INSTRUCTION MANUAL & PARTS LIST

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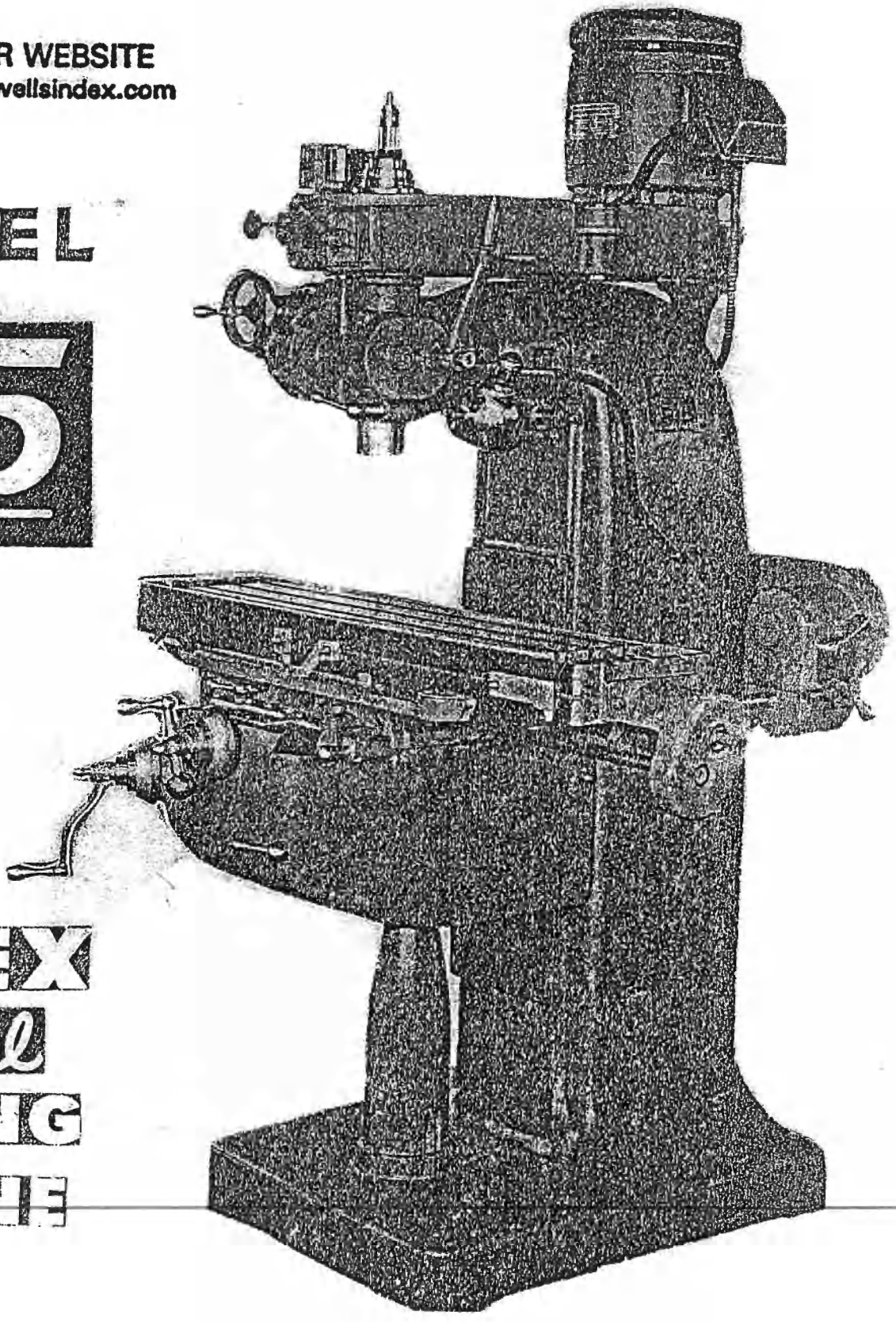
http://www.wellsindex.com

MODEL

55



INDEX
vertical
MILLING
MACHINE

MODEL 55 PARTS LIST

TABLE OF CONTENS

INSTRUCTION MANUAL INDEX MILL

1. PRELIMINARY INFORMATION

A. UNCRATING:

Carefully remove the protective crating and skid so that the machine and parts are not marred, scratched or otherwise damaged. In the event of any damage in transit, notify our representative at once as well as the transportation company making final delivery. The machine should be lifted from the base of the crate by placing a sling under the overarm.

B. SHORTAGES:

Inspect the complete shipment carefully against the itemized packing list to make sure that all items are present. In the event shortages are noticed they should be reported immediately to the representative from whom the machine was purchased with a clear indication as to which parts have not been received.

C. CLEANING:

Thoroughly clean the rust preventative materials from the machine with gasoline, kerosene, or other suitable solvents. Do not move the table, saddle, knee or other moving parts until all of the sliding way surfaces have been well cleaned and lubricated. After cleaning carefully move to a limited stop in one direction the table, saddle and knee, and clean and lubricate the exposed way surfaces. Then move each of these units to the opposite limit stop and similarly clean and lubricate the exposed way surfaces. Loosen the four bolts to unlock the overarm and move this forward and backward to the extreme position in order to clean and lubricate.

D. FOUNDATION:

For best performance it is important that the machine be placed on a solid foundation and that it be level. A solid concrete floor is desirable, but a firm wooden floor, free from vibration, may be suitable. If the machine is to be located on an upper floor or balcony it should be placed as close as possible to a strong supporting pillar or column.

E. LEVELING:

The machine is provided with four bolt holes at each quarter of the base. Steel wedges or steel plates should be used for leveling. A good machinist's level should be used in the leveling process and the bubble should have adequate time to come to rest. The level should be placed both lengthwise and crosswise on the machine table.

F. VERTICAL HEAD ON OVERARM:

When the model 645 and 660 machines leave the factory the vertical head is positioned on the overarm with the spindle up and the motor down. Before operating the machine it is necessary that the head be returned to its normal operating position by loosening the 4-7/8" Hexagonal nuts located at the head end of the overarm. It will then be possible to tilt the head into normal operating position by using a crank on the 1/2" stud located on the right side of the front end of the overarm. Because of the heavy overhung weight involved, the tilting of the head back to its normal position will be greatly facilitated if a second person can help push this into position.

When the Index Model 555 high speed vertical milling machine is shipped from the factory the milling head is left in its normal operating vertical position but the spindle drive motor is removed and mounted separately in the crate. It will be necessary to remount the motor above the vertical spindle using the four bolt holes provided. The proper radial position of the motor will be with junction box to the right rear and the motor nameplate to the right front. It will be necessary to reconnect the motor wires at the junction box.

G. HANDLES:

At the time of shipment the three handwheels used for positioning the saddle and table are removed from their normal positions, the dials removed and the handles remounted in reverse position. All are properly marked for remounting: S for Saddle, TL for Left Hand of Table and TR for Right Hand of Table.

H. LUBRICATION:

Instructions for proper lubrication of your new Index machine are found on Form 91B located in your Parts List Book.

II. ADJUSTMENTS

A. GIBS:

From time to time, as wear occurs, it becomes necessary to adjust the tapered gibs on your Index Mill. The Table of the machine includes two gibs, #4504-Left Hand Gib and #4505-Right Hand Gib, as shown on drawing #9131. The Cross Travel of the Saddle of your machine involves Gib #4365 also shown on drawing #9131. Gib #1852 is the take-up gib for the knee illustrated on drawing #9080. Adherence to the gib adjustment instructions appearing on the first page on the accompanying parts list should result in satisfactory adjustment of all of these gibs.

B. QUILL FEED CLUTCH:

Please see the Clutch Adjustment Instructions appearing on the second page of the attached parts list.

When the machine left the factory this clutch was properly adjusted to provide for drilling with a 5/8" dia. drill in mild steel. If in operation larger pressures are developed which cause the clutch to "ratchet" it may be well to assist the clutch in advancing the quill feed by adding downward pressure with the hand feed lever.

C. QUILL COUNTERBALANCE:

Please see the instructions appearing on the second page of the accompanying parts list.

D. QUILL FEED TRIPS & DEAD STOP ADJUSTMENT:

Refer again to drawing #9124-A. Your Index Vertical Mill is provided with a means for setting an adjustable automatic feed trip device for the downward movement of the quill as well as a means for automatic trip out of the quill feed when moving in an upward direction. The assembly consisting of knurled nut #2763 and quick shift sleeve #2762 provide a rapid adjustment for downward feed trip out. This assembly can be rapidly raised or lowered on the feed trip rod #2804 by loosening the knurled thumb screw #1576-A. Positive stop nut #2377 is adjusted at the time of shipment to provide for a positive stop for a downward movement of the quill. It is set so as to allow for a slight downward movement after the feed has been tripped out as caused by the downward movement of the feed rod #2804 when engaged by the quill feed trip key #2780-B. To cause an earlier trip out of the downward feed simply lower the adjustable trip collar #2806 on the feed trip rod #2804. This will result in a later trip out of the quill feed in the upward direction. It is desirable that adjustable trip collar #2806 be so positioned on the feed trip rod #2804 that the feed stop in both the upper and lower direction takes place over approximately the same length of quill travel.

E. DRIVE BELTS:

Please refer to drawing #9072. To provide the necessary slack for shifting of belts in order to change spindle speeds it is only necessary to pull into a released position the

belt tension handle #2467. Should the belt tension become less than adequate due to the stretching of the belt it is a simple matter to increase belt tension simply by tightening the 3/8" - 24 Nut #20SC-624 on the #2468 Belt tension shaft.

III. OPERATION (See Figure 1, Next Page, For Location Of Various Adjustments, Handles & Controls)

A. SPINDLE:

1. The spindle Start-Stop-Reverse Control is located at the upper left on the head-pulley guard-motor assembly.

2. The spindle brake lever is located at the upper right just under the pulley guard assembly.

3. The spindle pulley lock pin is located at the upper left just to the left of center under the pulley guard. There are 4 positions, 90° apart, at which the spindle can be locked against rotation by this lock pin.

   CAUTION: Always be sure spindle lock pin is disengaged (in the down position) before attempting to start spindle rotation in either direction.

4. Spindle speeds are readily changed by changing the positions of either or both of the V belts connecting the motor pulley to the jack shaft pulley and the jack shaft pulley to the spindle pulley. Tension on the belts is easily released by pulling out on the belt tension handle and moving the jack shaft assembly forward.

B. QUILL:

1. The quill may be locked in a given vertical location by turning the quill-clamp lever in a clockwise direction.

   CAUTION: Do not engage quill power feed with quill-clamp lever fully tightened.

2. The quill (or spindle) hand feed lever can be adjusted to any one of six operating positions by moving outwards (to the right) on the lever hub and rotating to the desired position.

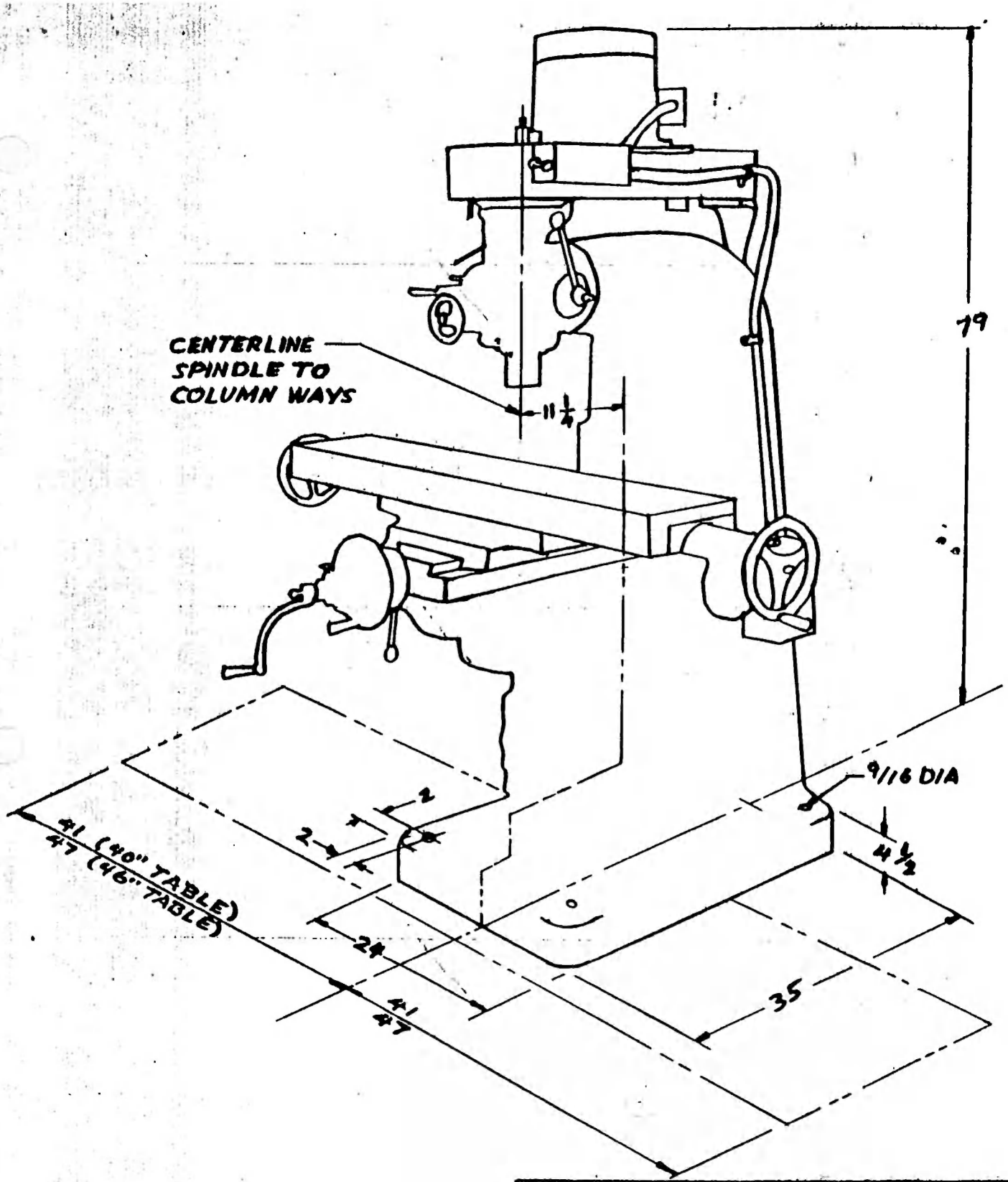
3. Any one of three power feeds (in either an upward or downward direction) may be selected by moving the feed shift lever to the desired feed (.0015", .003" or .006") per spindle revolution. A neutral position is provided between each of these feed settings. If power feed is not being used it is wise to place the feed shaft lever in one of the neutral positions. It may be somewhat easier to change the position of the feed selector lever when the spindle is rotating.

4. The fine feed handwheel is placed in operating condition by locating the feed shift lever in a neutral position and engaging the power feed clutch with the clutch engaging lever.

5. The knob on the shaft located in the center of the feed handwheel is used to select downfeed (pushed-in position), neutral (mid-position) or upfeed (pulled-out position) for either the power feed or the handwheel feed.

C. DRAWBAR:

1. Use spindle brake or spindle pulley lock pin to restrict spindle rotation when tightening or loosening the draw bar. The draw bar and draw bar nut are so arranged that continuing the counter-clockwise rotation of the draw bar after the draw bar has been loosened will exert downward pressure on the tool or adapter being removed so as to break it free of the restraining taper. This method of "freeing" up tools and collets is generally preferable to striking the draw bar to drive out the tool or collet. To remove



INDEX MACH. & TOOL CO. JACKSON, MICH.	
GENERAL MACHINE	
555 VERTICAL MILL	
15 APR 64 RJP	2052

PARTS LIST

GENERAL MACHINE
ASSEMBLY NO. 2052

INDEX MILL

PART NO.	NO. REQ'D.	NAME
1160	1	Spring
1844	1	Plate - Index Mach. Serial Number
1890	2	Hinge - Column Door
4312-B	1	Door - Column
9075	1	Column
	1	Rollpin #59-028-125-0625
	1	Knob Chicago Molded Prod. #H766-D
	4	#4 x 5/16 Drive Screw Parker-Kalon Brass Plated
	1	1/4 x 3/4 Button Hd. Rivet
	1	1/4 x 1-3/8 Truss Hd. Rivet
	1	5/16-18 x 1-1/4 Rd. Hd. Mach. Screw

the draw bar it is necessary to remove the draw bar nut from the top of the spindle.

D. HEAD

1. Tilting of the head in a front to back plane (model 645) is readily accomplished by loosing the four nuts at the right hand side of the head (around the hand feed lever) and applying crank to forward head tilting worm stud. If it is desired to tilt the head backward a considerable amount it may be found that the pulley guard will strike the overarm and prevent the desired degree of tilting. In such cases it is necessary to pivot the pulley guard about the spindle centerline by loosening the 4 socket head cap screws located on the lower side of the flange at the top of the spindle housing or head and rotating the pulley guard the amount required to obtain clearance for head tilting.

2. To tilt head from side to side (models 645 and 555), loosen the 4 (model 645) or 3 (model 555), hex nuts which clamp the head to the overarm (model 645) or the machine column (model 555). Then tilt head the desired amount by applying crank to the sidewise tilting worm stud at the right of side out to the rear of the spindle head.

   NOTE: It is not necessary to loosen the large hex socket head cap screw at the rear of the model 555 machine column. This screw should be left as received from the factory.

E. OVERARM OR RAM (Model 645)

1. The back to front position of the head and overarm is readily changed by loosening the 4 hex nuts which clamp the overarm to the turret. Apply a crank to the overarm adjustment shaft extension and move to desired position.

F. TURRET

1. To index the entire turret-overarm-head assembly on the machine column (model 645 only) loosen the 4 large hex nuts visible in the cast pockets just below the top of the machine column and swing the turret to the desired angular position.

   NOTE: It is highly recommended that all clamping nuts and bolts (turret to column, overarm to turret, head side-wise tilt and head forward-back tilt) be securely tightened before any machining cuts are taken. Always check these points before starting a cut.

IV. PREVENTIVE MAINTENANCE

A. INSPECTIONS:

1. Inspect taper of spindle for cleanliness and freedom from chips or foreign matter.
   Frequency - Each time tool holder is inserted.
   Inspection by machine operator.
   No special equipment required.

2. Inspect and adjust gibs of slide ways. (Note: Outer socket set screw is a lock screw. This should be turned out to left -- Allen wrench inserted through it, and gib adjusted by means of inner adjusting screw. Lock screw should then be re-tightened.)
   Frequency - Every 160 hours. Oftener if looseness is noted by operator.
   Inspection and adjustment by machine operator or machine maintenance man.
   No special equipment required other than Allen wrench.

3. Inspect for general cleanliness of machine, paying particular attention to keep dirt and chips from slide ways. Do not use air to remove such dirt and chips -- but wipe off ways or keep them covered. Flood ways with light oil and work slide movements back and forth to wash out foreign matter. Then re-lubricate machine according to lubrication instructions.

Frequency - Constantly, as far as wiping off chips and dirt are concerned. Every 40 hours ways should be flooded with oil and cleaned as above.
No special equipment required.

4. Inspect drive belts for wear, hard spots at splice, etc.
Frequency - Every 40 hours.
Inspection by machine operator or machine maintenance man.
No special equipment required.

5. Inspect to see if vertical head (Model 55) is square with table, by mounting indicator on spindle and sweeping table.
Frequency - Every 80 - 120 hours, or after head has been tilted.
Inspection by machine operator or machine maintenance man.
Special equipment required consists of (1) A short accurate arbor to insert in spindle. (2) A clamp for use in clamping a 6" bar to above arbor in a horizontal position. (3) 6" perfectly straight bar approximately 1/2" in diameter. (4) An accurate dial indicator to clamp to above 6" bar in position so when spindle is revolved by hand, nib of indicator in contact with table, sweeps table in a full circle and indicates out of squareness.
NOTE: Table is intentionally left .0005" high in front. This will gradually decrease as machine is used.

6. Inspect electrical equipment.
Frequency - In accordance with standard plant policy.
Inspection by machine maintenance man or electrical maintenance man.
No special equipment required.

B. PARTS REPLACEMENT

1. None except as indicated by wear or mal-function.
Frequency or replacement only as above.

C. LUBRICATION - See Attached Lubrication Sheet.

V. TROUBLE SHOOTING

NOTE: Ordinarily trouble will not manifest itself except when actually working with machine.

A. TROUBLE OR SYMPTON

1. Slide ways working hard or binding.
   a. Cause - gibs out of adjustment, either too tight or too loose. In latter case causing gib to "wedge".
      Remedy - Adjust gibs.
   b. Cause - dirt in slide ways.
      Remedy - wash out slide ways with light oil.

2. Chatter or vibration when cutting.
   a. Cause - dirt in spindle taper, causing bad fit between tool holder shank and spindle taper.
      Remedy - clean spindle taper and shank of tool holder.
   b. Cause - faulty shank on tool holder.
      Remedy - replace shank or dress off burrs, if due to nicks or burrs.
   c. Gibs poorly adjusted on slide ways, or dirty.
      Remedy - adjust as in IV-A-2 and IV-A-3 above.
   d. Work improperly clamped to table of machine.
      Remedy - check for rocking or movement, and correct by proper clamping.
   e. Improper grind on cutting tool.
      Remedy - replace or re-grind tool.

f. Hard spot at splice of drive belts or worm belts.
Remedy - replace belts.
g. Spindle quill worn in quill head.
Remedy - tighten quill head lock slightly.
h. Incorrect spindle speed, table feed, or both.
Remedy - ordinarily increase spindle speed and/or increase or decrease feed to break up vibration period. Experiment by using hand feed to feed table.
i. Drive pulleys worn in grooves or loose on shafts.
Remedy - replace pulleys.

3. Boring or milling out of square or at an angle.
a. Cause - head not properly aligned with table.
Remedy - Check head for alignment and correct.
b. Work improperly set up; i.e. not square and flat.
Remedy - Check and re-align work.

4. Failure to hold center distance when locating for boring.
a. Cause - Failure to take back-off tension on lead screw after coming up to indicator reading, causing table to "creep", or failure to lock up slide ways with same amount of tension after moving table to new position.

VI. SPARE PARTS RECOMMENDED

A. SET OF DRIVE BELTS FOR ALL DRIVES.

VII. SPECIAL MAINTENANCE

Should it become necessary to disassemble certain major elements of the machine the following suggestions may prove helpful.

A. TO REMOVE SPINDLE PULLEY (See Figure 2) (Model 645).

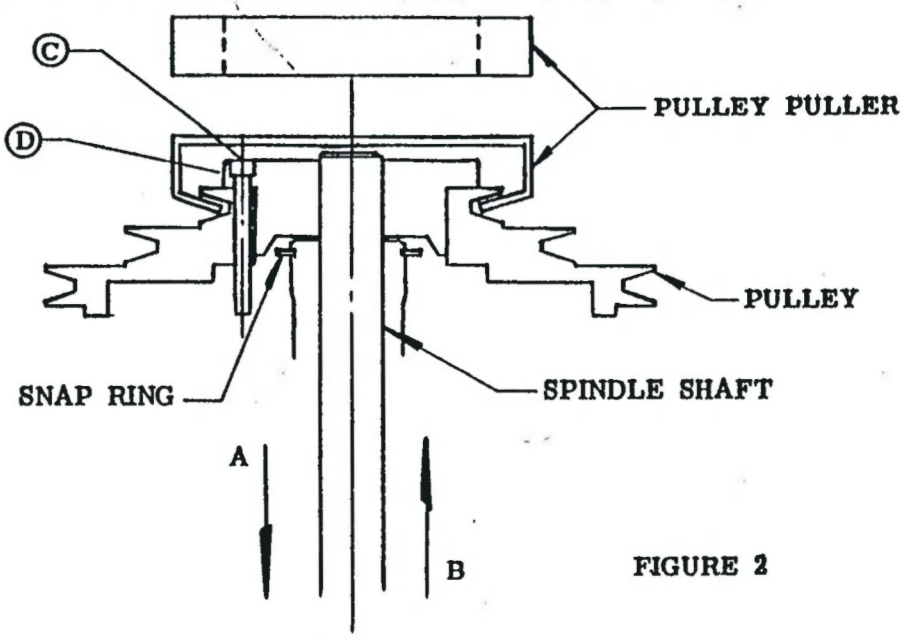


FIGURE 2

1. Bend flat piece of steel to use as pulley puller.
2. Remove draw bar nut and draw bar.
3. Remove 4 socket head cap screws (c) from the cap (d) (spindle drive plate).

4. Move quill and spindle down (Arrow A) by means of the hand feed lever on the side of the head.
5. Place bent steel puller over pulley and over hole in cap D as shown in sketch.
6. Using the hand feed lever raise the quill and spindle up (Arrow B) so that bent steel pulley puller is raised and carries pulley with it.

B. TO REMOVE SPINDLE PULLEY WORM AND BEARINGS (Model 645).

1. Proceed as in steps A1 through A6 above.
2. Remove snap ring 5102-177.
3. Replace spindle pulley and cap.
4. Replace 4 socket head cap screws.
5. Place bent steel over pulley.
6. Use hand feed lever to apply upward pressure on puller which will pull up with it the spindle pulley, spindle drive plate, worm, bearings and spacer.

C. TO REMOVE SPINDLE PULLEY BEARING SUPPORT.

1. Follow proceedures outlined in 7B above.
2. Remove the 6 - 5/16" - 18 x 1" buttonhead cap screws.
3. Being careful to note and record the original radial position of the bearing support - turn it as necessary to clear the spindle feed worm gear #2404.
4. When replacing be sure to return bearing support to original radial position.

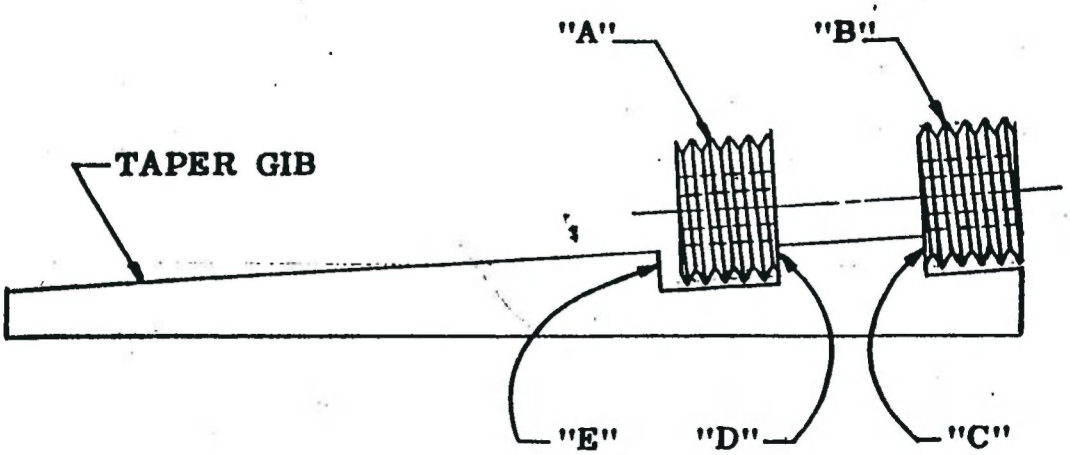
D. TO REMOVE MILLING MACHINE TABLE.

1. Remove hand wheels and dials from each end of table and remove cover (#2029, Drg. #9131) from right hand table end bracket (#4003).
2. Remove #1067 gear and key from table lead screw (right end).
3. Remove end bracket #4003 after removing 2 - 3/8 x 1" hex head cap screws.
4. Remove 2 locknuts #N-03 from left end of lead screw.
5. Remove bracket #4514 after removing cap screws which retain it.
6. The table can now be removed by sliding in either direction. The gibs can be backed off, or removed if necessary, before removing table.
7. If it is desirable to remove lead screw it will be necessary to remove sleeve #2824 from screw. Now replace hand wheel on right end of lead screw and turn counter-clockwise until threads are free of nut.

E. TO REMOVE SADDLE.

1. In order to remove saddle it is first necessary to remove the table, as in step D above, "To remove milling machine table"
2. Remove handwheel and dial, from front of machine..
3. Remove locknuts #N-03 from saddle feed screw.
   Next remove #4516 bracket after removing (4) retaining cap screws. (Drg. #9080)
   Replace hand wheel and turn in clockwise direction until screw is free of nut.
4. Next remove (4) 3/8" - 16 x 1" soc. hd. cap screws (Drg. #9131) which retain the lead screw nut. There are two roll pins which position the nut, and it may be necessary to start the nut with a pry of some kind until it clears the pins.
   Back off #4365 gib until saddle will slide freely.
   Remove #1953 R.H. and L.H. wippers being careful not to loose rubber wiper inserts.
   The saddle can now be removed by sliding forward off from the knee.

TAPER GIB ADJUSTMENT INSTRUCTIONS



TO ADJUST TAPER GIB

1 - Loosen Hollow Lock Screw "B" by turning to the left.
2 - Turn Hollow Lock Screw "A" to the right until it contacts point "E" - - continue turning to the right until all undesired slack is removed.
3 - Then reverse Lock Screw "A" until it makes contact with point "D".
4 - Turn Lock Screw "B" to the right until it makes contact with point "C", then tighten.
5 - When adjusting table gibs, be sure to adjust both right and left hand gibs equally.

Warning! Tighten Lock Screw "B" only enough to hold gib in place.

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CLUTCH ADJUSTMENT INSTRUCTIONS

With feed engaged, loosen set screw in nut 2477 and turn nut 2477 to the left until it clears lever 4414-A, then turn back to the right until it seats against lever 4414-A and lock in place with set screw.

To adjust pressure on clutch, back off button head screw holding springs 2462 until there is no tension on springs. Loosen set screw in nut 2461-A and hold so that nut does not turn as you turn screw 2385-A to the right to increase, or to the left to decrease, pressure. Lock in place with set screw. Retighten screw holding 2462 springs.

After adjusting as above, engage feed and then try to lower quill with hand feed lever. You should be able to "ratchet" it down by using quite a lot of pressure. This will allow clutch to slip or ratchet under excessive pressure.

QUILL COUNTERBALANCE ADJUSTMENT INSTRUCTIONS

INDEX [redacted] VERTICAL MILL

1. Lock *quill in place by tightening quill lock handle 2007.
2. Engage quill hand feed handle 2108 with cross shaft coupling 2386 and secure handle with one hand against sudden clock-wise rotation when spring tension is released from cross shaft in next step.
3. Have helper "tap" out 3/16 x 1-1/2 rollpin from coupling 2386 - this action diverts spring tension from the cross shaft to the coupling alone, which must be held or tied against rotating (unwinding) clock-wise through the hand feed handle 2108.
4. With spring tension now on handle 2108, rotate handle "clock-wise" to decrease spring tension or "counterclock-wise" to increase spring tension.
5. Reinsert 3/16 x 1-1/2 rollpin at any desired tension point, 60^{o} up to 360^{o}, from point of pin removal.
6. Unlock quill - try "new" counterbalance spring action. (Keep chin out of way).
7. Check quill travel to positive stop at bottom of stroke (by hand feed only) to ascertain full spring travel. **Spring will break if wound to tightly.

*Quill may be fully extended or at point of extension in which spring tension needs attention.

**The counterbalance spring is designed for counterbalancing quill "assembled weight" only -- NOT TO RETURN QUILL to top of stroke.

VIII. RECOMMENDED "INDEX" SPEEDS FOR HIGH SPEED FAST SPIRAL END MILLS:

SIZE	NUMBER OF FLUTES	TOOL STEEL AND FORGINGS	MACHINE STEEL C.R. STEEL	CAST IRON AND FREE CUTTING STEEL
1/8"	2 or 3	1800	2700	2700
	4	1500	1500	2700
3/16"	2 or 3	1000	1500	1500
	4	750 or 1000	1000 or 1500	1500
1/4"	2 or 3	750 or 1000	750 or 1000	1000 or 1500
	4	750	750 or 1000	1000 or 1500
5/16"	2 or 3	500 or 750	750	750 or 1000
	4	500	750	750 or 1000
3/8"	2 or 3	500 or 750	750 or 1000	750 or 1000
	4	500	750	750 or 1000
7/16"	2 or 3	500	500	750
	4	290	500	750
1/2"	2 or 3	290	500	750
	4	290	500	500
5/8"	2 or 3	290	290 or 435	500
	4	290	290 or 435	500
3/4"	2 or 3	290	290	500
	4 or more	160	290	290
7/8"	2 or 3	160	290	290
	4 or more	160	290	290
1"	2 or 3	160	290	290
	4 or more	160	160	290

The foregoing should be regarded as approximate, as many factors control the efficient operation of end mills. Always keep cutters sharp, and a steady flow of oil or compound directly on the working point will allow much higher cutting speed. Keep rate of feed consistent with finish required.

IX. 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

X. 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

LUBRICATION INSTRUCTIONS

[redacted] 555 [redacted]

A. Lubricate only as required. *DO NOT OVERLUBRICATE* ball bearings. Both the manufacturers of anti-friction bearings and major lubricant suppliers caution against overlubrication on antifriction bearings.

B. Before lubrication always wipe lubrication fittings clean so that no grit or contaminant will be forced into the bearings with the new grease or oil.

C. The lubricants specified following are manufactured by the Socony Mobil Oil Company, Inc. It is recommended that these products or their equivalents be used for the most effective lubrication of these machines.

☆ ☆ ☆ ☆ ☆

1. **Pulley Guards.** Two jackshaft pulley bearings. Model [redacted] has slotted grease fittings. Check at six month intervals. Model 555 is permanently lubricated. Replace if new bearings are installed. Use Mobilux Grease No. 2.

2. **Pulley Guard.** Two spindle pulley bearings. These are permanently lubricated. Repack cavity between bearings to a depth of 1/2" with new grease if these bearings are removed due to parts servicing or bearing replacement. Use Mobilux Grease No. 2.

3. **Head.** Spindle pulley-driven worm and worm gear and bearing. In bowl cavity at top of head, there is a grease fitting on the left side of bowl under head flange. The grease should be cleaned out and replaced with new periodically. It should also be replaced if significant or appreciable wear is noticeable on worm and worm gear and/or when above items are replaced. Use Mobilux Grease No. 2.

4. **Spindle Power Feed Gear Box.** Two helical gears and two ball bearings in built-up cover at the top of gear box on left side of head. Grease fitting is located at near center of cover on left side. These are permanently lubricated. Clean out and use Mobilplex EP No. 0 if new bearings or new helical gears are installed.

5. **Spindle Power Feed Gear Box.** Spindle feed change gears. This cavity is packed with Mobilplex EP No. 0 at time of manufacture. Clean and repack whenever new parts are installed. Older models are filled with Mobil Vactra Oil HH which may be changed over to Mobilplex EP No. 0 when new parts are installed.

6. **Spindle Power Feed Gear Box.** Cross-shaft drive section contains three feed-reversing bevel gears, cross-shaft adjustable drive clutch, three ball bearings and a set of worm and worm gears. This section is permanently lubricated, but should be cleaned and repacked if replacement parts are installed. Shifting keys and sleeve should be hand oiled after cleaning and before reassembly with Mobil Vactra Oil HH. Repack section with 1/2" of grease in bottom of gear box. Use Mobilplex EP No. 0.

7. **Model 555.** Model 555 has two grease fittings on front of head. Lubricate daily with Mobilux Grease No. 2.

8. **Spindle Splines.** Lubricate daily by direct application of Mobilgrease Special.

9. **Lower Spindle Bearings.** Extend spindle quill out of head. Screwdriver slotted pipe plug will be found in line with quill key in head slot. Lubricate with Mobilgrease BRB Lifetime, obtainable in cartridges from factory. This unit takes one-half ounce of grease, the capacity of a cartridge. These bearings should be greased only at intervals of two years except when subjected to extreme service. Check each six months as a safety feature.

10. **Upper Spindle Bearings.** Through quill key slot in head, with the spindle quill fully extended, apply a layer of Mobilgrease BRB Lifetime on top of bearings, completely around the spindle shank. On Model [redacted] check every six months and on Model [redacted]55 once each year.

11. **Spindle Quill.** Extend spindle quill full five inches on Model [redacted] Mill and four inches on Model [redacted]55 Mill (so that quill rack teeth are not exposed) and squirt oil around top periphery of quill. Work up and down and repeat to assure full coverage of lubricant. Use Mobil Vactra Oil No. 2. For smooth, jumpless quill downfeeding, oil daily.

12. **Spindle Feed Trip Mechanism.** The square, round and threaded shafts on front of head. Oil weekly with Mobil Vactra Oil No. 2.

13. **Model 645 - Overarm Dovetail Surfaces.** Wipe dovetail bottom and angle surfaces clean and hand oil before moving with Mobil Vactra Oil No. 2.

14.	Head Tilting Worm and Worm Gears.	Model 555 has one grease fitting on right side of head adaptor and Model 645 has two fittings on right side- one on overorm front flange and one on head of overarm adaptor. Grease before tilting head. Use Mobilgrease No. 3. Normally one application is sufficient and no further greasing is required.
15.	Automatic Lubricator.	Automatic lubrication is preferred in good machine tool practice. Actuate plunger 10 times, twice daily. Fill lubricator reservoir with Mobil Vactra Oil No. 2.
16.	Way Surfaces, Table, Saddle, Knee and Column.	These parts are lubricated automatically, as covered in 15, or by pressure gun. Use Mobil Vactra Oil No. 2 daily. Locate 10 fittings - 2 on front of saddle, one on saddle right, 3 on saddle left, 2 on knee left, 2 on knee right (at back).
17.	Saddle Lead Screw.	Lubricate the moving saddle all the way back and remove 1/2" round hole snap-in plug located in the saddle apron. This allows access to saddle lead screw through knee covers. Remove nozzle from grease gun, hold stem of gun against lead screw and force grease into threads while slowly hand turning lead screw. Crank saddle back and forth to work grease into the entire length of the lead screw and nut. Lubricate monthly with Mobilgrease Special.
18.	Saddle Lead Screw Bearings.	One thrust bearing and one angular contact bearing. Grease fittings are located in rim of saddle dial plate or in saddle feed unit mounting plate - located to the right of the saddle feed latch. Use Mobilux Grease No. 2.
18a.		Earlier model machines without the above grease fittings should be repacked each year by removing the handwheel, the dial and the flange plate and repacking the cavity between the two angular contact bearings with Mobilux Grease No. 2. Where reassembling, care must be exercised to make certain that these bearings are not overstressed in retightening the acorn nut against the handwheel. Determine the turning torque of handwheel without preload on bearings and then add preload torque to that torque to arrive at the "setting torque". Five pounds of "turning torque" on the handwheel handle is sufficient. Mills with two locknuts in back of the handwheel are factory set for preload. These two locknuts should not be removed except as necessary for parts replacement. Otherwise, first "snug-up" acorn nut.
19.	Table Lead Screw.	Lubricate through automatic lubricator or apply Mobilgrease Special with a clean paddle directly into screw threads beneath table and on both sides of the saddle. Run table back and forth full stroke to work grease into lead screw nut. Lubricate entire length of thread monthly.
20.	Table Lead Screw Bearings (Right End).	Two gears and two bearings are employed when table power feed (TPF) unit is used. Otherwise, use only one bearing. Pack housing with Mobilux Grease No. 2. No further greasing is required except when replacing parts.
21.	Table Lead Screw Bearings.	Left end, two bearings, grease fittings in dial flange plate. Very little grease is required here. If flange plate does not have this fitting, see Item 18 above regarding the packing of bearings and preload. Use Mobilux Grease No. 2. Under normal operating conditions, check once a year.
22.	Knee Elevating Screw and Support.	This may be lubricated automatically as described in Item 15 or by grease gun. Mobilgrease Special should be applied to fittings at the top of knee support. Lubricate daily.
23.	Inside Knee Above Knee Support.	Lubricate every 6 months by hand application through opening in bottom of knee. Use Mobilgrease No. 3.
24.	Knee Elevator Crank Shaft Bearings.	Two permanently lubricated bearings in late model machines. No attention needed for the life of the bearings. Hand-oil the non-shielded bearings once a year with Mobil Vactra Oil No. 2.
25.	Knee Elevating Screw "Bonded" Thrust Bearings	Located on top of "larger" Bevel Gear. Requires no attention except in event of replacement. Hand pack with Mobilux Grease No. 2.

OPTIONAL EQUIPMENT LUBRICATION

26.	Table Feed Engagement Worm and Worm Gear.	These are part of the TPF unit on right side of saddle under table. Remove worm carrier cover. Pack worm cavity with Mobilplex EP No. 0 twice a year. Lubricate worm shaft weekly by means of 2 pressure fittings with Mobilgrease No. 3.
27.	Three Top Out-Board Gears located at back of Worm Carrier on TPF Unit.	Remove cover, pack with Mobilgrease No. 3 twice a year. Pack bearings in cover with Mobilgrease BRB Lifetime once a year.

28.	Table Power Feed Transmissions.	Maintain oil level near top of oil sight gauge. Use Mobil Vactra Oil HH.
29.	Rapid Traverse Unit.	Ball Bearings, Clutch, Worm and Worm gear in this unit. Maintain oil level near top of sight gauge. Use Mobil Vactra Oil HH.
30.	Clutch Drive Sleeve Bearings in Rapid Traverse Unit.	Fittings in shaft center, use very light hand pressure gun and Mobil Vactra Oil No. 2. Excessive pressure may force sleeve bearings out of the housing. Lubricate monthly.
31.	Rapid Traverse Unit Chain and Sprockets located on back side of Unit.	Oil chain with Mobil Vactra Oil No. 2 weekly.
32.	Saddle Transverse Feed Unit.	Saddle feed engagement worm and warm gear, two helical gears, one sealed double row ball bearing, one thrust bearing and one angular contact bearing. Earlier model machine had two angular contact bearings, see 18a. Once a year remove handwheel, dial spacer and unit cover. Pack Mobilplex EP No. 0 1/2" deep in helical gear area of cover and then fill helical gear teeth with grease. Pack the worm cavity in worm carrier full of grease. Use Mobilplex EP No. 2. *Note - The thrust bearings and the angular contact bearings are the same bearings listed in No. 18. Therefore, grease as noted there with Mobilux Grease No. 2.* Replace parts, remove and then tighten acorn nut. Mills with one locknut in back of the worm gear are factory set for preload. Merely "snug-up" an acorn nut. The locknut in back of the worm gear should not be removed unless necessary for parts replacement or adjustment.
33.	S.F.U. worm shaft sleeve bearings.	Three pressure fittings in worm carrier. Use very light hand pressure grease gun to avoid forcing sleeve bearing out of carrier. Use Mobilplex EP No. 0 weekly.
4.	Sliding Auxiliary Shafts.	The sliding auxiliary shaft that drives table and sliding power take-off shaft that activates saddle feed unit should be oiled daily with oil can. Use Vactra Oil No. 2.

DESCRIPTION OF RECOMMENDED LUBRICANTS FOR INDEX MILLS

Mobilux Grease No. 2 is a lithium base grease having a worked penetration of 260-290 and an ASTM minimum dropping point of 375°F. Mobilplex EP No. 0 is a calcium lead, EP complex grease having a worked penetration of 355-385 and an ASTM minimum dropping point of 500°F. Mobilplex EP No. 2 is a stiffer grease of the same type and dropping point having a worked penetration of 260-290. Mobilgrease BRB Lifetime is a soda base grease having a worked penetration of 270-310 and a minimum ASTM dropping point of 300°F.

Mobilgrease Special is a lithium base grease, containing Molybdenum-disulphide, and has a worked penetration of 275-305 and an ASTM minimum dropping point of 340°F.

Mobil Vactra Oil No. 2 is designed primarily for the lubrication of ways and other sliding surfaces where high lubricity, film strength and freedom from slip-stick is desired. It has a viscosity SUS of 310-340 at 100°F.

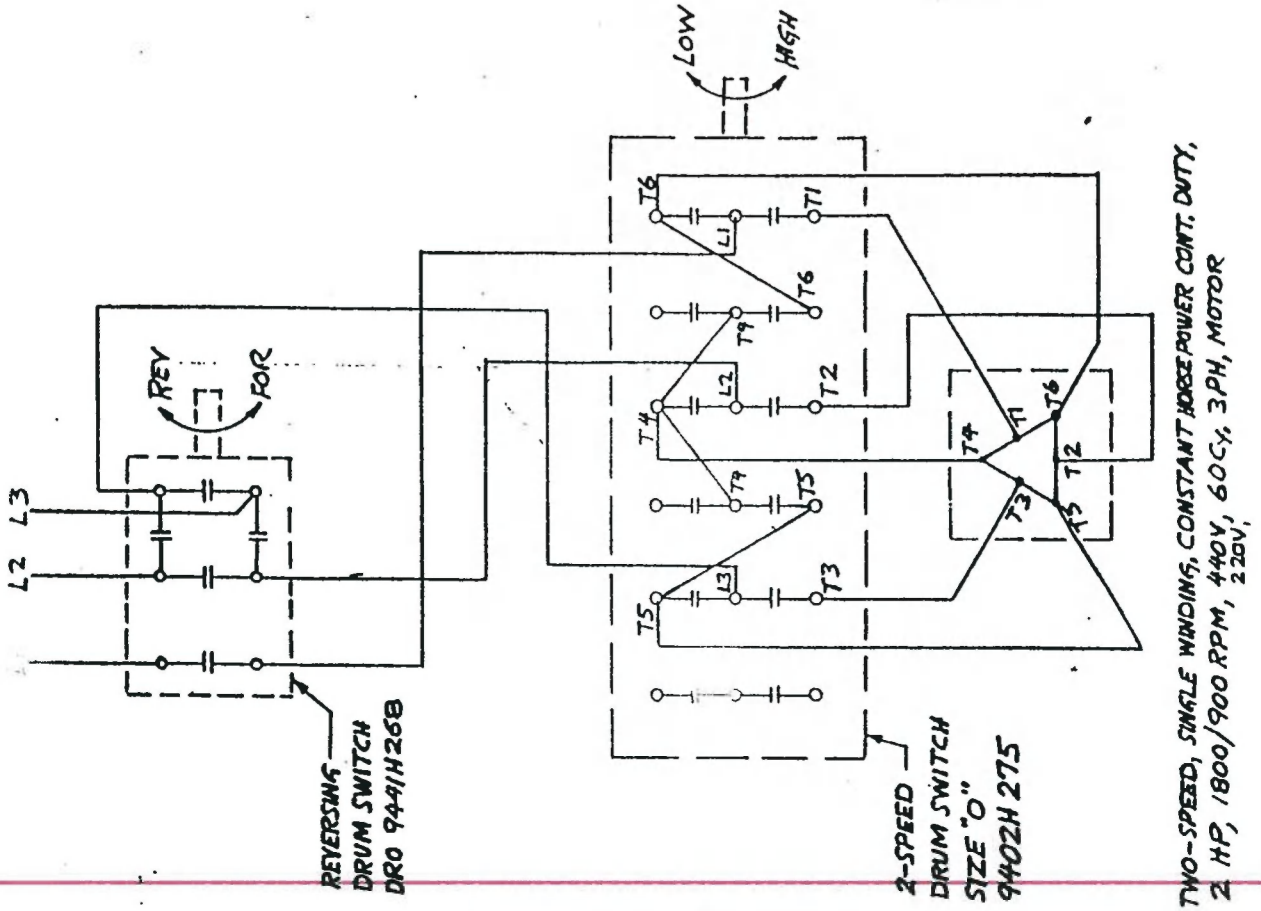
Mobil Vactra Oil HH is a heavy bodied lubricant designed for use on gears and other heavily loaded application. It has a viscosity SUS of 2400-2600 at 100°F.

Mobilgrease No. 3 is an aluminum base grease that maintains its original consistency under repeated shock loads and adheres tenaciously to rubbing surfaces.

91B – Printed in U.S.A.

ELECTRICALS, STANDARD MACHINE
ASSEMBLY NO. 2614

PART NO.	NO. REQ'D.	NAME
		Following Items For Standard Machine Electricals Without Magnetic Controls, T.P.F., RTU Or Coolant.
2614	1	Wiring Diagram, Constant 2 HP
	1	Head Motor Drum Switch Size "O" 2-Speed-H750 For 2 HP Constant HP 1800/900 RPM, 220V Or 440V, 60 CY., 3 Phase Motor Single Winding - Cutler-Hammer
	1	Motor - Constant 2 HP, 1740/860 RPM 220V Or 440V, 60 CY., 3 Phase, TEFCBB, Cont. Duty FR. #2165C, Type PF, C-Face, Clamped Bearing Const. Doerr Dwg. #C-1280
	1	Reversing Head Motor Drum Switch Size DRO-9441H268 (Surface Mounting) Cutler-Hammer
	4	#10-24 x 3/8 Rd. Hd. Machine Screw
	4	1/4-20 x 3/8 Rd. Hd. Machine Screw



ELECTRICALS, STANDARD MACHINE
ASSEMBLY NO. 2853

PART NO.	NO. REQ'D.	NAME
2032	1	Wiring Diagram - 1 HP, 220/440 V. 60 Cy., 3 Phase Motor (Reuland)
2610	1	Wiring Diagram - 1 HP, 230 V., 60 Cy., 1 Phase Motor (Doerr)
2611	1	Wiring Diagram - 1 HP, 115 V., 60 Cy., 1 Phase Motor (Doerr)

Following Items Are Special Options

2001	1	Box Head Motor Switch Mtg. (Used With Fairbanks-Morse Motor Only)
2640	2	Spacer 1-1/2 HP Motor (Reuland)
	1	Vimco Adjustable Bracket Lamp #HX-15-7-60
	2	#10-32 x 5/8 Fil. Hd. Mach. Screw
	1	Size "O" Reversing Drum Switch Cutler-Hammer #9441H136A
	4	1/4-20 x 3/8 Fil. Hd. Mach. Screw
	1	Reuland 1-1/2 HP, 1800 RPM Motor 9125 DWG. DP-7238
	1	Fairbanks-Morse Type QZAU Axial Air-Gap Motor - 1 HP, 1800 RPM, 60 Cy., 3 PH., 220/440, FR. #4570, 4.2/2.1 Amps.
	1	1 HP, 60 Cy., 1 PH., 115/230 V., 1740 RPM, FR. 66, TEFCBB (Doerr)
	4	3/8-16 x 3/4 Soc. Hd. Cap Screw
		Wire Connector Type Y (Scotch Lock)
		Wire Connector Type R (Scotch Lock)
	1	1 HP, 1800 RPM, TENV, 3 PH., 60 Cy., 208-220/440 V, Cont. Duty 50°C Rise (Reuland) DWG. DP-3044

MODEL 55 ELEVATING MECHANISM

QTY.	PART NUMBER	DESCRIPTION
1	8001	COLUMN
1	1844	NAME PLATE
4	880-110-018	#4x5/16 DRIVE SCR.
1	N.P.N.	COVER 1/16x7-1/2x9 FIN
4	880-000-110	RD.HD.SCR.1/4-20x1/2
1	8002-B	KNEE
1	1019	KNEE GIB
2	880-115-001	LOCK SCR.3/4-16x3/8
1	1016	LOCKWEDGE
1	1017	LOCK SCREW
1	1018	LOCK SCREW HANDLE
1	880-004-065	SET SCR.1/4-20x3/8
4	887-020-001	ALEMITE FITTING #1610
1	N.P.N.	STOP PIN
1	4001	ELEVATOR POST
2	880-000-099	SOC.HD.SCR.7/16-14x1-1/2
1	880-000-075	SOC.SET SCR.3/8-16x1/2
1	1002	ELEVATOR SCREW
1	1001	ELEVATOR NUT
1	1020	WASHER
1	880-119-035	HEX HD.SCR.5/16-18x5/8
1	885-012-004	D.B.B.BEARING # D5
1	1003	GEAR
1	880-004-075	SOC.SET SCR.3/8-16x1/2
1	1004	PINION
1	880-004-075	SOC.SET SCR.3/8-16x1/2
1	1005	PINION BUSHING
1	1321	PINION SPACER
1	1006	ELEVATOR SHAFT
1	885-001-007	BEARING #3103
1	885-002-004	BEARING #3203
1	1007	DIAL BRACKET
4	880-024-092	FIL.HD.SCR.1/4-20x5/8
1	1008	DIAL
1	N.P.N	3/16x1/4 BRASS MOUSE
1	1041	DIAL SCREW
1	1009	DIAL RETAINER
1	880-004-076	SOC.SET SCR.3/6-16x5/8
1	1020	ELEVATOR CRANK
1	1808-1	CRANK HANDLE
1	880-111-019	ACORN NUT 7/16-20
1	1022	WIPER
4	880-024-059	FIL.HD.SCR.8-24x1/4
1	1028	COVER PLATE
1	880-024-044	FIL.HD.SCR.6-32x1/4

MODEL 55 CROSS FEED MECHANISM

QTY.	PART NUMBER	DESCRIPTION
1	8003-C	SADDLE
1	1021 ALTERNET #4365	SADDLE GIB
2	880-115-001	GIB SCR.3/4-16x3/8
2	887-020-001	ALEMITE FITTING 1610
4	887-020-013	ALEMITE FITTING 1612
1	1026	GIB CLAMP SCR.
1	1026-A	CLAMP SCREW HANDLE
1	880-004-063	1/4-20x1/4 SET SCR.
1	1011	SADDLE SCREW
1	1029	SADDLE NUT
2	880-000-115	1/2-13x1-1/2CAP SCR.
2	885-005-004	BEARING #20203
1	1012-A	DIAL BRACKET
2	880-044-050	1-1/4x3/4 DOWEL PIN
4	880-024-093	1/4-20x3/4FIL.HD.SCR
4	880-065-009	1/4 SAE WASHER
1	1013	3/16 Dia.x1/4 MOUSE
1	1041	THUMB SCREW
1	1014	DIAL RETAINER
1	880-000-075	3/8-16x1/2 SET SCR.
1	1015	DIAL CRANK
1	880-049-014	#7 WDF KEY
1	880-111-022	1/2-20 ACORN NUT
2	1030	SADDLE WIPER
4	1031	SADDLE WIPER
14	880-026-054	8-32x1/4 RD.HD.SCR.

MODEL 55 TABLE ASSEMBLY

QTY.	PART NUMBER	DESCRIPTION
1	8004-A	TABLE
1	1034-C	TABLE GIB
1	1045-C	TABLE GIB
4	880-115-001	3/4-16x3/8 LOCK SCR.
1	1479-1	CLAMP SCREW
1	1478	CLAMP SCREW WEDGE
1	1627-A	CLAMP SCREW HANDLE
1	4057	TABLE LEAD SCREW
2	885-005-004	BEARING #20203
1	885-001-014	BEARING #73L04
1	1046	DIAL BRACKET
4	880-024-102	5/16-18x3/4 FL.HD.SCR.
2	880-044-050	1/4 x 3/4 DOWEL PIN
1	1013	TABLE DIAL
1	N.P.N.	3/16Dia. x 1/4 MOUSE
1	1041	DIAL SCREW
1	1014	DIAL RETAINER
1	880-004-093	3/8-16x1/2 SET SCR.
1	1047	DIAL SPACER
2	1015	BALL CRANK
1	880-049-014	#7 WDF KEY
1	880-111-022	1/2-20 ACORN NUT
1	1044	TABLE NUT
1	1067-C	SPACER W/O TPF
1	885-001-014	BEARING #73L04
1	880-049-009	#3 WDF KEY
1	880-108-023	3/4-16 HEX JAM NUT
1	4003	TABLE BRACKET
1	1049	TABLE BRACKET COVER
4	880-025-003	10-32x3/4 FIL.HD.SCR.
2	880-038-070	3/8-16x1 HEX HD.SCR.
2	880-044-052	1/4 x 1 DOWEL PIN
4	880-025-030	10-32x3/4 FIL.HD.SCR.
1	1067	FEED SHAFT GEAR
1	1050	TABLE FEED SHAFT
1	1068	FEED SHAFT GEAR
1	880-049-009	#3 WDF KEY

MODLE 55 TABLE ASSEMBLY CONTINUED

QTY.	PART NUMBER	DESCRIPTION
1	880-106-014	1/2-20 HEX NUT
1	885-000-001	BEARING #77R10
1	1069	FEED SHAFT SPACER
2	N P N	10-32x3/8BINDING HD
1	1051	WORM GEAR
1	1052	WORM GEAR KEY
1	885-001-020	BEARING #73L06
1	1053	BEARING SPACER
1	4002-B	BEARING BRACKET
2	N P N	10-32x3/8BINDING HD
2	880-024-112	3/8-16x2-3/4 FIL.HD
2	880-044-050	1/4 x 3/4 DOWEL PIN
1	1042	BRACKET COVER
4	880-025-029	10-32x5/8 FIL.HD.
1	1054	FEED WORM
1	1055	FEED WORM SHAFT
1	880-021-002	#2 x 1 TAPER PIN
1	4051	FEED SHAFT HOUSING
1	880-044-079	3/8 x 2 DOWEL PIN
1	880-024-106	5/16-18x1-1/2FIL HD
1	1263	LATCH PLATE
1	1261-A	LATCH
1	1265	LATCH PIN
1	1251	LATCH SPRING
1	1264	LATCH INSERT
1	880-106-004	5/8-16 HEX NUT
1	880-005-033	10-32x1/4 SET SCR.
1	1262-A	RH. TABLE STOP
1	1262-A1	LH. TABLE STOP
2	1037	TABLE STOP TEE BOLT
2	880-106-005	5/16-24 HEX NUT
1	1098	TELESCOPE SHAFT(H)
1	1090	TELESCOPE SHAFT(S)
1	1091	TELESCOPE SHAFT KEY
2	880-046-041	.0915x3/4 ROLL PIN
1	1092	U-JOINT SOLID
1	1093	U-JOINT HOLLOW

MODEL 55 FEED GEAR UNIT

QTY.	PART NUMBER	DESCRIPTION
1	8041	FEED GEAR HOUSING
1	4054	HOUSING COVER
6	880-025-030	10-32x3/4 FIL.HD.SCR
2	880-044-043	3/16 X 1 DOWEL PIN
1	N P N	PIPE PLUG
1	N P N	OILER #804
2	880-038-136	1/2-13x1-3/4 HEX HD.
2	880-065-017	1/2" WASHER
1	8058	PULLEY GUARD
3	880-038-070	3/8-16x1 HEX HD.SCR.
2	880-024-091	1/4-20x1/2 FIL.HD.
1	4005-A	MOTOR BASE
1	1094	HINGE PIN
1	880-004-078	5/16-18x3/8 SET SCR.
4	880-038-036	5/16-18x3/4 HEX HD.
4	880-065-011	5/16 WASHER
1	1137	MOTOR PULLEY
2	880-004-078	5/16-18x3/8 SET SCR.
1	1470	BELT TIGHTENER SCR.
1	1468	BELT - LOCK NUT
1	1468	BELT - KNOB
1	880-021-015	#1 x 1 TAPER PIN
1	1282	UPPER GEAR SHAFT
1	4048	UPPER PULLEY
1	880-108-010	7/16-14 HEX JAM NUT
1	880-051-004	1/8 x 7/8 SQ. KEY
1	1283	UPPER PULLEY SPACER
1	N P N	OIL SEAL #11220
1	1284	OIL RETAINER
2	880-025-029	10-32x5/8 FIL.HD.SCR
1	1313	UPPER SHAFT SPACER
1	1292	UPPER SHAFT GEAR
1	880-051-032	3/16Q x 2-9/16 KEY
1	1286	INTERMEDIATE SHAFT
6	885-001-005	BEARING #93L02
4	1285	BEARING RETAINER
8	880-025-029	10-32x5/8FIL.HD.SCR.

MODEL 55 FEED GEAR UNIT CONTINUED

QTY.	PART NUMBER	DESCRIPTION
3	880-022-083	SNAP RING #594
1	1293	INT. SHAFT GEAR 36T
1	1294	INT. SHAFT GEAR 21T
1	1295	INT. SHAFT GEAR 25T
1	1296	INT. SHAFT GEAR 48T
1	1297	INT. SHAFT GEAR 44T
1	880-108-010	7/16-14 HEX JAM NUT
1	1287-2	SPACER 3/16" LONG
1	1287-1	SPACER .334 LONG
2	1288	SPACER 15/16" LONG
2	1290	GEAR WASHER
1	1289	LOWER GEAR SHAFT
1	1291	LOWER SHAFT SPACER
1	N P N	OIL SEAL #12420
1	1298	LOWER GEAR 48 TEETH
1	1299	LOWER GEAR 44 TEETH
1	1300	LOWER GEAR 21 TEETH
1	1301	LOWER GEAR 25 TEETH
4	880-000-	10-32x5/8 CAP SCR.
2	880-051-033	3/16 SQ.x3-5/8 KEY
1	1302	UPPER SHIFTER FORK
1	1303	SHOULDER SCREW
1	1304	SHIFTER ARM
1	1305-A	SHIFTER LEAVER
1	1308	LH FORK
1	1311	LH ARM
1	1306-A	LH LEVER
1	1309	RH FORK
1	1307	RH ARM
1	1305-A	RH LEVER
6	1232	LEVER SPRINGS
6	885-016-004	1/4 STEEL BALL
3	880-004-067	1/4-20x1/2 SET SCR.
3	880-049-009	#3 WDF KEY
3	N P N	OIL SEAL #07512
1	1310	PAWL
1	1225	PAWL SHOULDER SCR.

MODEL 55 SPINDLE FEED MECHANISM

QTY.	PART NUMBER	DESCRIPTION
1	1441	HAND FEED LEVER
2	N P N	1/4 x 3/4 GROOVE PIN
1		1/2-13 HEX NUT
1	1439	HAND FEED SHAFT
1	1440	SHAFT HUB
2	880-021-009	#2 x 1-1/4 TAPER PIN
1	1435	SHAFT GEAR
1	1435	CROSS SHAFT GEAR
1	880-051-034	5/32sq. x 5/8 KEY
1	886-006-002	#2 LOCK NUT
1	880-072-002	#W02 WASHER
1	1438	BALANCE SPRING
1	1454	BALANCE SPRING SCREW
1	1437	BALANCE SPRING CASE
1	1463	BALANCE SPRING WASHER
1	880-004-137	5/8-11x2-1/2 SET SCREW
1	4109-A	GEAR HOUSING
4	880-024-114	1/4-20x2-1/4 FIL.HD.SCR.
2	880-044-052	1/4 x 1 DOWEL PIN
1	N P N	RADIATOR PLUG 1/8"
2	887-011-003	GITS OILER #501
1	880-004-081	5/16-18x5/8 SET SCREW
1	N P N	BRASS ROD 1/4 x 5/8
1	1436	SPOOL
3	880-044-040	3/16 x 5/8 DOWEL PIN
1	1431	QUILL BALANCE GEAR
1	1430	QUILL FEED GEAR
1	880-049-012	#6 WDF KEY
1	1462	QUILL FEED GEAR COVER
4	880-026-038	6-32x3/16 RD.HD.SCREW
1	1428	CLUTCH GEAR
1	1429	CLUTCH GEAR SPACER
1	880-022-084	SNAP RING #324
1	1427	CLUTCH PLATE
1	880-049-012	#6 WDF KEY
2	880-044-040	3/16 x 5/8 DOWEL PIN
1	1467	DIAL

MODEL 55 SPINDLE FEED MECHANISM CONTIUED

QTY.	PART NUMBER	DESCRIPTION
3	1162	DIAL SPRING
3	885-016-003	7/32 DIA.STEEL BALL
1	1471	DIAL FINGER
1	4111	CROSS SHAFT
1	885-012-008	BEARING #606 (NICE)
1	1424	CROSS SHAFT KNOB
1	880-044-041	3/16 x 3/4 DOWEL PIN
1	1426	TRIP PLATE
1	1425	LOCK PLATE
2	880-000-050	1/4-20x1 CAP SCREW
1	1423	TRIP PLATE DOG
1	1422	TRIP LEVER
1	880-021-016	#0 x 3/4 TAPER PIN
1	880-005-033	10-32x1/4 SET SCREW
1	1421	TRIP LEVER SHAFT
1	1420	TRIP CAM
1	880-049-008	#2 WDF KEY
1	1455	TRIP CAM HANDLE
1	898-016-007	KNOB #M8084
1	1466	TRIP CAM PLUNGER
1	1444	WORM
1	880-049-008	#2 WDF KEY
1	1446	WORM CARRIER
1	1447	WORM CARRIER SPRING
1	1443	WORM SHAFT
1	1459	WORM SHAFT SPACER
1	1474	WORM SHAFT COLLER
1	1418	WORM SHAFT U-JOINT
2	880-021-016	#0 x 3/4 TAPER PIN
1	1445	WORM GEAR
1	880-044-010	#4 WDF KEY
1	1448	WORM GEAR SHAFT
1	1451	HAND WHEEL
1	880-021-009	#2 x 1-1/4 TAPER PIN
1	1472	WORM GEAR DIAL
1	1162	WORM GEAR DIAL SPRING
1	885-016-003	7/32 DIA.STEEL BALL

MODEL 55 SPINDLE FEED MECHANISM CONTIUED

QTY.	PART NUMBER	DESCRIPTION
1	1450	WORM GEAR DIAL SLEEVE
1	880-008-042	5/16-18x3/8FLT.PT.SET SCR
1	1461	POSITIVE STOP DOG
1	N P N	1/4 DIA.x 7/8 RIVET CRS
1	1452	POSITIVE STOP BLOCK
1	1453	SHOULDER SCREW
1	1454	WEAR BUTTON
1	880-040-038	5/16-18x1-1/4 SQ.HD.SCR.
1	880-108-004	5/16-18 HEX JAM NUT
1	8054	WORM GEAR HOUSING
1	N P N	OIL SEAL #375228
3	880-024-093	1/4-20x3/4 FIL.SCR.
3	880-024-092	1/4-20x5/8 FIL.HD.SCR.
2	880-044-040	3/16x5/8 DOWEL PIN
1	887-034-001	1/8" PIPE PLUG
2	887-011-003	SHAFT OILER #501
1	4110	WORM GEAR HOUSING COVER
4	880-024-092	1/4-20x5/8FIL.HD.SCR.
2	880-044-040	3/16x5/8 DOWEL PIN
1	887-034-001	1/8"PIPE PLUG
1	1406	SPINDLE PULLEY
2	880-024-097	1/4-20x1-1/4FIL.HD.SCR.
1	1419	DRIVEN PULLEY
2	880-004-065	1/4-20x3/8 SET SCR.
1	1416	DRIVER PULLEY SHAFT
2	885-002-011	BEARING #7502
2	880-035-010	10-32x3/8 B.H.SCR.
1	1417	SHAFT SPACER
1	1457	DRIVER PULLEY GUARD
1	880-004-063	1/4-20x1/4 SET SCR.
1	1164	IDLER PULLEY
1	1165	IDLER PULLEY SHAFT
2	880-038-001	1/4-20x1/2 HEX HD.SCR.
1	885-004-004	BEARING #55500
1	1163	IDLER PULLEY CARRIER
1	N P N	SHAFT 3/16x2-3/4 CRS
1	1160	IDLER PULLEY SPRING
1	898-013-002	20-1/2 x 1/2FLAT BELT

MODEL 55 TILTING MECHANISM

QTY.	PART NUMBER	DESCRIPTION
1	1123	TILTING WORM
1	1126	BRONZE BUSHING
1	N P N	3/8-10x1/2 SET SCR.
1	1127	COLLAR
1	880-004-091	3/8-16x3/8 SET SCREW
1	1124	TILTING GEAR
1	880-004-093	3/8-16x1/2 SET SCREW
1	880-051-035	1/4 SQ.x 1-3/8 KEY CRS
1	1117	TILTING GEAR COLLAR
1	880-021-005	#6 x 2 TAPER PIN
1	1458	TILTING GEAR SHAFT
1	880-044-080	3/8 x 2-1/4 DOWEL PIN
1	4101	TILTING GEAR BRACKET
1	880-044-079	3/8 x 2 DOWEL PIN
2	880-038-038	5/16-18x1 HEX HD.SCR.
1	8006	TILTING GEAR HOUSING
6	880-000-098	7/16-14x1-1/4 CAP SCR.
3	1109	TEE BOLT
3	1110	WASHER
3	880-105-019	5/8-11 HEX NUT
1	1108	FILLER BLOCK
1	880-004-082	5/16-18x3/4 CAP SCR.

MODEL 55 SPINDLE ASSEMBLY

QTY.	PART NUMBER	DESCRIPTION
1	4107	SPINDLE
1pr.	885-008-002	SPINDLE BRG.#0L08D83
1	1413	SPINDLE BRG.NUT(INNER)
1	1412	SPINDLE BRG.NUT(OUTER)
1	1411	GREASE RETAINER(LOWER)
1	1410	GREASE RETAINER(UPPER)
1	885-002-038	SPINDLE BRG.#3206
1	1409	BEARING SEAL (UPPER)
1	1460	#9B&S DRAWBAR
1	1133	DRAWBAR NUT
1	1407	DRIVE PLATE
2	880-000-061	5/16-18x5/8 CAP SCR.
1	885-004-015	PULLEY BRG.#5508
4	880-031-001	10-32x3/8 FLT.HD.SCR.
1	1408-A	PULLEY BRG. CARRIER
1	4108	QUILL
2	N P N	QUILL RADIATOR PLUG
1	8053-A	HEAD
1	880-000-080	3/8-16x1-1/4 CAP SCR.
1	880-004-063	1/4-20x1/4 SET SCREW
1	1473-A	HEAD CLAMP SCREW
1	880-004-063	1/4-20x1/4 SET SCREW
1	1033	HEAD CLAMP SCREW HANDLE
2	887-011-003	#501 GITS OILER
1	N P N	5/8 x 1/2 PLUG CRS
1	880-004-077	5/16-18x5/16 SET SCR.
1	1477-1	QUILL LOCK WEDGE
1	1477-2	LOCK WEDGE THREADED

MODLE 55 SPINDLE DRIVE UNIT

QTY.	PART NUMBER	DESCRIPTION
1	N P N	1HP.MOTOR 204 FRM.1800rpm
1	4112-A	MOTOR BASE
4	880-038-133	1/2-13 x 1 HEX HD.SCR.
1	1507	BELT TIGHTENER SCREW
1	4102-A	MOTOR PULLEY
1	880-051-036	3/16Sq.x1-1/2 KEY CRS
1	880-004-077	5/16-18x5/16 SET SCREW
1	898-015-016	V-BELT #1 MO 38
2	1414	MOTOR BASE GIB
8	880-038-003	1/4-20x3/4 HEX HD.SCR.
1	1405	JACKSHAFT
1	4103-A	JACKSHAFT UPPER PULLEY
1	880-051-037	3/16Sq.x1-1/4 KEY CRS
2	880-004-077	5/16-18x5/16 SET SCR.
1	4104-A	JACKSHAFT LOWER PULLEY
1	880-051-011	3/16Sq.x7/8 KEY CRS
1	880-038-132	1/2-13x3/4 HEX HD.SCR.
1	880-065-017	1/2 S A E WASHER
1	885-002-016	BEARING #7505
4	880-035-033	10-32x1-3/4 B.H.SCR.
1	4106	JACKSHAFT BRACKET
1	1403	JACKSHAFT BRACKET POST
1	1475	BRACKET POST WASHER
1	880-038-132	1/2-13x3/4 HEX HD.SCR.
1	880-066-043	1/2 std WASHER
1	4105-B	SPINDLE PULLEY
2	898-015-003	V-BELT #AX38
1	1415	PULLEY LOCK PIN
1	8051-B	PULLEY GUARD
1	880-000-116	1/2-13x1-3/4 CAP SCR.
1	1456	DOOR
2	N P N	DOOR BUTTS 1x1-1/2
8	880-031-001	10-32x3/8 FLT.HD.SCR.
1	1200	SPRING
1	1812	BRAKE SHOE
1	880-030-033	1/4-20x1-1/2 FLT.HD.SCR.
1	1813	BRAKE SHAFT
1	1814	BRAKE ARM
1	1815	BRAKE ROD
1	1816	BRAKE KNOB
1	1822	BRAKE LINKAGE PIN
1	1826	BRAKE RETURN SPRING

MODEL 55 TABLE POWER FEED UNIT

QTY.	PART NUMBER	DESCRIPTION
1	9061	FEED GEAR HOUSING
1	4327	FEED GEAR COVER
1	N P N	V - BELT
1	4328	MOTOR MOUNTING BRACKET
1	1978	MOTOR BRACKET SHAFT
1	887-031-001	OIL LEVEL GAUGE #4040
1	1053	WORM GEAR NUT
2	880-000-086	3/8-16x2-3/4 CAP SCREW
1	1961	WORM GEAR COVER
1	1264	LATCH INSERT
1	880-075-029	5/16 LOCK WASHER
1	880-108-004	5/16-18 JAM NUT
1	1956	TABLE FEED LATCH
1	1251	LATCH SPRING
1	1990	LATCH PIN
1	1955	LATCH BRACKET
1	4330	ENGAGEMENT LEVER
1	880-034-036	5/16-18x5/8 BUTTON HD.
1	1986	LATCH PLATE
1	887-020-001	ALEMITE FITTING #1610
1	1054	WORM GEAR
1	1962	WORM GEAR SHAFT
1	1963	TOP OUTBOARD FEED GEAR
2	1991	PIVOT PIN
2	880-026-074	10-24x3/8 RD.HD.SCREW
1	1998	BEARING COVER(OUTBOARD)
1	880-044-050	1/4 x 3/4 DOWEL PIN
1	4329	OUTBOARD BRG.HOUSING
1	1965	BOTTOM FEED GEAR(OUTB.)
1	880-046-078	5/32 x 1 ROLL PIN
1	1964	FEED GEAR (MIDDLE OUTB)
1	1972	BEARING RETAINER
1	1966	FEED GEAR SHAFT (OUTB.)
1	1967	TOP TABLE GEAR SHAFT
1	2055-A	KEY
1	1974	BEARING COVER
1	1051	AUX.FEED SHAFT GEAR
1	1052	KEY
1	885-001-020	BEARING #73L06
1	880-034-035	5/16-16x1/2BUTTON HD.
1	1993	UPPER LH SHIFTER ARM
1	1308	UPPER SHIFTER FORK
1	1992	UPPER LH SHIFTER SHAFT
1	1306-A	UPPER LH SHIFTER LEVER

MODEL 55 TABLE POWER FEED UNIT CONTIUED

QTY.	PART NUMBER	DESCRIPTION
1	1305	LOWER SHIFTER LEVER
3	880-049-009	#3 WDF KEY
1	1996	LOWER SHIFTER FORK
1	1994	SHAFT-LOW.&UP.RH.SHIFTER
6	1232	SPRING
6	885-016-004	1/4 DIA.STEEL BALL
1	1995	ARM-LOW.&UP.RH.SHIFTER
1	N P N	PAWL-SAFETY GEAR SHIFT
1	880-041-001	1/4x3/8 SHOULDER SCREW
1	1305-B	UPPER RH.SHIFTER LEVER
1	1994	SHAFT-LOW.&UP.RH.SHIFTER
1	1995	ARM-LOW.&UP.RH.SHIFTER
1	1308	UPPER SHIFTER FORK
1	1299	GEAR 44T (S)
1	1298	GEAR 48T (L)
1	1300	GEAR 21T (S)
1	1301	GEAR 25T (L)
7	880-000-029	8-32x5/8 SOC.HD.CAP SCR.
1	1973	BEARING COVER (MIDDLE)
8	885-001-005	BEARING #93L02
1	1968	SHAFT (MIDDLE)
1	2055-B	KEY
1	1975	SPACER (MIDDLE SHAFT)
1	1288	SPACER 15/16 LONG (MIDL)
1	1974	BEARING COVER
1	1293	GEAR 36T MIDDLE SHAFT
1	1294-A	GEAR 21T MIDDLE SHAFT
1	1295-A	GEAR 25T MIDDLE SHAFT
1	1296	GEAR 48T MIDDLE SHAFT
1	1297	GEAR 44T MIDDLE SHAFT
1	1284	BEARING RETAINER
1	880-108-010	7/16-14 HEX JAM NUT
1	880-065-016	7/16 SAE WASHER
1	1283	PULLEY SHAFT SPACER
1	N P N	OIL SEAL #11220
1	1969	PULLEY SHAFT
1	2055-C	KEY
1	1974	BEARING COVER
1	1292	SLIDING CLUSTER GEAR
1	4326-A	PULLEY GUARD
1	4048	DRIVEN PULLEY
1	1971	MOTOR PULLEY
1	880-004-078	5/16-18x3/8 SET SCREW

MODEL 55 HEAD PULLEY GUARD

QTY.	PART NUMBER	DESCRIPTION
1	9086	PULLEY GUARD
1	880-000-116	1/2-13x1-3/4 CAP SCREW
2	880-034-039	5/16-18x1 BUTTON HD.
2	880-000-061	5/16-18x5/8 CAP SCREW
1	1843	SPINDLE FEED CHART
1	2349	SPINDLE SPEED CHART
4	880-110-008	#0(.073)x1/4 DRIVE SCR
1	7053	SUPPORT BRACKET
1	880-004-091	3/8-16x3/8 SET SCREW
1	1457	PULLEY GUARD
1	880-004-063	1/4-20x1/4 SET SCREW
1	880-046-209	3/16x2-3/4 ROLL PIN
1	1160	SPRING
1	1163	IDLER PULLEY CARRIER
1	1164	IDLER PULLEY
1	1165	IDLER SHAFT
1	885-004-004	BEARING #55500
1	1419	DRIVEN FEED PULLEY
1	880-004-065	1/4-20x3/8 SET SCREW
1	1416	PULLEY SHAFT
1	1418-A	U-JOINT
2	880-046-074	5/32x3/4 ROLL PIN
2	885-002-011	BEARING #7502
1	1417	BEARING SPACER
2	880-025-026	10-32x3/8 FIL.HD.SCR.
1	4408	MOTOR PLATE
4	880-043-046	1/2-13x1 BUTTON HD.SCR
4	880-000-080	3/8-16x1-1/4 CAP SCREW
4	880-065-013	3/8 SAE WAHER
1	4403	SPINDLE PULLEY
1	885-004-015	BEARING #5508
1	1406	DRIVE FEED PULLEY
1	1407	SPINDLE PULLEY DRIVER
2	880-000-051	1/4-20x1-1/4 CAP SCREW
2	880-000-061	5/16-18x5/8 CAP SCREW
1	898-013-002	20-1/2 x 1/2 FLAT BELT
1	4401	SPINDLE BRAKE
1	2346	BRAKE PIN
1	2321	BRAKE CAM

MODEL 55 HEAD PULLEY GUARD CONTINUED

QTY.	PART NUMBER	DESCRIPTION
1	880-046-074	5/32 x 3/4 ROLL PIN
1	2350	BRAKE CAM SPACER
1	2347	BRAKE CAM SHAFT
1	1924	BRAKE HANDLE HUB
2	880-046-078	5/32 x 1 ROLL PIN
1	2348	BRAKE HANDLEPP
1	898-016-001	5/16-18 KNOB #187
1	2345	LOCK PIN
1	4404	TOP JACKSHAFT PULLEY
1	898-015-006	V-BELT AX-55
1	4405	BOTTOM JACKSHAFT PULLEY
1	898-015-003	V-BELT AX-38
1	4406	MOTOR PULLEY 1.125 BORE
2	880-004-091	3/8-16x3/8 SET SCREW
1	4406-A	MOTOR PULLEY .750 BORE
1	7052	JACKSHAFT CARRIER ARM
1	885-002-017	BEARING #477505
1	885-002-016	BEARING #7505
1	880-025-026	10-32x3/8 FIL.HD.SCR.
1	880-046-078	5/32 x 1 ROLL PIN
1	2342	SHAFT
1	886-006-004	LOCKNUT #N-04
1	880-072-004	LOCKWASHER #W-04
1	880-065-023	3/4 SAE WASHER
1	2343	BEARING SPACER
2	2055-H	KEY
1	880-065-013	3/8 SAE WASHER
1	2340	JACKSHAFT ARM CLAMP
1	2341	LOCK SCREW
1	880-065-006	#10 SAE WASHER
1	880-025-026	10-32x3/8 FIL.HD.SCR.
1	583	WRENCH
1	2344	CLEVIS PIN
1	880-045-233	3/8 x 3/4 SPIROL PIN
1	2359	PULLEY GUARD DOOR
2	838	2"FAST PIN BUTT HINGE
8	880-030-011	6-32x3/8 FLT.HD.SCREW
1	2360	MOUNTING PLATE (SWITCH)
2	880-026-110	1/4-20x12 RD.HD.SCREW
1	890-023-012	2 SPEED SWITCH

INDEX VERTICAL MILLING MACHINE

Model 55

Supplemental Changes To Parts List 6/1/55

ITEM NO.	PART NO.	NEW PART NO.	SERIAL NO. & CHANGE
1	8001	8001	55-5433,-5438,-5440 and all after have cavity omitted for two speed spindle switch.
1	8001	8001	55-5930 Cavity for spindle reversing switch added below T.P.F. switch cavity. 55-5942 Column strengthened by addition of ribs and more metal - except 55-5943,-5945,-5947,5955,-5957.
1	8001	8001	55-5605 Cavity for magnetic starter switch omitted - except on 55-5643,-5654,-5656,-5659, -5661,-5662,-5676,-5685,-5690, -5694,-5697,-5700,-5711,-5714, -5716,-5719.
2	8002	8002	55-3979 Finish boss added for cross feed retainer bearing.
2	8002	8002B	55-4544 to 55-4554 Saddle bearing on outboard of knee. 55-4555 to 55-4586 old style with saddle bearing center board of knee. 55-4587 and all machines after, saddle bearing outboard of knee.
3	8003	8003C	55-5961 Saddle redesigned with two gibs, center table lock, table nut off center to left. Also used on 55-5866.
4	8004	8004A	55-6076 table thickness increased 2-3/4" to 3-1/8". Also on 55-5866, 55-6015 mechanite instead of gray iron used on 55-6088,-6097,-6115.
4	8004	8004	55-5563 "T" slots changed from ½" to 5/8" except 55-5564,-5577, -5587,-5594,-5660 which had ½" "T" slots.
4	8004	8004	55-3604 first 46" table.

ITEM NO.	PART NO.	NEW PART NO.	SERIAL NO. & CHANGES
5	8051	8051A	55-5422 Cavity added for two speed spindle switch 9441H134. Also on 55-5235, -5422,-5524 and all after except 55-5638.
5	8051A	8051B	55-5913 cavity for spindle switch enlarged to receive switch 9402H274 in place of 9441H134. Boss added for brake & for brake rod on all except 55-5911.
6	8053	8053A	55-5100 (approx.) head casting changed for new quill lock using lock wedges 1477-1, 1477-2 & 1473A lock screw.
6	8053A	8053A	55-6092 tapped hole added for 1/4 x 90° oiler.
7	4005	4005A	55-5690 pad added for adjusting screw. Interchange not affected.
8	4102	4102A	On super 55 1½ h.p. motor, shaft bore is 1-1/8 dia. except on following which have 3/4" bore, 55-5961, thru 55-5981, 55-5982, 55-6007,-6013,-6014.
9	4105	4105A	overall pulley thickness increased .156" to prevent rubbing.
9	4105A	4105B	55-5913 mat'l changed from C.O. to alum. brake surface added.
10	4107	4107	55-6001 mat'l changed from max-31 2B to max-31 1B & spindle nose hardened.
11	4112	4112A	55-5961 bolt circle moved to give better bolt adjustment.
12	1018	1026A	55-4841 handle changed from round shaft hole to broached octagon shaft hole.
13	1026	1026	55-4841 changed from round to octagon shaft to relieve octagon broached handle.

ITEM NO.	PART NO.	NEW PART NO.	SERIAL NO. & CHANGE
14	1028	1028	55-5271 and prior had nut opening 6-1/4" long. 55-5271 to 55-5382 had nut opening 6" long 55-5383 and on had nut opening 6-1/8" long.
			55-6044 only-wiper dovetailed into knee.
15	1029	1029	55-5271 nut base reduced 1/4" to increase travel. For service prior to 55-5271 use nut 1807.
16	1033	1033	55- 4818 changed shaft hole from round to broached octagon.
16	1033	1026-A	55-5100 (approx.) changed handle size.
17	1034	1034-C	55-5961 gib R.H. change from single to double gib.
18	1043	4057	55-5961 table lead screw-thread relocated for nut relocation.
17	1045-C	1045-C	55-5961 gib, L.H. change from single to double gib.
19	1070-A	1627-A	55-5961 handle now on front of saddle. 1627-A used to clear verniers.
20	1408	1408-A	55-5029 spindle bearing support changed to raise 5508 bearing.
21	1473	1483	55-4818 octagon added for handle adjustment -- L.H. thread.
21	1473	1473-A	55-5100 (approx.) screw for wedge type quill lock.
22	1477-1	1477-1	55-5100 (approx.) floating wedge for quill lock.
22	1477-2	1477-2	55-5100 (approx.) threaded wedge for quill lock.
23	1478	1478	55-5961 lockwedge for table on super 55.
23	1479	1479-1	55-5961 lock screw for table on super 55.

SUPPLEMENTAL CHANGES CONT.

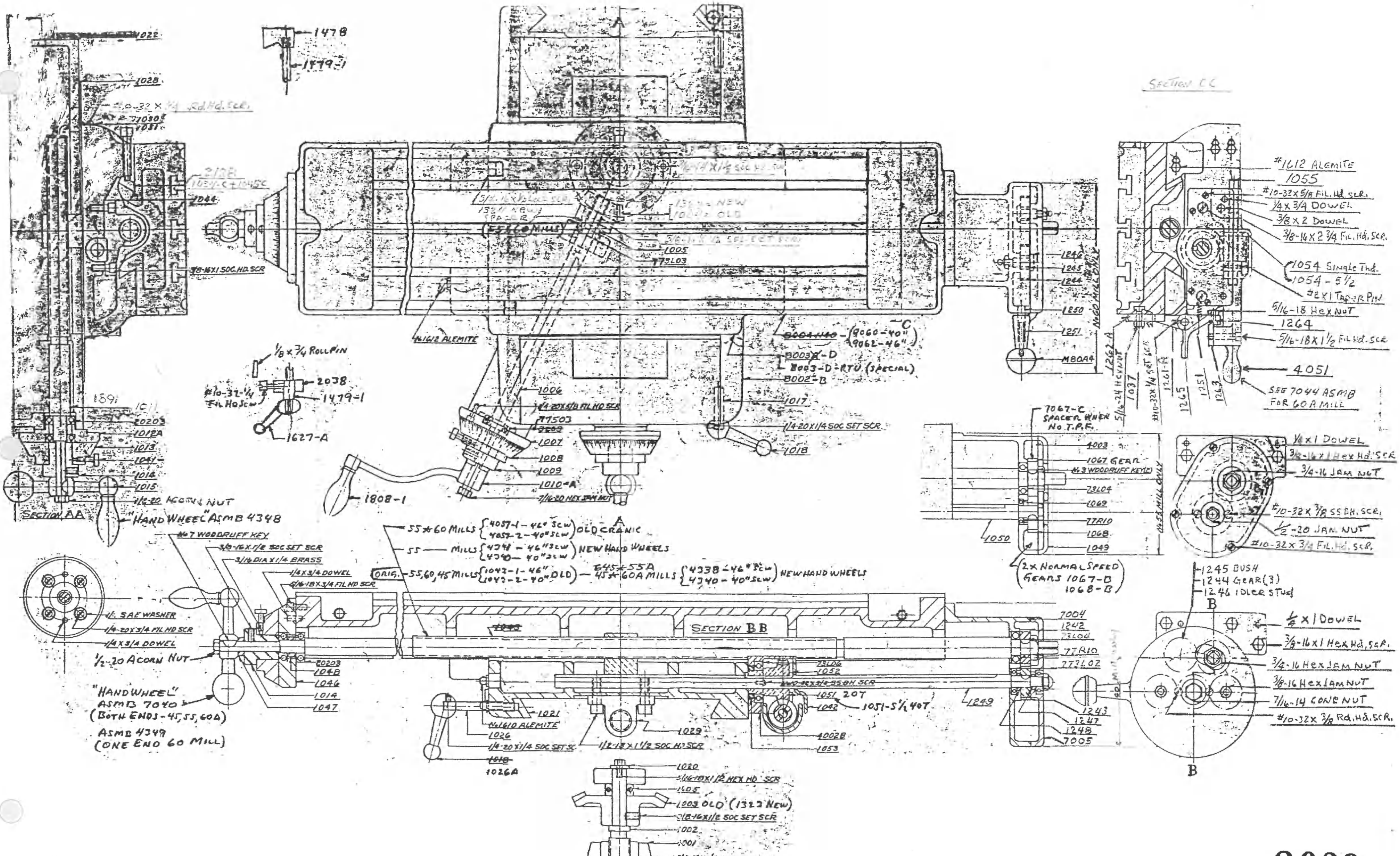
THE FOLLOWING PARTS WERE ADDED FOR THE SPINDLE BRAKE ASSEMBLY ON SERIAL NO. 55-5913

ITEM NO.	PART NO.	NEW PART NO.	SERIAL NO. & CHANGE
24	1812	1812-A	Brake shoe 55-6116 (Interchangeable with 1812)
24	1813	1813	Shaft -Brake
24	1814	1814	Arm Brake
24	1815	1815	Rod-Brake
24	1816		Knob-Brake
24	1822		Pin-Brake
24	1826		Spring-Brake return
25	1M038	AX38	Belt 55-5961
25	1M041	AX38	Belt 55-5961
26	1460	1460	Draw Bar lengthened 1/4"
27	8003-C	8003-D	Saddle changed to accommodate TPF gear box Serial 55-7122
28	8004-A - 40" 8004-A - 46"	9060 - 40" 9062 - 46"	Table change for new saddle above 55-7122
29	1812-1826	Assy. 4115	Brake Assy changed. 55-7309 & 55-7317 & up. Uses brake shoes 4118 and 4119
30	1262-A2 1262-A1 1037	1957 1958 1987	55-7122 Table stop R. H. long 55-7122 Table stop L. H. short 55-7122 T Bolt
31	1958 1957	2082 1037	With 9077 saddle - 55-7944, 55-7974 - 79 - 89 and all after.
32	8003-D	9077	Saddle change for rapid traverse - 55-7944 - 74 - 79 - 89 and all after.
33	1015	4339	Crank on saddle and table changed to hand wheel and hand wheel added to right side of table. 55-7752 and up.
34	1013	1013	Dial added to right side of table. 55-7752 and up.

ITEM NO.	PART NO.	NEW PART NO.	SERIAL NO. & CHANGES
35	4057-2 4057-1	4340-40" 4341-46"	Lead screws changed for hand wheel at each end of table. 55-7752 and up (or 45-7848)
36	1011	1891	Saddle lead screw changed for hand wheel in place of crank. 55-7780 and up
37	4109A	4109A	Hub diameter increased from 1-¼" to 1-5/8" 55-8011.
38	1440	1885A	Hand feed coupling 1440 and 1885A are interchangeable. Either can be used with 1441 or 2108 handle. Both types used on 55's after 55-8011.
39	Table power feed assy.		All parts marked 39 are replaced by new saddle mounted assembly after Mill 55-7122. See pages 9 & 10 for new table power feed parts list. Note prior to 55-3518 Gear Box was 6 Feed as on 50
40	1808-1	2036	Handle changed from steel to bakelite 55-8340, 41, 49, 59, and 8369 and all after.
41	1010	1010A	Crank changed to accommodate 2036- per above
42	8001	8001A	55-8341, 55-8349 and all after have door on back of column and have TPF switch opening removed from side of column.
43	1049	2029	Mill 55-7752 & up Cover changed when change made from ball crank handles to hand wheels.
44	Head Pulley Guard		Mill 55-8547 & up except 8565, 8586, 8569, and 8568. See pages 11 and 12
45	8006	9087	Mill 55-8547 & up except 8565, 8586, 8569 and 8568.
46	1458	2361	Mill 55-8547 & up except 8565, 8586, 8569 and 8568.

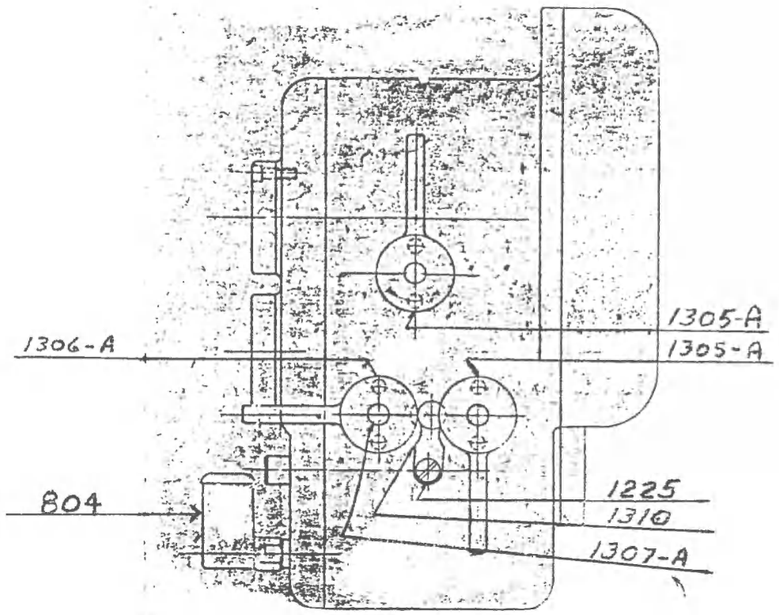
1496
4119
4118
1494 3.437R
ROLLPIN 59-022-094-0625
AX38
BELT
1826
1495
5/16-18 X 1/2 FIL HD CAP SCW
1/16 X 3/4 COTTER PIN
4117
1499
1498
1497
KNOB 187-5/16-18
ROLLPIN 59-028-125-0750
1/4-20 X 3/8
1/16
4105-B
℄ SPINDLE
ROLLPIN 59-032-156-1000
1492
1493
1822
8051C

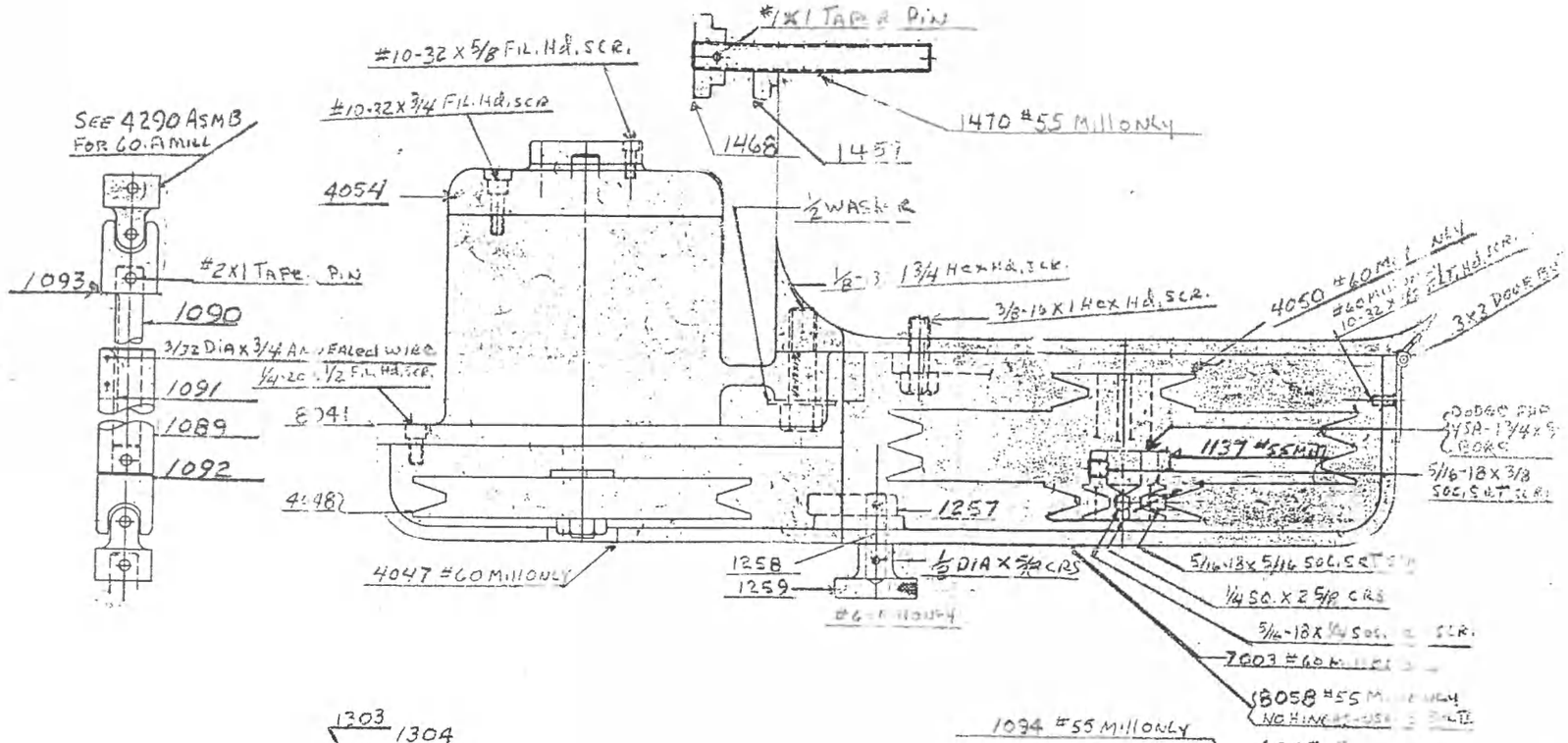
INDEX MACH. & TOOL CO.
JACKSON, MICH.
HAND BRAKE ASSEMBLY
55 VERT MILL
4115

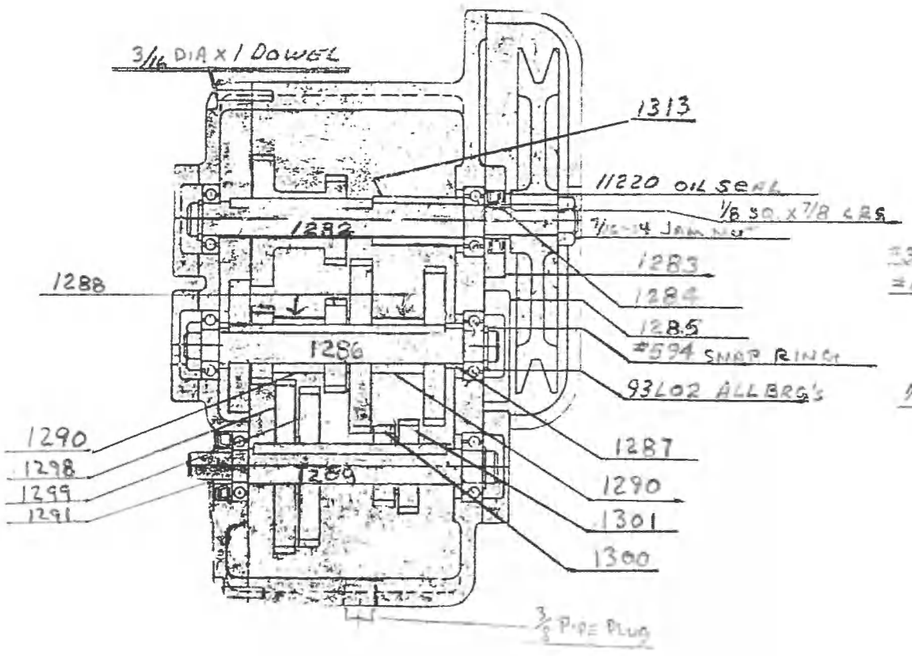


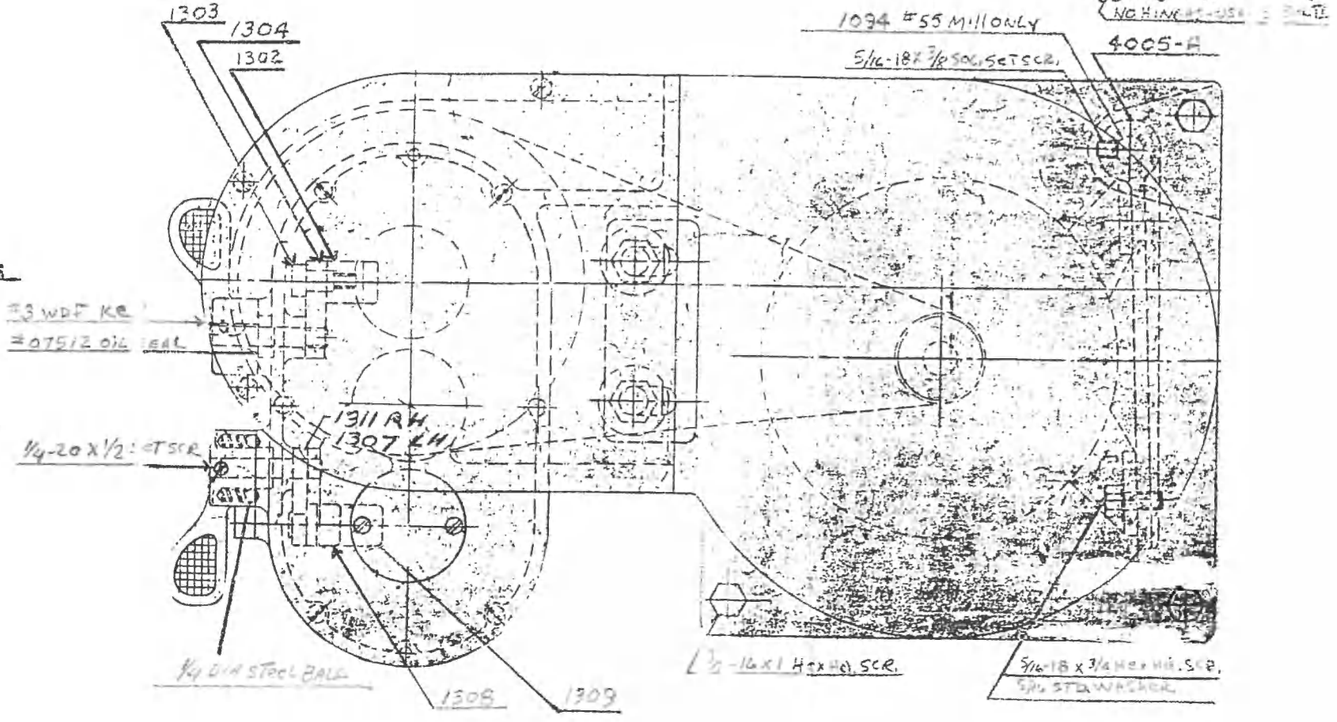
SECTION AA
SECTION BB
SECTION CC
1478
1479-1
1022
1028
1044
#8-16X1 SOC.HD.SCR
#1612 ALEMITE
1055
#10-32X5/8 FIL.Hd.SCR.
1/4X3/4 DOWEL
3/8X2 DOWEL
3/8-16X2 3/4 FIL.Hd.SCR.
1054 Single Thd.
1054-5 1/2
#2X1 Taper Pin
5/16-18 Hex NUT
1264
5/16-18X1 1/2 FIL.Hd.SCR.
4051
SEE 7044 ASMB FOR 60A MILL
1005
73L03
1246
1245
1244
1250
1251
M80A4
#1612 ALEMITE
1/8X3/4 ROLL PIN
2038
#10-32-1/4 FIL HD SCW
1479-1
1627-A
1006
1/4-20X5/8 FIL HD SCR
77503
1007
1008
1009
1010-A
7/16-20 HEX JAM NUT
1808-1
8004-140-(9060-40" 9062-46")
8003-D
8003-D-RTU (SPECIAL)
8002-B
1017
1/4-20X1/4 SOC SET SCR.
1018
1591
1011
20203
1012A
1013
1041
1014
1015
1/2-20 ACORN NUT
"HAND WHEEL" ASMB 4348
7067-C SPACER WHEN NO T.P.F.
4003
1067 GEAR
#3 WOODRUFF KEY
73L04
1069
77R10
1068
1049
1050
2X NORMAL SPEED GEARS 1067-B 1068-B
1/4X1 DOWEL
3/4-16 JAM NUT
#10-32X3/8 SS.HD.SCR.
1/2-20 JAM NUT
#10-32X3/4 FIL.Hd.SCR.
#7 WOODRUFF KEY
3/8-16X1/2 SOC SET SCR
3/16 DIA X1/4 BRASS
1/4X3/4 DOWEL
5/16-18X3/4 FIL HD SCR
55 & 60 MILLS {4057-1-46" SCW 4057-2-40" SCW} OLD CRANK
55 MILLS {4348-46" SCW 4340-40" SCW} NEW HAND WHEELS
ORIG. 55,60,45 MILLS {1047-1-46" 1047-2-40"} OLD
E45 & 55A 45 & 60A MILLS {4338-46" SCW 4340-40" SCW} NEW HAND WHEELS
1245 BUSH
1244 GEAR (3)
1246 IDLER STUD
SAE WASHER
1/4-20X3/4 FIL HD SCR
1/4X3/4 DOWEL
1/2-20 ACORN NUT
20203
1048
1046
1014
1047
"HAND WHEEL" ASMB 7040 (BOTH ENDS-45,55,60A)
ASMB 4349 (ONE END 60 MILL)
7004
1242
73L04
77R10
77ZL02
1249
1243
1247
1248
7005
1021
No.1610 ALEMITE
1026
1/4-20X1/4 SOC SET SC.
1026A
1029
1/2-13X1 1/2 SOC HD SCR
1051 20T
1051-5 1/2 40T
1042
4002B
1053
1/4X1 DOWEL
3/8-16X1 Hex Hd.SCR.
3/4-16 Hex JAM NUT
3/8-16 Hex JAM NUT
7/16-14 CONE NUT
#10-32X3/8 Rd.Hd.SCR.
1020
1/16-18X1 1/2 HEX HD SCR
1003 OLD (1323 NEW)
3/8-16X1/2 SOC SET SCR
1002
1001
3/8-16X1/2 SOC SET SCR
A
B
C

8039



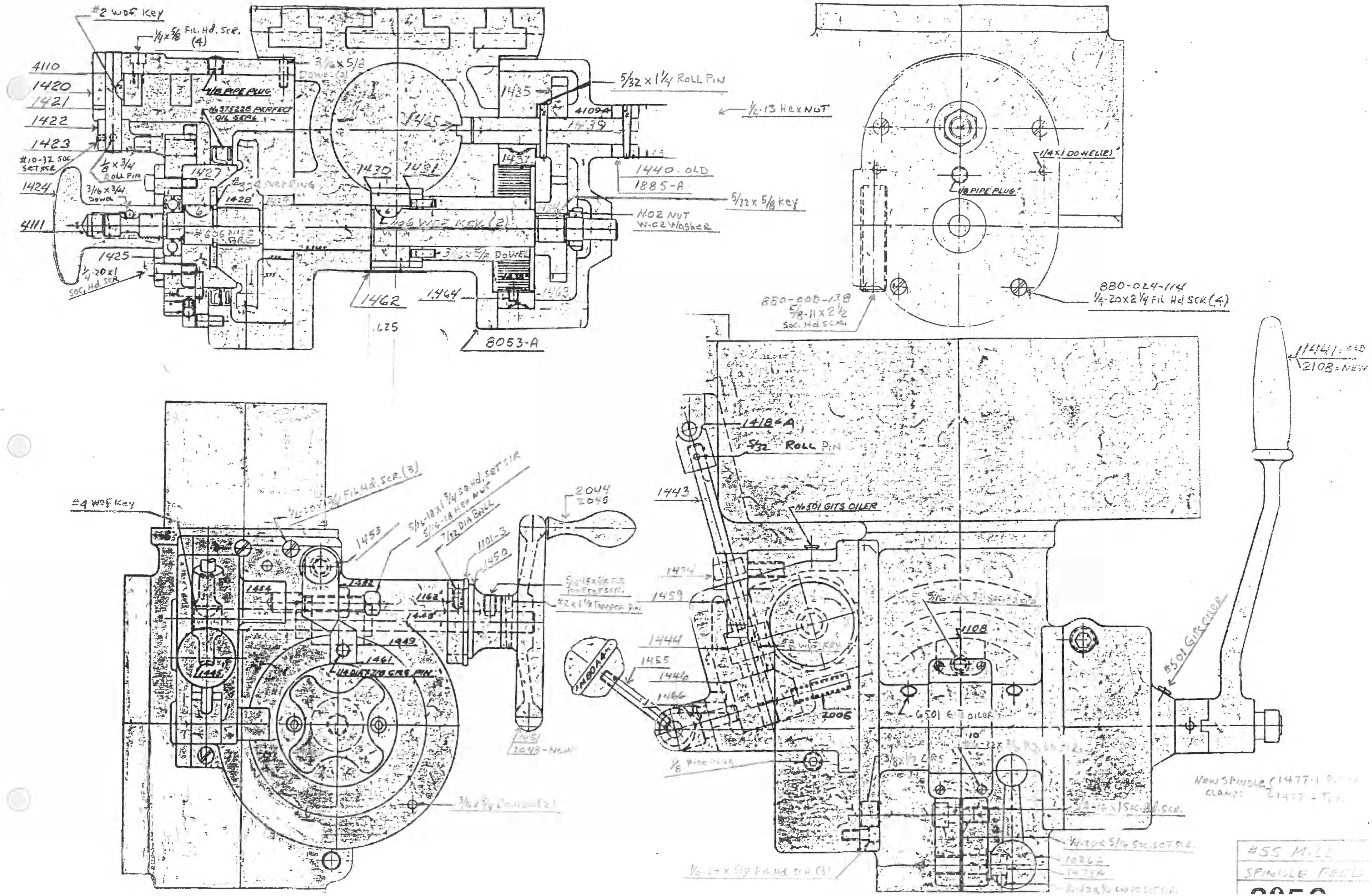






55 & 60 Mill

8042



#2 WDF. Key
1/4 x 5/8 Fil. Hd. Scr. (4)
4110
1420
1421
1422
1423
#10-32 Soc. Set Scr.
1/8 x 3/4 Roll Pin
1424
3/16 x 3/4 Dowel
4111
1425
1/4-20 x 1 Soc. Hd. Scr.
1/8 Pipe Plug
No. 375228 Perfect Oil Seal
1427
1428
#606 NICE BRG.
3/16 x 5/8 Dowel (2)
1435
1445
1430
1431
#406 WDF. Key (2)
1437
4109-A
1439
5/32 x 1 1/4 Roll Pin
1/2-13 Hex Nut
1440-OLD
1885-A
5/32 x 5/8 Key
No2 Nut
W-02 Washer
1462
1464
1463
.625
8053-A
1/4 x 1 Dowel (2)
1/8 Pipe Plug
880-024-114
1/4-20 x 2 1/4 Fil Hd Scr. (4)
880-006-138
5/8-11 x 2 1/2
Soc. Hd Scr.
1441 = OLD
2108 = NEW
#4 WDF Key
1/4-20 x 3/4 Fil. Hd. Scr. (3)
5/16-18 x 1 3/4 Sq. Hd. Set Scr.
5/16-18 Hex Nut
7/32 Dia Ball
1453
1101-3
1450
2044
2045
1454
1162
1448
1449
1461
1445
1/4 Dia x 7/8 Grv. Pin
2043-NEW
1418-A
5/32 Roll Pin
1443
No. 501 Gits Oiler
1474
1459
1444
1455
1446
1466
1460A
1108
2006
#501 Gits Oiler
6501 Gits Oiler
1/8 Pipe Plug
1/4-20 x 5/8 Fil. Hd. Scr. (3)
1/4-20 x 5/16 Soc. Set Scr.
New Spindle Clamps
#55 MILL
SPINDLE FEED

1403
1475
4106
1/2-13 x 3/4 Hex Hd. Scr.
880-065-017
1/2 STD. WASHER - 1500
880-004-077
5/16-18 x 5/16 Soc. SET.
1/8 Rod. Plug (2)
880-000-116
1/2-13 x 1 3/4
Soc. Hd. Scr.
4X3B WASHER
4X3B
1414
1456 DOOR
1/4-20 x 3/4 Hex Hd. Scr. (8)
880-038-003
1X2 DOOR BUTT (2)
#NO. 10-32 x 3/8 FLT. Hd. SCR.
880-031-001
#55500 = 885-004-004
1165
880-038-001
1/4-20 x 1/2 Hex Hd. Scr. (2)
1164
1163
3/16 DIA x 2 3/4 CRS
1160
1457
4112-A (FR DB184Y)
(FR 213, FR 215)
4116 (FR E184C) 1PH OR
1 HP. 204 FRAME 1800
1 1/8 SHAFT
1507
4112
1400 SHIM
880-038-037
4101
1500
1/8 SQ. KEY WASHER
3/16 SQ. X 7/8 C.R.S.
1458
3/8-16 x 3/8 SET SCR.
880-104-091
880-033-010
#10-32 x 3/8 Binding Hd. SCR. 4 NUT (4)
880-004-077
5/16-18 x 5/16 Soc. SET. SCR.
3/16 SQ. X 1 1/4 CRS
1405
4105B
4103A
7505
4104A
8102A
1/2-13 X 1 HEX HD SCR
5/16-18 X 1 1/2 SOC. SET
3/16 SQ. X 1 1/2 C.R.S.
1/2-13 X 3/4 HEX HD SCR
5/16-18 X 1 HEX HD SCR
5/16-14 X 1 1/4 SOC. HD. SCR (2)
8006
5/8-18 X 1/2 SOC SET SCR
1124
1/4-20 X 1 3/8
1117
5/16-18 X 3/4 SOC HD SCR
1101
3/8 X 2 1/4 DOWEL
3/16 X 2 TAPER PIN
880-044-050
880-021-005
880-004-091
3/8-16 X 3/8 SOC SET SCR.
1128
1127
1126
CRANK 1809
1432 WASHER
1485 SHORT
1460
4107
1406
880-029-087
1/4-20 x 1 1/4 F.H. Hd. SCR. (2)
1407
5/16 x 5/8 SOC. HD. SCR. (2) = 880-000-061
5508
1408-A
1415
1409
3206
1410
8053
4108
880-026-038
#6-32 x 3/16 Rd. Hd. SCR. (4)
1462
1411
880-004-063
1/4-20 x 1/4 SOC. SET SCR.
OL080B3
1412
1413
1110
1109
5/8-11 Fin Hex Nut (3) = 880-008-018
3/8-16 x 1/2 Soc. SET SCR. = 880-004-093
10 1/4
1133
880-004-063
1/4-20 x 1/4 Soc. SET SCR.
880-004-065
1/4-20 x 3/8 Soc. SET. SCR. (2)
880-033-010
#10-32 x 3/8
Binding Hd. SCR.
1416
1417
7502
1418
880-021-016
NO. X 3/4 TAPER PIN (2)
8051-C
3 29/32 MIN.
1473
1026-A
880-004-063
1/4-20 x 1/4 Soc. SET SCR.
880-000-080
3/8-16 x 1 1/4 Soc. Hd. SCR.

MODEL 55
SPINDLE DRIVE UNIT
8057

Model	T.P.F.	S.P.F.	H.P.	P.H.	Volt	Cycle	Speed	Other Specifications
55	X		1	3	220	60	2	Reversing switch; 2 lamps;

55.4750

Gross 2242.53 Net 1681.90

Customer Republic Flowmeters Co. P.O. Date Div. auth. P.O. No. 5044

Address 2240 Diversey Blvd., Chicago, Illinois 2/19/53 Dir. Halpern

Ship to Same 2172 duets 50; P.O. 23024, Jan 6970 13703, to the mill.

Sold by Boyd-Wagner Company P.O. Date 5-12-52 P.O. No. 66176

DO-Z-1 auth. #22-228 Ather

Required Delivery Jan. , 1952 Our Order Date 5-14-52

Scheduled 4/53 3/10/53 Shipped 4/21/53 S.O. No. 14021 Inv. No. 7366

FYI,

This is the information card, we have on your machine