

MANUAL NO. M-105

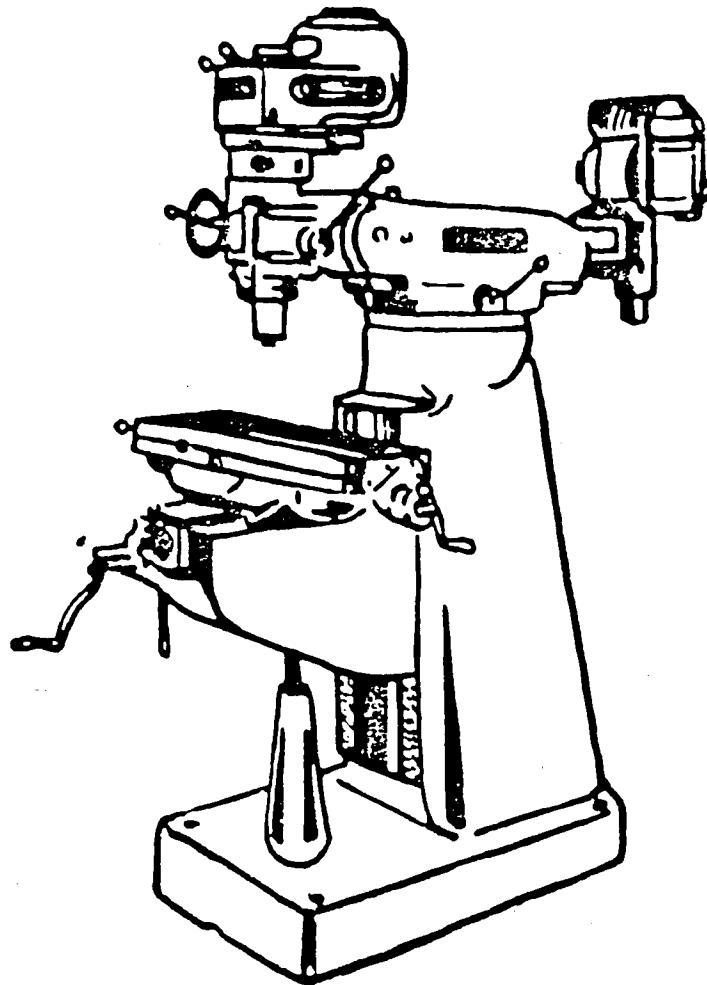
**BRIDGEPORT SERIES I
MILLING MACHINE**

**INSTALLATION, OPERATION
AND
MAINTENANCE**

Bridgeport machines

• **teatron** company 500 LINDLEY STREET, BRIDGEPORT, CONN. 06606

SERIES I INSTALLATION, OPERATION AND MAINTENANCE MANUAL M-105

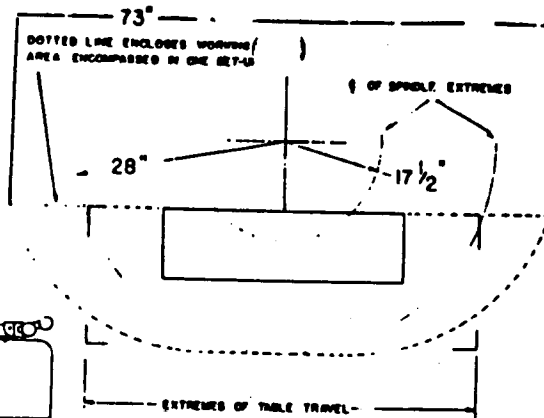


Bridgeport machines

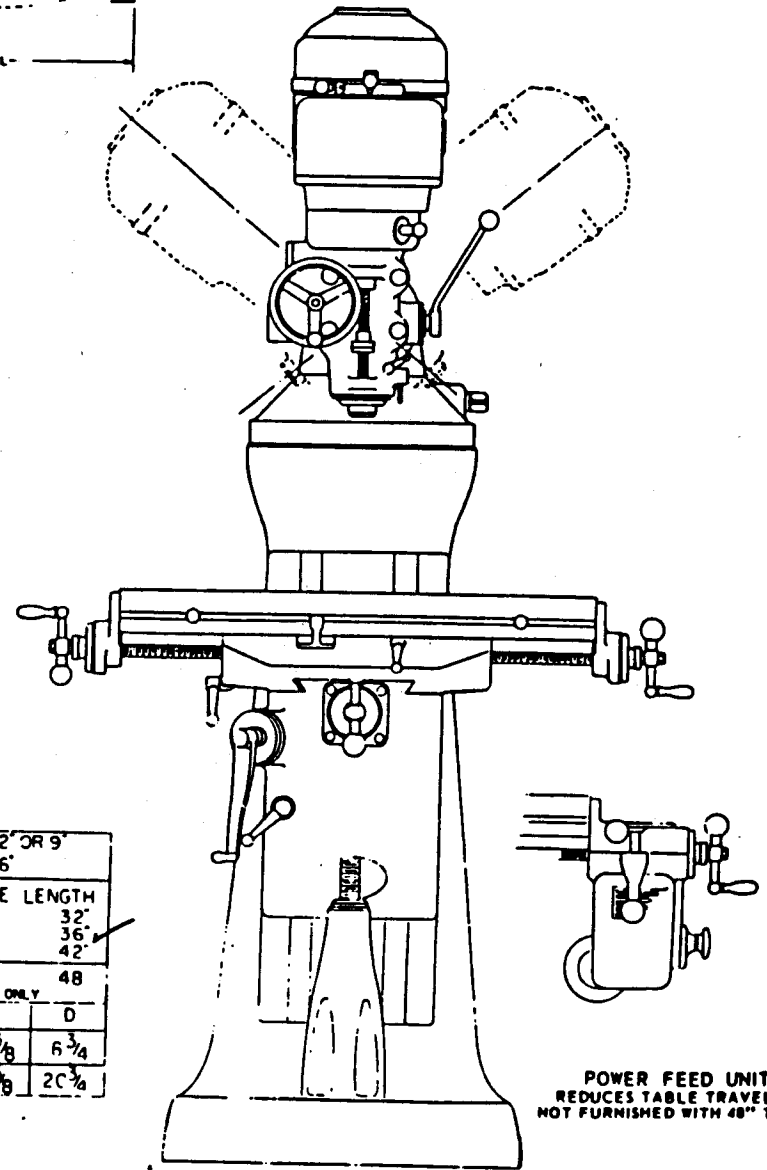
a **Textron** company 500 LINDLEY STREET, BRIDGEPORT, CONN. 06606

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Dimensional



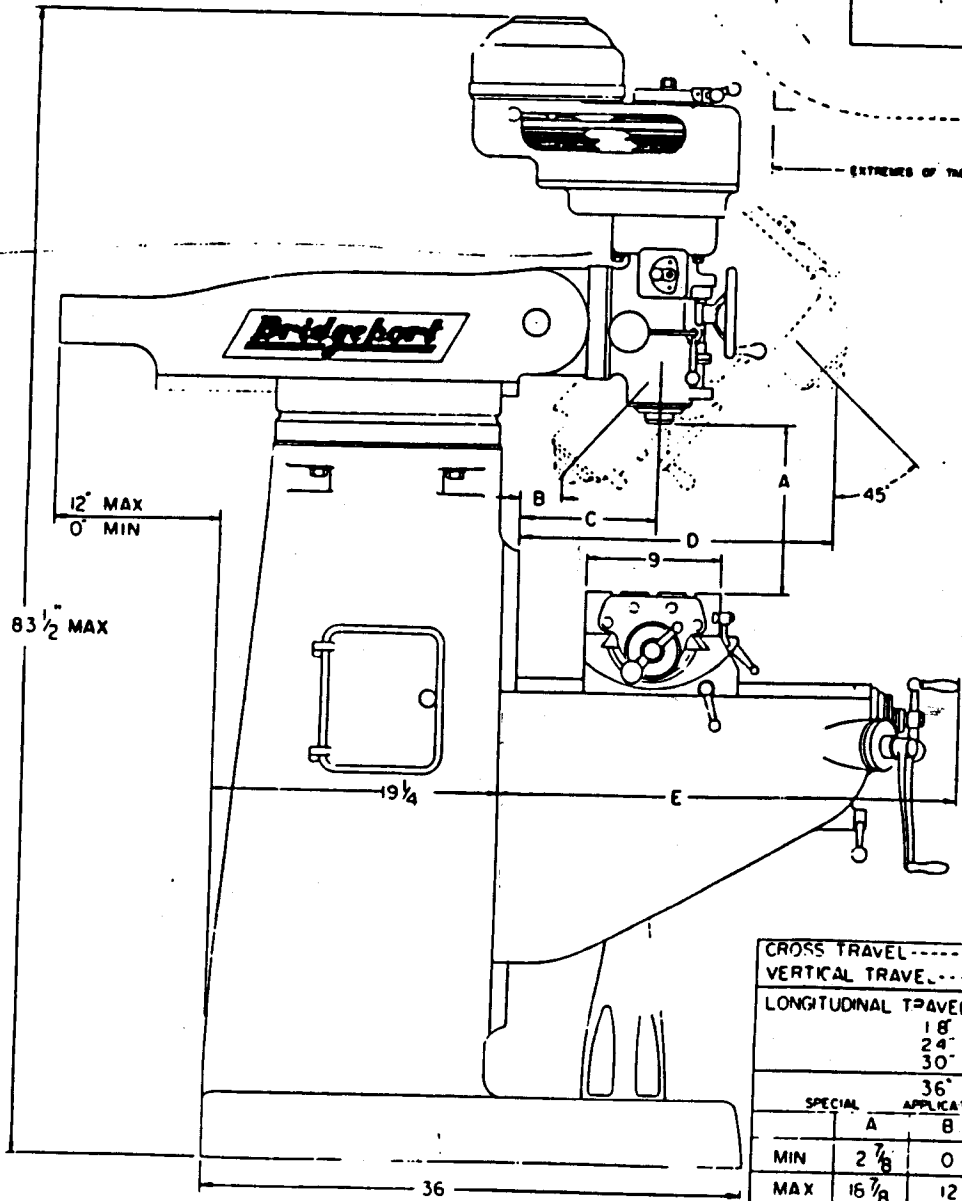
TURRET MILLER
with
MODEL "J" MILLING ATTACHMENT



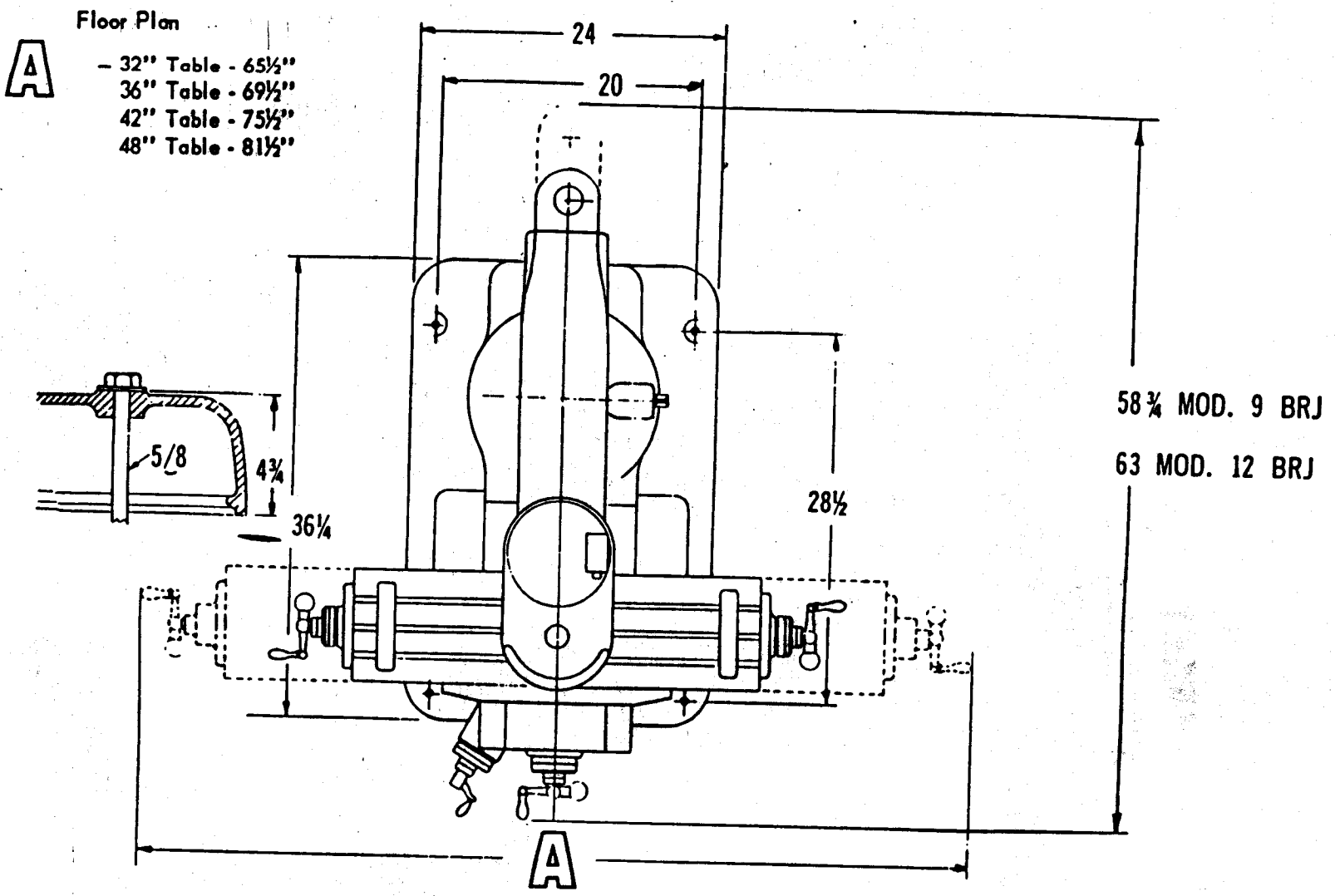
POWER FEED UNIT
REDUCES TABLE TRAVEL 3/4"
NOT FURNISHED WITH 48" TABLE

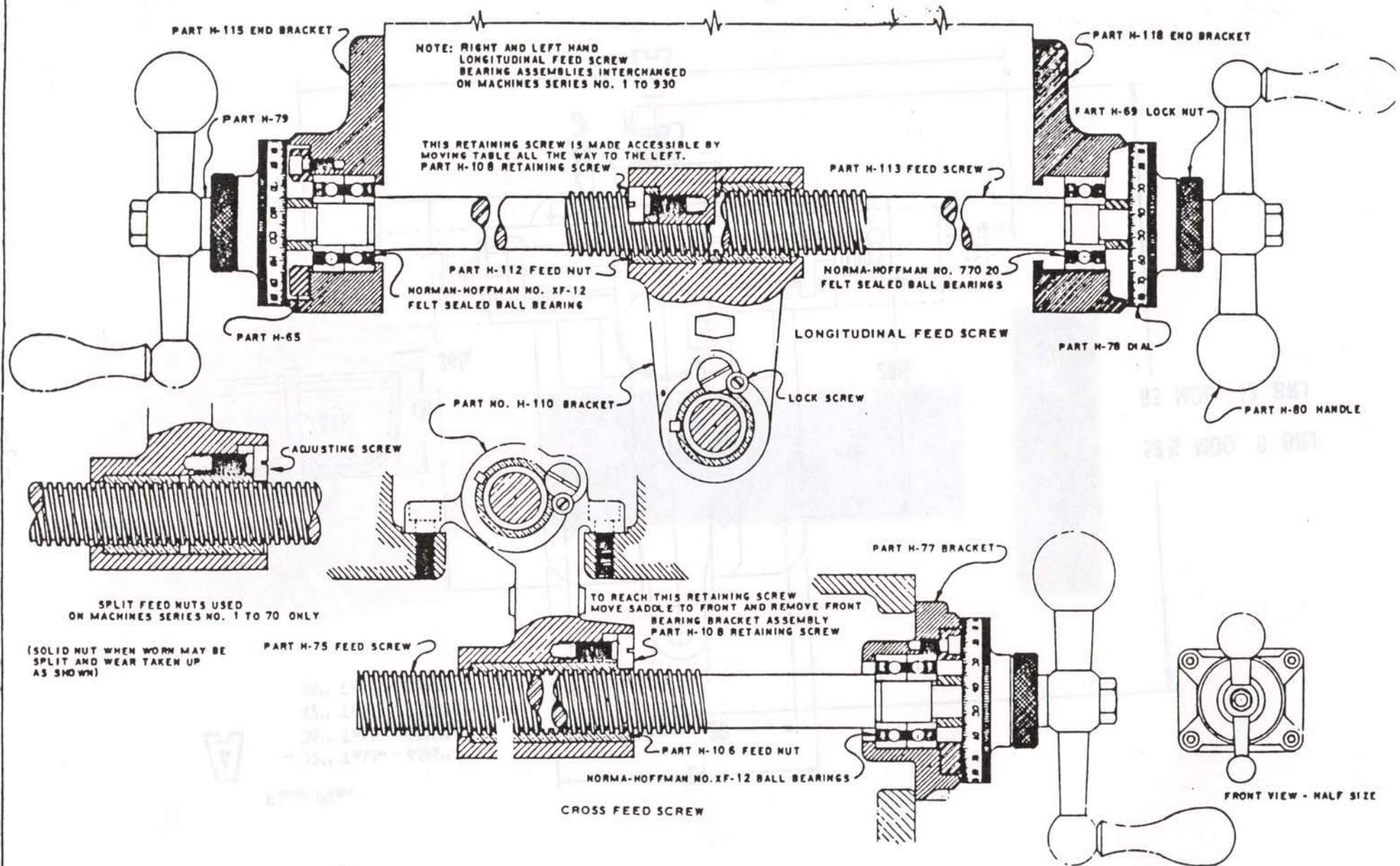
CROSS TRAVEL	12" OR 9"			
VERTICAL TRAVEL	16"			
LONGITUDINAL TRAVEL	TABLE LENGTH			
	18"		32"	
	24"		36"	
	30"		42"	
		36"		48"
SPECIAL APPLICATIONS ONLY	A	B	C	D
MIN	2 7/8	0	6 3/8	6 3/4
MAX	16 7/8	12	15 3/8	20 3/4

	E
9" KNEE	27 1/2"



ST





**LONGITUDINAL AND CROSS FEED ASSEMBLY
 BRIDGEPORT TURRET MILLING MACHINE**

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 similarly 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

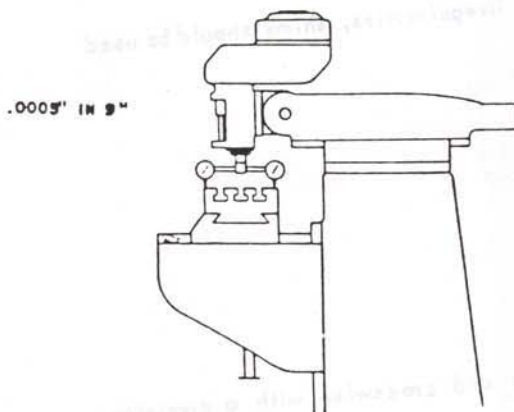
Machine is carefully inspected and lined up before it leaves our factory. Sketch # 1 and 2 shows the way your machine is lined up.

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.

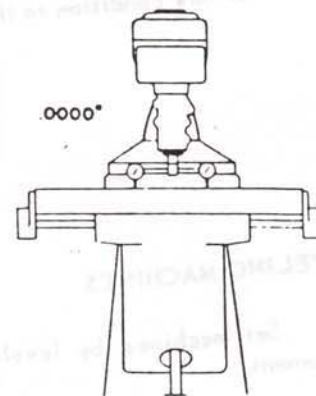
Note: When indicating as in Sketch 1, it should be noted that the table is intended to be slightly high in front, usually about .0005.

TABLE SQUARE WITH SPINDLE THRU
TRANSVERSE AXIS



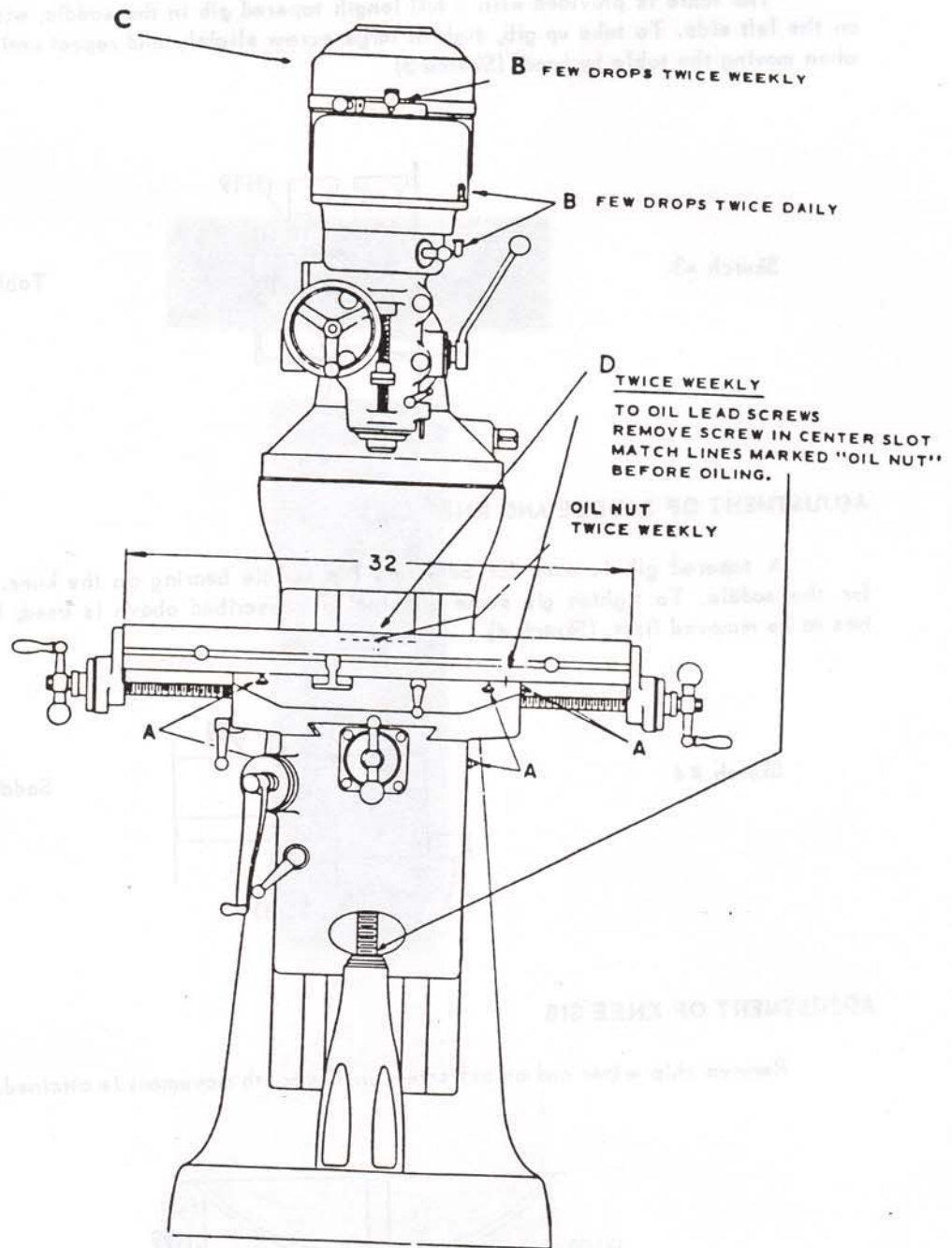
Sketch #1

TABLE SQUARE WITH SPINDLE THRU
LONGITUDINAL AXIS



Sketch #2

RECOMMENDED LUBRICATION FOR THE BRIDGEPORT TURRET MILLING MACHINE



- A. Way Surfaces**
"Sunoco" Waylube #80
or equivalent } WEEKLY
- 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 Cornea Oil 41
Socony Gargoyle Vactra Oil No. 2

ATTACHMENTS: POWER FEED

- Shell Cornea Oil 33
- Socony Gargoyle Vactra Oil
(Heavy Medium)
- SHAPING ATTACHMENT**
- Shell Nasso Oil J78 or K79
- Socony Gargoyle Vactra
Oil (Heavy Medium)
- SHAPING ATTACHMENT (Worm drive)**
- Shell Nasso 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)

Sketch #3

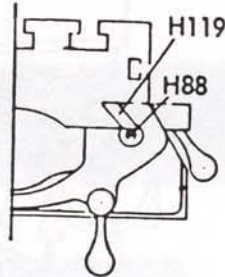
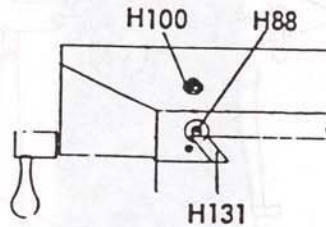


Table-saddle gib

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)

Sketch #4

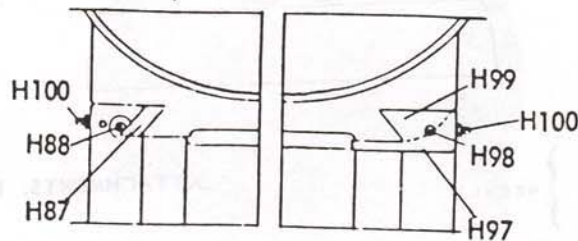


Saddle-knee gib

ADJUSTMENT OF KNEE GIB

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

Sketch #5

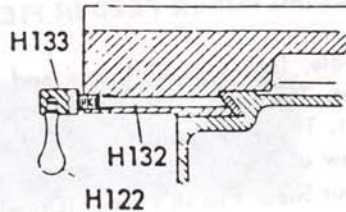


Knee-Column gib

CLAMPING TABLE, SADDLE AND KNEE

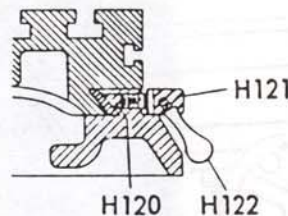
When milling with longitudinal table feed only, it is advisable to clamp the knee to the column and the saddle to the knee to add rigidity to these members and provide for heavier cuts with a minimum of vibration. The saddle locking lever is located on the left-hand side of saddle. (Sketch 6) Excessive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

Sketch #6



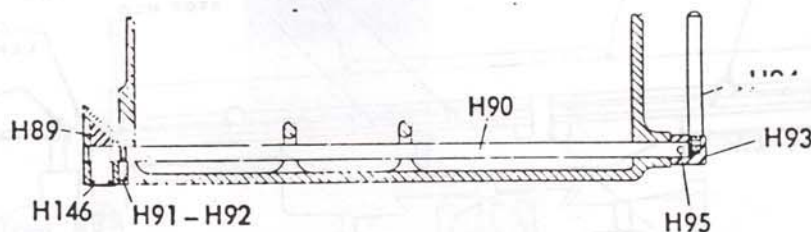
The table clamping lever is located on front of saddle and should always be clamped when longitudinal movement is not required. (Sketch 7)

Sketch #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

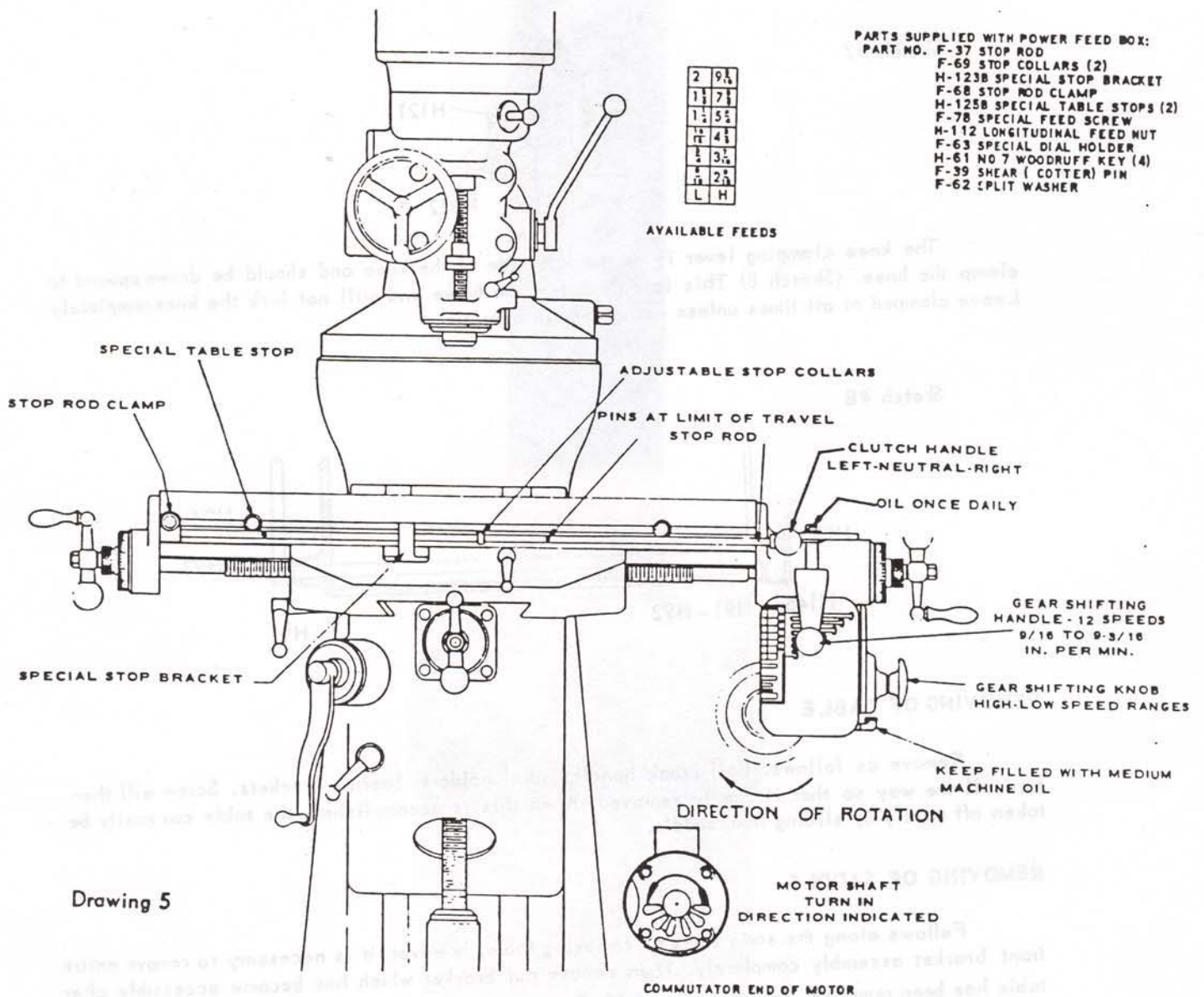
Follows along the same lines as removing table; however, it is necessary to remove entire front bracket assembly completely. Then remove nut bracket which has become accessible after table has been removed. See pages 9 and 10, Drawing 5 and 6.

POWER FEED ATTACHMENT

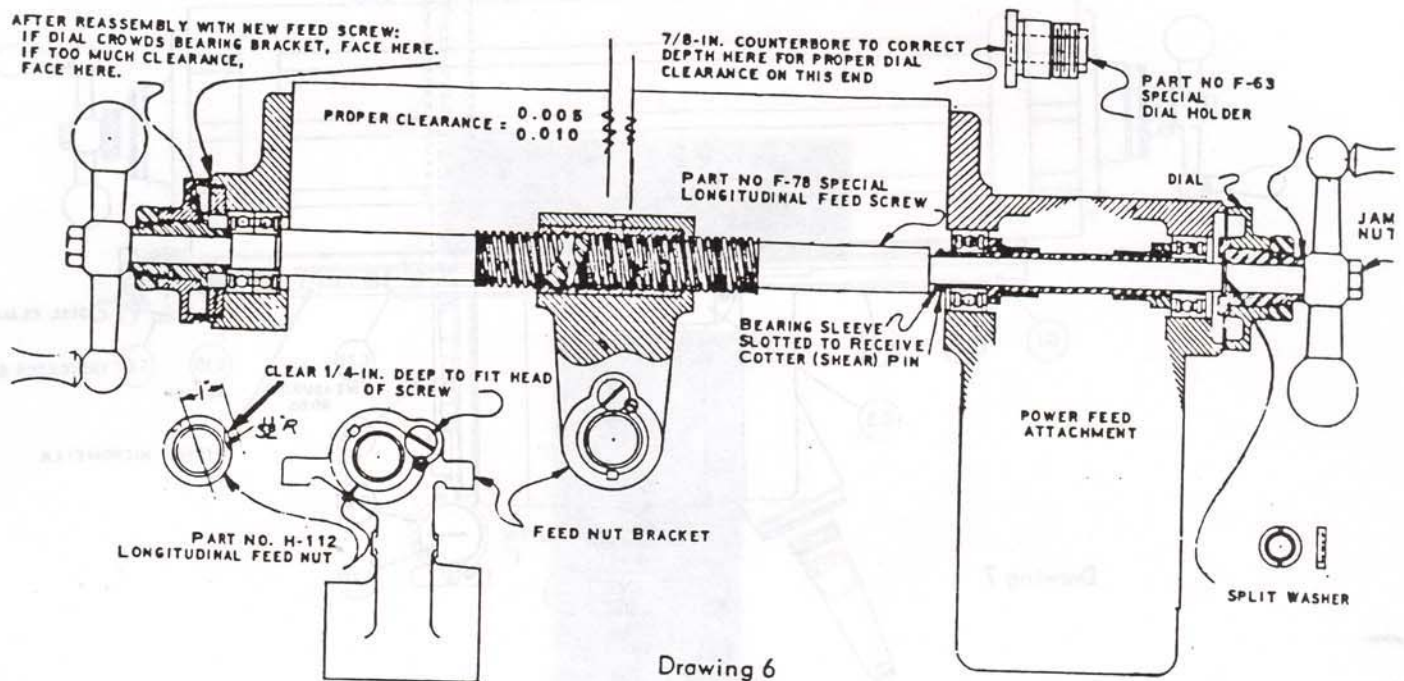
The feed box is equipped with an overload release. If the table stops during operation and a series of clicks is heard, feed is overloaded. When load is relieved, power feed will resume operation. If the overload clutch jams, the 1/8" shearing pin (Drawing 5) will break. This will prevent damage to the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



LONGITUDINAL FEED SCREW ASSEMBLY WITH POWER FEED



Drawing 6

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 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.

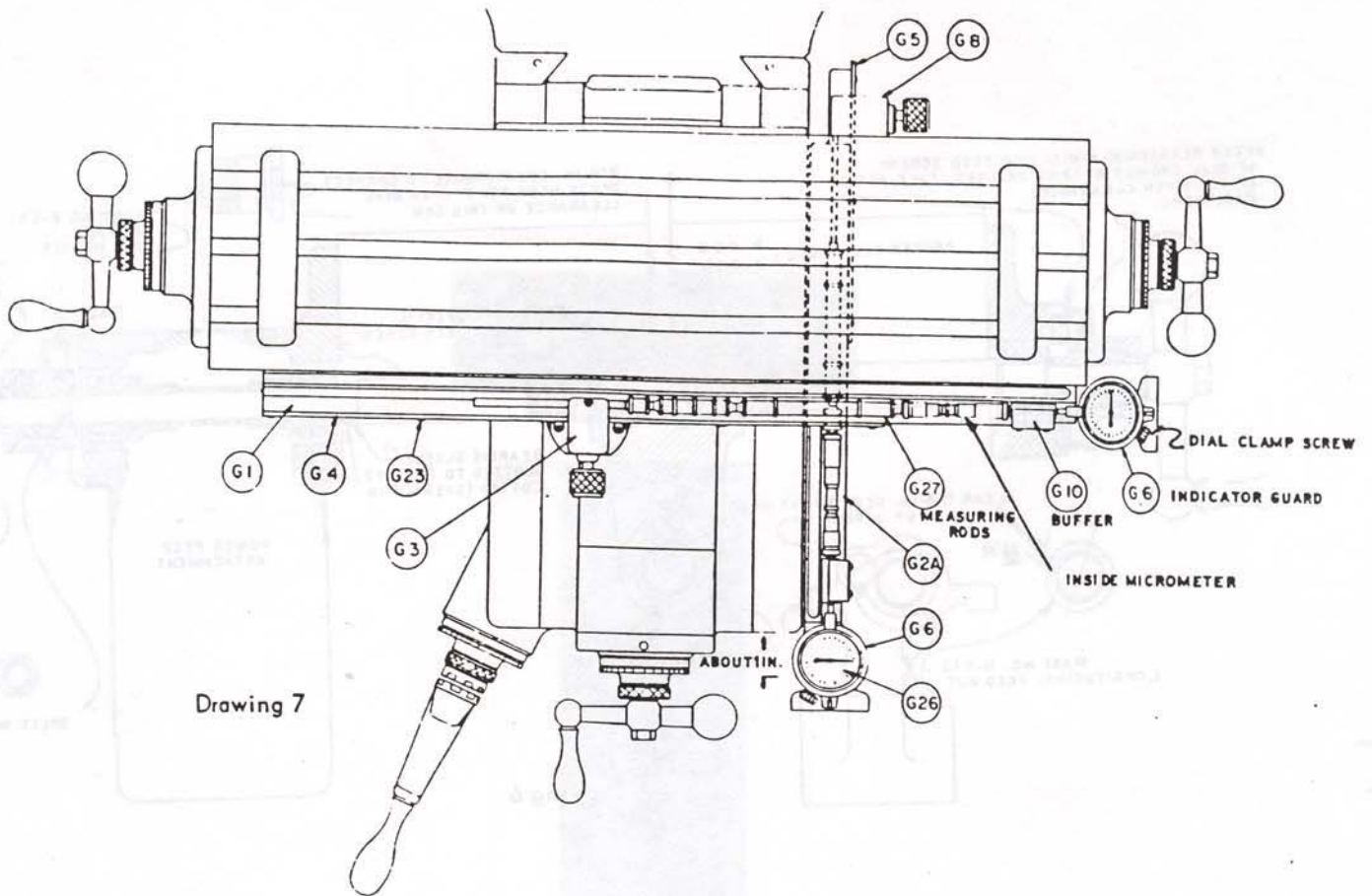
Mark with scribe on bushing where binding screw goes; remove screw and nut from bracket. Remove the screw from the nut. File relief flat on nut to receive binding screw. (Make certain flat is not filed too deep.) Insert screw and nut into bracket with binding screw and locking screw. Reassemble left 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 oiler.

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.

INSTALLING MEASURING ATTACHMENT

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 dovetail 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 x 1 1/2 Cap screw. Caution: Saddle and table bracket alignment with trough is essential for good operation.

II

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.

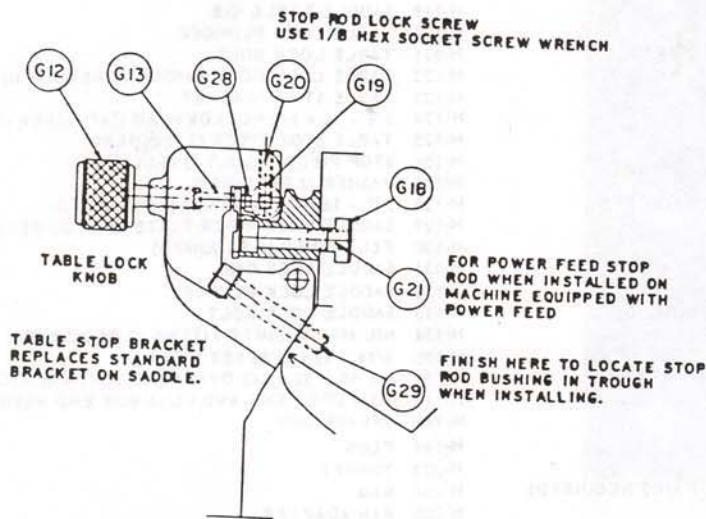
With rolls on spindle of table stop bracket, center rolls into trough and secure with 3/8-16 x 2" cap screw. Adjustment may be made by filing bottom of bracket or shimming if necessary.

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.

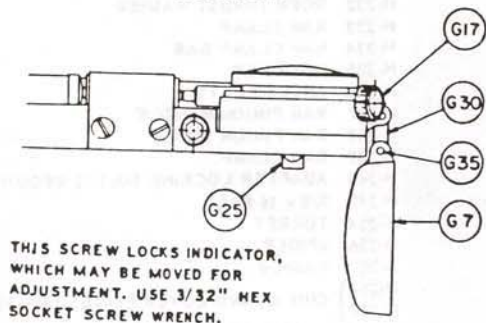
USING MEASURING ATTACHMENT

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.

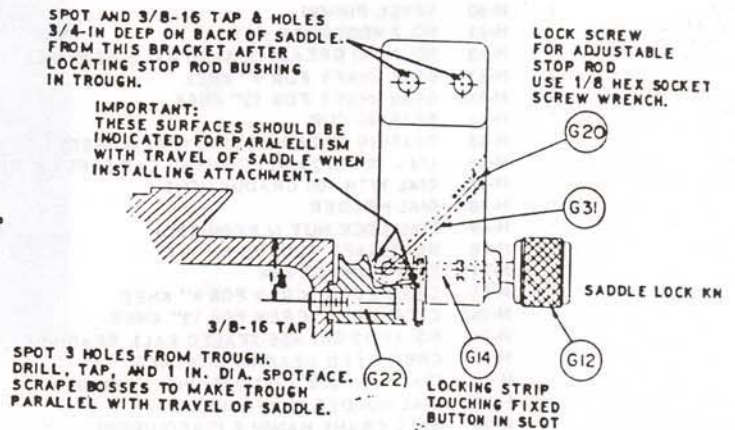
CAUTION: Make certain that the head is indicated properly so that the head is absolutely square with the table.



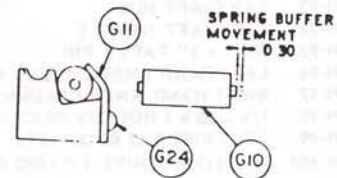
Sketch #9



Sketch #11



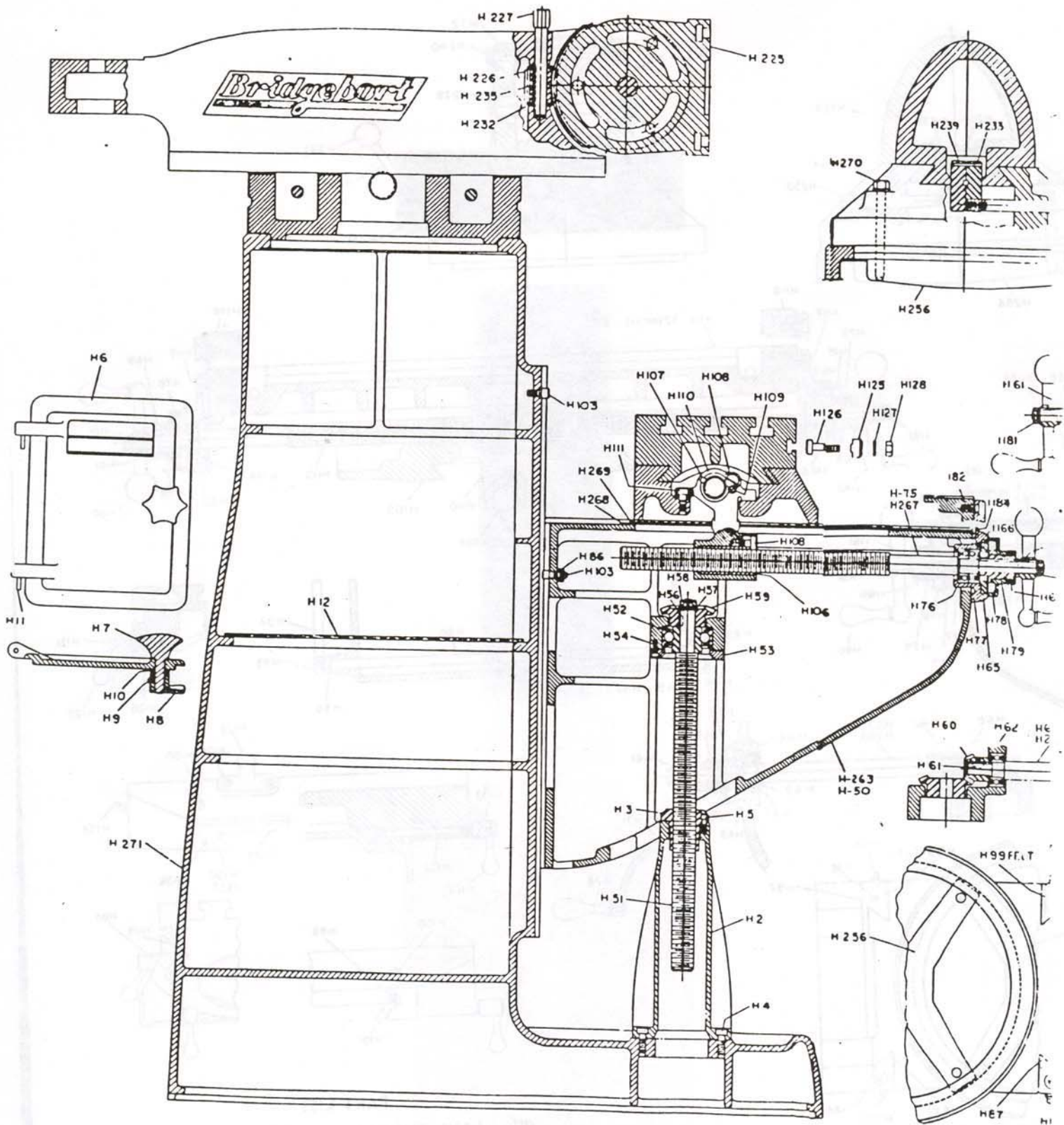
Sketch #10

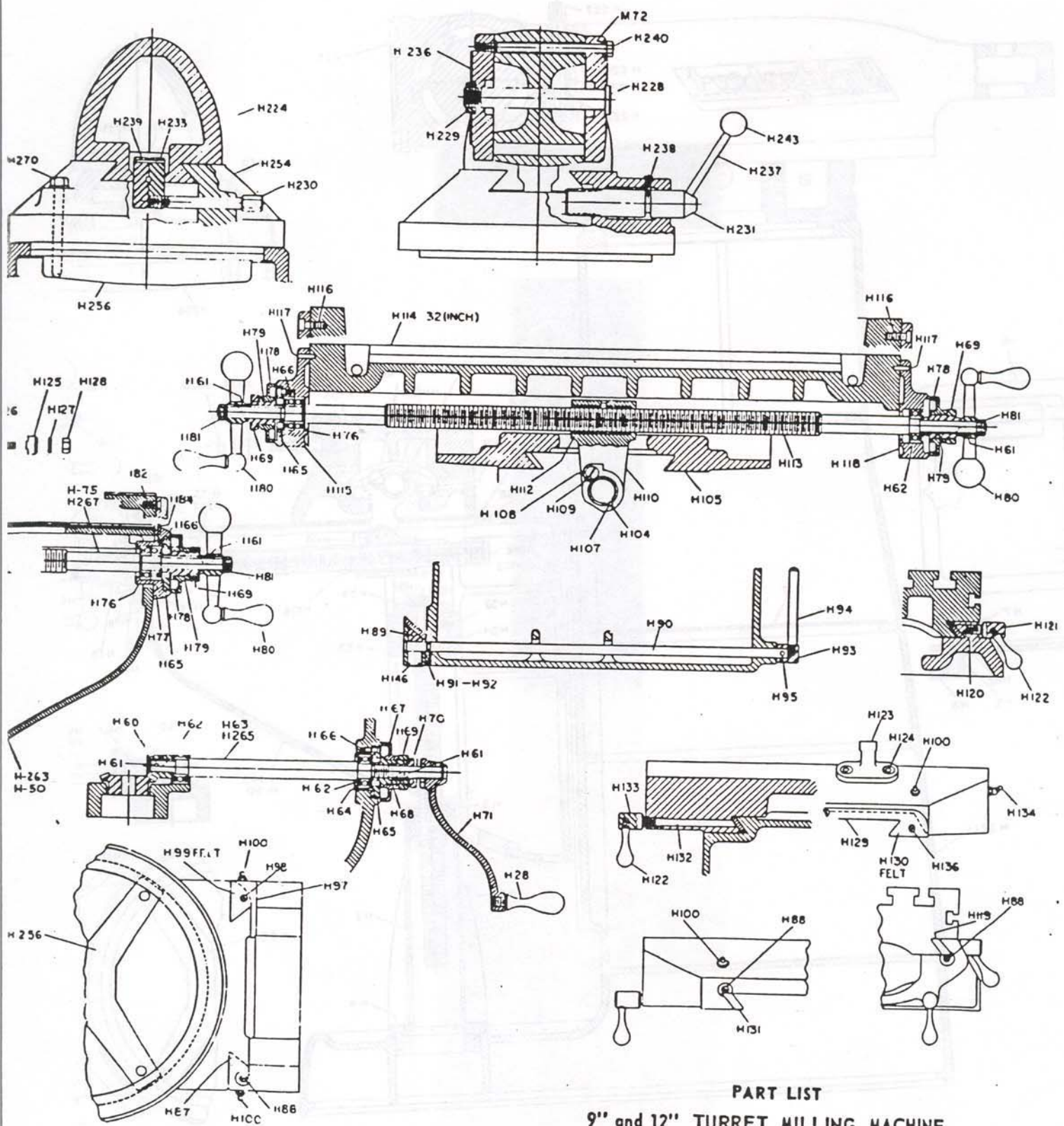


Sketch #12

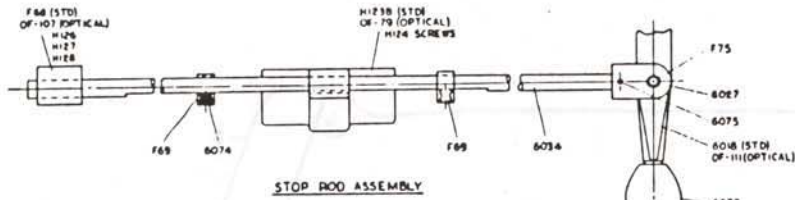
PART LIST — THE BRIDGEPORT TURRET MILLING MACHINE

H-2	ELEVATING SCREW HOUSING	H-103	STOP SCREW
H-3	ELEVATING SCREW NUT	H-104	KEY PIN
H-4	3/8 - 16 x 1 HOLLOW HEAD CAP SCREW (2 REQUIRED)	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	H-107	3/16 x 3/16 x 2-1/2 KEY (2 REQUIRED)
H-7	DOORKNOB	H-108	CROSS FEED NUT RETAINING SCREW (2 REQUIRED)
H-8	DOOR LOCKING CAM	H-109	NO. 8 - 32 x 3/8 WASHER HEAD SCREW (2 REQUIRED)
H-9	1/4 - 20 x 1/4 SET SCREW	H-110	FEED NUT BRACKET
H-10	17/32 x 1 SPACER	H-111	HOLLOW HEAD CAP SCREW (12 REQUIRED)
H-11	3/16 x 1-1/2 HINGE PIN (2 REQUIRED)	H-112	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 x 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	H-120	TABLE LOCK PLUNGER
H-54	1/4 x 20 x 1/2 HOLLOW HEAD CAP SCREW (3 REQUIRED)	H-121	TABLE LOCK BOLT
H-56	3/16 x 3/16 x 7/8 KEY	H-122	TABLE LOCK BOLT HANDLE (2 REQUIRED)
H-57	33/64 x 1 x 0.100 WASHER	H-123	TABLE STOP BRACKET
H-58	1/2 - 20 JAM NUT (2 REQUIRED)	H-124	3/8 - 16 x 1/2 HOLLOW HEAD CAP SCREW (2 REQUIRED)
H-59	BEVEL GEAR	H-125	TABLE STOP PIECE (2 REQUIRED)
H-60	BEVEL PINION	H-126	STOP PIECE T-BOLT (2 REQUIRED)
H-61	NO. 7 WOODRUFF KEY	H-127	WASHER (2 REQUIRED)
H-62	NO. 77020 GREASE-SEALED BALL BEARINGS (3 REQUIRED)	H-128	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-64	BEARING CUP	H-131	SADDLE-KNEE GIB
H-65	BEARING RETAINER RING (3 REQUIRED)	H-132	SADDLE LOCK PLUNGER
H-66	1/4 - 20 x 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 x 5/16 SET SCREW
H-69	DIAL LOCK NUT (4 REQUIRED)	H-136	NO. 10 - 32 x 1/2 OVAL HEAD SCREW (6 REQUIRED)
H-70	GEARSHAFT CLUTCH INSERT	H-140	1-1/4 OPEN END AND 1-1/16 BOX END WRENCH
H-71	ELEVATING CRANK	H-141	GREASE GUN
H-75	CROSS FEED SCREW FOR 9" KNEE	H-146	PLUG
H-267	CROSS FEED SCREW FOR 12" KNEE	H-223	TURRET
H-76	NO. XF-12 GREASE-SEALED BALL BEARINGS (2 PAIRS REQUIRED)	H-224	RAM
H-77	CROSS FEED BEARING BRACKET	H-225	RAM ADAPTER
H-78	DIAL WITH 200 GRADUATIONS (3 REQUIRED)	H-226	VERTICAL ADJUSTING WORM
H-79	DIAL HOLDER (3 REQUIRED)	H-227	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	3/8 - 16 x 1 HOLLOW HEAD CAP SCREW (4 REQUIRED)	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)	H-236	ANGLE PLATE
H-89	KNEE LOCKING PLUNGER	H-237	RAM PINION HANDLE
H-90	KNEE LOCKING CAMSHAFT	H-238	RAM PINION SCREW
H-91	5/16 - 18 x 5/16 DOG POINT SET SCREW	H-239	RAM CLAMP
H-92	5/16 - 18 x 5/16 SET SCREW	H-240	ADAPTER LOCKING BOLT (2 REQUIRED)
H-93	CAM SHAFT HUB	H-243	3/8 x 16 BALL
H-94	CAM SHAFT HANDLE	H-254	TURRET
H-95	NO. 1 x 1" TAPER PIN	H-256	SPIDER
H-96	LEFT HAND KNEE-COLUMN WIPER HOLDER	M-72	WASHER
H-97	RIGHT HAND KNEE-COLUMN WIPER HOLDER	H-268	CHIP GUARD COVER PLATES FOR 12" KNEE
H-98	1/4 - 20 x 1 HOLLOW HEAD CAP SCREW (2 REQUIRED)	H-269	
H-99	FELT WIPER (2 REQUIRED)	H-270	TURRET CLAMP BOLTS
H-100	NO. 1610 ALEMITE FITTING (4 REQUIRED)	H-271	COLUMN

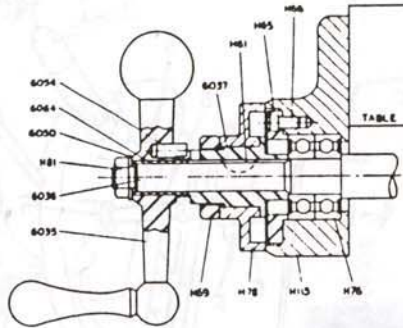
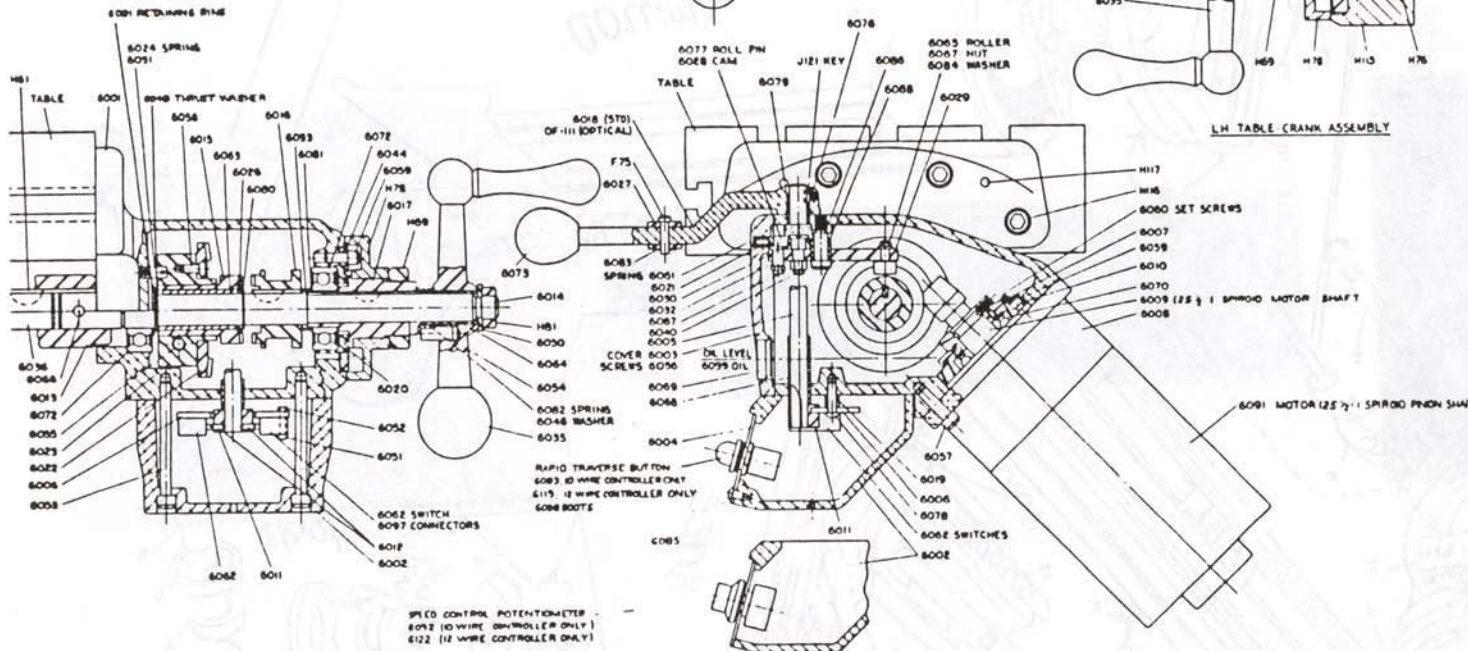




PART LIST
9" and 12" TURRET MILLING MACHINE



STOP ROD ASSEMBLY



LH TABLE CRANK ASSEMBLY

- F 0001 MAIN HOUSING
- F 0002 CONTROL STATION
- F 0003 SIDE COVER
- F 0004 COVER FOR F 0001
- F 0005 ACTUATING SHAFT
- F 0006 SWITCH MOUNTING PLATE
- F 0007 MOTOR OIL BLOWER
- F 0008 MOTOR END BRACKET
- F 0009 MOTOR SHAFT 1/2 x 1/2 SPIR PINION
- F 0010 MOTOR BEARING CAP BUSHING
- F 0011 SWITCH ACTUATOR HOUSING
- F 0012 SWITCH ACTUATING PIN
- F 0013 COUPLING
- F 0014 FLAT WASHER 1/16 OD 1/16 THK 3/16 DIA
- F 0015 CLUTCH DRIVER
- F 0016 CLUTCH DRIVER
- F 0017 HANDCRANK SHAFT (H) 1
- F 0018 CONTROL LEVER
- F 0019 SPACER SWITCH MOUNTING PLATE
- F 0020 LEAD SCREW SEAL
- F 0021 P.F. DETENT PIN
- F 0022 DRIVE SHAFT BEAR
- F 0023 DRIVE GEAR MOUNTING HUB
- F 0024 SPRING POWER FEED CLUTCH ARM
- F 0025 P.F. DRIVE HANDLE PIN
- F 0026 R.H. THRUST BRG
- F 0027 STOP ROD FORK
- F 0028 CLUTCH DETENT CAM
- F 0029 CLUTCH ARM
- F 0030 CLUTCH ARM DETENT ROLLER
- F 0031 HOUSING SPRING PIN
- F 0032 CLUTCH ARM SPRING PIN
- F 0033 CLUTCH SPRING
- F 0034 POWER FEED STOP ROD
- F 0035 POWER FEED STOP ROD
- F 0036 POWER FEED STOP ROD
- F 0037 POWER FEED STOP ROD
- F 0038 POWER FEED STOP ROD
- F 0039 POWER FEED STOP ROD
- F 0040 POWER FEED STOP ROD
- F 0041 LEAD SCREW - TABLE 25
- F 0042 LEAD SCREW - TABLE 25
- F 0043 LEAD SCREW - TABLE 25
- F 0044 L.H. DIAL HOLDER
- F 0045 SPECIAL - DRIVE SHAFT BEAR 1/2 SPIR PINION
- F 0046 SPECIAL - MOTOR SHAFT 1/2 SPIR PINION
- F 0047 DETENT ROLLER PIN
- F 0048 CONTROL HOUSING
- F 0049 TAKE UP CAP
- F 0050 WASHER FOR F 0049 SPRING
- F 0051 SPECIAL BLANK COVER FOR CONTROL STATION
- F 0052 L.H. THRUST WASHER
- F 0053 DRIVE SHAFT
- F 0054 1/8 X 1/4 ROUNDED HD MACH SCREW
- F 0055 NUT HD 2 - 3/16
- F 0056 SOCKET HEAD CAP SCREW 1/4-20X1 1/2
- F 0057 PLUB FOR F 0054
- F 0058 SOC HD LOC WELL CAP SCR 1/4-20 MC 1 1/2
- F 0059 SOC HD CAP SCR 1/4-20X1/8
- F 0060 SOC HD CAP SCR 1/4-20X1/8
- F 0061 SOC HD CAP SCR 1/4-20X3/8
- F 0062 SOC HD CAP SCR 1/4-20X1/8
- F 0063 CORN PT LOCKWELL SOC SET SCR 1/4-20X1/8
- F 0064 SPRING FOR DETENT PIN
- F 0065 LIMIT SWITCH ROBERTSHAW VS1000
- F 0066 BRG BUSH BOOT 1/16 X 1/2
- F 0067 BRG BUSH BOOT 1/16 X 1/2
- F 0068 FOLLOWERS CAM TORRINGTON BRG CNG
- F 0069 TAPERED PIN 1/2 X 1/16 LONG
- F 0070 HEX NUT 1/2 X 1/2
- F 0071 BRG BUSH BOOT 3/16 X 1/2
- F 0072 OIL SIGHT BIZUR BRUSH
- F 0073 PIPE PLUB 1/2 X 3/4 NPT
- F 0074 SHAFT BRG BUSH W/ SLOUTER BR IN
- F 0075 BRG BUSH 1/4 X 1/2 1/2 BRASS INSERTS
- F 0076 1/2 PSI SET SCR RHWL CUP PT 1/2-20X1/4
- F 0077 1/2 PSI ROLL PIN 1/2 X 3/16
- F 0078 SOC SET SCR RHWL PT LOC WELL 1/2-20X1/4
- F 0079 1/2 PSI ROLL PIN 1/2 X 3/16 LONG
- F 0080 HD HD MACH SCR 1/2-20X3/8
- F 0081 BUSHING BRG
- F 0082 RETAINING RING 1/2 X 3/8
- F 0083 RETAINING RING 1/2 X 3/8
- F 0084 SPRING HANDLE RELEASE
- F 0085 SET RING 1/2 X 1/8
- F 0086 LOCKWASHER 1/8
- F 0087 BRG 1/2 X 1/4 BUTT HD CAP SCR
- F 0088 1/2 X 1/8 UNBRAED 3/16X1/2 SELF-LOCK SHOULDER SCREW
- F 0089 FINE RUT 1/2 X 1/8
- F 0090 BRG BUSH 1/16 OD 1/2 X 1/2
- F 0091 HEX HD SCR 1/4-20 X 1/2
- F 0092 BOEHM DC MOTOR 1/2 HP 3000 RPM 50 1/2 X 1
- F 0093 CORD BUSHING EPFOR
- F 0094 WIRE CONNECTOR FR8115
- F 0095 BRG BUSH BOOT FOR RAP TRAY BUTTON
- F 0096 BAE 1/2 SPIR BEAR OIL HOUSING 1/2 X 1/2
- F 0097 LUBRICATION NAMEPLATE
- F 0100 NAME FOR MET 8011
- F 0101 WIRE CONNECTORS FR8116
- F 0102 RAPID TRAVERSE BUTTON
- F 0103 WIRE CONNECTORS 1/2-20X1/4 IDEAL
- F 0104 12 WIRE SCR CONTROLLER
- F 0105 8 POWER CORD 1/2 X 1/2 FOR 12 WIRE CONT
- F 0106 POT 5000 - FOR 12 WIRE CONT
- F 0107 CABLE 12 CONDUCTOR
- F 0108 CORD GRIPS EPFOR 3/16 X 1/4
- F 0109 8001P ON OFF SWITCH
- F 0110 PILOT LIGHT GREEN 1/2 X 1/4 RED
- F 0111 FUSE HOLDER 5 AMP
- F 0112 FUSE 10 AMP 1/2 X 1/4
- F 0113 BAE PLATE FOR CONT
- F 0114 BODY FOR ON/OFF SWITCH
- F 0115 12 WIRE NAMEPLATES ELECTRICAL CONN INSTR
- F 0116 MOTOR END CAP
- F 0117 12 WIRE CONTROLLER SEC W/ ENCLOSURE
- F 0118 POT BRACKET SPACER
- F 0119 POT OPERATOR TRM
- F 0120 WARRANTY NAMEPLATE ELECT CONT
- F 0121 BRUSHES REPLACEMENT
- F 0122 BRUSHING
- F 0123 MOTOR BRG 1/2-20X1/4
- F 0124 STOP ROD GUIDE
- F 0125 STOP COLLAR
- F 0126 STOP ROD FORK PIN
- H-01 RET WOODUFF 1/2
- 1/16 EXTRA 250 FOR 1/2 X 1/2 1/2
- M-1228 POWER FEED STOP BRACKET
- M-1229 1/2 X 1/2
- M-1230 WASHER
- M-1231 BRG NUT
- M-1232 1/2 X 1/2 X 1/2 HOLLOW HD CAP SCR
- F 121 RET 1/2 X 1/2
- 1/2 X 1/2 1/4 HEXAI PAN HEAD SCREWS 10-32X1/2
- 1/2 X 1/2 1/4 BRUSH CAP 30-30MM MOTOR
- 1/2 X 1/2 1/4 POSI CRIMP CONNECTORS FR8115
- 1/2 X 1/2 1/4 CONTROLLER 4P 50V CONTROLLER
- 1/2 X 1/2 1/4 CONTROL BOARD 8011 CONT
- 1/2 X 1/2 1/4 TUBING SHRINK BLACK 3/16 X 1/2
- 1/2 X 1/2 1/4 TAPE 1/2 X 1/2 1/2 IN FDM INSULATED
- 1/2 X 1/2 1/4 SOLIDLESS TERMINAL SO 1-1/2" HOLLOWBUSH

ART LIST MASTER MILLING ATTACHMENT

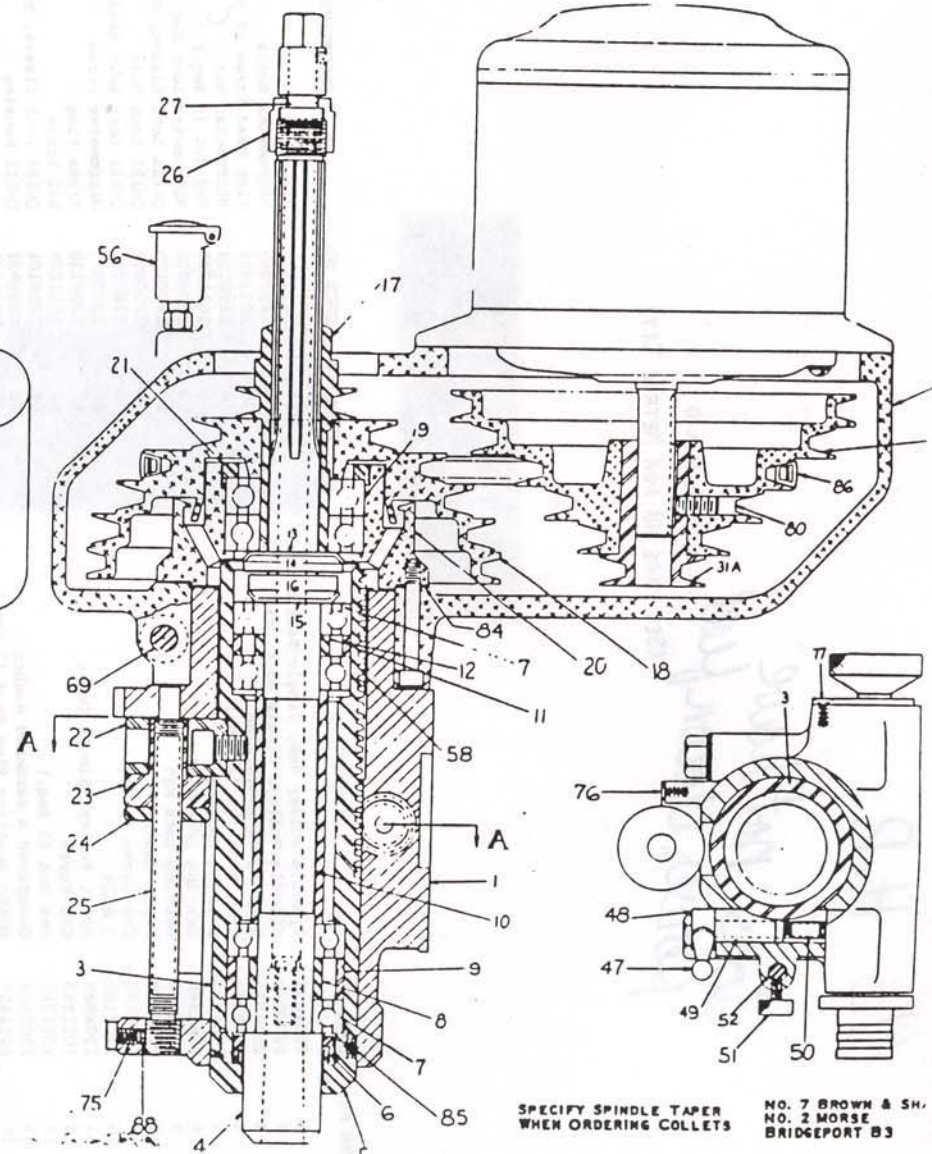
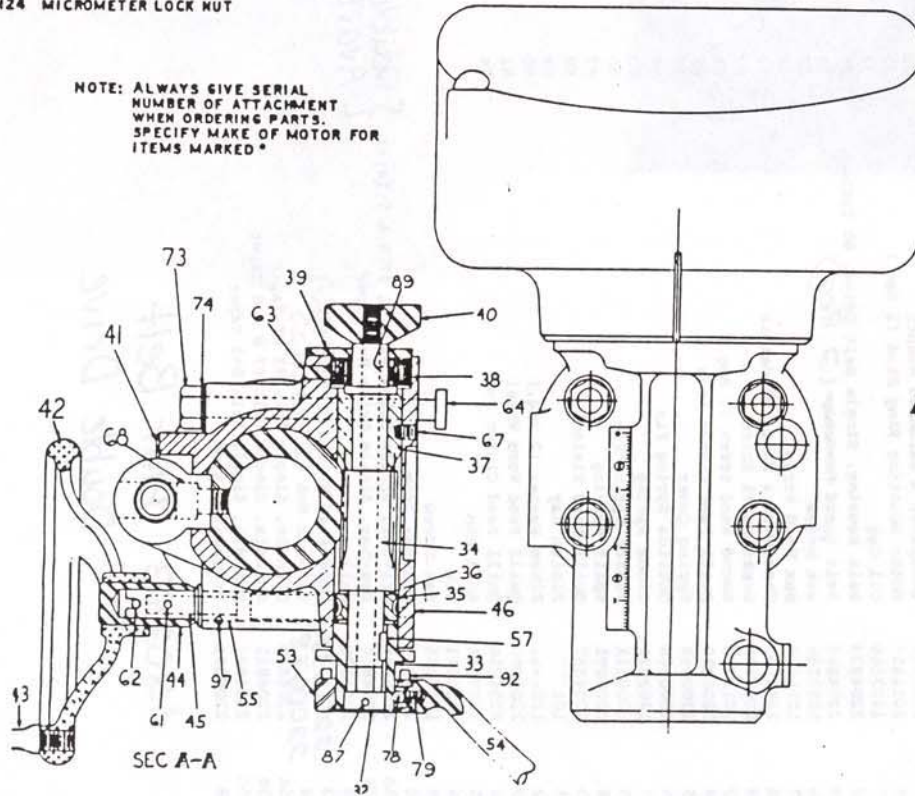
- M1 QUILL HOUSING
- M2A BELT HOUSING, SINGLE BELT DRIVE, 60
- M2B BELT HOUSING, DOUBLE BELT DRIVE 60
- M2C BELT HOUSING, SINGLE BELT DRIVE, 25
- M2D BELT HOUSING, DOUBLE BELT DRIVE, 25
- M3 QUILL
- M4A SPINDLE, SINGLE BELT NO.2 MORSE TAPER
- M4B SPINDLE, SINGLE BELT, NO.7 B&S TAPER
- M4C SPINDLE, SINGLE BELT, NO.83 TAPER
- M4D SPINDLE, DOUBLE BELT, NO.2 MORSE TAPER
- M4E SPINDLE, DOUBLE BELT, NO.7 B&S TAPER
- M4F SPINDLE, DOUBLE BELT, NO.83 TAPER
- M5 NOSEPIECE
- M6 OIL SLINGER
- M7 S.A.E. NO. 205 BALL BEARING, 4 REQ'D.
- M8 0.750 INSIDE BEARING SPACER
- M9 0.750 OUTSIDE BEARING SPACER
- M10 LONG SPACER
- M11 0.375 INSIDE BEARING SPACER
- M12 0.375 OUTSIDE BEARING SPACER
- M13 NO. W-05 BEARING LOCK WASHER
- M14 NO. W-05 BEARING LOCK NUT
- M15 NO. W-06 BEARING LOCK WASHER
- M16 NO. W-06 BEARING LOCK NUT
- M17A SPINDLE PULLEY HUB, SINGLE BELT DRIVE
- M17B SPINDLE PULLEY HUB, DOUBLE BELT DRIVE
- M18A SPINDLE PULLEY, SINGLE 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 STOP
- M23 MICROMETER NUT
- M24 MICROMETER LOCK NUT

- M25 MICROMETER SCREW
- M26 DRAWBAR NUT (LEFT HAND THREAD)
- M27A DRAWBAR, DOUBLE BELT, NO.7 OR NO.2 SPINDLE
- M27B DRAWBAR, DOUBLE BELT, NO.83 SPINDLE
- M27C DRAWBAR, SINGLE BELT, NO.7 OR NO.2 SPINDLE
- M27D DRAWBAR, SINGLE BELT, NO. 83 SPINDLE
- M28 DRAWBAR KNOB
- M30A 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 PINION
- M35 QUILL FEED WORM WHEEL
- M36 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
- M43 QUILL WORM FEED HAND WHEEL HANDLE
- M44 QUILL WORM FEED HAND WHEEL HUB
- M45 QUILL FEED WORM HUB
- M46 QUILL FEED WORM
- M47 QUILL LOCK BOLT HANDLE
- M48 QUILL LOCK BOLT
- M49 QUILL LOCK SLEEVE DRILLED
- M50 QUILL LOCK SLEEVE, TAPPED
- M51 INDICATOR ROD CLAMP SCREW
- M52 INDICATOR ROD
- 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 DOME
- M60 MOTOR SWITCH
- M61 NO. 0031/2 TAPPER PIN

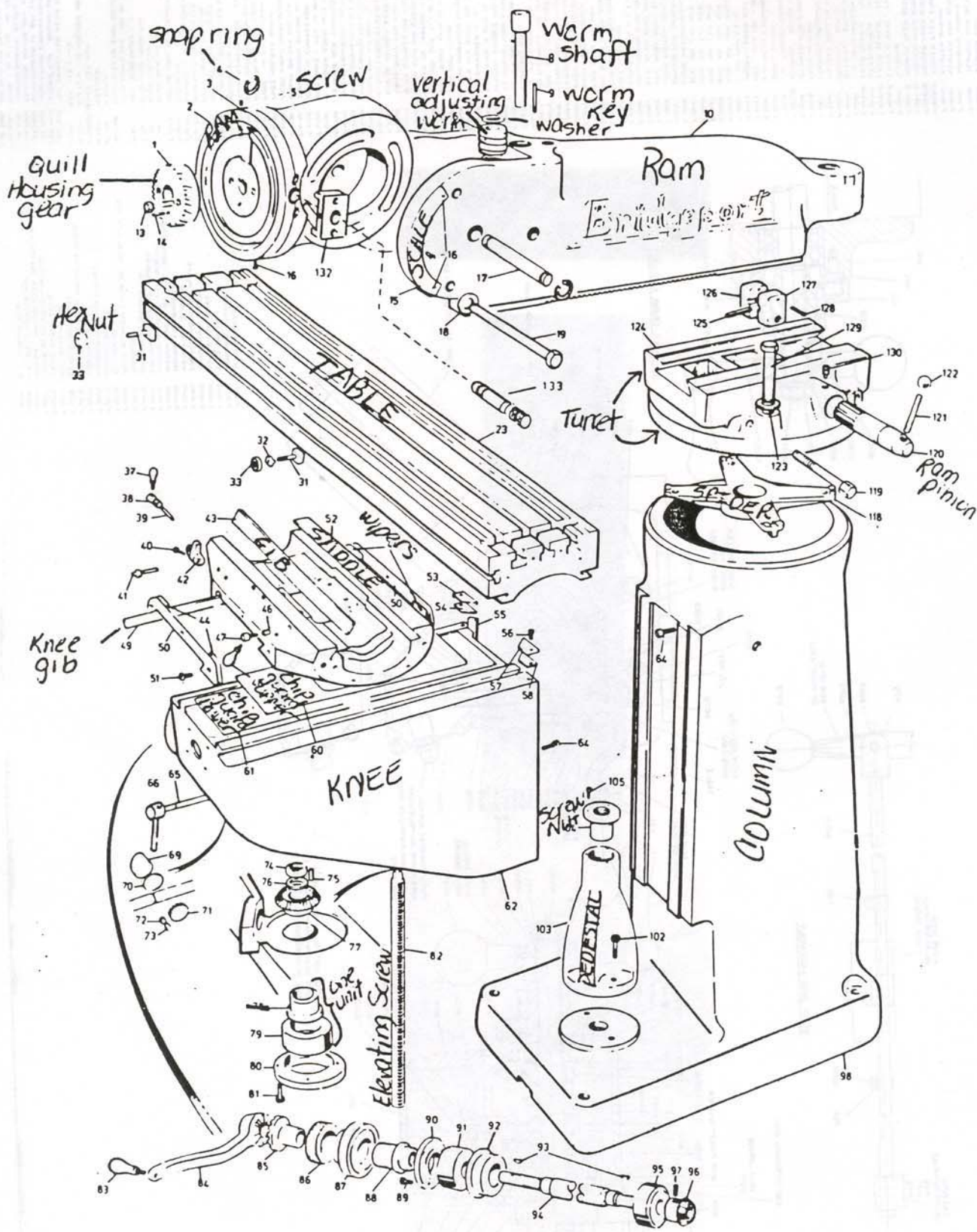
- M61 TAPER PIN
- M62 STRAIGHT PIN
- M63 OUTSIDE SPRING PIN
- M64 T-BOLT, 4 REQ'D.
- M67 SET SCREW
- M68 CAP SCREW
- M69 HEX. HEAD SCREW
- M70 MOTOR MOUNTING RING STUD, 2 REQ'D.
- M73 3/8 X 16 HEX. NUT, 4 REQ'D.
- M74 3/8 X 1/8 X 3/4 CHAMFERED & HARDENED WASHER
- M75 SET SCREW
- M76 FLAT HEAD SCREW, 2 REQ'D.
- M77 FLAT HEAD SCREW, 3 REQ'D.
- M78 STEEL BALL
- M79 SPRING
- M80 SET SCREW

- M83 H.P. MOTOR
- M84 PAPER GASKET
- M85 SET SCREW
- M86 V-BELT
- M87 STRAIGHT PIN
- M88 BRASS PLUG
- M89 PINION SPRING PIN
- M90 MOTOR CORD
- M92 STRAIGHT PIN
- M97 STRAIGHT PIN
- M125 SNAP RING

NOTE: ALWAYS GIVE SERIAL NUMBER OF ATTACHMENT WHEN ORDERING PARTS. SPECIFY MAKE OF MOTOR FOR ITEMS MARKED *



SPECIFY SPINDLE TAPER WHEN ORDERING COLLETS
NO. 7 BROWN & SH. NO. 2 MORSE BRIDGEPORT B3



BASIC MACHINE

ITEM NO.	CODE NO.	DESCRIPTION	ITEM NO.	CODE NO.	DESCRIPTION
1	2193500	Quill Housing ADJ. Gear	70	1111912	Washer
2	2060129	Ram Adapter	71	1010786	Knee Binder Plug (Plastic)
4	1060892	Snap Ring	72	1011375	Dog Point Set Screw
5	1011260	Socket Set Screw (2 Req.) (1011216)	73	1011270	Set Screw
6	1062206	Vertical Adjusting Worm	74	1011755	Jam Nut
7	2060135	Worm Thrust Washer (2 Req.)	75	2060071	Key
8	2060130	Vertical Adjusting Worm Shaft	76	2060072	Washer
9	2060138	Worm Key	77	1062204	Bevel Gear
10	2060128	Ram	79	1060205	Sealed Ball Bearing
13	1011035	Socket Cap Screw (2 Req.)	80	2060070	Bearing Retainer Ring
14	1010590	Roll Dowel Pin	81	1011030	Socket Head Cap Screw
15	1062826	Angle Plate <i>Scale</i>	82	2061238	Elevating Screw Assembly
16	1011555	Round HD Drive Screw (5 Req.)	83	2060060	Handle
17	2061028	Adapter Pivot Pin	84	2060080	Elevating Crank
18	2200109	Chamfered & Hardened Washer (7 Req.)	85	2060079	Gearshaft Clutch Insert
19	1061180	Adapter Locking Bolt (3 Req.)	86	2060078	Dial Lock Nut
23	2060021	Table 36" (2060346 42" - 2060347 48")	87	2060076	Dial with 100 Graduations
31	1061602	Stop Piece T-Bolt (3 Req.)	88	2060077	Dial Holder
32	1062301	Table Stop Piece (2 Req.)	89	1011030	Socket Head Cap Screw
33	1011720	Hex Nut (3 Req.)	90	2060210	Bearing Retaining Ring
37	1062179	Table Lock Bolt Handle (2060120)	91	1060204	Grease Sealed Bearing
38	2060114	Saddle Lock Bolt (2060126)	92	2060074	Bearing Cap
39	2060125	Saddle Lock Plunger	93	1013078	Key
40	1011071	Socket HD Cap Screw (2 Req.)	94	2060147	Elevating Shaft for 12" Knee
41	2060088	Gib Adjusting Screw (3 Req.)	95	1060204	Grease Sealed Bearing
42	2060121	Table Stop Bracket	96	1062205	Bevel Pinion
43	2060117	Saddle/Table Gib	97	1011220	Set Screw
44	1062406	Felt Wipers (4 Req.)	98	2060209	Column
46	2060118	Table Lock Plunger	102	1011074	Socket Head Cap Screw
47	2060119	Table Lock Bolt	103	2060207	Pedestal
48	1062179	Table Lock Bolt Handle (2060130)	104	2060051	Elevating Shaft for 12" Knee
49	2060124	Saddle/Knee Gib	105	1011033	Socket Head Cap Screw
50	2060123	Saddle Knee Wiper Plate (2 Req.)	118	2060144	Spider
51	1011580	Oval Head Screw (6 Req.)	119	2060133	Ram Lock Stud
52	2060097	Saddle	120	2060134	Ram Pinion
53	1060073	Left Hand Column Wiper Holder (2060093)	121	2060139	Ram Pinion Handle
54	1062405	Knee Wiper Felt	122	1192150	Plastic Ball
55	2060146	Knee/Column Gib 12"	123	2200109	Chamfered x Hardened Washer
56	1011035	Allen Cap Screw (2 Req.)	124	2060208	Turret (2060143)
57	2060094	Right Hand Column Wiper Holder	125	2060137	Ram Clamp Bar
58	1062405	Knee Wiper Felt	126	2060141	Ram Clamp Untapped
60	1060152	Chip Guards - Upper	127	2060136	Ram Clamp Tapped
61	1060153	Chip Guards - Lower	128	1010770	Split Pin
62	2060206	Knee 12"	129	1061178	Locking Bolt 9"
64	2060095	Stop Screw	130	2060140	Ram Pinion Screw
65	2061230	Knee Lock Shaft Assembly	131	1113051	Wrench
69	2060089	Knee Lock Plunger	132	2650180	Stop Bracket
			133	2069999	Stop Pin

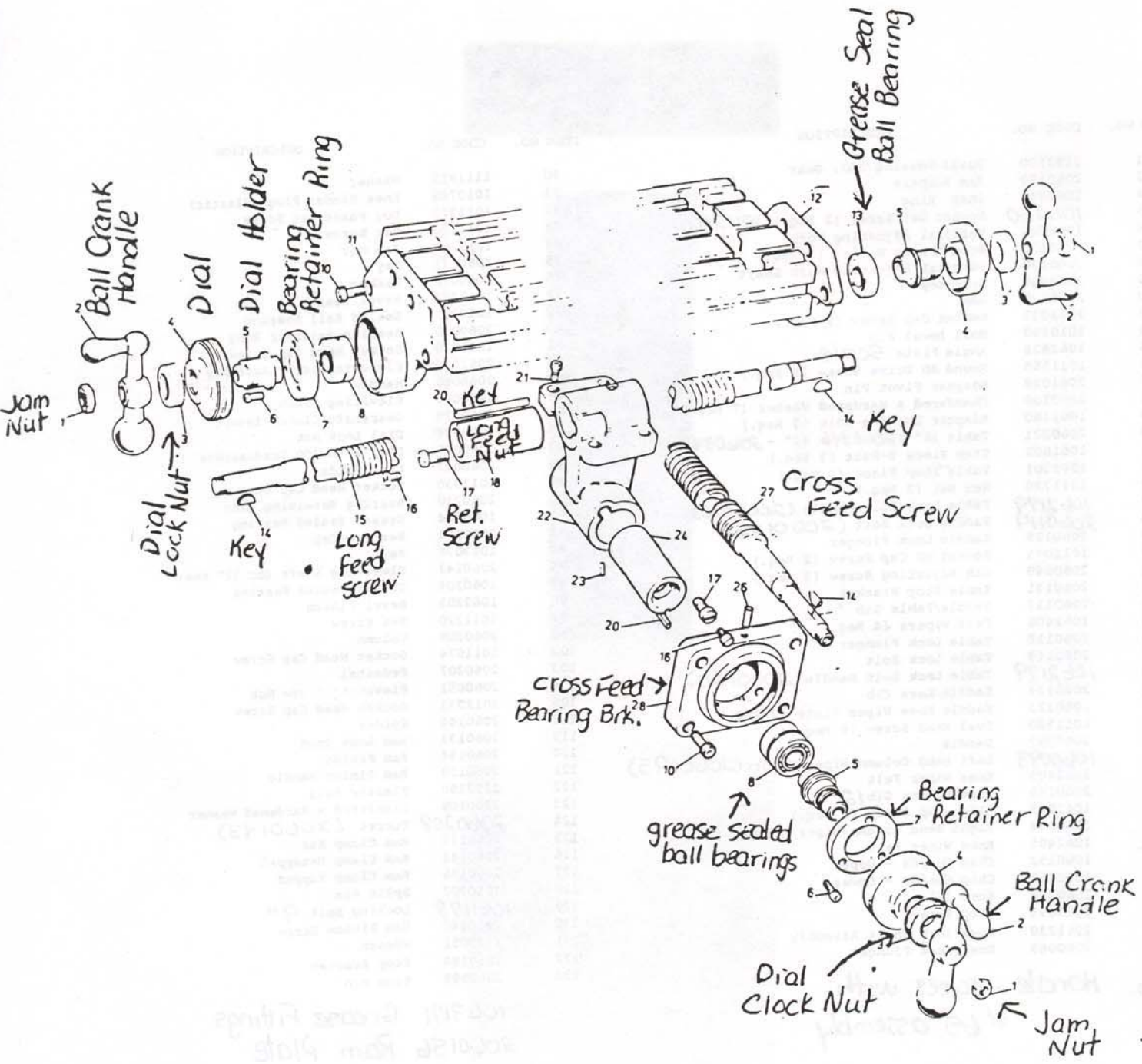
66. Handle - comes with #65 assembly

1063171 Grease Fittings
2060156 Ram Plate

83. } 2061249 Handle assy.
84. }

129.
8.
123. } 2061246 Bolt assy. for #129 & 123

BASIC CRANK HANDLE
2061245 -
129 & 123



LEADSCREW ASSEMBLY

(See pages 48 thru 50 for Metric Kits)

ITEM NO.	CODE NO.	DESCRIPTION
1	1011755	Jam Nut (3 Req.)
2	2060085	Ball Crank Handle (3 Req.)
3	2060078	Dial Lock Nut (3 Req.)
4	2060083	Dial with 200 Graduations (3 Req.)
5	2060084	Dial Holder (3 Req.)
6	1011030	Socket Cap Screw (6 Req.)
7	2060075	Bearing Retainer Ring (2 Req.)
8	1060203	Grease Sealed Ball Bearings (2 Req.)
10	1011074	Socket Cap Screw (12 Req.)
11	2060116	Right Bearing Bracket
12	2060115	Left Bearing Bracket
13	1060204	Grease Seal Ball Bearing
14	1013078	No. 7 Woodruff Key (3 Req.)
15	2061222	Longitudinal Feed Screw 42" (48" also available 2061223)
16	1011592	Washer Head Screw (2 Req.)
17	1060100	Cross Feed Nut Retaining Screw (2 Req.)
18	2060102 2060102	Longitudinal Feed Nut
20	2060099	Key (2 Req.)
21	1011074	Socket Cap Screw (4 Req.)
22	2061250	Feed Nut Bracket
23	2060096	Key Pin
24	2060098 2060098	Cross Feed Nut
26	2190188	Stop Pin
27	2061233	Cross-Feed Screw for 12" Knee
28	2060082	Cross Feed Bearing Bracket

After 1955
Before 9"
2061232