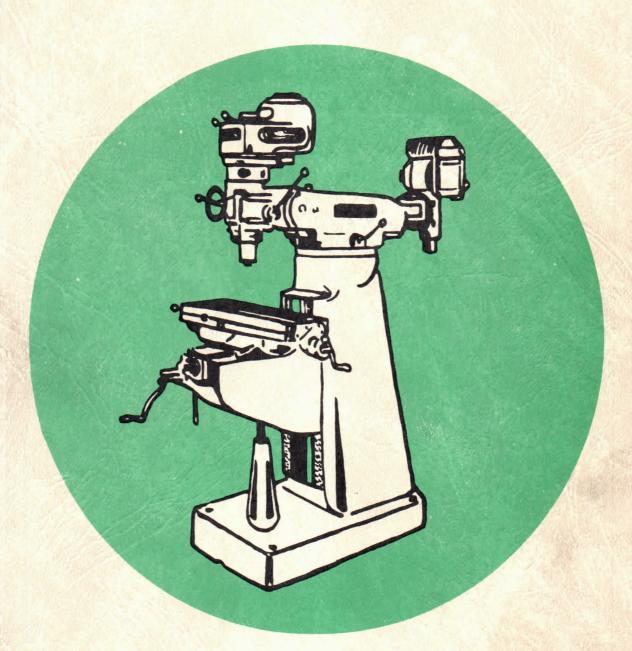
OPERMINS Machinery Movers mimsriggers.com MANUAL 1966



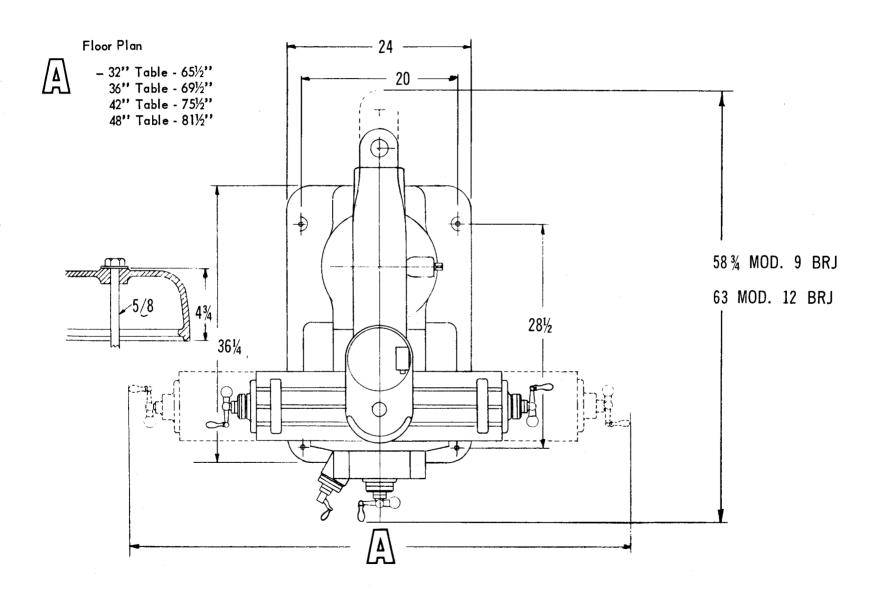
1-800-243-4292
Bridgebort MACHINES, INC.

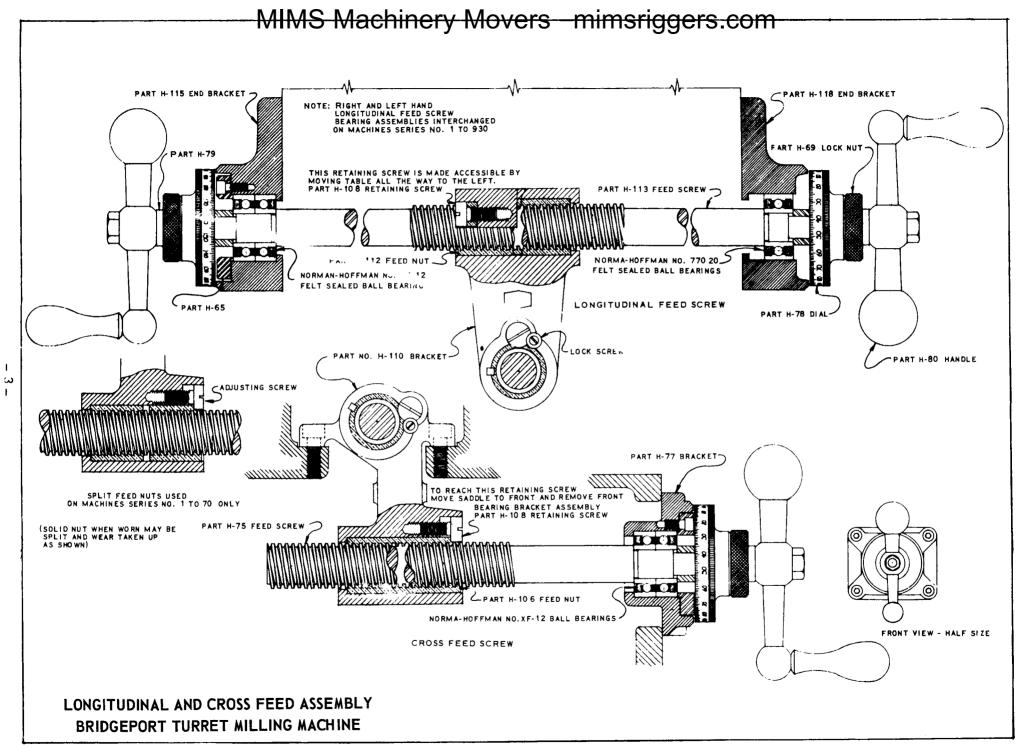
BRIDGEPORT, CONNECTICUT - U.S.A.

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Drawing 2





UNCRATING

Carefully remove protective crating and skids so that the machine and parts are not marred, scratched or impaired. In the event of damage in transit, communicate at once with our representative and the transportation company making delivery.

Machine should be lifted by placing a sling under overarm or by putting an eye bolt in tapped hole on top of overarm.

SHORTAGES

Check shipment carefully, against the itemized packing list which is included in the parts box. In case of shortages, report them immediately to the representative from whom the machine was purchased, indicating parts not received which have been checked on the packing list.

CLEANING

Thoroughly clean slush from machine with gasoline or kerosene. Do not move the table, saddle, knee or any movable part until all ways have been well cleaned and lubricated. Then, by hand, move table, saddle and knee to limit stop in one direction. Clean and lubricate exposed ways and then move each unit to the opposite limit stop and similarily clean and lubricate the exposed ways. Loosen bolts to unlock overarm, and move it forward and backward to the full length in order to clean and lubricate.

PLACING ON SOLID FOUNDATION

The column and base are cast in one piece. When setting machine on a concrete foundation, it is advisable to use a little grout (thin mortar) to take care of any unevenness in the concrete as well as to provide a solid foundation at all points.

When setting machine on a floor that has any surface irregularities, shims should be used to correct this condition to the greatest extent possible.

LEVELING MACHINES

Set machines by leveling the work table lengthwise and crosswise with a precision instrument.

MOUNTING HEAD ON OVERARM ADAPTER

The face on flange or adapter should be thoroughly cleaned as this aligns milling head square with table working surface. Then clean mounting surface of head carefully. When bolting the head to the adapter or overarm, tighten nuts evenly, using normal pressure. Care should be taken to avoid excessive pressure since this will cause distortion in the quill.

HANDLES

When crating, the three ball crank handles are turned facing each other. The handles should be reversed.

LUBRICATION

Do not operate machine until properly lubricated. Follow the instructions given in Dwg. 4, page 6.

INSPECTION

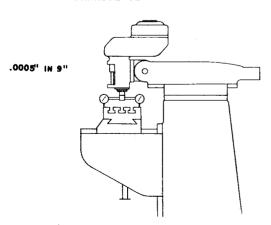
Machine is carefully inspected and lined up before it leaves our factory. Sketch # 1 and 2 shows the way your machine is lined up.

ALIGNMENT OF HEAD

In case of precision boring or work of that nature, where it is necessary to have head perfectly square with the table, use method prescribed below. For normal milling, graduations on turret and head are close enough. To set head perfectly square with table, Sketch #1. This may be done with head and adapter on overarm, by adjusting adapter through worm gear on adapter. Loosen three binding bolts but leave drag on same for fine adjustment. Mount indicator in spindle nose as shown in Sketch #2 and 2, and indicate parallel.

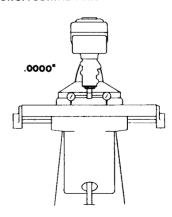
Note: When indicating as in Sketch 1, it should be noted that the table is fitted to be slightly high in front, usually about 005.

TABLE SQUARE WITH SPINDLE THRU TRANSVERSE AXIS



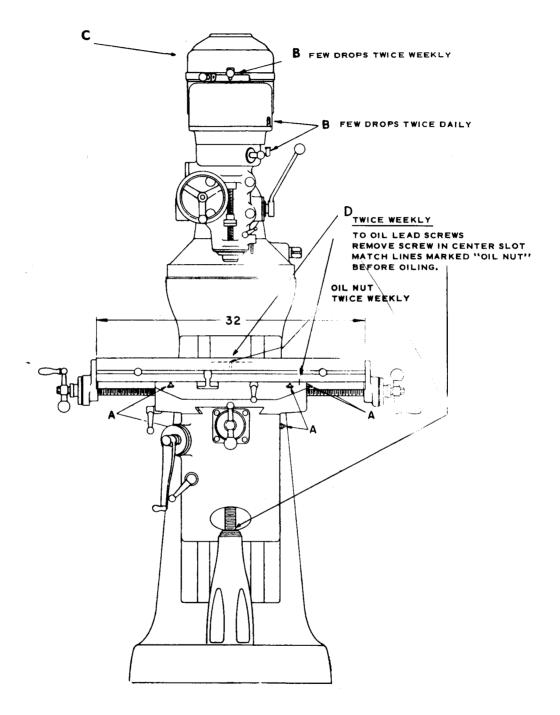
Sketch #1

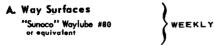
TABLE SQUARE WITH SPINDLE THRU LONGITUDINAL AXIS



Sketch #2

RECOMMENDED LUBRICATION FOR THE BRIDGEPORT TURRET MILLING MACHINE





B. Milling Heads (Spindle Bearings) S.A.E. 10 or 10W Light Oil

C. Motors are greased for life of bearings For further instructions refer to motor manufacturer's instruction book

D. Lead Screws Shell Carnea Oil 41 Socony Gargoyle Vactra Oil No. 2 ATTACHMENTS: POWER FEED

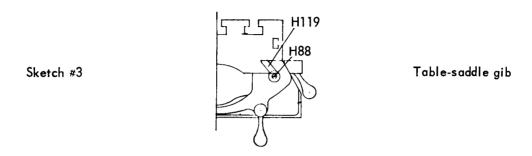
Shell Carnea Oil 33

Socony Gargoyle Vactra Oil (Heavy Medium) SHAPING ATTACHMENT Shell Nassa Oil J78 or K79 Socony Gargoyle Vactra

Oil (Heavy Medium)
SHAPING ATTACHMENT (Worm drive) Shell Nassa Oil J78 or K79 Socony Cylinder Oil 600W

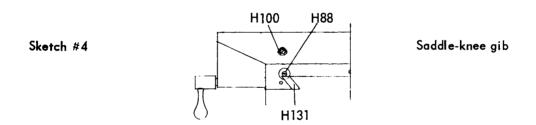
ADJUSTMENT OF TABLE GIB

The table is provided with a full length tapered gib in the saddle, with an adjusting screw on the left side. To take up gib, tighten large screw slightly and repeat until a slight drag is felt when moving the table by hand. (Sketch 3)



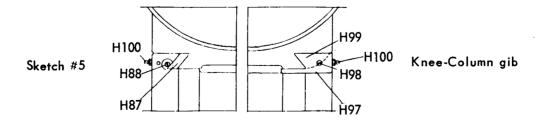
ADJUSTMENT OF SADDLE AND KNEE GIBS

A tapered gib is used for adjusting the saddle bearing on the knee. This forms a guide for the saddle. To tighten gib same principal as described above is used; however, chip wiper has to be removed first. (Sketch 4)



ADJUSTMENT OF KNEE GIB

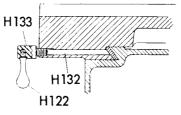
Remove chip wiper and adjust screw until smooth movement is attained. (Sketch 5)



CLAMPING TABLE, SADDLE AND KNEE

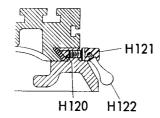
When milling with longitudinal table feed only, it is advisable to clamp the knee to the column and the saddle to the knee to add rigidity to these members and provide for heavier cuts with a minimum of vibration. The saddle locking lever is located on the left-hand side of saddle. (Sketch 6) Excessive pressure can cause slight table bind. Use moderate clamping pressure, as this will hold saddle sufficently.

Sketch #6



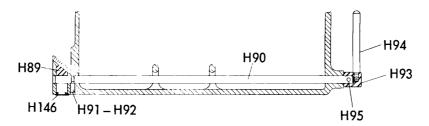
The table clamping lever is located on front of saddle and should always be clamped when longitudinal movement is not required. (Sketch 7)

Skerch #7



The knee clamping lever is at the left side of the knee and should be drawn upward to clamp the knee. (Sketch 8) This is only a tension brake and will not lock the knee completely. Leave clamped at all times unless using knee in operation.

Sketch #8



REMOVING OF TABLE

Remove as follows: Ball crank handles, dial holders, bearing brackets. Screw will then turn all the way so that it can be removed. When this is accomplished, the table can easily be taken off merely by sliding from saddle.

REMOVING OF SADDLE

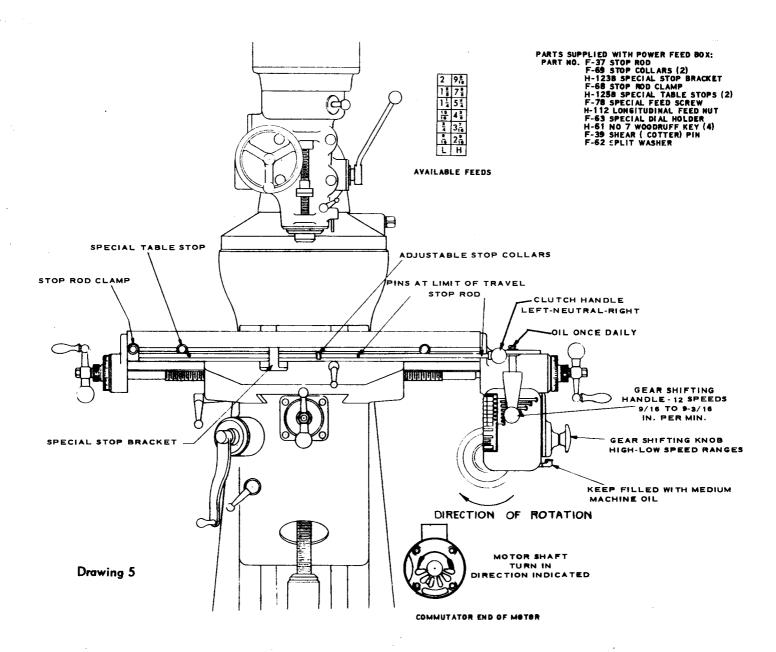
Follows along the same lines as removing table; however, it is necessary to remove entire front bracket assembly completely. Then remove nut bracket which has become accessible after table has been removed. See pages 9 and 10, Drawing 5 and 6.

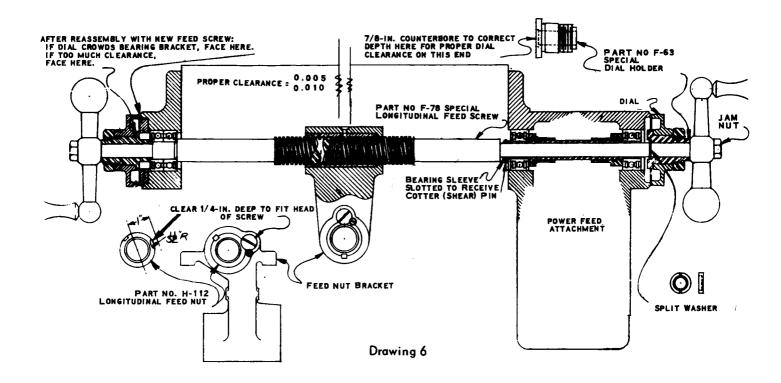
POWER FEED ATTACHMENT

The feed box is equipped with an overload release. If the table stops during operation and a series of clicks is heard, feed is overloaded. When load is relieved, power feed will resume operation. If the overload clutch jams, the 1/8" shearing pin (Drawing 5) will break. This will prevent damage to the power feed box.

INSTRUCTIONS FOR INSTALLING POWER FEED IN FIELD

First remove left handle, lock nut, dial, and end bracket. Then remove right handle and also right bearing and bracket. The next step is to remove retaining screw (see Drawing 6) after lock screw has been taken out. The screw and nut will then slide out. This procedure is reversed for installing power feed screw and nut. Power feed unit is easily installed and needs little explanation. Do not neglect to put Shear Pin in Place. (Drawing #5).





REMOVING REGULAR SCREW

Remove (left side) bracket - (the 1/2" 20 nut, dial holder and nut, (4) 3/8 16 x 1" cap screws, and H-115 bracket and bearing by tapping with plastic hammer). Remove (right side) bracket - using same procedure. Remove 8/32" locking screw from feed nut bracket. Also remove 5/16" 18 binding screw. Pull, to remove lead screw and lead nut from lead screw bracket.

INSTALLING POWER FEED

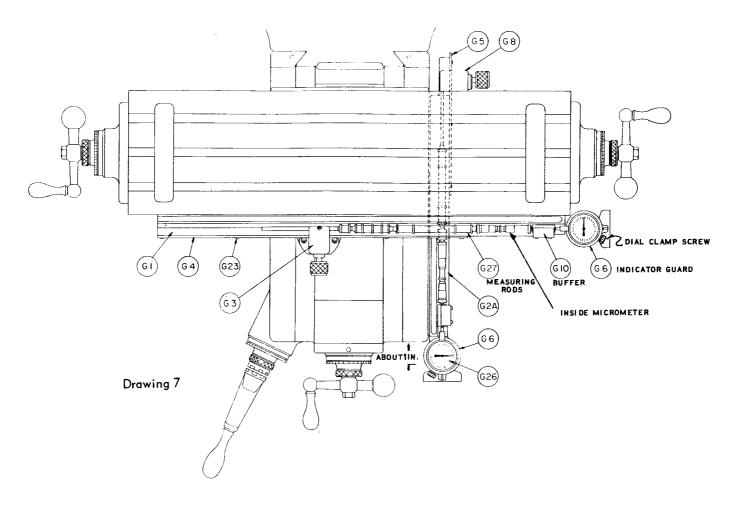
Move table to right side, half way. Insert power feed lead screw and nut into bracket from left side; long end of screw should be on right side.

Mark with scriber on bushing where binding screw goes; remove screw and nut from bracket. Remove the screw from the nut. File relief flat on nut to receive bidning screw. (Make certain flat is not filed too deep.) Insert screw and nut into bracket with binding screw and locking screw. Reassemble left hand bracket and dial holder complete. Mount power feed box on right with dowel pins and 3/8" cap screws (3). Insert split washer into groove in lead screw. Insert Woodruff keys. Push power feed dial holder onto screw. (Make sure split washer does not fall out.)

Assemble dial and nut onto dial holder. Insert cotter pin through hole in lead screw at back of power feed box. If dials drag, remove some stock from outside rib. If too much clearance, remove stock from inside rib. Remove door and fill with oil to height of diler.

Assemble stop rod as illustrated. Drill 3/32" hole into stop rod to receive 3/32" pins which limit the travel of the power feed. Locate these by cranking table to each extreme travel and locate pin to kick off feed rod about 1/4" before extreme travel.

For locating holes to greater accuracy on the Bridgeport Turret Milling Machine.



INSTALLING MEASURING SYSTEM

i

Install knee trough in counterbored holes on right hand side of knee. Indicate from dove-tail on knee for parallelism within .003 using 5/8 rod in trough — Indicate top and side. Bring saddle as far front as possible. Mount saddle bracket into trough with rolls on spindle of bracket Center rolls in trough and scribe holes in saddle. Drill 5/16 hole 1/2" deep (Caution on depth; do not drill into dovetail) Use 3/8-16 Tap. Mount Bracket with $3/8-16 \times 1$ 1/2 Cap screw. Caution: Saddle and table bracket alignment with trough is essential for good operation.

11

TABLE TROUGH

Remove table stops and stop bracket from front of table. Remove table lock bolt and handle. (Reposition handle after trough is installed by facing end of lock bolt.

Mount table trough with tee nuts into tee slot on front of table. Indicate from top of table for parallelism - within .003 - same as cross feed trough.

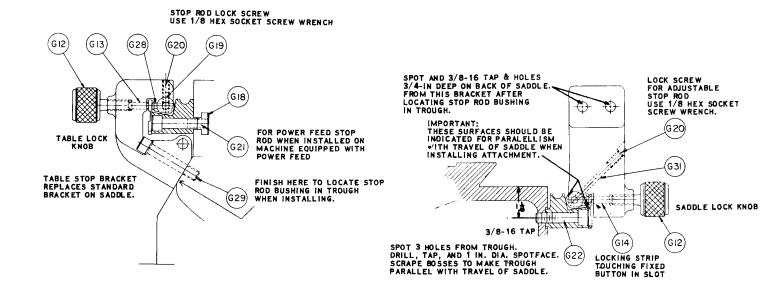
With rolls on spindle of table stop bracket, center rolls into trough and secure with $3/8-16 \times 2$ " cap screw. Adjustment may be made by filing bottom of bracket or shimming if necessary.

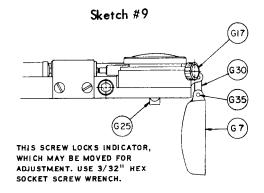
Locking table on saddle with table lock knobs (Reed clamp on troughs) shouldn't disturb indicator needle more than .0001 if brackets are aligned properly.

USING MEASURING ATTACHMENT

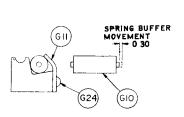
Any hole may be located by two dimensions at right angles. The table and saddle are located separately by combinations of positive measuring instruments consisting of measuring rods for even inches, an inside micrometer for fractions, and a dial indicator reading to one ten-thousandth. The "zero" point from which other dimensions are taken is established for each slide after locating the first hole and is not changed until the job is finished. Other holes to be bored are located from these two "zero" points by measurements at right angles. The measuring rods required are added, and the inside micrometers set and locked at the proper readings. The table and saddle are then carefully positioned with the dial indicators and clamped in place. After checking indicator readings, the hole is ready to be bored.

CAUTION: Make certain that the head is indicated properly so that the head is absolutely square with the table.



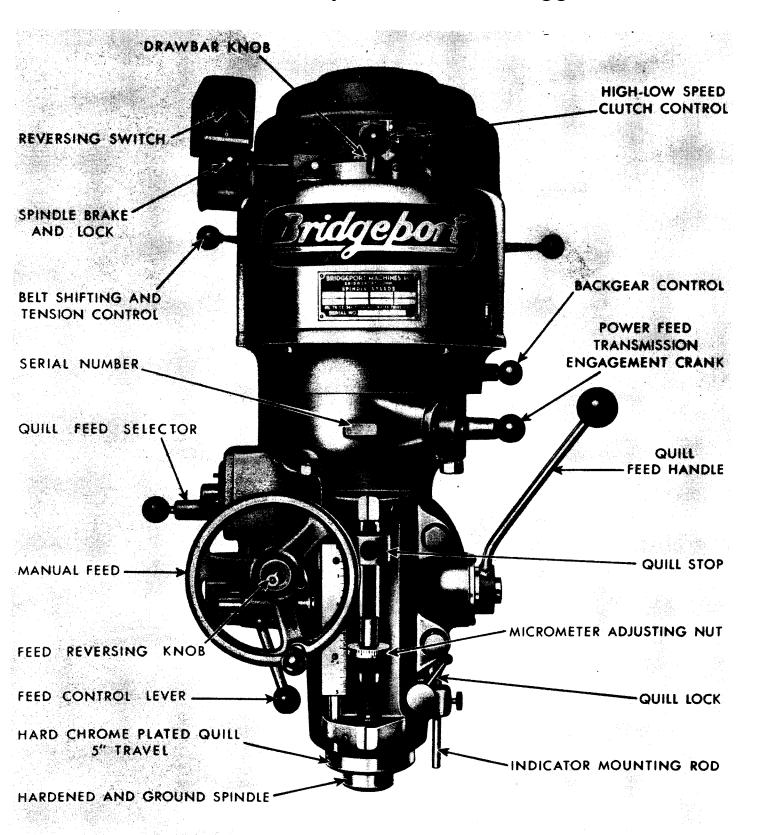


Sketch #11



Sketch #12

Sketch #10



MOUNTING MOTOR ON ATTACHMENT

Place belt over bottom step of spindle pulley, then place motor in housing and lower to place, switch being on left hand side.

PLACING AND ADJUSTING BELTS

Release lock nut handle which is the handle on right of belt housing and also handle on left side and adjust V belts to proper driving tension, then tighten both motor clamping handles.

MACHINE IS READY TO OPERATE

If quill and head are to be used in stationary position, quill lock should be applied. Micrometer depth stop scale is graduated in 20ths of an inch, pitch is .050 and nut is graduated in thousands. By utilizing these graduations it is possible to work very accurately as far as different depths are concerned. Micrometer nut when in position is locked securely by tightening micrometer lock nut.

OPERATING INSTRUCTIONS

When tightening or loosening the draw bar it is necessary to lock the spindle. To accomplish this, use spindle brake and lock which is located at top of belt housing, turning it either to the right or left until it binds, then raise handle.

Drawbar has 7/16-20 right hand thread and should be tightened with normal amount of pressure using wrench furnished with machine. To loosen collet back off drawbar and if collet does not open immediately give knob on top of drawbar a slight tap. Spindle has non sticking taper and collets should release readily.

SPINDLE BRAKE

Lever can be moved in either direction to stop spindle; however, when locking spindle, lever should be moved to right or left and then raised.

CAUTION: Be certain that the spindle brake is released before starting the motor. This is important as the motor can be damaged if switch is left on with brake in locked position.

REVERSING SWITCH is used to obtain clockwise or counter clockwise rotation of spindle.

Note: Due to back gear construction, when machine is running in low speed range, spindle rotation is opposite to that of high speed range. Therefore forward on your reversing switch becomes reverse switch in low speed range.

HIGH LOW SPEED CLUTCH CONTROL is directly in front of motor. When knob is in position, as shown on picture, clutch is in high speed position. To put clutch into low speed position turn lever to the extreme right. It is necessary to rotate spindle while engaging high speed clutch. This can be accomplished by either turning spindle nose by hand or by turning drawbar knob using wrench, providing drawbar is pulled up tightly.

CAUTION: Do not shift clutch while motor is running.

Back gear control is used in conjunction with the high low speed clutch control above back gear control handle is stamped IN and OUT. When back gear control handle is in OUT position, which is the position furthest from face of machine, then HIGH LOW speed clutch control should be located as illustrated in photograph. With these controls in position as explained, head is set for operation in high speed range (660-2720 RPM). When back gear control lever moved to IN position and HIGH LOW speed clutch control moved to extreme right then the head is ready for operation in the low speed range (80-325 RPM).

POWER FEED TRANSMISSION ENGAGEMENT CRANK engages power feed worm gear. When lever is in position as indicated in photograph, the power feed worm gear is engaged. To disengage worm gear, pull knob out and crank handle in clockwise or down direction and move to opposite position.

Note: Crank cannot be swung around in counter clockwise direction; however no damage will occur if moved in this direction. To engage the worm a counter clockwise movement is required.

CAUTION: Power feed worm gear may be engaged when spindle is rotating, however it should be engaged gently to avoid damage to worm gear. The worm gear may be disengaged at any time.

IMPORTANT: It is recommended that the Power Feed worm gear be disengaged whenever the power feed is not required. This will avoid unnecessary wear on power feed worm gear.

QUILL FEED SELECTOR

This crank is used for selecting the three feeds; 1.5, 3 and 6 thousandths per revolution. It is shifted by pulling knob out and turning from one position to the other. Feeds are stamped on cover below indentation hole. Feed is more readily engaged when spindle is running.

FEED REVERSING KNOB

Position of this handle depends upon direction of spindle rotation. If boring with right hand cutting tools, pull feed handle towards operator until clutch becomes engaged.

Neutral position is between forward and reverse position. It is recommended that the handle be left in neutral position when not in use.

Reversing clutch knob should be in neutral position and feed control lever engaged. Clockwise rotation of handwheel moves quill down. The Manual Feed Handwheel and the quill feed handle may be disengaged by moving outward about 1/8".

Note: Feed control lever must be engaged in order to use manual feed controls. Manual Feed Handle and Handwheel may be taken off when not in use.

FEED CONTROL LEVER

Engages over-load clutch on pinion shaft when thrown to left and will stay engaged until either quill stop comes in contact with micrometer nut, forcing feed control lever to drop out automatically, or released manually by throwing lever to right.

Note: Feed Control Lever is carefully set at plant to throw out automatically when quill stop goes against micrometer nut or against safety pin in top. However, if this should go out of adjustment it may easily be brought back by regulating the screw located at bottom of tripping rod.

CAUTION: When adjusting the screw, check automatic throw off in both directions; that is with micrometer nut against the quill stop for down position and quill stop against throw out pin for up position.

QUILL FEED HANDLE

May be removed by simply pulling handle off end of shaft. It is recommended that handle be disengaged when using power feed.

QUILL STOP is used to disengage automatic feed in either direction as well as the setting point for working to given depths.

MICROMETER ADJUSTING NUT is used for setting of depths. Each graduation on nut indicates one thousand of depth, it reads directly to scale mounted along side of it. Depths may be obtained by setting micrometer nut in conjunction with quill stop.

QUILL LOCK

This is a positive quill lock to be used when quill is in stationary position such asmilling operations. It is recommended that this lock be used whenever quill movement is not desired.

INDICATOR MOUNTING ROD is used for the fastening of an indicator.

LUBRICATION

Do not operate machine until properly lubricated. Lubrication of head is obtained by use of the drip feed method through two oil cups located at right side of belt housing, with light machine oil such as Socony D.T.E. light or equivalent.

POSITION OF OVERARM can be regulated by loosening two bolts on turret and pulling arm in or out to desired position.

CAUTION: Care should be taken to lock overarm securely after setting.

Note: It is recommended that on heavy milling work, head should be kept as close to face of turret as possible, as maximum rigidity is then obtained.

OPERATION

To operate in high speed range, move high low speed clutch control handle to extreme left then put back gear control in OUT position.

Then, if power feed is desired, crank power feed transmission engagement to IN position, (refer back to explanation of controls) and feed reversing knob should be pushed in for down feed and pulled out for up feed.

The next step is to throw feed control lever to left. Power feed is now in operation in high speed range. Feeds can be selected by cranking quill feed selector to desired feeds.

BACK GEAR OR LOW SPEED RANGE

Stop spindle, then move high low speed clutch control to extreme right and also back gear control handle over to IN position.

RECOMMENDATIONS

Use 2, 3, or 4 flute end mills. 8 flute end mills are usually not as satisfactory. When using shell or face mills standard cutter practice should be observed.

Power feed can be used for drilling up to 3/8" diameter drills. Use manual feed for drills larger than 3/8".

Overload clutch is set at factory to hold up to 200 lbs. DOWN pressure on quill, which will accommodate drills up to 3/8' diameter in mild tool steel.

CAUTION: This clutch should not be tampered with in the field.

GENERAL SPEED RECOMMENDATIONS

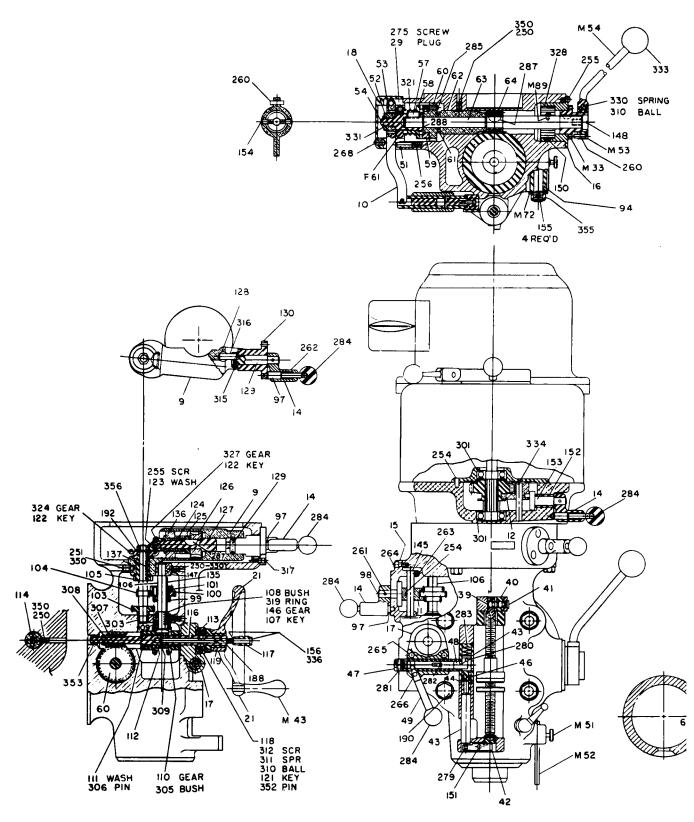
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	Mate	rial to b	e Cut				ough Cut	Roug Fin	h and ish		ht and sh Cut
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Cast Iron-							55	60-70		90	
Cast Iron-							40	50-60		70	
Steel (Chr	ome N	ickel 40	-45 Sho	re)			30	40		50	
Steel (Sta							60	80		90	
Steel (Lov							80	90		140	
Steel (Hig							40	50		70	
Bronze (M							90	120		150	
Bronze (H							65	90		130	
Brass (H							00	150		200	
Copper	-,						50	200		300	
Duralumir	num						100			600	
Aluminum							00			1000	
		Т	ABLEC	F CUT	TING SP	PEEDS	AND FE	EDS			
Feet Per											
Min ute	15	20	25	30	40	50	60	70	80	90	100
			25		40 olutions			70	80	90	100
Dia meter, Inc hes		1222	1528					4278	4889	5500	
Dia meter, Inc hes				Rev	olutions	Per Mi	nute				6112
Diameter, Inches	917	1222	1528	Rev	olutions 2445	3056	nute 3667	4278	4889	5500	6112 3056 2037
Dia meter, Inc hes 1/16" 1/8"	917 458	1222	1528 764	Rev 1833 917	olutions 2445 1222	3056 1528	3667 1833	4278 2139	4889 2445	5500 2750	6112 3056 2037
Diameter, Inches 1/16" 1/8" 3/16" 1/4"	917 458 306	1222 611 407	1528 764 509	Rev 1833 917 611	2445 1222 815	3056 1528 1019	3667 1833 1222	4278 2139 1426	4889 2445 1630	5500 2750 1833	6112 3056 2037 1528
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16"	917 458 306 229	1222 611 407 306	1528 764 509 382	Rev 1833 917 611 458	2445 1222 815 611	3056 1528 1019 764	3667 1833 1222 917	4278 2139 1426 1070	4889 2445 1630 1375	5500 2750 1833 1375	6112 3056 2037 1528 1222
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Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16"	917 458 306 229 183 153	1222 611 407 306 244 204	1528 764 509 382 306 255	1833 917 611 458 367 306	2445 1222 815 611 489 407	3056 1528 1019 764 611 509	3667 1833 1222 917 733 611	4278 2139 1426 1070 856 713	4889 2445 1630 1375 978 815	5500 2750 1833 1375 1100 917	6112 3056 2037 1528 1222 1019 873
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16"	917 458 306 229 183 153 131	1222 611 407 306 244 204 175	1528 764 509 382 306 255 218	Rev 1833 917 611 458 367 306 262	2445 1222 815 611 489 407 349	3056 1528 1019 764 611 509 437	3667 1833 1222 917 733 611 524	4278 2139 1426 1070 856 713 611	4889 2445 1630 1375 978 815 698	5500 2750 1833 1375 1100 917 786	6112 3056 2037 1528 1222 1019 873 764
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8"	917 458 306 229 183 153 131 115	1222 611 407 306 244 204 175 153	1528 764 509 382 306 255 218 191	Rev 1833 917 611 458 367 306 262 229	2445 1222 815 611 489 407 349 306	3056 1528 1019 764 611 509 437 382	3667 1833 1222 917 733 611 524 458	4278 2139 1426 1070 856 713 611 535	4889 2445 1630 1375 978 815 698 611	5500 2750 1833 1375 1100 917 786 688	6112 3056 2037 1528 1222 1019 873 764 611
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4"	917 458 306 229 183 153 131 115 91	1222 611 407 306 244 204 175 153 122	1528 764 509 382 306 255 218 191 153	Rev 1833 917 611 458 367 306 262 229 183	2445 1222 815 611 489 407 349 306 244	3056 1528 1019 764 611 509 437 382 306	3667 1833 1222 917 733 611 524 458 367	4278 2139 1426 1070 856 713 611 535 428	4889 2445 1630 1375 978 815 698 611 489	5500 2750 1833 1375 1100 917 786 688 550	6112 3056 2037 1528 1222 1019 873 764 611 509
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8"	917 458 306 229 183 153 131 115 91 76	1222 611 407 306 244 204 175 153 122 102	1528 764 509 382 306 255 218 191 153 127	Rev 1833 917 611 458 367 306 262 229 183 153	2445 1222 815 611 489 407 349 306 244 204	3056 1528 1019 764 611 509 437 382 306 255	3667 1833 1222 917 733 611 524 458 367 306	4278 2139 1426 1070 856 713 611 535 428 357	4889 2445 1630 1375 978 815 698 611 489 407	5500 2750 1833 1375 1100 917 786 688 550 458	6112 3056 2037 1528 1222 1019 873 764 611 509 437
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1"	917 458 306 229 183 153 131 115 91 76 65	1222 611 407 306 244 204 175 153 122 102 87	1528 764 509 382 306 255 218 191 153 127 109	Rev 1833 917 611 458 367 306 262 229 183 153 131	2445 1222 815 611 489 407 349 306 244 204 175	3056 1528 1019 764 611 509 437 382 306 255 218	3667 1833 1222 917 733 611 524 458 367 306 262 229	4278 2139 1426 1070 856 713 611 535 428 357 306 267	4889 2445 1630 1375 978 815 698 611 489 407 349 306	5500 2750 1833 1375 1100 917 786 688 550 458 393 344	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1" 1 1/8"	917 458 306 229 183 153 131 115 91 76 65 57	1222 611 407 306 244 204 175 153 122 102 87 76 67	1528 764 509 382 306 255 218 191 153 127 109 95 84	Rev 1833 917 611 458 367 306 262 229 183 153 131	2445 1222 815 611 489 407 349 306 244 204 175 153	3056 1528 1019 764 611 509 437 382 306 255 218 191 170	3667 1833 1222 917 733 611 524 458 367 306 262 229 204	4278 2139 1426 1070 856 713 611 535 428 357 306 267 238	4889 2445 1630 1375 978 815 698 611 489 407 349 306 272	5500 2750 1833 1375 1100 917 786 688 550 458 393 344 306	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382 340
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1" 1 1/8" 1 1/4"	917 458 306 229 183 153 131 115 91 76 65 57 50	1222 611 407 306 244 204 175 153 122 102 87 76 67 61	1528 764 509 382 306 255 218 191 153 127 109 95 84 76	Rev 1833 917 611 458 367 306 262 229 183 153 131 115 102 91	2445 1222 815 611 489 407 349 306 244 204 175 153 136 122	3056 1528 1019 764 611 509 437 382 306 255 218 191 170 153	3667 1833 1222 917 733 611 524 458 367 306 262 229 204 183	4278 2139 1426 1070 856 713 611 535 428 357 306 267 238 214	4889 2445 1630 1375 978 815 698 611 489 407 349 306 272 244	5500 2750 1833 1375 1100 917 786 688 550 458 393 344 306 275	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382 340 306
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1" 1 1/8" 1 1/4" 1 3/8"	917 458 306 229 183 153 131 115 91 76 65 57 50 45 41	1222 611 407 306 244 204 175 153 122 102 87 76 67 61 55	1528 764 509 382 306 255 218 191 153 127 109 95 84 76 69	Rev 1833 917 611 458 367 306 262 229 183 153 131 115 102 91 83	2445 1222 815 611 489 407 349 306 244 204 175 153 136 122 111	3056 1528 1019 764 611 509 437 382 306 255 218 191 170 153 139	3667 1833 1222 917 733 611 524 458 367 306 262 229 204 183 167	4278 2139 1426 1070 856 713 611 535 428 357 306 267 238 214 194	4889 2445 1630 1375 978 815 698 611 489 407 349 306 272 244 222	5500 2750 1833 1375 1100 917 786 688 550 458 393 344 306 275 250	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382 340 306 278
1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1" 1 1/8" 1 1/4" 1 3/8" 1 1/2"	917 458 306 229 183 153 131 115 91 76 65 57 50 45 41 38	1222 611 407 306 244 204 175 153 122 102 87 76 67 61 55 50	1528 764 509 382 306 255 218 191 153 127 109 95 84 76 69 63	Rev 1833 917 611 458 367 306 262 229 183 153 131 115 102 91 83 76	2445 1222 815 611 489 407 349 306 244 204 175 153 136 122 111 102	3056 1528 1019 764 611 509 437 382 306 255 218 191 170 153 139 127	3667 1833 1222 917 733 611 524 458 367 306 262 229 204 183 167 153	4278 2139 1426 1070 856 713 611 535 428 357 306 267 238 214 194 178	4889 2445 1630 1375 978 815 698 611 489 407 349 306 272 244 222 204	5500 2750 1833 1375 1100 917 786 688 550 458 393 344 306 275 250 229	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382 340 306 278 255
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1" 1 1/8" 1 1/8" 1 1/8" 1 1/8" 1 1/8" 1 5/8"	917 458 306 229 183 153 131 115 91 76 65 57 50 45 41 38 35	1222 611 407 306 244 204 175 153 122 102 87 76 67 61 55 50 47	1528 764 509 382 306 255 218 191 153 127 109 95 84 76 69 63 58	Rev 1833 917 611 458 367 306 262 229 183 153 131 115 102 91 83 76 70	2445 1222 815 611 489 407 349 306 244 204 175 153 136 122 111 102 94	3056 1528 1019 764 611 509 437 382 306 255 218 191 170 153 139 127 118	3667 1833 1222 917 733 611 524 458 367 306 262 229 204 183 167 153 141	4278 2139 1426 1070 856 713 611 535 428 357 306 267 238 214 194 178 165	4889 2445 1630 1375 978 815 698 611 489 407 349 306 272 244 222 204 188	5500 2750 1833 1375 1100 917 786 688 550 458 393 344 306 275 250 229 212	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382 340 306 278 255 235
Diameter, Inches 1/16" 1/8" 3/16" 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4" 7/8" 1" 1 1/8" 1 1/4" 1 3/8"	917 458 306 229 183 153 131 115 91 76 65 57 50 45 41 38	1222 611 407 306 244 204 175 153 122 102 87 76 67 61 55 50	1528 764 509 382 306 255 218 191 153 127 109 95 84 76 69 63	Rev 1833 917 611 458 367 306 262 229 183 153 131 115 102 91 83 76	2445 1222 815 611 489 407 349 306 244 204 175 153 136 122 111 102	3056 1528 1019 764 611 509 437 382 306 255 218 191 170 153 139 127	3667 1833 1222 917 733 611 524 458 367 306 262 229 204 183 167 153	4278 2139 1426 1070 856 713 611 535 428 357 306 267 238 214 194 178	4889 2445 1630 1375 978 815 698 611 489 407 349 306 272 244 222 204	5500 2750 1833 1375 1100 917 786 688 550 458 393 344 306 275 250 229	6112 3056 2037 1528 1222 1019 873 764 611 509 437 382 340 306 278

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COMPRESSION SPRING
J-262
J-263
       10-32 x 1/4 LG. K.P. SET SCREW
       #10-24 x 1/2 LG. CAP SCREW
J-264
       1/4 - 20 x 1 LG. CAP SCREW
J-265
       #10 - 24 x 1-1/2 LG. CAP SCREW
J-267
       1/4 - 20 x 1/2 SOCKET SET SCREWS
J-268
       1/4 - 20 x 3/8 LG. SOCKET HEAD CAP SCREW
J-269
       N-06 LOCK NUT
J-272
J-273
       W-06 LOCKWASHER
       5/16 - 18 x 5/16 SOCKET SET SCREW K.P.
J- 274
       1/4 - 20 x 1/4 LG. SOCKET SET SCREW
J-275
J-276
       10-32 x 5/16 LG. RD. HD. SCREW
J-278
       3/8 - 24 × 5/8 SCREW
       #6 - 32 x 3/8 SOCKET SET SCREW
J-279
       1/8 x 7/16 LG. ROLL PIN
3/16 x 5/8 LG. DOWEL PIN
1/8 x 9/16 LG. ROLL PIN
J-280
J- 28 1
J-282
       COMPRESSION SPRING
J-283
       BLACK PLASTIC BALL HANDLES 1" DIM.
J-284
       8-32 x 5/8 LG. RD. HD. SCREW
#3 WOODRUFF KEY
#7 WOODRUFF KEY
J-285
J-286
J-287
       #5108 - 59 KOHINOOR SNAP RING
J- 288
J-289
       7/16 - 14 HEX NUT HARDENED (AMERICAN STD. REGULAR)
J-290
       N-08 SPECIAL 5/16 THICK BEARING LOCKNUT
J-291
       W-08 LOCKWASHER
J-292
       1 PR. #208 BEARINGS
       1 PR. #207 BEARINGS
J-293
       WICK 1/8 O.D.
J- 294
J-295
       GITS OIL CUP #1207
       3/32 x 5/8 LG. ROLL PIN
J-296
       W. B. JONES #167 - A EXT. SPRING (LINDQUIST)
J-297
       10-32 × 1/4 LG. SOCKET SET SCREWS
J-298
       #9 WOODRUFF KEY
J-299
J-300
       5/8 - 18 HEX JAM NUT
J-301
       ND #99503 DOUBLE SEAL BEARING ABEC 3
       B-66 TORRINGTON NEEDLE BEARING
J-303
J-304
       3/8 - 24 HEX JAM NUT
J-305
       A-672-4 OILITE BEARING
       3/32 x 5/16 LG. PIN
J-306
       BOSTON WORM #HLVH
J-307
       .110 DIA. x 7/16 LG. PIN
3/32 x 3/4 LG. ROLL PIN
J-308
J-309
J-310
       3/16 STEEL BALL
J-311
       COMPRESSION SPRING
J-312
       1/4 - 20 x 5/16 LG. SET SCREW
J-315
       #10-24 \times 3/8 LG. K.P. SET SCREW
J-316
       5/16 x 7/8 LG. DOWEL PIN
       3/8 LOCKWASHER
J-318
J-319
       5108 - 62 WALDES SNAP RING
       SAFETY CLUTCH SPRING
J-321
       MICROMETER SCALE
J-322
       6-32 x 1/4 LG. RD. HD. SCREW
FEED REVERSE BEVEL GEAR
J-323
J-324
       BILLING #1166 WRENCH
J-326
       STEEL PINION
J-327
       CLOCK SPRING 1" x .020" x 42"
TIMING BELTS 1-1/4" WIDE
J-328
J-329
J-330
       COMPRESSION SPRING
       5108 - 37 KOHINOOR SNAP RING
J-331
J-333
       BLACK PLASTIC BALL HANDLES 13/8 DIM. SAME AS M-54
       5/16 x 2" LG. DOWEL PIN
J-334
       #8 SPLIT LOCKWASHER
J-335
       SNAP RING 5100-25
J-336
       #2002 GITS OIL CUP
J-338
       SPINDLE SPEED PLATE
J-339
       OPERATING INSTRUCTION PLATE
J-340
       10 - 32 x 3/8 SOCKET SET SCREWS
J-345
       FAFNIR MM 207 WI-CR-DB. SPEC. E5227. START AT J-1200
J-348
       FAFNIR M206 K SPEC. E 6578 OR NORMA HOFFMAN 206 S-685 A START AT SER. #J-1750
J-349
J-350
       1/4 - 20 MOCK-IT LOCKSCREW
       5/16 - 18 MOCK-IT LOCKSCREW
J-351
       1/8 x 3/4 LG. DOWEL PINS
J-352
J-353
       BUSHING
J-355
       1/2" - 13 STD. HEX NUT
       3/8 - 24 FLOPLOC STOP & LOCKNUT
J-356
       6-32 x 1/4 SOCKET SET SCREW K.P. STARTED WITH SER. #J-8300
J-358
       1/4-20 JAM - NUT
J-359
J-362
       5/16 - 18 JAM NUT
       5/16 EXTERNAL LOCK WASHER
J-363
       1/4 x 3/4 ROLL PINS
J-365
       NAME PLATE
J-366
       OIL STRAINER FOR QUILL BRG.
J-368
       SWITCH BRACKET
J-839
       WASHER
M-72
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10. 5500 UIP.

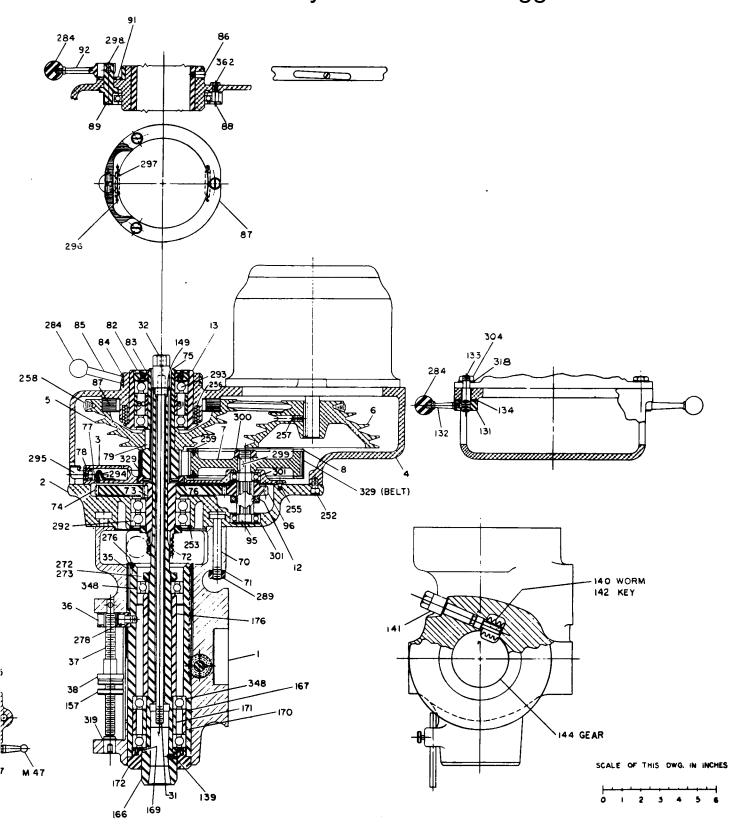
EWS

	MIMS Machinery Movers	mimsrigge	rs.com
J-1 J-2	QUILL HOUSING	J-91	BRAKE LOCK WASHER
J-2 J-3	GEAR HOUSING GEAR HOUSING COVER	J-92	BRAKE LOCK & HANDLE
J-4	BELT HOUSING	J-93 J-94	BRAKE LOCK PIN LOWER CLAMPING BOLT SPACER
J-5	SPINDLE PULLEY	J-95	COUNTERSHAFT
J-6 J-7	MOTOR PULLEY	J-96	COUNTERSHAFT GEAR
J-7 J-8	TIMING BELT PULLEY TIMING BELT PULLEY FLANGE	J-97	GEARSHIFT PLUNGER
J-9	WORM GEAR CRADLE	J-98 J-99	CLUSTER GEAR SHIFT CRANK FEED DRIVE CLUSTER GEAR
10-ل	OVERLOAD CLUTCH TRIP LEVER		FEED DRIVE CLUSTER GEAR (CENTER
J-11 J-12	FEED GEAR SHIFTER FORK	101-۲	FEED DRIVE CLUSTER GEAR (UPPER)
J-13	BACK GEAR SHIFTER FORK SPINDLE PULLEY BEARING SLEEVE		FEED DRIVE GEAR
J-14	SHIFT CRANK		CLUSTER GEAR INPUT SHAFT FEED DRIVING GEAR
J-15 J-16	CLUSTER GEAR COVER	J-106	CLUSTER GEAR SHAFT
J-10 J-17	SPRING COVER FEED TRIP BRACKET		CLUSTER GEAR KEY
J-18	CLUTCH ARM COVER		BEVEL GEAR BEARING BEVEL GEAR THRUST SPACER
J-20	MOTOR SWITCH BRACKET		FEED REVERSE BEVEL GEAR
J-21 J-23	HANDWHEEL FELT RETAINER RING	1-111	
M-24	MICRO SCREW JAM NUT	J-112 J-113	FEED REVERSE CLUTCH HANDWHEEL CLUTCH SPRING SCREW
J-27	TIMKEN BEARING SPACER FOR J-100 TO J-1199 ONLY	J-114	
J-29 J-31	SPINDLE LOCKNUT BINDING DRAWBAR FOR R-8 COLLET	J-116	REVERSE CLUTCH ROD
J-32	DRAWBAR KNOB	J-117 J-118	
M-33	PINION SHAFT HUB SLEEVE	J-119	
J-34	QUILL NOSEPIECE FOR J-100 TO J-1199 ONLY	J-121	WORM SHAFT KEY
J-35 J-36	QUILL SKIRT QUILL STOP KNOB	J-122 J-123	FEED DRIVING GEAR KEY
J-37	QUILL STOP MICRO SCREW	J-123 J-124	
J-38	MICROMETER NUT	J-1 25	WORM GEAR SPACER
J-39 J-40	REVERSE TRIP BALL LEVER FEED REVERSE TRIP PLUNGER	J-126	FEED DRIVE WORM GEAR
J-41	REVERSE TRIP BALL LEVER SCREW	J-127 J-128	FEED DRIVE WORM GEAR SHAFT FEED ENGAGE PIN
J-42	FEED TRIP LEVER	J-129	
J-43 M-43	FEED TRIP PLUNGER	J- 130	SHIFT SLEEVE
J-43	HANDWHEEL HANDLE TRIP PLUNGER BUSHING	J-131	MOTOR LOCKNUT MOTOR LOCKNUT HANDLE
J-45	TRIP PLUNGER	J-133	MOTOR MOUNTING STUDS
J-46	FEED TRIP PLUNGER BUSHING	J-134	MOTOR MOUNTING STUD WASHERS
J-47 M-47	CAM ROD SLEEVE ASSEMBLY LOCK HANDLE	J-135 J-136	CLUSTER GEAR KEY WORM CRADLE BUSHING
J-48	CAM ROD	J-136 J-137	
J-49	TRIP HANDLE	J-139-S	COLLET ALIGNING SCREW
J-50 J-51	LOCKNUT BINDING PLUG FOR J-100 to J-1199 ONLY OVERLOAD CLUTCH LEVER SPRING PLUNGER	J-140 J-141	WORM GEAR NUT
M-51	INDICATOR ROD SCREW	J-142	KEY
J-52	OVERLOAD CLUTCH WASHER	J-143	1/4 20 × 3/8 SOCKET SET SCREW
M-52 J-53	INDICATOR ROD CLUTCH RING	J-144 J-145	FEED SHIFT ROD
M-53	PINION SHAFT HUB	J-146	FEED REVERSE BEVEL PINION
J-54	OVERLOAD CLUTCH SLEEVE	J-147	CLUSTER GEAR SHAFT UPPER BEARIN
M-54 J-57	PINION SHAFT HUB HANDLE OVERLOAD CLUTCH SLEEVE KEY	J-148 J-149	PINION SHAFT HUB SCREW DRAWBAR WASHER
J- 58	OVERLOAD CLUTCH	J-150	OUTSIDE CLOCKSPRING PIN
J-59	OVERLOAD CLUTCH RING	J-151	TRIP LEVER PIN
J-60 J-61	OVERLOAD CLUTCH WORM GEAR PINION SHAFT WORM GEAR SPACER		BACKGEAR SHIFT BUSHING BACKGEAR SHIFT CRANK
F-61	OVERLOAD CLUTCH LOCKNUT	J-154	CLUTCH RING PIN
J-62	QUILL PINION SHAFT BUSHING		1/2" T-BOLT
J-63 J-64	QUILL PINION SHAFT QUILL PINION	J-156 J-157	FEED REVERSE KNOB STUD QUILL MICRO STOP NUT
J-65	QUILL LOCK SLEEVE	J-159	KEY FOR #30 STD TAPER SPINDLE
J-66	QUILL LOCK SLEEVE		SPINDLE (SERIAL J-1200 AND UP)
J-67 J-70	QUILL LOCK BOLT VERTICAL TEE BOLT	J- 167 J-169	QUILL (SERIAL J-1200 AND UP) SPINDLE DIRT SHIELD
J-70 J-71	VERTICAL TEE BOLT WASHER		BEARING SPACER - LARGE FROM J-175
J-72	SPLINED GEAR HUB	J-171	BEARING SPACER - SMALL
J-73 J-74	BULL GEAR KEY SPINDLE BULL GEAR	J-172 J-176	NOSEPIECE SLEEVE FROM SER. J-1750
J-74 J-75	SPINDLE PULLEY HUB		FEED WORM SHAFT STARTED WITH SEF
J-76	PULLEY COLLAR	J- 190	1/2 - 13 SPECIAL HEX NUT OPTIONAL
J-77 J-78	OILER TUBE OIL PLUG	J-192 J-193	WASHER PLUG FOR 5/8 HOLE
J-79	SPINDLE PULLEY KEY	J-250	1/4 - 20 1/2 LG. SOCKET SET SCREW KF
J-80	UPPER BEARING SPACER (LARGE)	J-251	5/16 - 18 × 5/16 SOCKET SET SCREW
J-81 J-82	UPPER BEARING SPACER (SMALL) BEARING SLEEVE LOCKNUT	J-252 J-253	5/16 - 18 × 5/8 LG. SOCKET CAP SCREW KOHINOOR #5000 - 315 SNAP RING
J-83	UPPER BEARING LOCKNUT	J- 254	3/16 x 1/2 LG. DOWEL PINS
J-84	CAM RING SPINDLE CLUTCH LEVER	J-255 J-256	#10-24 x 3/8 LG. R. HEAD SCREW COMPRESSION SPRING
J-85 J-86	SPINDLE CLUTCH LEVER SPINDLE CLUTCH CAM RING PIN	J- 257	5/16 - 18 x 1/2 LG. K.P. SOCKET SET SC
J-87	BRAKE BLOCK	J-258	V BELT
J-88 J-89	BRAKE RING SCREW BRAKE LOCK STUD	J-259 J-260	#6 - 32 x 3/8 LG. FLAT HEAD SCREWS 3/16 x 3/4 LG. DOWEL PIN
M-89	CLOCKSPRING STUD	J-261	1/8 × 7/8 LG. ROLL PIN



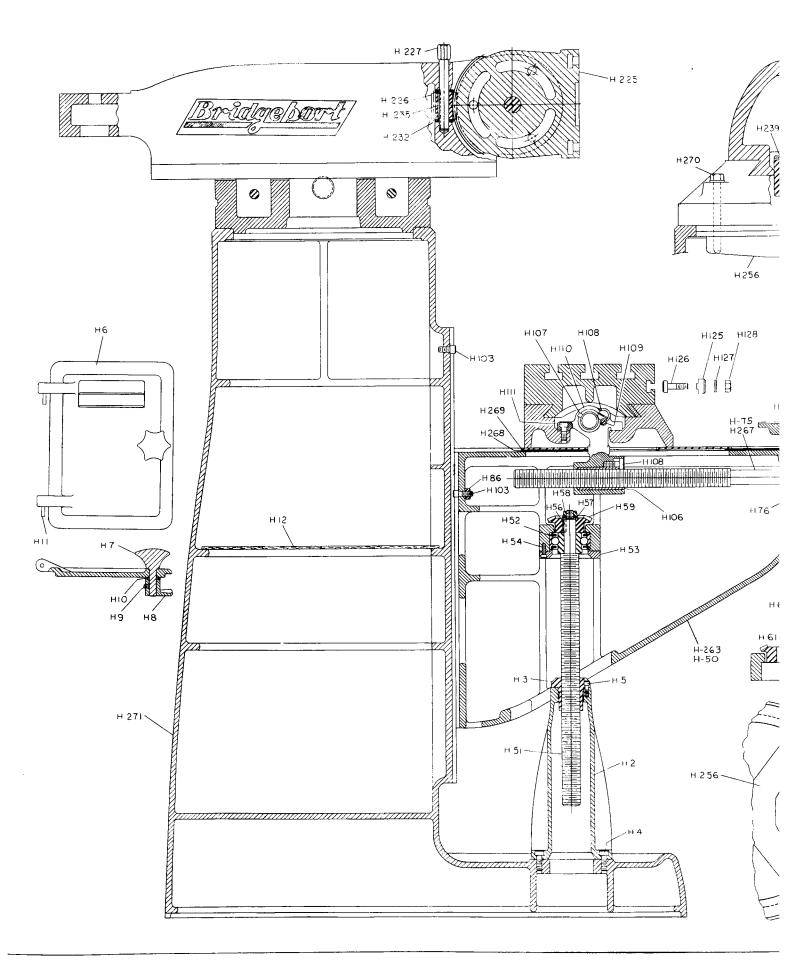
PART LIST - THE BRIDGEPORT TURRET MILLING MACHINE

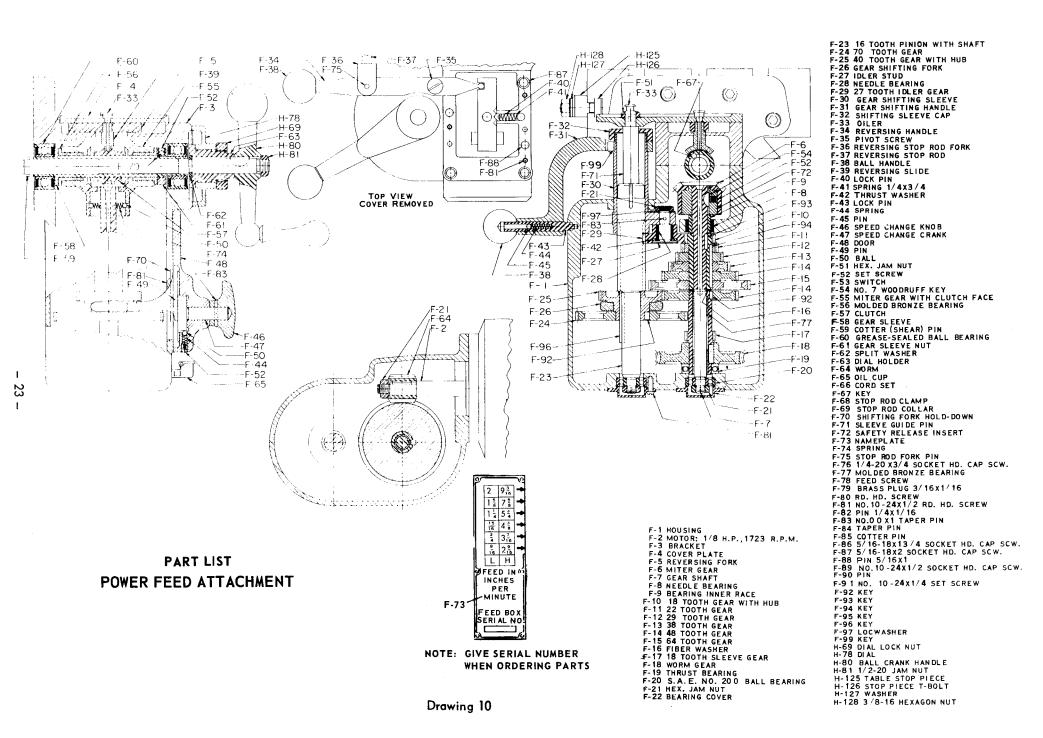
H-2	ELEVATING SCREW HOUSING	H-103	STOP SCREW
H-3	ELEVATING SCREW NUT 3/8 - 16 × 1 HOLLOW HEAD CAP SCREW (2 REQUIRED) 1/4 - 20 × 3/4 HOLLOW HEAD CAP SCREW (3 REQUIRED)	H-104	KEY PIN
H-4	3/8 - 16 × 1 HOLLOW HEAD CAP SCREW (2 REQUIRED) 1/4 - 20 × 3/4 HOLLOW HEAD CAP SCREW (3 REQUIRED) DOOR DOOR KNOB DOOR LOCKING CAM 1/4 - 20 × 1/4 SET SCREW 17/32 × 1 SPACER 3/16 × 1-1/2 HINGE PIN (2 REQUIRED) WOODEN SHELF (2 HALVES) HANDLE KNEE (9") KNEE (12") ELEVATING SCREW NO. 3606 – J GREASE-SEALED BALL BEARING	H-105	SADDLE
H-5	1/4 - 20 x 3/4 HOLLOW HEAD CAP SCREW (3 REQUIRED)	H-106	CROSS FEED NUT
H-6	DOOR		3/16 × 3/16 × 2-1/2 KEY (2 REQUIRED)
H-7	DOOR		CROSS FEED NUT RETAINING SCREW (2 REQUIRED)
11-7	DOOR LOCKING CAN		
H-8	DOOR LOCKING CAM		NO. 8 - 32 × 3/8 WASHER HEAD SCREW (2 REQUIRED)
H-9	1/4 - 20 × 1/4 SET SCREW		FEED NUT BRACKET
H-10	17/32 × 1 SPACER		HOLLOW HEAD CAP SCREW (12 REQUIRED)
H-11	3/16 × 1-1/2 HINGE PIN (2 REQUIRED)		LONGITUDINAL FEED NUT
H-12	WOODEN SHELF (2 HALVES)	H-113	LONGITUDINAL FEED SCREW
H-28	HANDLE	H-114	TABLE
H-50	KNEE (9")	H-115	LEFT BEARING BRACKET
H-263	KNEE (12")	H-117	3/16 × 1 DOWEL PINS (6 REQUIRED)
H-51	ELEVATING SCREW	H-118	RIGHT BEARING BRACKET
H-52	NO. 3606 - J GREASE-SEALED BALL BEARING	H-119	SADDLE-TABLE GIB
H-53	BEARING RETAINER RING		TABLE LOCK PLUNGER
	1/4 × 20 × 1/2 HOLLOW HEAD CAP SCREW (3 REQUIRED)		TABLE LOCK BOLT
	3/16 × 3/16 × 7/8 KEY		TABLE LOCK BOLT HANDLE (2 REQUIRED)
			TABLE STOP BRACKET
	33/64 × 1 × 0.100 WASHER		
	1/2 - 20 JAM NUT (2 REQUIRED)		3/8 - 16 × 1/2 HOLLOW HEAD CAP SCREW (2 REQUIRED)
	BEVEL GEAR		TABLE STOP PIECE (2 REQUIRED)
H-60	BEVEL PINION		STOP PIECE T-BOLT (2 REQUIRED)
H-61	NO. 7 WOODRUFF KEY		WASHER (2 REQUIRED)
H-62	NO. 77020 GREASE-SEALED BALL BEARINGS (3 REQUIRED)		3/8 – 16 HEXAGON NUT (2 REQUIRED)
H-63	GEAR SHAFT FOR 9" KNEE	H-129	SADDLE-KNEE WIPER PLATE (2 REQUIRED)
H-265	GEAR SHAFT FOR 12" KNEE	H-130	FELT WIPER (4 REQUIRED)
		H-131	SADDLE-KNEE GIB
H-65	BEARING RETAINER RING (3 REQUIRED)	H-132	SADDLE LOCK PLUNGER
H-66	1/4 - 20 × 1/2 HOLLOW HEAD CAP SCREW (9 REQUIRED)	H-133	SADDLE LOCK BOLT
H-67	DIAL WITH 100 GRADUATIONS	H-134	NO. 1611 ALEMITE FITTING (2 REQUIRED)
H-68	DIAL HOLDER	H-135	5/16 - 18 × 5/16 SET SCREW
	DIAL LOCK NUT (4 REQUIRED)		NO. 10 ~ 32 × 1/2 OVAL HEAD SCREW (6 REQUIRED)
	GEARSHAFT CLUTCH INSERT		1-1/4 OPEN END AND 1-1/16 BOX END WRENCH
H-71			GREASE GUN
	CROSS FEED SCREW FOR 9" KNEE		
	CROSS FEED SCREW FOR 12" KNEE		PLUG
			TURRET
	NO. XF-12 GREASE-SEALED BALL BEARINGS (2 PAIRS REQUIRED)	H-224	
H-77	CROSS FEED BEARING BRACKET		RAM ADAPTER
H-78	DIAL WITH 200 GRADUATIONS (3 REQUIRED)		VERTICAL ADJUSTING WORM
H-79	DIAL HOLDER (3 REQUIRED)		VERTICAL ADJUSTING WORM SHAFT
H-80	BALL CRANK HANDLE (3 REQUIRED)	H-228	ADAPTER PIVOT STUD
H-81	1/2 - 20 JAM NUT (3 REQUIRED)	H-229	ADAPTER PIVOT STUD LOCKNUT
H-82	DIAL HOLDER (3 REQUIRED) BALL CRANK HANDLE (3 REQUIRED) 1/2 - 20 JAM NUT (3 REQUIRED) 3/8 - 16 × 1 HOLLOW HEAD CAP SCREW (4 REQUIRED) CHIP GUARD STOP SCREW	H-230	RAM LOCK STUD
H-83	CHIP GUARD	H-231	RAM PINION
H-84	STOP SCREW	H-232	WORM THRUST WASHER
H-86	3/8 – 16 HEXAGON NUT	H-233	RAM CLAMP
H-87	KNEE COLUMN GIB FOR 9" KNEE	H-234	RAM CLAMP BAR
H-264	KNEE COLUMN GIB FOR 12" KNEE	H-235	WORM KEY
H-88	GIB SCREW (3 REQUIRED)		ANGLE PLATE
H-89	KNEE LOCKING PLUNGER	H-237	RAM PINION HANDLE
H-90	KNEE LOCKING CAMSHAFT		RAM PINION SCREW
H-91	5/16 - 18 × 5/16 DOG POINT SET SCREW		RAM CLAMP
H-92	5/16 - 18 × 5/16 SET SCREW		ADAPTER LOCKING BOLT (2 REQUIRED)
H-93	CAM SHAFT HUB		3/8 × 16 BALL
H-93	CAM SHAFT HANDLE		
H-95	NO. 1 x 1" TAPER PIN		TURRET SPIDER
H-96	LEFT HAND KNEE-COLUMN WIPER HOLDER	M-72	WASHER
H-97	RIGHT HAND KNEE-COLUMN WIPER HOLDER	M-72 H-268	
	1/4 - 20 x 1 HOLLOW HEAD CAP SCREW (2 REQUIRED)	H-269	
H-99	FELT WIPER (2 REQUIRED)		TURRET CLAMP BOLTS
H-100	NO. 1610 ALEMITE FITTING (4 REQUIRED)	□•2/I	COLUMN

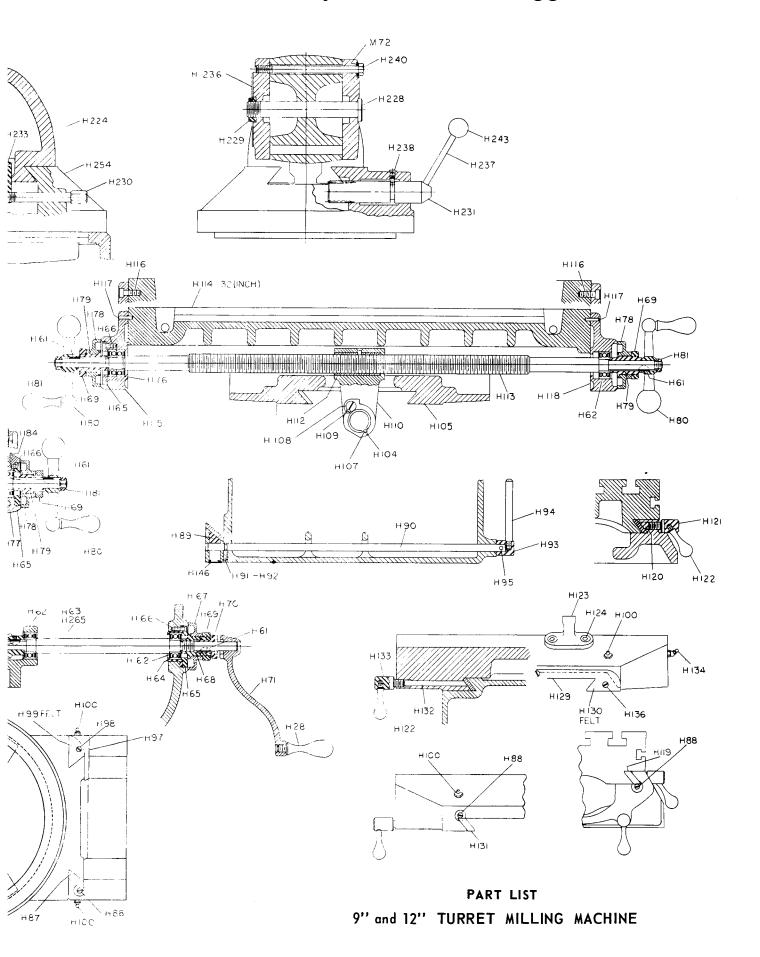


rawing 8

1 H.P. MILLING ATTACHMENT





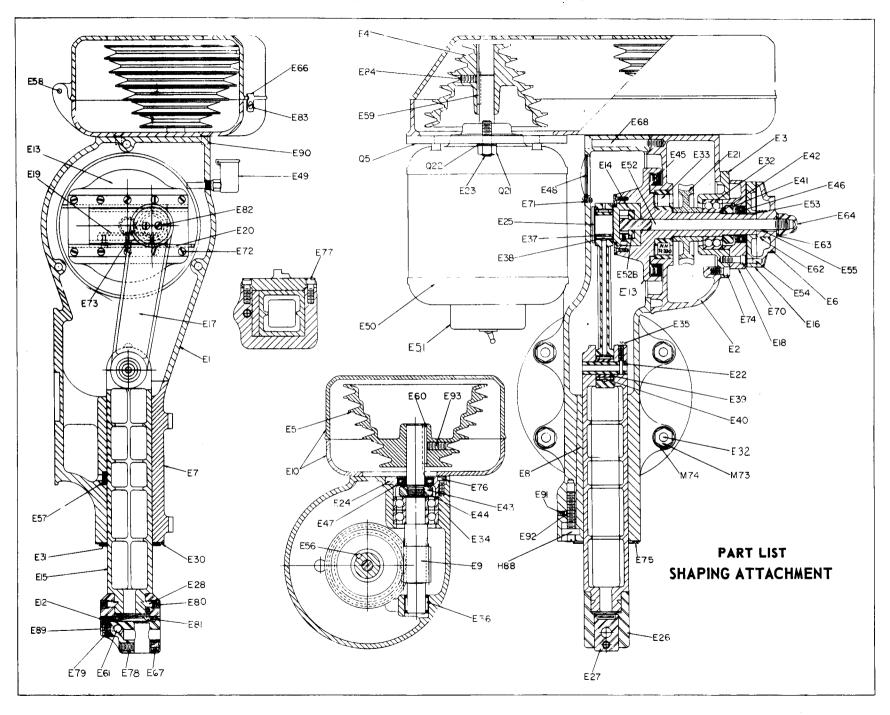


MANUTE IVIDENTIAL CLEFT HAND THREAD! MOVE SER PINIMS RIGGERS. COM83 1/2 H.P. MOTOR M84 DRAWBAR, DOUBLE BELT, NO. 7 OR NO. 2 SPINDLE M270 DRAWBAR, DOUBLE BELT, NO. 7 OR NO. 2 SPINDLE M270 DRAWBAR, DOUBLE BELT, NO. 7 OR NO. 2 SPINDLE M63 M64 T-BOLT, 4 REQ'D. M85 ST SCREW M86 V-BELT M87 STRAIGHT PIN M27D DRAWBAR, SINGLE BELT, NO. 08 SPINDLE M65 CAP SCREW M88 BRASS PLUG PART LIST MASTER MILLING ATTACHMENT M30 A MOTOR PULLEY, SINGLE BELT DRIVE M30B MOTOR PULLEY, DOUBLE BELT DRIVE *M31 MOTOR PULLEY HUB M32 QUILL FEED CLUTCH BOLT M33 QUILL FEED CLUTCH HUB M34 QUILL FEED PUNION M35 QUILL FEED PUNION M35 FIBRE WASHER, 2 REQ'D M37 SPLIT BUSHING M38 CLOCK SPRING M39 SPRING COVER M40 QUILL FEED CLUTCH KNOB M41 MICROMETER SCALE M42 QUILL WORM FEED HAND WHEEL HANDLE M44 QUILL WORM FEED HAND WHEEL HUB M45 QUILL FEED WORM HUB M46 QUILL FEED WORM HUB M47 QUILL LOCK BOLT HANDLE M48 QUILL FEED WORM M47 QUILL LOCK BOLT HANDLE M48 QUILL LOCK BOLT HANDLE M49 QUILL LOCK SLEEVE, TAPPED M51 INDICATOR ROD CLAMP SCREW M52 INDICATOR ROD CLAMP SCREW M53 RACK FEED HANDLE HUB M54 RACK FEED HANDLE M55 BRONZE WORM BUSHING M56 GITS NO. 2551 OIL CUP M57 PINION KEY M58 BRASS QUILL SKIRT M59 MOTOR SWITCH M60 MOTOR SWITCH M61 NO. OOX1/2 TAPPER PIN M28 DRAWBAR KNOB M30 A MOTOR PULLEY, SINGLE BELT DRIVE M30 B MOTOR PULLEY, DOUBLE BELT DRIVE M69 HEX. HEAD SCREW PINION SPRING PIN M70 MOTOR MOUNTING RING STUD, 2 REQ'D. MOTOR CORD M73 3/8 X 16 HEX. NUT, 4 REQ'D. M92 STRAIGHT PIN M74 3/8 X 1/8 X 3/4 CHAMFERED & HARDENED WASHER M97 STRAIGHT PIN QUILL HOUSING BELT HOUSING, SINGLE BELT DRIVE, 60 BELT HOUSING, DOUBLE BELT DRIVE 60 BELT HOUSING, SINGLE BELT DRIVE, 25 BELT HOUSING, DOUBLE BELT DRIVE, 25 M92 STRAIGHT PIN SET SCREW M125 SNAP RING FLAT HEAD SCREW, 2 REQ'D. FLAT HEAD SCREW, 3 REQ'D. M76 M2D M78 STEEL BALL SPINDLE, SINGLE BELT NO.2 MORSE TAPER SPINDLE, SINGLE BELT, NO.7 B&S TAPER SPINDLE, SINGLE BELT, NO.83 TAPER SPINDLE, DOUBLE BELT, NO.2 MORSE TAPER SPRING M 4 A M 4 B SET SCREW SPINDLE, DOUBLE BELT, NOT B&S TAPER SPINDLE, DOUBLE BELT, NO. B3 TAPER М5 NOSEPIECE OIL SLINGER S.A.E. NO. 205 BALL BEARING, 4 REQ' D. O. 750 INSIDE BEARING SPACER O. 750 OUTSIDE BEARING SPACER M9 0.750 OUTSIDE BEARING SPACER M10 LONG SPACER M11 0.375 INSIDE BEARING SPACER M12 0.375 INSIDE BEARING SPACER M13 NO. W-05BEARING LOCK WASHER M14 NO. N-05 BEARING LOCK WASHER M15 NO. N-06 BEARING LOCK NUT M17A SPINDLE PULLEY HUB, SINGLE BELT DRIVE M17B SPINDLE PULLEY HUB, SINGLE BELT DRIVE M18A SPINDLE PULLEY, SINGLE BELT DRIVE M18B SPINDLE PULLEY, SINGLE BELT DRIVE M18B SPINDLE PULLEY, DOUBLE BELT DRIVE M18B SPINDLE PULLEY, DOUBLE BELT DRIVE M18B SPINDLE PULLEY, DOUBLE BELT DRIVE M19 S.A.E. NO.206 BALL BEARING, 2 REQ' D. M20 BEARING HOUSING M21 BEARING RETAINER RING M22 MICROMETER NUT M24 MICROMETER NUT M24 MICROMETER NUT 47 MOTOR SWITCH NO. OOX1/2 TAPER PIN M24 MICROMETER LOCK NUT NOTE: ALWAYS GIVE SERIAL NUMBER OF ATTACHMENT WHEN ORDERING PARTS. SPECIFY MAKE OF MOTOR FOR ITEMS MARKED 74 41 A 58 36 46 57 33 45 NO. 7 BROWN & SHARPE SPECIFY SPINDLE TAPER WHEN ORDERING COLLETS 75 NO. 2 MORSE BRIDGEPORT B3 SEC A-A

88

Drawing 11

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E-4* MOTOR PULLEY

E-5 WORM SHAFT PULLEY
E-6 STROKE ADJUSTMENT DIAL

E-7 RAM COVER

E-8 GIB

E-9 WORM AND SHAFT

E-10* BELT HOUSING

E-12 CLAPPER SPRING

E-13 CRANK AND SHAFT

E-14 CRANKPIN BLOCK

E-15 RAM

E-16 STROKE ADJUSTMENT PLATE

E-17 CONNECTING ROD

E-18 CRANK BEARING COVER

E-19 RACK

E-20 CRANKPIN BLOCK HOLD-DOWN-2 REQUIRED

E-21 WORM GEAR

E-22 RAM CRANKPIN

E-23 MOTOR MOUNTING RING STUD - 2 REQUIRED

E-24 WORM BEARING COVER

E-25 BEARING RETAINING WASHER

E-26 CLAPPER BOX

E-27 CLAPPER

E-28 CLAPPER BOX CLAMP SHOE - 2 REQUIRED

E-29* BELT

E-30 WIPER PLATE

E-31 WIPER-FELT

E-32 NO. 5205 BEARING

E-33 NO. R330 BEARING

E-34 NO. 204 BEARING - 1 PAIR

-35 RAM CRANKPIN LOCKSCREW

E-36 NO. B-1212X BEARING

E-37 NO. 15-1312 INNER RACE

E-38 NO. GB-1612X BEARING

E-39 NO. 15-812 OSC. INNER RACE

E-40 NO. GB-1212X BEARING

E-41 N-05 LOCKNUT

E-42 NO. W-05 LOCKWASHER

E-43 NO. N-04 LOCKNUT

E-44 NO. W-04 LOCKWASHER

E-45 3-1/4 x 4-1/4 x 1/2 OILSEAL

E-46 7/8 × 1-1/2 × 3/8 OILSEAL

E-47 3/4 x 1-1/2 x 5/16 OILSEAL

E-48 AIR VENT COVER

E-49 OIL CUP

E-50* MOTOR

E-51* SWITCH

E-52 LOCKING BOLT AND GEAR

E-52B LOCKING BOLT COLLAR

E-53 KEY

E-54 3/16 x 3/8 PIN

E-55 KEY

E-56 KEY

E-57 FELT PLUG

E-58 1/8 x 1-1/4 PIN - 2 REQUIRED

E-59 KEY

E-60 3/16 × 3/16 × 1-3/4 KEY

E-61 5/16 x 1-7/8 PIN

E-62 DIAL SPRING

E-63 WASHER

E-64 7/16 - 20 ACORN NUT

E-66 BELT COVER CLIP

E-67 5/16 - 18 x 1/2 SET SCREW

E-68 5/16 - 18 × 2-3/4 CAP SCREW

E-70 1/4 - 20 x 3/4 CAP SCREW - 3 REQUIRED

E-71 NO. 8-32 × 3/8 WASHER HEAD SCREW - 2 REQUIRED

E-72 NO. 10-24 x 3/8 FLAT HEAD SCREW - 10 REQUIRED

E-73 NO. 8-32 × 3/8 ROUND HEAD SCREW - 3 REQUIRED

E-74 1/4 - 20 x 1/2 CAP SCREW - 3 REQUIRED

E-75 NO. 5-40 x 1/4 ROUND HEAD SCREW - 4 REQUIRED

E-76 NO. 10-24 × 3/8 CAP SCREW - 3 REQUIRED

E-77 1/4 - 20 x 1/2 CAP SCREW - 6 REQUIRED

E-78 5/16 - 18 x 5/8 SET SCREW

E-79 5/16 - 18 x 5/8 SET SCREW

E-80 5/16 - 18 × 5/16 SET SCREW - 2 REQUIRED

E-81 NO. 8-32 x 3/8 ROUND HEAD SCREW

E-82 NO. 5-40 × 1/4 FLAT HEAD SCREW - 2 REQUIRED

E-83 NO. 8-32 × 3/8 WASHER HEAD SCREW

E-84 5/16 - 18 × 5/8 SET SCREW

E-85 OVERARM MARKER

E-88 1/8 PIPE PLUG, DRILLED AND TAPPED

E-89 NO. 10-24 x 1/4 SET SCREW

E-90 1/4 - 20 x 1/2 FLAT HEAD SCREW - 4 REQUIRED

E-91 $1/4 - 20 \times 1/4$ SET SCREW

E-92 BRASS PLUG

E-93 5/16 - 18 x 3/4 SET SCREW

E-94 ROTATION NAMEPLATE

E-203 STANDARD NAMEPLATE

M-73 T-BOLT NUT - 4 REQUIRED

M-74 T-BOLT WASHER - 4 REQUIRED

Q-17 T-BOLT - 4 REQUIRED

Q-5 MOTOR MOUNTING RING

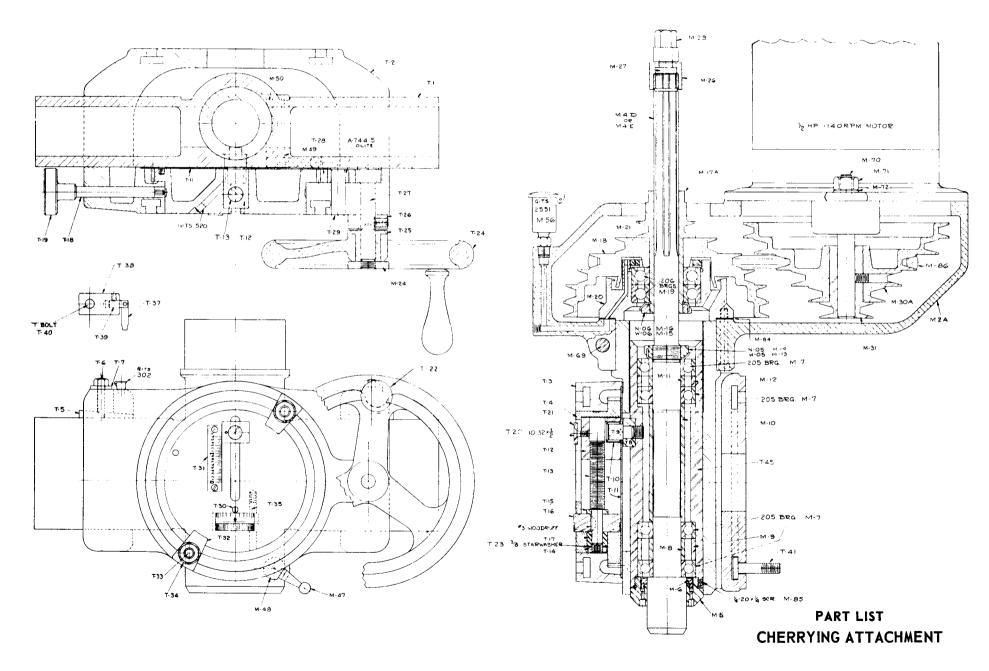
Q-21 MOTOR MOUNTING RING STUD NUT - 2 REQUIRED

Q-22 MOTOR MOUNTING RING STUD WASHER - 2 REQUIRED

H-88 GIB SCREW

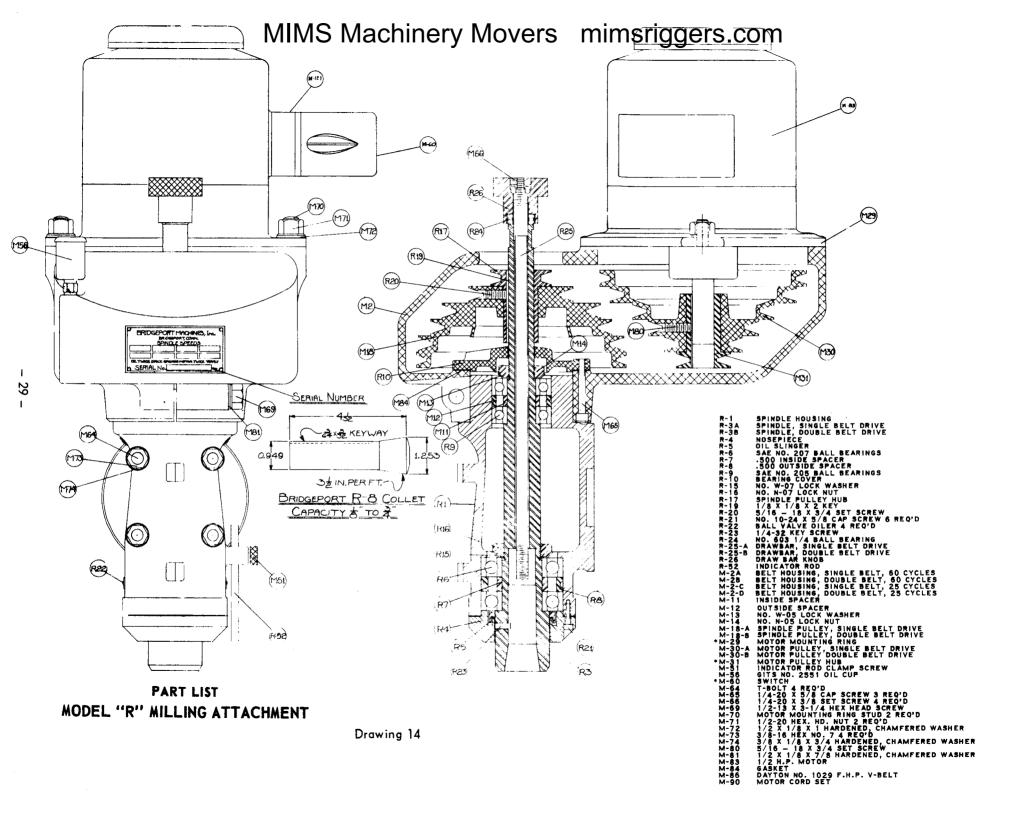
* GIVE MOTOR SPECIFICATIONS INCLUDING MAKE OF MOTOR WHEN ORDERING THESE PARTS. ALWAYS GIVE SERIAL NUMBER OF ATTACHMENT.

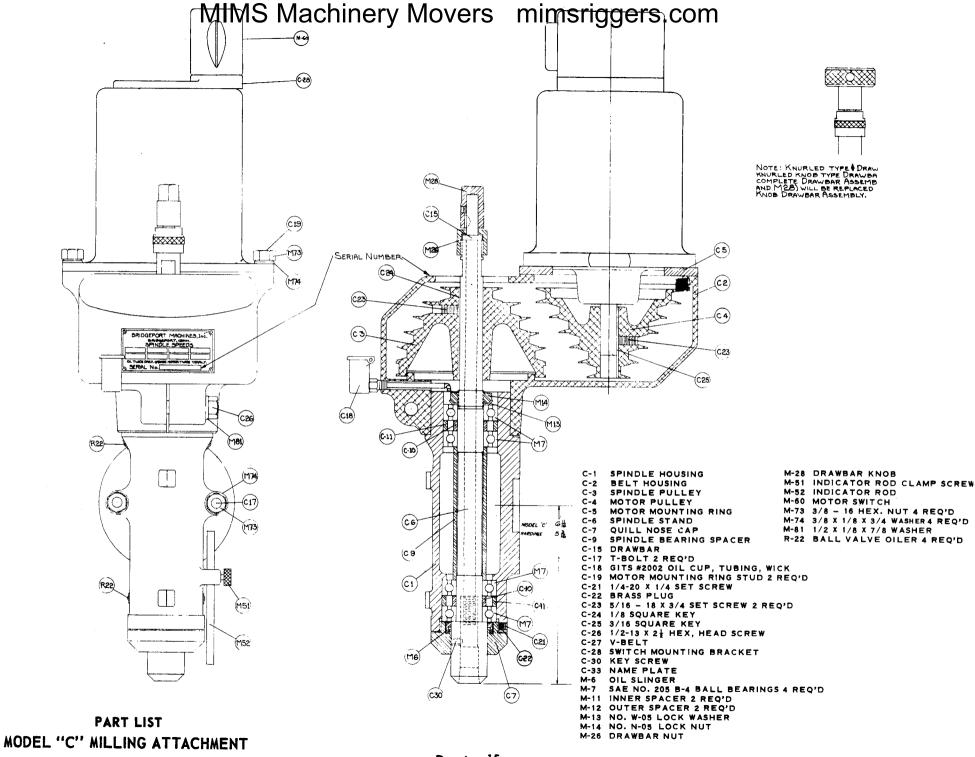
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CHERRYING ATTACHMENT PARTS LIST

M2 A	Belt Housing, single belt drive, 60 cycle	M 90	Motor Cord
M4 D	Spindle, Double belt, #2 Morse Taper	TI	Quill Housing
M4E	Spindle, Double belt, #7 B&S Taper	Т2	Quill Housing Saddle
M5	Nosepiece	Т3	Gear Housing
₩6	Oil Slinger	T4	Drum Gear
M7	SAE # 205 Ball Bearing (4 Req'd)	T5	Gib (2 Reg'd)
М8	0.750 Inside Bearing Spacer	Т6	Gib Screw (2 Req'd)
M9	0.750 Outside Bearing Spacer	T <i>7</i>	Gib Screw Washer (2 Req'd)
M10	Long Spacer	Т8	Cherry
M11	0.375 Inside Bearing Spacer	Т9	Pivot Stud
M12	0.375 Outside Bearing Spacer	T10	Torr. Brg. GB-98
M13	No. W-05 Bearing Lock Washer	TII	Drum Gear Plate
M14	No. N-05 Bearing Lock Nut	T 12	Pivot Offset Block
M1 5	No. W-06 Bearing Lock Washer	T13	Lead Screw
M16	No. N-06 Bearing Lock Nut	T 14	Lead Screw Locknut
M1 7A	Spindle Pulley Hub, Single Belt Drive	T 15	Lead Screw Washer
M1 8A	Spindle Pulley, Single Belt Drive	T 16	Lead Screw Dial
M19	SAE #206 Ball Bearings (2 Reg'd)	T 17	Lead Screw Spacer
M2 0	Be aring Housing	Т18	Allen Wrench Stud
M21	Bearing Retainer Ring	T 19	Wrench Knob
M2 6	Drawbar Nut (Left Hand Thread)	Т20	10 - 32 x 1/2 lg. Flat Head Screw
M2 7A	Drawbar, double drive, #7 or #2 spindle	T21	Zero Block
M28	Drawbar K nob	T22	Handwheel Handle
M29	Motor Mounting Ring	T23	3/8" Star Washer
M3 0 A	Motor pulley, single belt drive with Hub Part M31	T24	Hand Wheel
M31	Motor Pulley Hub	T25	Hand Wheel Dog
M47	Quill Lock Bolt Handle	T26	Hand Wheel Gear Clutch
M4 8	Quill Lock Bolt	T27	Hand Wheel Pinion
M49	Quill Lock Sleeve, Drilled	T 28	ldler Gear
M50	Quill Lock Sleeve, Tapped	T29	ldler Gear Post
M56	Gits No. 2551 Oil Cup	T30	Lead Screw Zero Pin
M60	Motor Switch 9441 H31D Cutler Hammer	T 31	Scale (Purchased)
M64	T Bolts (4 Req'd)	T3 2	Stop Dog (2 Req'd)
M65	1/4 x 20 x 1-3/4 lg. Cap Screw (6 Reg'd)	T 33	T Bolt (3 Req'd)
M69	1/2 x 13 x 3-1/4 Hex. Head Screw	T34	T Bolt Washer (3 Req'd)
M7 0	Motor Mounting Ring Stud (2 Req'd)	T35	Dial Binder Plug
M7 1	1/2 x 20 Hex. Nut (2 Req'd)	T36	Fork Adapter (See Misc. Price List)
M7 2	1/2 x 1/8 x 1 Chamfered & Hardened Washer	T37	Finger Ratchet Spring
M83	1/2 HP Motor	T38	Feed Ratchet Dog
M8 4	Paper Gasket	T 39	Ratchet Stud
M8 5	1/4 x 20 x 1/4 Set Screw	T 40	Ratchet Dog Tee Bolt
M86	Gilmer 5607 Belt F.H.P.	T41	Adapter Tee Bolt
		T45	Quill





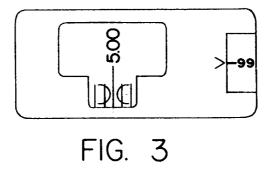
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Alignment of Scales.

Table Scale

- 1. Install scale holder (0-7) on scale holder bracket (0-21) using (2) washers (0-60) and (2) round head screws (0-41). Snug up screws (0-41).
- 2. Loosen (4) screws (0-40) located in base of scope housing (0-2). Move scope unit (0-2) in or out to bring image in focus on window of scope unit (0-2). Snug up (2) screws (0-40) (top left and lower right) in base of scope unit (0-2).
- 3. Crank table to read 5.000 inch in scope unit window. At this point lower or raise scale holder (0-7) by using adjustment screw (0-48) to bring scale image into view of scope unit window so that the top of the short graduations lines are parallel to top of catch fork.

(Note: Illustration.)



4. Follow same procedure at point 15 inch on scale image viewed in scope unit window. This adjustment is repeated until scale graduations are parallel to catch fork. Re-adjust scope housing for sharpness and lock scope housing tight by using (4) screws (0-40). Re-check scale image in scope unit window and make final adjustment on scale holder (0-7) if necessary. Lock (2) screws (0-41) tight. Check tenth reading dial to scale graduations. (This reading will determine proper focus of scope — i.e. scope must be adjusted in or out for proper focus.) Dial reading should be set at 99 and catch fork lined central with a given line by moving the machine lead screw. See Fig. 3. Rotate dial to line below 0 line — catch fork should now fall centrally over adjacent line. If it doesn't, then the focus of the scope must be adjusted.

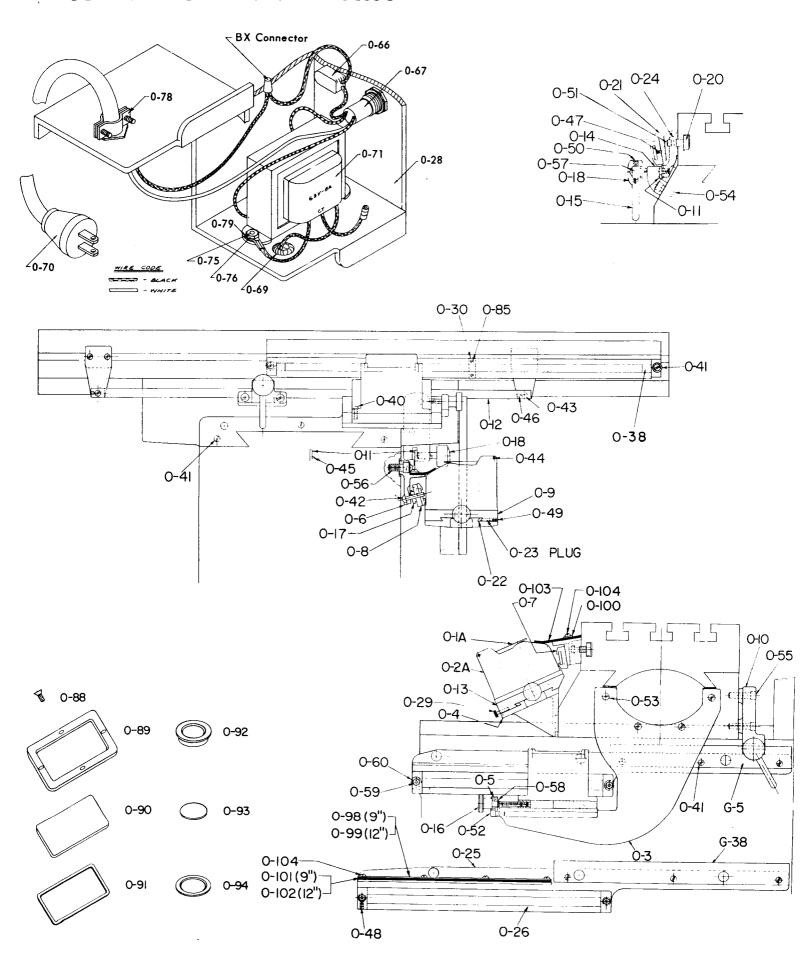
Note: This is most important as unit is only in focus when lines are in center of catch and fork as described above.

Cross Travel Scale

- Crank saddle to front position.
- 2. Loosen (4) screws (0-40) located in base of scope unit (0-2). Position scope unit (0-2) so location of screws (0-40) are in center of elongated slots. Snug up (2) screws (0-40) in scope unit.
- 3. Bring scale into focus by using adjusting nut (0-17). Align short graduations to top of catch fork.
- 4. Crank table to 9" or 12" point on scale. Bring scale to focus by adjusting nut (0-17) and set top of catch fork to top of short graduations using adjusting set screw (0-48). Proceed to focus following same procedure in setting table scale holder (0-7).

Note: Check 1" slide adjustment for parallelism. If top of catch fork does not run parallel to top of short graduations. It is necessary to loosen (4) cap screws (0-53) holding cross bracket-lens assembly (0-3) and make proper adjustment.

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PART					
NUMBER	A	MOUNT NAME			
0-1A		Lens Cover	0-60	4	
0-2A		Scope Housing	0-61	1	
0-3	_	Cross Bracket	O-62 O-63	1	
O-4 O-5	1	Table Bracket Adj. Screw Bracket	0-64	2	
0-6	1	9" Cross Travel Bracket	0-65	2	
0-7	1	Table Scale Bracket	0-66	1	Toggle Switch (117/110 Volt)
0-8	1	9" Cross Travel Scale Bracket	0-67	1	
0-9	1	Cross Travel Dovetail Slide	0-68	1	signal Lamp Bulb GE NE 51H (117/110 Volt)
0-10	1	Cross Travel Binder Bracket	0-69	1	Rubber Cromet 3/8 1.D.
0-11	2	•	0-70	1	Cord Set (18-2 117/110 Volt)
0-12	1	Table Binder Strip	0-71	1	
0-13	I	Table Dovetail Slide			Volt Secondary)
0-14	1	Table Binder Bracket	0-72	1	Harness Cord Set (6.3 Volt)
O-15 O-16	2	Binder Handle Housing Adjusting Screw	0-73 0-74	1	Transformer Box Name Plate Decal (Optical Housing)
0-10	2	Scale Adj. Nut	0-74		6-32 x 1/2 Round Head Screws
0-17	2	Binder Hub	0-76		6-32 Hex Nuts
0-20	7	Tee Slot Shoe	0-77		1/4-20 x 1/2 Round Head Screws
0-21	1	Table Scale Bracket	0-78	1	3/8" Cable Connector
0-22	2	Straight Dovetail Gib	0-79	1	#B65 Spade Terminal
0-23	6		O-80	1	#2B-14 Wire Terminal
0-24	2	Binding Strip Dogs	0-81	-	Bulb #81 Automotive (6 Volt)
0-25	1	12" Cross Travel Bracket	0-82		1/2-13 x 3/8 Socket Set Screws
0-26	1	12" Cross Travel Scale Bracket	0-83	1	
0-27		Assembly Dwgs.	0-84	1	
O-28 O-29	1	Transformer Box Slide Lock Screw	O-85 O-86	2	
0-30	2	Scale Holder Clamp	O-87	2	
0-31	i	Cam Shaft (Not Shown)	O-88		72 x 3/16 Flat Head Screw for Window Frame
0-32	i		0-89	2	Window Frame
0-33	1		0-90	2	Window
0-34	1	Dial Knob Washer (Not Shown)	0-91	2	Window Gasket
0-35	1		0-92	2	Lens Frame
0-36	1	Lens Cover Gasket (Not Shown)	0-93	2	
0-37	1	Dial Knob Shaft Diaphragm (Not Shown)	0-94	2	Lens Gasket
0-38	4	Scale Holder Cap (Replaces 0-19)	0-98		Guard Securing Strip (9" Knee)
O-39 O-40	2 8	Scope Units Complete 8-32 x 1/2 Round Head Screws	O-99 O-100		Guard Securing Strip (12" Knee) Guard Securing Strip (Table)
_	8	10-32 x 1/2 Round Head Screws	0-101		Cross Travel Scale Guard (9'' Knee)
0-42	2	Round Head Screws	0-102		Cross Travel Scale Guard (12" Knee)
0-43	2	1/4-20 x 3/8 Round Head Screws	0-103		Table Scale Guard
0-44	4	.078" × 3/8 Roll Pins	0-104		6-32 x 1/4 LG. RD. HD. Mach. Screw
0-45	4	1/8 x 1/4 Roll Pins	OF-79	1	Table Stop Bracket (P.F.)
0-46	2	1/8 x 3/8 Roll Pins	OF-80	1	Power Feed Stop Rod (Give Table Size)
0-47	4	5-40 x 1/8 Socket Set Screws	OF-81	1	Power Feed Reversing Stop Rod Guide
	4	5-40 x 1/2 Socket Set Screws	OF-82	1	Table Binder Strip (With Power Feed)
_	4		OF-107		Power Feed Binder & Rod Bracket
	2	1/4-28 x 1/4 Socket Set Screws 10-32 x 3/4 Socket Cap Screws	OF-108		Power Feed Control Lever for Offset Stud Power Feed Offset Stud
	7 4	1/4-20 x 1/2 Socket Cap Screws	G-5	1	9" Saddle Locking Strip
	4	1/4-20 x 3/4 Socket Cap Screws	G-38	i	12" Saddle Locking Strip
	2	5/16-18 x 5/8 Socket Cap Screws		•	•
	2	5/16-18 x 1° Socket Cap Screws			
0-56	3	3/8-16 x 3/4 Socket Cap Screws			
0-57	2	3/8-16 x 1 Socket Cap Screws			
	2	#5100-31 Snap Ring			
O-59	2	10-32 Hex Nut			

OPERATOR'S MANUAL