

Rivet LATHE

INDEX OF ASSEMBLY PRINTS

<u>ASSEMBLY</u>	<u>PRINT NO.</u>
Floor Plan (2 sheets)	1020S
Lever Chuck Closer	1020R-2A
Slide Rest	1020R-9A or '9B
Micro-Gaging Dial	1020S-9T or '9U
Idler	1020S-10A
Drive Mount	1020S-10B
Bed Mount	1020S-10C
Taper Attachment	1020R-11
Headstock (2 sheets & keysheet)	1020S-12
Draw-in spindle	IN1020S
Main Drive	1020S-16F
Power Transfer (C ³ shaft)	1020S-16A
Clutch Shifter	1020S-16B
Clutch	1020S-16C
Drive Control	1020S-16D
Gear Box (2 sheets plus keysheet)	1020S-20
Tailstock	1020R-22
Bed	1020S-23
Idler Gears	1020S-23A & B
Carriage Apron & Saddle	1020S-26-
Coolant Supply	1020S-47
Coolant Drain	1020S-47A
Steady Rest	1020R-53 or 1020S-53A
Micro Stop	1020S-63 or '63A -
Follower Rest	1020R-69
Line Light Box & (Push Button Box)	1020S-73B or '73C
Control Panel	1020S-73T
Control Circuit	1020S-73U
Complete Circuit	1020S-73V
Eccentric Tool Post	1020S-76
Side Mounting Tool Post	1020R-77
Gear Set-up - St'd. metric pitches in millimeter & St'd. set metric translating gears.	

OPERATOR'S INSTRUCTION MANUAL

INTRODUCTION

The 1020S precision toolroom lathe qualifies for the finest metal turning in any toolroom, experimental shop or laboratory. Lasting quality has governed the design and selection of material throughout the lathe. The nature of the lathe should be recognized and every care be taken to maintain the original accuracy and appearance. The wide use of anti-friction bearings, automatic lubrication, hardened and ground steel bedways and safety interlocks greatly simplify the maintenance.

The 1020S precision toolroom lathe is built from unit assemblies which greatly simplify service and repair. The headstock is an integral assembly and may be removed from the bedways. The gear box is an integral assembly and may be removed from the bed enclosure. The drive is an integral assembly and may be removed from the base casting. All parts in the lathe are manufactured to close tolerances and may be replaced without fitting.

The installation, operation and maintenance instructions are made with reference to assembly drawings to clarify the description. At times further information may be required which will gladly be furnished on written request. When writing it is suggested that the serial number of the lathe be included; this information can be taken from the serial number plate mounted at the front right-end of the lathe bed.

INSTALLATION INSTRUCTIONS

RECEIVING AND UNPACKING

If any damage is noticed to packaging, machine or parts call representative of delivering carrier to inspect condition before removing crate or taking parts from boxes and enter claim against the transportation company. The shipper holds receipt in good order for the entire consignment.

Carefully unpack, using nail puller for removing crate, box covers and braces. Avoid jarring machine when doing this. Leave the machine mounted on the skid until it has been finally located. Check all items against packing list. If any shortage exists, re-examine packing material before discarding. Small pieces may easily be lost unless all excelsior and wrapping paper is thoroughly overhauled. Immediately report any shortage or discrepancies.

Remove slushing grease using fresh cotton waste or cloth with gasoline or kerosene. Immediately go over all ground, polished and scraped surfaces with an oily rag.

SETTING UP

Machine should be close to its location on its skid. remove wooden clamps from skid, and slide lathe off skid using rollers. Lifting hooks can be used on headstock end of base, remove panel #34, to expose lip for lifting hooks. Place machine on concrete or solid foundation.

Level machine using precision level lengthwise and crosswise on bedways. Lengthwise the level should be tested at both the headstock and tailstock ends of each flat surface. Crosswise the level should rest on two precision parallels each mounted on the flat surfaces of the bedways; the parallels should be of sufficient thickness so the level clears bedway vees. Level directly in front of the headstock and at the extreme tailstock end. Four levelling jacks with jack pads provide adjustment and eliminate the necessity of shims. All readings on level should be within .0005" per foot.

ASSEMBLING

1. Release carriage from bedway by relieving binder stud #13
2. Install draw-in spindle #2 if collets are to be used.
When not in use draw-in spindle fits in bracket provided on side of tool cabinet.
3. Install dial indicator #11 on bracket at left end of carriage.

WIRING

Machine is wired in accordance with wiring diagrams located on the inside of the electrical panel door. Before connecting lead wires to terminal box at left-rear of lathe base, be sure that disconnect line switch #16 on electrical compartment door is in OFF position. Connect lead wires per wiring diagram. Be sure leads are connected so that lathe spindle turns counter-clockwise when FORWARDED push button #25 is depressed.

Pilot light #17 indicates when disconnect line switch is in ON position and power is available to the drive.

INITIAL OILING

Headstock, gear box and carriage are self-lubricating. Check the oil level in the gauge glass provided on each assembly and if the oil is not to proper level follow instructions under LUBRICATION, Page 7. Carriage automatic lubrication also lubricates the bedways.

Tailstock is provided with three oil cups one for each of the bedways and one for the spindle. These oil cups should be filled with SAE-20 lubricating oil.

FILLING COOLANT SYSTEM (Optional)

The coolant tank mounts on a hinged door at the rear of the machine base. To open the hinged door first lift the drain tube in the sump of the machine base and then remove two locking screws on the door. The coolant reservoir can be filled through the drain stand-pipe. The maximum capacity of the coolant tank is six gallons.

The coolant pump is driven by a vertically flange-mounted motor controlled by push-buttons #18 on the front of the base.

OPERATION INSTRUCTIONS

MAIN DRIVE

The drive consists of a 3 HP or 5 HP (as specified) motor, Worthington Allspeed Drive and countershaft with multi-disc clutch to select one of two drives to the headstock. The main drive motor is controlled by FORWARD, REVERSE and STOP pushbuttons at the front of the lathe #25, #26 and #27. The input shaft on the Worthington Allspeed Drive is directly coupled to the main drive motor. The output shaft of the Worthington Allspeed Drive is directly coupled to the countershaft. The speed of the output shaft of the Worthington Allspeed drive is varied by changing the pitch diameter of two sets of vee belt sheaves. A small, geared motor is used to vary the clutch pitch of the sheaves. The push-buttons marked FAST and SLOW at the front of the lathes #29 and #28 control the output speed of the drive. The speed of the lathe spindle, indicated on the tachometer #7, may be changed to any desired speed by operating the FAST or SLOW push-buttons. Speed changes cannot be made unless main drive motor is running. The countershaft has two output driving sheaves, one for driving the headstock spindle in open belt and one for driving the headstock spindle in back gears. The selecting clutch is operated by lever #33 with three positions OPEN BELT - NEUTRAL - BACK GEAR.

HEADSTOCK

The spindle may be driven by direct belting or through back gearing. Two sets of back gearing are used to provide a spindle speed range from 22 to 400 rpm. Lever #6 on the front of the headstock selects the spindle drive; it has three positions OPEN BELT - 1ST BACK GEAR - 2ND BACK GEAR - with neutral between each. To drive the spindle through back gears, lever #33 operating the countershaft should be positioned in BACK GEAR and the control knob #6 on the headstock should be positioned in either 1ST BACK GEAR for speeds from 44 to 400 rpm or in 2ND BACK GEAR for speeds from 22 to 200 rpm. To drive the spindle through open belting the lever #33 controlling the countershaft should be in position OPEN BELT and the control knob #6 on the headstock should be positioned in OPEN BELT. The spindle may be stopped by moving the lever #33 controlling the countershaft to NEUTRAL or by pushing the STOP push-button #27. The main drive motor stops instantaneously by action of integral motor brake.

To lock headstock spindle when mounting spindle nose attachments, engage knob #6 in back gear position. (Disregard knob #5 on drawing 1020S and section "BB" on drawing 1020S-12 Sheet #2).

SPINDLE NOSE ATTACHMENTS

These mount on long taper key-drive spindle nose, American Std. #10. Locking nut #9 is turned clockwise to draw-up and lock face plates, jaw chucks or other attachments to the keyed long taper of the spindle nose. A spanner wrench is provided and may also be used for tightening draw-in spindle.

COLLETS

Rivett 6R draw-in type collets with round hole capacity up to 1-1/8" mount directly in the spindle mouth and are operated by draw-in spindles or by lever chuck closer if furnished.

GEAR BOX

The mechanism is driven through gearing from the headstock controlled by knob #8 on the front of the headstock. This knob has three positions: FEED - NEUTRAL - THREAD. When the gear box is used for power turning this lever is located at FEEDS. When the gear box mechanism is used for threading this lever is located at THREAD, WHEN the gear box mechanism is not required this lever is located at NEUTRAL.

TO SELECT FEEDS

1. Turn control knob #8 to FEEDS position.
2. Note setting of gear box controls for desired feed from chart #37 on front of gear box.
3. Turn selector locking lever #31 counter-clockwise to neutral detented position.
4. Turn selector dial #32 to match desired number with pointer.
5. Turn selector locking lever #31 clockwise as far as it will go to lock selector dial.
6. Turn control knob #35 to A1, A2 or A3 position as indicated by chart.
7. Turn control knob #36 to B1 or B2 position as indicated by chart.
8. Turn control knob #30 to R.H. for power longitudinal feed, in this position the feed rod will drive the carriage from right to left with the headstock spindle running counter-clockwise.
9. Turn control knob #30 to L.H. for power cross feed, in this position the feed rod will drive the cross slide in to reduce stock diameter.

TO SELECT THREADS

1. Drive headstock spindle at proper speed.
2. Turn control knob #8 to THREAD position.
3. Note setting of gear box controls for desired thread from chart #37 on front of gear box. If desired thread is not on chart see Instructions for Special English or Metric Threads, Page 6.
4. Turn selector locking lever #31 counter-clockwise to neutral detented position.
5. Turn selector dial #32 to match desired number with pointer.
6. Turn selector locking lever #31 clockwise as far as it will go to lock selector dial.
7. Turn control knob #35 to A1, A2 or A3 position as indicated by chart.
8. Turn control knob #36 to B1 or B2 position as indicated by chart.
9. Turn control knob #30 to R.H. for right-hand threading or to L.H. for left-hand threading.

CARRIAGE

Carriage locks to lathe bed by stud #13. Lathe is shipped with carriage in locked position. Be sure to release the carriage clamp when setting-up lathe. Test free movement of carriage by using handwheel #24. Clutch #23 may be pulled to release handwheel from gear train. Be sure stops #19 are not locked to stop rod to interfere with desired carriage travel.

Lever #22 on front of apron operates clutch for power longitudinal feed. Horizontal position is neutral and lever may be moved up or down for engaging clutch.

Lever #21 on front of apron operates clutch for power cross travel. Horizontal position is neutral and lever may be moved up or down to engage clutch. Control knob #30 must be in L.H. position for power infeed.

Lever #15 engages the half-nuts with the lead screw for threading operations. An interlock prevents engagement of the half-nuts and the power longitudinal feed at the same time.

COMPOUND AND CROSS SLIDE

The screws have dials graduated in thousandths of radius. The swivel is graduated 180° either side of zero and is locked in position by two binder nuts. The cross slide may be locked by clamping nut located to the rear of the compound swivel.

The cross slide feed screw has adjustable ball stop for retracting and resetting threading tool without losing the micrometer reading. The ball stop is locked in position by knurled screw #12. This provides a positive stop and limits the revolution of the cross slide feed screw to three turns.

THREADING DIAL

The dial mounts on the face of the carriage apron indicated by #14. Threads with the lead divisible by six do not require the use of the threading dial as the half-nuts may be engaged at any point. For all other even whole threads, the half-nuts may be engaged on any number of the threading dial. For all odd whole threads, the half-nuts must be engaged on alternate numbers of the threading dial, namely 1, 3 and 5 or 2, 4 and 6. For all fractional threads, the threading dial cannot be used; the half-nuts must be kept engaged.

DIAL INDICATOR CARRIAGE STOP

The stop assembly consists of an adjustable rod with micrometer stop #10 mounted at the front base of the headstock and dial indicator #11 mounted on the end face of the carriage apron. The dial indicator is graduated to register in thousandths.

ELECTRIC CARRIAGE CONTROL (optional)

This mechanism is used when chasing threads to control the travel of the carriage in either or both directions. Stops #19 are set for the desired travel of the carriage. Knurled screw #20 provides final adjustment. Work rotation is stopped automatically at each end of the carriage travel. The carriage travel is reversed by pushing the FORWARD or REVERSE push-button #25 or #26.

SPECIAL ENGLISH OR METRIC THREADS

Special threads not listed on chart #37 are cut using pick-off gears between headstock and gear box. Quadrant on which pick-off gears mount is located at the end of the headstock and gear box. To gain access to quadrant remove guard #4 at left-end of headstock and plate #1 at left-end of gear box. To remove guard #4 first remove spindle handwheel assembly #3 which is held by nut and compression sleeve.

TAPER ATTACHMENT (optional)

The taper attachment when furnished is fastened to the rear and becomes a fixed part of the carriage. See assembly print #1020R-11. To set taper, loosen binder nuts #19A at each end of the slide, turn stud #5 until slide is at desired taper measured either in degrees or in inches per foot, lock binder nuts #19A. Fasten clamp #25 to the rear of the bed and lock rod #1 between clamp and taper attachment lower slide. Loosen clamping nut #19B on the rear of the taper attachment top plate and tighten clamping bolt #32 on the cross slide, see assembly print #1020R-9A.

When the taper attachment is not in use the slide should be locked at zero taper and the rod #1 and clamp #25 which locks the taper attachment to the lathe bed should be removed. Tighten clamping nut #19B on the rear of the taper attachment top plate and loosen clamping bolt #32 on the cross slide, see assembly print #1020R-9A.

MAINTENANCE INSTRUCTIONS

LUBRICATION

The headstock is automatically lubricated; however care should be taken to maintain the oil at the level indicated by the gauge glass on the front of the machine. To introduce oil to the headstock remove cover plate #36. Use SAE-40 lubricating oil. The headstock should be drained and flushed once a year, the drain cock is located at the rear of the lathe.

The gear box is automatically lubricated; however care should be taken to maintain the oil at the level indicated by the gauge glass at the front of the lathe. To fill the gear box remove plate #1 at the left-end of the lathe which gives access to a large filler cup. Use SAE-40 lubricating oil. The gear box should be drained and flushed once a year, use drain cock at the rear of the lathe.

The carriage is automatically lubricated; however care should be taken to maintain the oil at the level indicated by the gauge glass on the front of the apron. Use SAE-40 lubricating oil. An oil cup adjacent to the gauge glass on the front of the apron is furnished for filling the reservoir. The carriage reservoir should be drained and flushed once a year, the drain plug is at the base of the apron.

The tailstock is provided with three oil cups one for each of the bedways and one for the spindle. Use SAE-20 lubricating oil and apply once a week.

The Worthington Allspeed Drive requires periodic lubrication. Four points should be oiled once a month or once every 200 hours of actual service. Two thrust bearings should be repacked with grease once a year. See instructions on Drive Plate.

Motor has grease-packed ball bearings which should be re-lubricated once a year. A panel in the rear of the base at the tailstock end gives access to the motor.

CARRIAGE GIB

The straight gib is adjusted with four gib screws with locking nuts to hold the adjustment. There should be a free sliding fit between the carriage gib and the hardened "steelway" bed.

CROSS SLIDE GIB

This straight gib is adjusted with five gib screws having locking nuts to hold the adjustment.

COMPOUND SLIDE GIB

This straight gib is adjusted by three gib screws with locking nuts to hold the adjustment.

LEAD SCREW HALF-NUT GIB

From the right-end of the carriage apron three gib screws with locking nuts can be adjusted to compensate the wear in the slide carrying the half-nuts.

LONGITUDINAL AND CROSS FEED CLUTCHES

A slotted nut on the front of each clutch housing adjusts the tension between the clutch faces. Clockwise adjustment of the slotted nut increases the clutch tension.

FEED ROD AND LEAD SCREW

End play may be adjusted. Adjustment on each is the same; remove the end-plate from the bearing housing at the right-end of the bed and take up on the adjusting nuts. Lock the adjustment with leaf of winged washer and replace end-plate.

CROSS SLIDE NUT

The back-lash between the cross slide screw and nut can be adjusted to compensate for wear; see assembly print 1020R-9B. Lift hinged chip guard #40. Loosen check nut #24, and turn backlash nut #23 until all play is removed between screw and nut. Lock adjustment with check nut #24.

For lathe with taper attachment see assembly print 1020R-9A. Taper attachment connecting arm #22 interferes with adjustment, therefore taper attachment and connecting arm must be removed. Thereafter the adjustment is the same as outlined in preceding paragraph.

COMPOUND SLIDE REST NUT

This nut is adjustable to compensate for wear; see assembly print #1020R-9A or 9B. Remove bearing collar #7 or #13 held by four Allen cap screws #53 or #63; push top-slide to the rear exposing feed screw and nut. Loosen check nut #24, and adjust the backlash nut #21 by turning counter-clockwise until all play between feed screw and feed screw nut is eliminated. Lock adjustment by tightening check nut #24.

MAIN DRIVE CLUTCH

The instructions for adjusting the multi-disc clutch are imprinted on a plate fastened to the c'shaft bracket. Remove left-end plate from the lathe base to read instructions and to make adjustments.

WORTHINGTON ALLSPEED DRIVE

The instructions on lubrication, tension of vee belt and installation of new belts are detailed on page 10.

DRIVE BELTS

Two sets of three matched endless vee belts drive headstock. Each set of belts is individually tensioned by adjusting idler. Remove plate #1 at left-end of lathe to reach idlers.

MOTOR BRAKE

A star B2-3 (three disc) brake motor is furnished for the main drive. The brake is an integral part of the motor. After prolonged use, slight wear of the brake linings may occur and require adjustment. To simplify adjustment remove electrical panel box from tailstock end of base. This is done by removing flat head screws holding flange of control box to base casting. Disconnect wiring on terminal strips and remove panel box. Brake end of motor is thus exposed. To adjust, follow printed instructions filed with wiring diagram on the inside of the electrical panel door.

WORTHINGTON PUMP AND MACHINERY CORPORATION

MODEL "C" ALLSPEED DRIVE PARTS

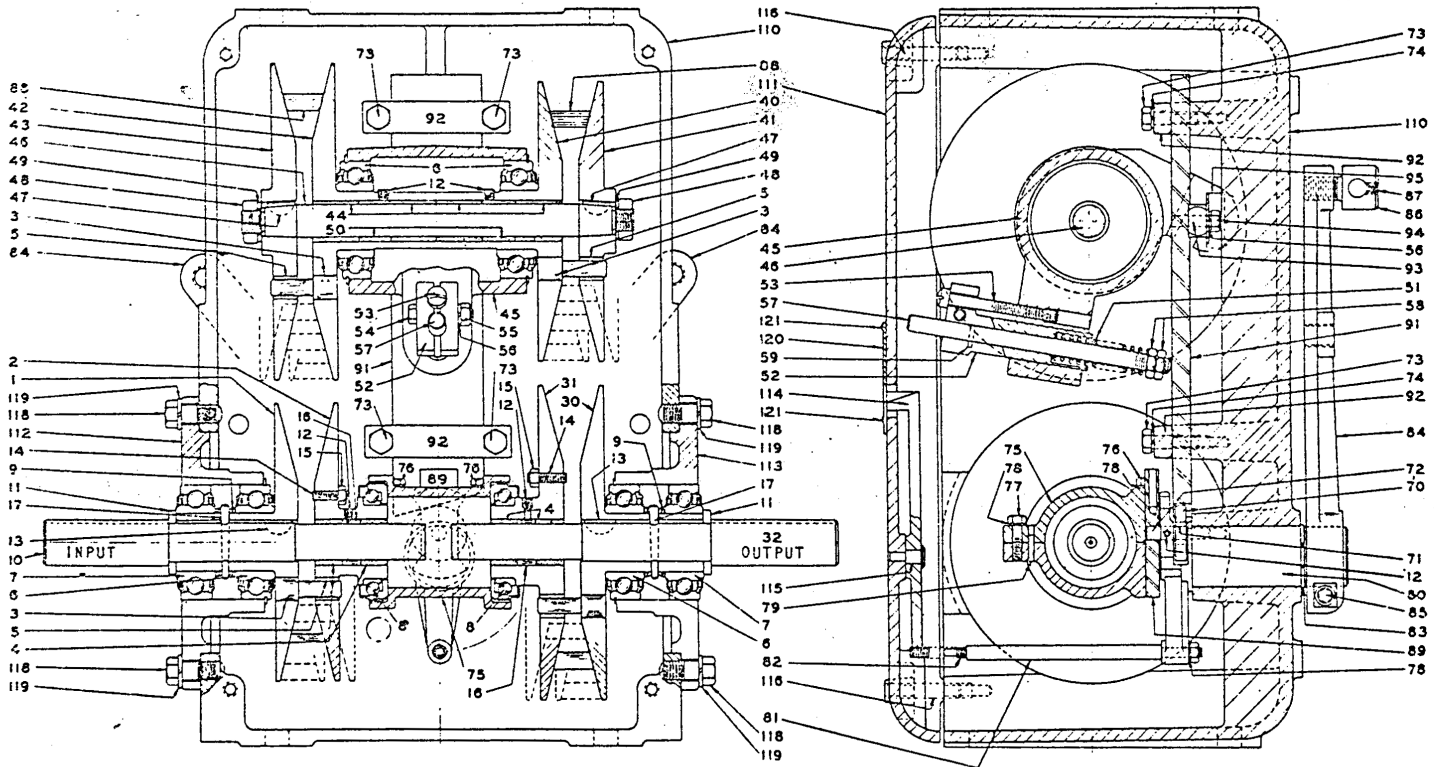
Input Shaft Assembly Complete			Total	Output Shaft Assembly Complete			Total
Part No.	Input Shaft Assembly Parts	No. Req.		Part No.	Output Shaft Assembly Parts	No. Req.	
1	First Driver Stationary Flange	- 1		3	Flange Driving Stud	- 3	
2	First Driver Shiftable Flange	- 1		4	Bushing	- 2	
3	Flange Driving Stud	- 3		5	Bushing	- 3	
4	Bushing	- 2		6	Ball Bearing with Snap Ring	- 1	
5	Bushing	- 3		7	Ball Bearing	- 1	
6	Ball Bearing with Snap Ring	- 1		8	Ball Bearing (Thrust)	- 1	
7	Ball Bearing	- 1		9	Bearing Spacer	- 1	
8	Ball Bearing (Thrust)	- 1		12	Set Screw	- 1	
9	Bearing Spacer	- 1		13	Woodruff Key	- 1	
10	Input Shaft with Collar (II)	- 1		14	Speed Limiting Screw	- 1	
12	Set Screw	- 1		15	Speed Limiting Locknut	- 1	
13	Woodruff Key	- 1		16	Felt Strip	- 1	
14	Speed Limiting Screw	- 1		17	Taper Pin	- 1	
15	Speed Limiting Lock Nut	- 1		30	Second Driven Stationary Flange	- 1	
16	Felt Strip	- 1		31	Second Driven Shiftable Flange	- 1	
17	Taper Pin	- 1		32	Output Shaft with Collar (II)	- 1	

Jackshaft Assembly Complete			No. Req.	Control Yoke Assembly Complete			No. Req.
Part No.	Jackshaft Assembly Parts	No. Req.		Part No.	Control Yoke Assembly Parts	No. Req.	
3	Flange Driving Stud	- 6		12	Set Screw	- 1	
5	Bushing	- 6		15	Hex Nut	- 1	
6	Ball Bearing with Snap Ring	- 2		70	Cam Roller	- 1	
12	Set Screw	- 2		71	Cam Roller Bushing	- 1	
40	Second Driver Stationary Flange	- 1		72	Cam Roller Pin	- 1	
41	Second Driver Shiftable Flange	- 1		78	Lockwasher	- 1	
42	First Driven Stationary Flange	- 1		80	Control Yoke	- 1	
43	First Driven Shiftable Flange	- 1		81	Control Yoke Extension	- 1	
44	Bushing	- 4		82	Control Yoke Extension Spring	- 1	
45	Jackshaft Housing	- 1		83	Control Yoke Snap Ring	- 1	
46	Jackshaft	- 1					
47	Woodruff Key	- 2					
48	Hex Jam Nut	- 2					
49	Lock Washer	- 2					
50	Felt Strip	- 2					
51	Belt Tension Indicator Spring	- 1					
52	Belt Tension Indicator Gland	- 1					
53	Belt Tension Adjusting Screw	- 1					
54	Cap Screw-Hex Head	- 1					
55	Hex Nut	- 1					
56	Lockwasher	- 3					
57	Belt Tension Indicator Rod	- 1					
58	Hex Jam Nut	- 2					
59	Groov-Pin	- 1					

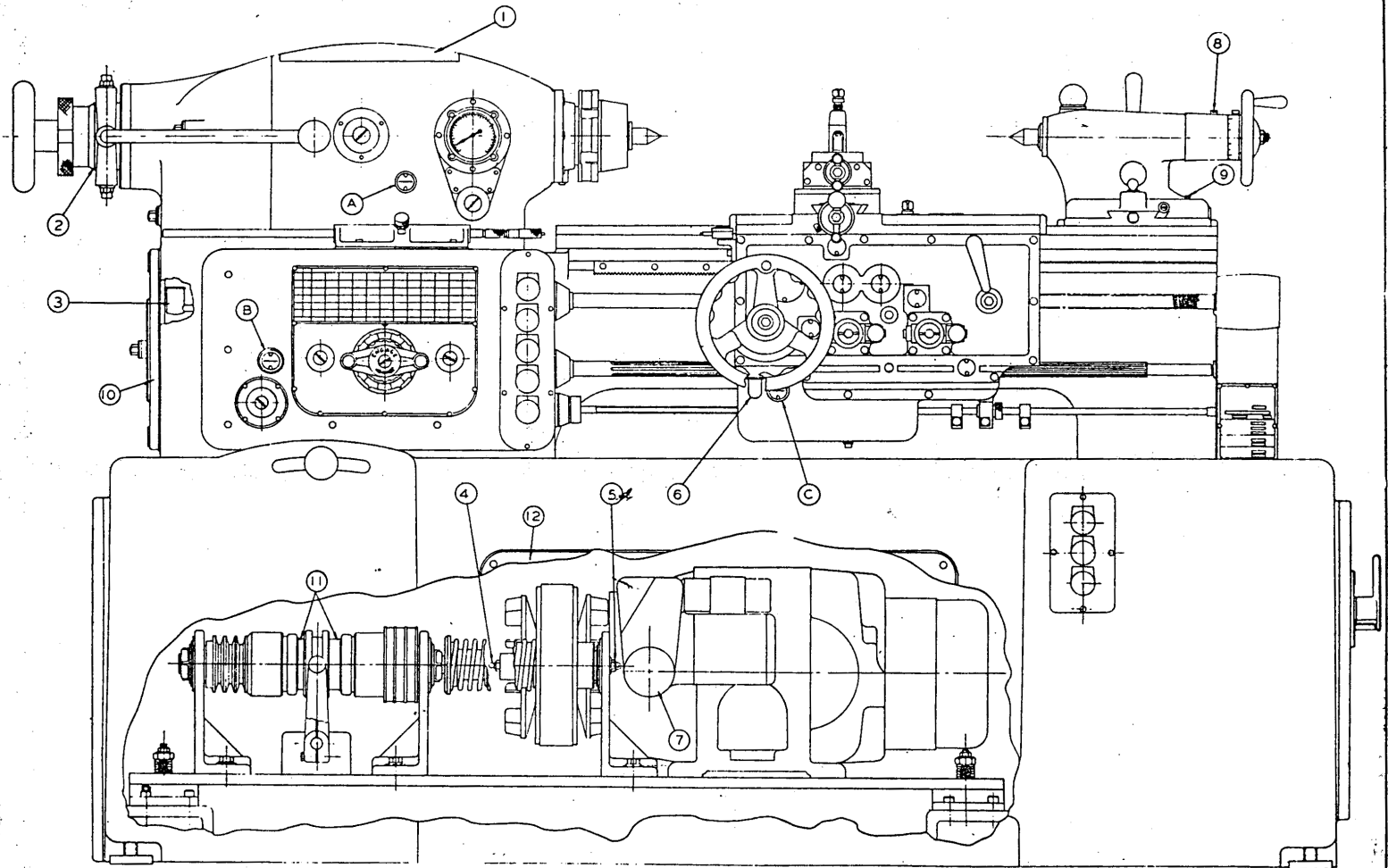
Housing Assembly Parts

Part No.	No. Req.	Part No.	No. Req.
73	- 4	93	- 1
74	- 4	94	- 2
75	- 1	95	- 1
76	- 2	110	- 1
77	- 1	111	- 1
78	- 3	112	- 1
79	- 3	113	- 1
84	- 1	114	- 1
86	- 1	115	- 1
87	- 1	116	- 4
89	- 1	118	- 10
91	- 1	119	- 10
92	- 2	120	- 1
		121	- 5

All shipments are F.O.D., Holyoke, Mass. When ordering, give serial number of Drive.

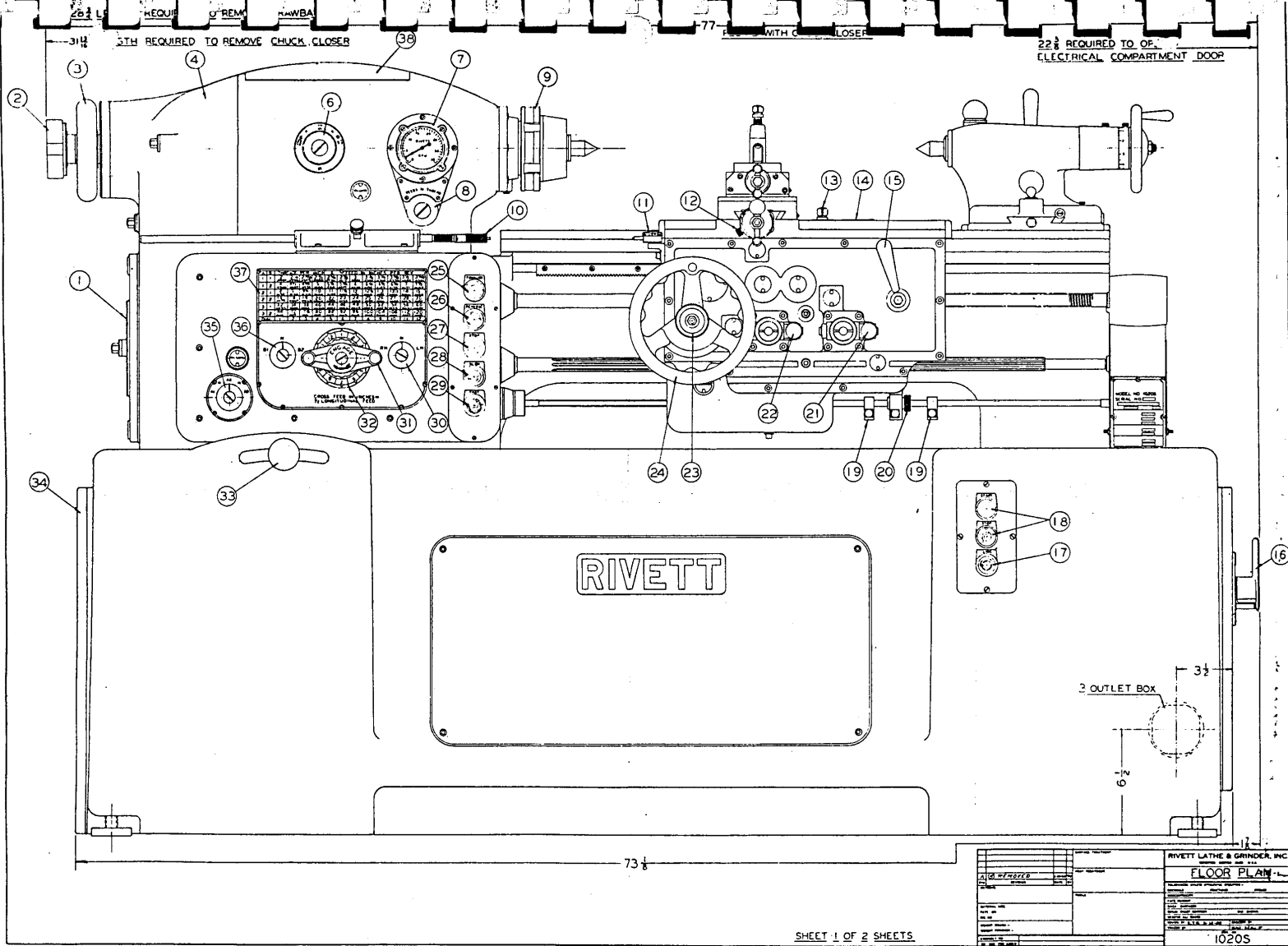


ALLSPEED DRIVE - MODEL C
 GENERAL ASSEMBLY FOR PARTS LIST



01

DATE: _____ DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____		INVENT LARNE & COMPANY, INC. LUBRICATION DIAGRAM PART NO. 1020S-L REV. _____
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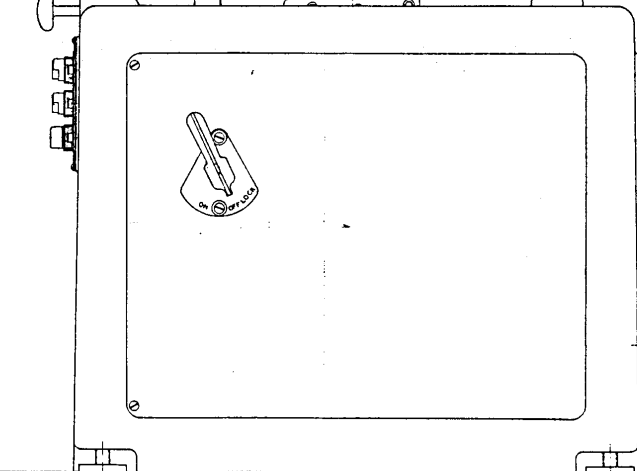
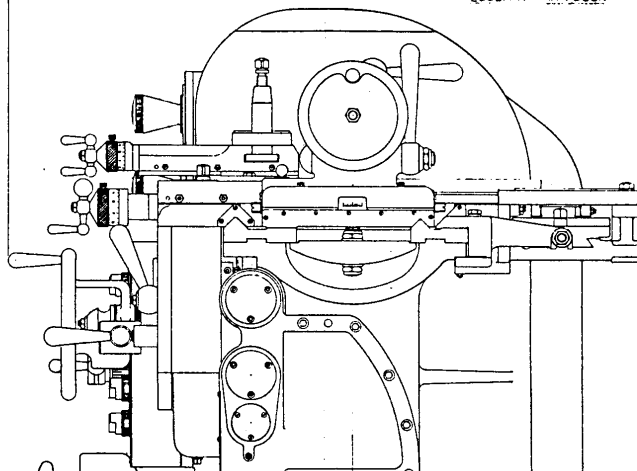
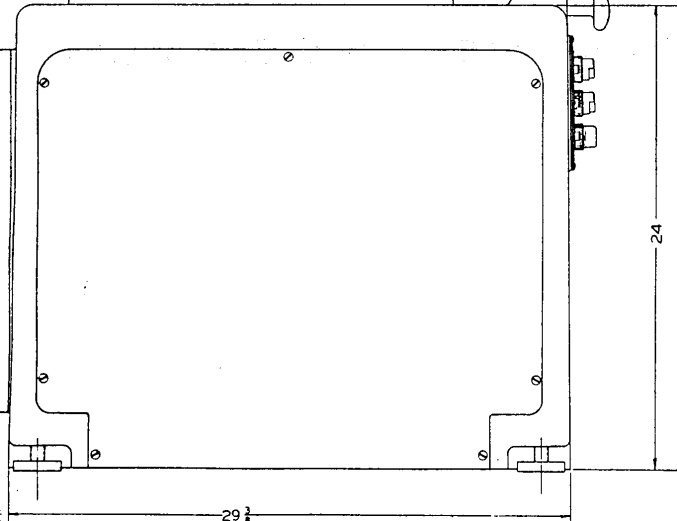
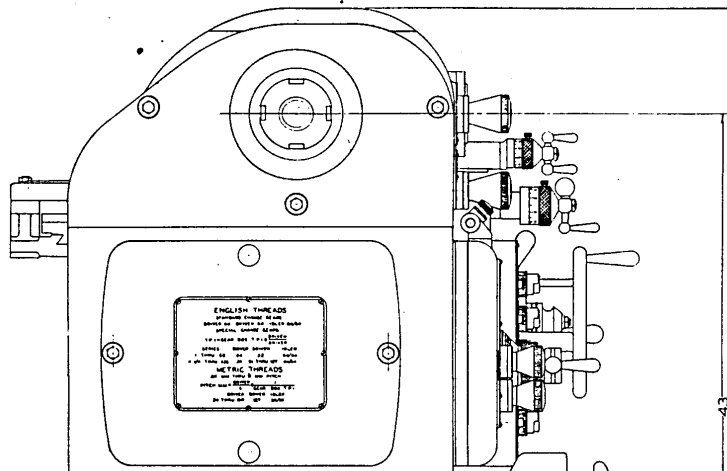


RIVETT LATHE & GRINDER, INC.	
FLOOR PLAN	
Model No. 1020S	Serial No. _____
Machine No. _____	Customer No. _____
Machine Name _____	Customer Name _____
Machine Location _____	Customer Address _____
Machine Date _____	Customer City _____
Machine Status _____	Customer State _____
Machine Price _____	Customer Zip _____
Machine Weight _____	Customer Phone _____
Machine Dimensions _____	Customer E-mail _____
Machine Options _____	Customer Signature _____
Machine Notes _____	Customer Date _____

SHEET 1 OF 2 SHEETS

1020S

30 REQUIRED TO OPEN COOLANT TANK DOOR



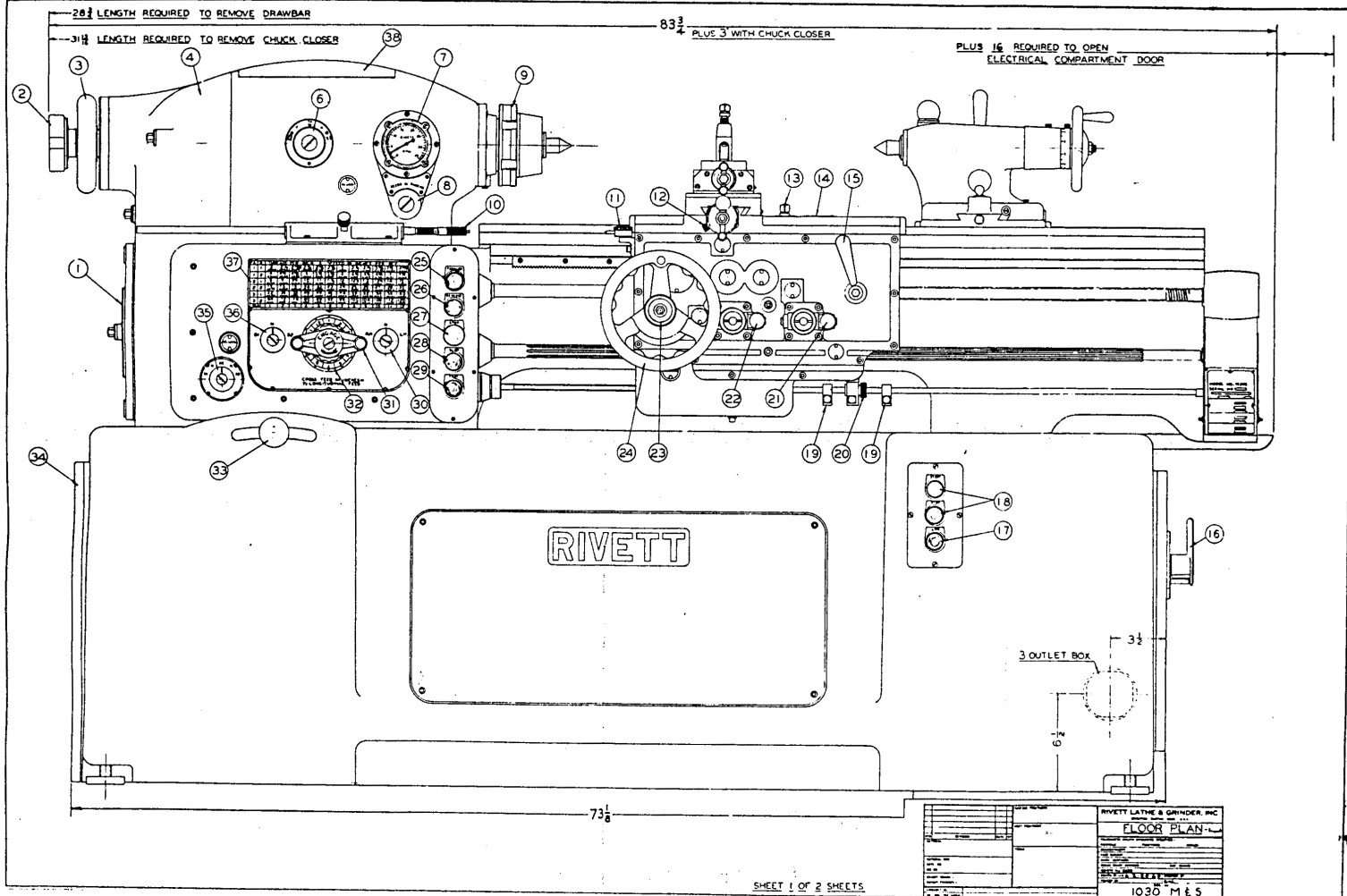
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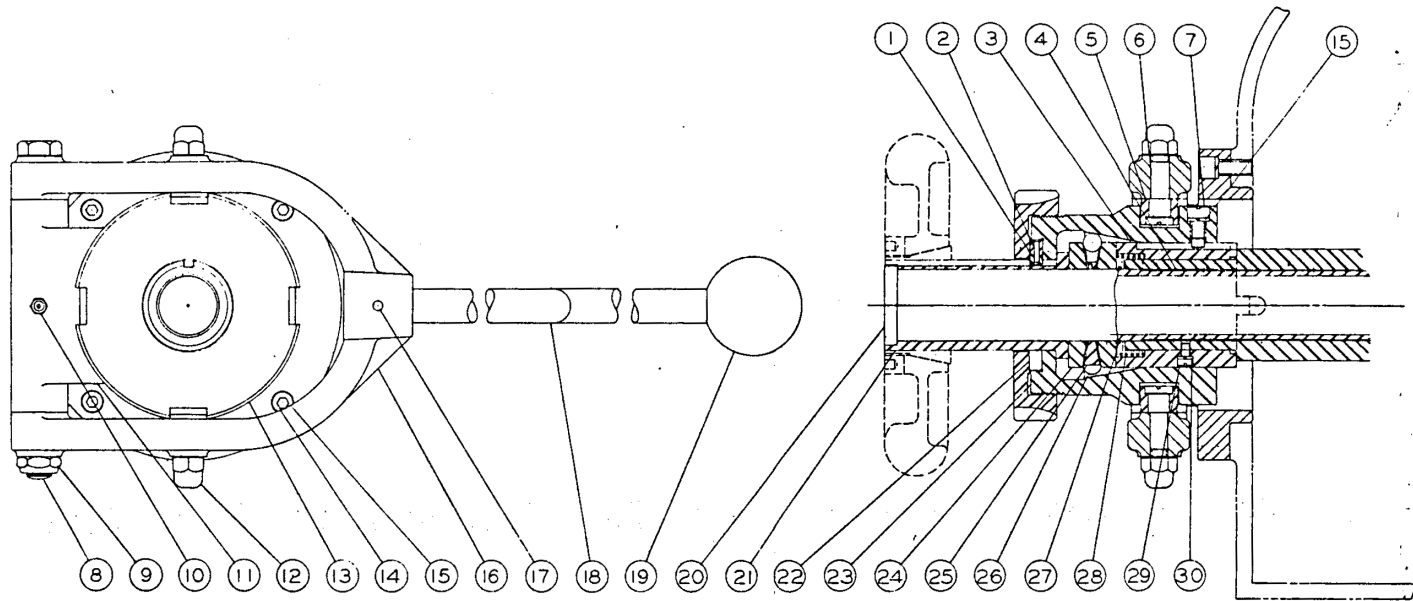
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24

29

DATE: _____ TIME: _____ BY: _____ TITLE: _____ DEPT.: _____ WORK NO.: _____ PROJECT NO.: _____	DRAWING NO.: _____	RIVETT LATHE & GRINDER, INC. 10205
	FLOOR PLAN	
	A. FIRST	
	B. SECOND	
	C. THIRD	

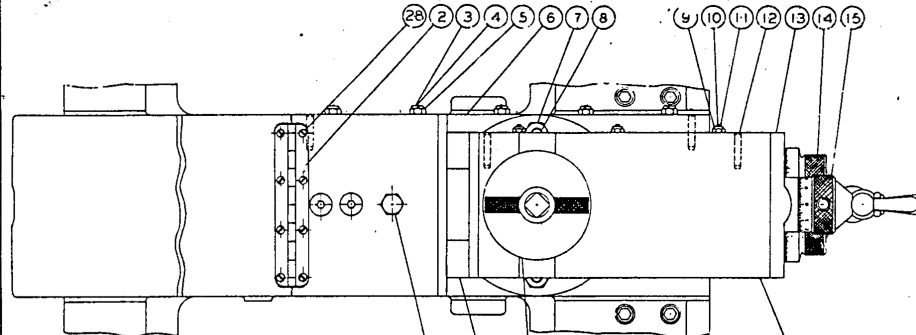




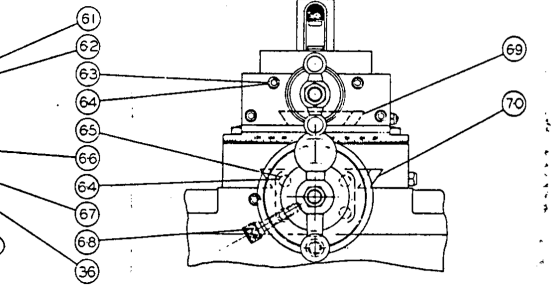
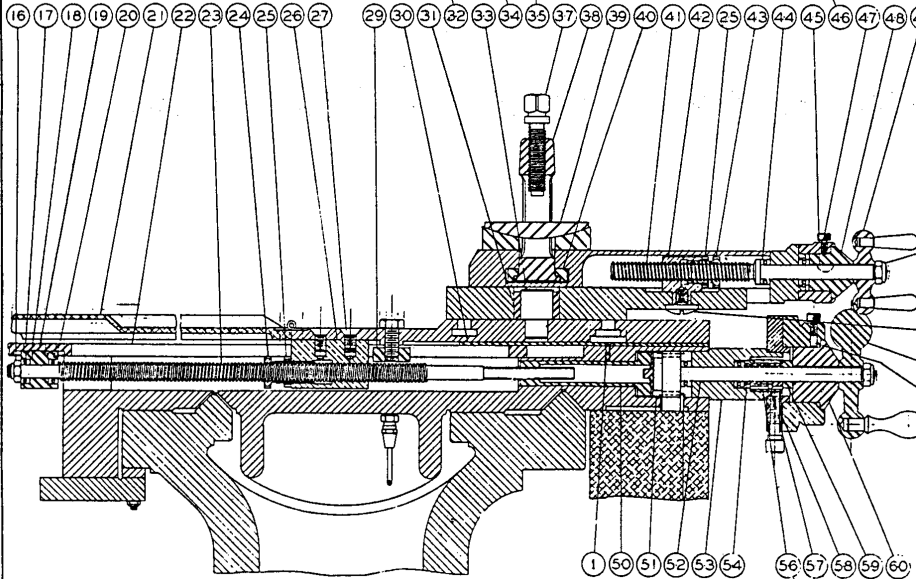
- | | | | | | |
|----|--|----------------------|----|--|------------------------|
| 1 | 1020R-2A-287 | LOCKING WASHER KEY | 16 | 1020R-2A-539 | OPERATING YOKE |
| 2 | 1020R-2A-626 | LOCKING WASHER RIVET | 17 | TAPER PIN-P&W | *2xH/2LG |
| 3 | 1020R-2A-188 | THRUST COLLAR | 18 | 1020S-2A-302 | OPERATING LEVER |
| 4 | 1020R-2A-457 | BEARING SLEEVE | 19 | OPERATING KNOB -1/2" DIA. x 1/2-13 TAP | |
| 5 | 918R-2-451 | SHIFTER SHOE | 20 | 1020S-2A-466 | DRAW-IN SPINDLE |
| 6 | 1020R-2A-497 | SHIFTER SHOE STUD | 21 | 1020R-2A-456 | DRAW-IN SPINDLE SLEEVE |
| 7 | 1020R-2A-637 | STOP SCREW | 22 | 1020R-2A-521 | LOCKING WASHER |
| 8 | 1020R-2A-346 | LEVER PIVOT | 23 | 1020R-2A-186 | CLOSER CONE |
| 9 | ELASTIC STOP NUT -ESNA *59TE-080 | | 24 | 1020R-2A-419 | BALL RING |
| 10 | GREASE FITTING -ALEMITE *1641 (1/4-28) | | 25 | 1020R-2A-409 | BALL RETAINER |
| 11 | 1020R-2A-374 | LEVER MOUNTING PLATE | 26 | OPERATING BALLS-3/8 DIA. | |
| 12 | CAP NUT -3/8-24 TAP (REGULAR) | | 27 | RETAIN. RING -WALDES-TRUARC *5100-143 (EXT.) | |
| 13 | 1020R-2A-324 | LOCKING NUT | 28 | 1020R-2A-666 | THRUST COLLAR SPRING |
| 14 | ALLEN CAP SCREW -5/16-18 x 3/4 LG | | 29 | 1020R-2A-638 | STOP SCREW |
| 15 | B&H LOCKWASHER -5/16(3/64 x 5/64 SECT) | | 30 | B&H LOCKWASHER -10(3/64 x 3/64 SECT) | |

PART NUMBER 1020S-2A		RIVETT LATHE & GRINDER, INC. 1020S-2A-287	
QUANTITY 1		LEVER CHUCK CLOSER	
DRAWN BY DATE		CHECKED BY DATE	
APPROVED BY DATE		MATERIALS DATE	
WORK ORDER NO.		ORDER NO.	
PROJECT		ORDER BY	
DRAWING NO.		ORDER BY	
DATE		ORDER BY	
APPROVED BY		ORDER BY	
DATE		ORDER BY	
APPROVED BY		ORDER BY	
DATE		ORDER BY	

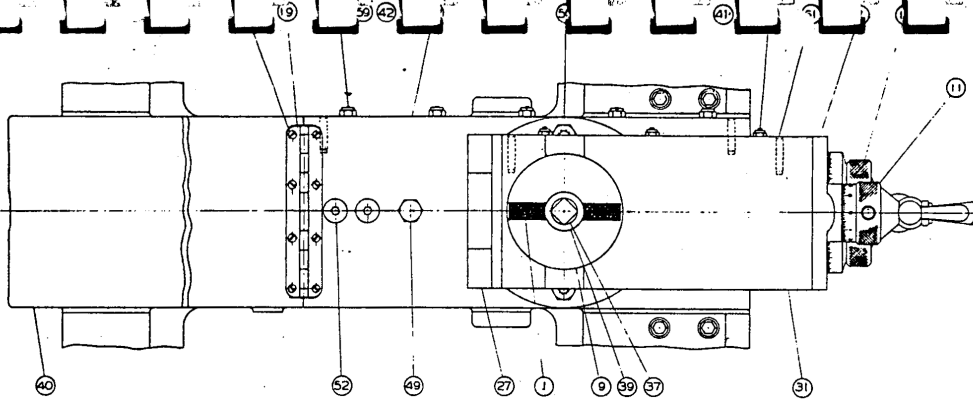
1020S-2A



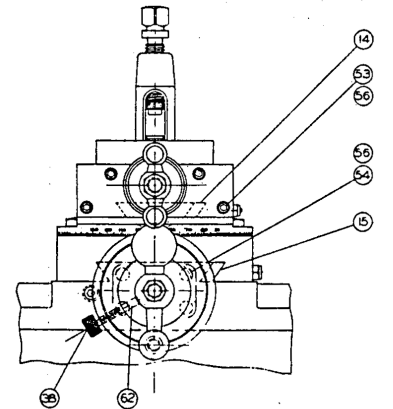
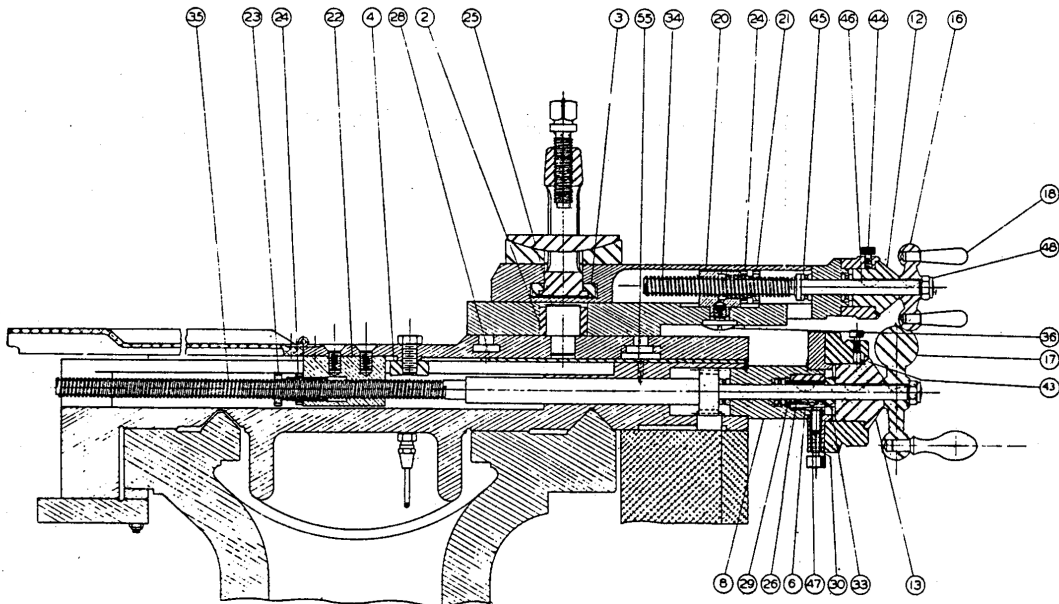
- 1 FL HD MACH SCREW - 5/40 x 5/16
- 2 1020R-9-273 COVER HNGE
- 3 ALLEN HOLLOW SET SCREW - 10-32 x 7/8 LG
- 4 1020R-9-502 SET SCREW TIP
- 5 10-32 ELASTIC STOP NUT - ESNM 29TM-02
- 6 1020R-9-463 BOTTOM SLIDE
- 7 REG JAM NUT - 5/16-18 x 205 MAX THICK 9/16 HEX
- 8 1020R-9-142 TEE BOLT
- 9 ALLEN HOLLOW SET SCREW - 8-32 x 7/8 LG
- 10 1020R-9-511 SET SCREW TIP
- 11 10-32 ELASTIC STOP NUT - ESNM 29TM-02
- 12 1020R-9-191 COVER
- 13 1020R-9-188 BEARING COLLAR
- 14 10205-9-197 FEED SCREW DIAL
- 15 1020R-9-194 FEED SCREW DIAL
- 16 5/16-24 ELASTIC STOP NUT - ESNM 29TE-054
- 17 ALLEN CAP SCREW - 8-32 x 1/2 LG
- 18 B&H LOCK WASHER - *8(164)3/4 SECT
- 19 1020R-9-335 BEARING BLOCK
- 20 TRUUST BALL BEARING - BOSTON GEAR *A08
- 21 1020R-9-890 COVER
- 22 1020R-9-10 CONNECTING ARM
- 23 1020R-9-556 FEED SCREW
- 24 1020R-9-327 BACKLASH NUT
- 25 1020R-9-329 CHECK NUT
- 26 1020R-9-326 FEED SCREW NUT
- 27 ALLEN FL W SCREW - 5/16 x 1.5/8 LG
- 28 DIAL HD WASH SCREW - 4-40 x 1/4
- 29 1020R-9-134 TEE BLOCK
- 30 1020R-9-375 COVER PLATE
- 31 ACME STD "L" - 7/8 x 1/4 x 3/4 BUSHING
- 32 HEX HD BOLT - SEMIFIN - 3/8 x 6 x 3/4 LG
- 33 1020R-9-346 PIVOT
- 34 1020R-9-374 SWIVEL PLATE
- 35 1020R-9-182 ROCKER COLLAR
- 36 10205-9-513 .55 SHOE
- 37 1020R-9-639 TOOL POST SCREW
- 38 1020R-9-733 TOOL POST
- 39 1020R-9-116 ROCKER
- 40 1020R-9-133 TEE BLOCK
- 41 1020R-9-557 FEED SCREW
- 42 1020R-9-324 FEED SCREW NUT
- 43 1020R-9-325 BACKLASH NUT
- 44 TRUUST BALL BEARING - BOSTON GEAR *A08
- 45 WOODRUFF KEY - WHITNEY *
- 46 1020R-9-461 TOP SLIDE
- 47 1020R-2-638 SET SCREW
- 48 1020R-9-206 BEARING COLLAR
- 49 1020R-9-257 HANDLE
- 50 1020R-9-438 COUPLING SHAFT
- 51 1020R-9-184 COUPLING
- 52 1020R-9-437 EXTENSION SHAFT
- 53 1020R-9-189 BEARING COLLAR
- 54 10205-9-410 BALL RETAINER
- 55 1020R-9-151 BEARING COLLAR BUSHING
- 56 STEEL BALL - 1/8 DIA
- 57 10205-9-420 COLLAR RING
- 58 1020R-9-473 SPACER
- 59 1020R-9-207 BEARING COLLAR
- 60 1020R-9-259 HANDLE
- 61 3/8-24 ELASTIC STOP NUT - ESNM 29TE-064
- 62 ALLEN CAP SCREW - 10-32 x 1/2 LG
- 63 B&H LOCK WASHER - *10(344)3/4 SECT
- 64 ALLEN CAP SCREW - 10-32 x 3/4 LG
- 65 1020R-9-638 SET SCREW
- 66 10205-9-261 HANDLE
- 67 10205-9-638 SET SCREW
- 68 1020R-9-245 GB
- 69 1020R-9-246 GB
- 70 1020R-9-246 GB
- 71



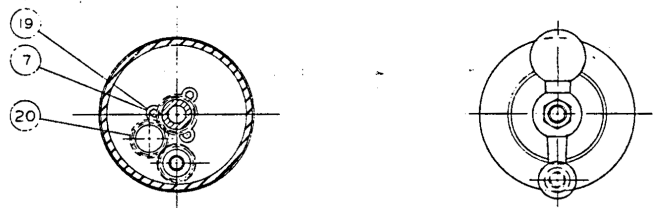
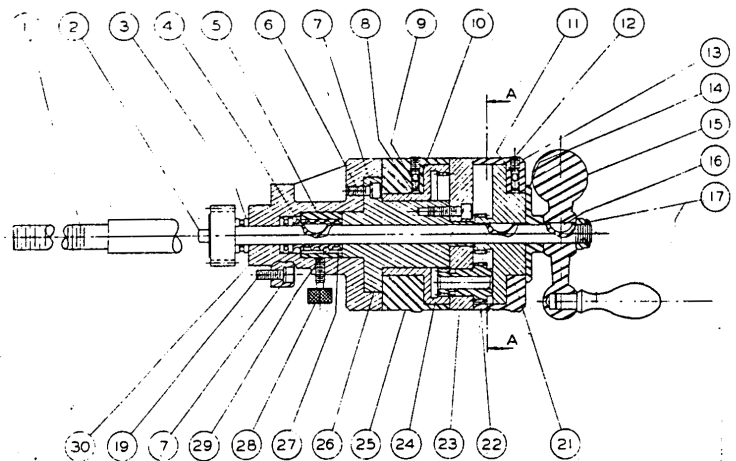
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|----|------------------------------------|----|--|
| 1 | 1020R-9-133 TEE BLOCK | 32 | 463 BO SLIDE |
| 2 | 1020R-9-134 TEE BLOCK | 33 | 1020R-9-557 FEED SCREW |
| 3 | 1020R-9-142 TEE BOLT | 34 | 1020R-9-558 FEED SCREW |
| 4 | 1020R-9-151 BEARING COLLAR BUSHING | 36 | 1020R-9-638 SET SCREW |
| 5 | 1020R-9-188 BEARING COLLAR | 37 | 1020R-9-639 TOOL POST SCREW |
| 6 | 1020R-9-189 BEARING COLLAR | 38 | 1020R-9-640 SET SCREW |
| 7 | 1020R-9-192 ROCKER COLLAR | 39 | 1020R-9-733 TOOL POST |
| 8 | 10205-9-497 FEED SCREW DIAL | 40 | 1020R-9-890 COVER |
| 9 | 1020R-9-194 FEED SCREW DIAL | 41 | 1020R-9-511 SET SCREW TIP |
| 10 | 1020R-9-206 BEARING COLLAR | 42 | 1020R-9-512 SET SCREW TIP |
| 11 | 1020R-9-207 BEARING COLLAR | 43 | 10205-9-513 BRASS SHOE |
| 12 | 1020R-9-245 GIB | 44 | 1020R-22638 SET SCREW |
| 13 | 1020R-9-246 GIB | 45 | THRUST BALL BEARING - BOSTON GEAR *400 |
| 14 | 1020R-9-257 HANDLE | 46 | WOODRUFF KEY - WHITNEY #1 |
| 15 | 10205-9-261 HANDLE | 47 | STEEL BALL - 1/8 DIA. |
| 16 | 1020R-9-259 HANDLE | 48 | 3/8-24 ELASTIC STOP NUT - ESNA *29TE-064 |
| 17 | 1020R-9-273 COVER HINGE | 49 | REG. HEX. HD. BOLT - SEMI. FIN. - 3/8-18 x 3/4 LG. |
| 18 | 1020R-9-324 FEED SCREW NUT | 50 | REG. JAM NUT - 5/16-18 x .205 MAX. THICK |
| 19 | 1020R-9-325 BACKLASH NUT | 51 | OVAL MACH. SCREW - 7-40 x 1/4 LG. |
| 20 | 1020R-9-326 FEED SCREW NUT | 52 | ALLEN FLAT HD. CAP SCREW - 5/16-18 x 5/8 LG. |
| 21 | 1020R-9-327 BACKLASH NUT | 53 | ALLEN SOCK. HD. CAP SCREW - 10-32 x 1/2 LG. |
| 22 | 1020R-9-329 CHECK NUT | 54 | ALLEN SOCK. HD. CAP SCREW - 10-32 x 3/4 LG. |
| 23 | 1020R-9-346 PIVOT | 55 | FLHD. MACH. SCREW - 5-40 x 5/16LG. |
| 24 | 1020R-9-344 PIVOT | 56 | B & H LOCK-WASHER - 10 (3/64 x 3/64 SECT) |
| 25 | 1020R-9-354 BALL RETAINER PIN | 57 | ALLEN HOLLOW SET SCREW - #10-32 x 7/8 LG. |
| 26 | 1020R-9-374 SWIVEL PLATE | 58 | ALLEN HOLLOW SET SCREW - #8-32 x 7/8 LG. |
| 27 | 1020R-9-375 COVER PLATE | 59 | #10-32 ELASTIC STOP NUT - ESNA *28 TM-02 |
| 28 | 1020R-9-409 BALL RETAINER | 60 | #8-32 ELASTIC STOP NUT - ESNA *28 TM-02 |
| 29 | 10205-9-429 COLLAR RING | 61 | 1020R-9-199 DOWEL |
| 30 | 1020R-9-461 TOP SLIDE | 62 | 10205-9-544 BRASS SHOE |



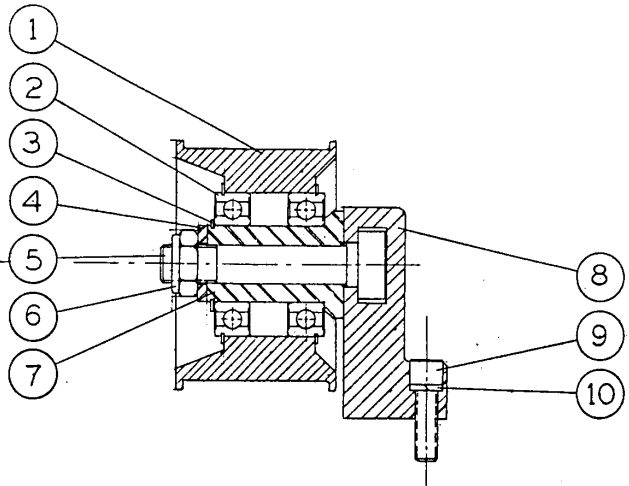
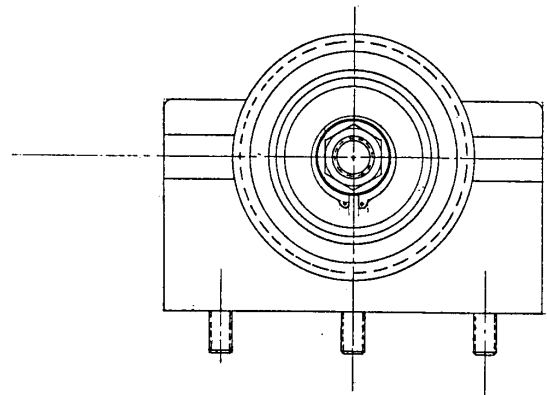
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DRAWN BY			
CHECKED BY			
APPROVED BY			
HAVERTY LATHE & GRINDER, INC. SLIDE REST WITHOUT LABEL ATTACHMENT			
1020R-9B			



SECTION A-A

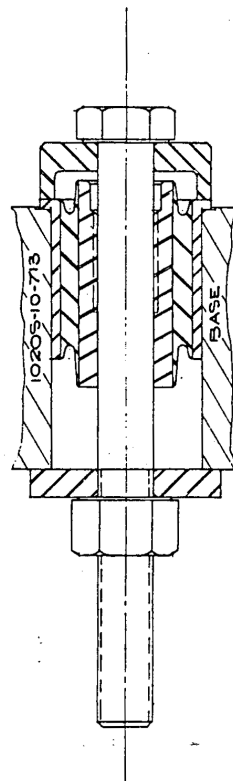
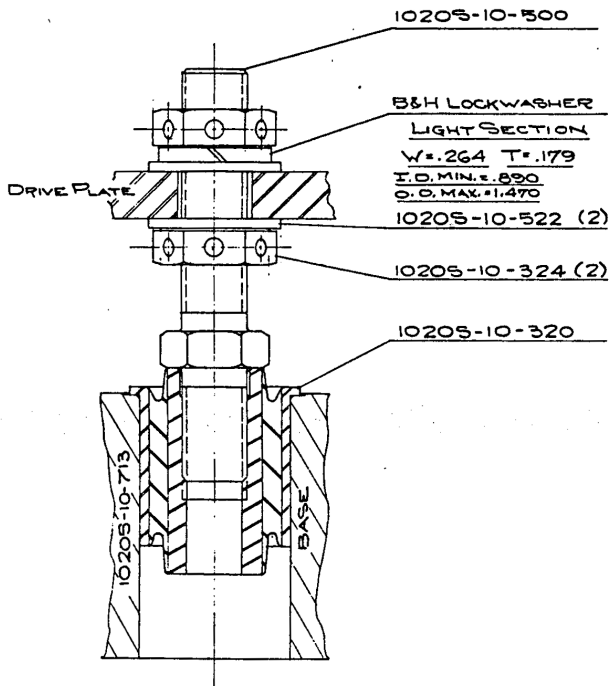
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|----|-------------|-------------------------------------|----|---------------|----------------------|
| 1 | 10205-9-559 | FEED SCREW (WITHOUT TAPER ATTACH) | 16 | WHITNEY 7 | WOODRUFF KEY |
| 2 | 10205-9-439 | EXTENSION SHAFT (WITH TAPER ATTACH) | 17 | ESNA 29TE-064 | ELASTIC STOP NUT |
| 3 | BOSTON GEAR | 1010 THRUST BEARING | | | |
| 4 | 1020R-9-409 | BALL RETAINER | 19 | 10-32 x 5/8 | ALLEN CAP SCREW |
| 5 | 1020R-9-51 | BEARING COLLAR BUSHING | 20 | 10205-9-228 | IDLER GEAR |
| 6 | 10-32 x 1/2 | ALLEN CAP SCREW | 21 | 10205-9-229 | DRIVING GEAR |
| 7 | 10-32 x 1/4 | F&H LOCKWASHER | 22 | 10205-9-227 | COMPOUND GEAR |
| 8 | 608-22C-511 | CORK TIP | 23 | 10205-9-376 | GEAR SUPPORT PLATE |
| 9 | 608-22C-666 | L1-L BALL BEARING | 24 | 10205-9-226 | INTERNAL DRIVEN GEAR |
| 10 | 103-43-511 | SET SCREW TIP | 25 | 10205-9-195 | REAR DIAL |
| 11 | 918-9-494 | SPRING STEM | 26 | 10205-9-118 | GEAR BEARING |
| 12 | 10-32 x 1/4 | ALLEN SET SCREW | 27 | 1020R-9-354 | BALL RETAINER PIN |
| 13 | 10205-9-196 | FRONT DIAL | 28 | 1020R-9-640 | SET SCREW |
| A | 10-32 x 1/8 | FRONT COLLAR | 29 | 1/8 DIAM. | STEEL BALL |
| B | 10205-9-261 | HANDLE | 30 | 10205-9-190 | BEARING COLLAR |

RIVETT LATHE & GRINDER, INC.	
MICRO-DIAL ASSEMBLY	
PART NO. 10205-9T & 9C	
REV. 10-19-50	
DRAWN BY: []	
CHECKED BY: []	
APPROVED BY: []	
MATERIAL: []	
FINISH: []	
TOLERANCES: []	
ASSEMBLY INSTRUCTIONS: []	
REVISIONS: []	
DATE: []	



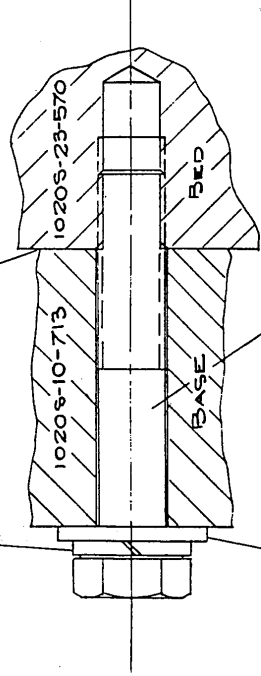
- 1 1020S-10-384 IDLER PULLEY
- 2 ND 4973L05V
- 3 5100-98 SNAP RING
- 4 1/2 PLAIN WASHER
- 5 1020S-10-497 IDLER STUD
- 6 29TE-080 ESNA NUT
- 7 1020S-10-456 IDLER SLEEVE
- 8 1020S-10-145 IDLER BRACKET
- 9 5/16-18 ALLEN CAP SCREW
- 10 5/16 LOCK WASHER

		SURFACE TREATMENT:		RIVETT LATHE & GRINDER, INC. BRIGHTON, BOSTON, MASS., U.S.A.	
		HEAT TREATMENT:			
A REV. TO DETAIL CHG 57-51 1/26				IDLER ASSEMBLY	
SYM	REVISION	DATE	BY		
MATERIAL:		TOOL:		TOLERANCES UNLESS OTHERWISE SPECIFIED—	
MATERIAL SIZE:				DECIMALS: FRACTIONS: ANGLES:	
PART. NO.:				FACE SURFOUT:	
DIE NO.:				BACK SURFACES:	
WEIGHT ROUGH—				BREAK SHARP CORNERS	
WEIGHT FINISHED—				REMOVE ALL BURRS	
ASSEMBLY NO. 1020S-10				DRAWN BY: <i>022 J.E.</i> CHECKED BY:	
NO. REQ. PER ASSEM				TRACED BY: SCALE: <i>1:1</i>	
				DWG. NO. 1020S-10A	



LORD MOUNT
ASSEMBLY METHOD
USING TOOL #4841

			SURFACE TREATMENT:		RIVETT LATHE & GRINDER, INC. BRIGHTON, BOSTON, MASS., U.S.A. DRIVE MOUNT
			HEAT TREATMENT:		
SYM	REVISION	DATE BY	TOOLS:		
MATERIAL:					
MATERIAL SIZE:					TOLERANCES UNLESS OTHERWISE SPECIFIED—
PART. NO.:					DECIMALS. FRACTIONS. ANGLES
DIE NO.:					CONCENTRICITY:
WEIGHT ROUGH—					FACE RUNOUT: 74
WEIGHT FINISHED—					BEACH SURFACES:
ASSEMBLY NO			1020S-10		BREAK SHARP CORNERS R&E RADIUS
NO. REQ. PER ASSEMBY			4		REMOVE ALL BURRS
					DRAWN BY: AEW 12-20-49 CHECKED BY:
					TRACED BY: SCALE: FULL
					DWG. NO.
					1020S-10B



GLYPTAL BETWEEN
BED & BASE BEARING
AREA

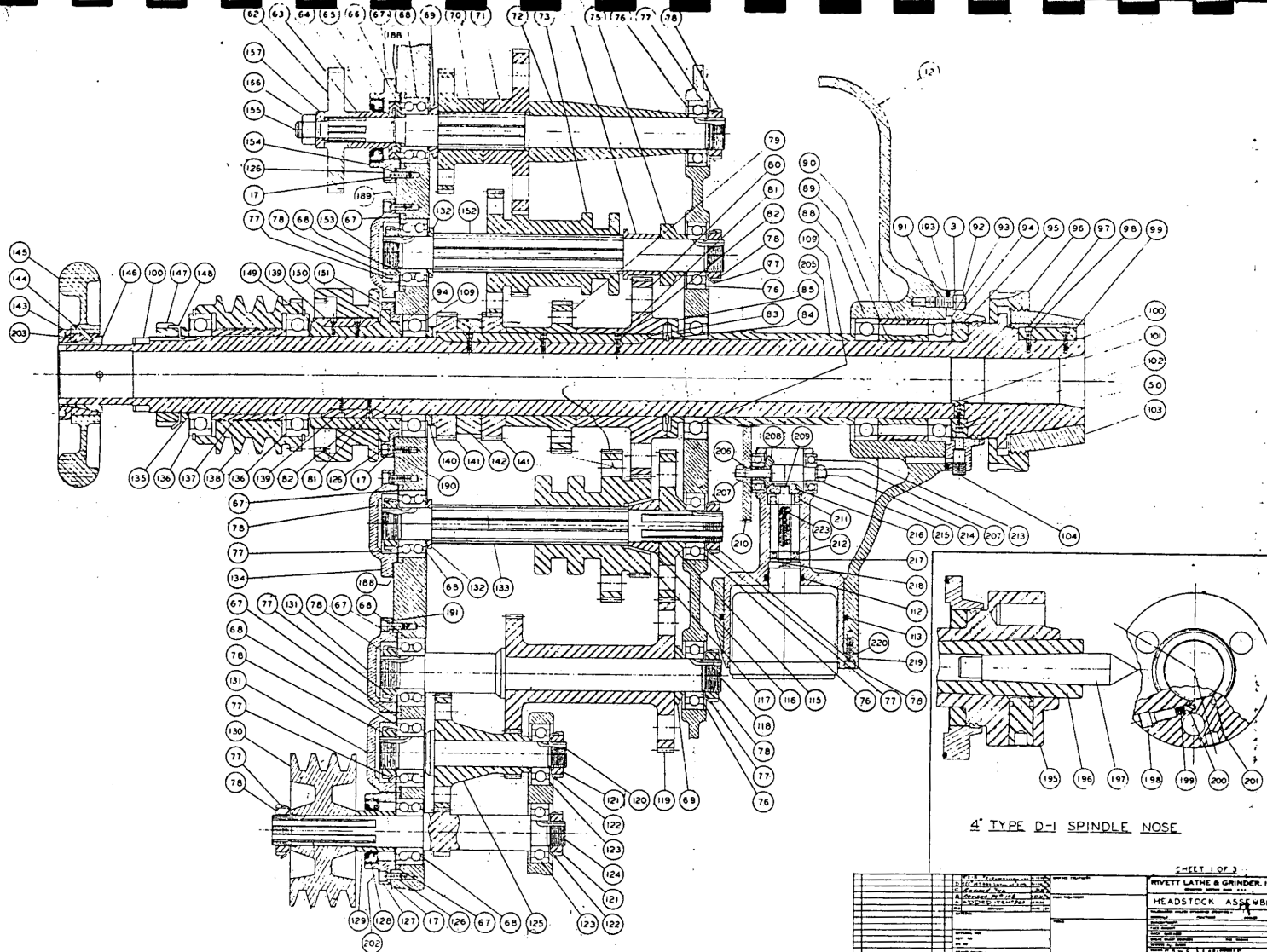
HEX. HEAD BOLT
5/8-11NC x 3 1/2 LG (B)
REGULAR SEMI-FINISHED
HEAD 15/16 HEX. 25/64 THICK

B & H LOCK WASHER
5/8 LIGHT SECTION
W = .201 T = .126
I.D. MIN. = .636
O.D. MAX. = 1.082

(A) PLAIN WASHER
(FOR 5/8 BOLT)

		SURFACE TREATMENT:	
B WAS 3 3/4 LG.		5-4-51	RG
A WAS SIEWEK *W-625		5-4-51	RG
SYM	REVISION	DATE	BY
MATERIAL:			
MATERIAL SIZE:			
PATT. NO.:			
DIE NO.:			
WEIGHT ROUGH:--			
WEIGHT FINISHED:--			
ASSEMBLY NO.			
NO. REQ. PER ASSEM.			

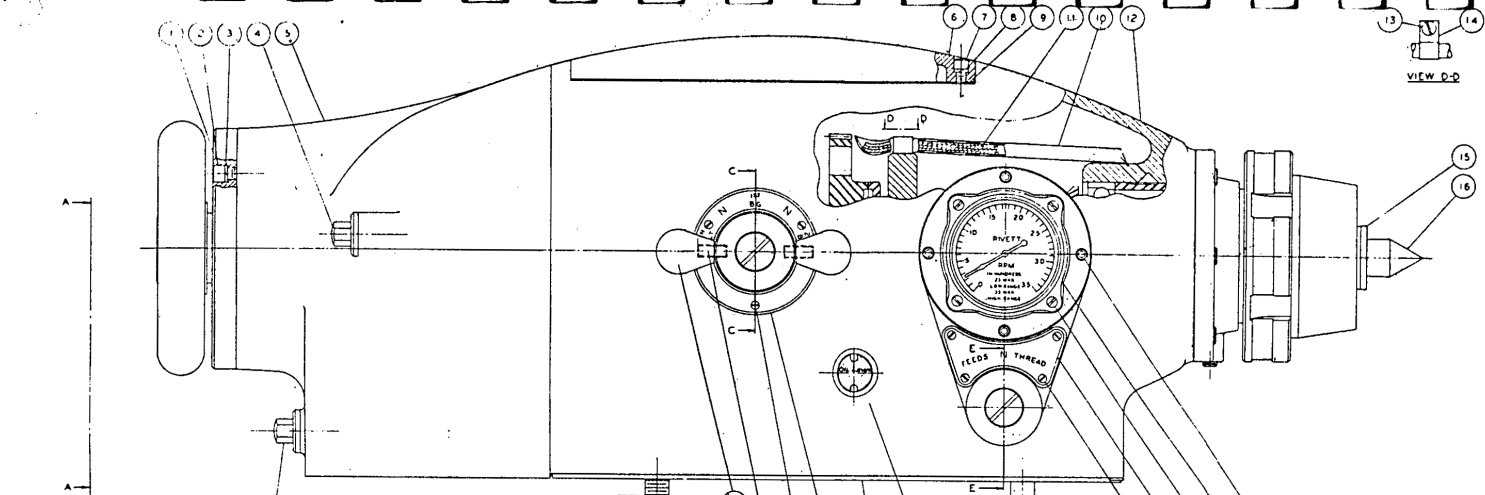
RIVETT LATHE & GRINDER, INC.		
BRIGHTON, BOSTON, MASS., U.S.A.		
BED MOUNT		
TOLERANCES UNLESS OTHERWISE SPECIFIED:--		
DECIMALS:	FRACTIONS:	ANGLES:
CONCENTRICITY:		
FACE RUNOUT:		
MACH. SURFACES:		
BREAK SHARP CORNERS		MAX. RADIUS
REMOVE ALL BURRS		
DRAWN BY: AEK 12-21-48		CHECKED BY:
TRACED BY:		SCALE: FULL
DWG. NO. 1020S-10C		



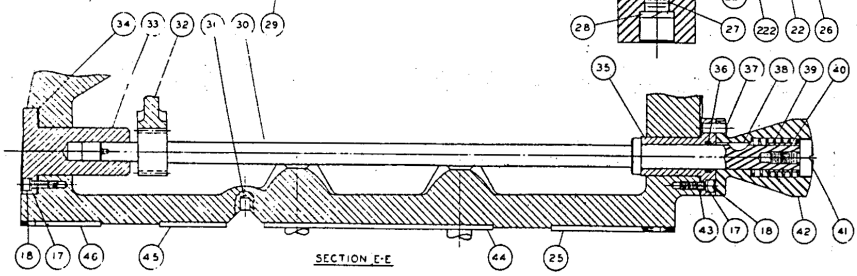
4' TYPE D-1 SPINDLE NOSE

SHEET 1 OF 3

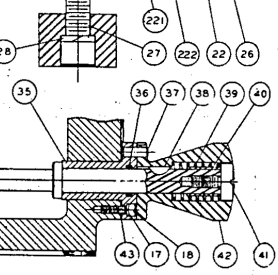
1. Part Name 2. Drawing No. 3. Revision 4. Date 5. Scale 6. Material 7. Heat Treatment 8. Finish 9. Notes	RIVETT LATHE & GRINDER, INC. 1000 W. 12th St. S.W. MINNEAPOLIS, MINN. HEADSTOCK ASSEMBLY 10205-12
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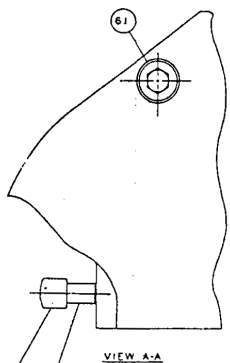
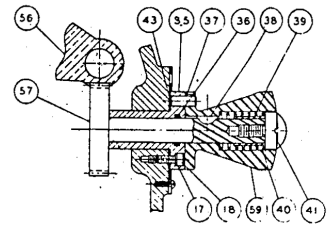
VIEW D-D



SECTION E-E



SECTION C-C

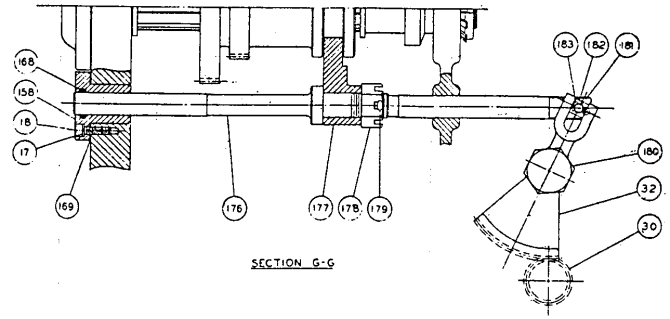
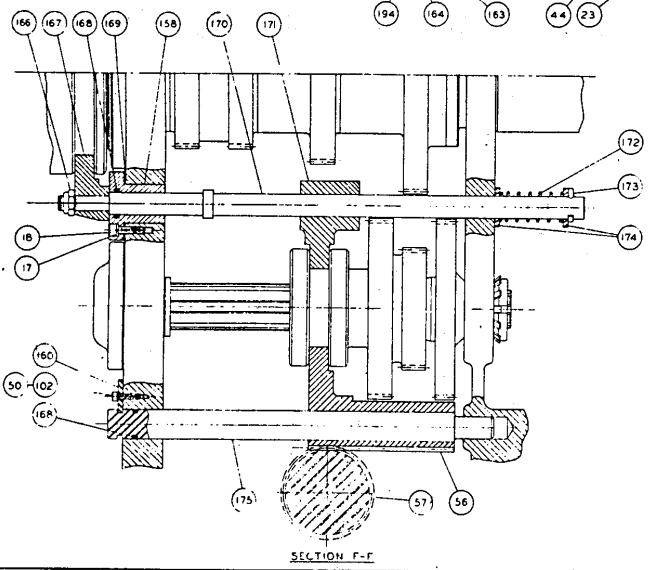
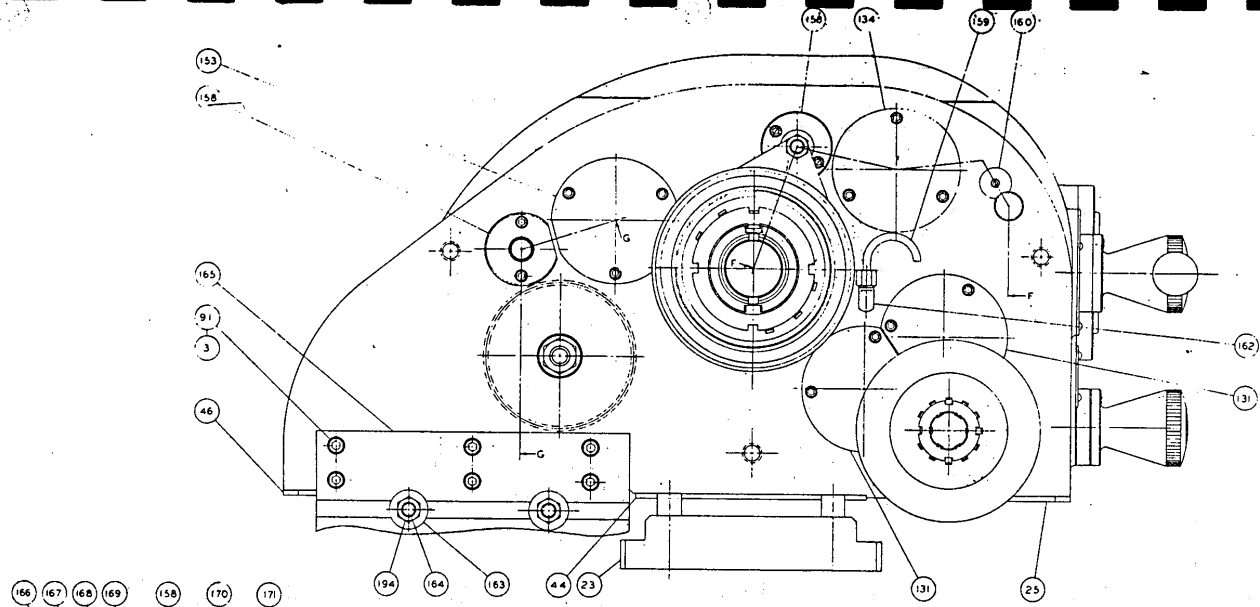


VIEW A-A

SHEET 2 OF 3	
RIVETT LATHE & GRINDER, INC.	
HEADSTOCK ASSEMBLY	
DATE: _____ DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____	PART NO.: 10205-12 QUANTITY: _____ MATERIAL: _____ FINISH: _____ TOLERANCES: _____ DIMENSIONS: _____

10205-12

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SECTION G-G

SECTION F-F

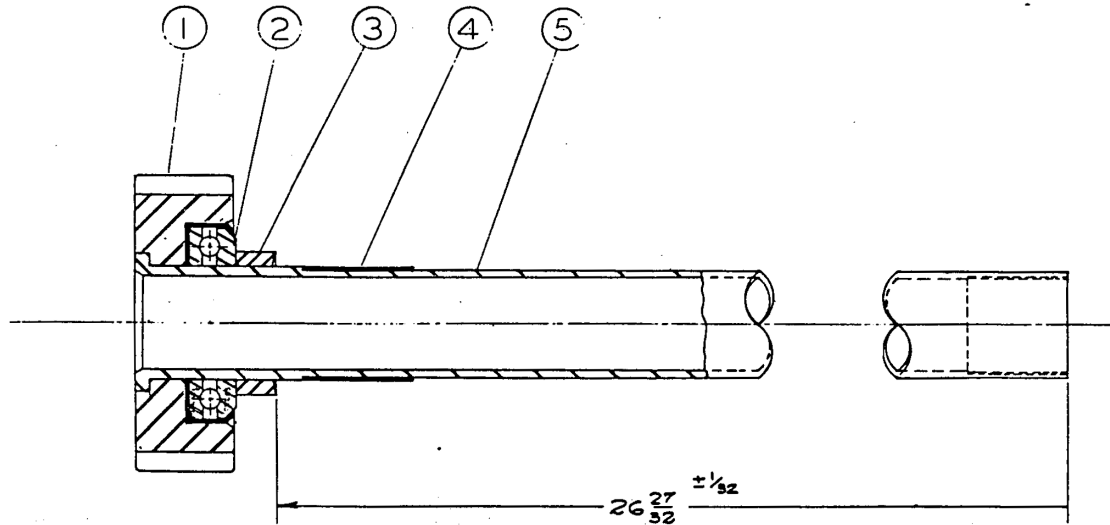
SHEET 3 OF 3

DESIGNED BY DRAWN BY CHECKED BY DATE SCALE MATERIAL	PART NO. QUANTITY UNIT WEIGHT PRICE	TRIVETT LATHE & GRINDER, INC. HEADSTOCK ASSEMBLY 10208-1P
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1020S-12 - HEADSTOCK KEYSHEET

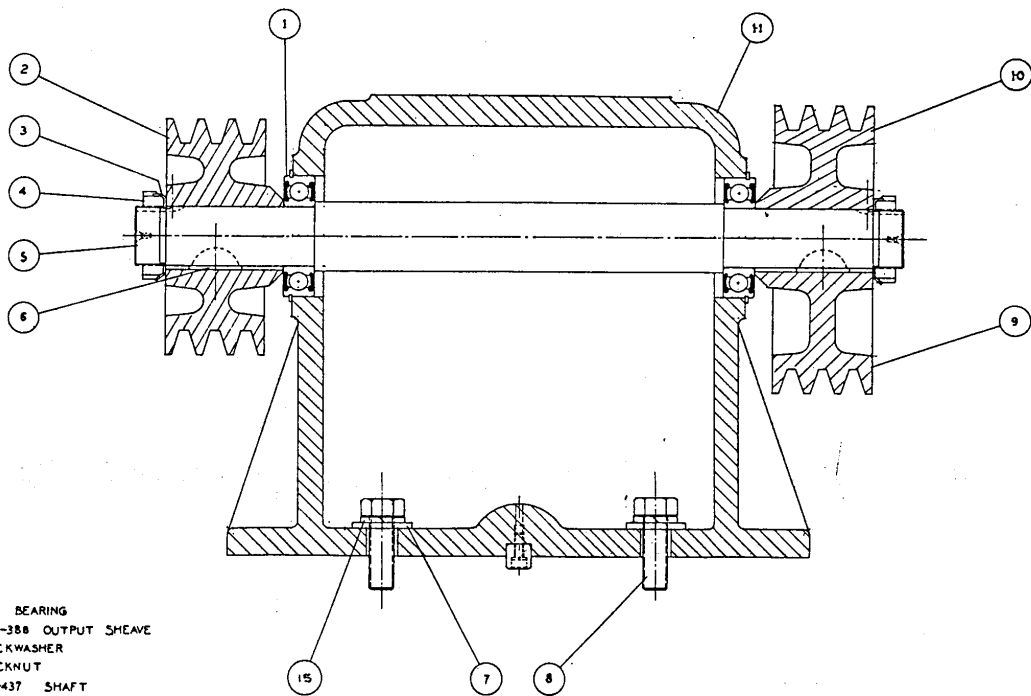
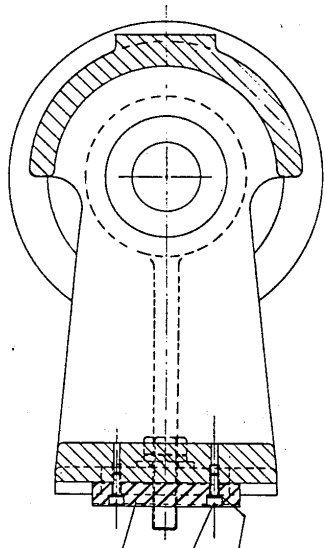
1.	1020R-12-252	Cover Guard	77.	#1-05	Bearing Lock Washer	154.		409	Seal Retainer
2.	5/16 H.C.	Allen Cap Screw	78.	#N-05	Bearing Lock Nut	155.		437	Change Gear Shaft
3.	5/16 H.C.	B&H Lockwasher	79.	1020S-12-236	2nd Back Gear - Spindle	156.	1/2-13		Reg. Hex Nut
4.	1/2-13 H.C.-3 x 5-1/3 lg.		80.	235	1st Back Gear - Spindle	157.	1020R-20-191		1/2 Hex Nut Wear Collar
5.	1020S-12-183	Rear Cover	81.	#4-40 x 3/8	Allen Cap Screw	158.	1020S-12-151		Control Bushing
6.	1020S-12-184	Top Cover	82.	#4 H.C.	B & H Lockwasher	159.	3/16 d x 3" lg.		Copper Tube
7.	1/4-28 x 5/8	Allen Cap Screw	83.	1020S-12-287	Spindle Key	160.	1020S-12-524		Washer
8.	1/4 H.C.	B & H Lockwasher	84.	Waldes #5100-237	Truarc Retaining Ring	161.			
9.	1020S-12-990	Top Cover Gasket	85.	1020S-12-483	Spindle Bearing Spacer	162.	1/8 Pipe x 3/16 Tube		Compression Male Elbow
10.	1020S-12-588	Copper Tube	88.	N.D. #QOL-12	Ball Bearing	163.	1020R-26-526		Washer
11.	1020S-12-170	Allen Yarn	89.	1020R-12-474	Inner Bearing Spacer	164.	1020R-12-827		Idler Gear Bracket Bolt
12.	1/4-28 x 1/4	Headstock	90.	1020R-12-473	Outer Bearing Spacer	165.	1020S-12-374		Idler Gear Mtg. Plate
13.	For 3/8 d. Tube	Rd.Hd. Machine Screw	91.	5/16-18 x 3/8	Allen Cap Screw	166.	Esna #29T2064		Elastic Stop Nut
14.	1020R-12-658	Tube Clip	92.	1020S-12-157	Spindle Bearing Cap	167.	1020S-12-433		"O" Ring Packing
15.	1020R-12-723	Center Chuck	93.	N.D. #2NOL-12	Ball Bearing	168.	AM627-11		Control Bushing Gasket
16.	1020R-12-723	Plain Center	94.	1020S-12-994	Bearing Gasket	169.	1020S-12-992		Control Rod
17.	#10 H.C.	B & H Lockwasher	95.	1020S-12-188	Spindle Spacer Collar	170.	434		Clutch Control Shifter
18.	#10-32 x 1/2	Allen Cap Screw	96.	1020A-12-324	Spindle Nose Nut	171.	666		Clutch Control Spring
19.	1020S-12C	Tachometer	97.	#6-32 x 1/2	Allen Cap Screw	172.			Cotter Pin
20.	#6-32 x 1/2	Rd.Hd. Machine Screw	98.	#6 H.C.	B & H Lockwasher	173.	1/8 d. x 1" lg.		Washer
21.	1020S-12-377	Feeds-Thread Name Plate	99.	1020R-12-289	Spindle Nose Key	174.	17/32 i.d. x 1-1/16		
22.	#5-40 x 1/4	Rd.Hd. Machine Screw	100.	1020S-12-466	Spindle		o.d. x 3/32 thick		Control Rod
23.	1020R-12-177	Headstock Clamp	101.	1020R-12-287	Spindle Collet Key	175.	1020S-12-426		Control Rod
24.	B14ur #B-5093	Window Unit	102.	#5-40 x 1/2	Allen Cap Screw	176.	424		Control Shifter
25.	1020S-12-999	Front Headstock Gasket	103.	1020R-12-251	Spindle Nose Guard	177.	432		Reg. Slotted Hex Nut
26.	1020S-12-376	Back Gear Name Plate	104.	1/8-27 NPT	Allen Pipe Plug	178.	5/8-18 NF		Cotter Pin
27.	5/8-11 x 1-3/4	Allen Cap Screw	109.	N.D. #31L275A	Ball Bearing	179.	1/8 d. x 1-1/2 lg.		Control Fork Pivot
28.	5/8 H.C.	B & H Lockwasher	112.	AM627-18	"O" Ring Packing	180.	1020S-12-345		Control Fork Pin
29.	1/2-13 NC-3 x 7" lg.	Gear Box Ratio Control Gear Assembly	113.	AM6230-17	"O" Ring Packing	181.	354		Control Fork Shoe
30.	1020S-12-813	"V" Slot Packing	114.	1020S-12-276	Tachometer Housing	182.	451		Cotter Pin
31.	1020R-12-334	Control Fork	115.	1020S-12-230	Back Gear Idler Gear	183.	3/32 d. x 1/2 lg.		Pipe Rippie
32.	1020S-12-220	Control Bushing	116.	480	Gear Spacer	187.	1/4 NPT x 1-1/2		Gasket
33.	152	Control Bushing Gasket	117.	229	Back Gear Idler Gear	188.	1020S-12-741		Gasket
34.	993	Control Bushing	118.	440	Back Gear Idler Shaft #2	189.	1020S-12-742		Gasket
35.	154	"O" Packing Ring	119.	231	Back Gear Idler Gear	190.	1020S-12-744		Gasket
36.	AM6227-12	Control Inob Detent Pin	120.	1020S-12-441	Back Gear Idler Shaft #1	191.	1020S-12-743		Gasket
37.	1020S-12-356	Hi-Pro Key	121.	#N-04	Bearing Lock Nut	193.	AM6230-29		"O" Packing Ring
38.	Morton #HP404	Control Knob Spring	122.	#N-04	Bearing Lock Washer	194.	3/8-24		Light Jam Nut
39.	1020S-12-667	Control Knob Stop Sleeve	123.	N.D. #3204	Bearing Lock Washer	195.	1020S-12-468		1" DI Cam Lock Spindle
40.	458	Control Knob Screw	124.	1020S-12-442	Ball Bearing	196.	1020S-12-459		#5 to #3 Std. Taper Sleeve
41.	637	Thread-Feed Control Knob	125.	1020S-12-232	Back Gear Shaft	197.	1020R-22-723		Center
42.	294	Control Bushing Gasket	126.	+10-32 x 5/8	Allen Cap Screw	198.	5/16-18 x 3/4 lg.		Allen Socket Head Cap Screw
43.	995	Front Center Headstock Gasket	127.	1020S-12-410	Seal Retainer	199.	1020S-12-670		Detent Spring
44.	997	Rear Center Headstock Gasket	128.	Victor #60384 Type H	Victorprene Oil Seal	199.	1020S-12-655		Detent Plunger
45.	998	Rear Headstock Gasket	129.	1020S-12-481	Sheave Spacer	201.	818		Spindle Cam
46.	435	Back Gear Shifter	130.	384	Back Gear Sheave	202.	L3-2-51255		Gasket
47.	812	Back Gear Control Gear	131.	164	Bearing Cap	203.	9183-12-151		Handwheel Bushing
48.	293	Back Gear Control Knob	132.	479	Bearing Spacer	205.	1020S-12-240		Tech. Driving Gear Spacer
59.	1/4 NPT	Pipe Cap	133.	1020S-12-439	Back Gear Idler Shaft #3	206.	1020S-12N-290		Tech. Drive Gear Key
60.	1/2-13 NC-3 x 5" lg.	Cover Bolt	134.	165	Bearing Cap	207.	#29TE-048		Esna Thin Nut 1/4-28
61.	1020R-23-812	Change Gears	135.	522	Spindle Sheave Erg. Washer	208.	1020S-12N-241		Tech. Bevel Driving Gear
62.	1020S-12-476	Change Gear Spacer	136.	N.D. #473112V	Ball Bearing	209.	1020S-12-446		Tech. Drive Gear Shaft
63.	Victor #60324 Type H	Victorprene Oil Seal	137.	1020S-12-456	Spindle Sheave Erg. Spacer	210.	1020S-12-239		Tech. Drive Gear
64.	Waldes #5100-78	Truarc Retaining Ring	138.	1020S-12-385	Spindle Sheave	211.	N.D. #3100		Ball Bearing
65.	1020S-12-475	Bearing Spacer	139.	1020R-12-291	Spindle Key	212.	N.D. #R-6		Ball Bearing
66.	991	Gasket	140.	1020S-12-484	Spindle Erg. Spacer	213.	N.D. #43200		Tech. Bevel Gear Shaft
67.	N.D. #45205-X3017	Ball Bearing	141.	237	Change - Gear Spindle	214.	1020S-12N-437		Spacer
68.	1020S-12-474	Spindle Inner Erg. Spacer	142.	485	Bearing Spacer	215.	1020S-12N-459		Tech. Bevel Driven Gear
69.	1020S-12-227	Change Gear Shaft Gear	143.	918-12-325	Nut	216.	#5100-37		Waldes Truarc
70.	226	Change Gear Shaft Gear	144.	507-9-356	Pin	217.	1020S-12-288		Tech Drive Cable
71.	473	Bearing Spacer	145.	918S-12-703	Handwheel	218.	1020S-12-277		Tech Housing
72.	228	Change Gear Idler Gear	146.	1020R-12-186	Cone	219.	1020S-12-816A		.002 Shim
73.	478	Bearing Spacer	147.	#1-112	Bearing Lock Nut	220.	816B		.003 Shim
74.	477	Change Gear Idler Gear	148.	#1-112	Bearing Lock Washer	221.	816C		.005 Shim
75.	478	Bearing Spacer	149.	1020S-12-457	Spindle Clutch Gear	221.	Reid #0A-3		Ball
76.	N.D. #3205	Bearing Spacer	150.	1020S-12-238	Spindle Clutch Gear	222.	5/16-18 x 3/4		Allen Set Screw
		Ball Bearing	151.	166	Spindle Rear Bearing Cap	223.	6-32 x 1/8		Allen Set Screw
			152.	438	Change Gear Idler Shaft				
			153.	163	Bearing Cap				

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© Eco #31 1-11-52 DAP



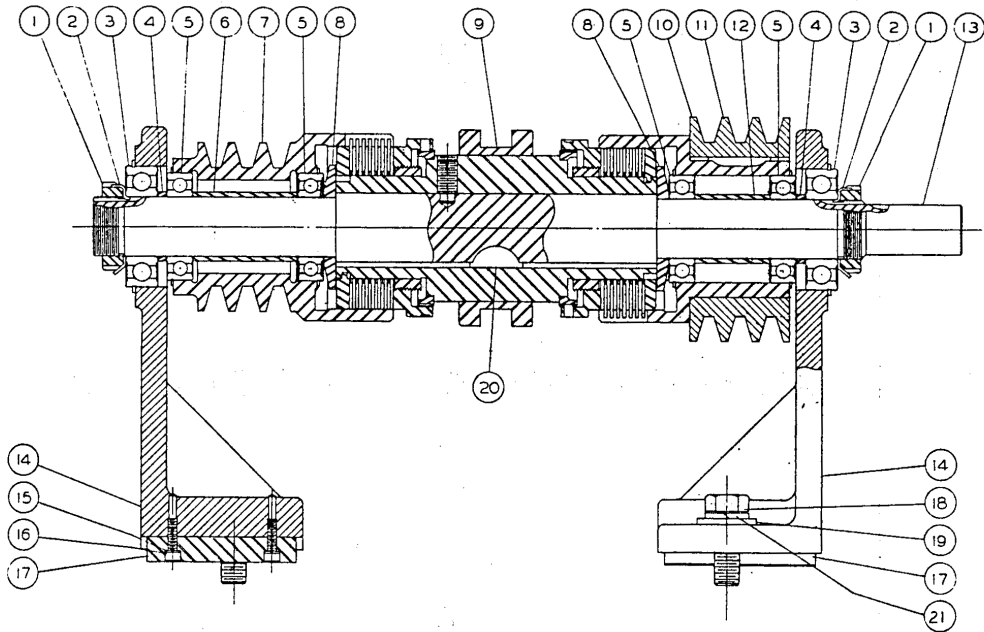
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|---|---------------|-----------------|
| 1 | 1020S-12A-293 | SPINDLE KNOB |
| 2 | SCHATZ °CS283 | THRUST BEARING |
| 3 | 1020R-12A-189 | LOOSE COLLAR |
| 4 | 1020R-2A-457 | BEARING SLEEVE |
| 5 | 1020S-12A-467 | DRAW-IN SPINDLE |

			SURFACE TREATMENT:		RIVETT LATHE & GRINDER, INC. BRIGHTON, BOSTON, MASS., U.S.A. BALL THRUST DRAW-IN SPINDLE
			HEAT TREATMENT:		
REV	REVISION	DATE BY			TOLERANCES UNLESS OTHERWISE SPECIFIED— DECIMALS: FRACTIONS: ANGLES:
MATERIAL:			TOOLS:		FACE FINISH:
MATERIAL SIZE:					BEVEL SURFACES:
PART. NO.:					SHARP CORNERS
ONE NO.:					REMOVE ALL BURRS
WEIGHT ROUGH—					DRAWN BY: R.W.G. 5-10-51
WEIGHT FINISHED—					CHECKED BY:
APPROVAL NO.					TRACED BY:
NO. REV. PER APPROV.					SCALE: FULL SIZE
					FIG. NO. LN-1020S-A



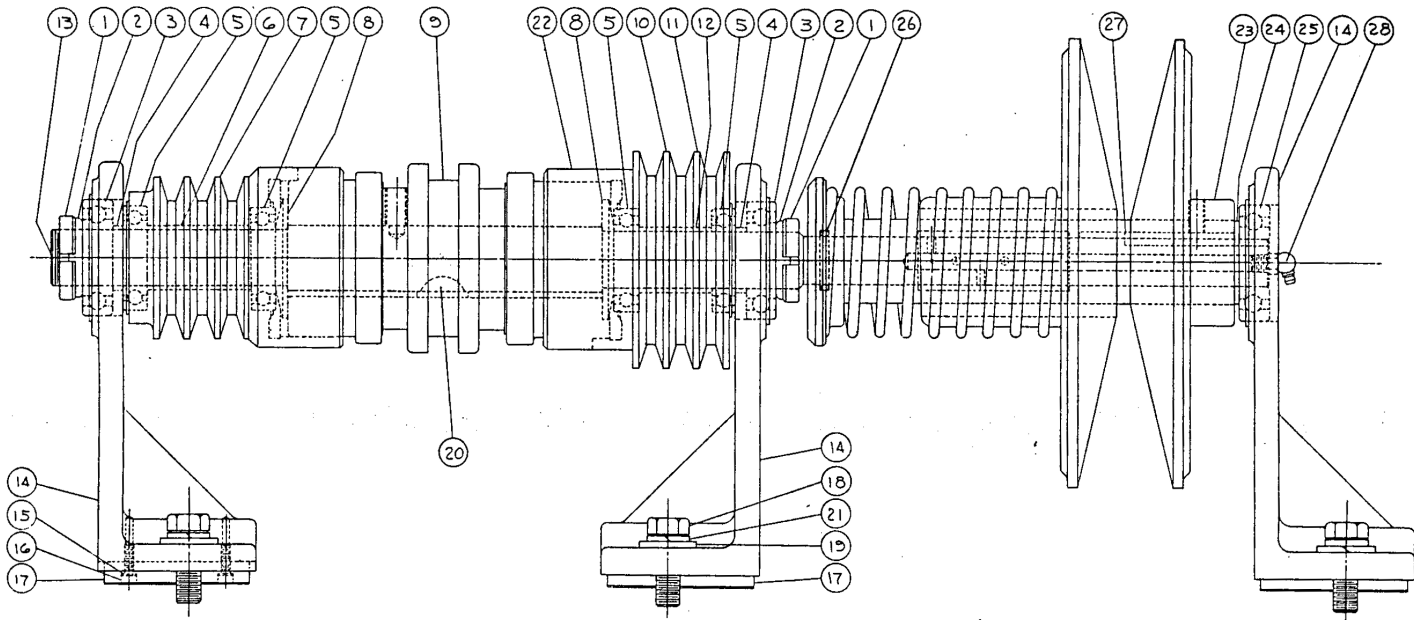
- 1 ND499506 BEARING
- 2 1020 S-16-388 OUTPUT SHEAVE
- 3 W-06 LOCKWASHER
- 4 N-06 LOCKNUT
- 5 1020S-16-437 SHAFT
- 6 HP806 KEY
- 7 1/2 WASHER
- 8 1/2-13NC BOLT 1 1/2 LG.
- 9 1020S-16-386 STANDARD SHEAVE
- 10 1020S-16-387 SPECIAL SHEAVE
- 11 1020S-16-568 SUPPORT
- 12 1020S-16-287 KEY
- 13 10-32 X1/2LG CAP SCREW
- 14 LOCKWASHER FOR #10 SCREW
- 15 LOCKWASHER FOR 1/2 SCREW

DATE	DESIGNED	CHECKED	DATE	BY	DATE
<small>REWORKED SHEET PREVIOUS EDITIONS - REVISE PREVIOUS EDITIONS</small> C'SHAFT ASSEMBLY <small>REVISIONS: PARTS NO. QUANTITY</small>					
<small>SUPPLIER TAG</small> <small>PART NO.</small> <small>REV. NO.</small> <small>DATE</small> <small>QUANTITY</small> <small>PROPERTY</small>			<small>SERVICE MATERIAL</small> <small>PART NUMBER</small> <small>QUANTITY</small>		
<small>REWORKED BY</small> <small>DATE</small>			<small>REVISED BY</small> <small>DATE</small>		
RIVETT LATHE & GRINDER, INC. <small>BRIDGE PLAZA, BURLINGAME, CALIF.</small> C'SHAFT ASSEMBLY <small>DATE: AUG. 3, 1954</small> <small>1020S-16A</small>					



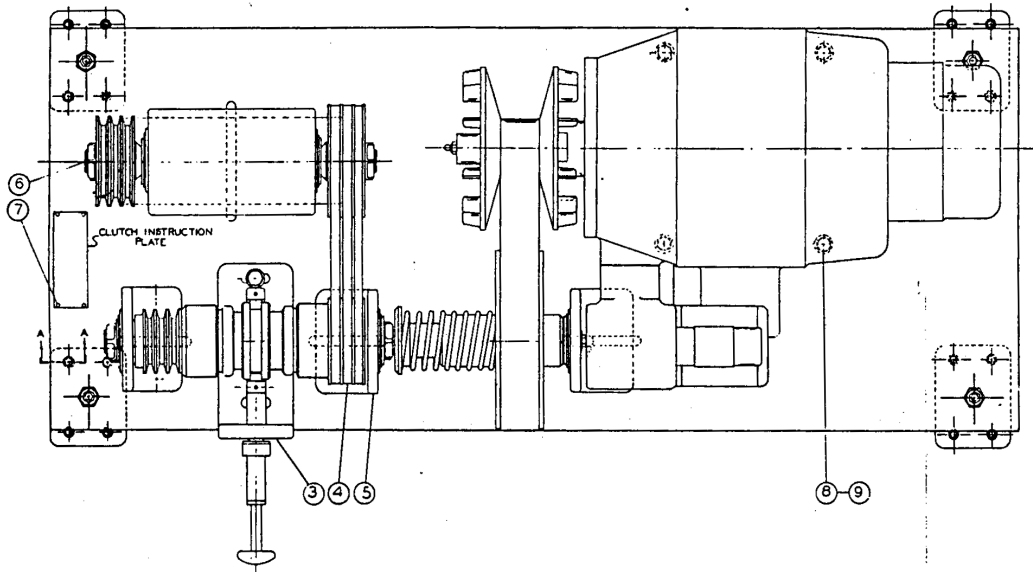
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|----------------------------------|--------------------------------------|-------------------|
| 1 N-06 LOCKNUT | 11 10205-16Y SHEAVE ASSEM. (SPECIAL) | 21 1/2 LOCKWASHER |
| 2 W-06 LOCKWASHER | 12 10205-16-474 SPACER | |
| 3 N.D. 499506 BEARING | 13 10205-16-439 SHAFT | |
| 4 10205-16-473 SPACER | 14 10205-16-145 BRACKET | |
| 5 N.D. 4993L06 BEARING | 15 10 LOCKWASHER | |
| 6 10205-16-475 SPACER | 16 10-32 x 1/2 ALLEN CAP SCREW | |
| 7 10205-16-389 SHEAVE | 17 10205-16-287 KEY | |
| 8 10205-16-476 SPACER | 18 1/2-13 x 1 1/4 HEX HEAD BOLT | |
| 9 23 MAXITORG CLUTCH | 19 1/2 PLAIN WASHER | |
| 10 10205-16X SHEAVE ASSEM. (STD) | 20 1/2 HP 808 HI-PRO KEY | |

RIVETT LATHE & GRINDER, INC. MILWAUKEE, WISCONSIN 53121	
CLUTCH SHAFT ASSEM.	
MATERIALS AND FINISHES DEPARTMENT	
DATE: _____	TIME: _____
BY: _____	BY: _____
CHECKED BY: _____	CHECKED BY: _____
APPROVED BY: _____	APPROVED BY: _____
REVISIONS:	REVISIONS:
NO. 1	NO. 1
DATE: _____	DATE: _____
BY: _____	BY: _____
CHECKED BY: _____	CHECKED BY: _____
APPROVED BY: _____	APPROVED BY: _____
10205-16C	

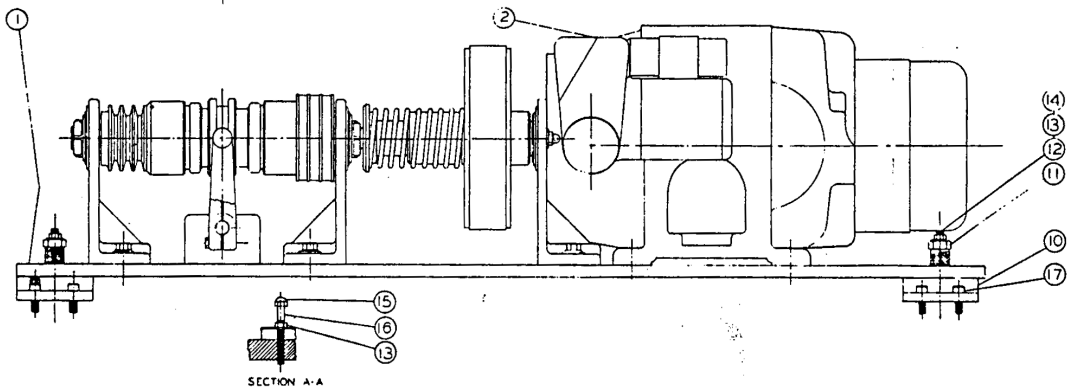


- | | | |
|----------------------------------|-------------------------------------|--------------------------------------|
| 1 N-06 LOCKNUT | 11 10205-16Y SHEAVE ASSEM.(SPECIAL) | 21 1/2 LOCKWASHER |
| 2 W-06 LOCKWASHER | 12 10205-16-474 SPACER | 22 10205-16-543 CLUTCH CUP |
| 3 N.D. *432506 BEARING | 13 10205-16-43DA SHAFT | 23 D-2472 US VARIDRIVE SHEAVE ASSEM. |
| 4 10205-16-473 SPACER | 14 10205-16-145 BRACKET | 24 10205-16-477 BEARING SPACER |
| 5 N.D.*493306 BEARING | 15 "O LOCKWASHER | 25 N.D.*450605 BEARING |
| 6 10205-16-475 SPACER | 16 "10-32 x 1/2 ALLEN CAP SCREW | 26 US VARI SHEAVE "O" RING |
| 7 10205-16-38D SHEAVE | 17 10205-16-287 KEY | 27 U.S.VARI SHEAVE KEY |
| 8 10205-16-476 SPACER | 18 1/2-13 x 1 1/2 HEX HD. BOLT | 28 "1412" ALEMITE Grease Fitting |
| 9 "23 MAXITORQ CLUTCH | 19 1/2 PLAIN WASHER | |
| 10 10205-16 X SHEAVE ASSEM.(STD) | 20 "H R 808 HI-PRO KEY | |

RIVETT LATHE & GRINDER, INC. BOSTON, MASS. 02114	
CLUTCH SHAFT ASSEMBLY	
TOLERANCES UNLESS OTHERWISE SPECIFIED:	
FINISHES:	FUNCTIONS: DIMENSIONS:
DATE: TIME:	DRY: WET:
APPROVED: CHECKED:	DESIGNED: DRAWN:
BY: DATE:	BY: DATE:
10205-16 E	

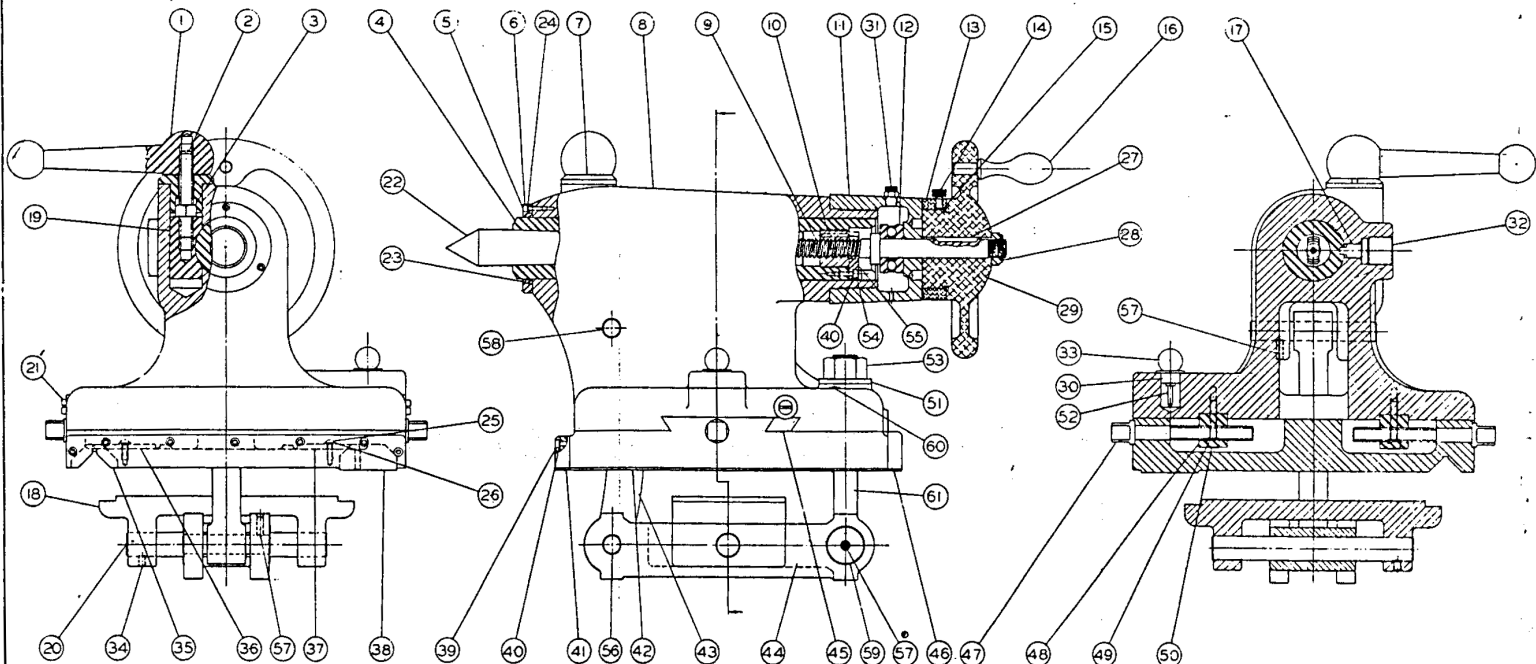


1	10205-16-374	DRIVE PLATE
2	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
3	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
4	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
5	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
6	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
7	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
8	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
9	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
10	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
11	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
12	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
13	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
14	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
15	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
16	1/2-18-2-1/2	HEX HD BOLT (5 HPI)
17	1/2-18-2-1/2	HEX HD BOLT (5 HPI)



SECTION A-A

RIVETT LATHE & GIBSON, INC.	
DRIVE PLATE ASSEM.	
10205-16-FUS	
DATE: 10/15/53	
BY: J. W. B. / J. W. B.	
CHECKED: J. W. B. / J. W. B.	
APPROVED: J. W. B. / J. W. B.	
MATERIALS: J. W. B. / J. W. B.	
FINISH: J. W. B. / J. W. B.	
TOLERANCES: J. W. B. / J. W. B.	
DIMENSIONS: J. W. B. / J. W. B.	
WEIGHT: J. W. B. / J. W. B.	
VOLUME: J. W. B. / J. W. B.	
REVISIONS: J. W. B. / J. W. B.	
REVISION 1: J. W. B. / J. W. B.	
REVISION 2: J. W. B. / J. W. B.	
REVISION 3: J. W. B. / J. W. B.	
REVISION 4: J. W. B. / J. W. B.	
REVISION 5: J. W. B. / J. W. B.	
REVISION 6: J. W. B. / J. W. B.	
REVISION 7: J. W. B. / J. W. B.	
REVISION 8: J. W. B. / J. W. B.	
REVISION 9: J. W. B. / J. W. B.	
REVISION 10: J. W. B. / J. W. B.	
REVISION 11: J. W. B. / J. W. B.	
REVISION 12: J. W. B. / J. W. B.	
REVISION 13: J. W. B. / J. W. B.	
REVISION 14: J. W. B. / J. W. B.	
REVISION 15: J. W. B. / J. W. B.	
REVISION 16: J. W. B. / J. W. B.	
REVISION 17: J. W. B. / J. W. B.	
REVISION 18: J. W. B. / J. W. B.	
REVISION 19: J. W. B. / J. W. B.	
REVISION 20: J. W. B. / J. W. B.	

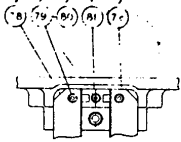


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|----|----------------|---------------------------|----|--------------------|-------------------------|----|-----------------------|------------------------|----|---------------|-----------------|
| 1 | 1Q20R-22-257 | SPINDLE BINDER HANDLE | 21 | 1Q20R-22-639 | GIB LOCKING SCREW | 33 | 5/8" DIA | PLASTIC BALL | 53 | 5/8-11 | REG HEX NUT |
| 2 | 1Q20R-22-142 | BINDER BOLT | 22 | 1Q20R-22-723 | PLAIN CENTER | 34 | *10-32-1/4 LG | ALLEN SET SCREW | 54 | *5-40-3/8 LG | ALLEN CAP SCREW |
| 3 | 3/8-24 | HEX NUT | | 1Q20R-22-724 | FEMALE CENTER | 35 | 1Q20R-22-863 | WPER PAD | 55 | 1Q20R-22-514 | NUT TONGUE |
| 4 | 1Q20R-22-467 | SPINDLE | | 1Q20R-22-725 | HALF MALE CENTER | 36 | 1Q20R-22-864 | OL RESEVOR PAD | 56 | 1Q20S-22-359 | PIVOT PIN |
| 5 | *4-40-3/8 LG | ALLEN CAP SCREW | | 1Q20R-22-726 | LARGE MALE CENTER | 37 | 1Q20R-22-865 | OL RESEVOR PAD | 57 | *10-32-1/2 LG | ALLEN SET SCREW |
| 6 | 1Q20R-22-411 | WPER PAD RETAINER | | 1Q20R-22-727 | SOLID Y CENTER | 38 | 1Q20R-22-862 | ALLEN CAP SCREW | 58 | 1Q20S-22-358 | WPER PAD |
| 7 | 1Q20R-22-188 | SPINDLE BINDER COLLAR | | 1Q20R-22-728 | BLANK CENTER | 39 | *5-40-1/2 LG | ALLEN CAP SCREW | 59 | 1Q20S-22-327 | BINDER STUD NUT |
| 8 | 1Q20S-22-508 | CONSTANT BEARING TALSTOCK | | 1Q20R-22-768 | DRILL PLATE SHANK | 40 | *5(1Q22+D22 SECT) | B&H LOCK WASHER | 60 | GITS GB 521 | OIL HOLE COVER |
| 9 | 1Q20R-22-137 | FEED SCREW | | 1Q20R-22-770 | *34 JACOBS CHUCK SHANK | 41 | 1Q20R-22-410 | RETAINER FOR WPER PADS | 61 | 1Q20S-22-497 | BINDER STUD |
| 10 | 1Q20R-22-326 | SPINDLE NUT | | 1Q20R-22-771 | *32 JACOBS CHUCK SHANK | 42 | 1Q20R-22-115 | BASE | | | |
| 11 | 1Q20R-22-324 | BEARING NUT | 23 | 1Q20R-22-861 | SPINDLE WPER PAD | 43 | 1Q20S-22-302 | VERT. BINDER LEVER | | | |
| 12 | NH-TYPE WH-1/2 | BALL THRUST BEARING | 24 | *4(1Q22+D22 SECT) | B&H LOCK WASHER | 44 | 1Q20S-22-303 | HOR. BINDER LEVER | | | |
| 13 | 1Q20R-22-193 | DIAL | 25 | *6-32-5/8 LG | ROUND HD MACH SCREW | 45 | 1Q20R-22-245 | GIB | | | |
| 14 | 1Q20R-22-638 | SET SCREW | 26 | *6(5/32 ID x 3/64) | PLAIN WASHER | 46 | 1Q20R-22-409 | RETAINER FOR WPER PADS | | | |
| 15 | 1Q20R-22-511 | DIAL THUMB SCREW TIP | 27 | *4-40-1-1/4 LG | HYPRO-KEY | 47 | 1Q20R-22-640 | OFFSET SCREW | | | |
| 16 | BALCRANK 3304 | HANDWHEEL HANDLE | 28 | ESNA 78 TE-080 | 1/2-20 ELASTIC STOP NUT | 48 | 1Q20R-22-135 | OFFSET SCREW BLOCK | | | |
| 17 | 1Q20R-22-287 | SPINDLE KEY | 29 | 1Q20R-22-531 | HANDWHEEL | 49 | *10(3/64 x 3/64 SECT) | B&H LOCK WASHER | | | |
| 18 | 1Q20S-22-451 | BINDER SHOE | 30 | 1Q20S-22-356 | OLING PIN HEAD | 50 | *10-32-PLG | ALLEN CAP SCREW | | | |
| 19 | 1Q20R-22-128 | SPINDLE BINDER | 31 | STYLE RS 541 | OL HOLE COVER (GITS) | 51 | 5/8 I.D. | PLAIN WASHER | | | |
| 20 | 1Q20S-22-360 | PIVOT PIN | 32 | 3/4-10-5/8 LG | ALLEN SET SCREW | 52 | 1Q20S-22-357 | OILING PIN | | | |

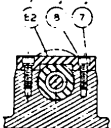
DATE	BY
DESIGNED BY	CHECKED BY
APPROVED BY	

DATE	BY
DESIGNED BY	CHECKED BY
APPROVED BY	

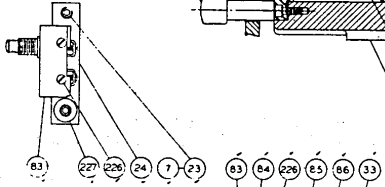
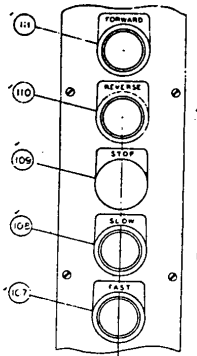
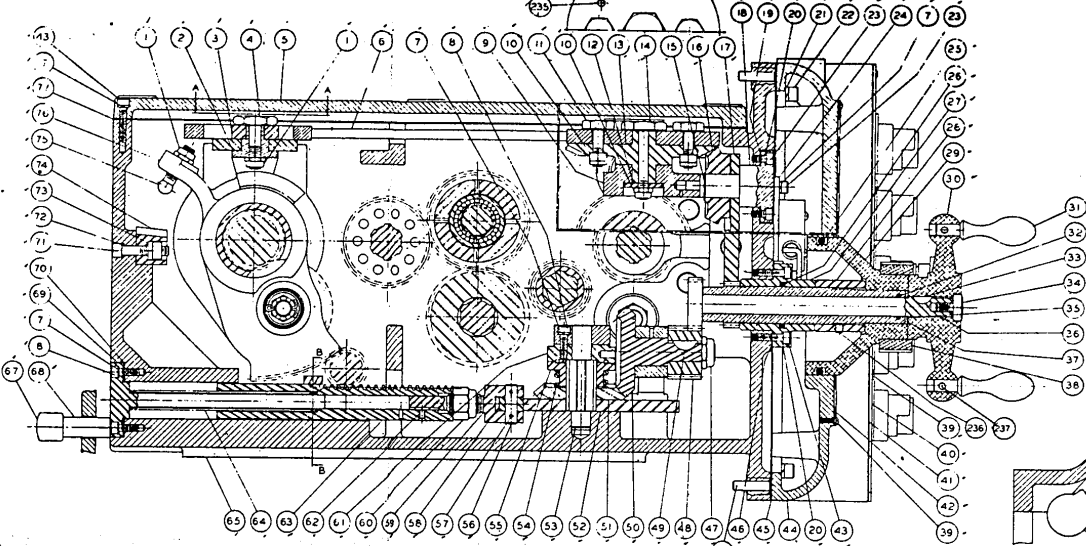
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TAILSTOCK	
1Q20R-22	



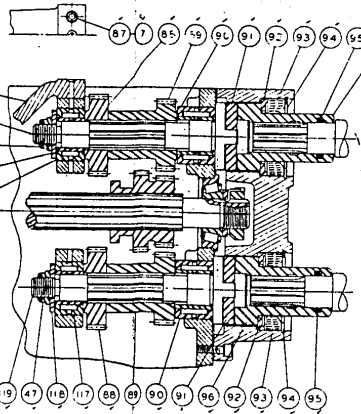
SECTION A-A



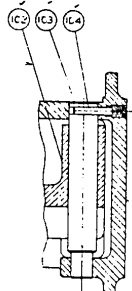
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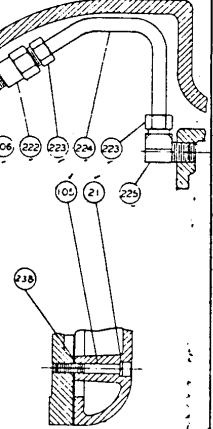
SECTION C-C



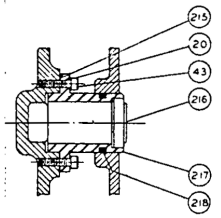
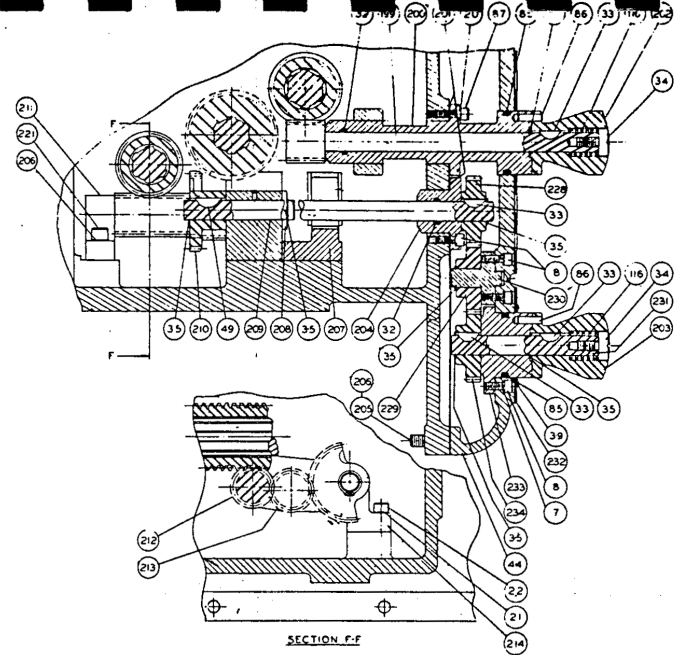
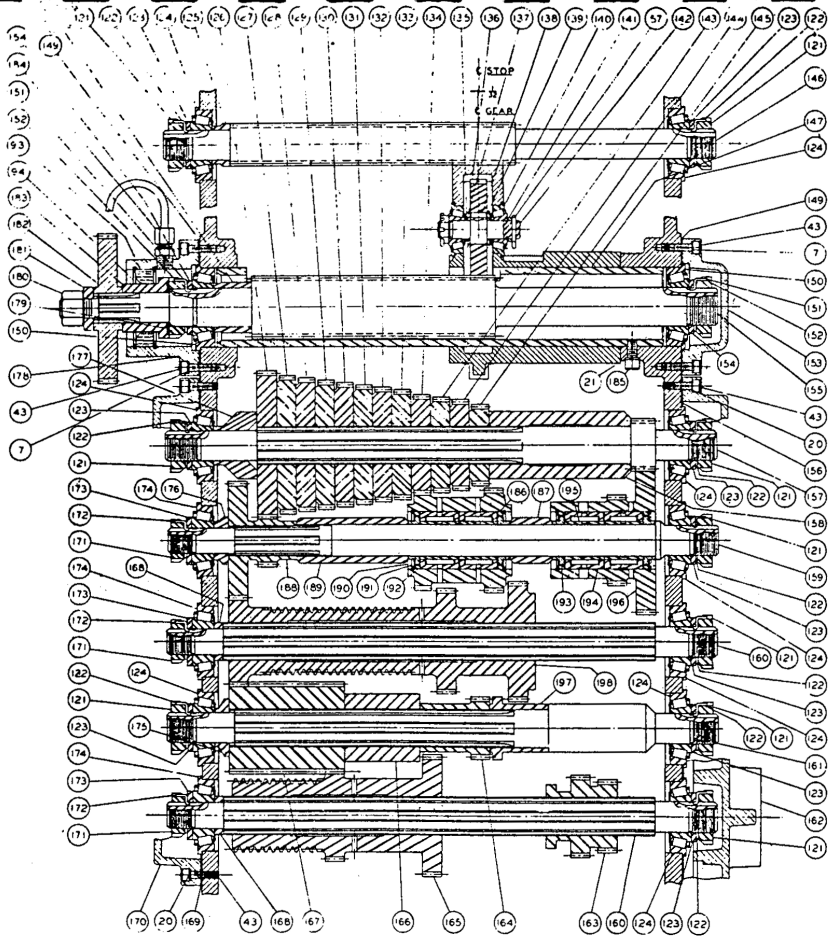
SECTION D-D



SECTION E-E



RIVETT LATHE & GRINDER, INC. 10205-20	
GEAR BOX	
Part No. 10205-20 Description Date Drawing No.	Material Quantity Unit Price Total Remarks



SHEET 2 OF 2

RIVETT LATHE & GRINDER, INC. GEAR BOX	
DRAWN BY: _____ CHECKED BY: _____ DATE: _____	PART NO.: 10209-20 QUANTITY: _____ MATERIAL: _____ FINISH: _____ TOLERANCES: _____ THREADS: _____ KEYWAYS: _____ HOLE LOCATIONS: _____ HOLE DIAMETERS: _____ HOLE DEPTHS: _____ HOLE ANGLES: _____ HOLE SPACINGS: _____ HOLE OFFSETS: _____ HOLE DRILLING: _____ HOLE TAPPING: _____ HOLE REAMING: _____ HOLE BORE: _____ HOLE FINISH: _____ HOLE INSPECTION: _____ HOLE REPORT: _____ HOLE RECORD: _____ HOLE ARCHIVE: _____ HOLE BACKUP: _____ HOLE HISTORY: _____ HOLE STATUS: _____ HOLE COMMENTS: _____

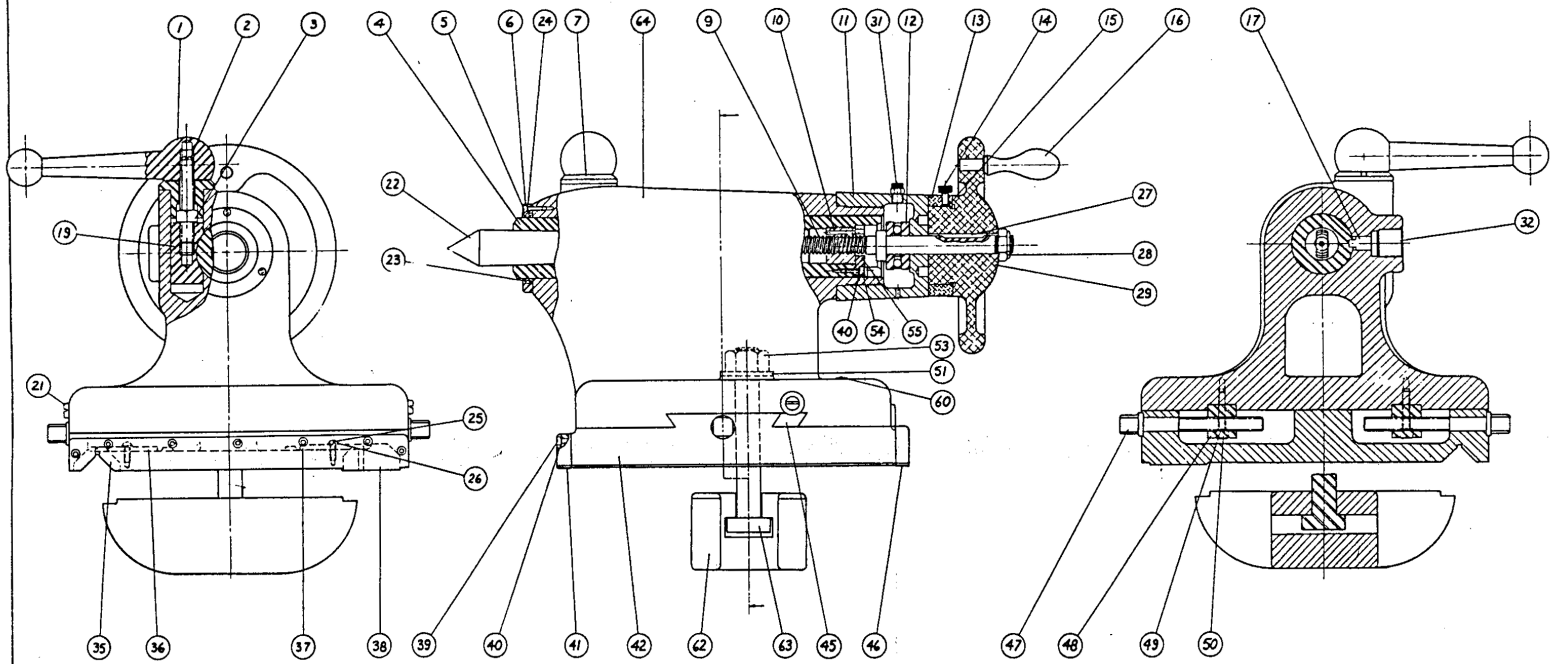
10209-20

1020S-20- GEAR BOX KEYSHEET

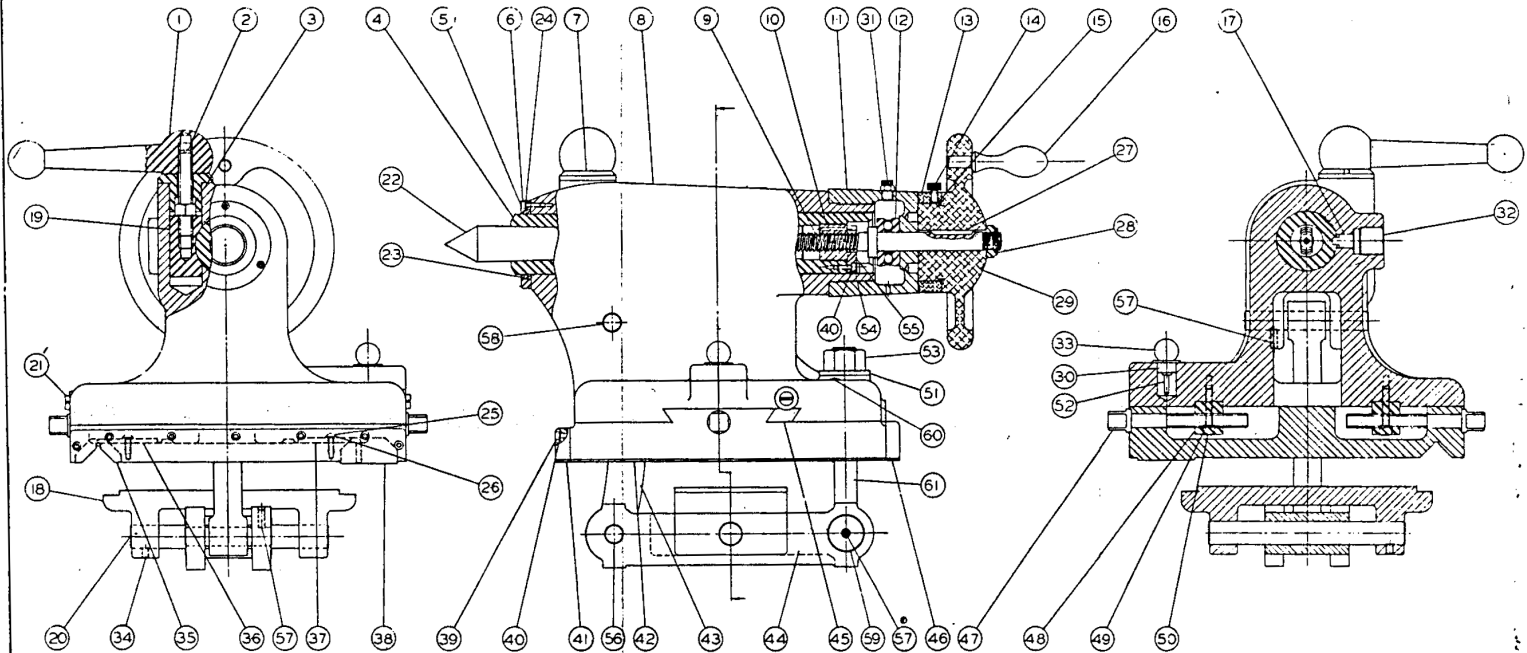
1.	Eana #297E-054	Elastic Lock Nut	80.
2.	1020R-20-20	Tumbler Shifter Fork	81.
3.	136	Tumbler Shifter Pivoting Block	82.
4.	142	Tumbler Shifter Bolt	83.
5.	377	Top Cover Plate	84.
6.	110 H.C.	Tumbler Shifter Arm	85.
7.	#10-12 x 1/2	B & H Lockwasher	86.
8.	1020S-20-14.5	Allen Cap Screw	87.
9.	Eana #298-048	Tumbler Shifter Pivot Bracket	88.
10.	1020R-20-143	Elastic Lock Nut	89.
11.	522	Tumbler Shifter Arm Bolt	90.
12.	250	Tumbler Shifter Pivot Washer	91.
13.	144	Tumbler Shifter Drive Bevel Gear	92.
14.	Waldee #5100-62	Tumbler Shifter Pivot Bolt	93.
15.	1020R-20-24.9	Truarc Retaining Ring	94.
16.	24.8	Tumbler Shifter Driving Bevel Gear	95.
17.	367	Tumbler Shifter Gear Segment	96.
18.	905	Tumbler Shifter Gear Pivot	97.
19.	526	Tumbler Shifter Gear Pivot Gasket	98.
20.	1/4 H.C.	#10 Leak Proofing Washer	99.
21.	1/4-28 x 7/8	B & H Lockwasher	100.
22.	#10-32 x 3/4	Allen Cap Screw	101.
23.	1020S-20-378	Limit Switch Plate	102.
24.	AN6227-43	"O" Packing Ring	103.
25.	AN6227-19	"O" Packing Ring	104.
26.	1020S-20-151	Tumbler Control Bushing	105.
27.	463	Tumbler Control Spacer	106.
28.	1020R-20-258	Tumbler Shifter Handle	107.
29.	257	Cam Control Handle	108.
30.	Balerand #R-3304	Handle	109.
31.	AN6227-10	"O" Packing Ring	110.
32.	Morton #HP-403	Hi-Pro Key	111.
33.	1020S-20-638	Control Knob Screw	112.
34.	Waldee #5100-50	Truarc Retaining Ring	113.
35.	247	Tumbler Control Driving Gear	114.
36.	1020R-20-292	Tumbler Shifter Driving Gear	115.
37.	#5-40 x 1/4	Tumbler Shifter Knob	116.
38.	1020S-20-374	Rd.Hd. Machine Screw	117.
39.	741	Switch Plate	118.
40.	375	Switch Plate Gasket	119.
41.	#10-32 x 3/4	Front Plate	120.
42.	1020S-20-180	Allen Cap Screw	121.
43.	742	Front Cover	122.
44.	1020R-20-992	Front Cover Gasket	123.
45.	Eana #297E-080	Tumbler Control Bushing Gasket	124.
46.	1020R-20-245	Elastic Lock Nut	125.
47.	Morton #HP-504	Tumbler Control Driven Gear	126.
48.	1020R-20-815	Hi-Pro Key	127.
49.	816	Cam Driving Bevel Gear	128.
50.	844	Cam Shifter Bevel Gear	129.
51.	445	Tumbler Control Cam	130.
52.	480	Cam Shaft	131.
53.	514	Cam Detent Spring	132.
54.	352	Cam Detent Tongue	133.
55.	1/32 d. x 1 1/2 lg.	Detent	134.
56.	1020R-20-477	Cam Roller Pin	135.
57.	926	Cotter Pin	136.
58.	Eana #298-080	Cam Roller	137.
59.	1020R-20-551	Cam Roller Carrier	138.
60.	287	Cam Roller Pin	139.
61.	479	Elastic Lock Nut	140.
62.	401	Cam Detent Catch	141.
63.	160	Tumbler Control Reak Tee Key	142.
64.	1/4 NPT	Tumbler Control Reak Tee Key	143.
65.	1020R-20-568	Tumbler Return Spring	144.
66.	991	Gear Box	145.
67.	1/4-20 x 1-1/4 16.	Pipe Cap	146.
68.	1020R-20-523	Pipe Hipple	147.
69.	72	Spring Support	148.
70.	Eana #298-040 Nut	Spring Support Gasket	149.
71.	1020R-20-114	Tumbler Stop Block	150.
72.	639	1/4 Leak Proofing Washer	151.
73.	148	Elastic Lock Nut	152.
74.	990	Tumbler Stop Block	153.
75.	414	Tumbler Bracket Stop Screw	154.
76.	414	Tumbler Bracket	155.
77.	414	Tumbler Bracket	156.
78.	414	Tumbler Bracket	157.
79.	#6-32 x 3/8	Top Cover Plate Gasket	158.
		Allen Cap Screw	159.

B & H Lockwasher	160.
161.	161.
162.	162.
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441	#B Compound Shaft
442	#C Compound Shaft
375	Right Hand Cover Plate
1020S-20-811	#D Compound Gear
1020R-20-214	#E Compound Gear
1020R-20-812	#F Compound Gear
199	#G Compound Shaft First Spacing Coll
1020R-20-243	#I Compound Gear
1020S-20-197	#J Compound Shaft Collar
1020R-20-374	Left Hand Cover Plate Gasket
#NO3 B	Left Hand Cover Plate
#NO3	Bearing Nut
1020R-20-190	Bearing Lockwasher
#NO3 Lockwasher	#K Compound Shaft Collar
#NO3E5B Cup & Cone	Timken Roller Bearing
1020R-20-198	#L Compound Shaft Collar
198	#M Compound Shaft Collar
193	Cone Gear Shaft Collar
376	Seal Retaining Plate
650	Tumbler Drive Shaft Seal
1/2-13	Hex Nut
1020R-20-191	1/2 Hex. Nut Wear Collar
1020R-23-812	Change Gears
1020R-20-476	Tumbler Drive Shaft Gear Spacer
Weatherhead #8 x 3	Cam Ring Shaft Connector
1/4-28 x 1/2	Allen Cap Screw
1020R-20-528	Snap Ring Washer
196	#A Compound Shaft 2nd Spacing Collar
1020R-20-252	#B Compound Gear
195	#A Compound Shaft 1st Spacing Collar
241	#A-2 Compound Gear
Waldee #5000-150	Truarc Retaining Ring
1020R-20-52	Cam Ring Thrust Washer
118	#A Compound Shaft Thrust Washer
McGill #MO16	Solidend Multitrol Bearing
1020R-20-405	#A Compound Shaft Bearing Race
240	#A3 Compound Gear
197	#C Compound Shaft 2nd Spacing Collar
242	#B Compound Gear
1020S-20-251	"B" Control Gear
457	"C" Control Sleeve
1020S-20-993	Control Sleeve Gasket
294	"B" Shaft Control Knob
295	"A" Shaft Control Knob
458	"A" Control Sleeve
5/16-18 x 5/8	Allen Cap Screw
16 H.C.	B&H Lockwasher
1020S-20-147	Control Bevel Bearing Bracket
1020R-20-523	"A" Control Washer
1020S-20-446	"A" Control Shaft
1020R-20-252	"A" Control Driving Gear
133	Control Gear Bearing Block
254	"A" Control Driven Gear
7/8	"A" Control Idler Gear
1020R-20-146	Tumbler Cam Bearing Bracket
988	Cage Glass Flange Gasket
Bijur #B-5093	Oil Sight Gage
1020S-20-218	Cage Glass Flange
AN6227-23	"O" Packing Ring
MO-12-N & MI-9-N	McGill Solidend Multitrol Bearing
1020S-20-411	Idler Gear Retainer (2)
5/16-18 x 7/8	Allen Cap Screw (8)
Weatherhead #250 x 6	Female Connector
Weatherhead #105 x 6	Nut
3/8 dia.	Copper Tube
Weatherhead #400 x 6	Cast Elbow
#6-32 x 3/4 16.	Rd. Hd. Machine Screw
1020R-23-522	Stop Rod Washer
1020R-20-818	"A" Control Driven Gear
819	"A" Control Idler Gear
437	"A" Control Idler Spud
450	"A" Control Shaft (Cover)
379	"A" Control Plate
460	"A" Control Sleeve (Cover)
820	"A" Control Driving Gear (Cover)
235.	Taper Pin
#10-32 x 1/4 16.	Allen Set Screw
236	Roll Pin
Eana #59-028-125-0875	Gasket Washer
238.	Dowel Pins
1/4 dia. x 1" 16.	



RIVETT LATHE & GRINDER, INC.	
TAILSTOCK	
1020S-22	
Part No.	Rev.
Material	Quantity
Drawn by	Checked by
Approved by	Date
Scale	Notes

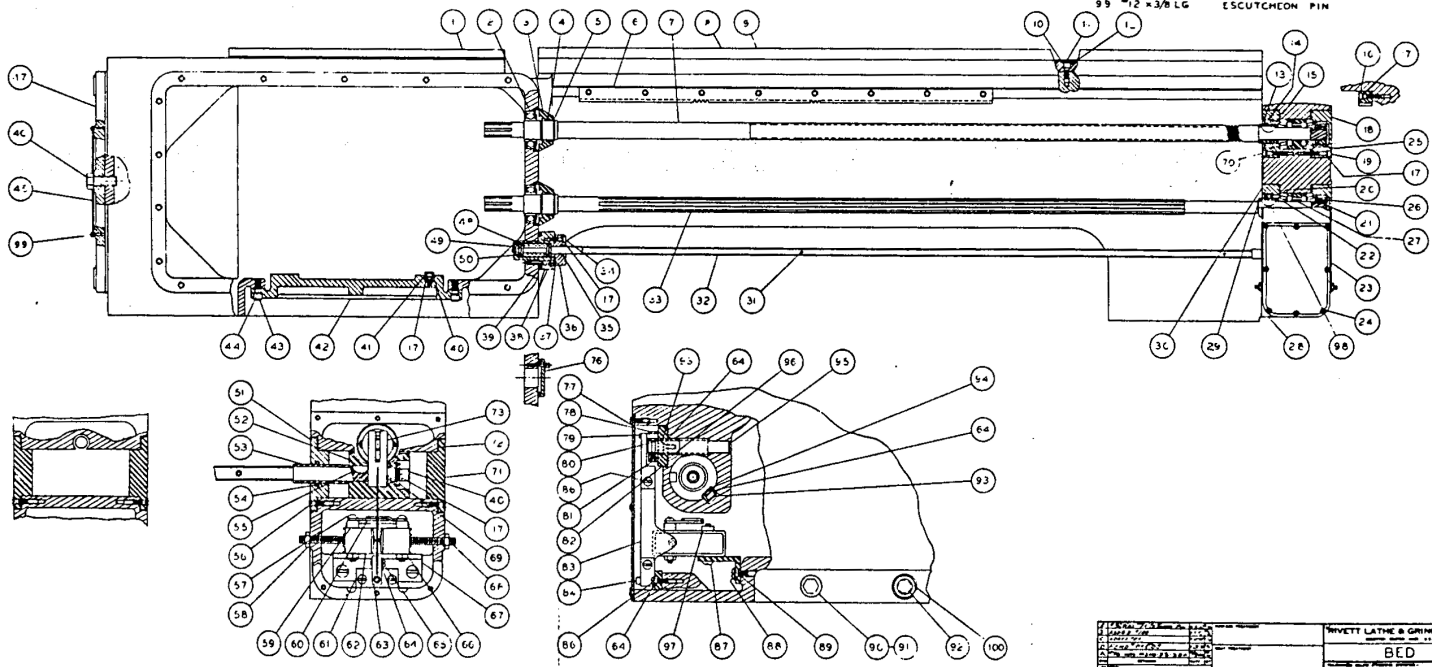


- | | | | | | | | | | | | |
|----|---------------|-----------------------------|----|-------------------|-------------------------|----|----------------------|-------------------------|----|---------------|-----------------|
| 1 | 1020R-22-257 | SPINDLE BINDER HANDLE | 21 | 1020R-22-639 | GB LOCKING SCREW | 33 | 5/8 DIA | PLASTIC BALL | 53 | 5/8-11 | REG HEX NUT |
| 2 | 1020R-22-142 | BINDER BOLT | 22 | 1020R-22-723 | PLAIN CENTER | 34 | *10-32-1/4 LG | ALLEN SET SCREW | 54 | *5-40-3/8 LG | ALLEN CAP SCREW |
| 3 | 3/8-24 | HEX NUT | | 1020R-22-724 | FEMALE CENTER | 35 | 1020R-22-863 | WIPER PAD | 55 | 1020R-22-614 | NUT TONGUE |
| 4 | 1020R-22-467 | SPINDLE | | 1020R-22-725 | HALF MALE CENTER | 36 | 1020R-22-864 | OL RESEVOR PAD | 56 | 1020S-22-359 | PIVOT PIN |
| 5 | *4-40-3/8 LG | ALLEN CAP SCREW | | 1020R-22-726 | LARGE MALE CENTER | 37 | 1020R-22-865 | OL RESEVOR PAD | 57 | *10-32-1/2 LG | ALLEN SET SCREW |
| 6 | 1020R-22-411 | WIPER PAD RETAINER | | 1020R-22-727 | SOLID V CENTER | 38 | 1020R-22-862 | WIPER PAD | 58 | 1020S-22-358 | PIVOT PIN |
| 7 | 1020R-22-188 | SPINDLE BINDER COLLAR | | 1020R-22-728 | BLANK CENTER | 39 | *5-40-1/2 LG | ALLEN CAP SCREW | 59 | 1020S-22-357 | BINDER STUD NUT |
| 8 | 1020S-22-509 | CONSTANT BEARING TAIL STOCK | | 1020R-22-769 | DRILL PLATE SHANK | 40 | *1(022+D22 SECT) | B&H LOCK WASHER | 60 | GTS 5/8-32H | OIL HOLE COVER |
| 9 | 1020R-22-637 | FEED SCREW | | 1020R-22-770 | *14 JACOBS CHUCK SHANK | 41 | 1020R-22-410 | RETAINER FOR WIPER PADS | 61 | 1020S-22-497 | BINDER STUD |
| 10 | 1020R-22-326 | SPINDLE NUT | | 1020R-22-771 | *32 JACOBS CHUCK SHANK | 42 | 1020R-22-115 | BASE | | | |
| 11 | 1020R-22-324 | BEARING NUT | 23 | 1020R-22-861 | SPINDLE WIPER PAD | 43 | 1020S-22-302 | VERT BINDER LEVER | | | |
| 12 | NH-TYPE W-1/2 | BALL THRUST BEARING | 24 | *4(022+D22 SECT) | B&H LOCK WASHER | 44 | 1020S-22-303 | HOR BINDER LEVER | | | |
| 13 | 1020R-22-193 | DIAL | 25 | *8-32-1/8 LG | ROUND HD B&H SCREW | 45 | 1020R-22-245 | GB | | | |
| 14 | 1020R-22-638 | SET SCREW | 26 | *6(5/32 ID, 3/64) | PLAIN WASHER | 46 | 1020R-22-409 | RETAINER FOR WIPER PADS | | | |
| 15 | 1020R-22-511 | DIAL THUMB SCREW TYP | 27 | *8-40-1/4 LG | HYPRO-KEY | 47 | 1020R-22-640 | OFFSET SCREW | | | |
| 16 | 1020R-22-287 | HANDWHEEL HANDLE | 28 | ESNA 20 TE-080 | 1/2-20 ELASTIC STOP NUT | 48 | 1020R-22-135 | OFFSET SCREW BLOCK | | | |
| 17 | 1020R-22-481 | SPINDLE KEY | 29 | 1020R-22-531 | HANDWHEEL | 49 | *10(13/16-3/64 SECT) | B&H LOCK WASHER | | | |
| 18 | 1020S-22-451 | BINDER SHOE | 30 | 1020S-22-356 | OILING PIN HEAD | 50 | *10-32-1/2 LG | ALLEN CAP SCREW | | | |
| 19 | 1020R-22-128 | SPINDLE BINDER | 31 | STYLE RS-541 | OL HOLE COVER (GTS) | 51 | 5/8 I D | PLAIN WASHER | | | |
| 20 | 1020R-22-360 | PIVOT PIN | 32 | 3/4-10-5/8 LG | ALLEN SET SCREW | 52 | 1020S-22-357 | OILING PIN | | | |

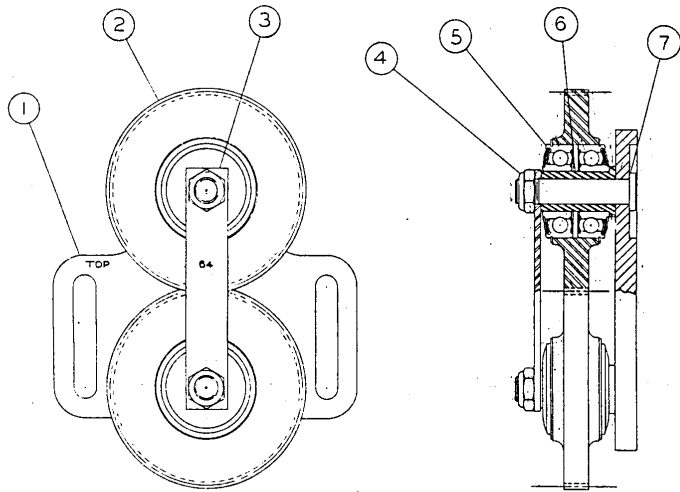
REV	DATE	BY	CHKD	APP'D

PIVETT LATHE & GRINDER, INC.	
TAIL STOCK	

1	10205-23-570	BED	25	1020R-20-190	W03 LOCKWASHER WEAR COLLAR	49	29TE-084	ESNA STOP NUT	73	10205-23-539	SPRING YOKE
2	ND 7/16-485205	BALL BEARING	26	7/16-63	BEARING LOCKNUT	50	FOR 1/4 SCR	PLAIN WASHER-HEAVY	74		
3	1020R-23-444	BEARING SHIELD	27	1020R-23-478	BEARING CUP SPACER	51	10205-23-410	SEAL RETAINER	75		
4	AN 6227-19	O RING PACKING	28	10205-23-133	BEARING BLOCK	52	10205-23-402	SWITCH CONTROL RACK	76	10205-23-381	SOLE PLUG
5	5103-100	WALDES TRUARC RETAINING RING	29	5103-6R	WALDES TRUARC RETAINING RING	53	10205-23-191	STOP ROD COLLAR	77	10205-23-993	BEARING BLOCK COVER GASKET
6	10205-23-401	RACK	30	1020R-23-409	SEAL RETAINER	54	AN 6227-10	O RING PACKING	78	10205-23-192	C-PLATE COLLAR
7	1020R-23-637	LEAD SCREW	31	3/4-40-3/8	ALLEN CAP SCREW	55	WHITNEY 7	WOODRUFF KEY	79	1/8 DIA-1/2 LG	ALLEN DOWEL PIN
8	10205-23-570C	STEEL WAY (FRONT)	32	10205-23-424	STOP ROD	56	3/4-40-3/8	OVAL HEAD MACH SCREW	80	AN 6227-6	O RING PACKING
9	10205-23-570D	STEEL WAY (REAR)	33	10206-23-425	FEED ROD	57	5/8-32-1 1/8 LG	RD HD MACH SCREW	81	5/8-32-1/4	ALLEN SOCKET SET SCREW
10	1/4 HC	B&H LOCKWASHER	34	10-32-5/8	ALLEN CAP SCREW	58	10-32	HEX MACH SCREW NUT	82	1020R-23-117	STOP CONTROL PINION BEARING
11	10205-23-379	SCREW PLUG	35	AN 6227-8	O RING PACKING	59	1020R-23-189	SWITCH RETAINING SPRING LOCK PLATE	83	10205-23-479	SWITCH CONTROL SPRING
12	1/4-20-5/8	ALLEN CAP SCREW	36	10205-23-119	STOP ROD BEARING	60	1020R-23-480	SWITCH RETAINING SPRING	84	5/8-32-5/8	ALLEN CAP SCREW
13	5103-11C	WALDES TRUARC RETAINING RING	37	10205-23-892	BEARING GASKET	61	10205-23-134	PIVOT BLOCK	86	5/40-3/8	ROUND HEAD MACH SCREW
14	602-45	VICTON SEAL	38	10205-23-411	SPRING RETAINER	62	W2-2R-A2	MICRO-SWITCH	87	6-32-1	ROUND HEAD MACH SCREW
15	1020R-23-190	SEAL WEAR COLLAR	39	1020R-23-998	STOP ROD BEARING GASKET	63	10205-23-348	SPRING PIVOT	88	8-32-3/8	ROUND HEAD MACH SCREW
16	10-32-1/4	ALLEN CAP SCREW	40	10-32-1/2	ALLEN CAP SCREW	64	5 HC	B&H LOCKWASHER	89	8 HC	B&H LOCKWASHER
17	10 HC	B&H LOCKWASHER	41	10205-23-515	BASE PLATE TONGUE	65	5/40-1/4	ROUND HEAD MACH SCREW	90	3/8-16-7/8	ALLEN CAP SCREW
18	10205-23-193	BEARING BLOCK BEARING COVER	42	10205-23-374	BASE PLATE	66	6-34	HEX MACH SCREW NUT	91	3/8 HC	B&H LOCKWASHER
19	10-32-1/4	ALLEN CAP SCREW	43	5/16-18-3/4	ALLEN CAP SCREW	67	1020R-23-677	SWITCH ANGLE	92	1020R-23-315	TAPER PIN
20	A6157	TIMKEN ROLLER BEARING CUP	44	5/16 HC	B&H LOCKWASHER	68	10-32-1/4	SLOTTED HD SET SCREW	93	5/40-3/8	ALLEN CAP SCREW
21	W-03	BEARING LOCKWASHER	45	10205-23-376	INSTRUCTION PLATE	69	1020R-23-522	STOP ROD WASHER	94	10205-23-288	RACK KEY
22	A6061	TIMKEN ROLLER BEARING CONE	46	1/2-13-1 1/4 LG	HEX HD CAP SCREW	70	10205-23-181	COVER	95	10205-23-229	CRANK GEAR
23	10205-23-182	BEARING BLOCK COVER	47	10205-23-375	END PLATE	71	10205-23-994	GASKET	96	1020R-23-49L	PIVOT BEARING GASKET
24	5/40-1/4	ROUND HEAD MACH SCREW	48	10205-23-6C1	ROD RETURN SPRING	72	3/8-24 X 5/16 HEX JAM NUT		97	1020R-23-488	SWITCH STRAP

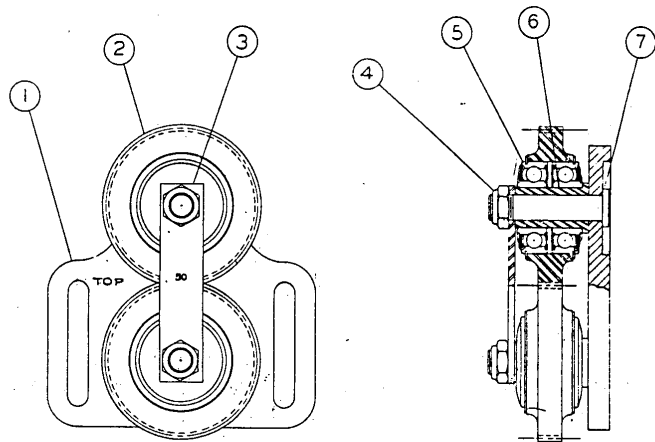


10205-23-193 BEARING BLOCK BEARING COVER 10205-23-193		INVETTI LATHE & GRINDER, INC. BED 10205-23
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1020S-23A
64T IDLER GEAR ASSEMBLY.

- 1 1020S-23-146 BRACKET
- 2 1020R-23-227 IDLER GEAR
- 3 1020R-23-485 STRAP
- 4 *29TE-080 ESNA NUT
- 5 *487504-V N.D. BALL BRG.
- 6 1020R-23-151 BUSHING.
- 7 1020R-23-826 BOLT

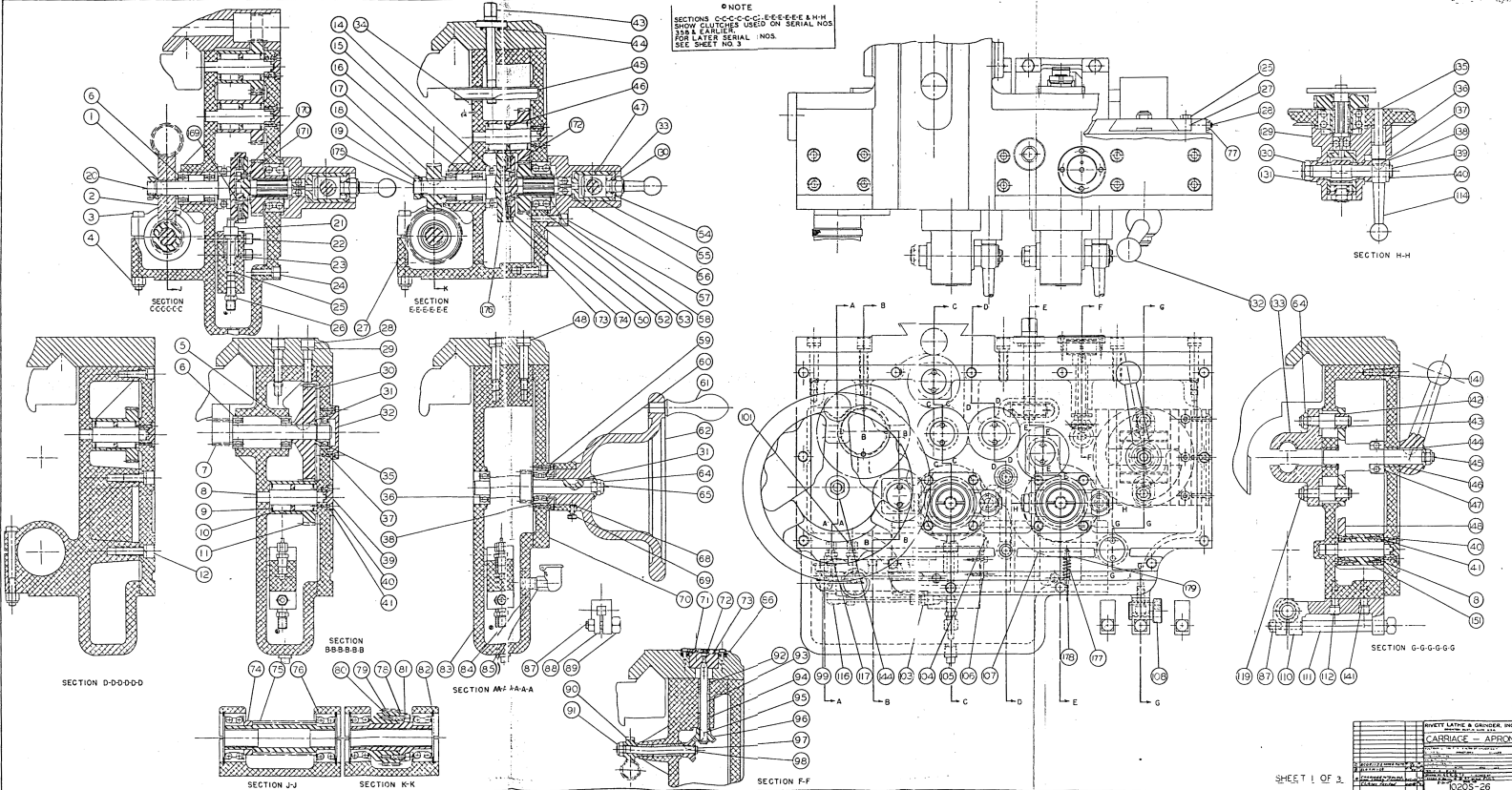


1020S-23B
50T IDLER GEAR ASSEMBLY

- 1 1020S-23-148 BRACKET
- 2 1020S-23-230 IDLER GEAR
- 3 1020S-23-488 STRAP
- 4 *29TE-080 ESNA NUT
- 5 *487504-V N.D. BALL BRG.
- 6 1020R-23-151 BUSHING
- 7 1020R-23-826 BOLT

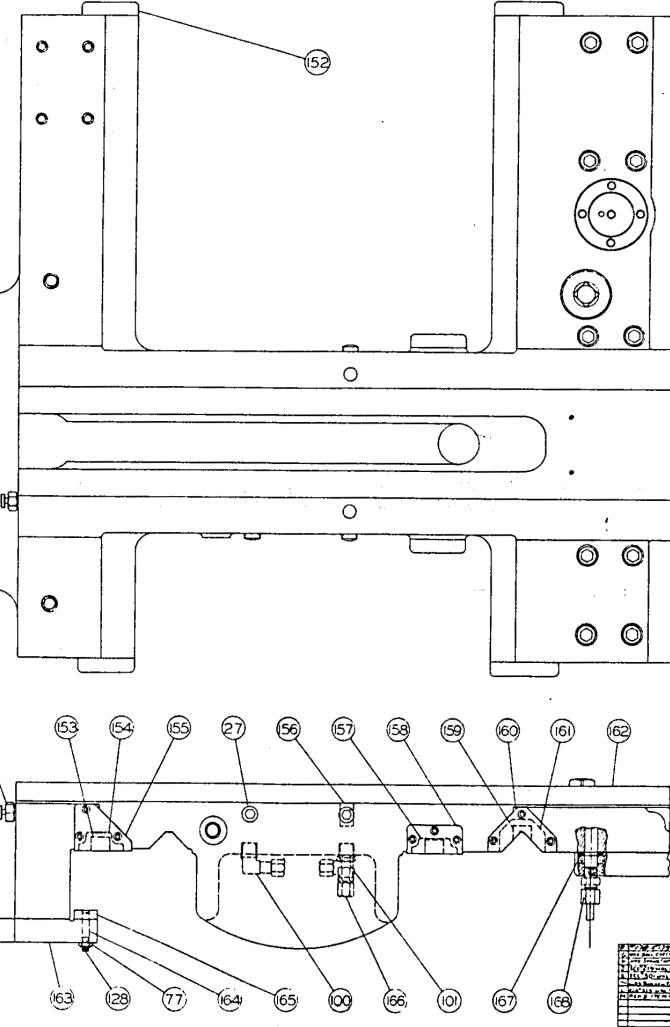
REVISION HISTORY		RIVETT LATHE & GRINDER, INC. 2000 S. 10th Street, S.W., ALBUQUERQUE, N.M. 87102	
REV.	DATE	DESCRIPTION	BY
DRAWN BY: _____		CHECKED BY: _____	
DATE: _____		DATE: _____	
SCALE: _____		SCALE: _____	
SHEET NO. _____		SHEET NO. _____	
TOTAL SHEETS _____		TOTAL SHEETS _____	
APPROVED BY: _____		APPROVED BY: _____	
DATE: _____		DATE: _____	
SHEET NO. _____		SHEET NO. _____	
TOTAL SHEETS _____		TOTAL SHEETS _____	
RIVETT LATHE & GRINDER, INC.		RIVETT LATHE & GRINDER, INC.	
2000 S. 10th Street, S.W., ALBUQUERQUE, N.M. 87102		2000 S. 10th Street, S.W., ALBUQUERQUE, N.M. 87102	
TEL: (505) 261-1111		TEL: (505) 261-1111	
FAX: (505) 261-1112		FAX: (505) 261-1112	
E-MAIL: RIVETT@RIVETT.COM		E-MAIL: RIVETT@RIVETT.COM	
WWW: WWW.RIVETT.COM		WWW: WWW.RIVETT.COM	
1020S-23A-B		1020S-23A-B	

NOTE
 SECTIONS C-C-C-C-C-C-E-E-E-E-E & H-H
 SHOW CLUTCHES USED ON SERIAL NOS
 309 & EARLIER.
 FOR LATER SERIAL NOS.
 SEE SHEET NO. 3



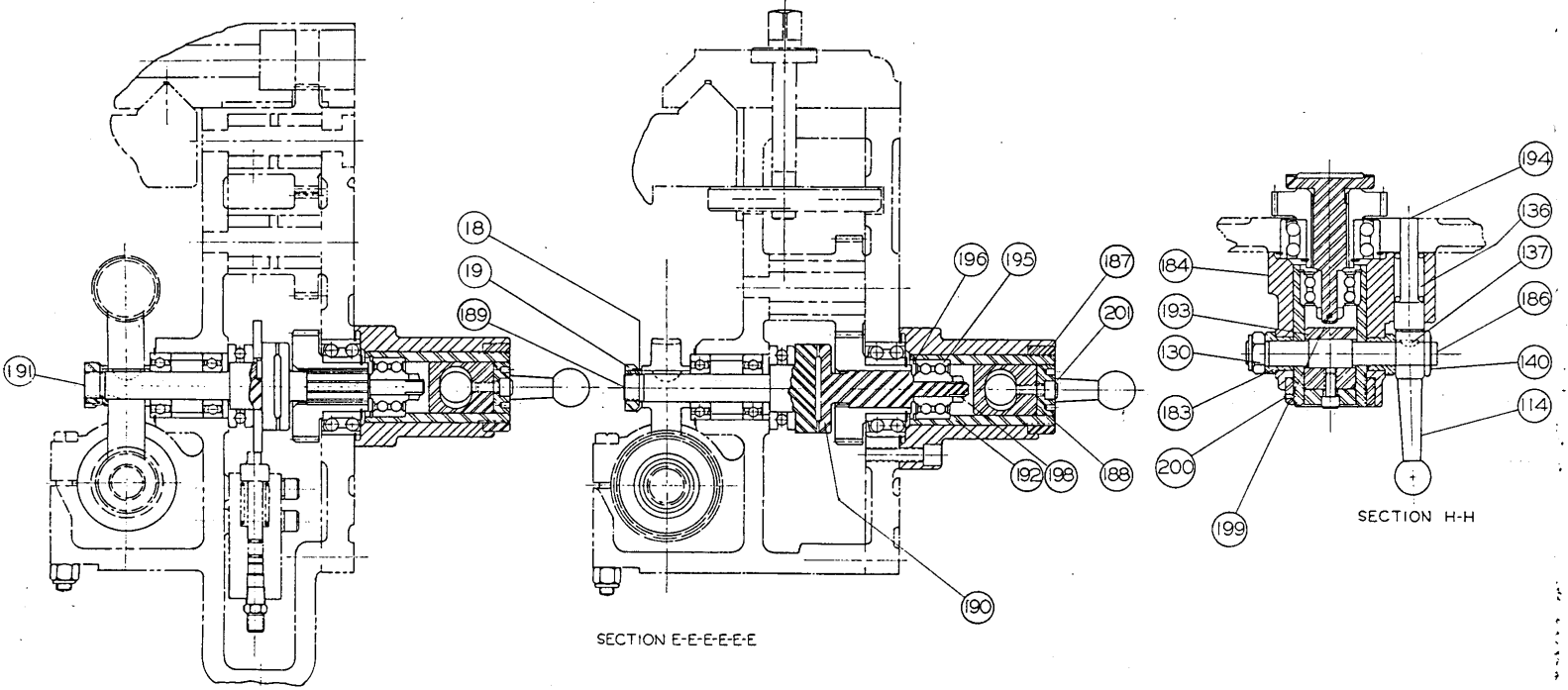
HAVERTY LATHE & GRINDER, INC. 1000 W. 10th St. CARRIAGE - APRON SERIAL NO. 309 DRAWN BY: [] CHECKED BY: [] DATE: []	SHEET 1 OF 3 1005-26
--	-------------------------

- 1 K20R-26-525 W W CENTERING WASHER
- 2 LONG FEED WORM WHEEL
- 3 5/8 X 18 X 3 1/8 HEX HEAD BOLT
- 4 29U-006 ESNA NUT
- 5 *47502 N D BALL BEARING
- 6 *497502V N D BALL BEARING
- 7 K20R-26-349 RACK PINION
- 8 K20R-26-439 OILER GEAR SHAFT
- 9 *5000-1/2 (INT) WALDES-TRIARC
- 10 *M0-10-N MCGEE MULTI-ROLL
- 11 K20R-26-227 OILER GEAR
- 12 3/8-6X1 LG ALLEN CAP SCREW
- 13
- 14 *DL-25 N H BALL THRUST BRG
- 15 *77502 N D BALL BRG
- 16 K20R-26-474 WORM WHEEL BRG SPACER
- 17 K20R-26-533 CROSS FEED WORM WHEEL
- 18 *N-02 N D LOCKWASHER
- 19 *N-02 N D LOCKNUT
- 20 K20S-26-440 WORM WHEEL SHAFT
- 21 K20R-26-458 PUMP PLUNGER
- 22 5/16-18 X 1 3/4 M LG ALLEN CAP SCREW
- 23 K24-17-687 PUMP SPRING
- 24 5/16-18 X 7/8 ALLEN CAP SCREW
- 25 *H4627-3 O'PACRING RING
- 26 63 X 4 COMPRESSION CHECK VALVE
- 27 1/8-27 N P T ALLEN PIPE PLUG
- 28 3/8-16 X 1 1/2 LG ALLEN CAP SCREW
- 29 FOR 3/8 C S B H LOCKWASHER
- 30 K20R-26-230 RACK PINION GEAR
- 31 *HF-504 MORTON KEY
- 32 *P205-26-64 R P OILRING CAP
- 33 *Q205-26-666 CLUTCH SPRING
- 34 506-9-356 R P N
- 35 *500-18 (EXT) WALDES-TRIARC
- 36 *97502 N D BALL BEARING
- 37 K20R-26-123 R P SPACING WASHER
- 38 *55502 N D BALL BEARING
- 39 K20R-26-163 SLOTTED CAP
- 40 *5-46 X 3/8 LG ALLEN CAP SCREW
- 41 FOR 3/8 C S B H LOCKWASHER
- 42
- 43 K20S-26G CLAMP SCREW ASSEMBLY
- 44 *N4627-15 O'PACRING RING
- 45 K20R-26-117 CLAMP
- 46 K20R-26-473 BEARING SPACER
- 47 K20S-26-497 THRUST TRANS STUD
- 48 5/16-18 X 1 1/2 LG ALLEN SHOULDER SCREW-3/8 B D - 1/2 B L
- 49
- 50 K20S-26-374 CLUTCH PLATE
- 51
- 52 K20R-26-229 CLUTCH GEAR
- 53 74505 N D BALL BEARING
- 54 1/8-27 X 1/2 BLN WASHER 2
- 55 K20R-26-456 THRUST TRANS SLEEVE
- 56 *H44R-00502 M BURN BALL THRUST
- 57 5/16-18 X 1/4 LG ALLEN CAP SCREW
- 58 *100-N (EXT) WALDES-TRIARC
- 59 K20R-26-409 HANDWHEEL BRG RETAIN
- 60 K20R-26-194 HANDWHEEL LVL
- 61 BALCRANK *H-3307 HANDWHEEL HANDLE
- 62 K20R-26-701 HANDWHEEL
- 63
- 64 *29TE-054 ESNA NUT
- 65 K20S-26-231 HANDWHEEL GEAR
- 66
- 67
- 68 K20R-26-511 SET SCREW TIP
- 69 K20R-22-638 SET SCREW
- 70 K20R-26-890 APRON COVER
- 71 K20R-26-751 TWD GAIL GUARD
- 72 *5-40 X 1/2 LG ALLEN CAP SCREW
- 73 K20R-26-193 THREAD PLUG
- 74 K20R-26-524 WORM THRUST WASHER
- 75 K20R-26-630 LONG FEED WORM
- 76 *55505 N D BALL BEARING
- 77
- 78 K20S-26-459 WORM SLEEVE
- 79 K20S-26-632 CROSS FEED WORM
- 80 *10-32 X 5/8 LG ALLEN CAP SCREW
- 81 FOR 70 C S B H LOCKWASHER
- 82 *5000-206 (INT) WALDES-TRIARC
- 83 K20R-26-173 CROSS FEED APRON
- 84 B-5093 BINR OIL GAUGE
- 85 M-V-RIB
- 86 *K20S-26-991 THREAD DIAL GAUDET
- 87 5/16-24 LIGHT HEX NUT
- 88 K20R-26-188 STOP COLLAR
- 89 K20R-26-143 STOP COLLAR BOLT
- 90 K20R-26-532 T D WORM WHEEL



- 91 *29TE-054 ESNA NUT
- 92 *5-50 X 1 T D VERTICAL SHAFT
- 93 K20R-26-438 T D VERTICAL SHAFT
- 94 *M-150-1 OILITE BEARING
- 95 WOODRUFF KEY
- 96 T D LATER GEAR
- 97 K20R-26-437 T D HORIZONTAL SHAFT
- 98 *5000-3 (EXT) WALDES-TRIARC
- 99 K20R-26-136 PUMP BODY
- 100 WEATHERHEAD MALE ELBOW
- 101 WEATHERHEAD MALE CONNECTOR
- 102
- 103 *63 X 3 COMPRESSION CHECK VALVE
- 104 K20R-26-481 PUMP LEAF SPRING
- 105 *4000P LINE MAGNETIC PLUG
- 106 *K20R-26-411 SPRING RETAINER
- 107 K20R-26-111 INTERLOCK PIN C O ARM
- 108 K20S-26-638 ADJUSTMENT SCREW
- 109 *3-119-68869 CUT-OFF ARM SPRING
- 110 K20S-26-148 STOP BRACKET
- 111 K20S-26-142 STOP BRACKET BOLT
- 112 5/16-18 X 3/4 LG ALLEN CAP SCREW
- 113
- 114 K20R-26-257 CLUTCH HANDLE
- 115 WEATHERHEAD 70P AIR VENT
- 116 3/8 X 1 1/2 WORM WHEEL
- 117 68-3 WEATHERHEAD MALE CONNECTOR
- 118
- 119 K20R-26-498 CAM ROLLER STUD
- 120
- 121
- 122
- 123
- 124
- 125 K20R-26-639 H N GIB RETAIN SCREW
- 126 K20R-26-246 HALF NUT GB
- 127 *10-32 X 1/8 LG ALLEN SET SCREW
- 128 K20R-26-145 CLUTCH BRACKET
- 129 *29TE-050 ESNA NUT
- 130 K20R-26-117 ECCENTRIC SHAFT BRG
- 131 K20R-26-259 H N ENGAGE HANDLE
- 132 K20R-26-324 HALF NUT
- 133 K20R-26-490 DETENT PIN SPRING
- 134 K20R-26-355 CLUTCH DETENT PIN
- 135 *HF-403 MORTON KEY
- 136 K20S-26-521 CLUTCH WASHER
- 137 K20S-26-210 CLUTCH ECCENTRIC
- 138 *500-50 B H B H LOCKWASHER
- 139 FOR 5/8 C S CAM ROLLER
- 140 K20R-26-427 WALDES-TRIARC
- 141 *500-37 (EXT) H N ENG. HANDLE WASHER
- 142 K20R-26-526 H N ENG. HANDLE
- 143 K20R-26-69 H N ENGAGE CAM
- 144 K20R-26-118 ENGAGE CAM BEARING
- 145 T-100 BRG-12 ALBURN BALL THRUST
- 146 K20R-26-110 INTERLOCK CAM ARM
- 147 HUB
- 148 K20S-26-280 WORM WHEEL SHAFT
- 149 K20R-26-441 INTERLOCK SLEEVE
- 150 K20R-26-458 WIPER RETAINER
- 151 K20R-26-379 OILER PLUG
- 152 K20R-26-861 WIPER PAD
- 153 K20R-26-414 WIPER RETAINER
- 154 K20R-26-380 OILER PLUG
- 155 K20R-26-862 WIPER PAD
- 156 K20R-26-412 WIPER RETAINER
- 157 K20R-26-381 OILER PLUG
- 158 K20R-26-413 WIPER RETAINER
- 159 K20R-26-863 WIPER PAD
- 160 *K20R-26-862 WIPER SADDLE
- 161 K20R-26-375 T A SUPPORT PLATE
- 162 3/8 X 3/4 LG ALLEN DOWEL PIN
- 163 K20R-26-245 BLD GIB
- 164 *H4 WEATHERHEAD MALE TEE
- 165 *427-9 WEATHERHEAD MALE CONNECTOR
- 166 68-3 INNER DISC
- 167 125 X 1/2 LG ALLEN DOWEL
- 168 FOR 70 SCREW B H LOCKWASHER
- 169 *10-32 X 1/4 ALLEN CAP SCREW
- 170 SPRING SEPARATOR
- 171 D22-12 CUTTER DISC
- 172
- 173

<p>INVEST LAYNE & BRINCKER, INC.</p> <p>CARRIAGE - APRON</p>	<p>DATE: 10-05-20</p>
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SECTION C-C-C-C-C

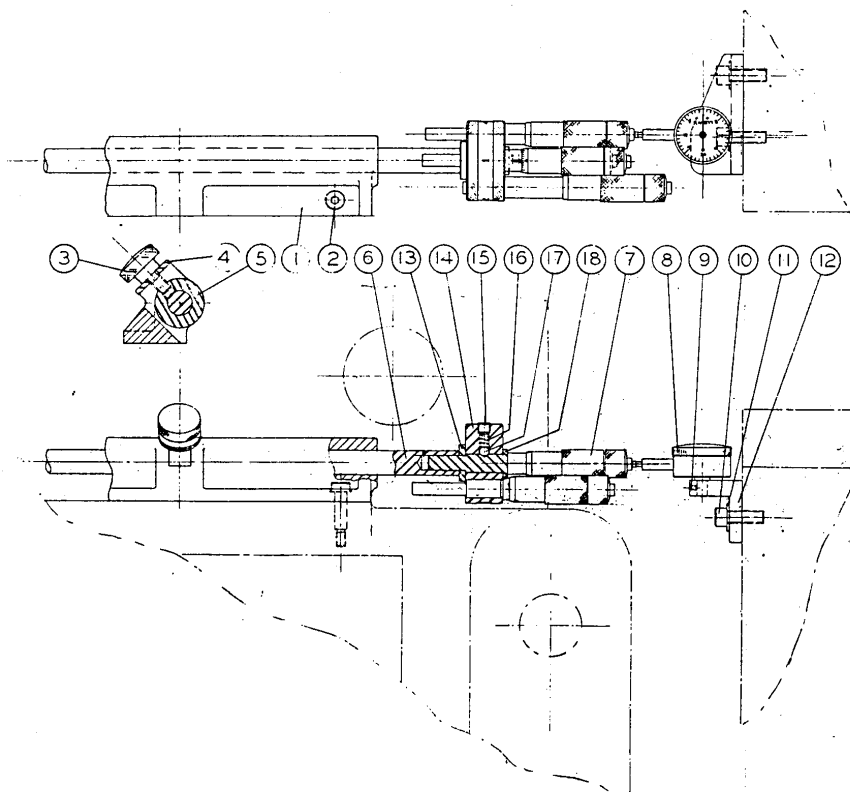
SECTION E-E-E-E-E-E

SECTION H-H

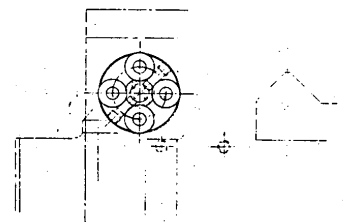
FOR NO 1020S LATHE SERIAL 359 & UP
 (SEE SHEET 1 FOR EARLIER SERIAL NOS)
 SHEET 3 OF SHEET 3

41

MATERIAL SPECIFICATION PART NUMBER REV. NO. DATE DRAWN BY CHECKED BY APPROVED BY		RIVETT LATHE & GRINDER, INC. BRANTON, MICHIGAN 49612 CLUTCH ASSY. QUANTITY ORDERED (OTHER IN SPECIES) ORDER NUMBER ORDER DATE ORDER TIME ORDER BY ORDER NO. ORDER TYPE ORDER STATUS
PART NAME PART NUMBER REV. NO. DATE DRAWN BY CHECKED BY APPROVED BY		QUANTITY ORDERED (OTHER IN SPECIES) ORDER NUMBER ORDER DATE ORDER TIME ORDER BY ORDER NO. ORDER TYPE ORDER STATUS

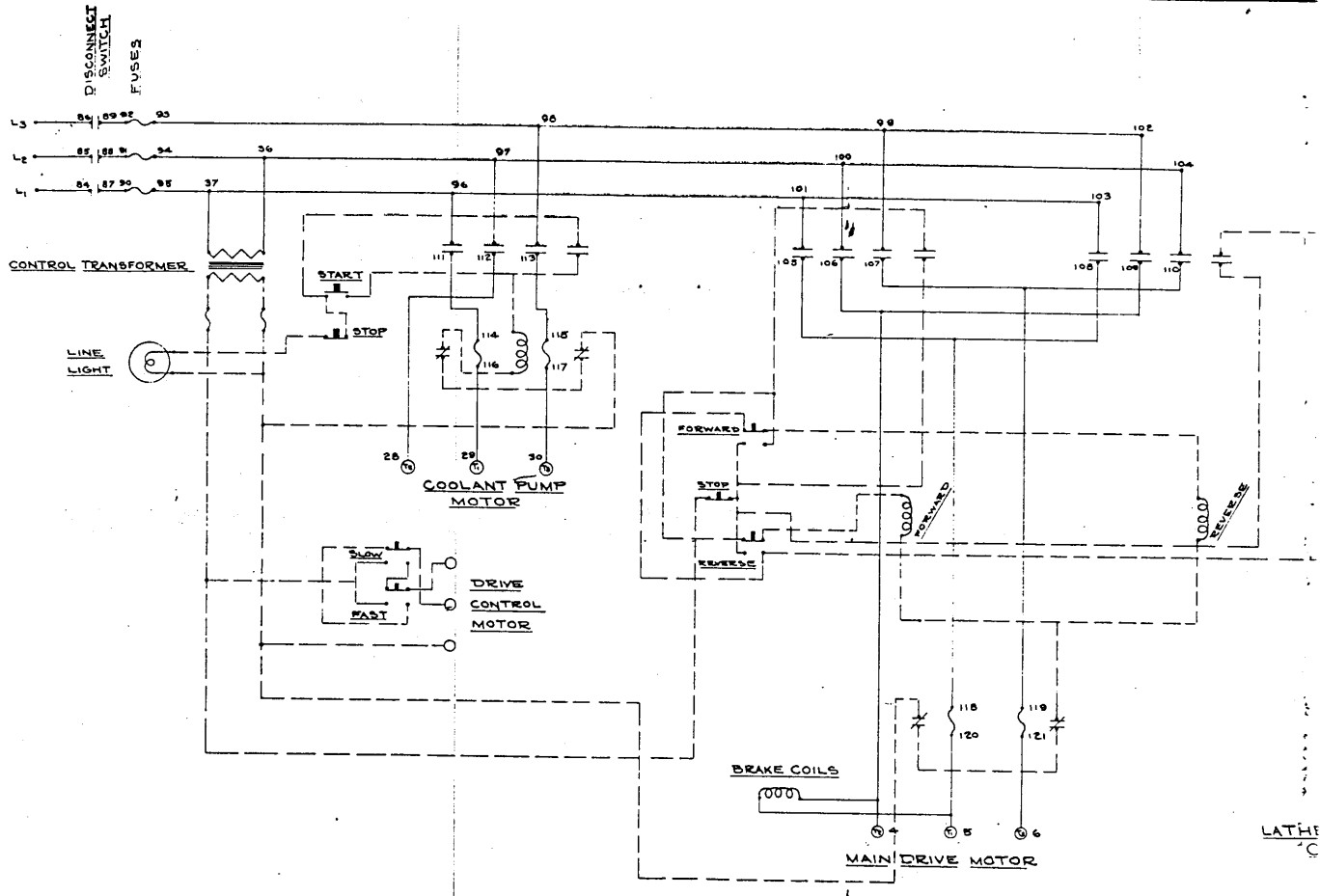


- 1. 1020S-63-146 STOP ROD
- 2. 1020S-63-638 ALLEN SHOULDER SCREW
- 3. GA1024-637 BINDER SCREW
- 4. GA1024-521 BINDER WASHER
- 5. 1020S-63-188 ROD BINDING COLLAR
- 6. 1020S-63A-425 STOP ROD
- 7. *011(SPECIAL) LUFKIN MICRO HEAD
- 8. MODEL *A6Q-2 FEDERAL DIAL INDICATOR (POST BACK)
- 9. *4-40 x 1/8 ALLEN SET SCREW
- 10. 1/4-28 x 3/4 ALLEN CAP SCREW
- 11. 17/64 ID x 9/16 O.D. O48 THICK WASHER
- 12. 1020S-63-145 INDICATOR BRACKET
- 13. 1020S-63A-473 SPACER
- 14. 1020S-63A-208 MICRO DRUM
- 15. 1/4-28 x 3/16 ALLEN SET SCREW
- 16. 1020S-63A-666 DETENT SPRING
- 17. 3/16 DIA. HARD STEEL BALL
- 18. 1020S-63A-498 DRUM STUD

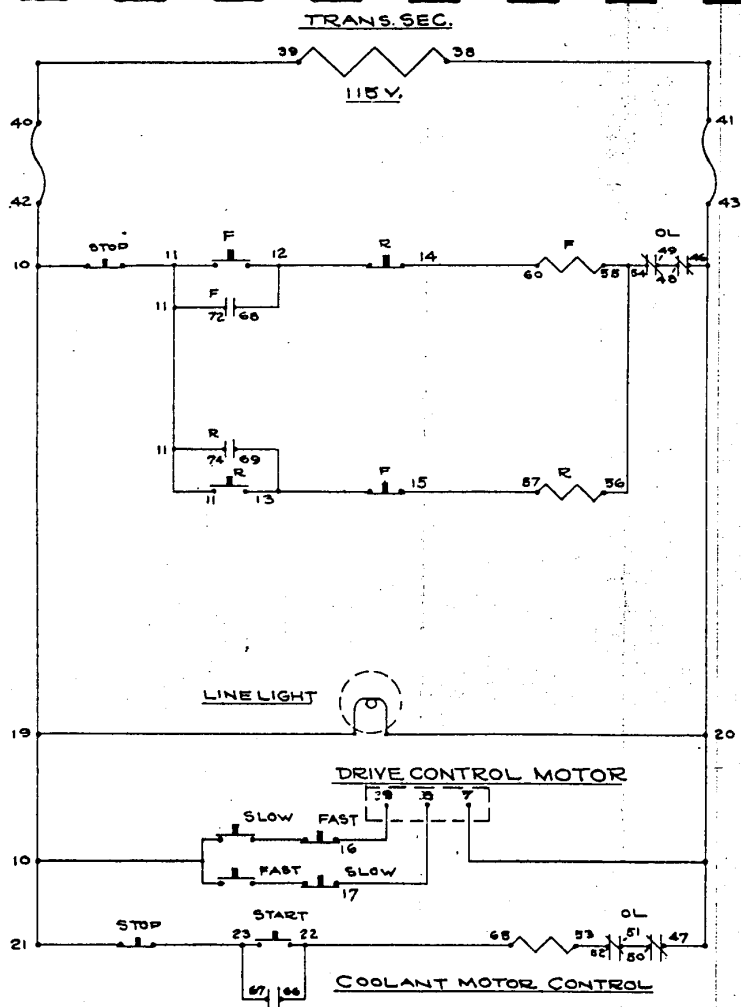


417

RIVETT LATHE & GRINDER, INC. BOSTON OFFICE AND S.S.	
MULTIPLE MICRO STOP	
DRAWING NO. 1020S-63A	
DATE: 12/15/54	
BY: [Signature]	
CHECKED BY: [Signature]	
APPROVED BY: [Signature]	
MATERIAL SPEC. PART NO. QTY. REQ. DRAWING NO. 1020S-63A	
DATE: 12/15/54	
BY: [Signature]	
CHECKED BY: [Signature]	
APPROVED BY: [Signature]	
1020S-63A	

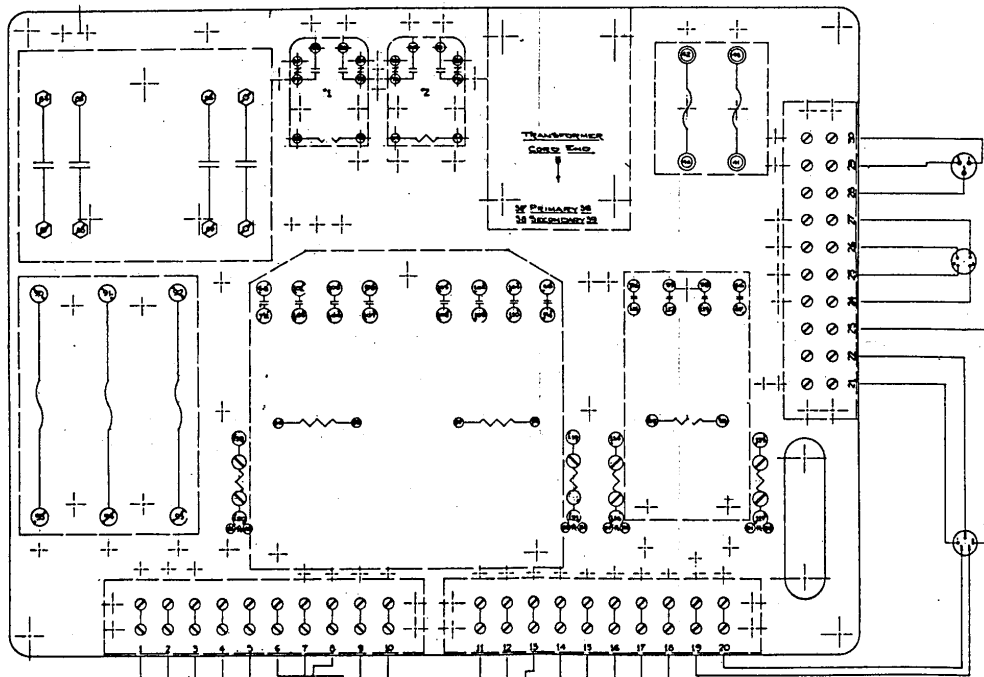


			SURFACE TREATMENT	
			HEAT TREATMENT	
REV	REVISION	DATE		
EXTERNAL				TOTAL
MATERIALS PART NO QTY WEIGHT BOUNDS - WEIGHT TOLERANCE - PARTS AND W. 10. 11. 12. 13.				



LATHE WITHOUT STOP ROD
CONTROL CIRCUIT
"STAR
BRAKE MOTOR"

		SURFACE TREATMENT:	
		WEAT TREATMENT:	
SYN	REVISION	DATE	BY
MATERIAL:		TOOLS:	
MATERIAL SIZE:			
PART. NO.:			
DIE NO.:			
WEIGHT ROUGH--			
WEIGHT FINISHED--			
ASSEMBLY NO.			
NO. Pcs. PER ASSEM			
			RIVETT LATHE & GRINDER, INC. BRIGHTON, BOSTON, MASS., U.S.A.
WIRING DIAGRAM			
TOLERANCES UNLESS OTHERWISE SPECIFIED--			
DECIMALS:	FRACTIONS:	ANGLES:	
CONCENTRICITY:			
FACE RUNOUT:			
HATCH SURFACES:			
BREAK SHARP CORNERS		R43. RADIUS	
REMOVE ALL BURRS			
DRAWN BY: <u>R.W.G.-3-50</u>		CHECKED BY:	
TRACED BY:		SCALE:	
			DWG. NO. 10209-735



WK-3
 (2) BLACK 14 STRANDED
 1/2" ID x 1/4" OD
 FLEXIBLE CONDUIT
 COOLANT MOTOR CABLE

WK-4
 (4) ORANGE 1/8" STRANDED
 1/2" ID x 1/4" OD
 FLEXIBLE CONDUIT
 TAIL END OF BED CABLE

WK-5
 (3) ORANGE 1/8" STRANDED
 1/2" ID x 1/4" OD
 FLEXIBLE CONDUIT
 LINE LIGHT BOX CABLE

(3) BLACK 10 STRANDED
 LINE CABLE

GK-2
 (2) ORANGE 1/8" STRANDED
 1/2" ID x 1/4" OD
 FLEXIBLE CONDUIT
 GEAR BOX CABLE

24-17
 (3) BLACK 10 STRANDED
 (2) ORANGE 1/8" STRANDED
 1/2" ID x 1/4" OD
 FLEXIBLE CONDUIT
 DRIVE CABLE

LATHES WITH STOP ROD
 STAR BRAKE MOTOR

RYVETT LATHES & GRINDER, INC.	
CONTROL PANEL WIRING	
DATE: _____	BY: _____
NO. _____	REV. _____
10205-73T	

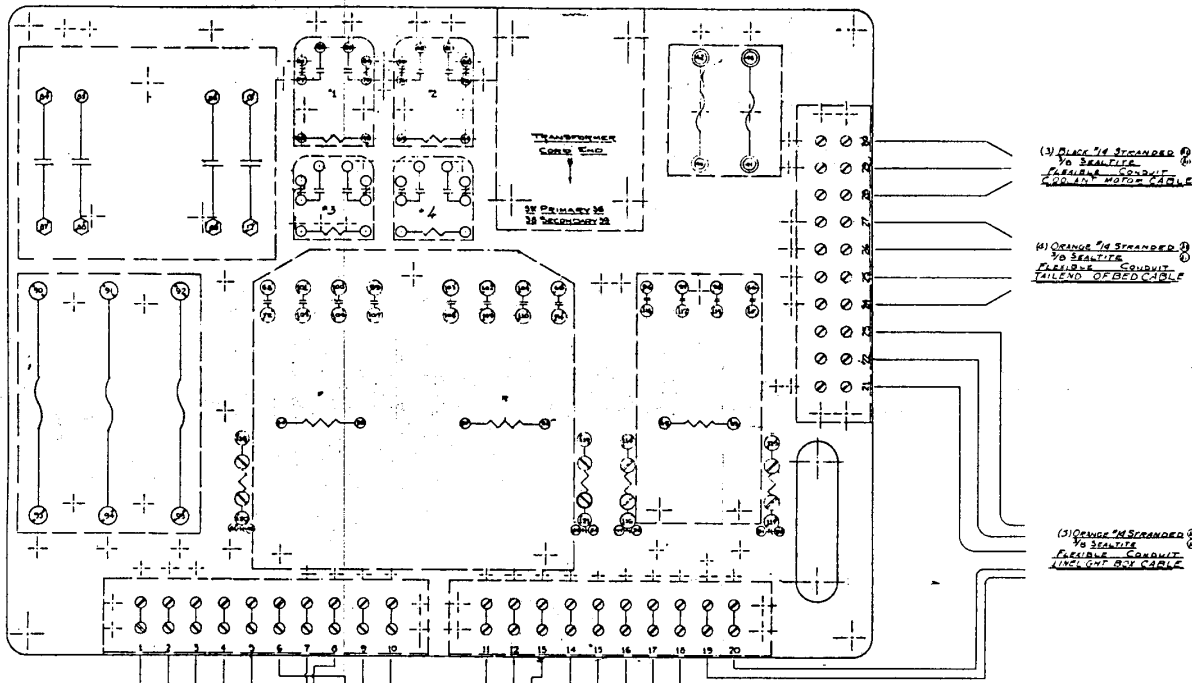
Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)
 Black 14 Gauge (Power)

ORANGE 1/8" GAUGE

PANEL WIRING

- 1-84
- 1-86 } BLACK 70 STRANDED ②③
- 3-86
- 09-02
- 40-04 } BLACK 70 STRANDED (FRONT) ②③
- 07-90
- 94-99
- 94-100 } BLACK 70 STRANDED ②③
- 95-101
- 99-102
- 100-104 } BLACK 70 STRANDED (FRONT) ②③
- 101-105
- 34-106 FRONT
- 37-103
- 104-96
- 104-97 } BLACK 70 STRANDED (FRONT) ②
- 102-90
- 105-100
- 106-108 } BLACK 70 STRANDED (FRONT) ②③
- 107-110
- 108-118 } BLACK 70 STRANDED (FRONT) ②③
- 110-119
- 106-5
- 120-5 } BLACK 70 STRANDED (FRONT) ②③
- 121-6
- 111-114 } BLACK 70 STRANDED (FRONT) ②
- 113-118 } BLACK 70 STRANDED (FRONT) ②
- 116-28 } BLACK 70 STRANDED ②
- 117-50
- 39-44 FRONT
- 42-21
- 21-19
- 19-10
- 43-44
- 44-45 FRONT
- 45-46
- 46-47 FRONT
- 47-20 FRONT
- 20-7
- 48-48 FRONT
- 50-51 FRONT
- 51-55 FRONT
- 54-54 FRONT
- 56-56 FRONT
- 57-56
- 50-99 FRONT
- 64-52
- 62-61 FRONT
- 63-64 FRONT
- 64-18
- 65-66 FRONT
- 68-22 FRONT
- 67-23 FRONT
- 16-9
- 17-0
- 45-12
- 49-12
- 76-26
- 77-24
- 78-27
- 79-25
- 80-01 FRONT
- 81-14
- 82-83 FRONT
- 83-15
- 72-74
- 74-13

PANEL WIRING



(3) BLACK 70 STRANDED ②
3/8 SEALTITE
FLEXIBLE CONDUIT
400 IN. MOTOR CABLE

(4) ORANGE 70 STRANDED ②
3/8 SEALTITE
FLEXIBLE CONDUIT
TAILORED BED CABLE

(2) ORANGE 70 STRANDED ②
3/8 SEALTITE
FLEXIBLE CONDUIT
TAILORED BED CABLE

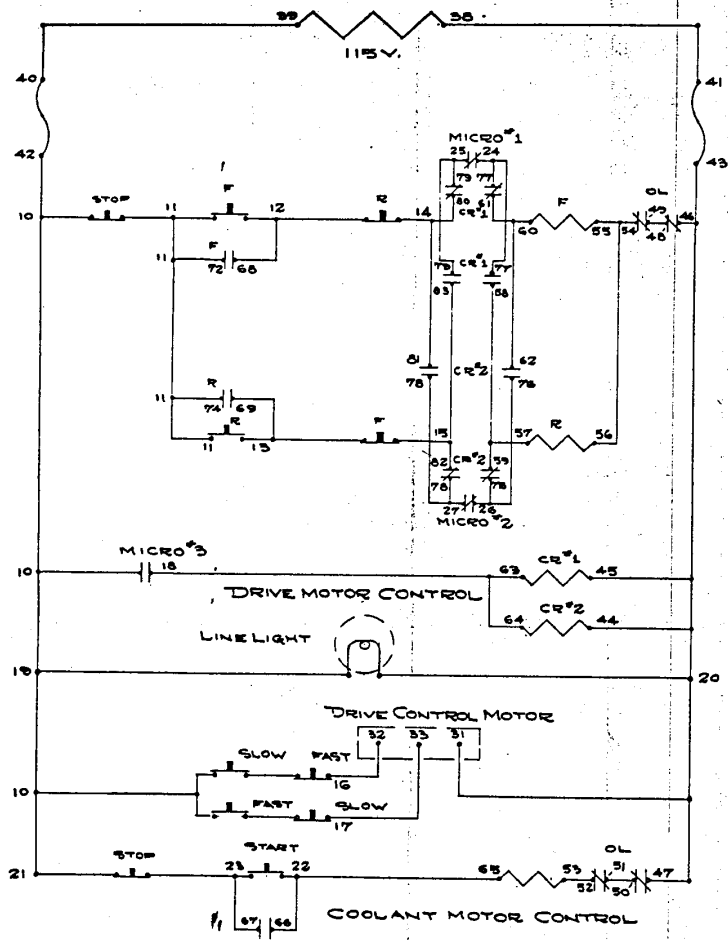
(2) BLACK 70 STRANDED
LINE CABLE

(9) ORANGE 70 STRANDED ②
3/8 SEALTITE
FLEXIBLE CONDUIT
REAR MOTOR CABLE

(3) BLACK 70 STRANDED
(1) ORANGE 70 STRANDED ②
③/8 SEALTITE FLEXIBLE
CONDUIT DRIVE CABLE

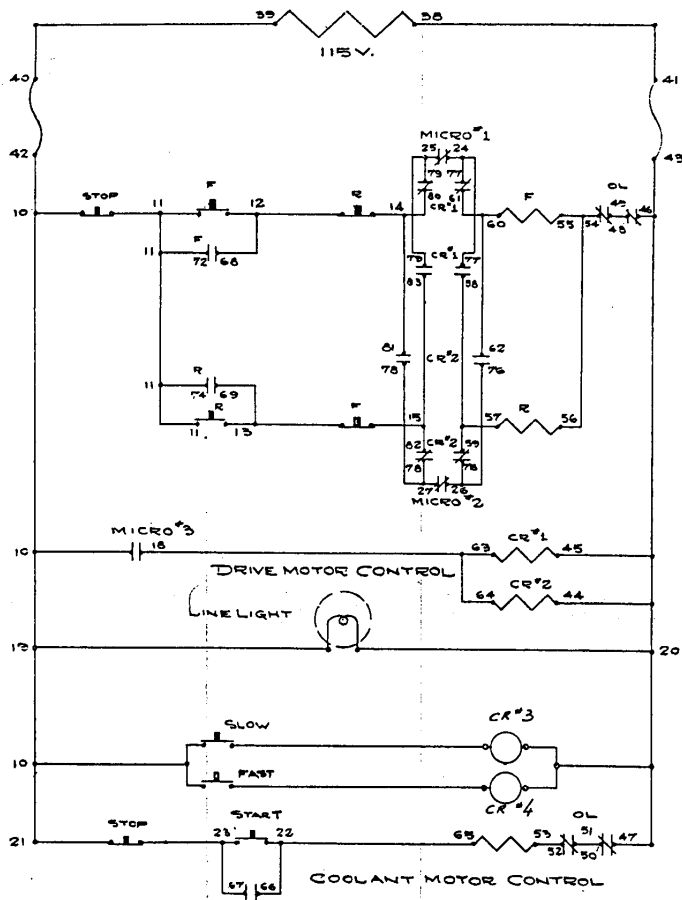
LATHE WITH STOP
US VARI-DRIVE

Rivett Lathes 10203	RIVETT LATHES CONTROL PANEL 10203
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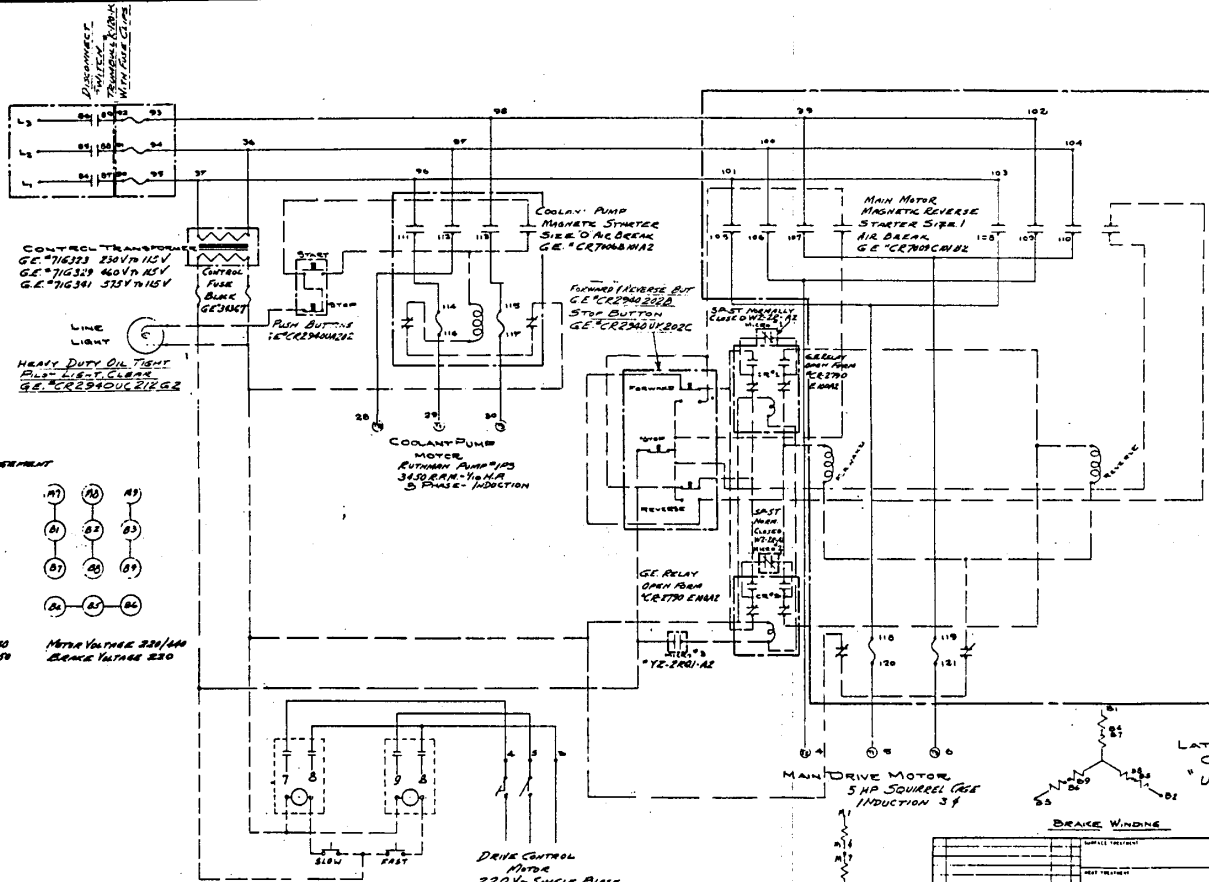
LATHE WITH STOP ROD
 CONTROL CIRCUIT
 "STAR"
 BRAKE MOTOR

			SURFACE TREATMENT:		RIVETT LATHE & GRINDER, INC. BRIGHTON, BOSTON, MASS., U.S.A.
			HEAT TREATMENT:		
REV.	REVISION	DATE	BY		WIRING DIAGRAM
MATERIAL:					
MATERIAL SIZE:					TOLERANCES UNLESS OTHERWISE SPECIFIED—
PART. NO.:					DECIMALS. FRACTIONS. ANGLES.
DIE NO.:					CONCENTRICITY:
WEIGHT ROUGH—					FACE RUNDOUT:
WEIGHT FINISHED—					WALL SURFACES:
ASSEMBLY NO.					BREAK SHARP CORNERS
NO. REQ. PER ASSEMBLY					MAX. RADIUS
					REMOVE ALL BURRS
					DRAWN BY: AEM 9-16-49
					CHECKED BY:
					TRACED BY:
					SCALE:
					DWG. NO.
					10205-73U

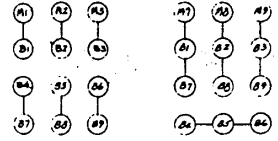


LATHE WITH STOP ROD
CONTROL CIRCUIT
"U.S. VARI-DRIVE"

				SURFACE TREATMENT	RIVETT LATHE & GRINDER, INC. BRIGHTON, BOSTON, MASS. U.S.A. <h3 style="margin: 0;">WIRING DIAGRAM</h3>
				HEAT TREATMENT:	
SYM	REVISION	DATE	BY	TOOLS	CONCENTRICITY
MATERIAL:					FACE SURFOUT
MATERIAL SIZE:				WASH SURFACES	WASH SURFACES
PART NO				BREAK SHARP CORNERS	WAS. RADIUS
DIE NO				REMOVE ALL BURRS	
WEIGHT ROUGH -				DRAWN BY <u>PK 820-55</u>	CHECKED BY
WEIGHT FINISHED -				TRACED BY	SCALE
ASSEMBLY NO.					DWG. NO.
NO. REQ. PER ASSEMBLY					10205-73UA



THREE PHASE ARRANGEMENT



MOTOR VOLTAGE 440V-550
BRIDGE VOLTAGE 440V-550

MOTOR VOLTAGE 220V-240
BRIDGE VOLTAGE 220

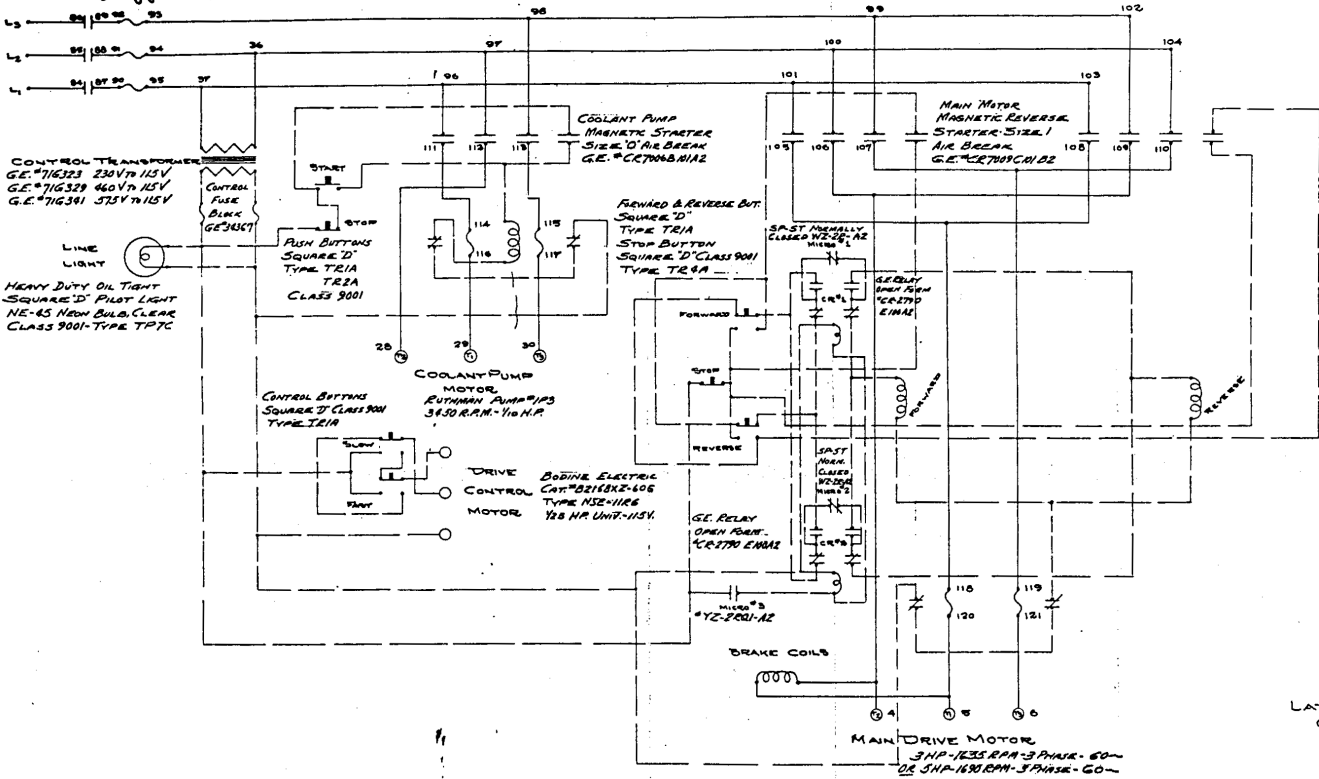
DRIVE CONTROL MOTOR
220V SINGLE PHASE
CAPACITOR START
CAPACITOR RUN

MOTOR WINDING

LATHE WITH STOP ROD
COMPLETE CIRCUIT
U.S. VARI-DRIVE

BRAKE WINDING

RIVETT LATHE & GRINDER, INC.	
INDENTURE WIRELESS APPROPRIATE SPECIFICATIONS	
WIRING DIAGRAM	
DRAWN BY: P. S. GIBBS	
CHECKED BY: P. S. GIBBS	
DATE: 10/20/54	
PROJECT NO. 10209-73VA	



LATHE WITH STOP ROD
COMPLETE CIRCUIT
"STAR"
BRAKE MOTOR

				SURFACE TREATMENT		RIVETT LATHE & GRINDER, INC. BOSTON, BOSTON, MASS. U.S.A.	
				HEAT TREATMENT			
				TOLERANCES UNLESS OTHERWISE SPECIFIED -		DRAWINGS	
				DIMENSIONS		FRACTIONS	
				DECIMALS		ANGLES	
				HOLE		FACE FINISH	
				TYPICAL SIZE		MATCH SURFACES	
				PART NO.		DATE	
				REV. NO.		CHECKED BY	
				DESIGNED BY		DATE	
				CHECKED BY		DATE	
				DRAWN BY		DATE	
				DATE		PAGE NO.	
				DRAWING NO.		10208-73V	

INDEX

	Page
INTRODUCTION	1
INSTALLATION INSTRUCTIONS	
Receiving and Unpacking	1
Setting Up	2
Assembling	2
Wiring	2
Initial Oiling	2
Filling Coolant System	3
OPERATION INSTRUCTIONS	
Main Drive	3
Headstock	3
Spindle Nose Attachments	4
Collets	4
Gear Box	4
Carriage	5
Compound and Cross Slide	5
Threading Dial	6
Dial Indicator Carriage Stop	6
Electric Carriage Control	6
Special English or Metric Threads	6
Taper Attachment	6
MAINTENANCE INSTRUCTIONS	
Lubrication	7
Carriage Gib	7
Cross Slide Gib	7
Compound Slide Gib	7
Lead Screw Half-Nut Gib	7
Longitudinal and Cross Feed Clutches	8
Feed Rod and Lead Screw	8
Cross Slide Nut	8
Compound Slide Nut	8
Main Drive Clutch	8
Worthington Allspeed Drive	8
Drive Belts	8

LATHE ASSEMBLY PRINT 1020S - With reference numbers

SLIDE REST ASSEMBLY - print 1020R-9B

SLIDE REST ASSEMBLY WITH TAPER ATTACHMENT print 1020R-9A

TAPER ATTACHMENT - print 1020R-11 (when furnished)