OPERATOR'S MANUAL

1964

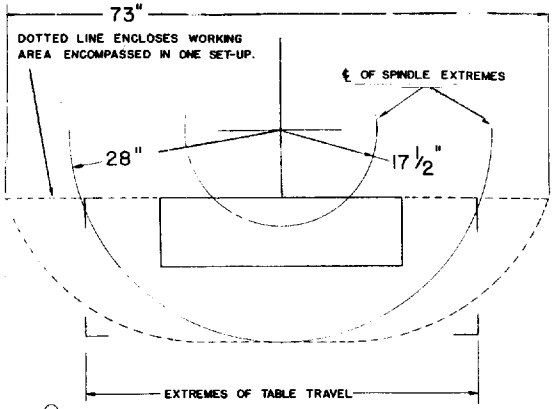
Bridgeport MACHINES, INC.

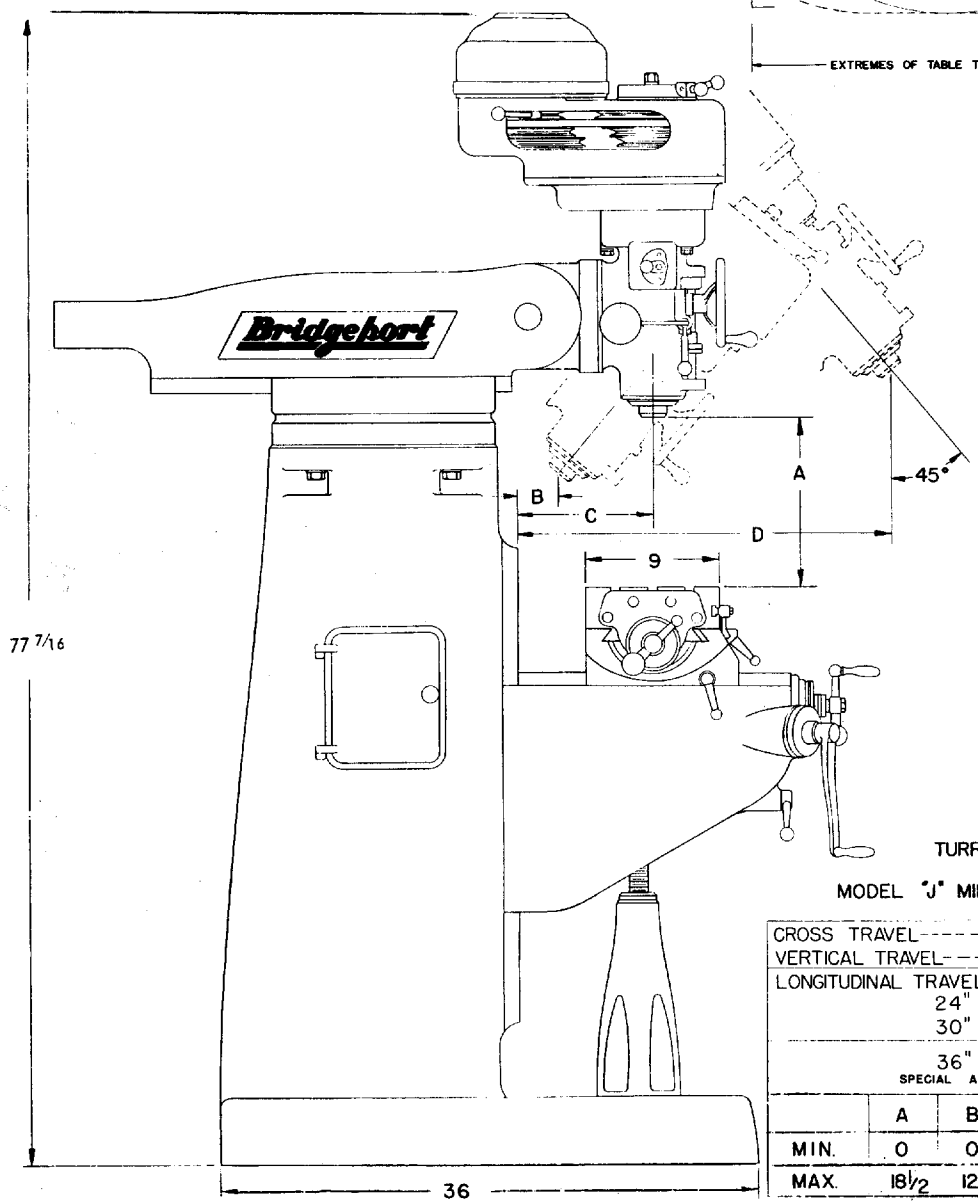
BRIDGEPORT, CONNECTICUT - U. S. A.

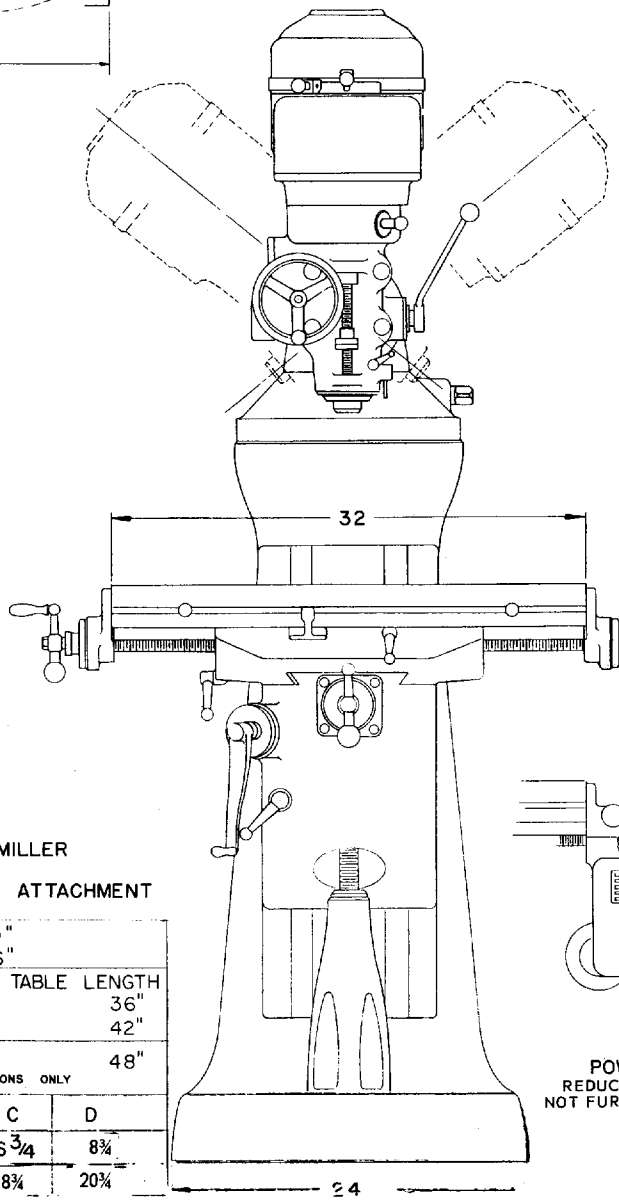
INDEX

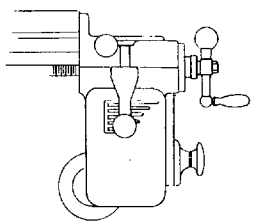
Drawing 1

Dimensional









POWER FEED UNIT
REDUCES TABLE TRAVEL 3½
NOT FURNISHED WITH 48" TABLE

TURRET MILLER
WITH
MODEL "J" MILLING ATTACHMENT

CROSS TRAVEL ------- 9"
VERTICAL TRAVEL ----- 16"

LONGITUDINAL TRAVEL	TABLE LENGTH
24"	36"
30"	42"
36"	48"

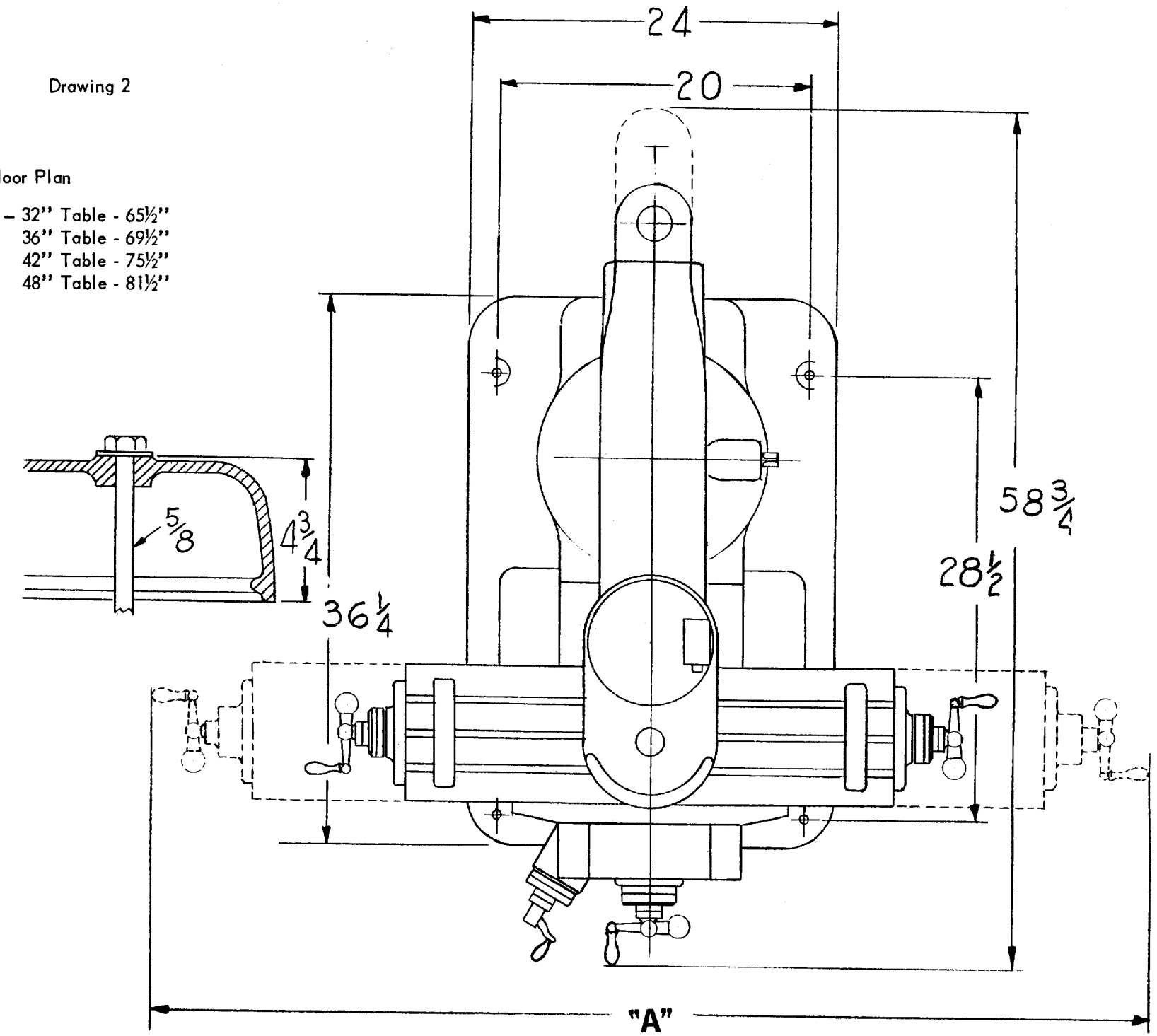
SPECIAL APPLICATIONS ONLY

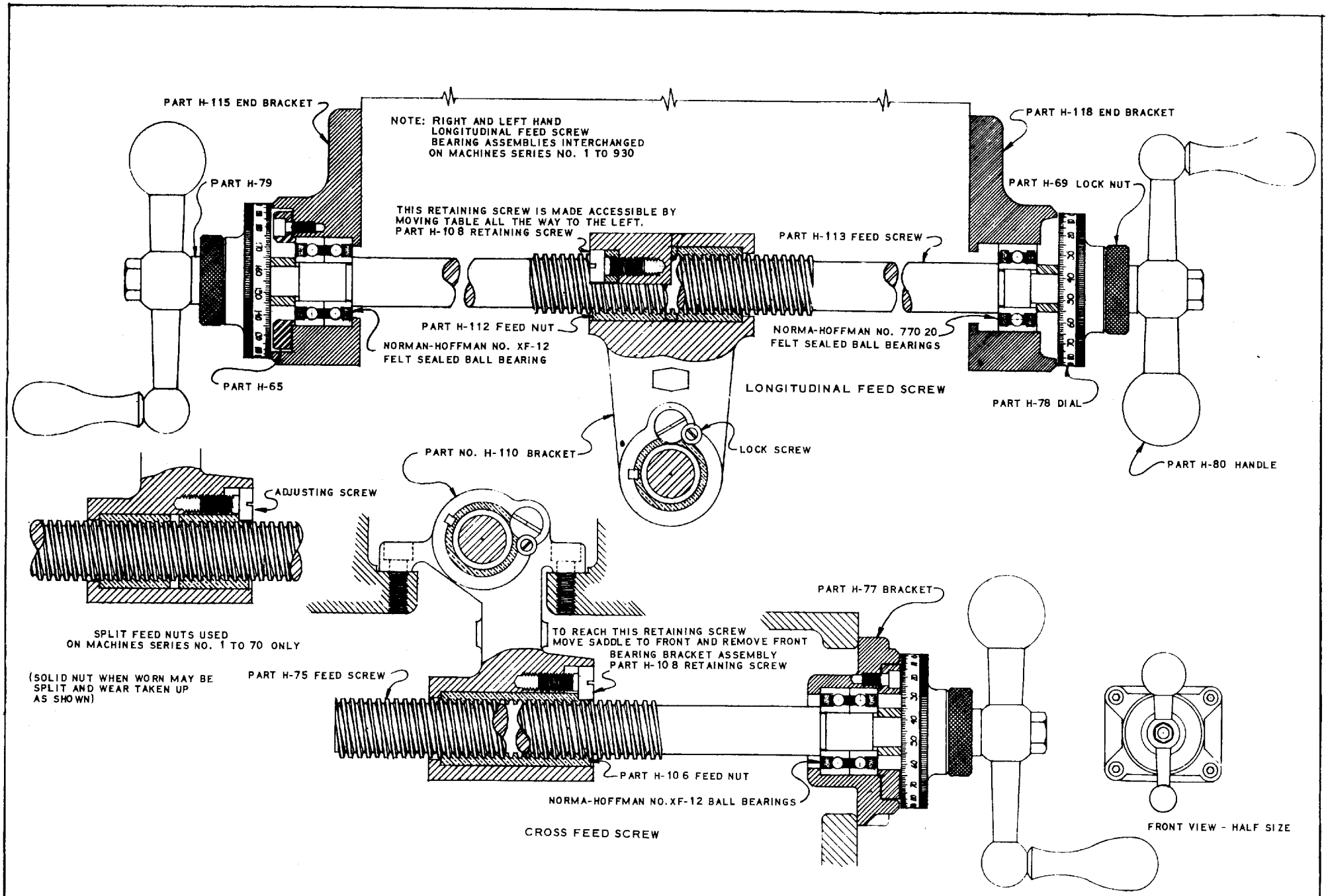
	A	B	C	D
MIN.	0	0	6 3/4	8¾
MAX.	18½	12	18¾	20¾

Drawing 2

Floor Plan

A – 32" Table - 65½"
36" Table - 69½"
42" Table - 75½"
48" Table - 81½"





LONGITUDINAL AND CROSS FEED ASSEMBLY
BRIDGEPORT TURRET MILLING MACHINE

Drawing 3

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

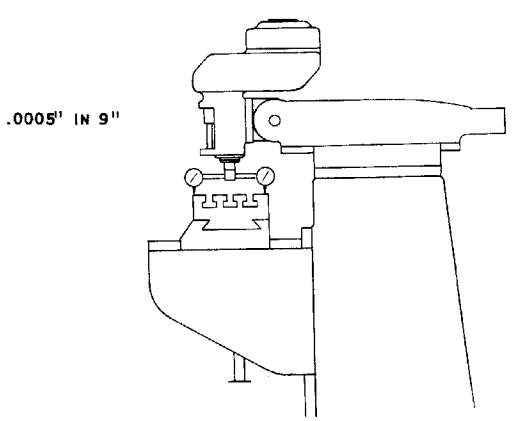
Machine is carefully inspected and lined up before it leaves our factory. Sketch # 1 and 2 shows the way your machine is lined up.

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.

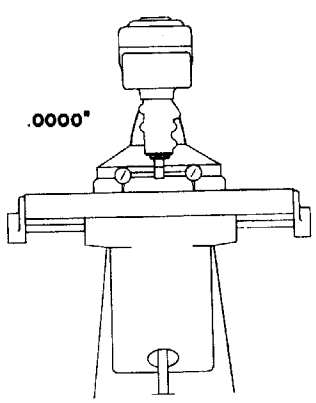
Note: When indicating as in Sketch 1, it should be noted that the table is fitted to be slightly high in front, usually about .005.

TABLE SQUARE WITH SPINDLE THRU TRANSVERSE AXIS



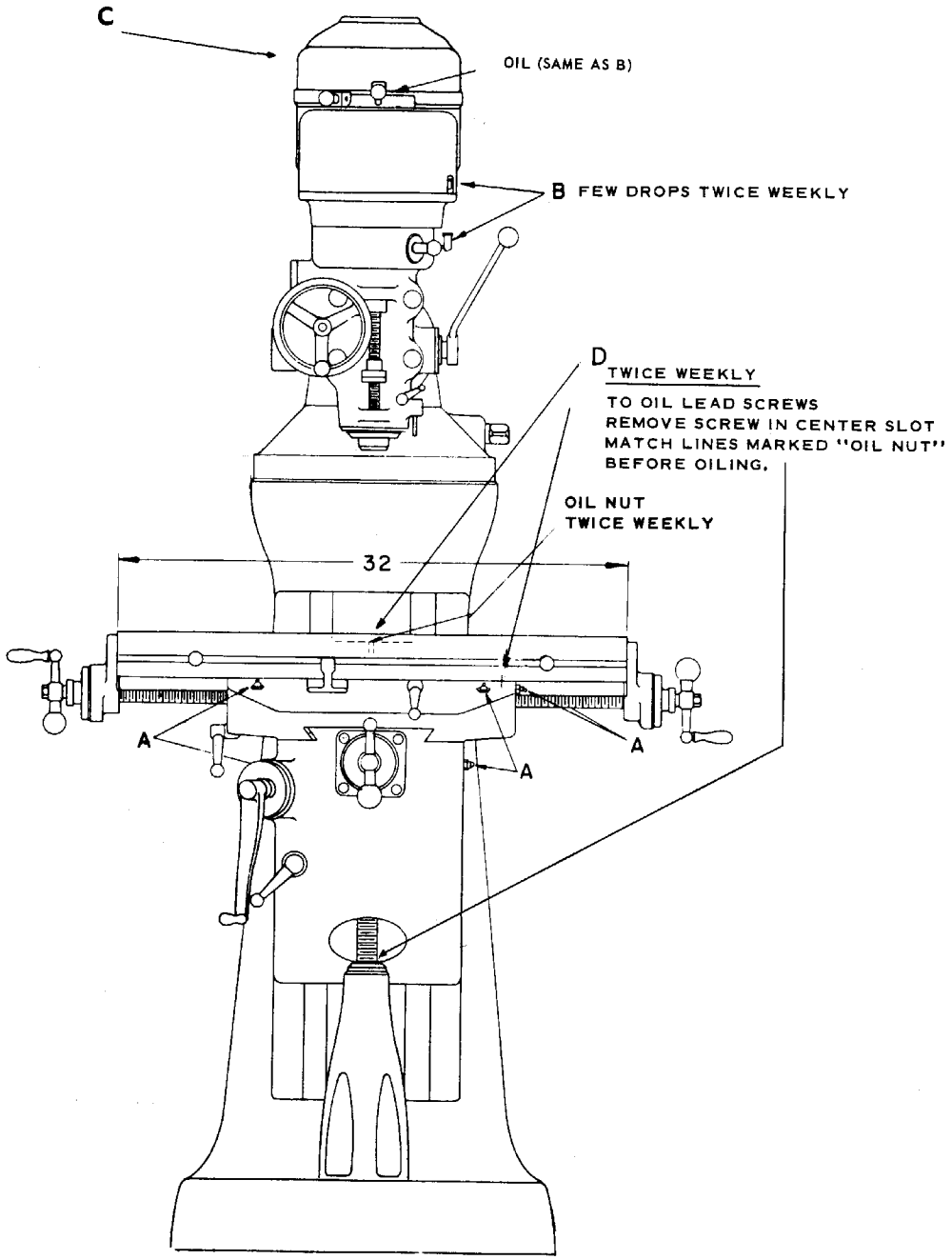
Sketch #1

TABLE SQUARE WITH SPINDLE THRU LONGITUDINAL AXIS



Sketch #2

RECOMMENDED LUBRICATION FOR THE BRIDGEPORT TURRET MILLING MACHINE



A. Way Surfaces
"Sunoco" Waylube #80 or equivalent
} WEEKLY

B. Milling Heads (Spindle Bearings)
Shell Carnea Oil 33
Socony Gargoyle Vactra Oil
Heavy Medium

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)

Sketch #3

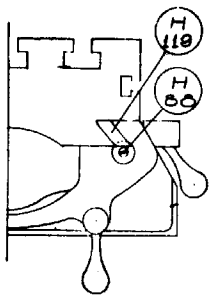
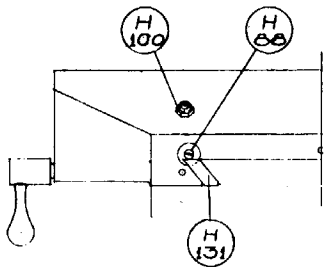


Table-saddle gib

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

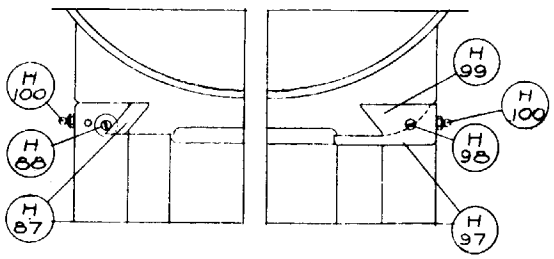


Saddle-knee gib

ADJUSTMENT OF KNEE GIB

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

Sketch #5

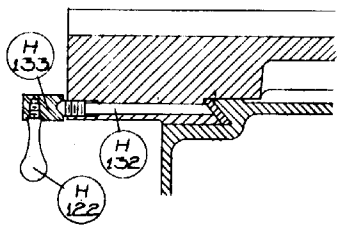


Knee-Column gib

CLAMPING TABLE, SADDLE AND KNEE

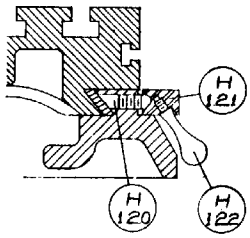
When milling with longitudinal table feed only, it is advisable to clamp the knee to the column and the saddle to the knee to add rigidity to these members and provide for heavier cuts with a minimum of vibration. The saddle locking lever is located on the left-hand side of saddle. (Sketch 6) Excessive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

Sketch #6



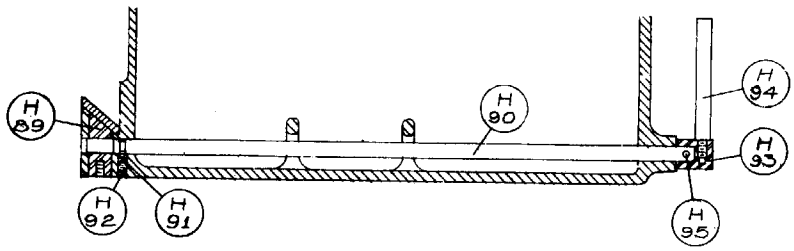
The table clamping lever is located on front of saddle and should always be clamped when longitudinal movement is not required. (Sketch 7)

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

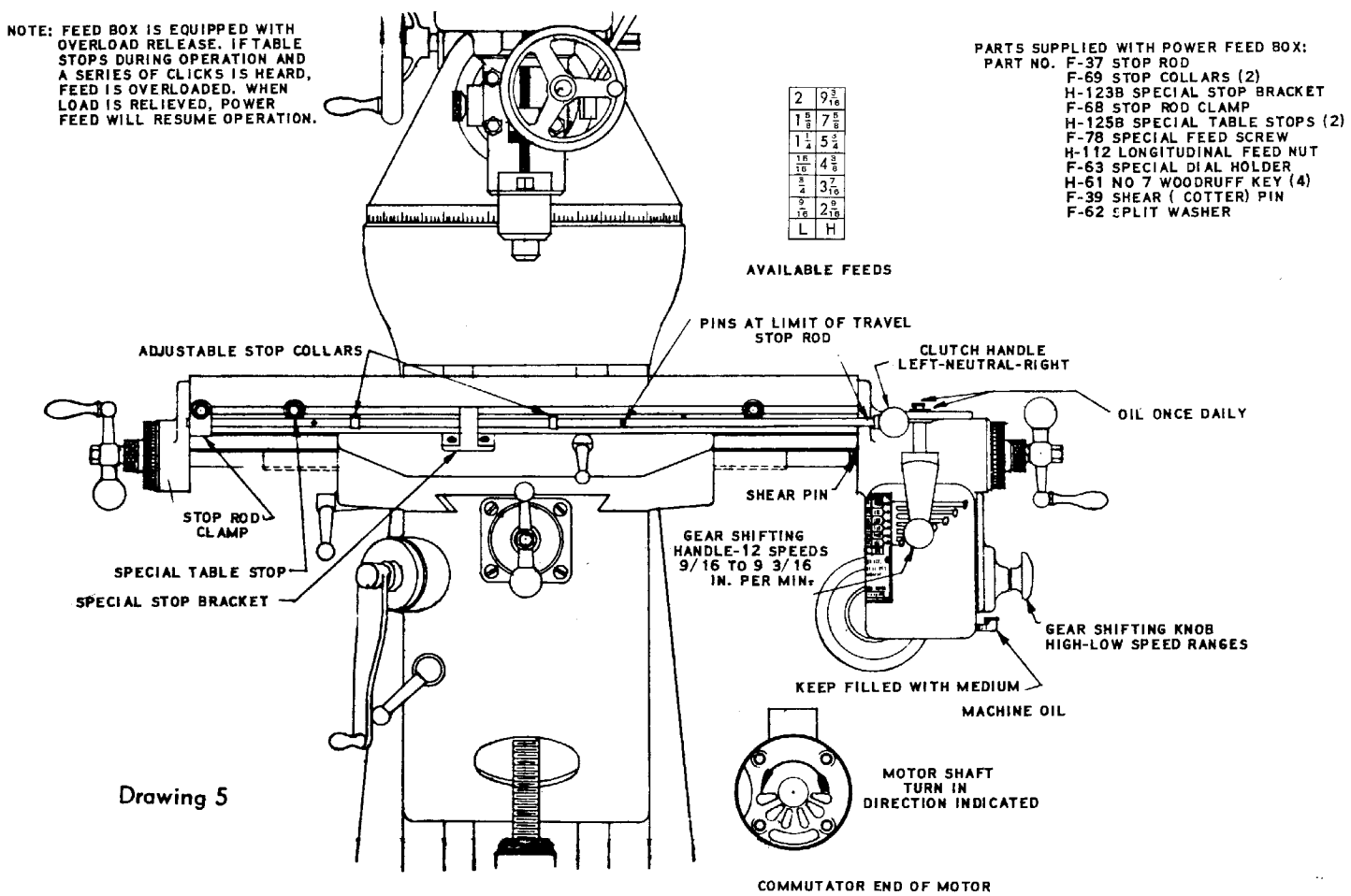
Follows along the same lines as removing table; however, it is necessary to remove entire front bracket assembly completely. Then remove nut bracket which has become accessible after table has been removed. See pages 9 and 10, Drawing 5 and 6.

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.

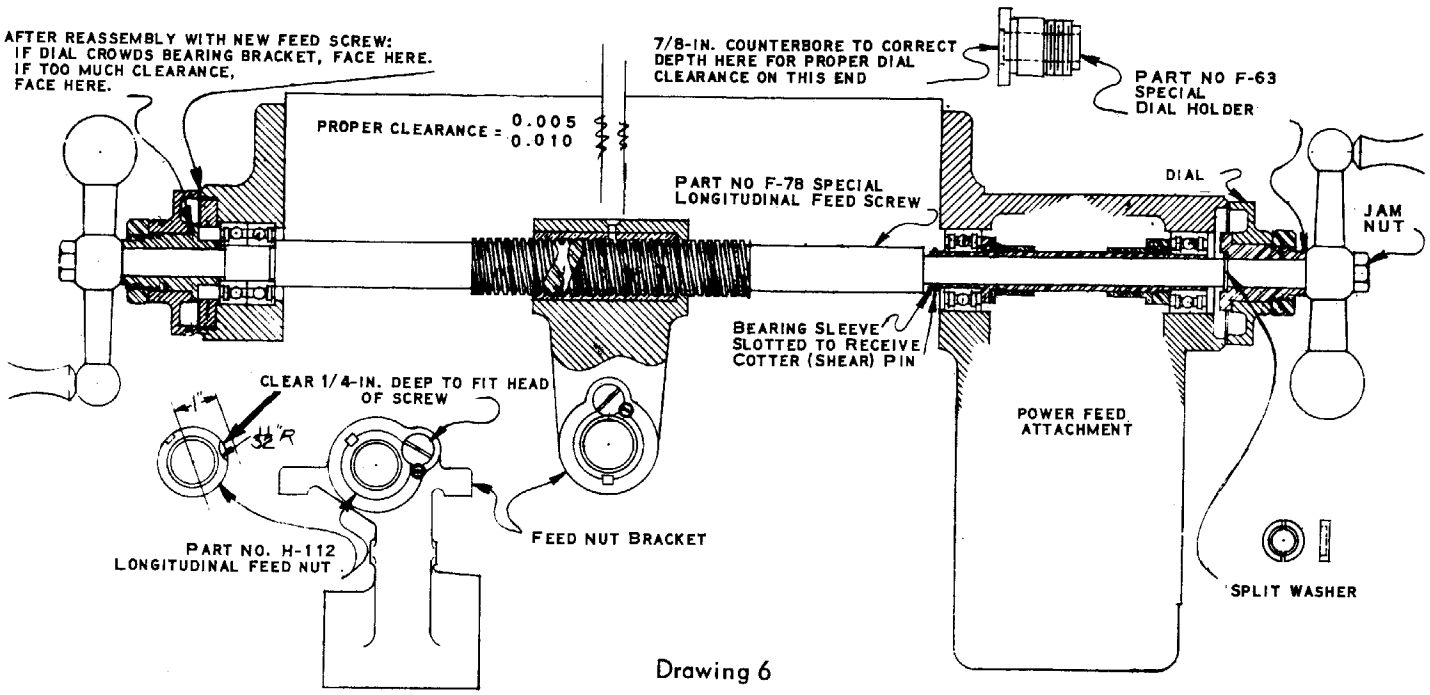
INSTRUCTIONS FOR INSTALLING POWER FEED IN FIELD

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).



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 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.

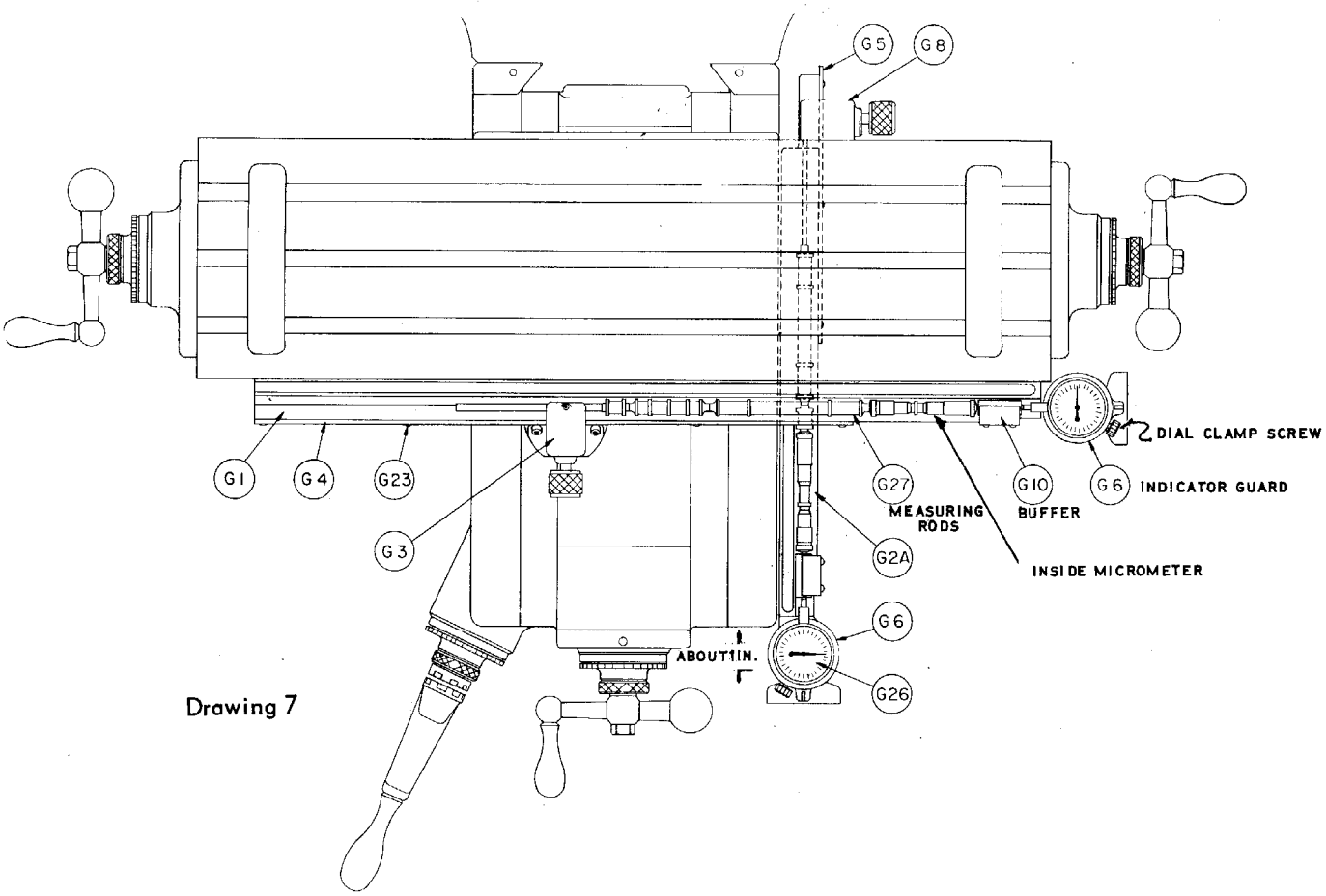
Mark with scriber on bushing where binding screw goes; remove screw and nut from bracket. Remove the screw from the nut. File relief flat on nut to receive bidning screw. (Make certain flat is not filed too deep.) Insert screw and nut into bracket with binding screw and locking screw. Reassemble left 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 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 (Sketch #17)

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



Drawing 7

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. (Repcsition 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.

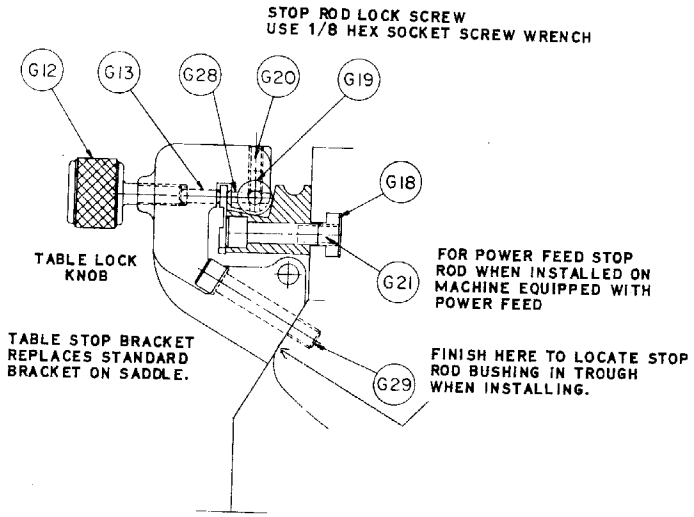
With rolls on spindle of table stop bracket, center rolls into trough and secure with 3/8-16 x 2" cap screw. Adjustment may be made by filing bottom of bracket or shimming if necessary.

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.

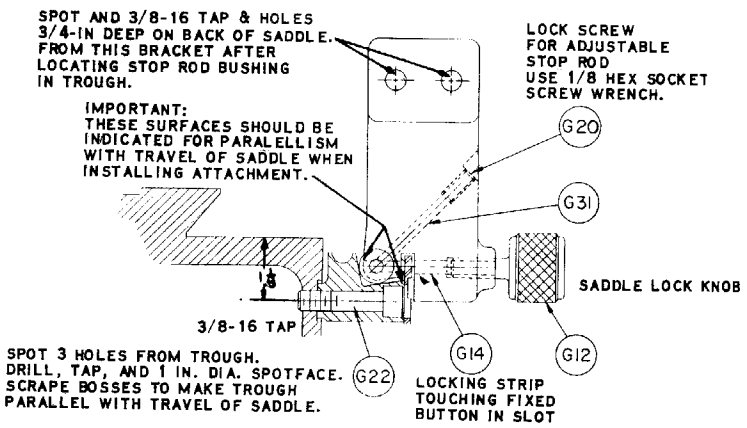
USING MEASURING ATTACHMENT

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.

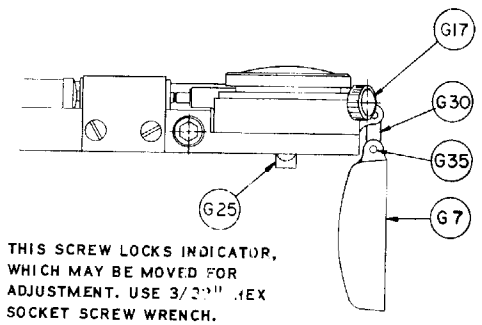
CAUTION: Make certain that the head is indicated properly so that the head is absolutely square with the table.



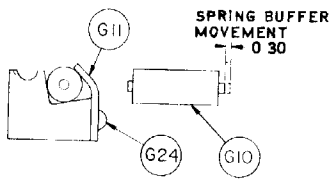
Sketch #9



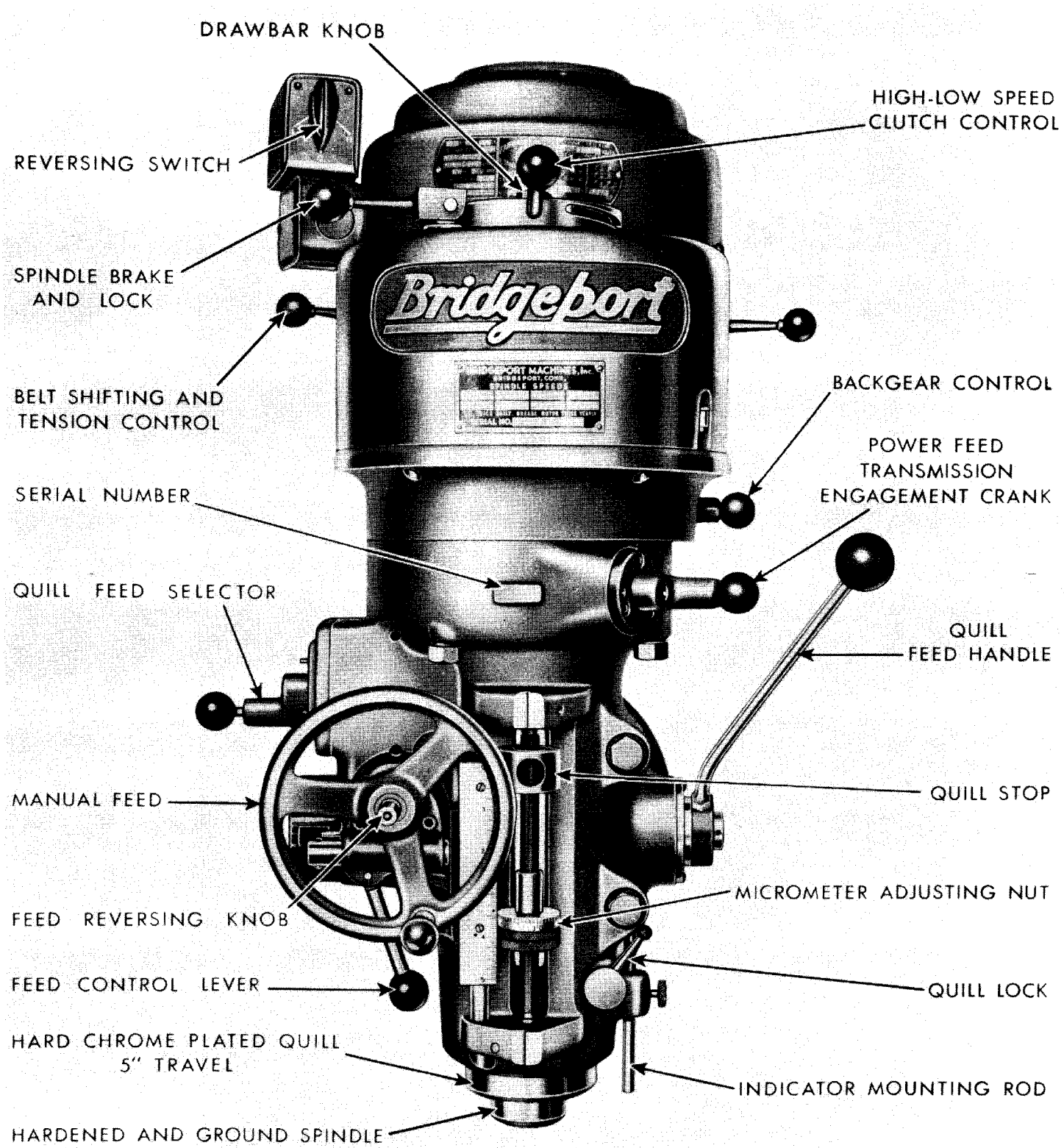
Sketch # 10



Sketch # 11



Sketch # 12



Photograph 1

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.

MANUAL FEED

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 as milling 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.

GENERAL SPEED RECOMMENDATIONS

Material to be Cut	Feet Per Minute		
	Rough Cut	Rough and Finish	Light and Finish Cut
Cast Iron-Soft-(Under 200 Brinnell)	70	80-90	120
Cast Iron-Med.-(200-300 Brinnell)	55	60-70	90
Cast Iron-Hard-(Over 200 Brinnell)	40	50-60	70
Steel (Chrome Nickel 40-45 Shore)	30	40	50
Steel (Stainless)	60	80	90
Steel (Low Carbon)	80	90	140
Steel (High Carbon)	40	50	70
Bronze (Medium)	90	120	150
Bronze (Hard)	65	90	130
Brass (Hard)	100	150	200
Copper	150	200	300
Duraluminum	400	----	600
Aluminum	600	----	1000

TABLE OF CUTTING SPEEDS AND FEEDS

Feet Per Minute	15	20	25	30	40	50	60	70	80	90	100
Diameter, Inches	Revolutions Per Minute										
1/16"	917	1222	1528	1833	2445	3056	3667	4278	4889	5500	6112
1/8"	458	611	764	917	1222	1528	1833	2139	2445	2750	3056
3/16"	306	407	509	611	815	1019	1222	1426	1630	1833	2037
1/4"	229	306	382	458	611	764	917	1070	1375	1375	1528
5/16"	183	244	306	367	489	611	733	856	978	1100	1222
3/8"	153	204	255	306	407	509	611	713	815	917	1019
7/16"	131	175	218	262	349	437	524	611	698	786	873
1/2"	115	153	191	229	306	382	458	535	611	688	764
5/8"	91	122	153	183	244	306	367	428	489	550	611
3/4"	76	102	127	153	204	255	306	357	407	458	509
7/8"	65	87	109	131	175	218	262	306	349	393	437
1"	57	76	95	115	153	191	229	267	306	344	382
1 1/8"	50	67	84	102	136	170	204	238	272	306	340
1 1/4"	45	61	76	91	122	153	183	214	244	275	306
1 3/8"	41	55	69	83	111	139	167	194	222	250	278
1 1/2"	38	50	63	76	102	127	153	178	204	229	255
1 5/8"	35	47	58	70	94	118	141	165	188	212	235
1 3/4"	32	43	54	65	87	109	131	153	175	196	218
1 7/8"	30	40	50	61	81	102	122	143	163	183	204
2"	28	38	47	57	76	95	115	134	153	172	191

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.

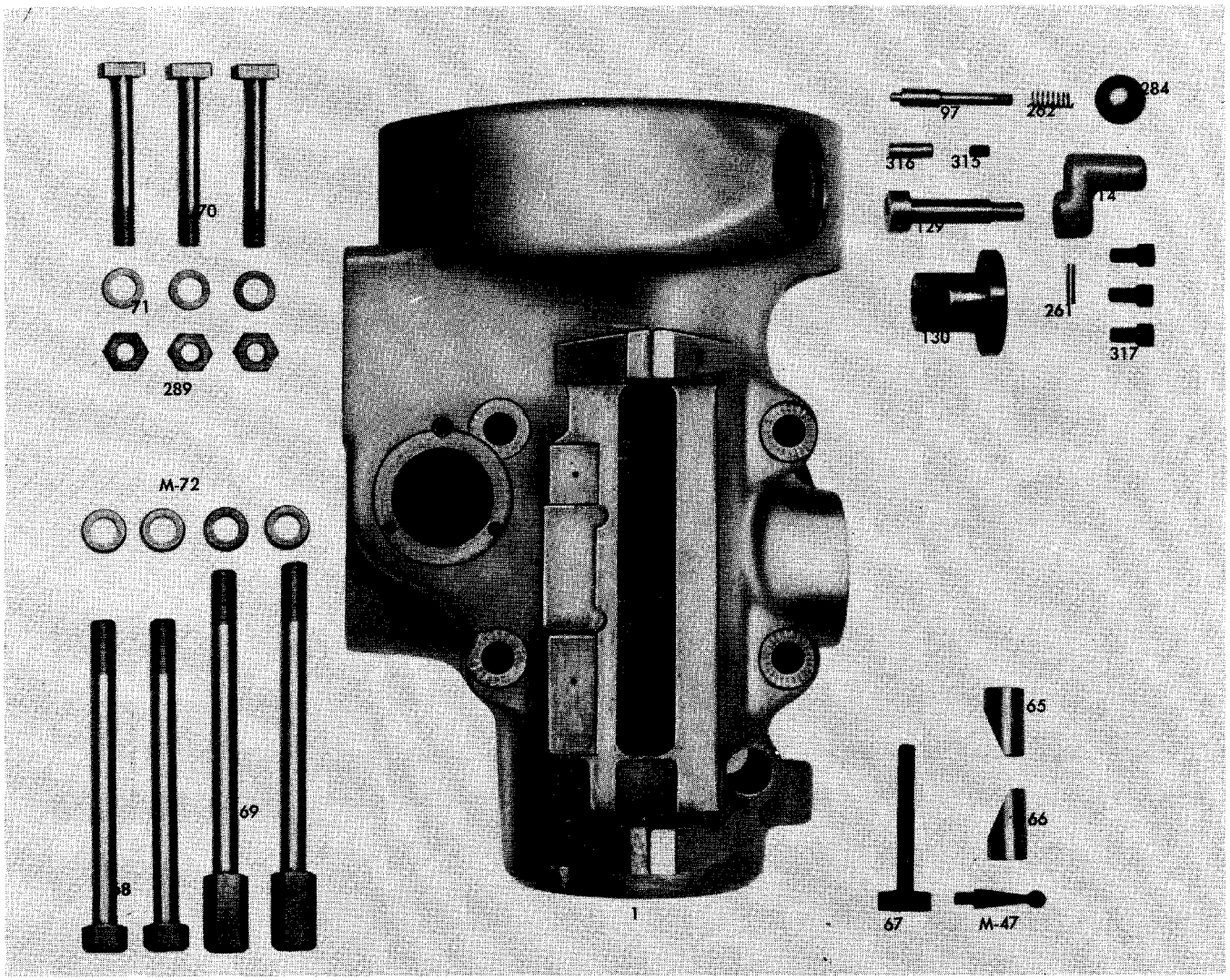
CAUTION: This clutch should not be tampered with in the field.

J-1 QUILL HOUSING
J-2 GEAR HOUSING
J-3 GEAR HOUSING COVER
J-4 BELT HOUSING
J-5 SPINDLE PULLEY
J-6 MOTOR PULLEY
J-7 TIMING BELT PULLEY
J-8 TIMING BELT PULLEY FLANGE
J-9 WORM GEAR CRADLE
J-10 OVERLOAD CLUTCH TRIP LEVER
J-11 FEED GEAR SHIFTER FORK
J-12 BACK GEAR SHIFTER FORK
J-13 SPINDLE PULLEY BEARING SLEEVE
J-14 SHIFT CRANK
J-15 CLUSTER GEAR COVER
J-16 SPRING COVER
J-17 FEED TRIP BRACKET
J-18 CLUTCH ARM COVER
J-19 FLANGED HEAVY-DUTY OVERARM
J-20 MOTOR SWITCH BRACKET
J-21 HANDWHEEL
M-24 MICRO SCREW JAM NUT
J-25 SPINDLE FOR J-100 to J-100 TO J-1199 ONLY
J-26 SPINDLE DIRT SHIELD FOR J-100 TO J-1199 ONLY
J-27 TIMKEN BEARING SPACER FOR J-100 TO J-1199 ONLY
J-28 SPINDLE BEARING LOCKNUT FOR J-100 TO J-1199 ONLY
J-29 SPINDLE LOCKNUT BINDING
J-30 BEARING SHOULDER RING FOR J-100 TO J-1199 ONLY
J-31 DRAWBAR FOR R-8 COLLET
J-32 DRAWBAR KNOB
J-33 QUILL FOR J-100 TO J-1199 ONLY
M-33 PINION SHAFT HUB SLEEVE
J-34 QUILL NOSEPIECE FOR J-100 TO J-1199 ONLY
J-35 QUILL SKIRT
J-36 QUILL STOP KNOB
J-37 QUILL STOP MICRO SCREW
J-38 MICROMETER NUT
J-39 REVERSE TRIP BALL LEVER
J-40 FEED REVERSE TRIP PLUNGER
J-41 REVERSE TRIP BALL LEVER SCREW
J-42 FEED TRIP LEVER
J-43 FEED TRIP PLUNGER
M-43 HANDWHEEL HANDLE
J-44 TRIP PLUNGER BUSHING
J-45 TRIP PLUNGER
J-46 FEED TRIP PLUNGER BUSHING
J-47 CAM ROD SLEEVE ASSEMBLY
M-47 LOCK HANDLE
J-48 CAM ROD
J-49 TRIP HANDLE
J-50 LOCKNUT BINDING PLUG FOR J-100 to J-1199 ONLY
J-51 OVERLOAD CLUTCH LEVER SPRING PLUNGER
M-51 INDICATOR ROD SCREW
J-52 OVERLOAD CLUTCH WASHER
M-52 INDICATOR ROD
J-53 CLUTCH RING
M-53 PINION SHAFT HUB
J-54 OVERLOAD CLUTCH SLEEVE
M-54 PINION SHAFT HUB HANDLE
J-57 OVERLOAD CLUTCH SLEEVE KEY
J-58 OVERLOAD CLUTCH
J-59 OVERLOAD CLUTCH RING
J-60 OVERLOAD CLUTCH WORM GEAR
J-61 PINION SHAFT WORM GEAR SPACER
F-61 OVERLOAD CLUTCH LOCKNUT
J-62 QUILL PINION SHAFT BUSHING
J-63 QUILL PINION SHAFT
J-64 QUILL PINION
J-65 QUILL LOCK SLEEVE
J-66 QUILL LOCK SLEEVE
J-67 QUILL LOCK BOLT
J-68 QUILL HOUSING LOCKBOLT (SHORT) BEFORE J 9536 1/2 - 20 THREAD, AFTER J 9536 1/2 - 13 THREAD
J-69 QUILL HOUSING LOCKBOLT (LONG) BEFORE J 9536 1/2 - 20 THREAD, AFTER J 9536 1/2 - 13 THREAD
J-70 VERTICAL TEE BOLT
J-71 VERTICAL TEE BOLT WASHER
J-72 SPLINED GEAR HUB
J-73 BULL GEAR KEY
J-74 SPINDLE BULL GEAR
J-75 SPINDLE PULLEY HUB
J-76 PULLEY COLLAR
J-77 OILER TUBE
J-78 OIL PLUG
J-79 SPINDLE PULLEY KEY
J-80 UPPER BEARING SPACER (LARGE)
J-81 UPPER BEARING SPACER (SMALL)
J-82 BEARING SLEEVE LOCKNUT
J-83 UPPER BEARING LOCKNUT
J-84 CAM RING
J-85 SPINDLE CLUTCH LEVER
J-86 SPINDLE CLUTCH CAM RING PIN
J-87 BRAKE BLOCK

	J-88	BRAKE RING SCREW
	J-89	BRAKE LOCK STUD
	M-89	CLOCKSPRING STUD
	J-91	BRAKE LOCK WASHER
	J-92	BRAKE LOCK & HANDLE
	M-92	3/16 x 3/4 LG. DOWEL
	J-93	BRAKE LOCK PIN
	J-95	COUNTERSHAFT
	J-96	COUNTERSHAFT GEAR
	J-97	GEARSHIFT PLUNGER
	J-98	CLUSTER GEAR SHIFT CRANK
	J-99	FEED DRIVE CLUSTER GEAR
	J-100	FEED DRIVE CLUSTER GEAR (CENTER)
	J-101	FEED DRIVE CLUSTER GEAR (UPPER)
	J-103	FEED DRIVE GEAR
	J-104	CLUSTER GEAR INPUT SHAFT
	J-105	FEED DRIVING GEAR
	J-106	CLUSTER GEAR SHAFT
	J-107	CLUSTER GEAR KEY
	J-108	BEVEL GEAR BEARING
	J-109	BEVEL GEAR THRUST SPACER
	J-110	FEED REVERSE BEVEL GEAR
	J-111	FEED WORM SHAFT THRUST WASHER
	J-112	FEED REVERSE CLUTCH
	J-113	HANDWHEEL CLUTCH SPRING SCREW
	J-114	FEED WORM SHAFT BUSHING
	J-115	FEED WORM SHAFT FOR J-100 TO J-5499 ONLY. SUPERCEDED BY PART #J-188
	J-116	REVERSE CLUTCH ROD
	J-117	REVERSE KNOB
	J-118	HANDWHEEL CLUTCH
	J-119	HANDWHEEL BUSHING
	J-121	WORM SHAFT KEY
	J-122	FEED DRIVING GEAR KEY
	J-123	BEVEL PINION WASHER
	J-124	FEED WORM GEAR SHAFT SLEEVE
	J-125	WORM GEAR SPACER
	J-126	FEED DRIVE WORM GEAR
	J-127	FEED DRIVE WORM GEAR SHAFT
	J-128	FEED ENGAGE PIN
	J-129	WORM GEAR CRADLE THROW-OUT
	J-130	SHIFT SLEEVE
	J-131	MOTOR LOCKNUT
	J-132	MOTOR LOCKNUT HANDLE
	J-133	MOTOR MOUNTING STUDS
	J-134	MOTOR MOUNTING STUD WASHERS
	J-135	CLUSTER GEAR KEY
	J-137	CLUSTER GEAR KEY
	J-139	COLLET ALIGNING SCREW
	J-140	WORM GEAR
	J-141	NUT
	J-142	KEY
	J-143	1/4 20 x 3/8 SOCKET SET SCREW
	J-144	GEAR
	J-145	FEED SHIFT ROD
	J-146	FEED REVERSE BEVEL PINION
	J-147	CLUSTER GEAR SHAFT UPPER BEARING
	J-148	PINION SHAFT HUB SCREW
	J-149	DRAWBAR WASHER
	J-150	OUTSIDE CLOCKSPRING PIN
	J-151	TRIP LEVER PIN
	J-152	BACKGEAR SHIFT BUSHING
	J-153	BACKGEAR SHIFT CRANK
	J-154	CLUTCH RING PIN
	J-156	FEED REVERSE KNOB STUD
	J-157	QUILL MICRO STOP NUT
	J-159	KEY FOR #30 STD TAPER SPINDLE
	J-166	SPINDLE (SERIAL J-1200 AND UP)
	J-167	QUILL (SERIAL J-1200 AND UP)
	J-169	SPINDLE DIRT SHIELD
	J-170	BEARING SPACER - LARGE FROM J - 1750
AD	J-171	BEARING SPACER - SMALL
AD	J-172	NOSEPIECE
	J-173	MOTOR SWITCH BRACKET
	J-176	SLEEVE FROM SER. J-1750
	J-188	FEED WORM SHAFT STARTED WITH SER. NO. 5500
	J-190	1/2 - 13 SPECIAL HEX NUT OPTIONAL EQUIP.
	J-192	WASHER FOR J-104 SHAFT OPTIONAL EQUIP.
	J-193	PLUG FOR 5/8 HOLE
	J-250	1/4 - 20 x 1/2 LG. SOCKET SET SCREW KP
	J-251	5/16 - 18 x 5/16 SOCKET SET SCREW
	J-252	5/16 - 18 x 5/8 LG. SOCKET CAP SCREWS
	J-253	KOHINOOR #5000 - 315 SNAP RING
	J-254	3/16 x 1/2 LG. DOWEL PINS
	J-255	#10-24 x 3/8 LG. R. HEAD SCREW
	J-256	COMPRESSION SPRING
	J-257	5/16 - 18 x 1/2 LG. K.P. SOCKET SET SCREWS
	J-258	GILMER 4LS 345 V-BELT
	J-259	#6 - 32 x 3/8 LG. FLAT HEAD SCREWS
	J-260	3/16 x 3/4 LG. DOWEL PIN
	J-261	1/8 x 7/8 LG. ROLL PIN

J-262 COMPRESSION SPRING
J-263 10-32 x 1/4 LG. K.P. SET SCREW
J-264 #10-24 x 1/2 LG. CAP SCREW
J-265 1/4 - 20 x 1 LG. CAP SCREW
J-267 #10 - 24 x 1 1/2 LG. CAP SCREW
J-268 1/4 - 20 x 1/2 SOCKET SET SCREWS
J-269 1/4 - 20 x 3/8 LG. SOCKET HEAD CAP SCREW
J-270 #14137A CONE 14277 #0 PREC. ROLLER BRG. FOR J-100 to J-1199 ONLY
J-271 N.D. #5206 BALL BEARING #5 PRECISION FOR J-100 TO J-1749 ONLY
J-272 N-06 LOCK NUT
J-273 W-06 LOCKWASHER
J-274 5/16 - 18 x 5/16 SOCKET SET SCREW K.P.
J-275 1/4 - 20 x 1/4 LG. SOCKET SET SCREW
J-276 10-32 x 5/16 LG. RD. HD. SCREW
J-277 1/8 ALLEN PIPE PLUG FOR J-100 TO J-1199 ONLY
J-278 3/8 - 24 x 5/8 SCREW
J-279 #6 - 32 x 3/8 SOCKET SET SCREW
J-280 1/8 x 7/16 LG. ROLL PIN
J-281 3/16 x 5/8 LG. DOWEL PIN
J-282 1/8 x 9/16 LG. ROLL PIN
J-283 COMPRESSION SPRING
J-284 BLACK PLASTIC BALL HANDLES 1" DIM.
J-285 8-32 x 5/8 LG. RD. HD. SCREW
J-286 #3 WOODRUFF KEY
J-287 #7 WOODRUFF KEY
J-288 #5108 - 59 KOHINOOR SNAP RING
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 FAFNIR MM208 KDB - DF OR NORMA HOFFMAN 208 S-455 BEARINGS
J-293 FAFNIR RMM207 KD OR NORMA HOFFMAN 207 P S-456 BEARINGS
J-294 WICK 1/8 O.D.
J-295 GITS OIL CUP #1207
J-296 3/32 x 5/8 LG. ROLL PIN
J-297 W. B. JONES #167 - A EXT. SPRING (LINDQUIST)
J-298 10-32 x 1/4 LG. SOCKET SET SCREWS
J-299 #9 WOODRUFF KEY
J-300 5/8 - 18 HEX JAM NUT
J-301 ND #99503 DOUBLE SEAL BEARING ABEC 3
J-303 B-66 TORRINGTON NEEDLE BEARING
J-304 3/8 - 24 HEX JAM NUT
J-305 A-672-4 OILITE BEARING
J-306 3/32 x 5/16 LG. PIN
J-307 BOSTON WORM #HLVH
J-308 .110 DIA. x 7/16 LG. PIN
J-309 3/32 x 3/4 LG. ROLL PIN
J-310 3/16 STEEL BALL
J-311 COMPRESSION SPRING
J-312 1/4 - 20 x 5/16 LG. SET SCREW
J-313 USE J-287
J-315 #10-24 x 3/8 LG. K.P. SET SCREW
J-316 5/16 x 7/8 LG. DOWEL PIN
J-317 USE J-264
J-318 3/8 LOCKWASHER
J-319 5108 - 62 WALDES SNAP RING
J-321 SAFETY CLUTCH SPRING
J-322 MICROMETER SCALE
J-323 6-32 x 1/4 LG. RD. HD. SCREW
J-324 FEED REVERSE BEVEL GEAR
J-326 BILLING #1166 WRENCH
J-327 STEEL PINION
J-328 CLOCK SPRING 1" x .020" x 42"
J-329 TIMING BELTS 1 1/4" WIDE
J-330 COMPRESSION SPRING
J-331 5108-37 KOHINOOR SNAP RING
J-332 3/8 STAR WASHER
J-333 BLACK PLASTIC BALL HANDLES 1 3/8 DIM. SAME AS M-54
J-334 5/16 x 2" LG. DOWEL PIN
J-335 #8 SPLIT LOCKWASHER
J-336 SNAP RING 5100-25
J-337 1/8x 1/2 LG. ROLL PIN
J-338 #2002 GITS OIL CUP
J-339 SPINDLE SPEED PLATE
J-340 OPERATING INSTRUCTION PLATE
J-345 10-32 x 3/8 SOCKET SET SCREWS
J-348 FAFNIR MM 207 WI-CR-DB. SPEC. E5227. START AT J-1200
J-349 FAFNIR M206 K SPEC. E 6578 OR NORMA HOFFMAN 206 S-685 A START AT SER. #J-1750
J-350 1/4 - 20 MOCK-IT LOCKSCREW
J-351 5/16-18 MOCK-IT LOCKSCREW
J-352 1/8 x 3/4 LG. DOWEL PINS
J-353 BUSHING
J-354 OPERATING INSTRUCTION PLATE
J-356 3/8 - 24 FLOPLOC STOP & LOCKNUT
J-358 6-32 x 1/4 SOCKET SET SCREW K.P. STARTED WITH SER. #J-8300
J-359 1/4-20 JAM - NUT
J-362 5/16 - 18 JAM NUT
J-363 5/16 EXTERNAL LOCK WASHER
J-364 TRUST BEARING (DISCONTINUED)
J-365 1/4 x 3/4 ROLL PINS

Quill Housing Unit - PARTS LIST

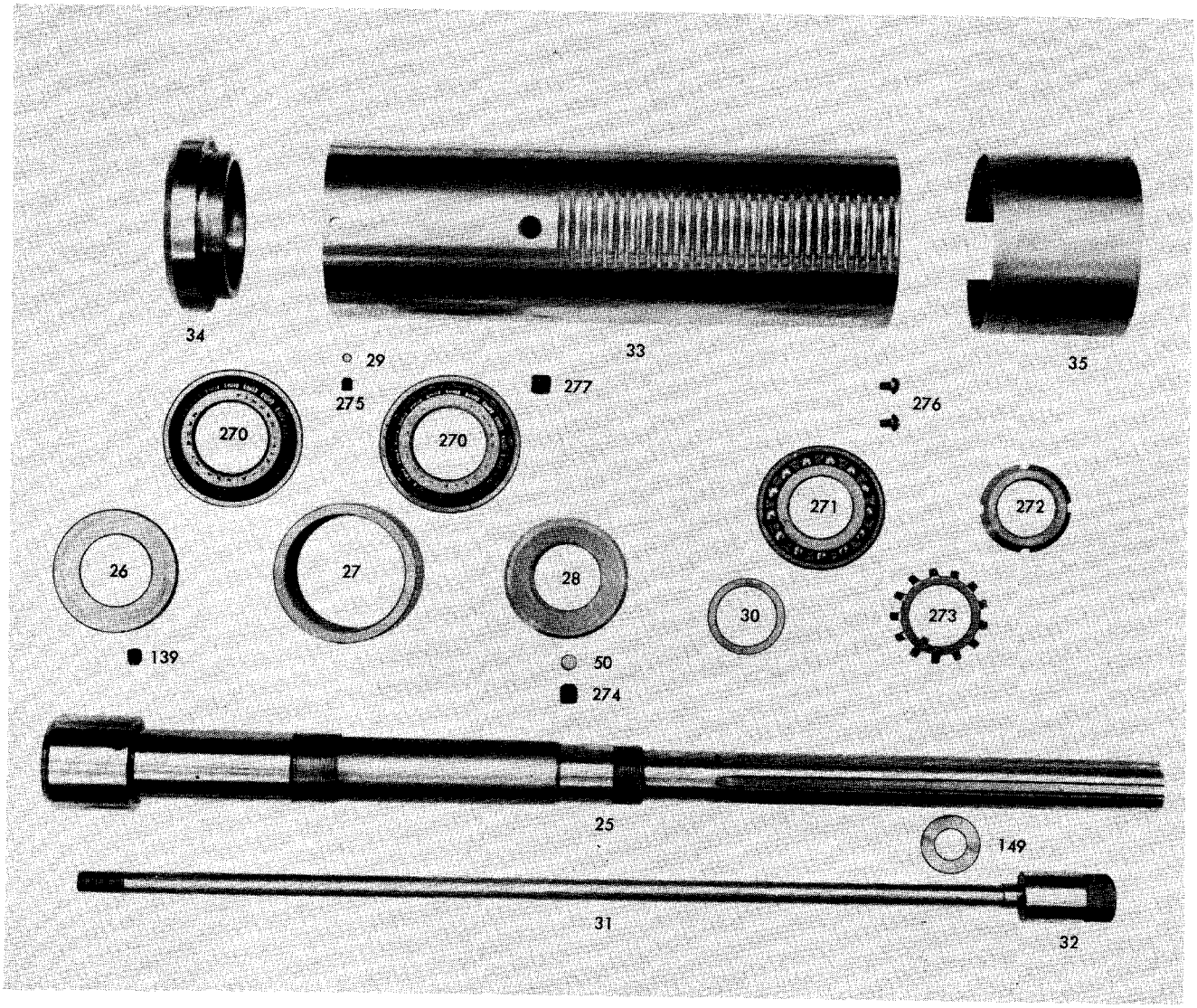


Photograph 2

1	Quill Housing
14	Shift Crank
M-47	Lock Handle
65	Quill Lock Sleeve (Tapped)
66	Quill Lock Sleeve
67	Quill Lock Bolt
68	Quill Housing Lockbolt
69	Quill Housing Lockbolt (Long)
70	Vertical Tee Bolt
71	Vertical Tee Bolt Washer
M-72	Quill Housing Lock Bolt Washer
97	Gearshift Plunger
129	Worm Gear Cradle Throw-out
130	Shift Sleeve
261	$\frac{1}{8}$ x $\frac{7}{8}$ lg. Roll Pin
262	Compression Spring
284	$\frac{1}{4}$-20 Bakelite Ball Handle
289	$\frac{7}{16}$-14 Hex Nut Hardened (American Std. regular)
315	#10-24 x $\frac{3}{8}$ lg. K. P. Set Screw
316	$\frac{5}{16}$ x $\frac{7}{8}$ lg. Dowel Pin
317	#10-24 x $\frac{1}{2}$ lg. Cap Screws (use 264)

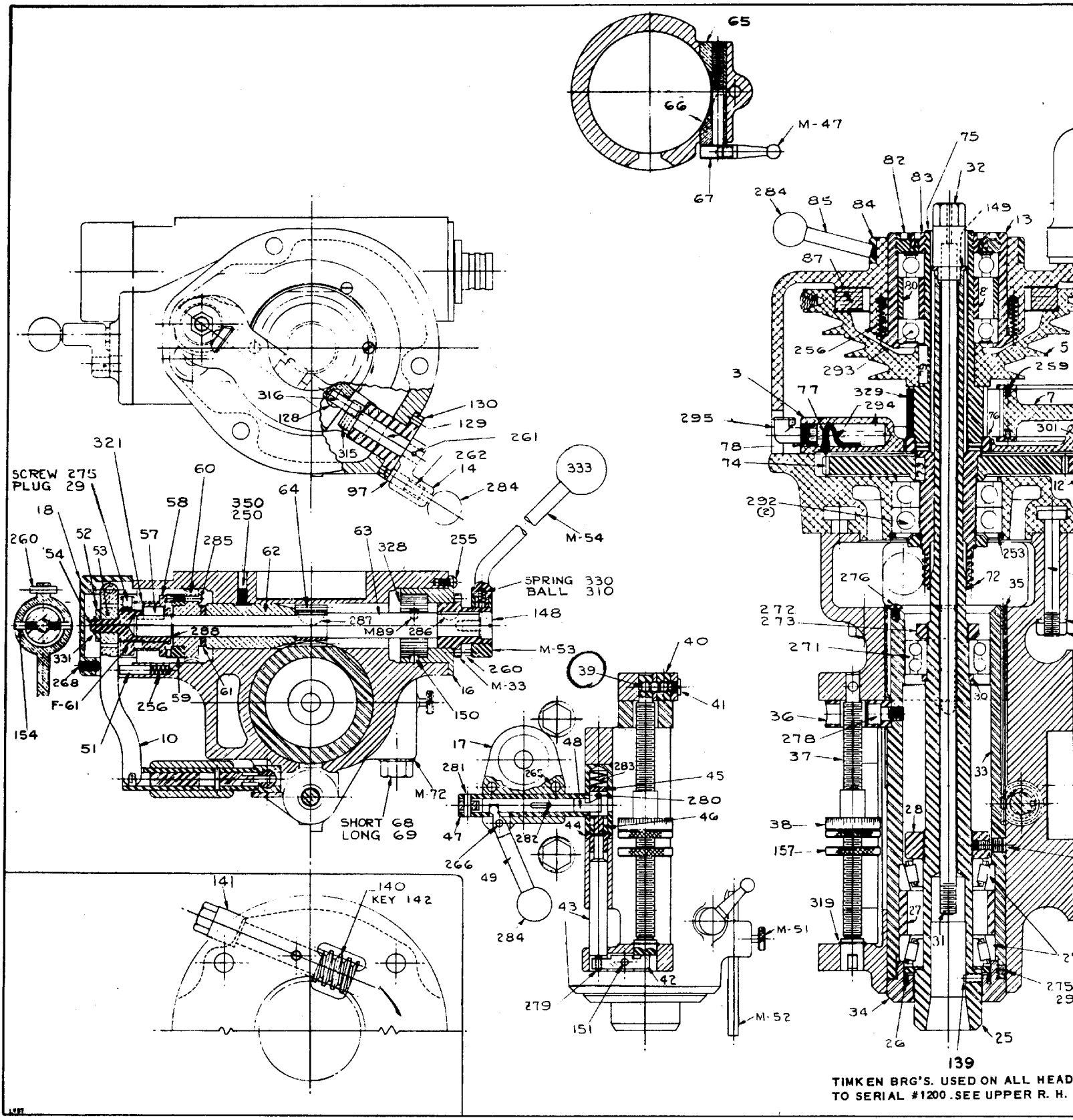
Quill Unit - PARTS LIST

UP TO SERIAL NO. J1200

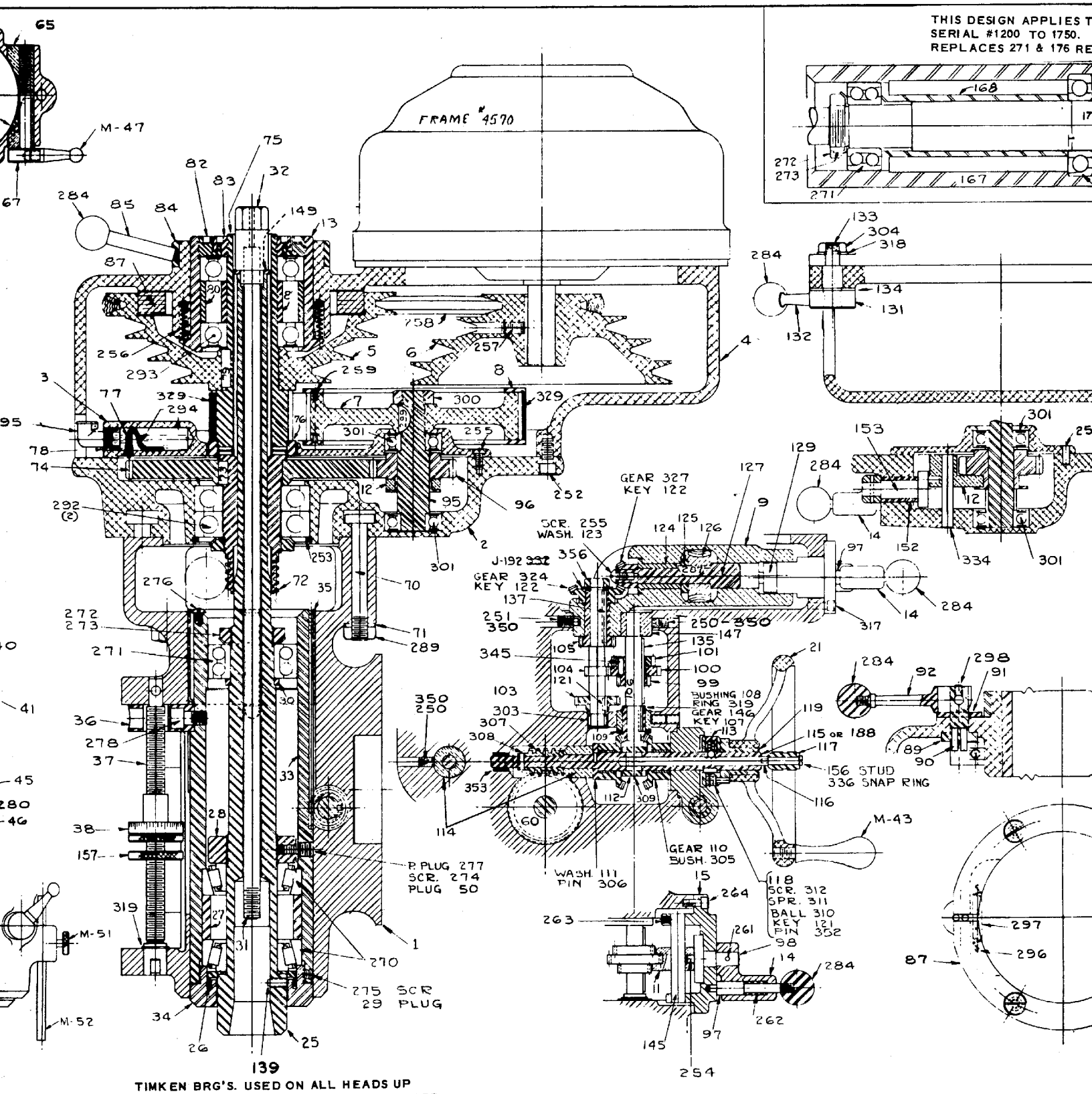


Photograph 3

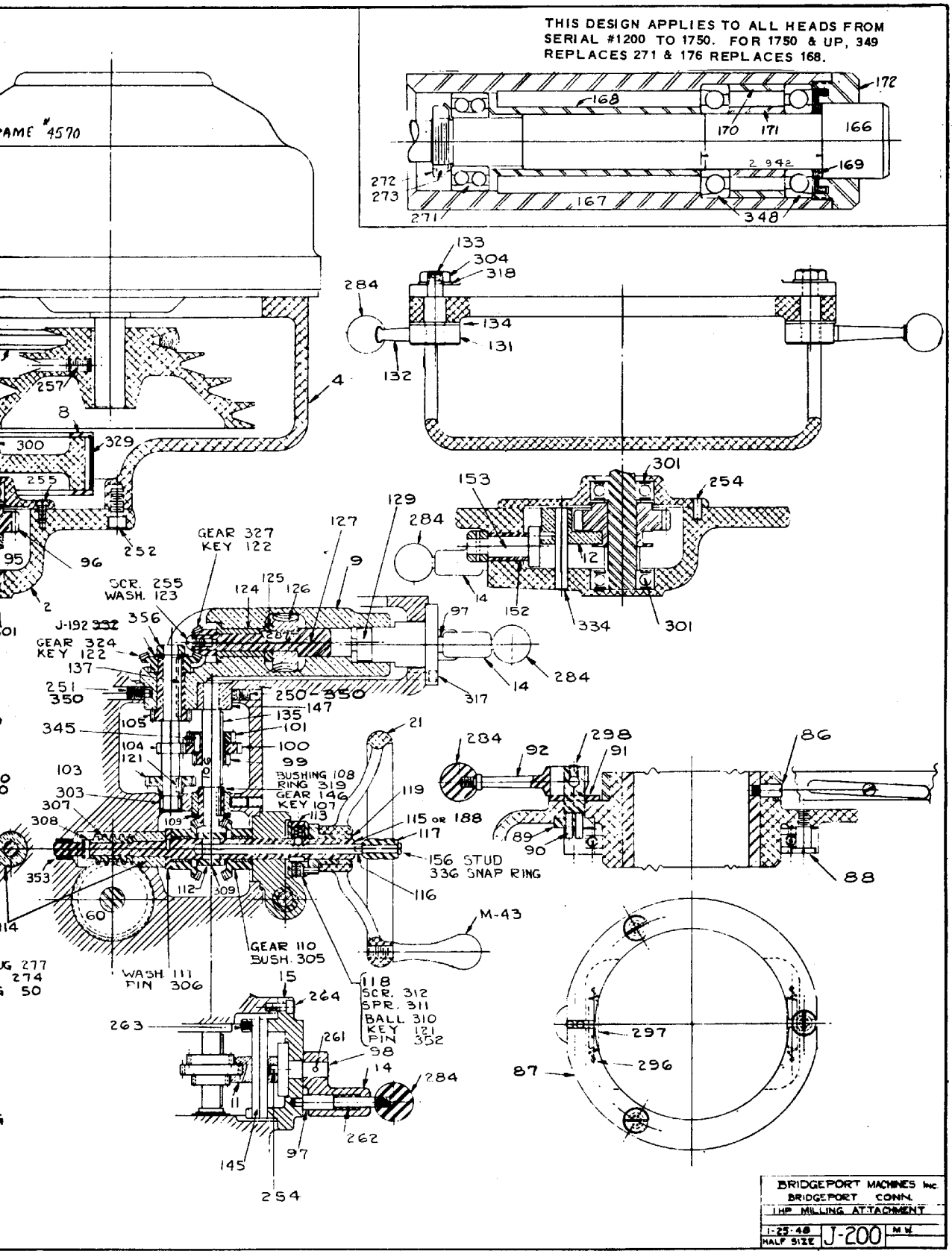
25	Spindle
26	Spindle Dirt Shield
27	Timken Brg. Spacer
28	Spindle Br. Locknut
29	Spindle Locknut Binding Plug
30	Brg. Shoulder Ring
31	Drawbar for R-8 collet
32	Drawbar Knob
33	Quill
34	Quill Nosepiece
35	Quill Skirt
50	Locknut Binding Plug
139	Collet Aligning Screw
149	Drawbar Washer
270	#0 Precision Brg.
271	N.D. #5206 Ball Brg. #5 Precision
272	N-06 Locknut
273	W-06 Lockwasher
274	3/8-16 x 3/8 K.P. Set Screw
275	1/4-20 x 1/4 lg. Set Screw
276	10-32 x 5/16 lg. Rd. Hd. Screw
277	1/8 Allen Pip Plug


65
66
M-47
67
284
85
84
82
83
75
32
149
13
87
80
256
293
259
3
77
329
294
295
301
78
74
292
(2)
253
276
72
35
272
273
271
30
36
278
37
33
38
28
157
319
27
31
34
26
25
139
TIMKEN BRG'S. USED ON ALL HEAD
TO SERIAL #1200. SEE UPPER R. H.
316
128
130
129
261
315
262
14
97
284
333
M-54
SCREW 275
PLUG 29
321
60
58
64
350
250
18
52
53
57
285
62
63
328
255
260
54
SPRING 330
BALL 310
148
287
M89
286
288
M-53
331
260
M-33
268
F-61
256
59
61
16
150
154
51
10
40
39
41
17
148
281
265
283
45
280
M-72
46
47
44
282
266
49
284
43
M-51
42
279
151
M-52
SHORT 68
LONG 69
141
140
KEY 142

Drawing 8

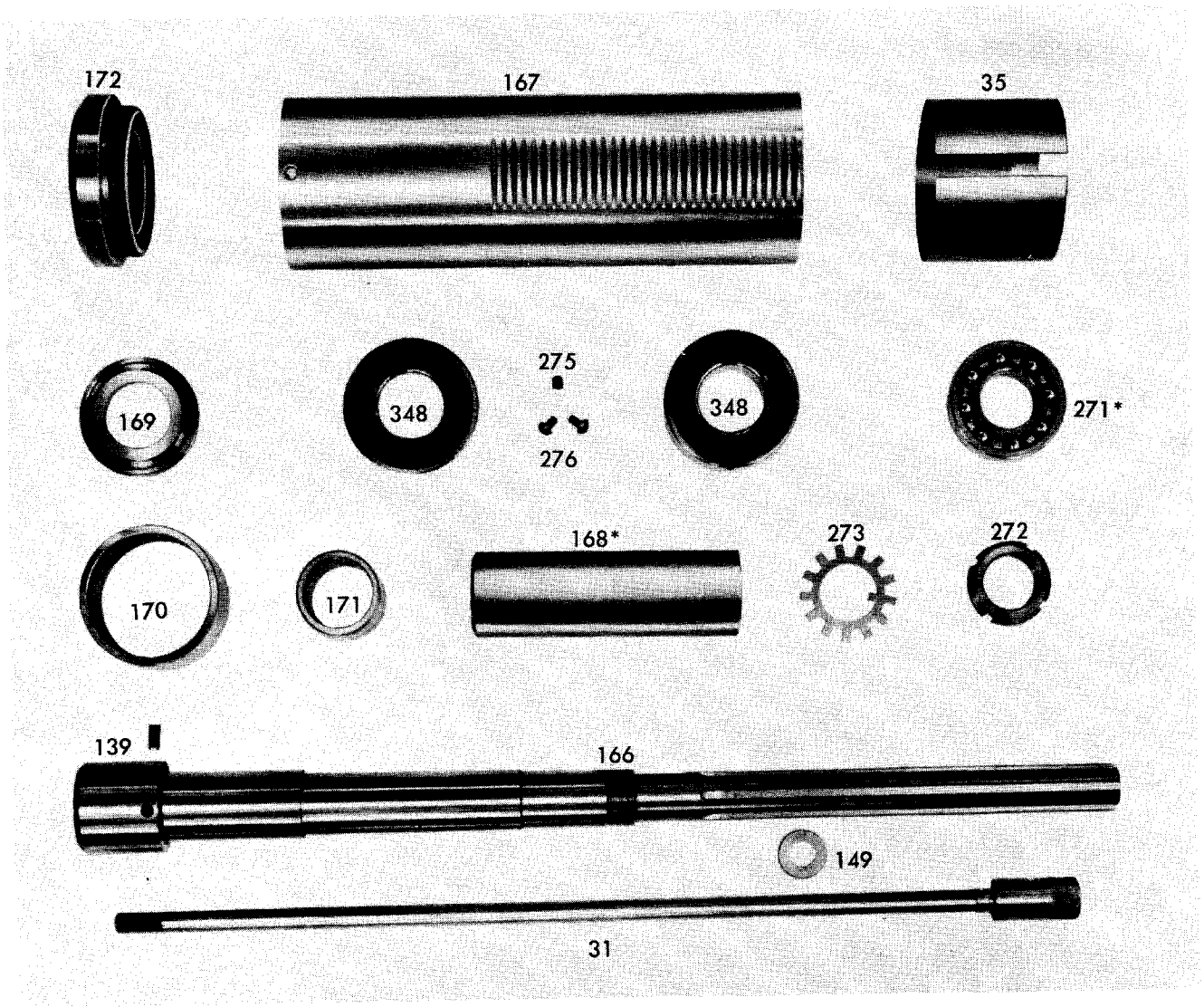

THIS DESIGN APPLIES T
SERIAL #1200 TO 1750.
REPLACES 271 & 176 RE
FRAME #4570
TIMKEN BRG'S. USED ON ALL HEADS UP
TO SERIAL #1200. SEE UPPER R. H. CORNER
GEAR 327
KEY 122
SCR. 255
WASH. 123
GEAR 324
KEY 122
BUSHING 108
RING 319
GEAR 146
KEY 107
GEAR 110
BUSH. 305
WASH. 111
PIN 306
P. PLUG 277
SCR. 274
PLUG 50
275 SCR
29 PLUG
156 STUD
336 SNAP RING
118
SCR. 312
SPR. 311
BALL 310
KEY 121
PIN 352
M-47
M-43
M-51
M-52

Drawing 8


THIS DESIGN APPLIES TO ALL HEADS FROM SERIAL #1200 TO 1750. FOR 1750 & UP, 349 REPLACES 271 & 176 REPLACES 168.
172
168
170
171
166
169
272
273
271
167
348
133
304
318
284
134
131
132
4
257
8
329
300
255
252
95
96
2
153
301
254
129
284
127
9
GEAR 327
KEY 122
SCR. 255
WASH. 123
124
125
126
J-192 332
356
GEAR 324
KEY 122
137
251
350
97
152
334
301
14
284
317
250-350
147
135
101
100
99
345
105
104
121
103
303
307
308
353
109
113
BUSHING 108
RING 319
GEAR 146
KEY 107
119
115 OR 188
117
156 STUD
336 SNAP RING
116
112
309
60
GEAR 110
BUSH. 305
WASH. 111
PIN 306
M-43
21
284
92
298
91
86
89
90
88
15
264
263
261
98
14
284
262
97
145
254
118
SCR. 312
SPR. 311
BALL 310
KEY 121
PIN 352
297
296
87
BRIDGEPORT MACHINES Inc.
BRIDGEPORT CONN.
1 HP MILLING ATTACHMENT
1-25-48
HALF SIZE
J-200
M.W.

Quill Unit - PARTS LIST

SERIAL No. J1200 AND UP



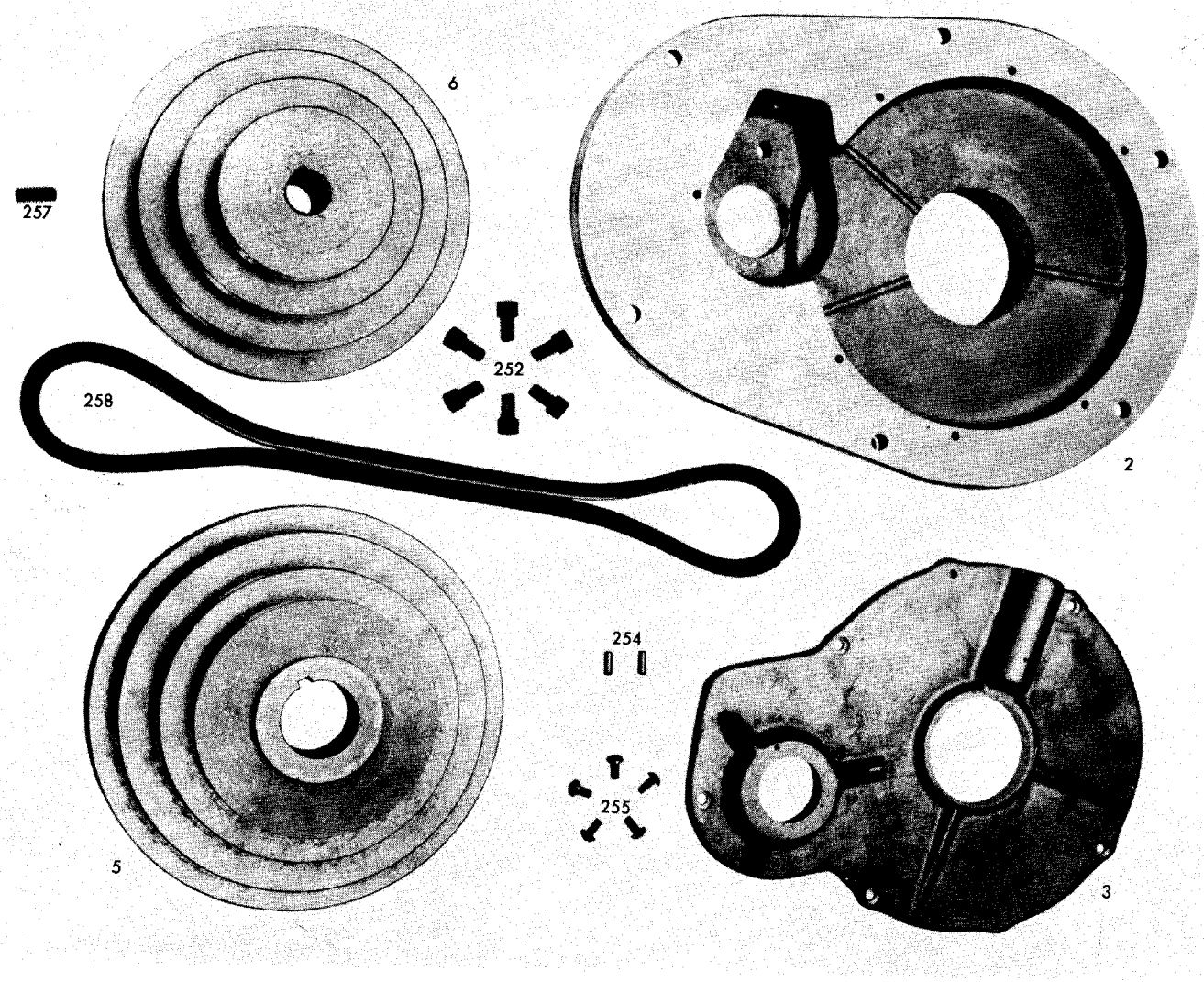
Photograph 4

166 Spindle
169 Spindle Dirt Shield
170, 171, 168* Brg. Spacer
31 Drawbar for R-8 collet
32 Drawbar Knob
167 Quill
172 Quill Nosepiece
35 Quill Skirt

139 Collet Aligning Screw
149 Drawbar Washer
348* MM-207 WI #5 Precision
271* N.D. #5206 Ball Brg. #5 Precision
272 N-06 Locknut
273 W-06 Lockwasher
275 1/4-20 x 1/4 lg. Set Screw
276 10-32 x 5/16 lg. Rd. Hd. Screw

*For Serial No. 1750 and up
#349 replaces #271 and
#176 replaces #168

V Belt Unit - PARTS LIST

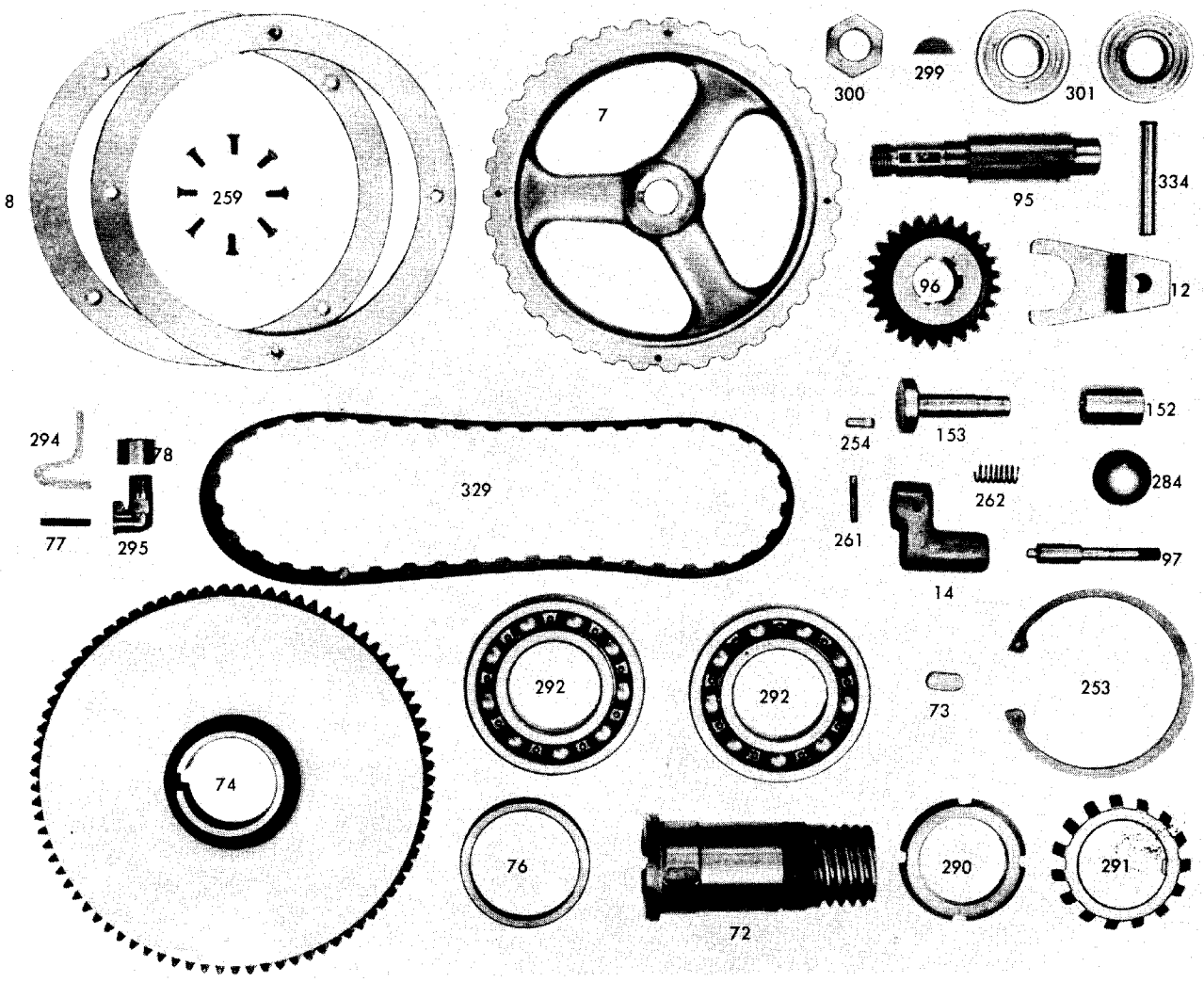


Photograph 5

2	Gear Housing
3	Gear Housing Cover
5	Spindle Pulley
6	Motor Pulley
252	5/16-18 x 5/8 lg. Socket Cap Screws
254	3/16 x 1/2 lg. Dowel Pins
255	#10-24 x 3/8 lg. Rd. Head Screws
257	5/16-18 x 1/2 lg. K.P. Set Screw
258	Gilmer #3345 Vee Belt

Back Gear Transmission Unit

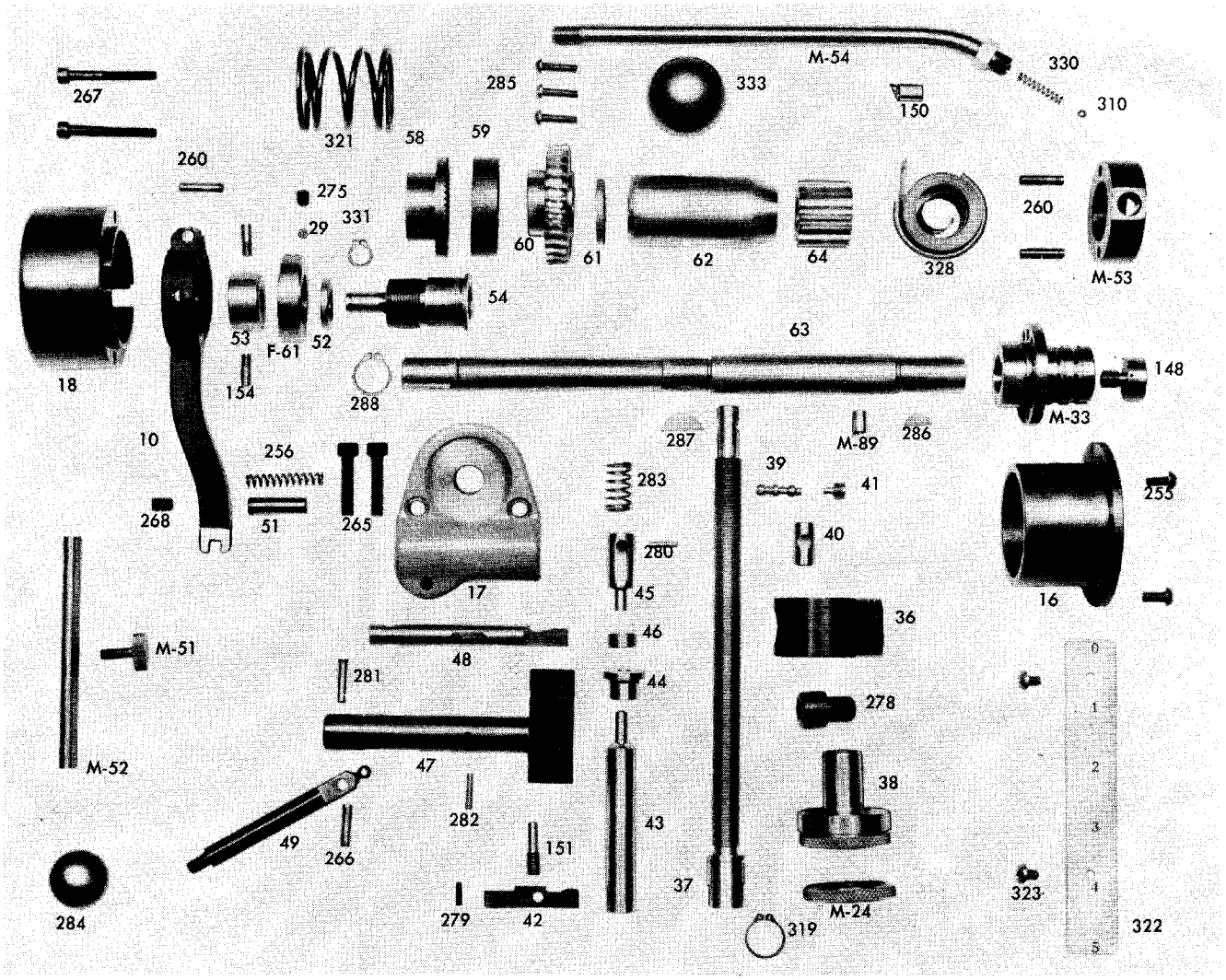
PARTS LIST



Photograph 6

7	Timing Belt Pulley
8	Timing Belt Pulley Flange
12	Back Gear Shifter Fork
14	Shift Crank
72	Splined Gear Hub
73	Bull Gear Key
74	Spindle Bull Gear
76	Pulley Collar
77	Oiler Tube
78	Oil Plug
95	Countershaft
96	Countershaft Gear
97	Gearshift Plunger
152	Backgear Shift Bushing
153	Backgear Shift Crank
253	Kohinoor #5008-315 Snap Ring
254	3/16 x 1/2 lg. Dowel Pins
259	#6-32 x 3/8 lg. Flat Head Screws
261	1/8 x 7/8 lg. Roll Pin
262	Compression Spring
284	1/4-20 Bakelite Ball Handle
290	N-08 Special 5/16 thick Brg. Locknut
291	W-08 Lockwasher
292	ND #3208 Ball Brgs. #3 Precision
294	Wick 1/8 O.D.
295	#1249 Gits Oil Cup
299	#9 Woodruff Key
300	5/8-18 Hex Jam Nut
301	ND #99503 Double Seal Brg. #3 Precision
329	E-2 Construction Spec. TB 4B
334	5/16 x 2" lg. Dowel Pin

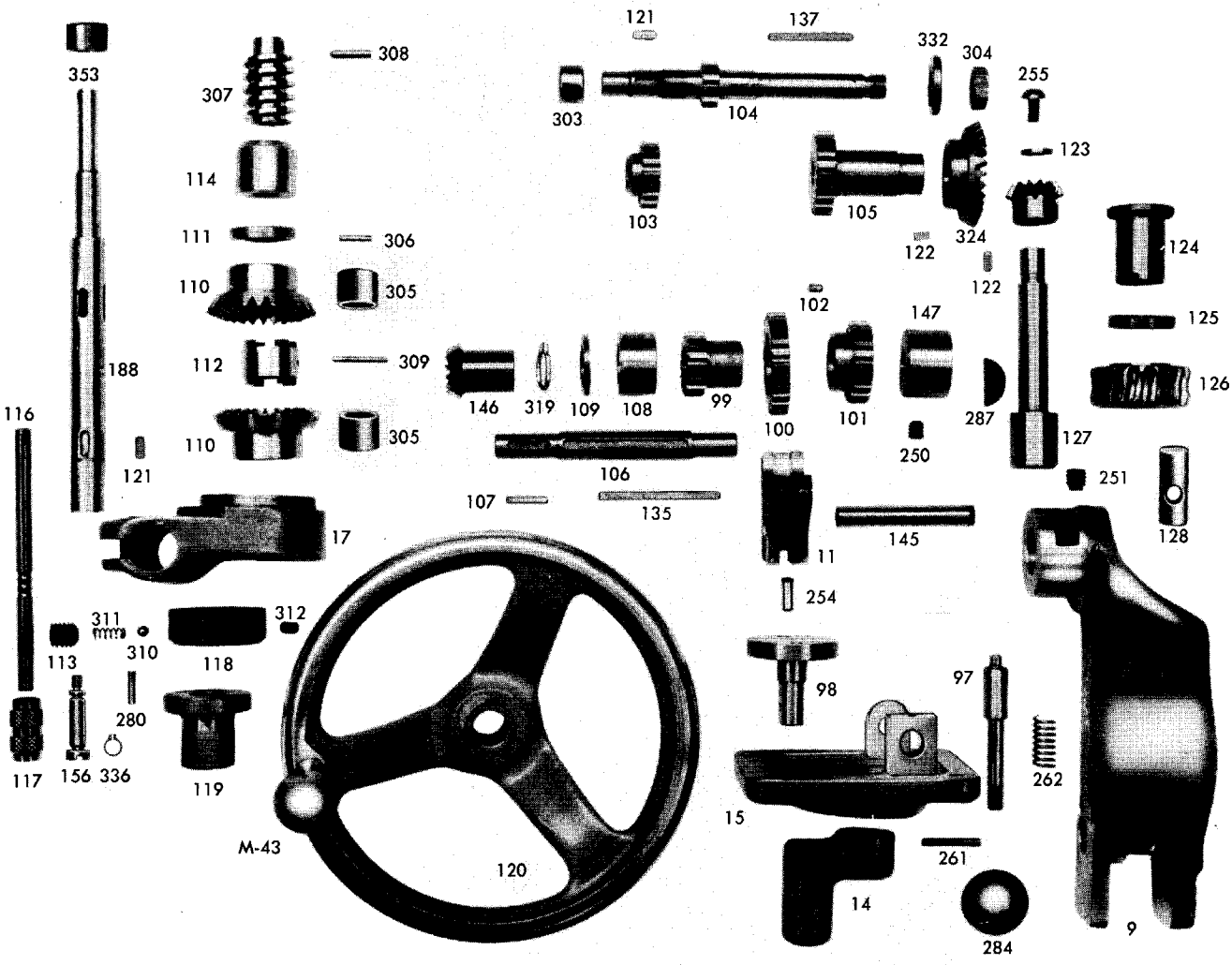
Quill Pinion and Overload Clutch Assembly - PARTS LIST



Photograph 7

10	Overload Clutch Trip Lever	M-52	Indicator Rod	268	1/4-20 x 1/4 lg. S.L. Set Screw
16	Spring Cover	53	Clutch Ring	275	1/4-20 x 1/4 lg. Set Screw
17	Feed Trip Bracket	M-53	Pinion Shaft Hub	278	3/8-24 x 5/8 Cap Screw
18	Clutch Arm Cover	54	Overload Clutch Sleeve	279	#6-32 x 3/8 Set Screw
M-24	Micro Screw Jam Nut	M-54	Pinion Shaft Hub Handle	280	1/8 x 7/16 lg. Dowel Pin
29	Spindle Locknut Binding Plug	58	Overload Clutch	281	3/16 x 5/8 lg. Dowel Pin
M-33	Pinion Shaft Hub Sleeve	59	Overload Clutch Ring	282	1/8 x 9/16 lg. Roll Pin
36	Quill Stop Knob	60	Overload Clutch Worm Gear	283	Compression Spring
37	Quill Stop Micro. Screw	61	Pinion Shaft Worm Gear Spacer	284	1/4-20 Bakelite Ball Handle
38	Micrometer Nut	F-61	Gear Sleeve Nut	285	8-32 x 5/8 lg. Rd. Hd. Screw
39	Reverse Trip Ball Lever	62	Quill Pinion Shaft Bushing	286	#3 Woodruff Key
40	Feed Reverse Trip Plunger	63	Quill Pinion Shaft	287	#7 Woodruff Key
41	Reverse Trip Ball Lever Screw	64	Quill Pinion	288	#5108-59 Kohinoor Snap Ring
42	Feed Trip Lever	M-89	Clockspring Stud	310	3/16 Steel Ball
43	Feed Trip Plunger	148	Pinion Shaft Hub Screw	319	5108-62 Waldes Snap Ring
44	Trip Plunger Bushing	150	Outside Clockspring Pin	321	Safety Clutch Spring
45	Trip Plunger	151	Trip Lever Pin	322	Micrometer Scale
46	Feed Trip Plunger Bushing	154	Clutch Ring Pin	323	6-32 x 1/4 lg. Rd. Hd. Screw
47	Cam Rod Sleeve Assembly	255	#10-24 x 3/8 lg. Rd. Head Screws	328	5/8 x .020 x 42 lg. Clock Spring
48	Cam Rod	256	Compression Spring	330	Compression Spring
49	Trip Handle	260	3/16 x 3/4 lg. Dowel Pin	331	5108-37 Kohinoor Snap Ring
51	Overload Clutch Lever Spring Plunger	265	1/4-20 x 1 lg. Cap Screw	333	Black Ball for M-54
M-51	Indicator Rod Screw	266	3/16 x 3/4 lg. Dowel Pin		
52	Overload Clutch Washer	267	#10-24 x 1 1/2 lg. Cap Screw		

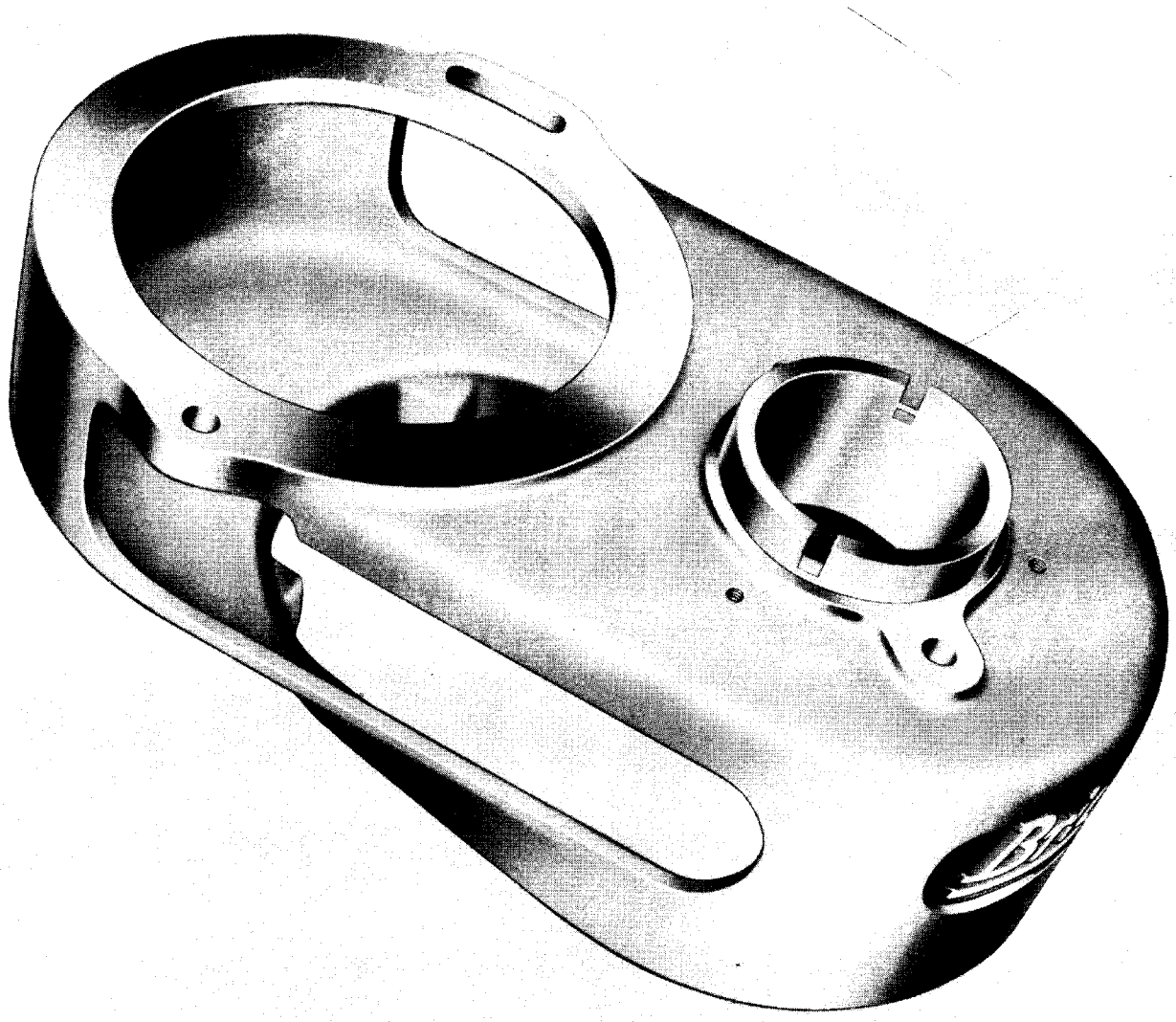
Feed Transmission Unit - PARTS LIST



Photograph 8

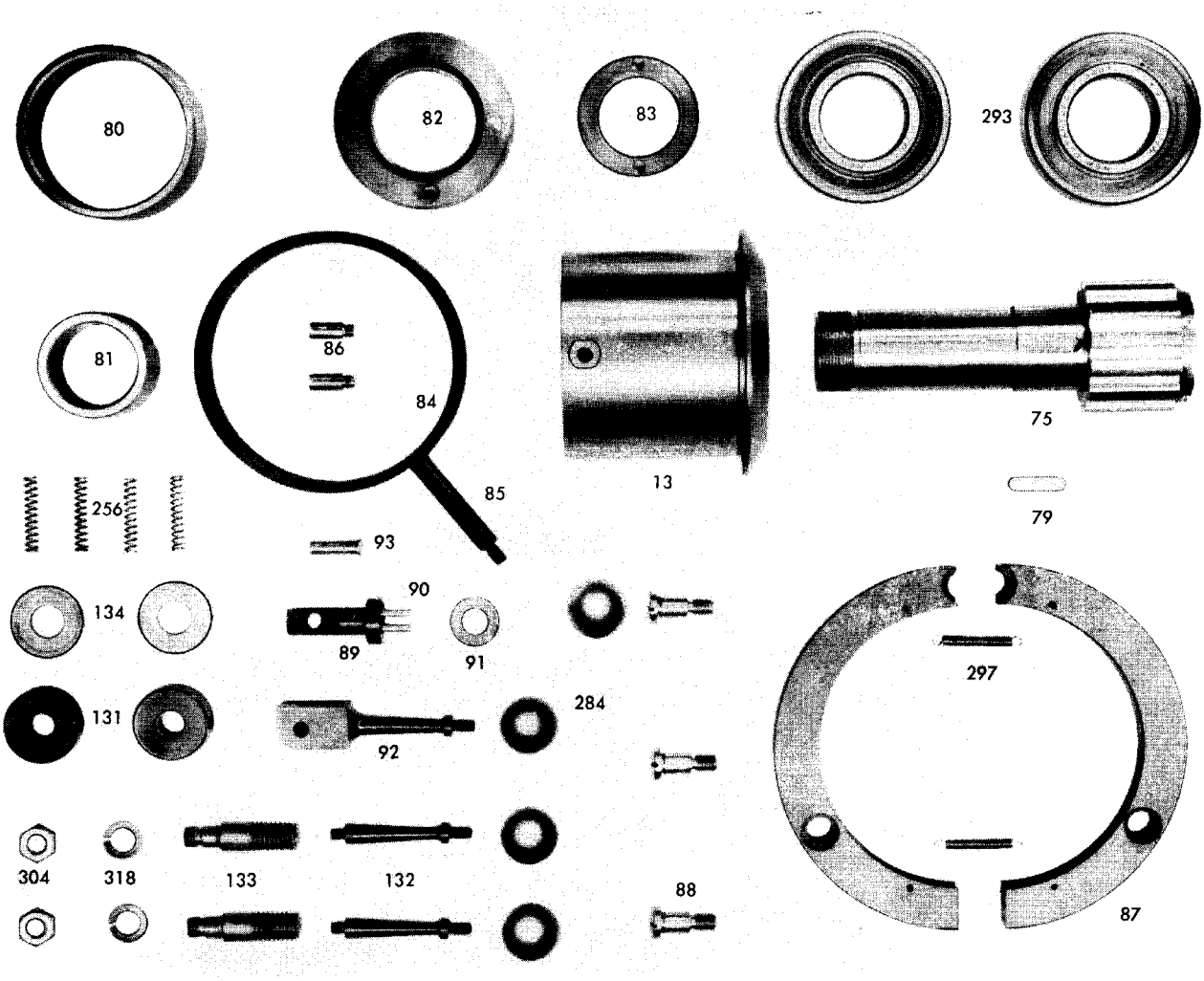
9	Worm Gear Cradle	114	Feed Worm Shaft Bushing	251	Set Screw
11	Feed Gear Shifter Fork	116	Reverse Clutch Rod	254	3/16 x 1/2 lg. Dowel Pins
14	Shift Crank	117	Feed Reverse Knob	255	#10-24 x 3/8 lg. rd. Head Screws
15	Cluster Gear Cover	118	Handwheel Clutch	261	1/8 x 7/8 lg. Roll Pin
17	Feed Trip Bracket	119	Handwheel Bushing	262	Compression Spring
M-43	Handwheel Handle	120	Handwheel (use M 42 Casting)	280	1/8 x 7/16 lg. Dowel Pin
97	Gearshift Plunger	121	Worm Shaft Key	284	1/4-20 Bakelite Ball Handle
98	Cluster Gear Shift Crank	122	Feed Driving Gear Key	287	#7 Woodruff Key
99	Feed Drive Cluster Gear	123	Bevel Pinion Washer	303	B-66 Torrington Needle Brg.
100	Feed Drive Cluster Gear (Center)	124	Feed Worm Gear Shaft Sleeve	304	3/8-24 Hex Jam Nut
101	Feed Drive Cluster Gear (Upper)	125	Worm Gear Spacer	305	A-672-4 Oilite Bearing
102	Cluster Gear Key	126	Feed Drive Worm Gear	306	3/32 x 5/16 lg. Pin
103	Feed Drive Gear	127	Feed Drive Worm Gear Shaft	307	Boston Worm #HLVH
104	Cluster Gear Input Shaft	128	Feed Engage Pin	308	.110 Dia. x 7/16 lg. Pin
105	Feed Driving Gear	135	Cluster Gear Key	309	3/32 x 3/4 lg. Roll Pin
106	Cluster Gear Shaft	137	Cluster Gear Key	310	3/16 Steel Ball
107	Cluster Gear Key	145	Feed Shift Rod	311	Compression Spring
108	Bevel Gear Bearing	146	Feed Reverse Bevel Pinion	312	1/4-28 x 5/16 lg. Set Screw
109	Bevel Gear Thrust Spacer	147	Cluster Gear Shaft Upper Brg.	319	319-5108-62 Waldes Snap Ring
110	Feed Reverse Bevel Gear (Boston L 148)	156	Feed Reverse Knob Stud	324	Feed Reverse Bevel Gear
111	Feed Worm Shaft Thrust Washer	188	Feed Worm Shaft	332	3/8 Star Washer
112	Feed Reverse Clutch	250	1/4-20 x 3/8 lg. K.P. Set Screw	336	Snap Ring 5100-25
113	Handwheel Clutch Spring Screw		5/16-18 x 5/16 lg. half dog pt.	353	Bushing

No. 4 Belt Housing



Photograph 9

Brake & Clutch Unit - PARTS LIST

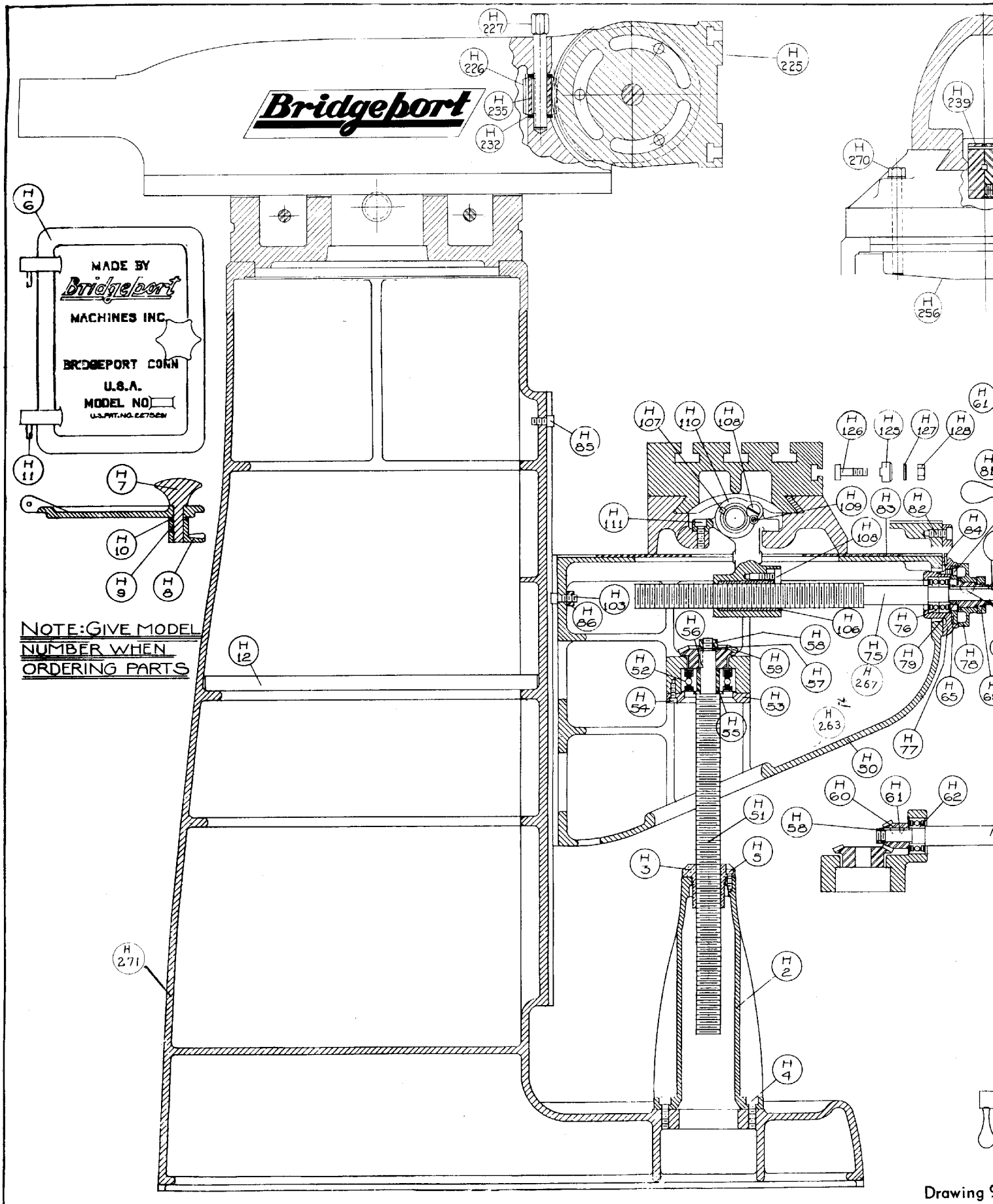


Photograph 10

13	Spindle Pulley Brg. Sleeve
75	Spindle Pulley Hub
79	Spindle Pulley Key
80	Upper Brg. Spacer (Large)
81	Upper Brg. Spacer (Small)
82	Brg. Sleeve Locknut
83	Upper Brg. Locknut
84	Cam Ring
85	Spindle Clutch Lever
86	Spindle Clutch Cam Ring Pin
87	Brake Block
88	Brake Ring Screw
89	Brake Lock Stud
90	Brake Pins
91	Brake Lock Washer
92	Brake Lock & Handle
93	Brake Lock Pin
131	Motor Locknut
132	Motor Locknut Handle
133	Motor Mounting Studs
134	Motor Mounting Stud Washers
256	Compression Spring
284	1/4-20 Bakelite Ball Handle
293	ND #9507 Single Plate Ball Brg.
297	W.B. Jones #167-A Ext. Spring (Lindquist)
304	3/8-24 Hex Jam Nut
318	3/8 Lockwasher

PART LIST -- THE BRIDGEPORT TURRET MILLING MACHINE

H-2	ELEVATING SCREW HOUSING
H-3	ELEVATING SCREW NUT
H-4	3/8 - 16 x 1 HOLLOW HEAD CAP SCREW (2 REQUIRED)
H-5	1/4 - 20 x 3/4 HOLLOW HEAD CAP SCREW (3 REQUIRED)
H-6	DOOR
H-7	DOORKNOB
H-8	DOOR LOCKING CAM
H-9	1/4 - 20 x 1/4 SET SCREW
H-10	17/32 x 1 SPACER
H-11	3/16 x 1-1/2 HINGE PIN (2 REQUIRED)
H-12	WOODEN SHELF (2 HALVES)
H-50	KNEE (9"
H-263	KNEE 12"
H-51	ELEVATING SCREW
H-52	NO. 3606 - J GREASE-SEALED BALL BEARING
H-53	BEARING RETAINER RING
H-54	1/4 x 20 x 1/2 HOLLOW HEAD CAP SCREW (3 REQUIRED)
H-55	BEARING BUSHING
H-56	3/16 x 3/16 x 7/8 KEY
H-57	33/64 x 1 x 0.100 WASHER
H-58	1/2 - 20 JAM NUT (2 REQUIRED)
H-59	BEVEL GEAR
H-60	BEVEL PINION
H-61	NO. 7 WOODRUFF KEY
H-62	NO. 77020 GREASE-SEALED BALL BEARINGS (3 REQUIRED)
H-63	GEAR SHAFT FOR 9" KNEE
H-265	GEAR SHAFT FOR 12" KNEE
H-64	BEARING CUP
H-65	BEARING RETAINER RING (3 REQUIRED)
H-66	1/4 - 20 x 1/2 HOLLOW HEAD CAP SCREW (9 REQUIRED)
H-67	DIAL WITH 100 GRADUATIONS
H-68	DIAL HOLDER
H-69	DIAL LOCK NUT (4 REQUIRED)
H-70	GEARSHAFT CLUTCH INSERT
H-71	ELEVATING CRANK
H-75	CROSS FEED SCREW FOR 9" KNEE
H-267	CROSS FEED SCREW FOR 12" KNEE
H-76	NO. XF-12 GREASE-SEALED BALL BEARINGS (2 PAIRS REQUIRED)
H-77	CROSS FEED BEARING BRACKET
H-78	DIAL WITH 200 GRADUATIONS (3 REQUIRED)
H-79	DIAL HOLDER (3 REQUIRED)
H-80	BALL CRANK HANDLE (3 REQUIRED)
H-81	1/2 - 20 JAM NUT (3 REQUIRED)
H-82	3/8 - 16 x 1 HOLLOW HEAD CAP SCREW (4 REQUIRED)
H-83	CHIP GUARD
H-84	NO. 10 - 32 x 5/8 STOP SCREW
H-85	3/8 - 16 x 3/4 MACHINE SCREW
H-86	3/8 - 16 HEXAGON NUT
H-87	KNEE COLUMN GIB FOR 9" KNEE
H-264	KNEE COLUMN GIB FOR 12" KNEE
H-88	GIB SCREW (3 REQUIRED)
H-89	KNEE LOCKING PLUNGER
H-90	KNEE LOCKING CAMSHAFT
H-91	5/16 - 18 x 5/16 DOG POINT SET SCREW
H-92	5/16 - 18 x 5/16 SET SCREW
H-93	CAM SHAFT HUB
H-94	CAM SHAFT HANDLE
H-95	NO. 1 x 1" TAPER PIN
H-96	LEFT HAND KNEE-COLUMN WIPER HOLDER
H-97	RIGHT HAND KNEE-COLUMN WIPER HOLDER
H-98	1/4 - 20 x 1 HOLLOW HEAD CAP SCREW (2 REQUIRED)
H-100	NO. 1610 ALEMITE FITTING (4 REQUIRED)
H-103	3/8 - 16 x 1 MACHINE SCREW
H-104	3/32 x 3/8 PIN
H-105	SADDLE
H-106	CROSS FEED NUT
H-107	3/16 x 3/16 x 2-1/2 KEY (2 REQUIRED)
H-108	CROSS FEED NUT RETAINING SCREW (2 REQUIRED)
H-109	NO. 8 - 32 x 3/8 WASHER HEAD SCREW (2 REQUIRED)
H-110	FEED NUT BRACKET
H-111	3/8 - 16 x 1 HOLLOW HEAD CAP SCREW (4 REQUIRED)
H-112	LONGITUDINAL FEED NUT
H-113	LONGITUDINAL FEED SCREW
H-114	TABLE
H-115	LEFT BEARING BRACKET
H-116	3/8 - 16 x 1 HOLLOW HEAD CAP SCREW (8 REQUIRED)
H-117	3/16 x 1 DOWEL PINS (6 REQUIRED)
H-118	RIGHT BEARING BRACKET
H-119	SADDLE-TABLE GIB
H-120	TABLE LOCK PLUNGER
H-121	TABLE LOCK BOLT
H-122	TABLE LOCK BOLT HANDLE (2 REQUIRED)
H-123	TABLE STOP BRACKET
H-124	3/8 - 16 x 1/2 HOLLOW HEAD CAP SCREW (2 REQUIRED)
H-125	TABLE STOP PIECE (2 REQUIRED)
H-126	STOP PIECE T-BOLT (2 REQUIRED)
H-127	13/32 x 3/4 x 1/8 HARDENED CHAMFERED WASHER (2 REQUIRED)
H-128	3/8 - 16 HEXAGON NUT (2 REQUIRED)
H-129	SADDLE-KNEE WIPER PLATE (2 REQUIRED)
H-130	FELT WIPER (4 REQUIRED)
H-131	SADDLE-KNEE GIB
H-132	SADDLE LOCK PLUNGER
H-133	SADDLE LOCK BOLT
H-134	NO. 1611 ALEMITE FITTING (2 REQUIRED)
H-135	5/16 - 18 x 5/16 SET SCREW
H-136	NO. 10 - 32 x 1/2 OVAL HEAD SCREW (6 REQUIRED)
H-140	1-1/4 OPEN END AND 1-1/16 BOX END WRENCH
H-141	GREASE GUN
H-223	TURRET
H-224	RAM
H-225	RAM ADAPTER
H-226	VERTICAL ADJUSTING WORM
H-227	VERTICAL ADJUSTING WORM SHAFT
H-228	ADAPTER PIVOT STUD
H-229	ADAPTER PIVOT STUD LOCKNUT
H-230	RAM LOCK STUD
H-231	RAM PINION
H-232	WORM THRUST WASHER
H-233	RAM CLAMP
H-234	RAM CLAMP BAR
H-235	WORM KEY
H-236	ANGLE PLATE
H-237	RAM PINION HANDLE
H-238	RAM PINION SCREW
H-239	RAM CLAMP
H-240	ADAPTER LOCKING BOLT (2 REQUIRED)
H-243	3/8 x 16 BALL
J-19	OVERARM
M-72	WASHER
H-268 H-269	CHIP GUARD COVER PLATES FOR 12" KNEE


Bridgeport
MADE BY
Bridgeport
MACHINES INC.
BRIDGEPORT CONN
U.S.A.
MODEL NO
NOTE: GIVE MODEL NUMBER WHEN ORDERING PARTS
H 1
H 2
H 3
H 4
H 5
H 6
H 7
H 8
H 9
H 10
H 11
H 12
H 50
H 51
H 52
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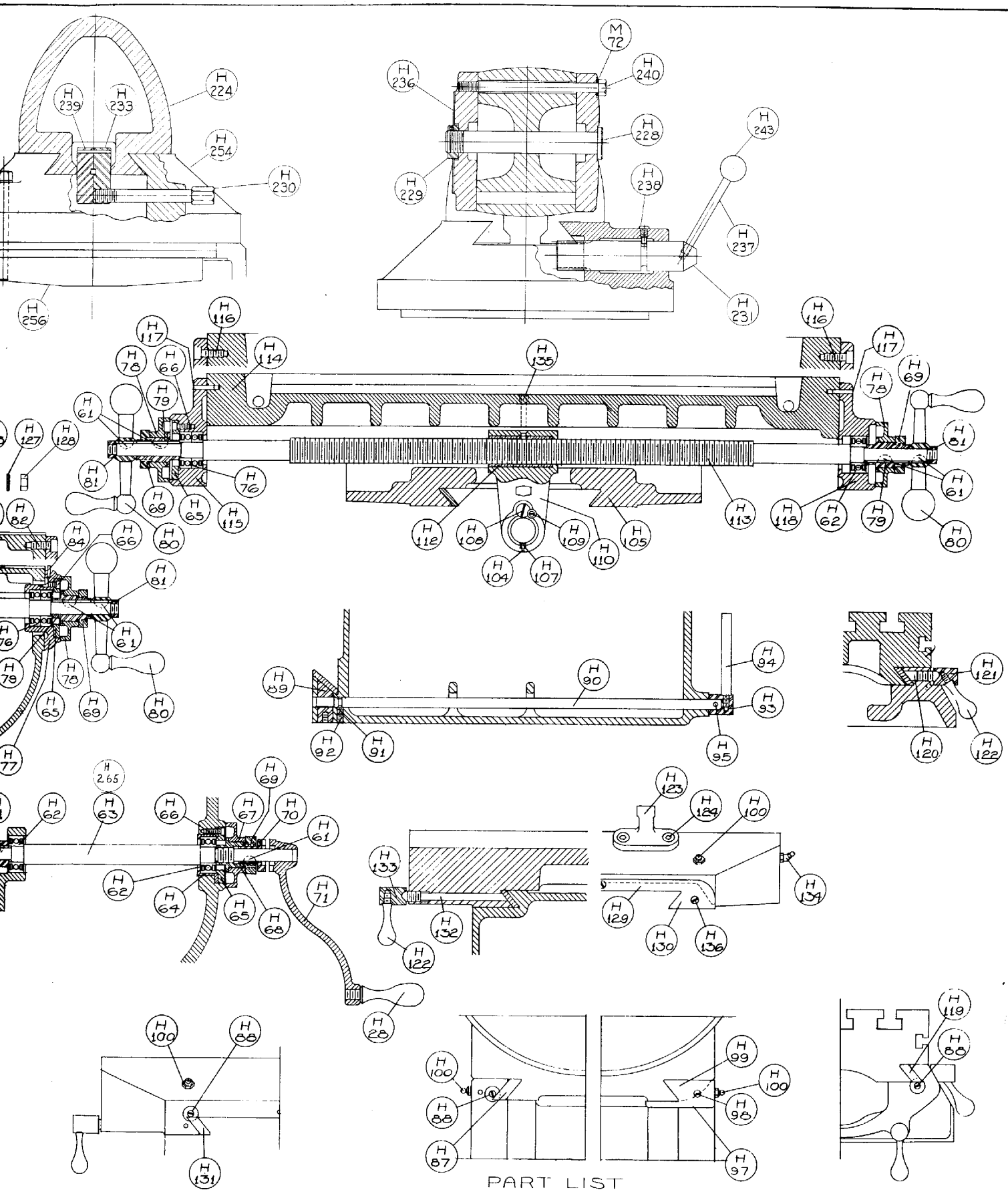
H 263
H 267
H 270
H 271

Drawing



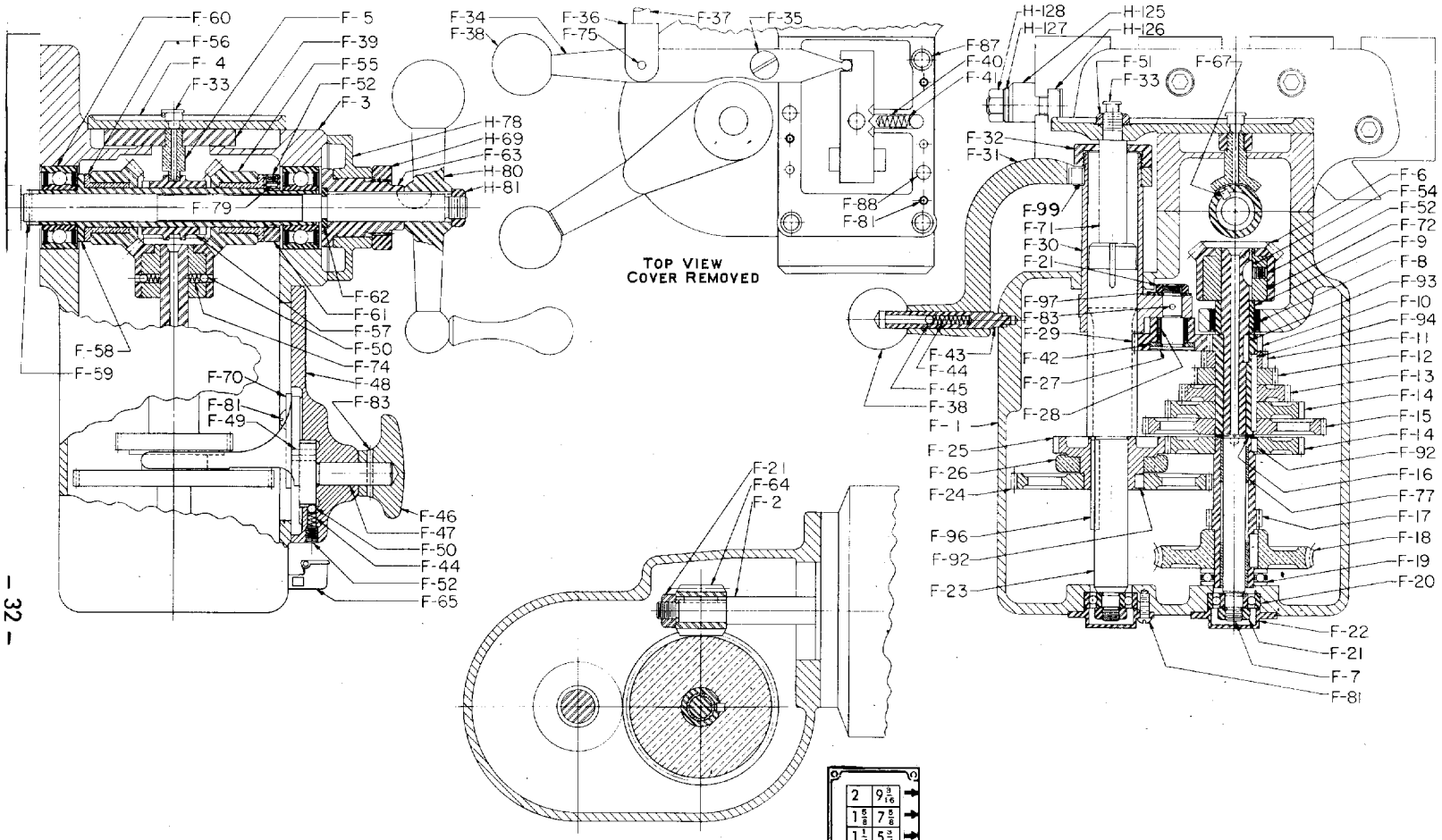
PART LIST

THE BRIDGEPORT TURRET MILLING MACHINE

BRIDGEPORT MACHINES, INC.

BRIDGEPORT, CONN. U. S. A.

Drawing 9



PART LIST

THE *BRIDGEPORT* TURRET MILLING MACHINE POWER FEED ATTACHMENT

BRIDGEPORT MACHINES, INC.
BRIDGEPORT, CONN. U.S.A.

Drawing 10

F-1 HOUSING
F-2 MOTOR: 1/8 H.P., 1723 R.P.M.
F-3 BRACKET
F-4 COVER PLATE
F-5 REVERSING FORK
F-6 MITER GEAR
F-7 GEAR SHAFT
F-8 NEEDLE BEARING
F-9 BEARING INNER RACE
F-10 18 TOOTH GEAR WITH HUB
F-11 22 TOOTH GEAR
F-12 29 TOOTH GEAR
F-13 38 TOOTH GEAR
F-14 48 TOOTH GEAR
F-15 64 TOOTH GEAR
F-16 FIBER WASHER
F-17 18 TOOTH SLEEVE GEAR
F-18 WORM GEAR
F-19 THRUST BEARING
F-20 S.A.E. NO. 200 BALL BEARING
F-21 3/8-24 HEX. JAM NUT
F-22 BEARING COVER

F-23 16 TOOTH PINION WITH SHAFT
F-24 70 TOOTH GEAR
F-25 40 TOOTH GEAR WITH HUB
F-26 GEAR SHIFTING FORK
F-27 IDLER STUD
F-28 NEEDLE BEARING
F-29 27 TOOTH IDLER GEAR
F-30 GEAR SHIFTING SLEEVE
F-31 GEAR SHIFTING HANDLE
F-32 SHIFTING SLEEVE CAP
F-33 OILER
F-34 REVERSING HANDLE
F-35 PIVOT SCREW
F-36 REVERSING STOP ROD FORK
F-37 REVERSING STOP ROD
F-38 BALL HANDLE
F-39 REVERSING SLIDE
F-40 LOCK PIN
F-41 SPRING 1/4X3/4
F-42 THRUST WASHER
F-43 LOCK PIN
F-44 SPRING 13/4X13/16
F-45 PIN
F-46 SPEED CHANGE KNOB
F-47 SPEED CHANGE CRANK
F-48 DOOR
F-49 PIN
F-50 BALL
F-51 7/16-20 HEX. JAM NUT
F-52 1/2-20 X1/4 SET SCREW
F-53 SWITCH
F-54 NO. 7 WOODRUFF KEY
F-55 MITER GEAR WITH CLUTCH FACE
F-56 MOLDED BRONZE BEARING
F-57 CLUTCH
F-58 GEAR SLEEVE
F-59 COTTER (SHEAR) PIN
F-60 GREASE-SEALED BALL BEARING
F-61 GEAR SLEEVE NUT
F-62 SPLIT WASHER
F-63 DIAL HOLDER
F-64 WORM
F-65 OIL CUP
F-66 CORD SET
F-67 3/16X3/16X1 1/2 KEY
F-68 STOP ROD CLAMP
F-69 STOP ROD COLLAR
F-70 SHIFTING FORK HOLD-DOWN
F-71 SLEEVE GUIDE PIN
F-72 SAFETY RELEASE INSERT
F-73 NAMEPLATE
F-74 SPRING 3/16X1/2
F-75 STOP ROD FORK PIN
F-76 1/4-20 X3/4 SOCKET HD. CAP SCW.
F-77 MOLDED BRONZE BEARING
F-78 FEED SCREW
F-79 BRASS PLUG 3/16X1/16
F-80 NO.10-24X3/16 RD. HD. SCREW
F-81 NO.10-24X1/2 RD. HD. SCREW
F-82 PIN 1/4X1/16
F-83 NO.00 X1 TAPER PIN
F-84 NO.00 X3/8 TAPER PIN
F-85 COTTER PIN
F-86 5/16-18X13/4 SOCKET HD. CAP SCW.
F-87 5/16-18X2 SOCKET HD. CAP SCW.
F-88 PIN 5/16X1
F-89 NO.10-24X1/2 SOCKET HD. CAP SCW.
F-90 PIN 3/16 X 5/8
F-91 NO. 10-24X1/4 SET SCREW
F-92 1/8X1/8X5/16 KEY
F-93 1/8X1/8X-5/8 KEY
F-94 1/8X1/8X1 3/4 KEY
F-95 3/16X3/16X3/4 KEY
F-96 3/16X3/16X2 KEY
F-97 LOCWASHER

H-69 DIAL LOCK NUT
H-78 DIAL
H-80 BALL CRANK HANDLE
H-81 1/2-20 JAM NUT
H-125 TABLE STOP PIECE
H-126 STOP PIECE T-BOLT
H-127 13/32X3/4X1/8 HARDENED WASHER
H-128 3/8-16 HEXAGON NUT

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.B3 TAPER
M4D SPINDLE, DOUBLE BELT,NO.2 MORSE TAPER
M4E SPINDLE, DOUBLE BELT, NO7 B&S TAPER
M4F SPINDLE, DOUBLE BELT, NO.B3 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. N-05 BEARING LOCK NUT
M15 NO. W-06 BEARING LOCK WASHER
M16 NO.N-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

BRIDGEPORT MACHINES, INC.

BRIDGEPORT, CONN. U.S.A.

PART LIST

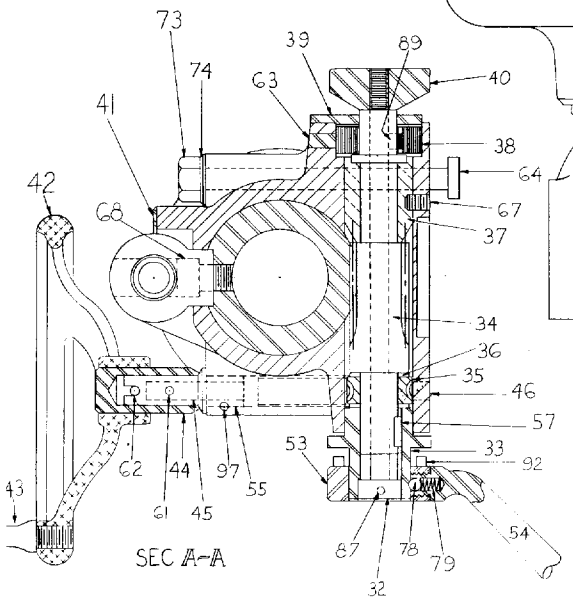
MASTER' MILLING ATTACHMENT

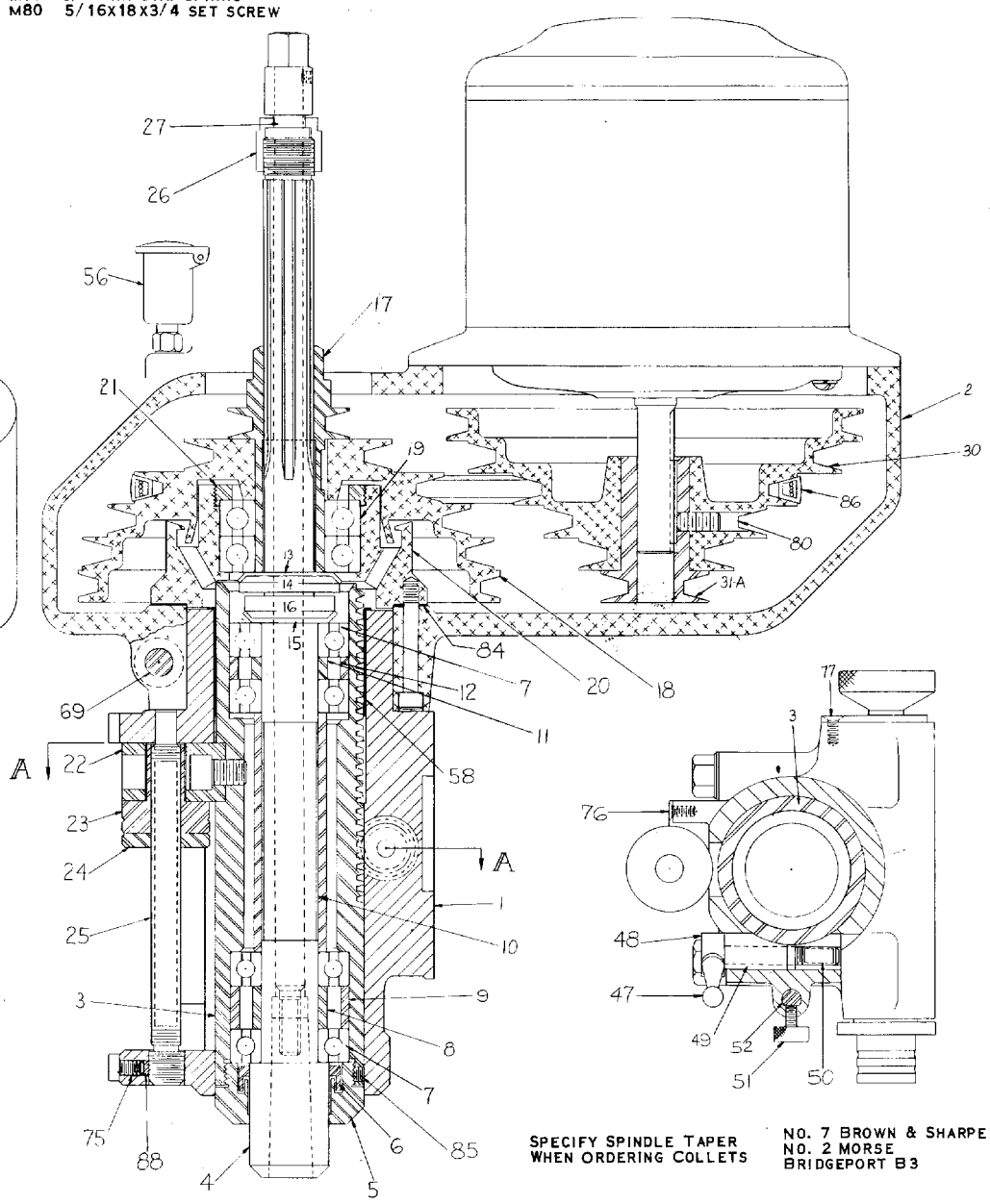
M25 MICROMETER SCREW
M26 DRAWBAR NUT (LEFT HAND THREAD)
M27A DRAWBAR, DOUBLE BELT,NO.7 OR NO.2 SPINDLE
M27B DRAWBAR, DOUBLE BELT,NO.B3 SPINDLE
M27C DRAWBAR, SINGLE BELT, NO.7 OR NO.2 SPINDLE
M27D DRAWBAR. SINGLE BELT, NO. B3 SPINDLE
*M29 MOTOR MOUNTING RING
M30 A MOTOR PULLEY, SINGLE BELT DRIVE
M30 B 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. 00X1/2 TAPER PIN

M62 3/16X1 1/8 STRAIGHT PIN
M63 OUTSIDE SPRING PIN
M64 T-BOLT, 4 REQ'D.
M65 1/4X20 CAP SCREW, 6 REQ'D.
M67 5/16X18X3/8 SET SCREW
M68 7/16X20 X1/2, CAP SCREW
M69 1/2X13X3 1/4 HEX. HEAD SCREW
M70 MOTOR MOUNTING RING STUD, 2 REQ'D.
M71 1/2X20 HEX. NUT, 2 REQ'D.
M72 1/2X1/8X1 CHAMFERED & HARDENED WASHER
M73 3/8X16 HEX. NUT, 4 REQ'D.
M74 3/8X1/8X3/4 CHAMFERED & HARDENED WASHER
M75 1/4X20 X1/4 SET SCREW
M76 NO.5X40 X1/4 FLAT HEAD SCREW, 2 REQ'D
M77 NO.10 X24X3/8 FLAT HEAD SCREW, 3 REQ'D.
M78 3/16-IN. DIA. STEEL BALL
M79 3/16-IN. DIA. SPRING
M80 5/16X18X3/4 SET SCREW

M81 1/2X1/8X7/8 CHAMFERED & HARDENED
M82 3/8X16X3/4 MOUNT. RING CAP SCW, 4 REQ'D
*M83 1/2 H.P. MOTOR
M84 PAPER GASKET
M85 1/4X20 X 1/4 SET SCREW
M86 F.H.P. BELT, DAYTON NO. 1029
M87 1/8X1 STRAIGHT PIN
M88 3/16X3/16 BRASS PLUG
M89 PINION SPRING PIN
M90 MOTOR CORD
M91 COLLET KEY SCW WITH B3 SPINDLE
M92 3/16X3/4 STRAIGHT PIN, 2 REQ'D.
M93 MOTOR OIL PIPE
M94 1/4X20 X1/4 OIL PIPE SCREW
M95 NO. 8X32X3/8 ROUND HEAD SCW, 4 REQ'D.
M96 NO.10 X32X7/16 OVAL HEAD SCW, 4 REQ'D.
M97 1/8X1 STRAIGHT PIN

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

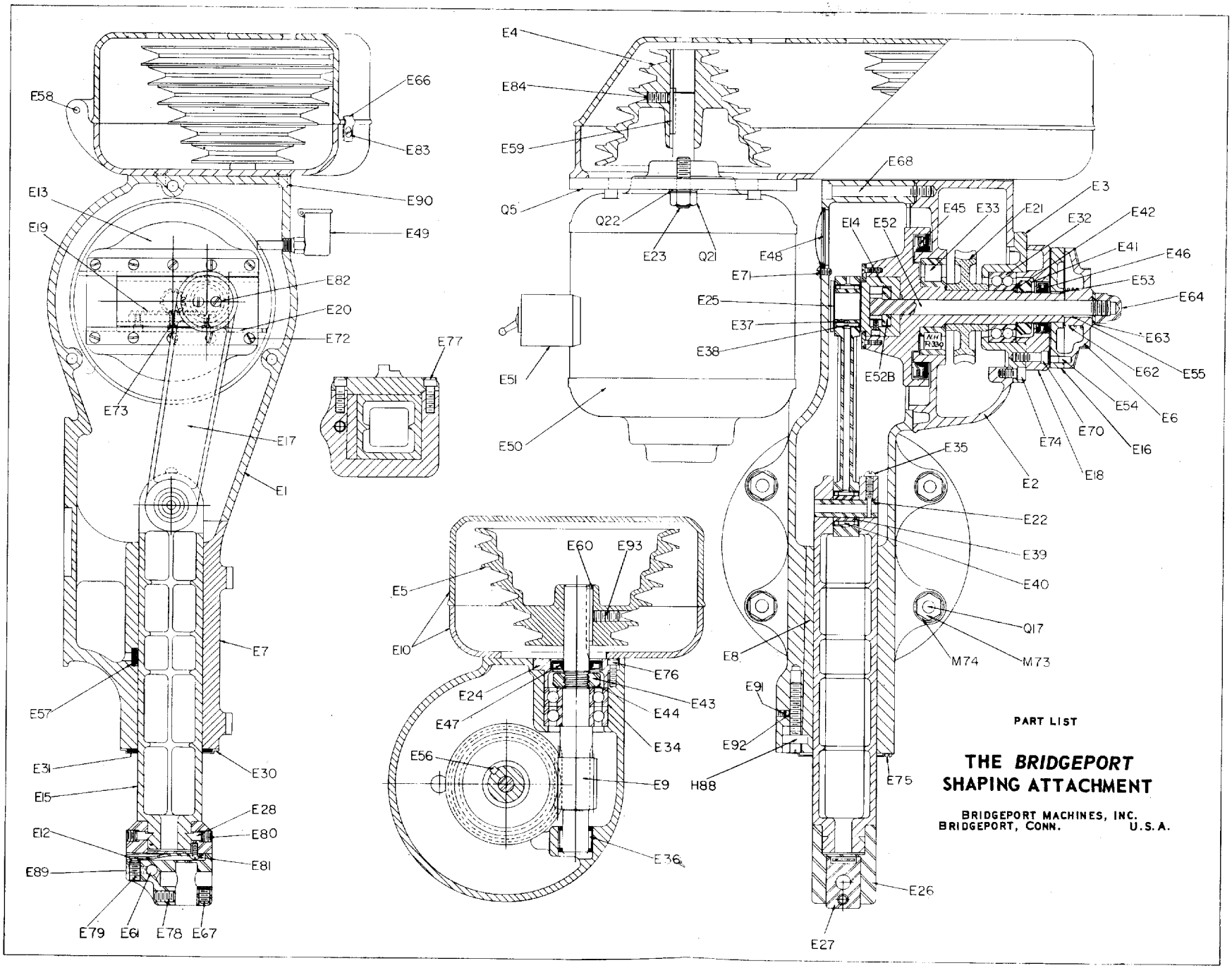




SPECIFY SPINDLE TAPER WHEN ORDERING COLLETS

NO. 7 BROWN & SHARPE
NO. 2 MORSE
BRIDGEPORT B3

Drawing 11



PART LIST

THE *BRIDGEPORT* SHAPING ATTACHMENT

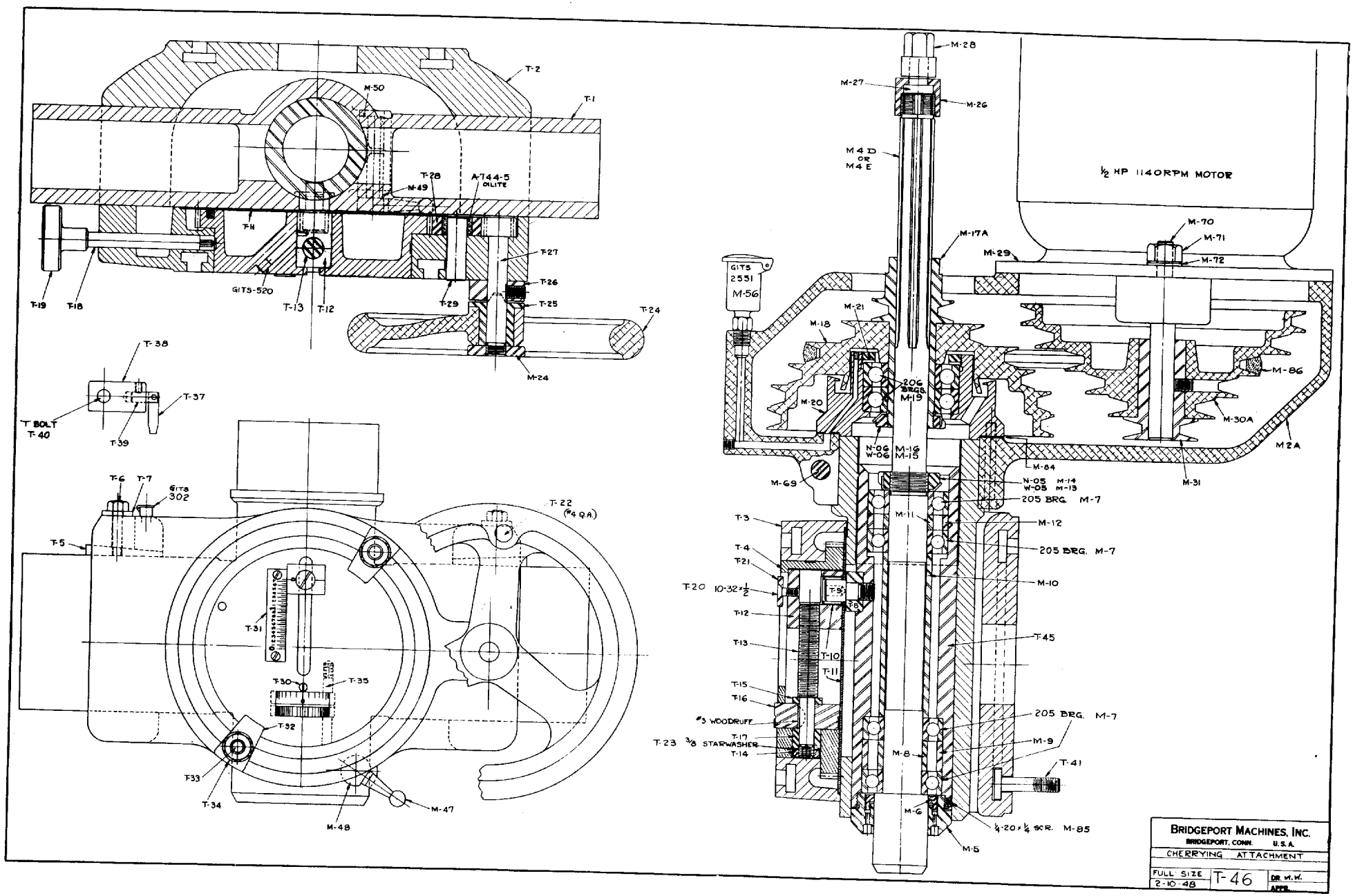
BRIDGEPORT MACHINES, INC.
BRIDGEPORT, CONN. U.S.A.

Drawing 12

PART LIST -- THE BRIDGEPORT SHAPING ATTACHMENT

E-1	RAM HOUSING
E-2	GEAR HOUSING
E-3	GEAR HOUSING COVER
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	CALPPER 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
E-35	RAM CRANKPIN LOCKSCREW
E-36	NO. B-1212X BEARING
E-37	NO. IS-1312 INNER RACE
E-38	NO. GB-1612X BEARING
E-39	NO. IS-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 x1/2 OILSEAL
E-46	7/8 x 1 1/2 x 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	1/8 x 1/8 x 3/8 KEY
E-54	3/16 x 3/8 PIN
E-55	1/8 x 1/8 x 3/4 KEY
E-56	3/16 x 3/16 x 1 3/16 KEY
E-57	FELT PLUG
E-58	1/8 x 1 1/4 PIN -- 2 REQUIRED
E-59	3/16 x 3/16 x 1 3/4 KEY
E-60	3/16 x 3/16 x 1 3/4 KEY
E-61	5/16 x 1 7/8 PIN
E-62	DIAL SPRING
E-63	7/16 x 7/8 WASHER
E-64	7/16 - 20 ACORN NUT
E-65	NAMEPLATE
E-66	BELT COVER CLIP
E-67	5/16 - 18 x 1/2 SET SCREW
E-68	5/16 - 18 x 2 3/4 CAP SCREW
E-69	5/16 - 18 x 3 1/2 CAP SCREW -- 2 REQUIRED
E-70	1/4 - 20 x 3/4 CAP SCREW -- 3 REQUIRED
E-71	NO. 8-32 x 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 x 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 x 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 x 5/16 SET SCREW--2 REQUIRED
E-81	NO. 8-32 x 3/8 ROUND HEAD SCREW
E-82	NO. 5-40 x 1/4 FLAT HEAD SCREW--2 REQUIRED
E-83	NO. 8-32 x 3/8 WASHER HEAD SCREW
E-84	5/16 - 18 x 5/8 SET SCREW
E-85	OVERARM MARKER
E-86	NO. 10-24 x 3/8 ROUND HEAD SCREW
E-87	1/8 PIPE PLUG
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 x 1/4 SET SCREW
E-92	BRASS PLUG
E-93	5/16 - 18 x 3/4 SET SCREW
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
E-94	11/16 x 3/4 OPEN END WRENCH

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



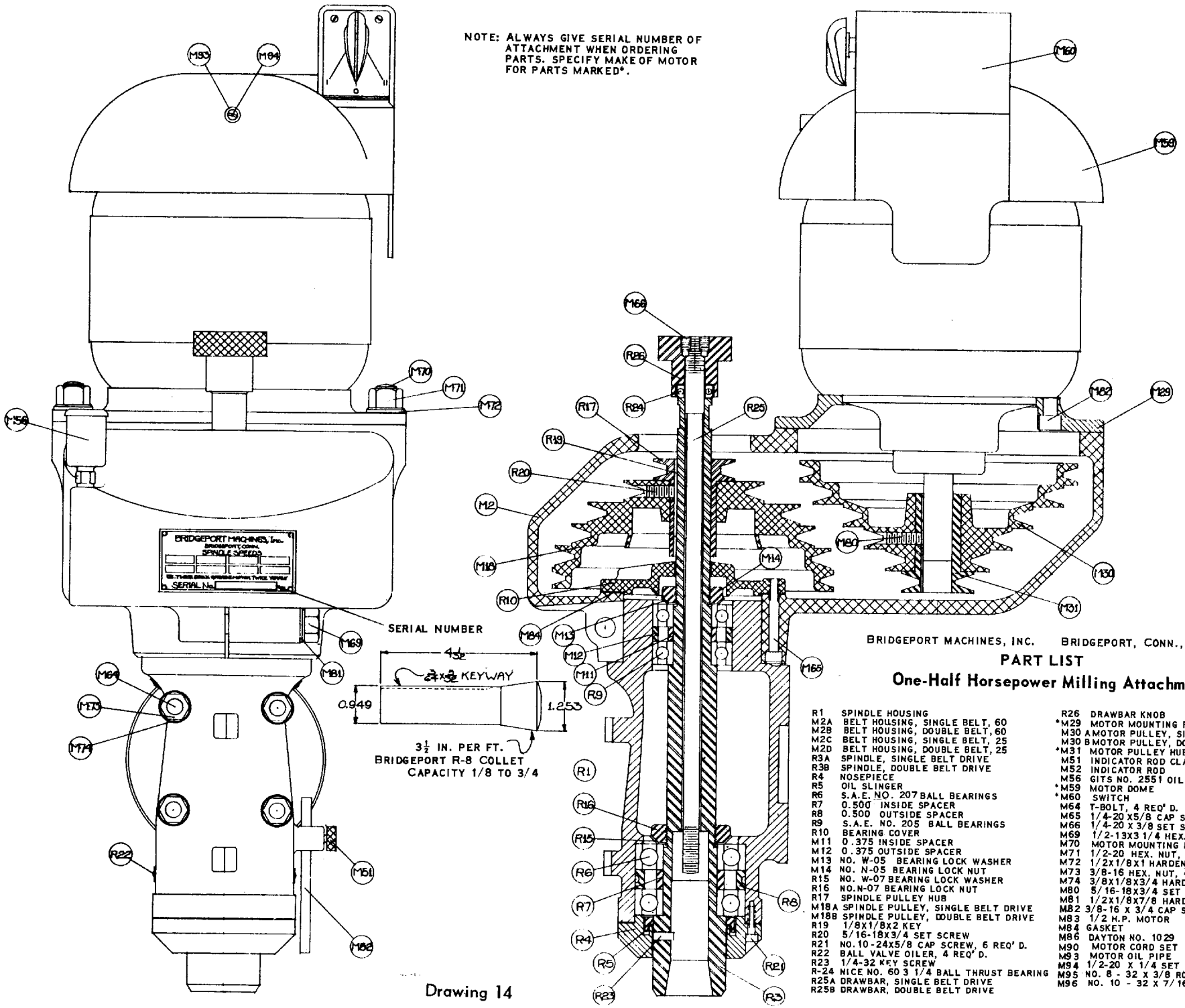
BRIDGEPORT MACHINES, INC.
BRIDGEPORT, CONN. U.S.A.
CHERRYING ATTACHMENT
FULL SIZE
2-10-48
T-46
DR. M.W.
APP.

Drawing 13

CHERRYING ATTACHMENT PARTS LIST

M2A	Belt Housing, single belt drive, 60 cycle
M4D	Spindle, Double belt, #2 Morse Taper
M4E	Spindle, Double belt, #7 B&S Taper
M5	Nosepiece
M6	Oil Slinger
M7	SAE # 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. N-05 Bearing Lock Nut
M15	No. W-06 Bearing Lock Washer
M16	No. N-06 Bearing Lock Nut
M17A	Spindle Pulley Hub, Single Belt Drive
M18A	Spindle Pulley, Single Belt Drive
M19	SAE #206 Ball Bearings (2 Req'd)
M20	Bearing Housing
M21	Bearing Retainer Ring
M26	Drawbar Nut (Left Hand Thread)
M27A	Drawbar, double drive, #7 or #2 spindle
M28	Drawbar Knob
M29	Motor Mounting Ring
M30A	Motor pulley, single belt drive with Hub Part M31
M31	Motor Pulley Hub
M47	Quill Lock Bolt Handle
M48	Quill Lock Bolt
M49	Quill Lock Sleeve, Drilled
M50	Quill Lock Sleeve, Tapped
M56	Gits No. 2551 Oil Cup
M60	Motor Switch 9441 H31D Cutler Hammer
M64	T Bolts (4 Req'd)
M65	1/4 x 20 x 1-3/4 lg. Cap Screw (6 Req'd)
M69	1/2 x 13 x 3-1/4 Hex. Head Screw
M70	Motor Mounting Ring Stud (2 Req'd)
M71	1/2 x 20 Hex. Nut (2 Req'd)
M72	1/2 x 1/8 x 1 Chamfered & Hardened Washer
M83	1/2 HP Motor
M84	Paper Gasket
M85	1/4 x 20 x 1/4 Set Screw
M86	Gilmer 5607 Belt F.H.P.
M90	Motor Cord
T1	Quill Housing
T2	Quill Housing Saddle
T3	Gear Housing
T4	Drum Gear
T5	Gib (2 Req'd)
T6	Gib Screw (2 Req'd)
T7	Gib Screw Washer (2 Req'd)
T8	Cherry
T9	Pivot Stud
T10	Torr. Brg. GB-98
T11	Drum Gear Plate
T12	Pivot Offset Block
T13	Lead Screw
T14	Lead Screw Locknut
T15	Lead Screw Washer
T16	Lead Screw Dial
T17	Lead Screw Spacer
T18	Allen Wrench Stud
T19	Wrench Knob
T20	10 - 32 x 1/2 lg. Flat Head Screw
T21	Zero Block
T22	Handwheel Handle
T23	3/8" Star Washer
T24	Hand Wheel
T25	Hand Wheel Dog
T26	Hand Wheel Gear Clutch
T27	Hand Wheel Pinion
T28	Idler Gear
T29	Idler Gear Post
T30	Lead Screw Zero Pin
T31	Scale (Purchased)
T32	Stop Dog (2 Req'd)
T33	T Bolt (3 Req'd)
T34	T Bolt Washer (3 Req'd)
T35	Dial Binder Plug
T36	Fork Adapter (See Misc. Price List)
T37	Finger Ratchet Spring
T38	Feed Ratchet Dog
T39	Ratchet Stud
T40	Ratchet Dog Tee Bolt
T41	Adapter Tee Bolt
T45	Quill

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



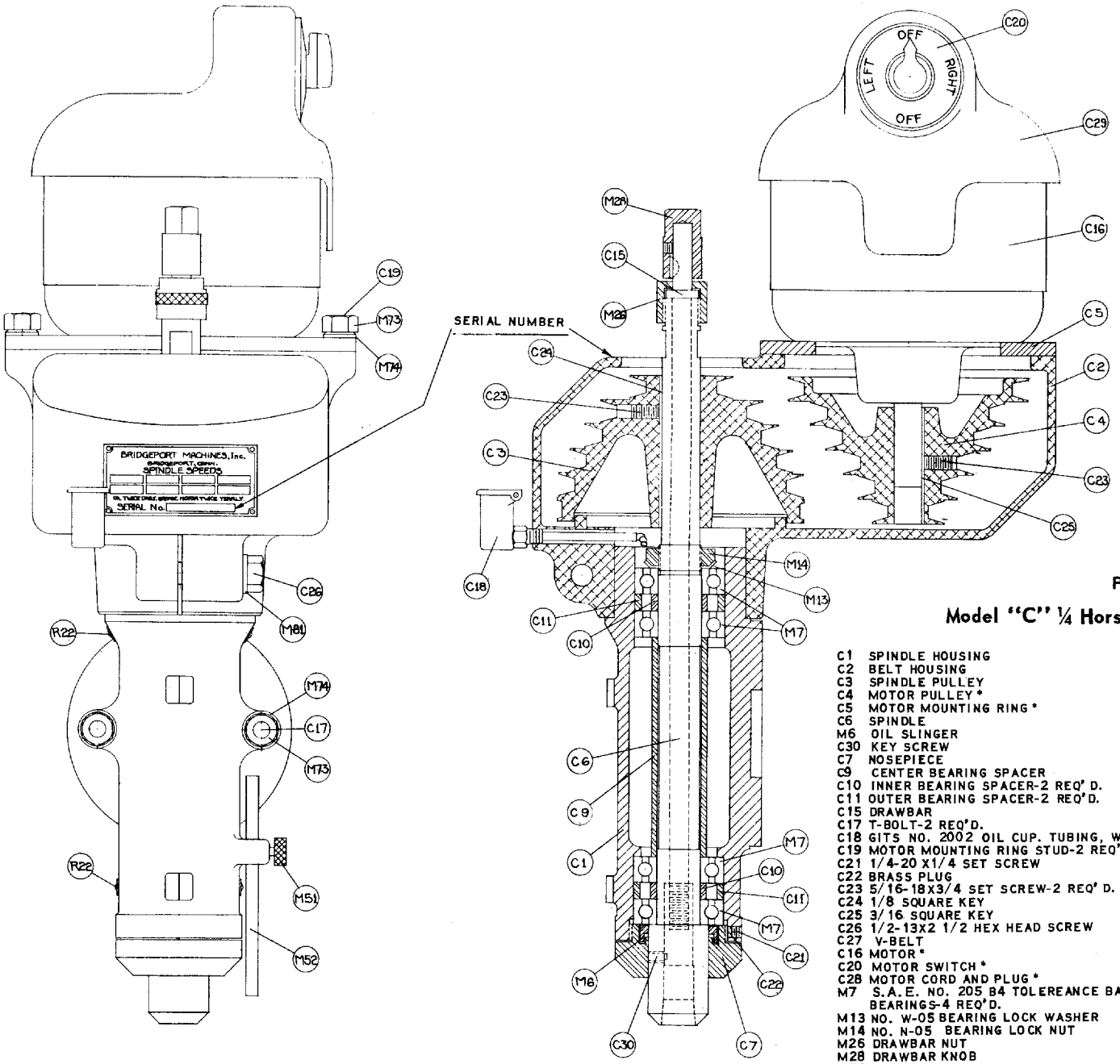
BRIDGEPORT MACHINES, INC. BRIDGEPORT, CONN., U.S.A.

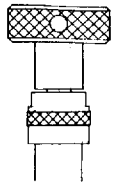
PART LIST

One-Half Horsepower Milling Attachment

R1	SPINDLE HOUSING
M2A	BELT HOUSING, SINGLE BELT, 60
M2B	BELT HOUSING, DOUBLE BELT, 60
M2C	BELT HOUSING, SINGLE BELT, 25
M2D	BELT HOUSING, DOUBLE BELT, 25
R3A	SPINDLE, SINGLE BELT DRIVE
R3B	SPINDLE, DOUBLE BELT DRIVE
R4	NOSEPIECE
R5	OIL SLINGER
R6	S.A.E. NO. 207 BALL BEARINGS
R7	0.500 INSIDE SPACER
R8	0.500 OUTSIDE SPACER
R9	S.A.E. NO. 205 BALL BEARINGS
R10	BEARING COVER
M11	0.375 INSIDE SPACER
M12	0.375 OUTSIDE SPACER
M13	NO. W-05 BEARING LOCK WASHER
M14	NO. N-05 BEARING LOCK NUT
R15	NO. W-07 BEARING LOCK WASHER
R16	NO. N-07 BEARING LOCK NUT
R17	SPINDLE PULLEY HUB
M18A	SPINDLE PULLEY, SINGLE BELT DRIVE
M18B	SPINDLE PULLEY, DOUBLE BELT DRIVE
R19	1/8X1/8X2 KEY
R20	5/16-18X3/4 SET SCREW
R21	NO. 10-24X5/8 CAP SCREW, 6 REQ'D.
R22	BALL VALVE OILER, 4 REQ'D.
R23	1/4-32 KEY SCREW
R-24	NICE NO. 60 3 1/4 BALL THRUST BEARING
R25A	DRAWBAR, SINGLE BELT DRIVE
R25B	DRAWBAR, DOUBLE BELT DRIVE
R26	DRAWBAR KNOB
*M29	MOTOR MOUNTING RING
M30 A	MOTOR PULLEY, SINGLE BELT DRIVE
M30 B	MOTOR PULLEY, DOUBLE BELT DRIVE
*M31	MOTOR PULLEY HUB
M51	INDICATOR ROD CLAMP SCREW
M52	INDICATOR ROD
M56	GITS NO. 2551 OIL CUP
*M59	MOTOR DOME
*M60	SWITCH
M64	T-BOLT, 4 REQ'D.
M65	1/4-20 X5/8 CAP SCREW, 3 REQ'D.
M66	1/4-20 X 3/8 SET SCREW, 4 REQ'D.
M69	1/2-13X3 1/4 HEX. HEAD SCREW
M70	MOTOR MOUNTING RING STUD, 2 REQ'D.
M71	1/2-20 HEX. NUT, 2 REQ'D.
M72	1/2X1/8X1 HARDENED, CHAMFERED WASHER
M73	3/8-16 HEX. NUT, 4 REQ'D.
M74	3/8X1/8X3/4 HARDENED, CHAMFERED WASHER
M80	5/16-18X3/4 SET SCREW
M81	1/2X1/8X7/8 HARDENED, CHAMFERED WASHER
M82	3/8-16 X 3/4 CAP SCREW, 4 REQ'D.
M83	1/2 H.P. MOTOR
M84	GASKET
M86	DAYTON NO. 1029 F.H.P. V-BELT
M90	MOTOR CORD SET
M93	MOTOR OIL PIPE
M94	1/2-20 X 1/4 SET SCREW
M95	NO. 8 - 32 X 3/8 ROUND HEAD SCREW, 4
M96	NO. 10 - 32 X 7/16 OVAL HEAD SCREW, 4

Drawing 14





NOTE: KNURLED TYPE DRAWBAR KNOB (M28). KNURLED KNOB TYPE DRAWBAR (C15), OR COMPLETE DRAWBAR ASSEMBLY (C15, M26, AND M28) WILL BE REPLACED BY COMPLETE HEX KNOB DRAWBAR ASSEMBLY.

PART LIST

Model "C" ¼ Horsepower Milling Attachment

C1 SPINDLE HOUSING
C2 BELT HOUSING
C3 SPINDLE PULLEY
C4 MOTOR PULLEY *
C5 MOTOR MOUNTING RING *
C6 SPINDLE
M6 OIL SLINGER
C30 KEY SCREW
C7 NOSEPIECE
C9 CENTER BEARING SPACER
C10 INNER BEARING SPACER-2 REQ' D.
C11 OUTER BEARING SPACER-2 REQ'D.
C15 DRAWBAR
C17 T-BOLT-2 REQ'D.
C18 GITS NO. 2002 OIL CUP. TUBING, WICK
C19 MOTOR MOUNTING RING STUD-2 REQ' D.
C21 1/4-20 X1/4 SET SCREW
C22 BRASS PLUG
C23 5/16-18X3/4 SET SCREW-2 REQ' D.
C24 1/8 SQUARE KEY
C25 3/16 SQUARE KEY
C26 1/2-13X2 1/2 HEX HEAD SCREW
C27 V-BELT
C16 MOTOR *
C20 MOTOR SWITCH *
C28 MOTOR CORD AND PLUG *
M7 S.A.E. NO. 205 B4 TOLEREANCE BALL BEARINGS-4 REQ'D.
M13 NO. W-05 BEARING LOCK WASHER
M14 NO. N-05 BEARING LOCK NUT
M26 DRAWBAR NUT
M28 DRAWBAR KNOB
M51 INDICATOR ROD CLAMP SCREW
M52 INDICATOR ROD
M73 3/8-16 HARDENED HEX NUT-4 REQ' D.
M74 3/8X1/8X3/4 CHAMFERED AND HARDENED WASHER-4 REQ'D.
M81 1/2X1/8X7/8 CHAMFERED AND HARDENED WASHER
R22 BALL VALVE OILER-4 REQ'D.
C29 MOTOR DOME AND SWITCH HOUSING

ALWAYS GIVE SERIAL NUMBER OF ATTACHMENT WHEN ORDERING PARTS. GIVE MAKE AND SPECIFICATIONS OF MOTOR FOR PARTS MARKED *

SPECIAL PARTS REQUIRED FOR MODEL "B" ATTACHMENT WITH 4-STEP PULLEY DRIVE

B2 BELT HOUSING
B3 SPINDLE PULLEY
B4 MOTOR PULLEY *
B6 SPINDLE
B15 DRAWBAR
B17 T-BOLT-2 REQ' D.

ALL OTHER PARTS INTERCHANGEABLE

Drawing 15

OPTICAL MEASURING SYSTEM

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.)

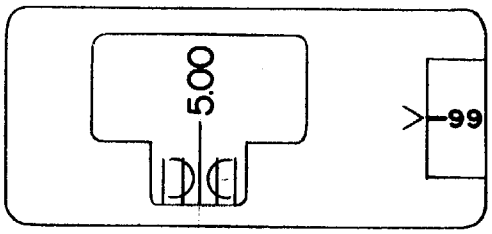


FIG. 3

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.

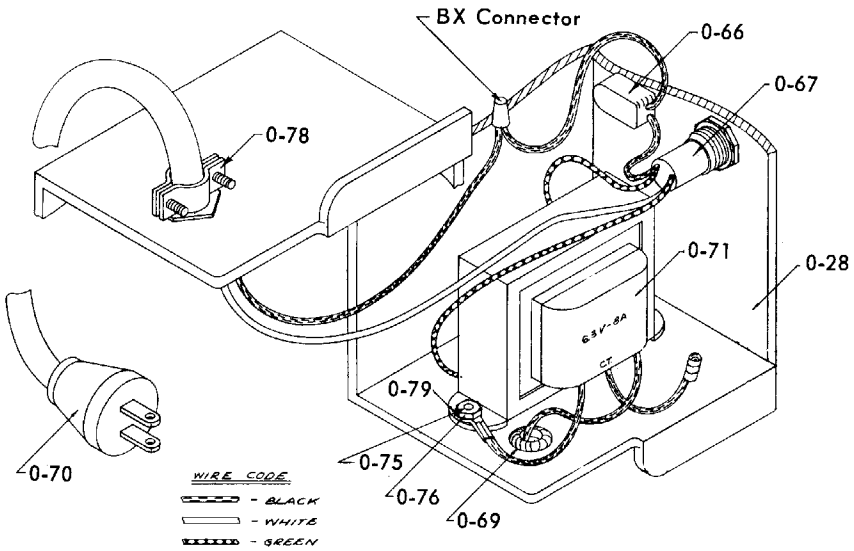
   Note: This is most important as unit is *only* in focus when lines are in center of catch and fork as described above.

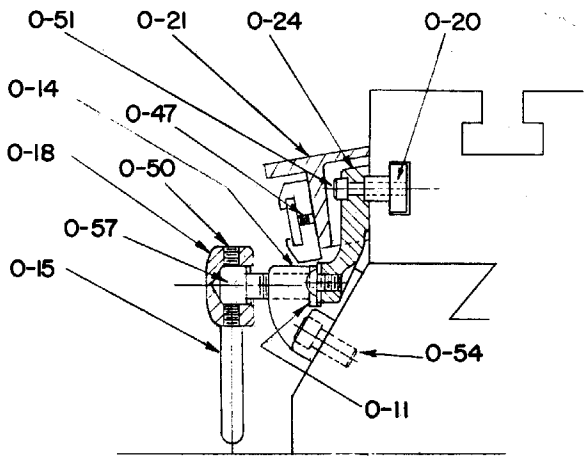
Cross Travel Scale

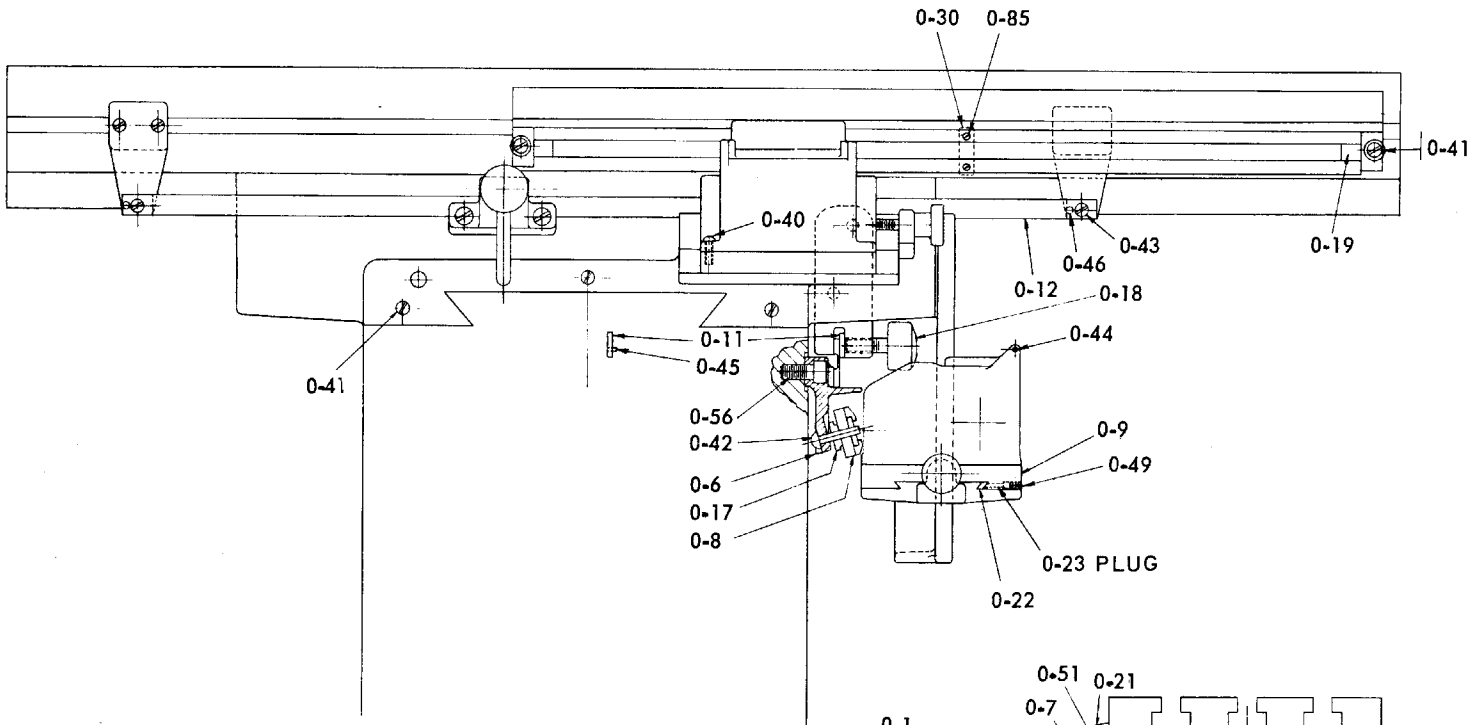
1. Crank saddle to front position.
2. Loosen (4) screws (0-40) located in base of scope unit (0-2). Position scope unit (0-2) so location of screws (0-40) are in center of elongated slots. Snug up (2) screws (0-40) in scope unit.
3. Bring scale into focus by using adjusting nut (0-17). Align short graduations 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).

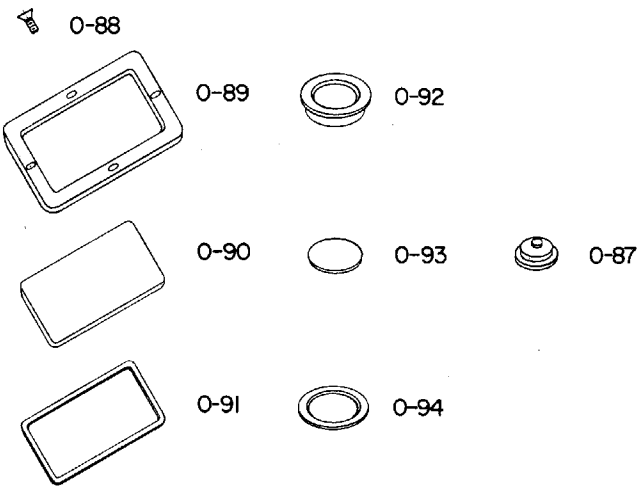
   Note: Check 1" slide adjustment for parallelism. If top of catch fork does not run parallel to top of short graduations. It is necessary to loosen (4) cap screws (0-53) holding cross bracket-lens assembly (0-3) and make proper adjustment.

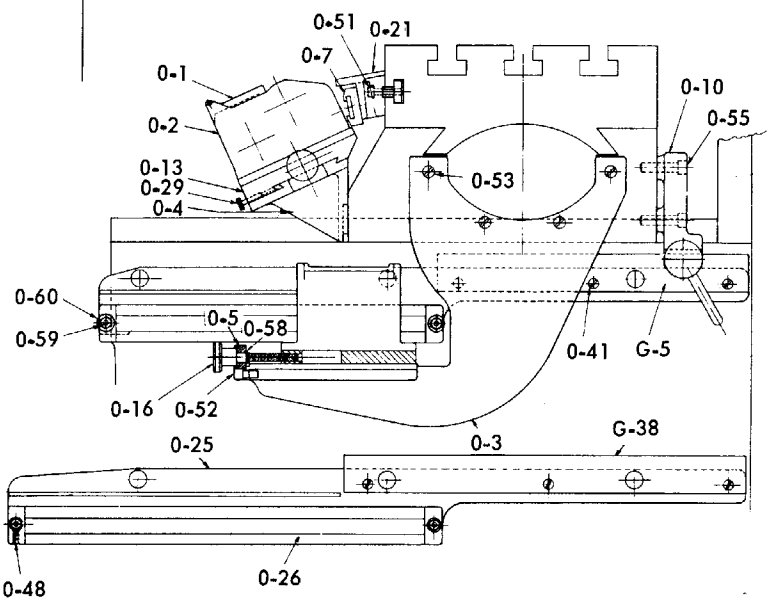
OPTICAL PARTS DRAWING











OPTICAL PARTS LIST

PART NUMBER	AMOUNT	NAME
0-1	2	Scope Housing Cover
0-2	2	Scope Housing
0-3	1	Cross Bracket
0-4	1	Table Bracket
0-5	2	Adj. Screw Bracket
0-6	1	9" Cross Travel Bracket
0-7	1	Table Scale Bracket
0-8	1	9" Cross Travel Scale Bracket
0-9	1	Cross Travel Dovetail Slide
0-10	1	Cross Travel Binder Bracket
0-11	2	Binding Bracket Plate
0-12	1	Table Binder Strip
0-13	1	Table Dovetail Slide
0-14	1	Table Binder Bracket
0-15	2	Binder Handle
0-16	2	Housing Adjusting Screw
0-17	2	Scale Adj. Nut
0-18	2	Binder Hub
0-19	4	Scale Bracket Cap
0-20	7	Tee Slot Shoe
0-21	1	Table Scale Bracket
0-22	2	Straight Dovetail Gib
0-23	6	Gib Binding Plugs
0-24	2	Binding Strip Dogs
0-25	1	12" Cross Travel Bracket
0-26	1	12" Cross Travel Scale Bracket
0-27		Assembly Dwgs.
0-28	1	Transformer Box
0-29	2	Slide Lock Screw
0-30	1	Scale Holder Clamp
0-31	1	Cam Shaft (Not Shown)
0-32	1	Scale Dial Knob (Not Shown)
0-33	1	Dial Knob Shaft (Not Shown)
0-34	1	Dial Knob Washer (Not Shown)
0-35	1	Lamp Cover Gasket (Not Shown)
0-36	1	Lens Cover Gasket (Not Shown)
0-37	1	Dial Knob Shaft Diaphragm (Not Shown)
0-38	4	Scale Holder Cap (Replaces 0-19)
0-39	2	Scope Units Complete
0-40	8	8-32 x 1/2 Round Head Screws
0-41	8	10-32 x 1/2 Round Head Screws
0-42	2	10-32 x 1-1/4 Round Head Screws
0-43	2	1/4-20 x 3/8 Round Head Screws
0-44	4	.078" x 3/8 Roll Pins
0-45	4	1/8 x 1/4 Roll Pins
0-46	2	1/8 x 3/8 Roll Pins
0-47	4	5-40 x 1/8 Socket Set Screws
0-48	4	5-40 x 1/2 Socket Set Screws
0-49	4	6-40 x 3/8 Socket Set Screws
0-50	2	1/4-28 x 1/4 Socket Set Screws
0-51	7	10-32 x 3/4 Socket Cap Screws
0-52	4	1/4-20 x 1/2 Socket Cap Screws
0-53	4	1/4-20 x 3/4 Socket Cap Screws
0-54	2	5/16-18 x 5/8 Socket Cap Screws
0-55	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
0-58	2	#5100-31 Snap Ring
0-59	2	10-32 Hex Nut
0-60	4	#6 Flat Washer
0-61	1	9" Scale
0-62	1	12" Scale
0-63	1	20" Scale
0-64	2	Bycor Cord Seal (Specify Scale Length)
0-65	2	Scale Glass (" " ")
0-66	1	Toggle Switch (117/110 Volt)
0-67	1	Signal Lamp Complete (117/110 Volt)
0-68	1	Signal Lamp Bulb GE NE 51H (117/110 Volt)
0-69	1	Rubber Cromet 3/8 I. D.
0-70	1	Cord Set (18-2 117/110 Volt)
0-71	1	Transformer (117/110 Volt Primary - 6.3 Volt Secondary)
0-72	1	Harness Cord Set (6.3 Volt)
0-73	1	Transformer Box Name Plate
0-74	2	Decal (Optical Housing)
0-75	2	6-32 x 1/2 Round Head Screws
0-76	2	6-32 Hex Nuts
0-77	2	1/4-20 x 1/2 Round Head Screws
0-78	1	3/8" Cable Connector
0-79	1	#B65 Spade Terminal
0-80	1	#2B-14 Wire Terminal
0-81	2	Bulb #81 Automotive (6 Volt)
0-82	1	1/2-13 x 3/8 Socket Set Screws
0-83	1	67 1/2° Angle Alemite Fitting
0-84	1	Starr Lenn Gauze
0-85	2	5-40 x 1" Oval Head Screw
0-86	2	No. 4 x 1/4 R Sheet Metal Screws
0-87	2	Rubber Cap
0-88	4	#172 x 3/16 Flat Head Screw for Window Fram
0-89	2	Window Frame
0-90	2	Window
0-91	2	Window Gasket
0-92	2	Lens Frame
0-93	2	Lens
0-94	2	Lens Gasket
0F-79	1	Table Stop Bracket (P. F.)
0F-80	1	Power Feed Stop Rod (Give Table Size)
0F-81	1	Reversing Stop Rod Guide
0F-82	1	Table Binder Strip (With Power Feed)
G-5	1	9" Saddle Locking Strip
G-38	1	12" Saddle Locking Strip