	-38	14006	1	Nipple — Pipe

LUBRICATION
METERING
UNITS

LINE	DRIP PLUG SIZE
A	NONE
B	#2
C	#1
D	#0
E	#1
F	#2
G	#0
H	#0

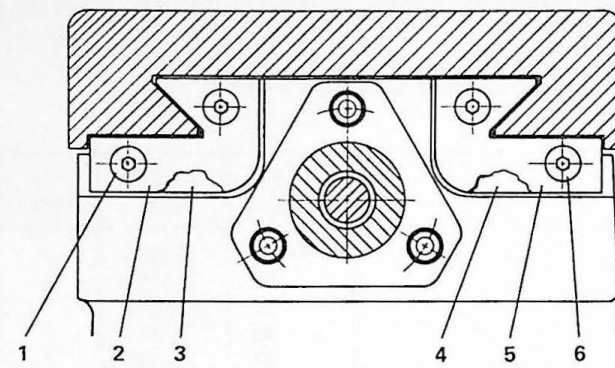
CROSS SLIDE HANDWHEEL
(SEE AB-3)LONGITUDINAL SLIDE HANDWHEEL
(SEE AB-4)

BASE
3152-A01-AB-2

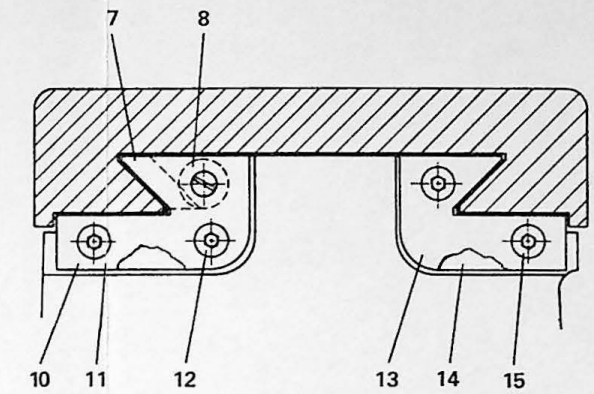
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

BASE UNIT AB

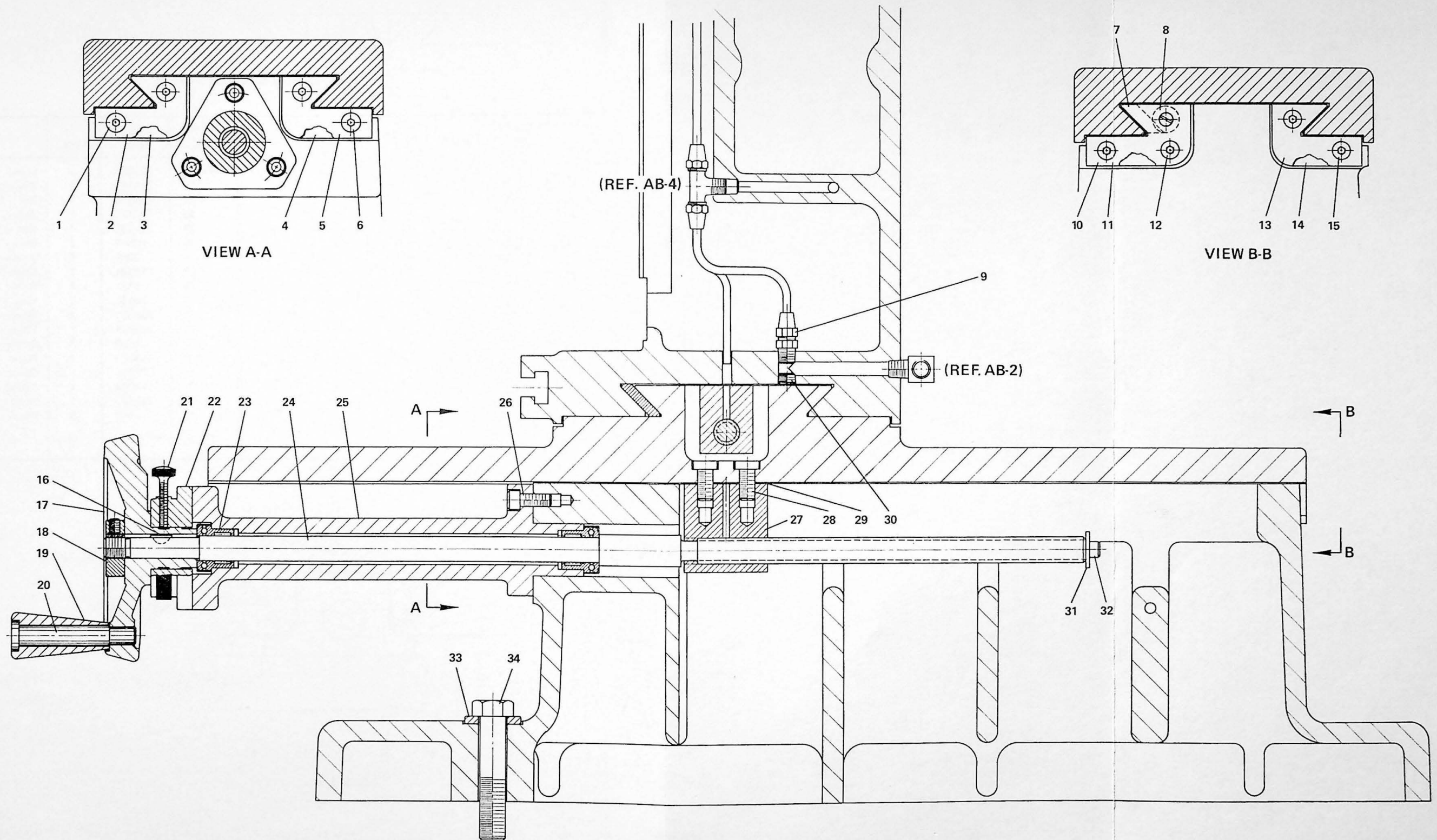
KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AB-3-1	2369	2	Screw	AB-3-19	188285	1	Handle — Handwheel
-2	313614	1	Clamp — Wiper	-20	317715	1	Stud — Handwheel
-3	313613	1	Wiper	-21	77200	1	Screw — Thumb
-4	313613	1	Wiper	-22	115695	1	Dial
-5	313614	1	Clamp — Wiper	-23	311141	2	Bearing
-6	2369	2	Screw	-24	311144	1	Screw — Cross Slide
-7	3330183	1	Gib	-25	311145	1	Bracket — Handwheel
-8	311140	1	Screw — Gib	-26	2386	1	Screw
-9	4014	1	Fitting — Compression	-27	321299	1	Nut
-10	313610	1	Clamp — Wiper	-28	3210	2	Screw
-11	313609	1	Wiper	-29	168173	1	Shim — Laminated
-12	2369	2	Screw	-30	76644	1	Plug — Pipe
-13	313614	1	Clamp — Wiper	-31	116018	1	Washer
-14	313613	1	Wiper	-32	3218	1	Screw
-15	2369	2	Screw	-33	1040	7	Washer
-16	3279	1	Key	-34			Screw
-17	321276	1	Handwheel (With Handle and Stud)		3468	6	5/8" - 11 x 3"
-18	227490	1	Nut — Lock		2140	1	5/8" - 11 x 4-1/2"



VIEW A-A



VIEW B-B



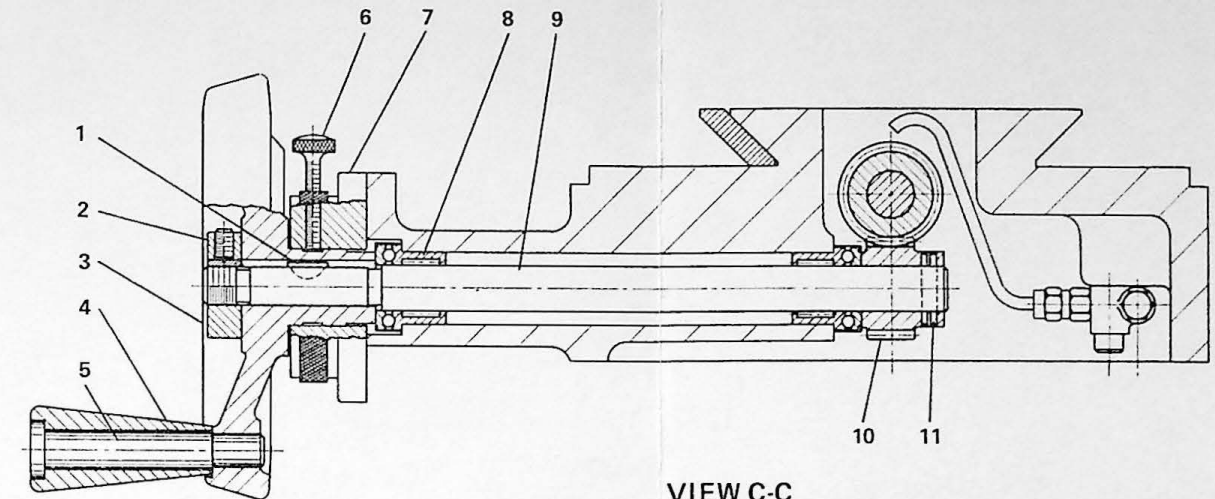
SECTION THROUGH CROSS SLIDE HANDWHEEL

BASE
3152-AOI-AB-3

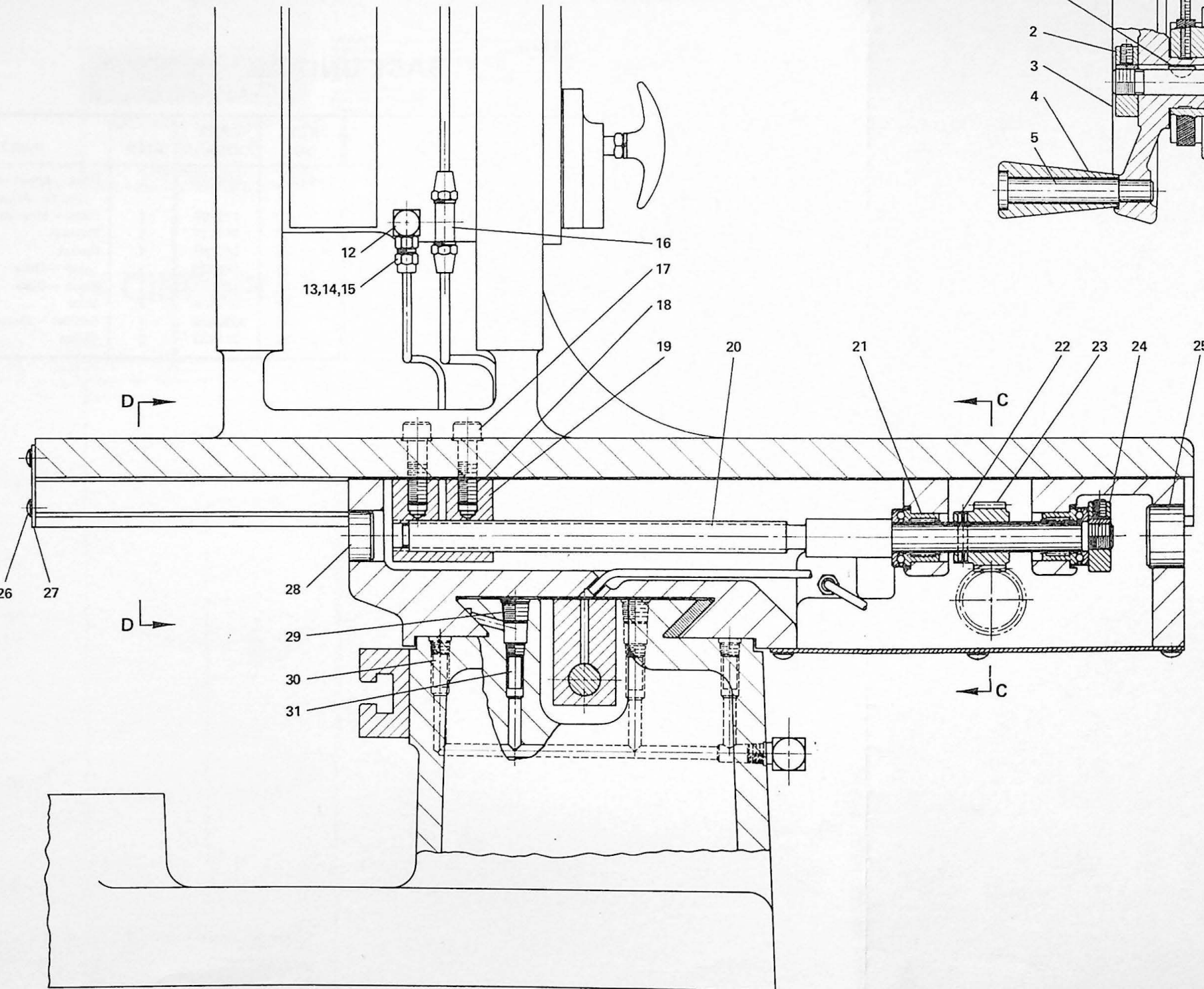
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

BASE UNIT AB

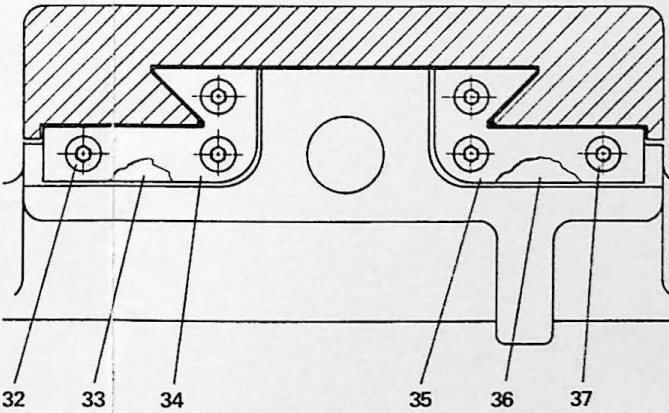
KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AB-4-1	3279	1	Key	AB-4-20	321297	1	Screw — Longitudinal Lead
-2	227490	1	Nut — Lock	-21	311141	2	Bearing
-3	321276	1	Handwheel (With Handle and Stud)	-22	154160	1	Pin — Roll
-4	188285	1	Handle — Handwheel	-23	318173	1	Gear — Spiral
-5	317715	1	Stud — Handwheel	-24	227490	1	Nut — Lock
-6	77200	1	Screw — Thumb	-25	3552	1	Plug
-7	115696	1	Dial — Handwheel	-26	2369	5	Screw
-8	311141	2	Bearing	-27	318191	1	Cover — Column Dovetail
-9	318171	1	Shaft — Longitudinal	-28	3551	1	Plug
-10	318173	1	Gear — Spiral	-29	76645	2	Plug — Pipe
-11	154160	1	Pin — Roll	-30	290951	2	Meter — Insert
-12	77453	1	Elbow — Adapter	-31	293931	2	Meter — Insert
-13	214294	1	Nut — Compression	-32	2369	3	Screw
-14	214304	1	Sleeve — Compression	-33	313607	1	Wiper
-15	220004	1	Plug — Drip #0	-34	313608	1	Clamp — Wiper
-16	70250	1	Fitting — Tee	-35	313608	1	Clamp — Wiper
-17	3400	2	Screw	-36	313607	1	Wiper
-18	168173	1	Shim — Laminated	-37	2369	3	Screw
-19	321298	1	Nut — Longitudinal Feed				



VIEW C-C
SECTION THROUGH HANDWHEEL



SECTION THROUGH LONGITUDINAL SLIDE SCREW



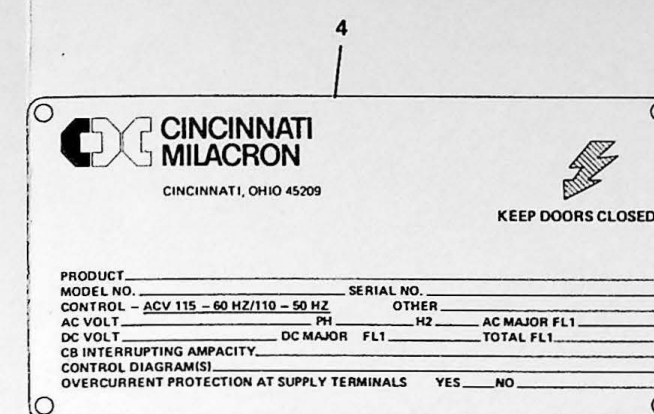
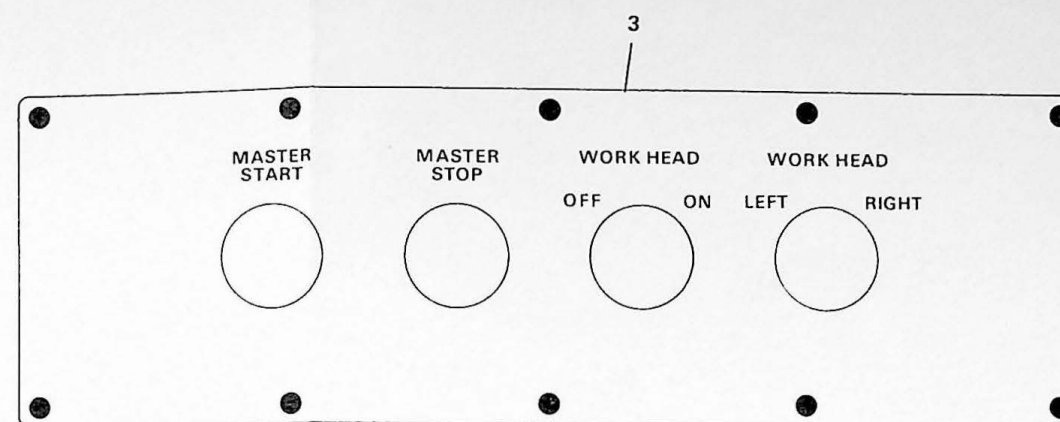
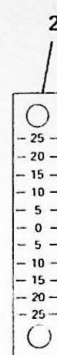
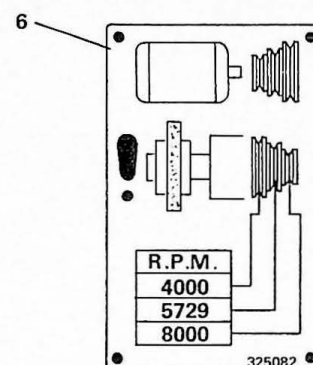
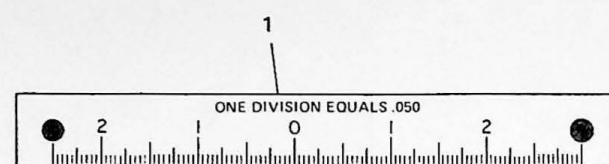
VIEW D-D

BASE
3152-A01-AB-4

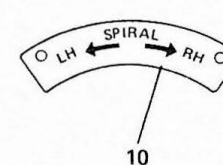
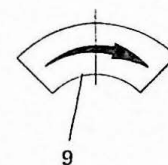
CINCINNATI MONOSET CUTTER AND TOOL GRINDER

BASE UNIT AB

KEY NO.	PART NO.	AMT.	PART NAME	KEY NO.	PART NO.	AMT.	PART NAME
AB-5-1	322284	1	Scale — Offset Slide	AB-5-11	329281	1	Plate — Speed Instruction (Int. Gr. Attach.)
-2	3329292	1	Scale — Wheelhead and Base	-12	170795	1	Plate — Sine-Bar Lead Formula
-3	313605	1	Plate — Push Button Panel	-13	311127	1	Pedestal
-4	321647	1	Plate — Electrical	-14	313606	1	Gasket
-5	3328912	1	Plate — Wheel Warning	-15	186580	1	Latch — Door
-6	325082	1	Plate — Spindle Speed Instruction	-16	129854	1	Knob — Door
-7	321358	1	Plate — Cincinnati	-17	311134	2	Shelf
-8	314155	1	Plate — Information	-18	3333429	1	Cabinet — Electrical
-9	313696	1	Plate — Spindle Rotation	-19	311133	2	Clamp
-10	3329290	1	Plate — Lead Direction				



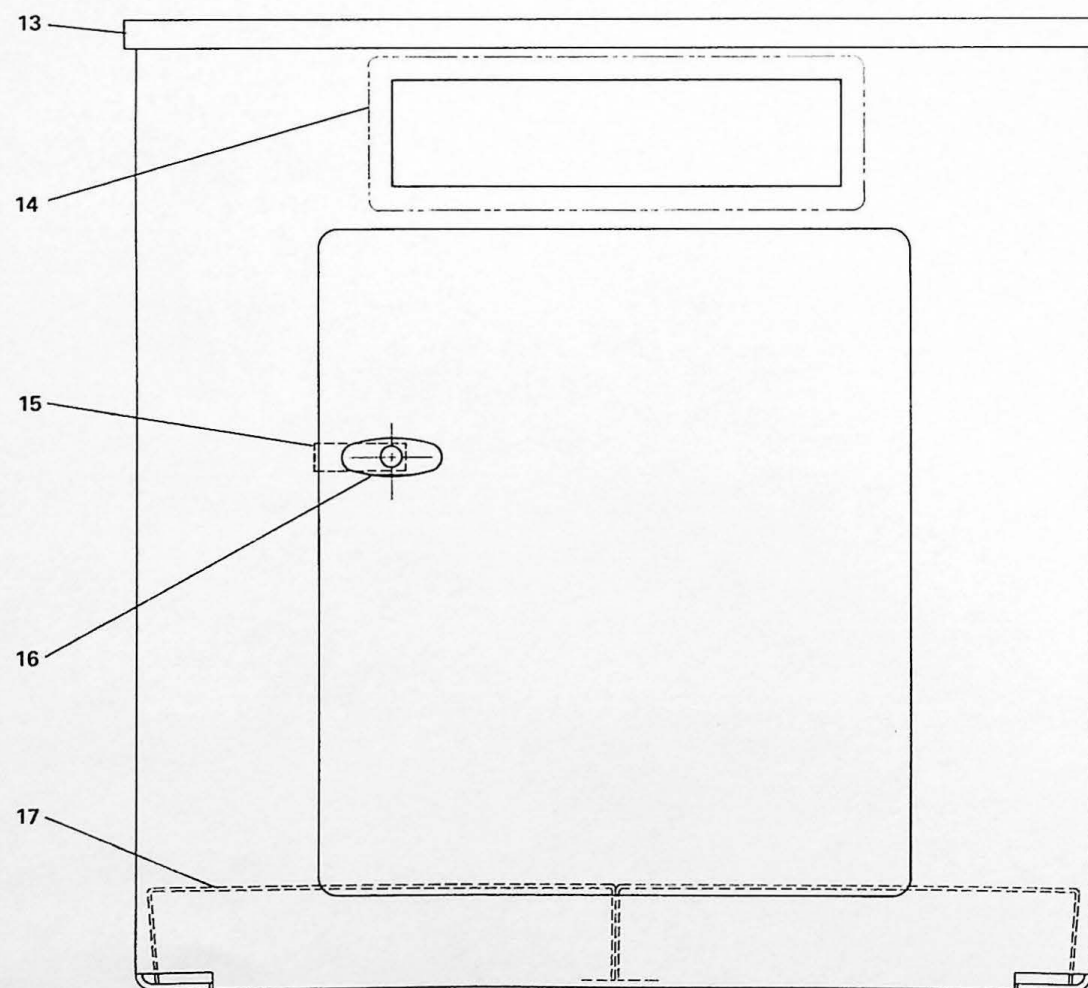
THIS MACHINE EQUIPPED
 WITH HARD CHROME WAYS
 ON THREE SLIDES



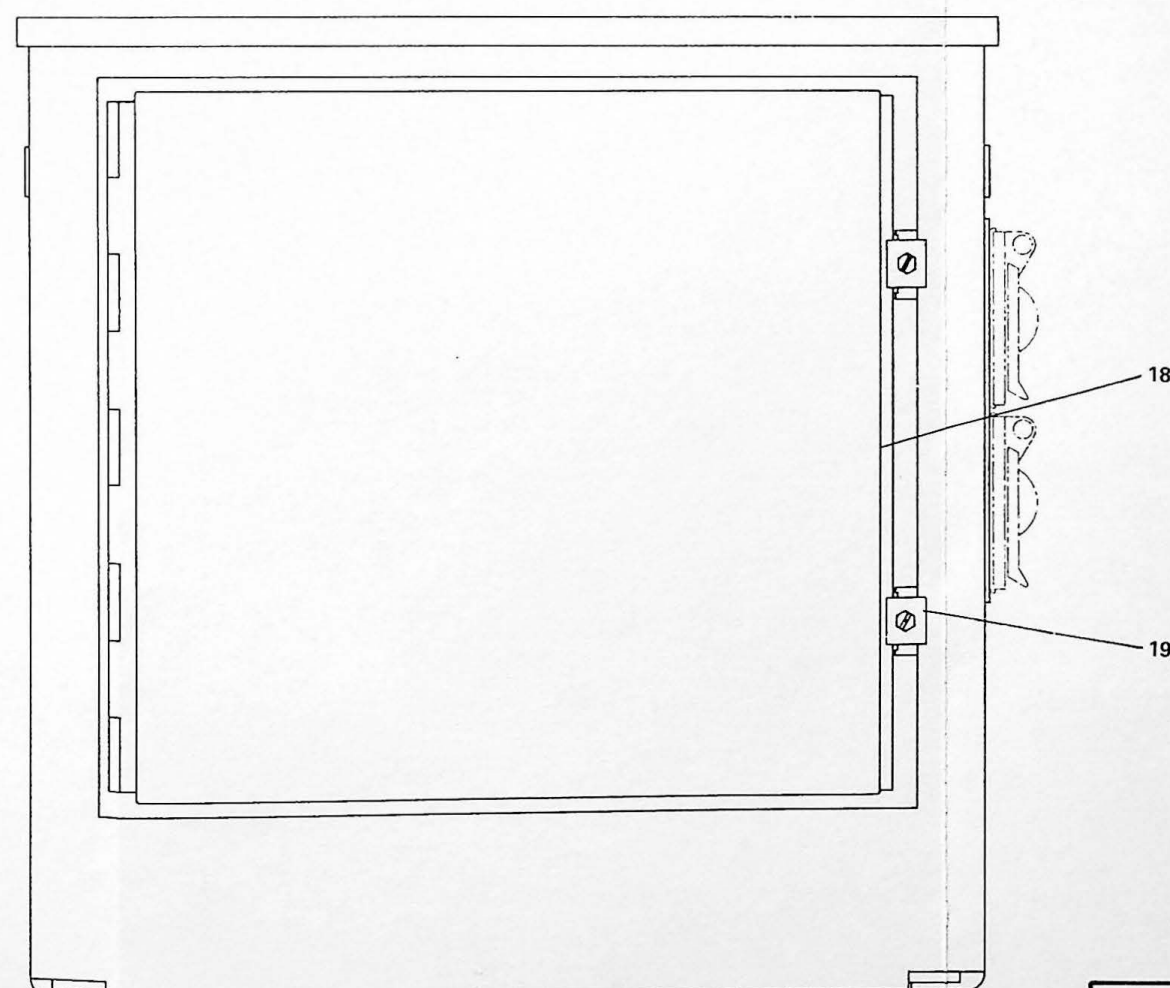
AT MAIN SPINDLE SPEED RPM	INTERNAL GRIND. ATTACH. RUNS AT
8000 RPM	32820 RPM
5729 RPM	23510 RPM
4000 RPM	16410 RPM

LEAD FORMULA TAN SINE BAR = 1.767 LEAD			
LEAD IN INCHES			
SINE BAR ANGLE	SINE BAR ANGLE	SINE BAR ANGLE	SINE BAR ANGLE
1.76	45°0'	6.00	16°25'
2.00	41°28'	6.50	15°13'
2.25	38°9'	7.00	14°10'
2.50	35°15'	7.50	13°15'
2.75	32°43'	8.00	12°27'
3.00	30°30'	8.50	11°48'
3.25	28°32'	9.00	11°7'
3.50	26°47'	9.50	10°32'
3.75	25°14'	10.00	10°1'
4.00	23°50'	10.50	9°33'
4.25	22°38'	11.00	9°8'
4.50	21°28'	11.50	8°44'
4.75	20°24'	12.00	8°23'
5.00	19°28'	12.50	8°3'
5.50	17°49'	13.00	7°44'

MACHINE NAME PLATES



PEDESTAL FRONT VIEW



PEDESTAL REAR VIEW

BASE
3152-A01-AB-5

CINCINNATI MILACRON

Cincinnati, Ohio 45209

Machine Tools
Plastics Machinery
Electronic Controls
Specialty Chemicals
Bonded Abrasives