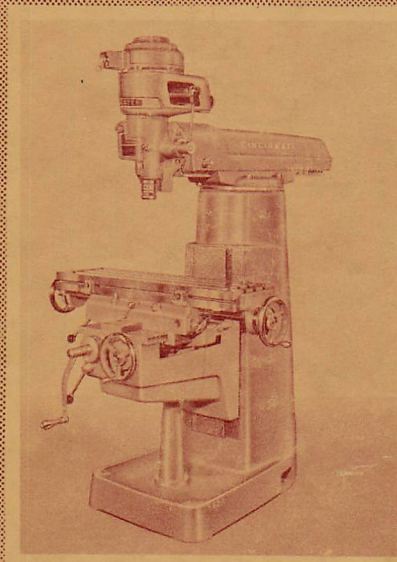


# SERVICE MANUAL AND PARTS LIST CATALOG



## No. 1 Toolmaster MILLING MACHINE



Identification No. 6J-DK  
Publication No. M-2109

### WHEN ORDERING REPAIR PARTS

1. Give complete Serial Number of Machine.
2. Give Part Number and Name.
3. Give Amount Required.

UNLESS THE ABOVE DATA IS INCLUDED WE CANNOT FILL YOUR ORDER

This Booklet should be Filed in Tool Crib and issued by Tool Check only

**THE CINCINNATI MILLING MACHINE CO.**

CINCINNATI 9, OHIO, U. S. A.



SERVICE MANUAL  
AND  
PARTS LIST CATALOG  
FOR

*Cincinnati*

**NO. 1 TOOLMASTER  
MILLING MACHINE**

1A, 1B, 1C—MODEL LO

1D—MODEL LA

1E—MODEL LR



**T**HIS catalog has been compiled to expedite the ordering of repair parts for your CINCINNATI<sup>®</sup> No. 1 Toolmaster Milling Machine as well as to present to maintenance personnel the correct methods of servicing the machine.

Due to continual improvements in design, it is possible that some information or the appearance of component parts to be found in this catalog may vary slightly from the machine delivered to you. This merely indicates that the mechanism has been improved to better fulfill your requirements.

**THE CINCINNATI MILLING MACHINE CO.**

CINCINNATI 9, OHIO, U. S. A.



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This catalog to be used only for machines whose serial number begins with 6J.

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CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

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The design and specifications of these machines are subject to change without notice.



## FUNCTIONAL DIAGRAM

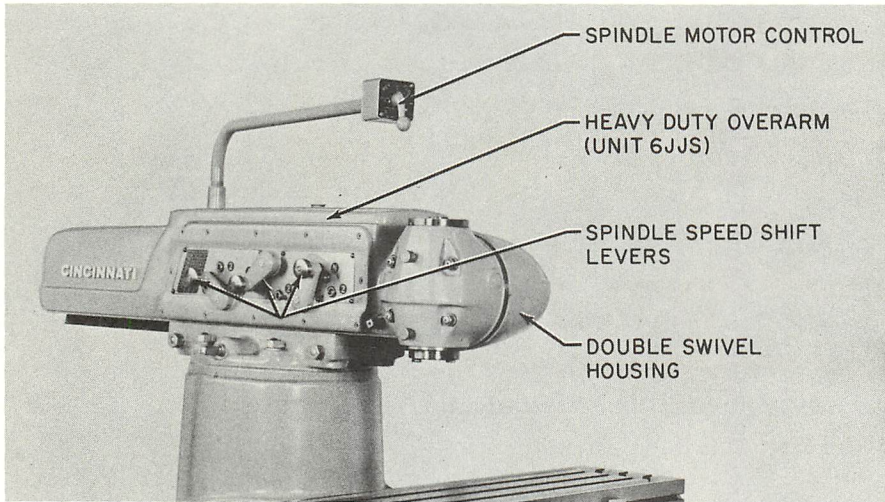


Figure 4A

Style 1C Toolmaster Milling Machine with Heavy Duty Overarm and Double Swivel Housing

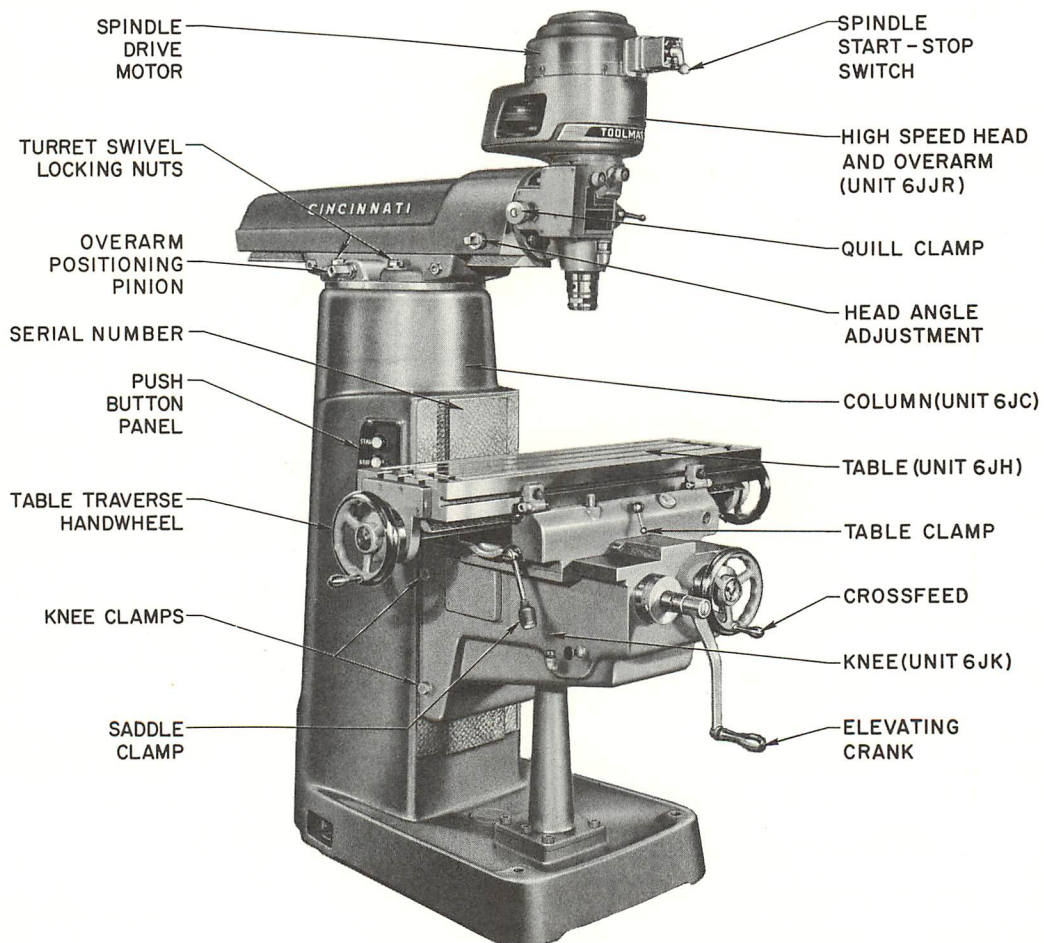


Figure 4B

Style 1B Toolmaster Milling Machine with Power Feed to Quill, Manual Feed to Saddle and Table



## FUNCTIONAL DIAGRAM

Figure 5A  
Style 1E Toolmaster  
Milling Machine with  
Power Feed to Quill

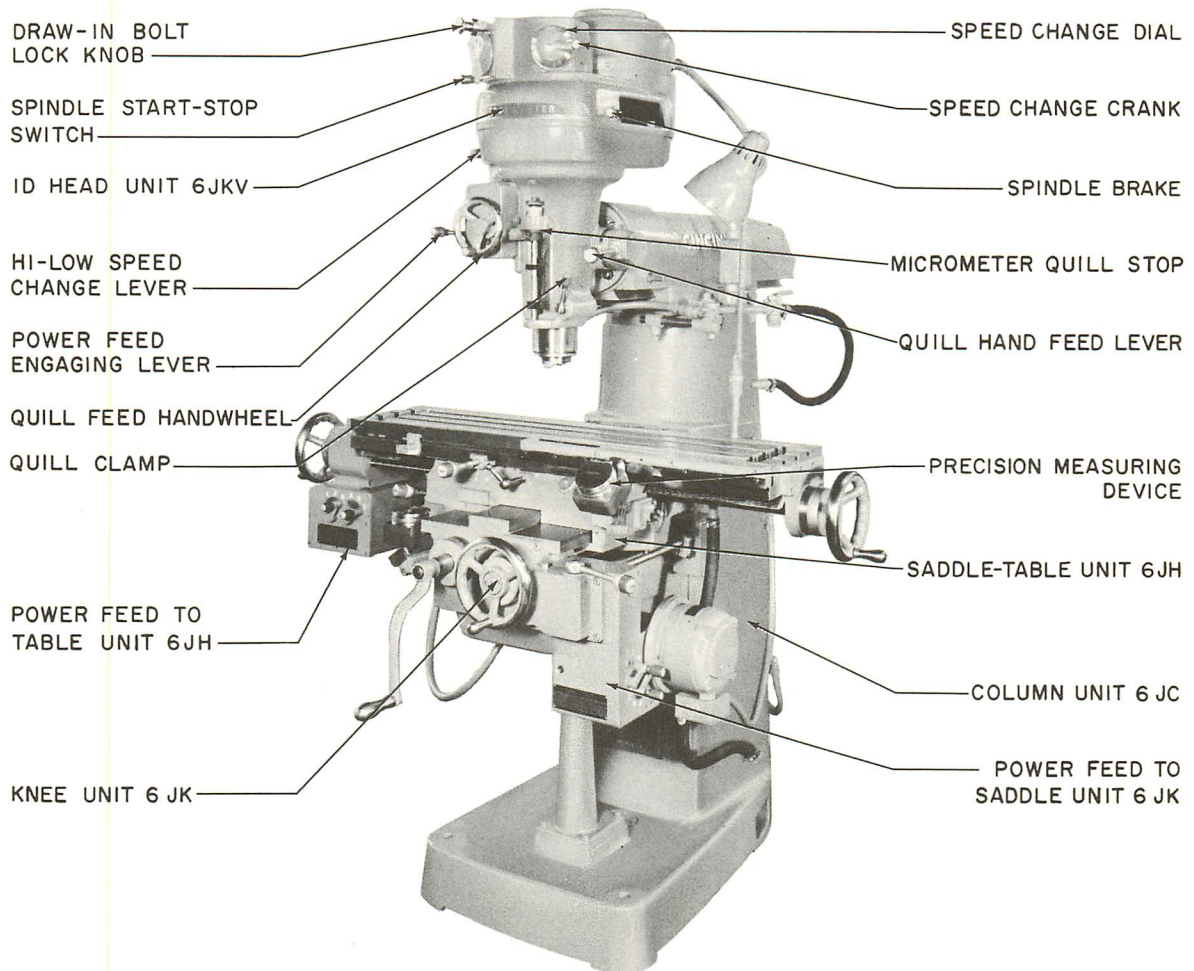
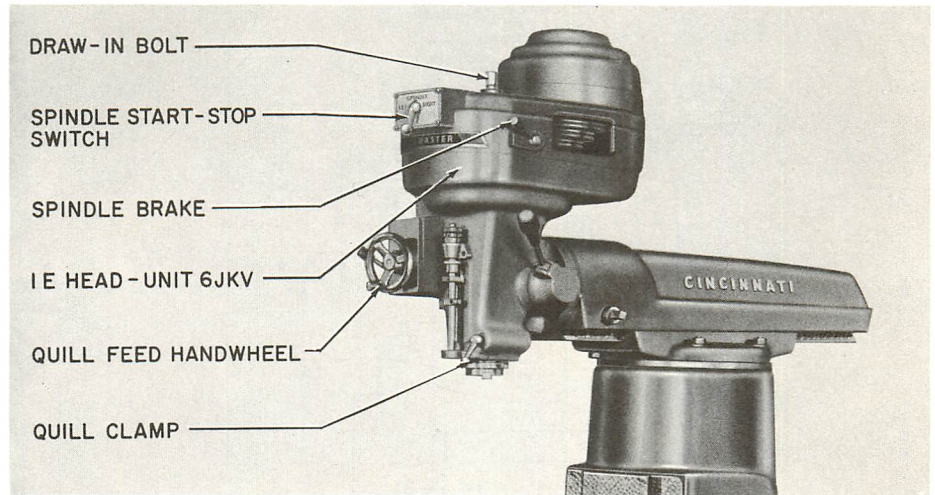
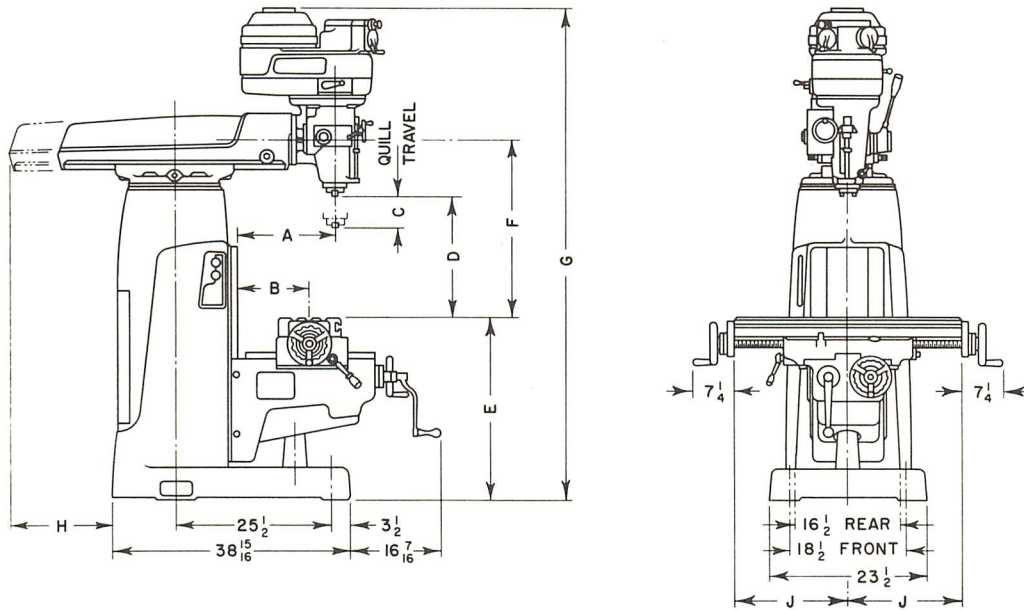


Figure 5B  
Style 1D Toolmaster Milling Machine with  
Power Feed to Quill, Saddle and Table



# DIMENSIONAL DRAWING



★ Machine	A		B		C	D		E		F		G	H Max.	J	
	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.			Max.	Min.
1B	22-1/4	4-3/4	16-1/4	6-1/4	3-1/2	20-1/8	3-1/8	46-3/4	29-3/4	27-3/4	10-3/4	74-1/2	17	32	10
1C	25-3/8	5-3/8	16-1/4	6-1/4	3	22-5/8	5-5/8	46-3/4	29-3/4	27-3/4	10-3/4	73-1/2	20	32	10
1D	23-3/4	6-1/4	16-1/4	6-1/4	5	19-3/4	2-3/4	46-3/4	29-3/4	27-3/4	10-3/4	78-1/2	17	32	10
1E	23-3/4	6-1/4	16-1/4	6-1/4	5	19-3/4	2-3/4	46-3/4	29-3/4	27-3/4	10-3/4	78-1/2	17	32	10

★1A has same dimensions as 1B.

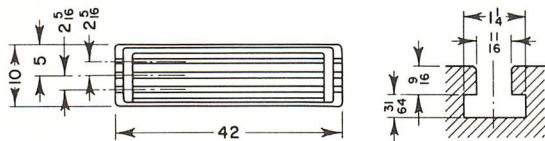
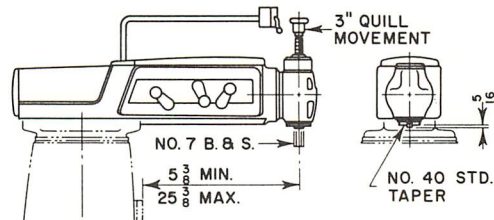
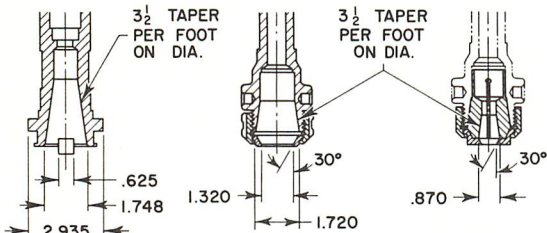
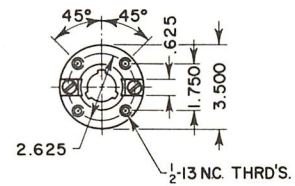


TABLE & TEE SLOT

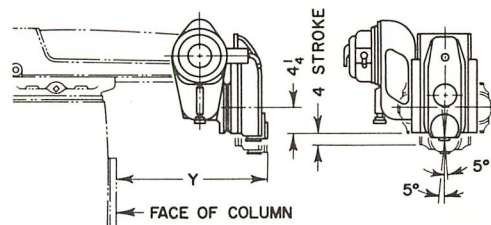


HEAVY DUTY OVERARM & SPINDLE NOSE (1C MACHINE)



SPINDLE NOSE NO. 40 STD. TAPER (1D & 1E MACHINE)

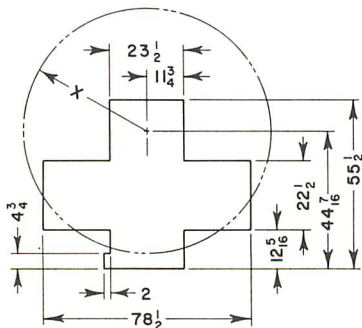
SPINDLE NOSE ASSEMBLY AND ADAPTER (1B MACHINE)



SHAPING ATTACHMENT

★ Machine	X With Shaping Attach.	X Without Shaping Attach.	Y With Shaping Attach.	
			Max.	Min.
1B	33-1/2	37-1/8	24	15
1C	37-1/8	38-1/4	28-1/2	15
1D	33-1/2	39-3/4	24	15
1E	33-1/2	39-3/4	24	15

FLOOR PLAN





# CONVERSION CHART

(Based on 25.4mm = 1")

Inches into Millimeters

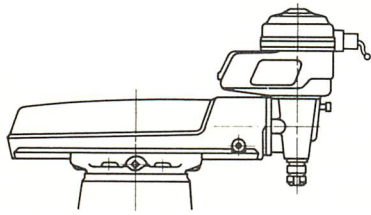
Inches	M/M	Inches	M/M	Inches	M/M	Inches	M/M	Inches	M/M		
1/64	.0156	0.3969	49/64	.7656	19.4469	34	863.600	82	2082.80	130	3302.00
1/32	.0313	0.7937	25/32	.7813	19.8437	35	889.000	83	2108.20	131	3327.40
3/64	.0469	1.1906	51/64	.7969	20.2406	36	914.400	84	2133.60	132	3352.80
1/16	.0625	1.5875	13/16	.8125	20.6375	37	939.800	85	2159.00	133	3378.20
5/64	.0781	1.9844	53/64	.8281	21.0344	38	965.200	86	2184.40	134	3403.60
3/32	.0938	2.3812	27/32	.8438	21.4312	39	990.600	87	2209.80	135	3429.00
7/64	.1094	2.7781	55/64	.8594	21.8281	40	1016.00	88	2235.20	136	3454.40
1/8	.1250	3.1750	7/8	.8750	22.2250	41	1041.40	89	2260.60	137	3479.80
9/64	.1406	3.5719	57/64	.8906	22.6219	42	1066.80	90	2286.00	138	3505.20
5/32	.1563	3.9687	29/32	.9063	23.0187	43	1092.20	91	2311.40	139	3530.60
11/64	.1719	4.3656	59/64	.9219	23.4156	44	1117.60	92	2336.80	140	3556.00
3/16	.1875	4.7625	15/16	.9375	23.8125	45	1143.00	93	2362.20	141	3581.40
13/64	.2031	5.1594	61/64	.9531	24.2094	46	1168.40	94	2387.60	142	3606.80
7/32	.2188	5.5562	31/32	.9688	24.6062	47	1193.80	95	2413.00	143	3632.20
15/64	.2344	5.9531	63/64	.9844	25.0031	48	1219.20	96	2438.40	144	3657.60
1/4	.2500	6.3500	1		25.4000	49	1244.60	97	2463.80	145	3683.00
17/64	.2656	6.7469	2		50.8000	50	1270.00	98	2489.20	146	3708.40
9/32	.2813	7.1437	3		76.2000	51	1295.40	99	2514.60	147	3733.80
19/64	.2969	7.5406	4		101.6000	52	1320.80	100	2540.00	148	3759.20
5/16	.3125	7.9375	5		127.0000	53	1346.20	101	2565.40	149	3784.60
21/64	.3281	8.3344	6		152.4000	54	1371.60	102	2590.80	150	3810.00
11/32	.3438	8.7312	7		177.8000	55	1397.00	103	2616.20	151	3835.40
23/64	.3594	9.1281	8		203.2000	56	1422.00	104	2641.60	152	3860.80
3/8	.3750	9.5250	9		228.6000	57	1447.80	105	2667.00	153	3886.20
25/64	.3906	9.9219	10		254.0000	58	1473.20	106	2692.40	154	3911.60
13/32	.4063	10.3187	11		279.4000	59	1498.60	107	2717.80	155	3937.00
27/64	.4219	10.7156	12		304.8000	60	1524.00	108	2743.20	156	3962.40
7/16	.4375	11.1125	13		330.2000	61	1549.40	109	2768.60	157	3987.80
29/64	.4531	11.5094	14		355.6000	62	1574.80	110	2794.00	158	4013.20
15/32	.4688	11.9062	15		381.0000	63	1600.20	111	2819.40	159	4038.60
31/64	.4844	12.3031	16		406.4000	64	1625.60	112	2844.80	160	4064.00
1/2	.5000	12.7000	17		431.8000	65	1651.00	113	2870.20	161	4089.40
33/64	.5156	13.0969	18		457.2000	66	1676.40	114	2895.60	162	4114.80
17/32	.5313	13.4937	19		482.6000	67	1701.80	115	2921.00	163	4140.20
35/64	.5469	13.8906	20		508.0000	68	1727.20	116	2946.40	164	4165.60
9/16	.5625	14.2875	21		533.4000	69	1752.60	117	2971.80	165	4191.00
37/64	.5781	14.6844	22		558.8000	70	1778.00	118	2997.20	166	4216.40
19/32	.5938	15.0812	23		584.2000	71	1803.40	119	3022.60	167	4241.80
39/64	.6094	15.4781	24		609.6000	72	1828.80	120	3048.00	168	4267.20
5/8	.6250	15.8750	25		635.0000	73	1854.20	121	3073.40	169	4292.60
41/64	.6406	16.2719	26		660.4000	74	1879.60	122	3098.80	170	4318.00
21/32	.6563	16.6687	27		685.8000	75	1905.00	123	3124.20	171	4343.40
43/64	.6719	17.0656	28		711.2000	76	1930.40	124	3149.60	172	4368.80
11/16	.6875	17.4625	29		736.6000	77	1955.80	125	3175.00	173	4394.20
45/64	.7031	17.8594	30		762.0000	78	1981.20	126	3200.40	174	4419.60
23/32	.7188	18.2562	31		787.4000	79	2006.60	127	3225.80	175	4445.00
47/64	.7344	18.6531	32		812.8000	80	2032.00	128	3251.20		
3/4	.7500	19.0500	33		838.2000	81	2057.40	129	3276.60		

0.001" = .0254 mm

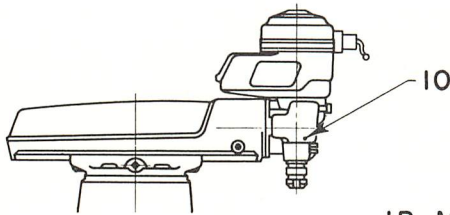
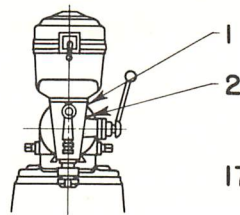
0.01 mm = 0.0004"



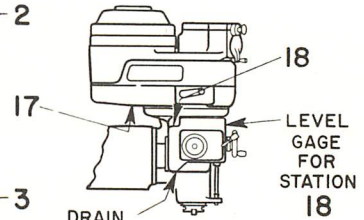
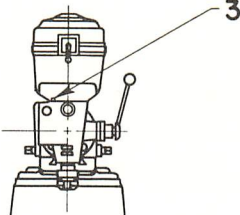
# LUBRICATION DIAGRAMS



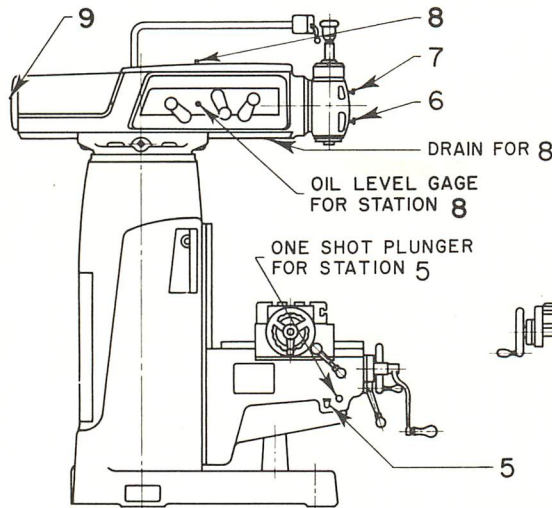
IA MACHINE



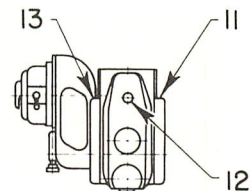
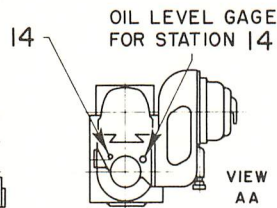
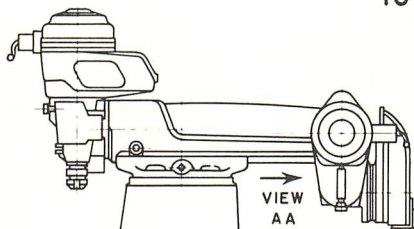
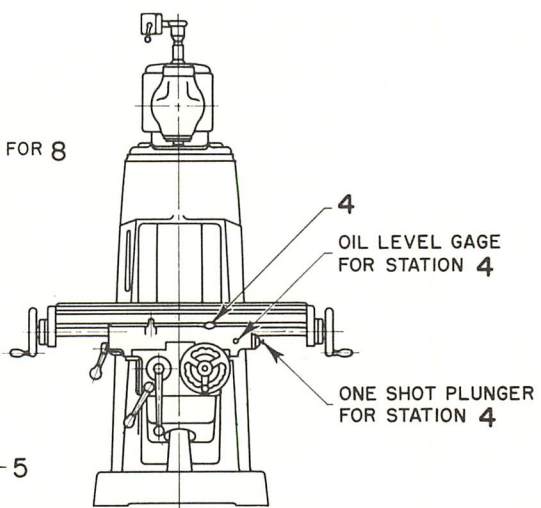
IB MACHINE



17  
DRAIN FOR 18  
LEVEL GAGE FOR STATION 18  
ID, IE MACHINES

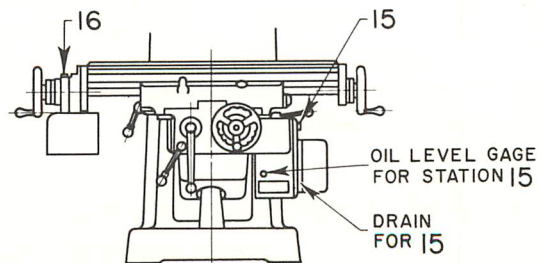
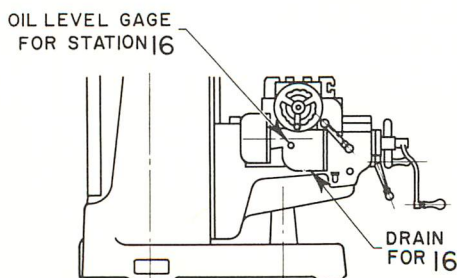


IC MACHINE



## SHAPING ATTACHMENT

PC-4927



## POWER FEED TO TABLE AND SADDLE



# LUBRICATION INSTRUCTIONS and SPECIFICATIONS

(See diagrams opposite page)

Thoroughly oil all moving parts as they are installed, then lubricate all principal points as listed below before starting motor. Periodic and thorough lubrication with correct lubricant, as specified, will help to maintain the long life and accuracy built into each machine. The intervals listed are based on a normal eight hour day.

## PURCHASE LUBRICANTS FROM RELIABLE DEALERS

Interval	Station No. and Part Lubricated	Lubrication Instructions	Lubricant Specifications		
Twice Daily (4 hours) When Used	11, 13	Shaping Attachment Ways	CMMCo. No. P-54 Rust and oxidation inhibited oil. Viscosity 300-320 S. U. S. at 100° F.		
	1	Pinion Shaft			
2	Quill Bearing	Fill oiler cups or button oilers			
3	Power Feed Drive Gears				
Daily (8 hours)	4	Saddle-Table and Saddle-Knee Ways, Table and Cross Nut and Lead Screw		Cap. 1 Pt. Check level daily. Maintain level at height of opening of 4, above low limit of 5.	
	5	Knee-Column Ways, Elevating Screw and Gears. (Some machines-plunger is on right side.)		Cap. 1/4 Gal. 3 TIMES DAILY Pull out each plunger and allow it to return itself.	
	8	Gear Box		Cap. 1-1/2 Gal.	
	14	Shaping Attachment Drive		Cap. 1-3/4 Pts. Check level daily. Fill to high limit when oil reaches low limit.	
	15	Table Power Feed Gear Housing		Cap. 1/2 Gal.	
	16	Saddle Power Feed Gear Housing		Cap. 1/2 Gal.	
	17	Vari-Speed Pulley Assembly. (1-D only)		Grease lightly with spindle speed set to 1400 rpm or less. Run at this speed for one minute.	Follow recommendation of Vari-Speed pulley manufacturer.
	18	Power Feed to Quill (1-D, 1-E)		Cap. 1 Pt. Check oil level daily while machine is running. Add oil as needed.	CMMCo. No. P-63. Lead naphthenate EP oil. Viscosity 300-360 S.U.S. at 100° F.
	6, 7	Spindle Bearings		One-half turn only, of grease cup. Refill as required.	CMMCo. No. P-64 Lithium base grease having a consistency of N. L. G. I. No. 2.

(continued on next page)

Coolant reservoir capacity is approximately 4-1/2 gals. (17 liters).

See page 10 for various oil company recommended lubricants that comply with CMMCo. specifications.

# LUBRICATION INSTRUCTIONS and SPECIFICATIONS

(See diagrams, page 8)

Interval	Station No. and Part Lubricated	Lubrication Instructions	Lubricant Specifications	
Weekly (48 hours)	12	Shaping Attachment Pitman Arm Bearings	2 to 3 strokes from a hand gun. (Approx. 1/2 oz.)	CMMCo. No. P-64. (See page 9.)
	10*	Quill—Power Feed (1A, 1B)	Cap. 1 Pt.	CMMCo. No. P-54. (See page 9.)
Periodically	9	Motor Bearings	Lubricate all motors only according to motor manufacturer's recommendations. DO NOT OVERLUBRICATE.	

\* Tilt spindle housing 30° toward right to fill or check oil level. At 30° angle, the oil level should be even with hole. To drain, rotate housing 70°—80° to left. (1-A, 1-B)

## CMMCo RECOMMENDED LUBRICANTS

The following lubricants have been tested by The Cincinnati Milling Machine Co., and are recommended for use in their machines.

### P-54

British-American Oil Co., Ltd. - Britex R & O 55; Cities Service Oil Co. - Pacemaker #3; Cities Service Oil Co. - Pacemaker #300-T; D-X Sunray Oil Co. - DX-Cherokee Oil "H" (R & O); Esso Standard Oil Co. - Nuto 50; Gulf Oil Corp. - Gulfcrest 55 or Gulf Harmony 53; Midwest Oil Co. - Ace-Lube Heavy Medium; Pennzoil Co. (Calif.) - Zoil Hydraulic Oil Heavy; Pennzoil Co. (Penn.) - Turbine Oil Heavy-Medium; Pure Oil Co. - Puroturbine Heavy Medium; Shell Oil Co. - Tellus 33; Socony-Mobil Oil Co. - D. T. E. Heavy-Medium; Standard Oil Co. (Calif.) - Chevron O. C. Turbine Oil 15; Standard Oil Co. (Ind.) - Stanol Industrial Oil #31; Standard Oil Co. (Ohio) - Sohivis 52; Sun Oil Co. - Sunvis 931; Texas Co. - Regal Oil PC R & O; Tidewater Assoc. Oil Co. - Tycol Aturbrio 60.

### P-63

Esso Standard Oil Co. - Pen-O-Led E. P. 1; Gulf Oil Corp. - Gulf E. P. Lubricant 55; Shell Oil Co. - Macoma 33; Socony-Mobil Oil Co. - Compound "AA"; Standard Oil Co. (Ohio) - Facto-lube 1; Sun Oil Co. - Sunep 50; Texas Co. - Meropa Lubricant 1.

### P-64

Cities Service Oil Co. - Trojan H-2; Gulf Oil Corp. - Gulf-Crown Grease 2; N. Y. and N. J. Lubricant Co. - G-60; Pure Oil Co. - H. T. Grease 2; Shell Oil Co. - Alvania 2; Socony-Mobil Oil Co. - Mobilux 2; Standard Oil Co. (Ind.) - Stanolith 57; Standard Oil Co. (Ohio) - Sohitrans 2; Sun Oil Co. - Prestige 42; Texas Co. - Multifak 2.



## INSTALLATION INSTRUCTIONS

### Foundations

A special foundation is not required for the No. 1 Toolmaster Milling Machine. Any substantial floor, wood or concrete, fairly flat and sufficiently sturdy to hold machine's weight (approximately 2500 pounds) will be satisfactory. If installed on an upper floor place directly over a main beam. Select a zone free from extraneous vibration.

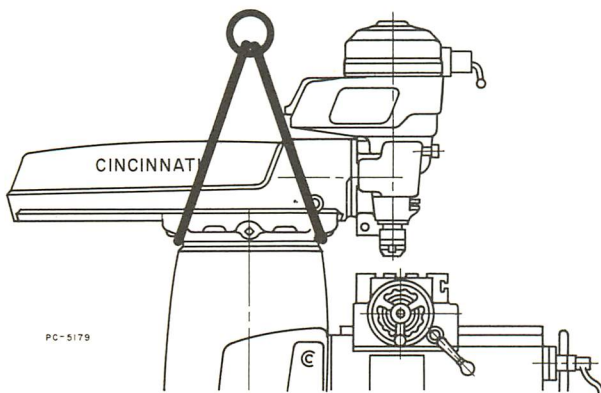


FIGURE 11A  
Lifting Machine

### Lifting Machine (Figure 11A)

The machine may be lifted by a crane with a rope or cable sling around the turret. Have saddle in inner position and overarm fully retracted and clamped before lifting. If a wire cable is used to lift machine, protect any surface contacted by cable with a leather belt or wood blocks.

### Bolting Machine to Floor (Figure 11B)

If you wish to bolt machine to floor notice that center distances of bolt holes given on "Dimensional Drawing" are approximated. If the floor is concrete, drill the bolt holes about 6" in diameter. Place a large washer on head of hold down bolt, followed by a short length of 1-1/2" pipe, pass bolts up through holes in base and secure with a nut at top. Fill each pipe with dry sand. Lower machine into place but have it resting on two 1" thick boards. (Tops of pipes around hold down bolts should be flush with floor.) Fill holes around pipes with quick drying cement that is thin enough to flow easily. When cement is dry, remove boards, level machine and tighten hold down bolts.

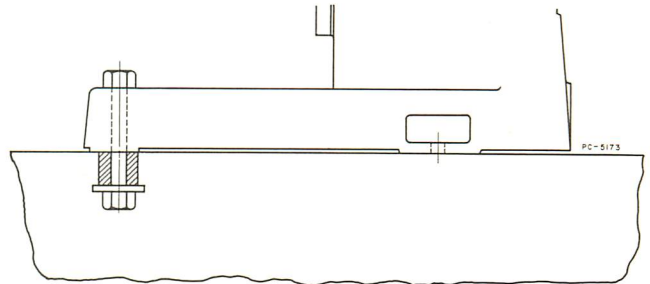


FIGURE 11B  
Bolting to Concrete Floor

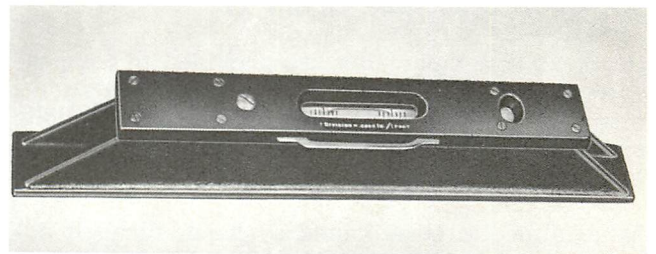


FIGURE 11C  
Sensitive Spirit Level

### Leveling Machine (Figure 11C)

For leveling machine tools a sensitive, graduated tube spirit level reading to 10 seconds per graduation (.0005" per foot) and provided with a screw adjustment, is required. A carpenter's level or the bulb in a machinists' combination square is not good enough. Table must be clean and free of burrs. Place 6" squares of shim stock under the four bearing pads of base until machine is level in all directions. Check machine level periodically. Always handle a precision level by the ends. If it is grasped at the center, the heat of your hand around the glass may distort it sufficiently to impair the leveling accuracy.

### Cleaning

The machine should never be cleaned with the blast from an air hose as it will drive grit and dirt into ways and bearings. Use only lint-free rags for plain surfaces and a stiff bristle brush for corners. Prevent formation of permanent stain by periodic cleaning. If machine will remain idle for a long time, wipe a thin coat of oil over all exposed parts to prevent rusting.



## ADJUSTMENTS

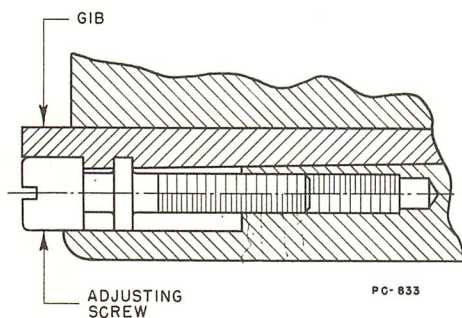


FIGURE 12  
Headless Type Gib

### To Adjust Gibs (See Figure 12)

Headless type taper gibs are provided to compensate for wear of bearing surfaces between sliding elements at knee and column; knee and saddle; saddle and table. Keep these surfaces clean and lubricated to cut down wear.

Move slide, to be adjusted by hand, turn gib adjusting screw in until movement of slide feels tight then back off screw until movement is just snug with a slight drag.

**CAUTION** --- Too tight an adjustment of the gibs squeezes out the oil film, causing undue wear and scoring.

### To Adjust Drive Belts: Styles 1-A, 1-B (See Page 28.)

Styles 1-A and 1-B machines are driven through a V-belt and step pulleys which transmit motor torque to the drive sleeve through a jack shaft and timing belt. To tighten the V-belt (3B), turn knurled knob (43B). To tighten timing belt (9B), loosen two socket head screws (33B), move V-belt housing (19B) back until belt is tight and retighten the socket head screws. When belt can be depressed 1/2" (midway between shafts), adjustment is correct. [If timing belt is noisy, it is too tight. When properly adjusted, the timing belt runs quietly.]

### To Adjust Drive Belt: Style 1-E (See Page 56.)

Drive belt (130B) is tightened or loosened by turning knurled knob (101B). Loosen two hex nuts (133B) before adjusting belt. Tighten hex nuts after adjusting belt. When belt can be depressed 1/2" (midway between shafts), adjustment is correct.

### To Adjust Backlash Eliminator (See Page 70.)

Lunging table movements while climb milling would indicate that backlash (B/L) eliminator nuts are loose or worn and need adjusting.

1. Run table to extreme left position so lead screw nuts are most accessible.
2. Loosen two socket head screws (82B) and, by hand only, turn B/L eliminator nut (80B) clockwise, then tighten screws (82B) while holding B/L nut. The two screws (82B) can be placed in either set of two holes in nut (79B) that are 90° apart.

### To Adjust Quill Powerfeed Clutch: Style 1-B (See Page 34.)

If powerfeed to quill should slip during a normal cut, it should be adjusted as follows:

1. Drain oil from vertical head, unscrew knurled knob (175B) at left side of head and remove six screws holding cover plate (123B, page 32) from side of head. Remove cover plate.
2. Loosen set screw in adjusting collar (178B), tap to loosen shoe under it and rotate collar in a clockwise direction until it is within 0.010" of the front face of male friction clutch (181B). [Or, run collar tight against friction clutch and back it off 1/5 of a turn on the 5/8-18 fine threads of pinion shaft.]

As hand clutch knob is turned clockwise, it will push adjusting pins (177B) against friction clutch and force clutch into spiral gear (182B) to produce drive to quill.

### To Adjust Shaping Attachment Drive Belt (See Page 96.)

Loosen the three cap screws that attach motor mounting plate (39B) to belt housing and tighten knurled knob (48B) until belt (44B) can be sagged between sheaves about one-half its thickness by finger pressure.

### To Adjust Shaping Attachment Gib (See Pages 96, 98.)

Slightly loosen bottom gib screw and tighten top gib screw (104B) until movement of slide (8B) is felt to be snug as drive belt is pulled over by hand.



## DISMANTLING PROCEDURE

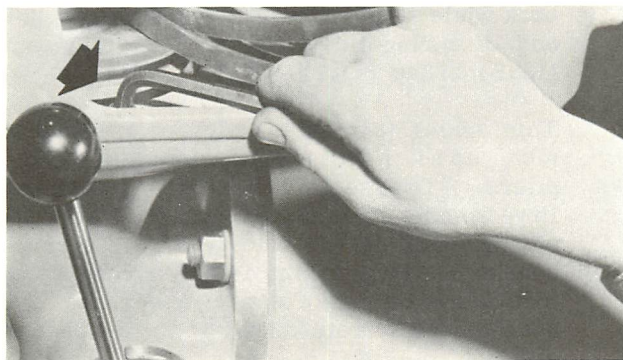


FIGURE 13  
Removing V-Belt Housing

### To Remove V-Belt Housing: Styles 1-A, 1-B. (See Page 28 and Figure 13.)

1. Loosen timing belt by loosening two socket head screws (33B) and turning knurled knob (43B).
2. Attach a two-point suspension sling (with padded hooks) to the top flanges above side openings in housing (19B). Remove two socket head screws (33B) and two washers (34B). Lift housing straight up, slowly, and be certain timing belt (9B) comes free of driven pulley (22B) as V-belt housing is separated from spindle housing.

NOTE --- If the V-belt housing is to be moved any distance from the machine, it will be necessary to break electrical connections at junction box on motor.

### To Remove V-Belt Housing: Style 1-D. (See Page 54.)

1. Loosen four capscrews (66B) and remove two capscrews (99B). Rig a two-point suspension sling with padded hooks and attach hooks to flanges above side openings in V-belt housing (58B). Remove slack from lifting cables.
2. Remove four capscrews (66B) and washers (67B). Lift housing (58B), slowly, until it is clear of drawbar (210B, page 58).

When reassembling, be certain key (93B) does not fall out of keyway in helical gear (98B) or power will not be transmitted to spindle.

NOTE --- If V-belt housing is to be moved any distance from the machine, it will be necessary to break electrical connections at junction box on motor.

### To Remove V-Belt Housing: Style 1-E. (See Page 56.)

1. Remove two screws (117B) and remove brake assembly from side of motor housing.
2. Loosen four capscrews (127B) and remove two capscrews (146B). Rig a two-point suspension sling with padded hooks and attach hooks to flanges above side openings in V-belt housing (107B). Remove slack from lifting cables. Remove four capscrews (127B) and washers (128B). Lift housing (107B), slowly, until it is clear of drawbar (210B, page 58).

When reassembling, be certain key (144B) does not fall out of keyway in helical gear (143B) or power will not be transmitted to spindle.

NOTE --- If V-belt housing is to be moved any distance from the machine, it will be necessary to break electrical connections at junction box on motor.

### To Remove Splined Spindle Sleeve: Styles 1-A, 1-B. (See Page 28.)

1. Remove V-belt housing per instructions above.
2. Turn driven pulley (22B) until two capscrews (25B) are accessible through holes in pulley. Remove two capscrews (25B). Turn pulley 90° until remaining two capscrews (25B) are accessible and remove capscrews.
3. Lift bearing housing (12B) from top of spindle housing.
4. Remove screw (6B) and loosen screw (7B) in locknut (20B). Loosen and remove locknut (20B). Tap splined spindle sleeve (29B) out of bearing housing (12B).

### To Remove Drive Spindle Assembly: Style 1-A. (See Page 30.)

1. Proceed as per instructions above under "To Remove V-Belt Housing" and "To Remove Splined Spindle Sleeve."
2. Unscrew hub retainer (86B) that is attached to spring pin (84B), spring (85B) and spring retainer screw (100B). Lift off handle hub (83B) and dial (82B). Loosen spindle clamp (65B).
3. Tape a small rag to the exposed end of pinion shaft (78B) to protect shaft when spring un-



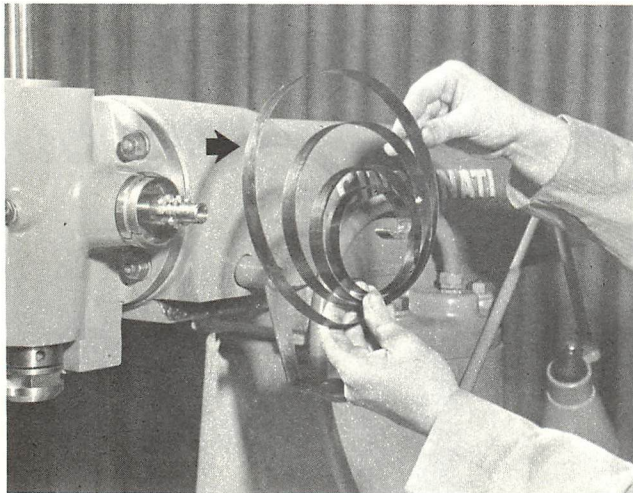


FIGURE 14A  
Quill Feed Torsion Spring

winds. Grip the tang of spring (80B) with a pliers and place a rag over spring housing. Pull tang of spring free of notch in spring housing (79B) and, at the same time, step back while spring unwinds. The tang at inner end of spring lies in groove of pinion shaft (78B).

This spring is most easily replaced by two men, each handling spring with a pair of pliers. [Grease spring before replacing.] Have spindle at its bottom position, fully wind spring, back off one notch and hook spring in housing. [This spring is only strong enough to balance weight of sleeve assembly. It is not intended to return spindle to its upper position.]

4. Remove three screws (87B), lift off spring housing (79B) and pull out pinion shaft (78B). Push spindle and sleeve (92B) up far enough to remove stop key (69B) and lower sleeve assembly out of head. Stop key contacts adjusting stop block (52B).

**To Remove Drive Spindle Assembly: Style 1-B  
(See Pages 32, 34.)**

1. Proceed as per instructions above under "To Remove V-Belt Housing" and "To Remove Splined Spindle Sleeve."
2. Unscrew hub retainer (194B) that is attached to spring pin (191B), spring (192B) and spring retainer screw (193B). Lift off handle hub (190B) and dial (189B).
3. Tape a small rag to the exposed end of pinion shaft (183B) to protect shaft when spring unwinds. Grip the tang of spring (187B) with a

pliers and place a rag over spring housing. Pull tang of spring free of notch in spring housing (185B) and, at the same time, step back while spring unwinds. The tang at inner end of spring lies in groove of pinion shaft (183B). [See Figure 14A.]

This spring is most easily replaced by two men, each handling spring with a pair of pliers. [Grease spring before replacing.] Have spindle at its bottom position, fully wind spring, back off one notch and hook spring in housing. [This spring is only strong enough to balance weight of sleeve assembly. It is not intended to return spindle to its upper position.]

4. Drain oil from spindle housing by removing plug (124B) and rotating spindle housing (151B) to left. [See Figure 16B.] Unscrew hand clutch knob (175B, page 34) and remove cover plate (123B, page 32). Loosen lock screw (179B, page 34), unscrew clutch adjusting collar (178B) and remove male friction clutch (181B) [See Figure 15C], key (184B) and spiral gear (182B). Loosen clamp screw (205B).
5. Remove two set screws (163B, 162B, page 32) from side of spindle housing. Replace handle hub (190B, page 34). Rotate handle (196B) to raise sleeve (144B, page 32) and, by knocking it against driven gear (115B), force worm shaft (118B) up out of spindle housing. [See Figure 15A.] Pull out pinion shaft (183B, page 34).
6. Push spindle (132B, page 32) and sleeve up high enough to remove stop key (154B) and lower sleeve assembly down out of head. [See Figure 14B.] Stop key contacts depth adjusting stop (159B).

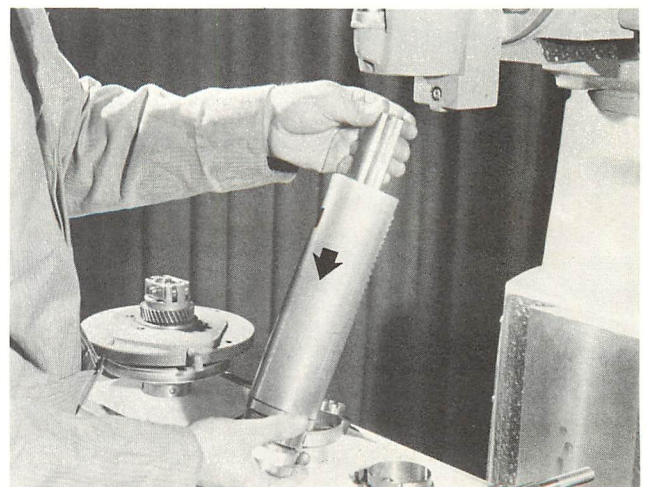


FIGURE 14B  
Drive Spindle and Sleeve



**To Remove Drive Spindle Assembly  
Styles 1-D, 1-E.  
(See Page 64.)**

1. Remove knurled locknut (364B) from top of shaft (386B). Remove screw (377B) and loosen screw (378B) to remove micrometer stop dial (376B). Loosen screw (384B) and slide pointer block (385B) up on shaft (386B). Remove retainer ring (387B) from groove near bottom of shaft (386B) and slide ring up toward center of shaft.

Turn bushing (361B, power feed; 381B, manual feed) counter-clockwise to remove shaft (386B) from bushing. Remove two screws (382B and 383B) holding bracket (369B) and remove bracket from shaft (386B). Removing bracket (369B) allows removal of the quill (200B, page 58) assembly from spindle housing.

2. Raise table to upper limit. Place block of wood between table and bottom of spindle. Loosen quill clamp lever (453B, page 66). Turn hand feed control wheel (347B, page 62) to lower spindle. Lower table as spindle is lowered. Support spindle assembly [near top] before it is clear of spindle housing.

**To Remove Spindle Housing with Spindle:  
Styles 1-A, 1-B.  
(See Pages 30, 32.)**

1. Proceed as per instructions in paragraphs 1 and 2 under "To Remove V - Belt Housing: Styles 1-A, 1-B" (page 13) and lift off housing.
2. Remove four nuts (95B, page 30; 135B, page 32). Pull spindle housing straight out of overarm. This housing assembly weighs approximately 60 lb. [See Figure 15B.]

When assembling, the tee bolts (96B, page 30; 133B, page 32) could be held in correct positions, in circular slot at end of overarm, by heavy grease until spindle head is pushed into place in overarm. [See Figure 15B.] Spiral gear (111B, page 30; 129B, page 32) must mesh with spiral gear shaft (237B, page 36) as housing is pushed into overarm.

If machine is equipped with a double swivel adapter, remove spindle housing before attempting to remove adapter from overarm.

3. After assembling, the spindle alignment with table should be checked. [See Figure 16A.] Trammig readings on a 10" diameter circle should be 0.000" at both sides and rear, but 0.001" at front. If readings are not 0.000" at

sides, it may be necessary to change zero line on overarm. If readings are not 0.000" at rear and 0.001" at front, it may be necessary to rescrrape head.

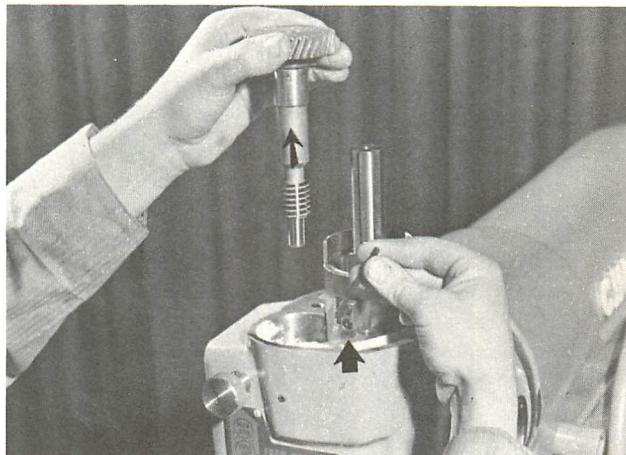


FIGURE 15A  
Worm Shaft - 1B Head

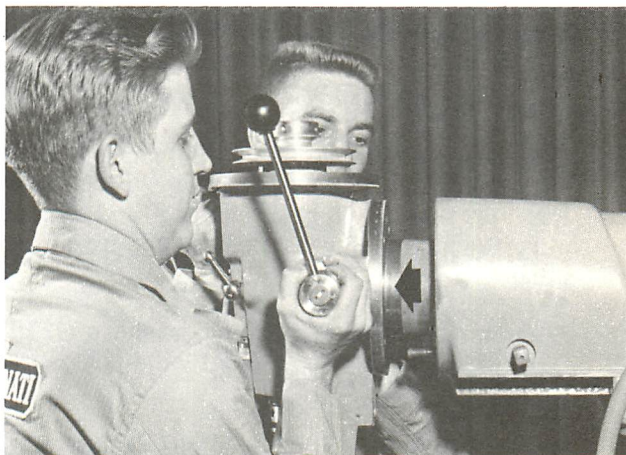


FIGURE 15B  
Removing Spindle Housing

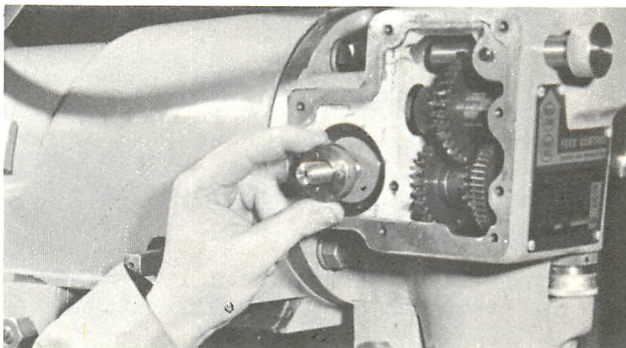


FIGURE 15C  
Spindle Drive Friction Clutch



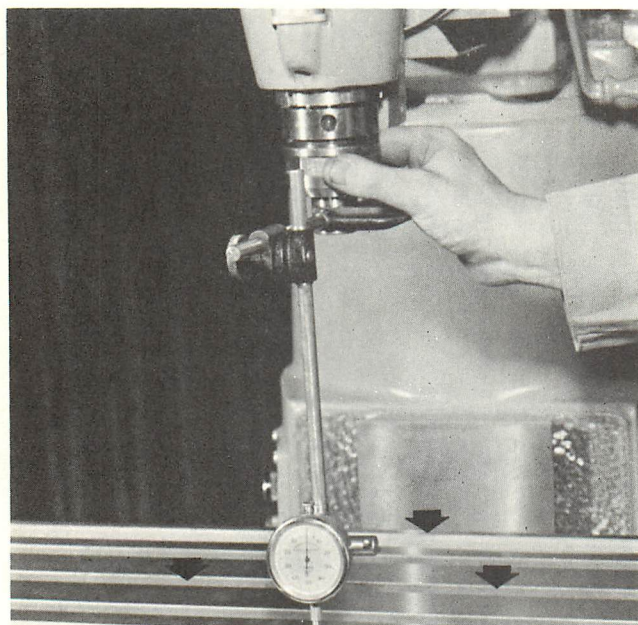


FIGURE 16A  
Tramming Spindle To Table

**To Remove Spindle Housing With Spindle:  
Styles 1-D, 1-E.  
(See Page 66.)**

1. Disconnect electrical leads at junction box on back of motor. Place rope sling through openings in side of V-belt housing and connect sling to crane. Remove slack from rope sling.
2. Remove four nuts (428B) and washers (427B). Pull spindle housing (420B) straight out of overarm.

When assembling, the tee bolts (423B) could be held in correct positions, in circular slot at end of overarm, by heavy grease until spindle head is pushed into place in overarm. [See Figure 15B.] Spiral gear (419B) must mesh with spiral gear shaft (416B) as housing is pushed into overarm.

If machine is equipped with a double swivel adapter, remove spindle housing before attempting to remove adapter from overarm.

**To Remove Spiral Gear Shaft: Style 1-B.  
(See Pages 32 and 34.)**

1. Proceed as per instructions in paragraphs 1 and 2 under "To Remove Drive Spindle Assembly: Style 1-B, page 14.
2. Remove four nuts (135B, page 32) and pull spindle housing straight out of overarm. Drill

a hole in expansion plug (212B, page 34) and remove it. With a brass bar against front end of spiral gear shaft (209B), drive it out rear of housing.

**To Remove Transmission Shaft: Style 1-B  
(See Pages 32 and 34.)**

1. Turn spindle housing 90° to left and remove plug (124B) to drain oil from housing. [See Figure 16B.] Return housing to upright position, unscrew hand clutch knob (175B, page 34) and remove cover plate (123B, page 32).

Loosen set screw (179B, page 34), tap collar to loosen shoe under screw, and remove clutch adjusting collar (178B). Slip off male friction clutch (181B), remove key (184B) and spiral gear (182B) from pinion shaft. [See Figure 15C.]

2. Unscrew hub retainer (194B) that is attached to spring pin (191B). Remove hub handle (190B) and dial (189B). Tape a small rag to the exposed end of pinion shaft (183B) to protect shaft when spring unwinds. Grip the tang of spring (187B) with a pliers and place a rag over spring housing. Pull tang of spring free of notch in spring housing (185B) and, at the same time, step back while spring unwinds. The tang at inner end of spring lies in groove of pinion shaft (183B). Take out three screws (186B), remove housing, and pinion shaft (183B).

The torsion spring is most easily replaced by two men, each handling spring with a pair of pliers. [Grease spring before replacing.] Have spindle at its bottom position, fully wind spring, back off one notch and hook in spring housing.

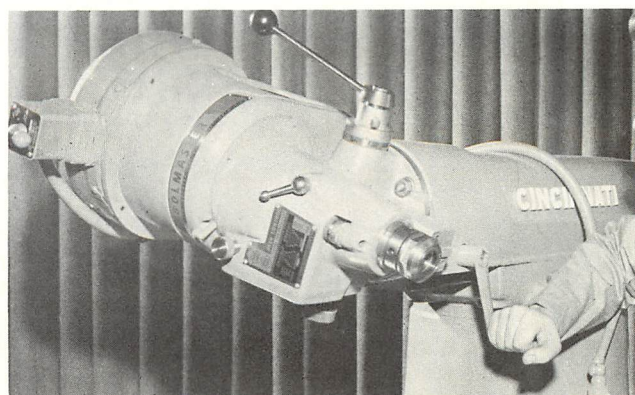


FIGURE 16B  
Draining Oil From Head



3. Remove spring wire rings (217B) and set screws (215, 218B) from gears. Drill a hole through expansion plug (221B) and pull it from housing.

Insert a 1/2" by 1-1/2" brass rod into pinion shaft opening of housing and tap transmission shaft (214B) out front of housing.

### To Remove Speed Change Assembly:

#### Style 1-D.

(See Page 54.)

1. Proceed as per instructions under "To Remove V-Belt Housing: Style 1-D, page 13."
2. Pry motor pulley open and wedge with small blocks of wood to release pressure on belt. Remove belt (72B). Remove wooden blocks and allow pulley halves to close.
3. Remove lockscrew (52B) and loosen set screw (51B). Remove handle (41B) and dial (44B). Remove three screws (47B) from sleeve (46B). Turn gear shaft (48B) counter-clockwise until it is clear of nut (12B). Gear shaft and sleeve assembly can then be removed from housing. [Gear (37B) may be removed, if necessary, by removing lockscrew (20B) and loosening set screw (28B). This releases the pressure on gear pin (38B) and permits removal of pin and gear.] Remove lockscrew (8) and loosen set screw (10B) until it is clear of recess in shaft pin (9B).

Remove four screws (55B) and work drum switch (59B) out of housing carefully. Do not break or damage wires attached to drum switch. With drum switch out of its recess, tap shaft pin (9B) out back of casting until it is clear of yoke (17B). Lift pin and yoke out of casting.

4. Remove five screws (1B) and cover (14B). [Keep drawbar bolt (6B) in place on underside of cover or plunger (2B) and spring (3B) may fall out and be lost.]

### To Remove and Dismantle Powerfeed

#### Housing: Styles 1-D, 1-E.

(See Pages 60 and 62.)

1. Attach rope sling through side openings in motor housing (58B, page 54, 1-D machine; or 107B, page 56, 1-E machine). Remove three screws (188B, page 58) and raise motor housing base until it is clear of spindle housing. [It is not necessary to break electrical connections to motor if the housing remains suspended on crane or is lowered onto machine table.] Remove plug (262B, page 60) and screws (263B, 264B) located near top of housing and midway between screws (258B).

Remove bevel gear (234B) assembly; this assembly includes parts (221B, 231B through 234B, 245B and 246B).

Remove plug (272B) and drain oil from gear box. Remove two screws (283B) and two screws (258B). Move housing (247B) straight out from side of spindle housing. Place powerfeed housing on work bench for dismantling.

2. Remove plug (262B) and screws (263B, 264B) that hold sleeve (217B) in place. Through opening in back of powerfeed housing place screwdriver against recess in face of bevel gear (226B) and tap complete shaft (220B) assembly to left (as viewing explode) out of housing. [Do not remove shaft (220B) assembly by tapping against front end of shaft. This action would dislodge Truarc rings (219B, 224B, 240B) and result in bearing damage.]
3. Remove roll pins (301B, 303B, page 62) and pull shaft (315B), with handwheel and dial in place, out of housing. Remove gears (300B, 305B, 307B) as they drop free of shaft.
4. Remove four screws (317B) and cover (326B). Remove spring (298B, page 60). Remove roll pin (277B) from shifting arm. Remove dog point set screw (290B) and tap 1/8" roll pin [not shown] out of shifting shaft detent (289B). Remove pin (281B) and lever (293B). Tap shifting shaft (296B) at lever end and move shaft through clutch shifting fork (297B) until key (295B) can be removed. Then tap shaft in the opposite direction and remove from control side of housing.
5. Remove three screws (260B) and remove gear shift knob assembly. This assembly includes the following parts: (255B, 256B, 259B through 261B, 265B through 270B, 279B and 280B).
6. Remove roll pin (308B, page 62) from gear (306B) and remove gear from end of shaft (343B). Remove screw (321B) and loosen screw (320B) that holds sleeve (339B) in housing. Tap sleeve (339B), ring (340B) and plug (341B) out of housing. [Place screwdriver on inner face of sleeve and tap carefully.] Tap shaft (343B) from above and remove shaft, gear (337B), snap ring (338B), bushing (348B) and reversing clutch (336B) through access in bottom of housing. Remove plug (333B), screw (332B) and loosen screw (331B). Remove four screws (309B) and rear cover (310B). Tap shaft (325B) to left until it is clear of bevel gear (342B) and remove bevel gear. Then, tap shaft (325B) to right to remove shaft and bevel gear (324B) from housing. Gears (329B, 330B) may be lifted out of housing after they fall clear of shaft. To



separate cluster gear from driving gear, remove ring (328B).

7. Remove screw (248B, page 60) and loosen screw (249B). Remove roll pin (250B). Tap shaft (253B) from inside housing. As shaft is removed, it will force plug (254B) out of housing.

**To Remove Overarm and Turret:**

**Styles 1-A, 1-B, 1-D and 1-E.**

(See Pages 36 and 66.)

1. Attach rope sling through side openings in motor housing in head and connect sling to crane. Remove slack from sling. Remove four nuts from T-bolts that hold head to overarm and pull head straight out from overarm.
2. Remove coolant hose (27B, page 90) and bracket (23B) if machine is so equipped. Remove socket head screw from top center of overarm, insert an eyebolt and attach crane hook. Wind overarm forward and slide out of turret (257B, page 36). Make certain overarm is balanced as it is slid off, to prevent damage to ways. Break electrical connections, remove four nuts (255B) from top of turret and lift turret off column.

NOTE --- The overarm is easier to balance while removing if spindle housing is taken off first. However, by using a rope sling around spindle housing and from it to crane, it is possible to remove overarm with housing in place.

**To Remove Overarm ( Heavy Duty ): Style 1-C.**

(See Page 42.)

Remove one 1/2" set screw (2B) from top of gear housing (14B) on motor end, insert an eyebolt and attach to a crane. Remove electrical compartment cover (10B) and break electrical connections. Wind overarm forward and slide out of turret. Make certain overarm is balanced as it is slid off, otherwise vee-way in turret may be damaged.

If a double swivel housing is being used, turn spindle housing so it is in line with overarm to prevent a twisting action as overarm is removed. It is advisable to use two eyebolts in gear case when lifting overarm with swivel housing in place.

**To Remove and Dismantle Overarm Gear Housing: Style 1-C**

(See Pages 42, 44, 46)

1. Drain oil from gear housing. Set the center and rear speed shift levers (74B, 68B, page 44) in the number 2 stops and the forward lever (88B) in either its number 1 or its neutral stop. Remove twelve screws (51B) and pull speed control plate (56B) from overarm. Mark

location of gears so they can be more easily set when assembling.

2. Remove two 1/2" set screws (2B, page 42), insert two eyebolts and attach to a crane. Through side opening, set couplings (109B, 112B, page 46) so their sides are vertical, remove fourteen screws (1B, 9B, page 42), and raise gear housing out of overarm.

Overarm can be left on turret while gear housing is removed but gear housing must be in place to remove overarm.

3. Loosen set screw, tap to loosen lock shoe, remove shoe-type lock nut (148B, page 46) and drive spur gear shaft (142B) toward front of housing sufficiently to expose set screw in lock nut (144B). Loosen set screw and tap to loosen lock shoe in nut. Tap shaft (142B) to rear into original place and, using a spanner wrench in the side holes of nut (144B), unscrew it. Tap shaft forward and out of housing.
4. Remove shoe-type lock nut (137B), loosen locknut (134B) until it is clear of shaft threads and tap cluster shaft (131B) forward and out of housing.

When assembling, set spur gear (132B) as far toward rear of housing as possible so change gear (145B) does not have to shift too far forward to engage spur gear (132B). If change gear (145B) moves too far forward, it will rub against end of change gear shaft (119B).

5. Remove coupling halves (109B, 112B) and hydro keys from ends of change gear shafts (105B, 119B). Remove shoe-type locknuts (108B, 115B) and tap shafts out of housing.

The flange of bearing cup (106B) must have a flat ground on one side to miss the adjacent bearing.

**To Remove Single Swivel Housing Spindle and Drive —Without Hand Feed: Style 1-C**

(See Pages 44 and 50)

1. Drain oil from gear housing. Set the two rear speed change levers (74B, 68B, page 44) in the Number 2 stop and the forward lever (88B) in the Number 1 stop. Remove twelve screws (51B) and pull speed control plate (56B) from overarm. It is easier to align couplings when assembling if speed control plate is off.
2. Unscrew four nuts (211B, page 50) and pull spindle housing (213B) from overarm. Remove index head gear (235B) from sleeve ad-



justing housing (227B). Remove four screws (233B) and tap motor driven shaft (224B) and sleeve housing (227B) assembly out of spindle housing.

After assembly, the gear (214B) is correctly aligned and meshed by grinding the spacer (207B) to correct thickness.

3. Remove spindle bearing cap (203B), split type spindle locknut (205B) from top of spindle and spindle cap (220B) from bottom of spindle housing.

Gently tap spindle down out of housing to prevent damage to thrust bearing (219B). It is not necessary to remove spindle housing before removing spindle.

### To Remove Single Swivel Housing Spindle and Drive —With Hand Feed: Style 1-C (See Pages 48 and 50.)

This spindle housing is the same one used without hand feed but is rotated 180° before mounting on overarm. (See "Ref." at bottom of page 50.)

1. Proceed as per paragraphs 1 and 2 directly above under "To Remove Single Swivel Housing." When assembling, grind spacer (161B, page 48) to set spiral drive gear (153B) to gear on motor driven shaft (224B, page 50).
2. Remove two screws (171B) and draw bolt cover (191B). Remove bearing nut (193B) and locknut (174B) and remove quill (169B) from spindle. Loosen set screw (154B) and tap to free brass plug (155B) under it. Unscrew quill adjusting cap (199B) from top of spindle housing and remove with dial (198B) and quill adjusting screw (184B).
3. Remove spindle bearing cap (165B) and split type locknut (163B) from bottom of spindle (167B). Turn spindle housing 180° and gently tap spindle (167B) down out of housing to prevent damage to thrust bearing (149B).

### To Remove and Dismantle Double Swivel Housing: Style 1-C (See Page 52.)

1. Remove spindle housing (160B, page 48 or 213B, page 50) from double swivel housing (260B, page 52). Remove end cap (266B), shoe-type locknut (265B) and tap spiral bevel pinion (240B) gently out of housing. If pinion is driven too hard, the thrust bearing (243B) might be damaged.

2. Remove four nuts (258B) and pull swivel head out of overarm. Remove index head gear (247B). Remove set screw (261B) and pull eccentric (262B) from housing. Remove set screw (250B), loosen set screw (251B) and pull motor driven shaft (254B) and bearing sleeve (256B) assembly out of overarm.

Remove shoe-type locknut (244B) and gently tap shaft out of sleeve to prevent damaging thrust bearing (255B).

3. When assembling, gear (240B) and gear on motor shaft (254B) are aligned by grinding spacer (242B) to suit and moving bearing sleeve (256B) with eccentric (262B). Sight gears through opening left by removal of expansion plug (249B). When spindle housing (160B or 213B) is attached to swivel housing, it may be necessary to readjust all gears to obtain proper running mesh.

When inserting spindle housing in swivel housing or the latter into overarm, turn housing 90° to one side before slipping it home. Thus, if a slight loop of the O-ring gasket should be squeezed down and cut by edge of opening, the damaged portion will be above lubrication level.

### To Remove Table (See Page 68.)

1. Unscrew split type locknut (38B) from right end of leadscrew (21B) and remove handwheel with dial. Remove key (22B), four cap screws (24B) and tap right-hand apron (23B) from table.
2. Move table to right so left apron is near saddle. Remove four cap screws (18B) from left apron and tap apron to free it from table. Remove precision measuring equipment from table, if so equipped.
3. Fasten a U-clamp to center of table and attach to a crane with a slight tension. Remove gib (12B), loosen saddle clamping lever (114B, page 70) and slide table (11B) toward right and off saddle.

If table is equipped with powerfeed, it is first necessary to remove gear housing bracket (144B, page 72) and then proceed as above.

It is extremely difficult to replace an apron onto leadscrew without damaging the oil seal. It is better to first remove seal, install apron and then replace seal. Make a roll of thin shim stock, slip inside seal, put shim roll on end of screw, slide seal into place in apron and remove shim roll.



**To Remove Table Lead Screw  
(See Page 68.)**

1. Unscrew split type lock nut (38B) from right end of table leadscrew (21B) and remove handwheel with dial. Remove key (22B).
2. Move table to right so left apron is near saddle. Remove four cap screws (18B) from left apron, place a tension on leadscrew with handwheel, and tap apron to free it from table.
3. With table clamped and apron in place, turn leadscrew in a clockwise direction out of table nut. Support leadscrew as it emerges. There is less chance of damaging the leadscrew if left apron was removed before leadscrew was taken out.

See last paragraph under "To Remove Table," (page 19) before replacing right-hand apron.

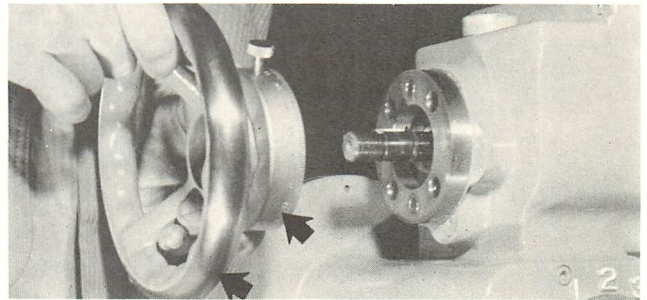
If table is equipped with powerfeed, it is first necessary to remove gear housing bracket (144B, page 72) [see "To Remove Table Powerfeed Housing"] and then proceed as above after handwheel is replaced on left end.

Positive stop dogs (272B, 273B, page 76) should never be removed from table. Their function is to prevent any chance of ramming table aprons against knee with possible damage to mechanism.

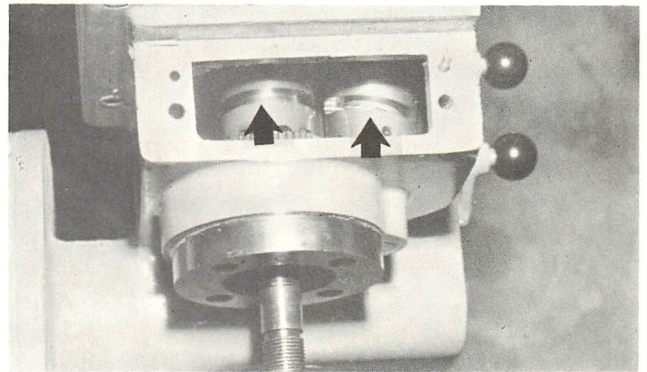
**To Remove Table Powerfeed Housing  
(See Pages 72, 74 and 76.)**

1. Unscrew split type lock nut (220B, page 74) from left end of table leadscrew (252B) and remove handwheel with dial [see Figure 20A.] Remove key (250B) and split ring (221B).
2. Remove two cap screws and lift top housing cover (124B, page 72), with cam follower (131B), off gear housing bracket. Drain oil from bracket.

Before replacing cover (124B), unscrew oil filler cap (122B). Set reversing clutch (232B, page 74) so its teeth are about 1/16" into engagement with teeth of clutch spur gear (229B) and set trip lever (305B, page 76) in a neutral position, handle (306B) straight out. Have concave side of cam follower (131B, page 72) facing squarely toward table and while lowering cover into bracket, sight through nipple (123B) to guide pins of cam follower into engagement with reversing clutch (232B, page 74) and drum cam (293B, page 76). [See Figure 20B.]



**FIGURE 20A**  
Removing Handwheel



**FIGURE 20B**  
Table Powerfeed Housing with Cover Removed

3. Take out screws (138B, 136B, page 72) and tap gear housing bracket (144B) with bearing retainer (225B, page 74), oil seal (226B) and bushing (227B) off mounting apron (128B, page 72). [See Figure 21A.]
4. Grasp drum cam (293B, page 76) and pull shaft (288B) out of segment gear (290B). Pick gear out of space between saddle and knee.

When inserting this shaft, hold segment gear in place under saddle with key (287B), tight in gear, at top.

Drum cam (293B) should be clamped to shaft with set screw (282B) in line with center of keyway. Slip shaft into place and assemble powerfeed to table. Start machine and move table right and left by actuating trip lever by table dogs while under power. The trip lever should snap over at the same point on each feed dog (271B, 274B). If trip lever (305B) trips sooner off right table dog---table moving to left---than it does off left table dog when moving to right, the cam (293B) should be rotated slightly clockwise on shaft (288B). When cam is correctly located on shaft, swing table lever (306B) to left to rotate cam so hole for lock screw (281B) is vertical and spot drill shaft to take lock screw. Replace top housing cover (124B, page 72).



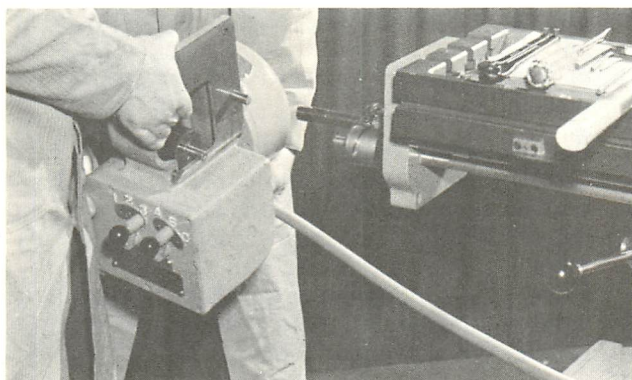


FIGURE 21A  
Removing Table Powerfeed Housing

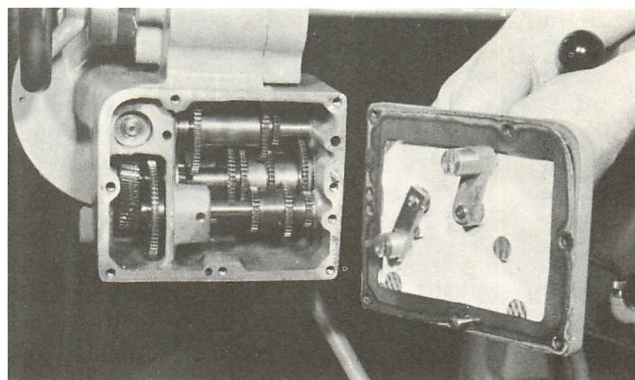


FIGURE 21B  
Table Powerfeed Housing - Front Cover Removed

### To Dismantle Table Powerfeed Housing (See Pages 72 and 74.)

1. Proceed as per instructions directly above under "To Remove Table Powerfeed Housing."
2. Loosen slotted round head screws and remove cover from motor (129B, page 72). Remove four cap screws (139B) and, by tapping on round head screws around motor, drive motor (with key) out of bracket.

When installing motor, see "To Install Table or Saddle Powerfeed Motor" on page 24.

3. Remove seven screws (165B) and take off front cover (164B) with feed levers. Remove split rings (176B and 141B) and tap spiral gear (174B) out rear of housing bracket.
4. Either shaft "A" or shaft "C" can be removed any time as described below. It is necessary to remove both "A" and "C" shafts before "B" shaft can be removed. (See Page 74)

To remove "A" shaft, drive plug (184B) out of housing by tapping from inside of housing. Remove screw (149B) and loosen screw (148B) that holds bushing (193B) in housing. [These screws are accessible when cover (164B) is removed from housing.] Remove split ring (185B). Tap shaft (190B) very carefully to the right to loosen and remove drive gear (186B). [Drive gear (186B) is keyed to shaft (190B). Tap shaft lightly to prevent key from damaging bushing.] Remove key (189B). Plug (194B) and bushing (193B) will start out of housing as shaft is moved to right. Hold split ring (188B) open and continue to tap shaft (190B) until it is out of housing.

5. To remove "C" shaft, drill and tap plug (218B) for 1/4-20 threads and remove plug. Remove screw (149B) and loosen screw (148B) that holds bushing (217B) by inserting wrench in appropriate drilled passage which is accessible when cover (164B) is removed from housing. Tap outer end of hole in bushing (217B) for 1/2-13 threads and remove bushing from housing. Pull shaft (213B) through right end of housing until split ring (207B) is against cluster "C" gear (215B). Remove split ring and continue to move shaft (213B) to the right until it is out of the housing.
6. Drill and tap plug (195B) for 1/4-20 threads and remove plug. Tap outer end of bushing (196B) for 1/2-13 threads. Remove screw (149B) and loosen screw (148B) that holds bushing (196B) in place. These screws are accessible through bottom of housing. Remove bushing (196B). Remove drive gear shaft (197B) which is tapped 10-24 to make removal easier. Drive reduction gear (199B) and spacer (200B) can be lifted off shaft (197B) as it is removed. Drill and tap plug (206B) for 1/4-20 threads and remove plug. Tap right end of shaft (201B) and move shaft to left; bushing (209B) will be moved to left, also, as shaft advances. When bushing is almost out of housing rib, tap shaft (201B) to right until it is clear of bushing. Tilt right end of shaft and lift it from housing with gears (203B, 204B) on shaft.

### To Remove Standard Saddle (See Page 70.)

1. Slightly loosen screws through long and short side clamps (102B, 104B, 105B, page 70). These clamps are designed to allow clearance between knee and clamps.



2. Remove four screws (50B, page 80). Drill and tap 3/8" straight pin (49B) with 1/4-20 tap, screw 12" long threaded rod, having a nut at outer end and mounted with a slidable weight into pin and hammer it from crossfeed nut (47B). Pry nut out of groove in bottom of saddle.
3. Remove saddle gib (107B, page 70). Fasten a U-clamp to center slot of table, attach to a crane and slide saddle off knee. Overarm and turret must be rotated to one side to allow room for crane cable to connect at center of table.

**To Remove Crossfeed Screw  
(See Page 80.)**

1. Unscrew split type lock nut (63B) and remove handwheel with dial. Remove four cap screws and lift off bearing retainer (55B). Clamp saddle to hold it in place.
2. Replace handwheel on crossfeed screw (52B) and turn it out of right-hand threaded crossfeed nut (47B).

**To Remove and Dismantle Saddle When Table is Equipped with Powerfeed.  
(See Pages 70, 72, 74 and 76.)**

1. Proceed as per paragraphs 1, 2 and 3 under "To Remove Table Powerfeed Housing," page 20. Remove clutch (232B) assembly which includes the following parts: Truarc ring (240B), spacer (228B), bushing (241B), spur clutch gear (229B), spacer (230B), Truarc ring (242B), nylon insert (231B), key (251B), reversing clutch (232B), Truarc ring (233B), spacer (243B), bushing (234B), spur clutch gear (244B), spacer (245B) and Truarc ring (246B). [See page 74.]

Slide shaft (288B) assembly out of saddle. This assembly includes parts (279B) through (288B), (292B) through (294B) and plug (330B). [See page 76.]

Loosen screw (326B, page 74) in bearing retainer (248B). Remove four screws (127B, page 72) and push table away from apron (128B). Remove table gib (87B, page 70) and loosen saddle clamping lever (114B).

2. Remove precision measuring equipment from table if so equipped. Fasten a U-clamp to center of table and attach to a crane with a slight tension. Remove table from either end of saddle.
3. Proceed as per instructions in paragraphs 1 and 2 under "To Remove Standard Saddle,"

page 21. Rotate turret 90° to swing overarm out of the way, place a rope sling around ends of saddle, attach to a crane and slide saddle off knee.

4. Remove detent cover (313B, page 76), screw (325B), loosen set screw (324B) and pull up trip plunger (305B). [Key (310B) is tight in detent (323B)]. Lift out detent (323B) and rack (320B). Push in detent plunger (319B), remove plug (301B), screw (302B), loosen dog point set screw (303B) and ease plunger out of saddle---compression spring (318B) is strong.

These parts could all be removed while saddle is on knee. However, to remove set screw (303B), it is necessary to remove table first.

**To Remove and Dismantle Saddle Powerfeed Housing  
(See Pages 82 Through 88)**

1. Remove split type lock nut (264B, page 88) and lift off handwheel with feed dial (253B). [Remove key (236B).] Remove six screws (270B) and two pins and lift off front cover (257B).

The drive into gear housing is from motor-driven spiral gear (87B, page 82) through gears (155B, page 84) and (158B) into shaft "A". Cluster shifting gear (168B) on "A" shaft meshes with either of gears (149B) or (150B) on "B" shaft, depending on location of feed lever (118B, page 82). Gear (177B, page 84) on "C" shaft engages with either gear (147B) or large or small gear of (150B) on "B" shaft, depending on how gear (168B) is shifted by feed lever (131B, page 82). Gear (177B, page 84) on "C" shaft is always meshed with gear (184B) on "D" shaft. Clutch spur gear (194B, page 86) on shaft "E" and reversing gear (142B, page 84) on "F" shaft are also always meshed with gear (184B) on "D" shaft. Clutch spur gear (200B, page 86) on shaft "E" in mesh with reversing gear (142B, page 84) rotates in the opposite direction from gear (194B, page 86) also on "E" shaft. Thus, the drive from "E" shaft gear (188B)---in either direction depending on engagement of reversing clutch (197B)---continues through idler gear (261B, page 88) into saddle traversing gear (231B) and crossfeed screw.

2. Loosen round head screws around motor (101B, page 82) and lift off motor cover. Remove four screws (93B) and tapping on round head screws, remove motor (101B) from adapter plate (90B). Remove three screws (91B) and adapter plate (90B).

When installing motor, see "To Install Table or Saddle Powerfeed Motor" on page 24.



3. Drain oil from bracket through plug hole (115B). Remove eight screws (128B) and lift off gear cover (110B) from side of bracket.

Remove detent cover (225B, page 86), loosen screw (213B), pull detent pivot pin (223B) and drop shaft detent (221B) from engagement with shifting shaft (203B). [The pivot pin is case hardened and it may be necessary to unbolt rear bracket (217B) and rotate it to be able to get behind pivot pin and drive it out.]

Drive taper pins from positive stop blocks (207B and 210B) and loosen clamp screws (215B) to release adjusting stop blocks (209B). Pull shifting shaft (203B) from bracket.

Remove cap screws and lift gear housing bracket (103, page 82) away from knee.

4. Remove split ring (144B, page 84) and drive "F" (140B) shaft out of bracket. Drive shaft "D" (182B), with seal plug (181B), forward out of bracket.

Remove set screws that fasten bronze bushing (190B, page 86) into bracket and drive "E" shaft assembly forward and out of bracket.

5. Drill and tap plug (163B, page 84) for 1/2-20 thread and pull it out of bracket. Remove set screws that hold bushing (165B) in housing. Push spring retainer (161B) to compress spring (160B) and remove Truarc retainer (162B). Slowly release spring tension and remove spring retainer (161B), spring (160B) and safety clutch (159B). Through plug (163B) opening, tap end of shaft (167B) lightly to drive shaft out of bracket. Plug (164B) will drive out of housing ahead of bushing (165B). Gear (158B) and bushing (172B) will fall into housing as they clear the shaft.
6. Drive sealing plug (94B, page 82) into gear housing bracket and force spiral gear shaft (87B) assembly out of bracket toward motor side.
7. Drive sealing plug (180B, page 84) into gear housing, remove locking set screws from bushing (174B) and tap shaft "C" (175B) out front of bracket.

Drill and tap sealing plug (157B) for 1/4-20 threads and pull it out of bracket. Tap outer end of bushing (156B) for 1/2-13 threads and, after removing two locking set screws, pull it out of bracket. Pull out cluster gear shaft (152B) and remove drive gear (155B). Remove two locking set screws from bushing (146B), drive "B" shaft toward front of bracket until shaft is free of rear bushing, then angle it with gears (149B, 150B) in place, out of bracket.

### To Remove Elevating Crank Shaft (See Page 80.)

1. Remove 3/8-16 center screw (80B) and remove crank. Drive out taper pin and remove elevating crank clutch (78B). Remove bearing retainer (81B).
2. Screw a 3/8-16 threaded rod, mounted with a slidable weight and having a nut at its outer end, into end of elevating shaft (72B) and hammer shaft forward far enough to pull roller bearing (68B) out of support bracket (6B). Remove support bracket from side of knee.
3. Remove screw (66B) and inner race of bearing (68B). [Outer race stayed in support bracket.] Loosen set screw, tap to loosen shoe under it; remove locknut (69B) and spiral gear (70B) from inner end of elevating shaft. Pull shaft (72B) out of knee.

### To Remove Elevating Screw and Pedestal (See Page 78)

1. Proceed as per instructions on page 21, under "To Remove Standard Saddle."
2. Run knee up near its topmost position. Remove four cap screws (14B) from base and tap base to loosen two straight 3/8" pins (12B). Clamp knee and place a wood block under it next to column. Turn elevating crank and raise elevating screw pedestal (11B). [Figure 23.]
3. Remove steel plug (21B) and shoe type lock nut (22B) from top of elevating screw (32B). Block up to within a few inches of pedestal and tap elevating screw down out of knee.

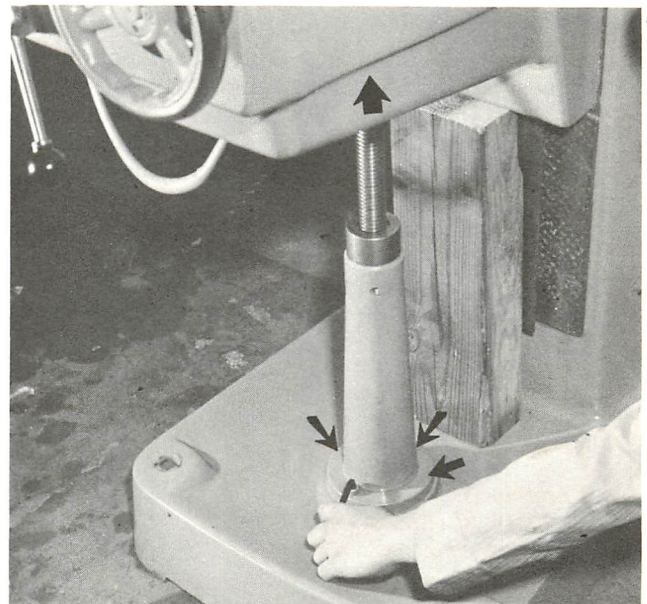


FIGURE 23  
Removing Elevating Screw



**To Remove Knee  
(See Page 78)**

1. Proceed as per instructions on page 21 under "To Remove Standard Saddle"; as per instructions above under "To Remove Elevating Crank Shaft."
2. Rotate turret (257B, page 36) 90° on column. Remove steel plug (21B, page 78) and shoe type lock nut (22B) from top of elevating screw (32B). Place a rope sling around front and back of knee. Remove knee gib (2B). Lift knee, while tapping the top of elevating screw (32B), straight up off column ways.

**To Dismantle Shaping Attachment  
(See Pages 96 and 98.)**

Although this attachment can be easily removed after clamp screws (80B) are loosened, it is easier to dismantle if left on the overarm.

1. Loosen three screws (37B), drop motor and remove drive belt (44B). Remove screws (37B) and lift motor (34B) off attachment. Remove four screws (45B) and lift off belt housing (40B).
2. Remove hexagon nut (81B). Loosen gib (117B) by unscrewing top gib screw (104B) and tightening bottom gib screw. Rotate crank (109B) so tee slot is horizontal, remove left (101B) and right (118B) clamps and pull slide (8B) with assembled pitman (76B) straight away from slide housing (102B) and off tee bolt (85B).
3. Remove 1/4" pipe plug (89B) from bottom of drive gear housing (62B) and 1/4" set screw (113B) from worm wheel (114B). Remove drive housing cover plate (70B), capstan nut (68B) and pull crank (109B) out of its housing.
4. Remove taper pin (99B) and unscrew hexagon nut (98B). Remove small oil seal housing (95B) from gear housing. Remove two set screws and pull off driven sheave (50B). Remove large oil seal housing (53B). Loosen

locking set screw in nut (55B), tap screw to loosen lock shoe under it and loosen nut.

Tap worm shaft (61B) slightly to right, remove Truarc ring (93B) and drive worm shaft to left out of housing.

Unscrew three hexagon nuts (88B) and pull slide housing (102B) away from gear housing (62B). When assembling, attach slide to housing while housing is upside down. Thus, any sag that might occur in O-ring (115B), to be cut as slide is pushed onto boss of housing, will be on top when attachment is in place.

**To Install Table or Saddle Powerfeed Motor**

When installing table or saddle powerfeed motors, always be sure there is clearance between the armature and field laminations as shown in Figure 24. Check the periphery because the fields or the armature shaft (or both) may be slightly out of line. If necessary, the armature, a press fit, can be pulled to obtain the correct clearance. Adjust minimum clearance to 0.015".

Do not bump or press armature while installing motor or the minimum clearance will be changed.

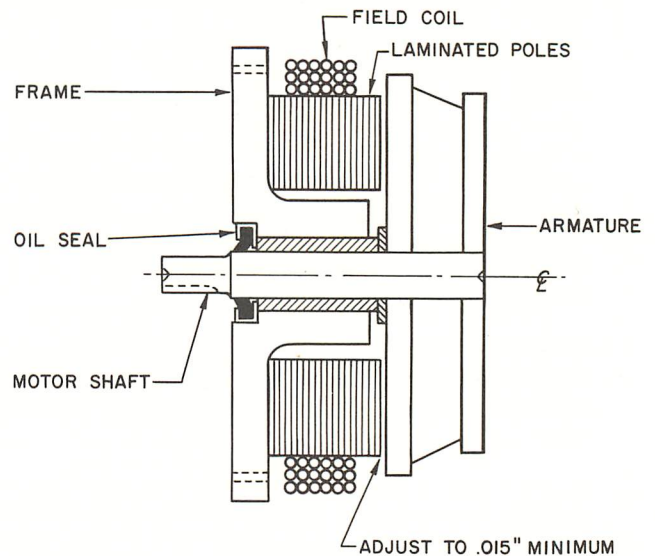


FIGURE 24



## KEY NUMBER INDEX

UNIT NAME	DRAWING NAME	KEY NOS.	PAGE NO.	KEY NUMBER OF OTHER UNITS
HIGH SPEED HEAD AND OVERARM (Unit 6JJR)	Motor—Drive Sleeve—Jack Shaft	1B-51B 304B-305B	29	6JM-42B
	Housing and Spindle, Style 1-A	52B-114B	31	
	Housing and Spindle, Style 1-B	115B-173B	33	
	Pinion Shaft—Spiral Gear Shaft Style 1-B	174B-221B	35	
	Double Swivel Adapter Style 1-A, Style 1-B Overarm	222B-238B	37	
	Turret (All Machines)	239B-263B		6JNN-261B 6JNN-262B
	Craley Head—Collets—Chucks	264B-289B	39	
290B-303B		41		
HEAVY DUTY HEAD AND OVERARM (Unit 6JJS)	Heavy Duty Overarm and Motor	1B-48B	43	6JM-35B
	Heavy Duty Control Mechanism	49B-99B	45	
	Heavy Duty Drive Shafts	100B-148B	47	
	Spindle and Housing, Hand Feed to Quill, Single Swivel	149B-199B	49	
	Spindle and Housing, Without Hand Feed to Quill, Single Swivel	200B-236B 269B, 272B	51	
	Drive to Head			
Double Swivel Housing	237B-268B 270B, 271B	53		
VARI-SPEED HEAD AND OVERARM (Unit 6JKV)	1-D Motor Housing and Vari-Speed Drive	1B-99B	55	6NN-59B
	1-E Motor Housing and Vari-Speed Drive	100B-146B	57	
	Motor Housing Base and Spindle	147B-213B	59	
	Power Feed Housing	214B-299B	61	
	Power Feed Gearing	300B-354B	63	
	Manual Feed Gear Housing and Micrometer Depth Stop	355B-411B	65	
Spindle Housing and Overarm	412B-471B	67		
SADDLE-TABLE (Unit 6JH)	Table and Leadscrew with or without Powerfeed	1B-56B	69	6JP-1B thru 6JP-6B; 6JP-8B thru 6JP-10B
	Saddle with or without Power- feed	58B-115B	71	
	Table Powerfeed Gear Housing	116B-183B	73	
	Powerfeed—Gearing and Lead- screw—Table	184B-269B 326B-329B	75	
	Powerfeed Drive Shaft and Saddle	270B-325B 330B	77	



**KEY NUMBER INDEX (Cont'd)**

UNIT NAME	DRAWING NAME	KEY NOS.	PAGE NO.	KEY NUMBER OF OTHER UNITS
KNEE (Unit 6JK)	Knee and Elevating Screw	1B-44B	79	
	Cross Feed Screw and Elevating Shaft	45B-86B	81	
	Powerfeed—Gear Housing Bracket—Knee	87B-139B	83	
	Powerfeed—Gearing—Knee	140B-186B	85	
	Powerfeed—"E" and Shifter Shafts—Knee	187B-229B	87	
	Powerfeed—Cross Feed Screw and Front Cover—Knee	230B-275B	89	
COLUMN (Unit 6JC) COOLANT PUMP AND PIPING (Unit 6JP)	Column and Coolant Pump	1B-45B	91	6JNN-8B; 6JNN-10B; 6JNN-11B
PRECISION MEASURING EQUIPMENT (Unit 6JL)	Precision Measuring Attachment Longitudinal Movement	1B-53B	93	
	Cross Movement			
SHAPING ATTACHMENT (Unit 6JHF)	Precision Measuring Attachment Vertical Movement	54B-82B	95	
	Shaping Attachment	1B-49B	97	6JM-34B
PLAIN, SWIVEL AND UNIVERSAL VISES (Unit 6JKA)	Shaping Attachment	50B-119B	99	
	Plain and Swivel Vise	1B-69B	101	
Universal Vise				
INDEX HEAD AND TAILSTOCK (Unit 6JKA)	Tailstock	70B-94B	103	
	Index Head	95B-170B		
	Machine Instruction Plates	1B-12B	105	



## HOW TO ORDER REPAIR PARTS

You will receive quicker and better service when ordering repair parts if you will adhere to the following instructions when ordering such replacements.

These four requirements are essential:

1. State amount wanted.
2. Give catalog key number, part number and name of part. If ordering parts by part number, please advise where the number was obtained. (See paragraph A, below.)
3. Give complete serial number of machine. (*This number will be found stamped at top of column front face between dovetail ways. See Figure 4B*)
4. Specify how and where to ship. (See paragraph B, below.)

### Paragraph A

When ordering parts by number, kindly advise how the number was obtained, namely:

Number stamped on part.

Prior Invoice.

Parts List Catalog. (Give identification and publication numbers on front cover.)

### Paragraph B

Do not say, "Ship quickest way." Be definite and state agency desired, that is—Air Mail, Parcel Post (Special Delivery), Parcel Post (Regular), Express, Motor Freight, Rail Freight, etc.

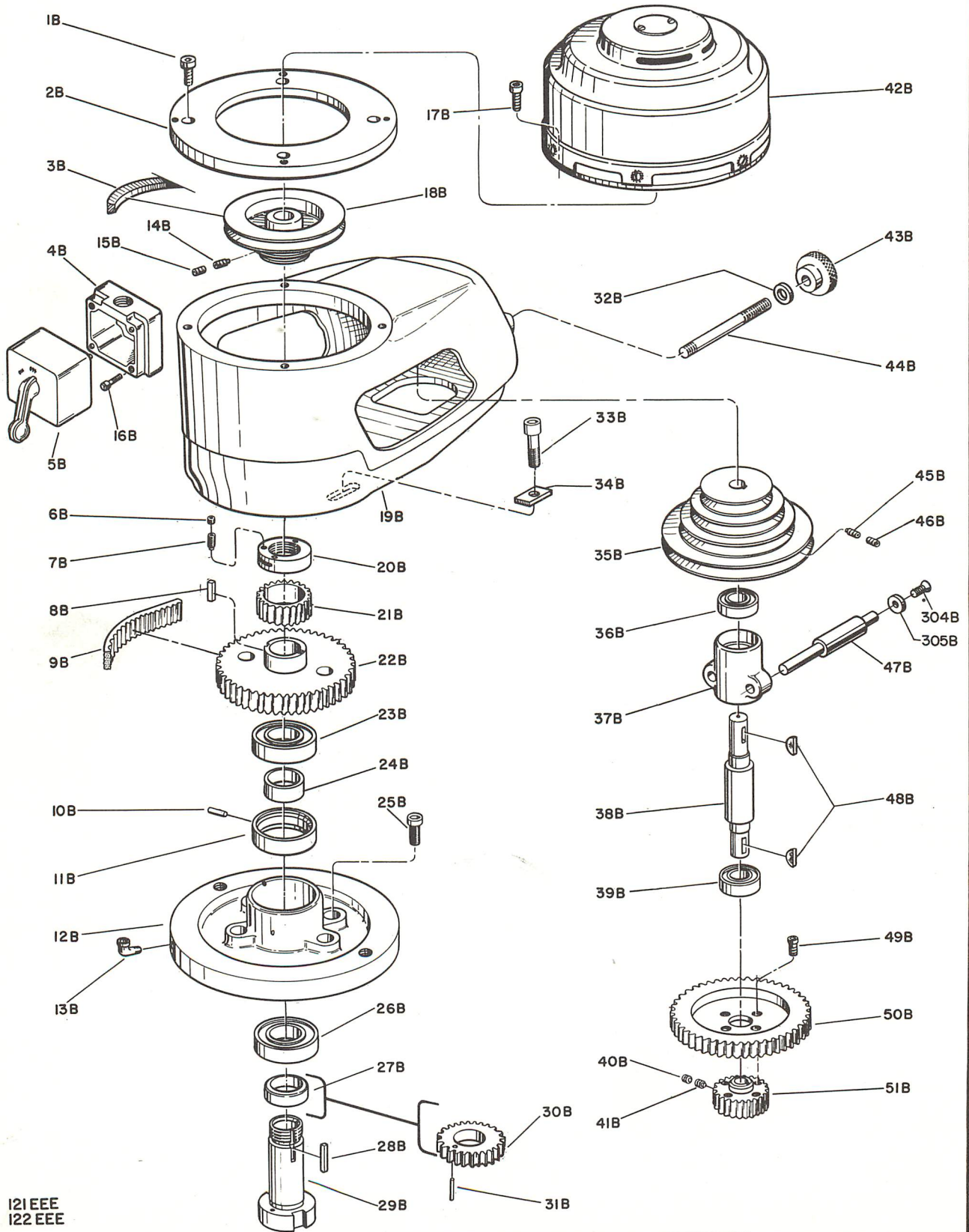
Specify each individual piece that is required in the order. If only certain parts of a unit are required, never use the word "complete"; it always raises a question as to how much of a unit to supply.

However, in some cases, due to the nature of the part, it will be necessary, and less costly to you, for us to supply additional related pieces, especially if part wanted is obsolete.



MOTOR-DRIVE SLEEVE-JACK SHAFT

STYLES I-A and I-B



121 EEE  
122 EEE



CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

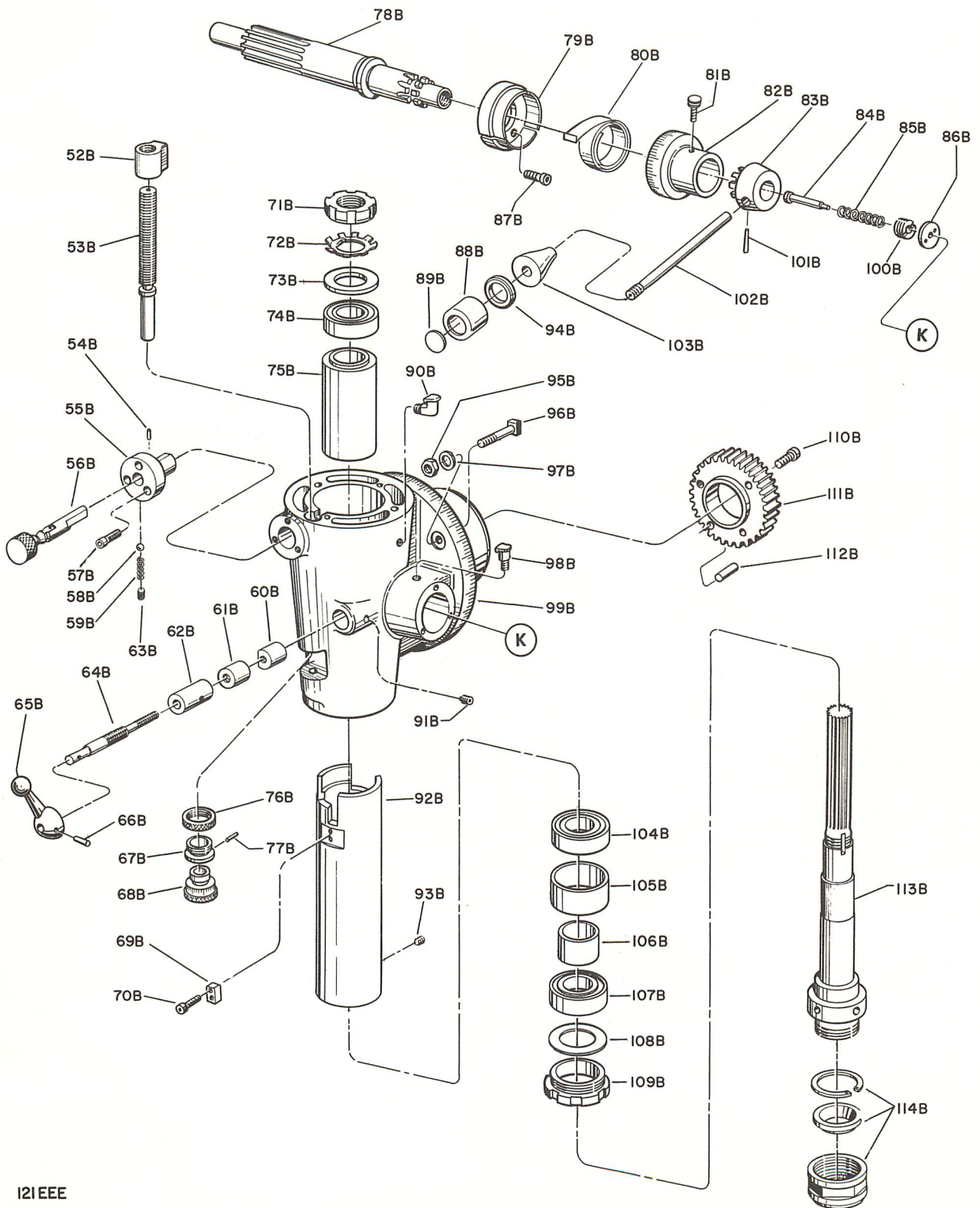
HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR  
STYLE 1-A AND 1-B

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-1B	3210	Screw . . . . .	4	6JJR-27B	143256	Spacer - Spindle Drive, Style 1-A . . . . .	1
6JJR-2B	143278	Plate - Adapter, Motor, High Speed Head Style 1-A or 1-B, with 900 or 1200 RPM Motor . . . . .	1	6JJR-28B	864	Key . . . . .	1
6JJR-3B	160028	Belt - Vee . . . . .	1	6JJR-29B	166492	Sleeve . . . . .	1
6JJR-4B	153091	Block - Switch Mounting . . . . .	1	6JJR-30B	143211	Gear - Drive, (Style 1-B Only) . . . . .	1
6JJR-5B	148189	Switch - Drum . . . . .	1	6JJR-31B	3540	Pin (Style 1-B Only) . . . . .	1
6JJR-6B	2354	Screw . . . . .	1	6JJR-32B	176299	Washer . . . . .	1
6JJR-7B	2331	Screw . . . . .	1	6JJR-33B	3404	Screw . . . . .	2
6JJR-8B	3371	Key . . . . .	1	6JJR-34B	165707	Washer . . . . .	2
6JJR-9B	161369	Belt - Spindle Drive . . . . .	1	6JJR-35B	143231	Sheave - Jack Shaft . . . . .	1
6JJR-10B	3636	Pin . . . . .	1	6JJR-36B	143230	Bearing - Ball . . . . .	1
6JJR-11B	153817	Spacer - Bearing . . . . .	1	6JJR-37B	169433	Housing - Bearing . . . . .	1
6JJR-12B		Housing - Bearing Style 1-A . . . . .	1	6JJR-38B	169434	Shaft - Jack . . . . .	1
	161796	Style 1-B . . . . .	1	6JJR-39B	143230	Bearing - Ball . . . . .	1
6JJR-13B	143275	Cup - Oil (Style 1-B Only) . . . . .	1	6JJR-40B	2354	Screw . . . . .	1
6JJR-14B	3228	Screw . . . . .	1	6JJR-41B	3228	Screw . . . . .	1
6JJR-15B	2354	Screw . . . . .	1	6JM-42B		Motor - Spindle, High Speed Head Style 1-A or 1-B - For Spindle Speed:	
6JJR-16B	3218	Screw . . . . .	2		150733	108 to 2825 RPM, 3/4 H. P., 900 RPM.	1
6JJR-17B	3266	Screw . . . . .	4		143277	140 to 3800 RPM, 1 H. P., 1200 RPM .	1
6JJR-18B	143207	Sheave - Motor Drive . . . . .	1		143205	215 to 5650 RPM, 1 H. P., 1800 RPM .	1
6JJR-19B	169435	Housing - Vee Belt . . . . .	1	6JJR-43B	143234	Knob - Handle . . . . .	1
6JJR-20B	161366	Nut - Lock . . . . .	1	6JJR-44B	143233	Stud - Jack Shaft . . . . .	1
6JJR-21B	161364	Pulley - Driven . . . . .	1	6JJR-45B	3229	Screw . . . . .	1
6JJR-22B	161314	Pulley - Driven . . . . .	1	6JJR-46B	2332	Screw . . . . .	1
6JJR-23B	143209	Bearing - Ball . . . . .	1	6JJR-47B	178273	Pin - Slide . . . . .	2
6JJR-24B	143210	Spacer . . . . .	1	6JJR-48B	679	Key . . . . .	2
6JJR-25B	3266	Screw . . . . .	4	6JJR-49B	3204	Screw . . . . .	4
6JJR-26B	143209	Bearing - Ball . . . . .	1	6JJR-50B	161794	Pulley - Intermediate . . . . .	1
				6JJR-51B	161795	Pulley - Intermediate . . . . .	1
				6JJR-304B	171506	Screw . . . . .	2
				6JJR-305B	171505	Washer . . . . .	2



# HOUSING AND SPINDLE

STYLE I-A



121 EEE



CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR (Continued)

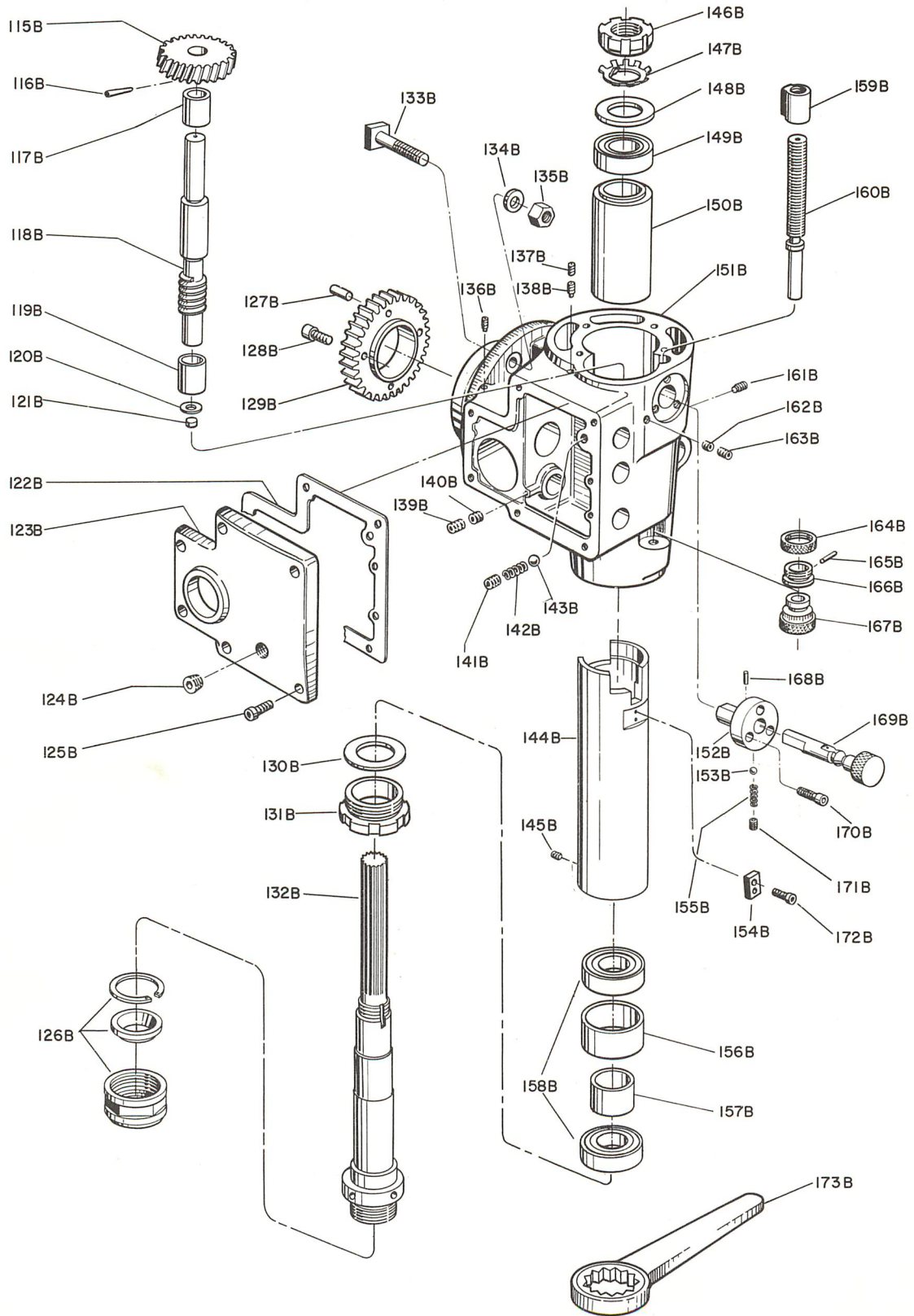
STYLE 1-A

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-52B		Stop - Adjusting Depth		6JJR-82B		Dial - Spring Cover	
	143217	English . . . . .	1		159959	English . . . . .	1
	153081	Metric . . . . .	1		153079	Metric . . . . .	1
6JJR-53B		Screw - Lead, Depth Stop		6JJR-83B	143245	Hub - Handle . . . . .	1
	143216	English . . . . .	1	6JJR-84B	143252	Pin - Spring . . . . .	1
	153080	Metric . . . . .	1	6JJR-85B	3942	Spring . . . . .	1
6JJR-54B	166496	Pin . . . . .	1	6JJR-86B	143250	Retainer - Hub. . . . .	1
6JJR-55B	166495	Sleeve - Mounting. . . . .	1	6JJR-87B	3198	Screw. . . . .	3
6JJR-56B	166494	Shaft - Lock . . . . .	1	6JJR-88B	4356	Knob - Lever, Handfeed . . . . .	1
6JJR-57B	3396	Screw. . . . .	3	6JJR-89B	4341	Plate - Name . . . . .	1
6JJR-58B	30060	Ball - Steel . . . . .	1	6JJR-90B	228994	Cup - Oil, Style 1-A . . . . .	1
6JJR-59B	100239	Spring . . . . .	1	6JJR-91B	3228	Screw. . . . .	1
6JJR-60B	165708	Shoe - Clamp . . . . .	1	6JJR-92B	166493	Sleeve - Spindle Quill Feed . . . . .	1
6JJR-61B	165709	Shoe - Clamp . . . . .	1	6JJR-93B	2339	Screw. . . . .	1
6JJR-62B	165711	Spacer - Clamp . . . . .	1	6JJR-94B	4357	Washer, Knob-Lever . . . . .	1
6JJR-63B	2355	Screw. . . . .	1	6JJR-95B	3479	Nut . . . . .	4
6JJR-64B	165710	Screw - Clamp. . . . .	1	6JJR-96B	3311	Bolt - "T" . . . . .	4
6JJR-65B	78907	Lever. . . . .	1	6JJR-97B	3442	Washer . . . . .	4
6JJR-66B	141	Pin - Taper. . . . .	1	6JJR-98B	224865	Cup - Oil . . . . .	1
6JJR-67B	143219	Stud - Locking, Depth Stop. . . . .	1	6JJR-99B	166499	Housing - Spindle (Style 1-A) . . . . .	1
6JJR-68B		Wheel - Thumb, Depth Stop		6JJR-100B	143251	Screw - Spring Retainer . . . . .	1
	143220	English . . . . .	1	6JJR-101B	140	Pin - Taper. . . . .	1
	153080	Metric . . . . .	1	6JJR-102B	170785	Lever - Handfeed. . . . .	1
6JJR-69B	143213	Key - Stop . . . . .	1	6JJR-103B	168055	Knob - Lever, Handfeed . . . . .	1
6JJR-70B	3246	Screw. . . . .	2	6JJR-104B	153807	Bearing - Ball, Lower . . . . .	1
6JJR-71B	3810	Nut - Lock . . . . .	1	6JJR-105B	153805	Spacer - Outer, Lower Bearings. . . . .	1
6JJR-72B	3809	Washer - Lock. . . . .	1	6JJR-106B	153802	Spacer - Inner, Lower Bearings . . . . .	1
6JJR-73B	153804	Cap - Bearing . . . . .	1	6JJR-107B	153807	Bearing - Ball, Lower . . . . .	1
6JJR-74B	153808	Bearing - Ball. . . . .	1	6JJR-108B	152362	Seal - Bearing. . . . .	1
6JJR-75B	153806	Spacer - Quill . . . . .	1	6JJR-109B	153803	Nut - Lock . . . . .	1
6JJR-76B	143218	Nut - Locking, Depth Stop . . . . .	1	6JJR-110B	2321	Screw. . . . .	3
6JJR-77B	3270	Pin . . . . .	1	6JJR-111B	143235	Gear - Spiral . . . . .	1
6JJR-78B	152340	Shaft - Pinion . . . . .	1	6JJR-112B	1383	Pin . . . . .	1
6JJR-79B	143249	Housing - Spring . . . . .	1	6JJR-113B	166491	Spindle - Drive . . . . .	1
6JJR-80B	143247	Spring - Torsion . . . . .	1	6JJR-114B	170511	Nut - Spindle . . . . .	1
6JJR-81B	2255	Screw - Thumb . . . . .	1				



# HOUSING AND SPINDLE

STYLE I-B



I22 EEE

WRENCH ALSO USED FOR SPINDLE NUT ON STYLE I-A HOUSING



CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

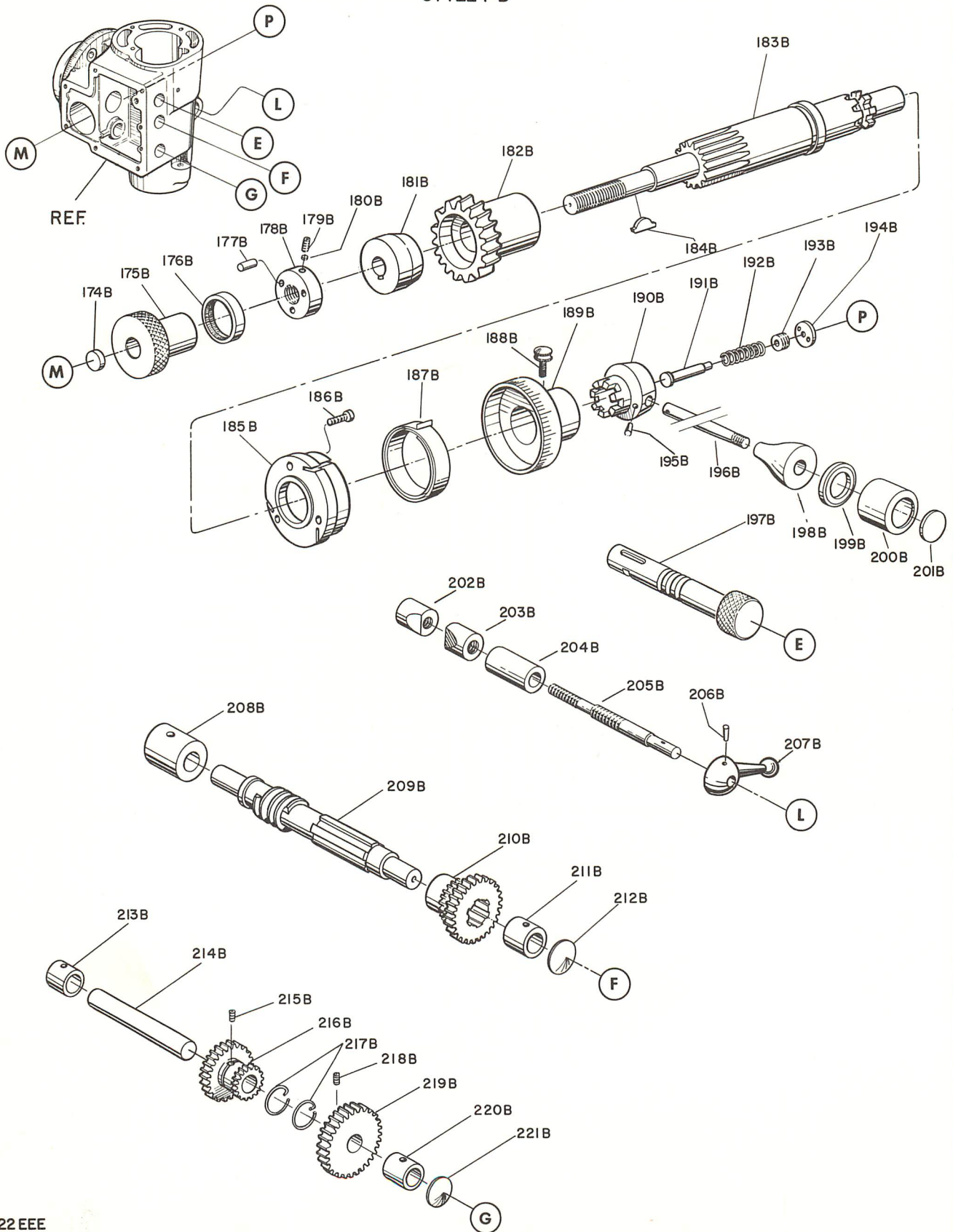
HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR (Continued)

STYLE 1-B

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-115B	143268	Gear - Driven . . . . .	1	6JJR-148B	153804	Cap - Bearing . . . . .	1
6JJR-116B	2291	Pin . . . . .	1	6JJR-149B	153808	Bearing - Ball . . . . .	1
6JJR-117B	153819	Sleeve - Thrust . . . . .	1	6JJR-150B	153806	Spacer - Quill . . . . .	1
6JJR-118B	143269	Shaft - Worm . . . . .	1	6JJR-151B	166497	Housing - Spindle, Style 1-B . . . . .	1
6JJR-119B	143266	Bushing - Sleeve . . . . .	1	6JJR-152B	166495	Sleeve - Mounting. . . . .	1
6JJR-120B	143498	Washer . . . . .	1	6JJR-153B	30060	Ball - Steel . . . . .	1
6JJR-121B	255822	Plug . . . . .	1	6JJR-154B	143213	Key - Stop . . . . .	1
6JJR-122B	143281	Gasket . . . . .	1	6JJR-155B	100239	Spring . . . . .	1
6JJR-123B	143271	Plate - Cover . . . . .	1	6JJR-156B	153805	Spacer - Outer, Lower Bearings. . . . .	1
6JJR-124B	76645	Plug . . . . .	1	6JJR-157B	153802	Spacer - Inner, Lower Bearings. . . . .	1
6JJR-125B	3396	Screw. . . . .	6	6JJR-158B	153807	Bearing - Ball, Lower . . . . .	2
6JJR-126B	170511	Nut - Spindle . . . . .	1	6JJR-159B		Stop - Adjusting Depth	
6JJR-127B	1383	Pin . . . . .	1		143217	English. . . . .	1
6JJR-128B	2321	Screw. . . . .	3		153081	Metric . . . . .	1
6JJR-129B	143235	Gear - Spiral . . . . .	1	6JJR-160B		Screw - Lead, Depth Stop	
6JJR-130B	152362	Washer . . . . .	1		143216	English. . . . .	1
6JJR-131B	153803	Nut - Lock . . . . .	1		153080	Metric . . . . .	1
6JJR-132B	166491	Spindle - Drive . . . . .	1	6JJR-161B	3228	Screw. . . . .	1
6JJR-133B	3311	Bolt - Tee . . . . .	4	6JJR-162B	3229	Screw. . . . .	1
6JJR-134B	3442	Washer . . . . .	4	6JJR-163B	2333	Screw. . . . .	1
6JJR-135B	3379	Nut . . . . .	4	6JJR-164B	143218	Nut - Locking, Depth Stop . . . . .	1
6JJR-136B	3232	Screw. . . . .	1	6JJR-165B	3270	Pin . . . . .	1
6JJR-137B	2332	Screw. . . . .	1	6JJR-166B	143219	Stud - Locking, Depth Stop. . . . .	1
6JJR-138B	3230	Screw. . . . .	1	6JJR-167B		Wheel - Thumb, Depth Stop	
6JJR-139B	2332	Screw. . . . .	1		143220	English. . . . .	1
6JJR-140B	2341	Screw. . . . .	1		153082	Metric . . . . .	1
6JJR-141B	2316	Screw. . . . .	1	6JJR-168B	166496	Pin . . . . .	1
6JJR-142B	101732	Spring - Compression . . . . .	1	6JJR-169B	166494	Shaft - Lock . . . . .	1
6JJR-143B	30060	Ball - Steel. . . . .	1	6JJR-170B	3396	Screw. . . . .	3
6JJR-144B	166493	Sleeve - Spindle Quill Feed . . . . .	1	6JJR-171B	2355	Screw. . . . .	1
6JJR-145B	2339	Screw. . . . .	1	6JJR-172B	3246	Screw. . . . .	1
6JJR-146B	3810	Nut - Lock . . . . .	1	6JJR-173B	143538	Wrench . . . . .	1
6JJR-147B	3809	Washer - Lock. . . . .	1				



# PINION SHAFT - SPIRAL GEAR SHAFT STYLE I-B



I22 EEE



CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

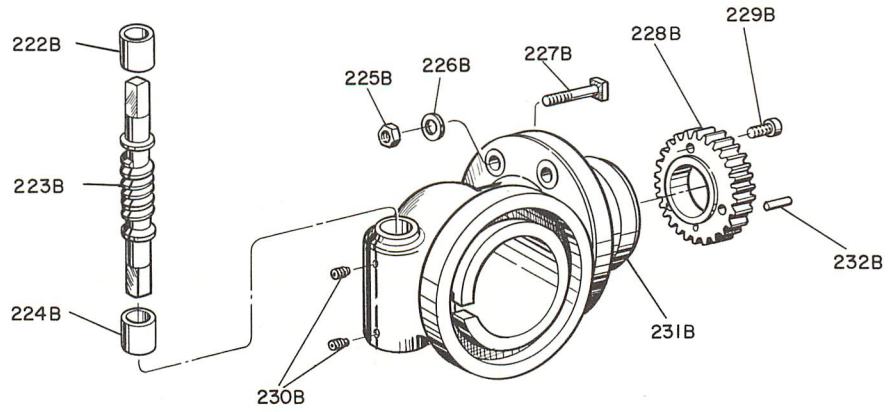
HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR (Continued)

STYLE 1-A AND 1-B

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-174B	3530	Plug . . . . .	1	6JJR-197B	155655	Shaft - Shifter . . . . .	1
6JJR-175B	143242	Knob - Hand Clutch . . . . .	1	6JJR-198B	168055	Knob - Handfeed . . . . .	1
6JJR-176B	700449	Seal - Oil . . . . .	1	6JJR-199B	4357	Washer . . . . .	1
6JJR-177B	143240	Pin - Adjusting . . . . .	1	6JJR-200B	4356	Knob - Handfeed . . . . .	1
6JJR-178B	143241	Collar - Clutch Adjusting . . . . .	1	6JJR-201B	4341	Plate - Name . . . . .	1
6JJR-179B	2333	Screw. . . . .	1	6JJR-202B	165708	Shoe - Clamp . . . . .	1
6JJR-180B	143243	Shoe . . . . .	1	6JJR-203B	165709	Shoe - Clamp . . . . .	1
6JJR-181B	143239	Clutch - Friction Male . . . . .	1	6JJR-204B	165711	Spacer - Shoe Clamp. . . . .	1
6JJR-182B	143238	Gear - Spiral . . . . .	1	6JJR-205B	165710	Screw - Clamp. . . . .	1
6JJR-183B	152342	Shaft - Pinion . . . . .	1	6JJR-206B	141	Pin - Taper. . . . .	1
6JJR-184B	3280	Key . . . . .	1	6JJR-207B	78907	Lever. . . . .	1
6JJR-185B	143249	Housing - Spring . . . . .	1	6JJR-208B	143260	Sleeve - Thrust . . . . .	1
6JJR-186B	3198	Screw. . . . .	3	6JJR-209B	143259	Shaft - Spiral Gear . . . . .	1
6JJR-187B	143247	Spring - Torsion . . . . .	1	6JJR-210B	143258	Gear - Shifter . . . . .	1
6JJR-188B	2255	Screw - Thumb . . . . .	1	6JJR-211B	143266	Bushing - Sleeve . . . . .	1
6JJR-189B		Dial - Spring Cover		6JJR-212B	143265	Plug - Expansion . . . . .	1
	159959	English. . . . .	1	6JJR-213B	143266	Bushing - Sleeve . . . . .	1
	153079	Metric . . . . .	1	6JJR-214B	143264	Shaft - Transmission . . . . .	1
6JJR-190B	143245	Hub - Handle . . . . .	1	6JJR-215B	2341	Screw. . . . .	1
6JJR-191B	143252	Pin - Spring . . . . .	1	6JJR-216B	143267	Gear - Transmission . . . . .	1
6JJR-192B	3942	Spring . . . . .	1	6JJR-217B	119764	Ring - Spring Wire . . . . .	2
6JJR-193B	143251	Screw - Spring Retainer . . . . .	1	6JJR-218B	2341	Screw. . . . .	1
6JJR-194B	143250	Retainer - Hub. . . . .	1	6JJR-219B	143263	Gear - Spiral . . . . .	1
6JJR-195B	140	Pin - Taper. . . . .	1	6JJR-220B	143266	Bushing - Sleeve . . . . .	1
6JJR-196B	170785	Handle - Handfeed . . . . .	1	6JJR-221B	143265	Plug - Expansion . . . . .	1

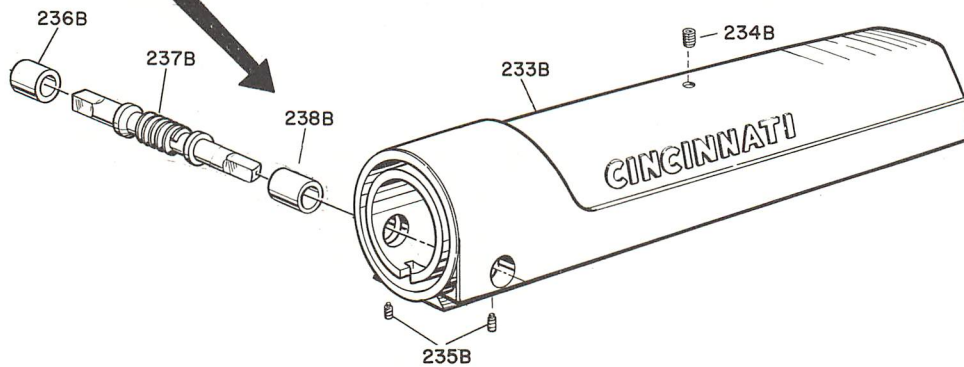


**DOUBLE SWIVEL ADAPTER**



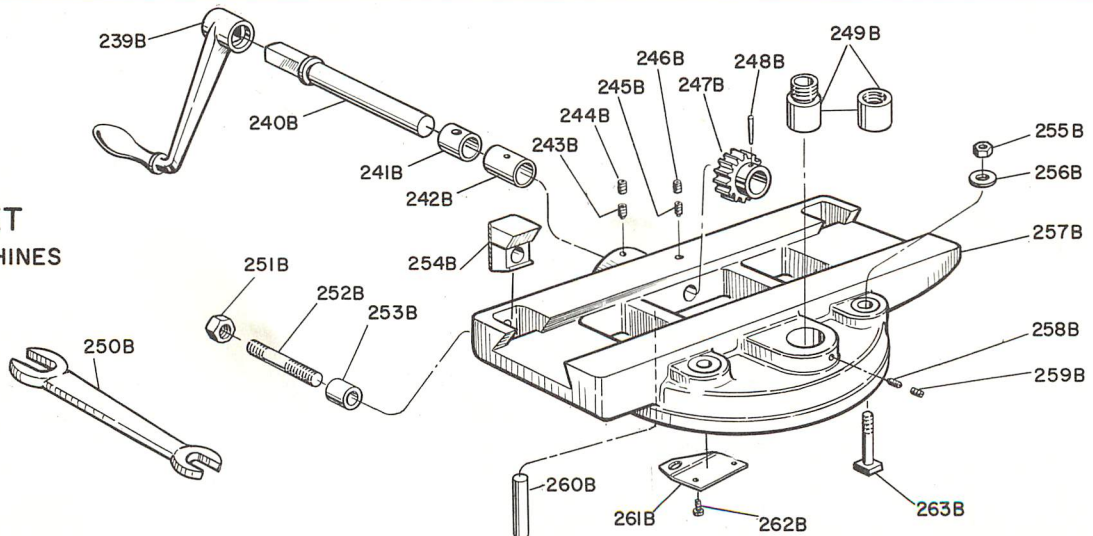
15 EEE

**STYLE I-A, STYLE I-B OVERARM**



76 EEE

**TURRET  
ALL MACHINES**



28 EEE



CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR (Continued)

STYLE 1-A AND 1-B

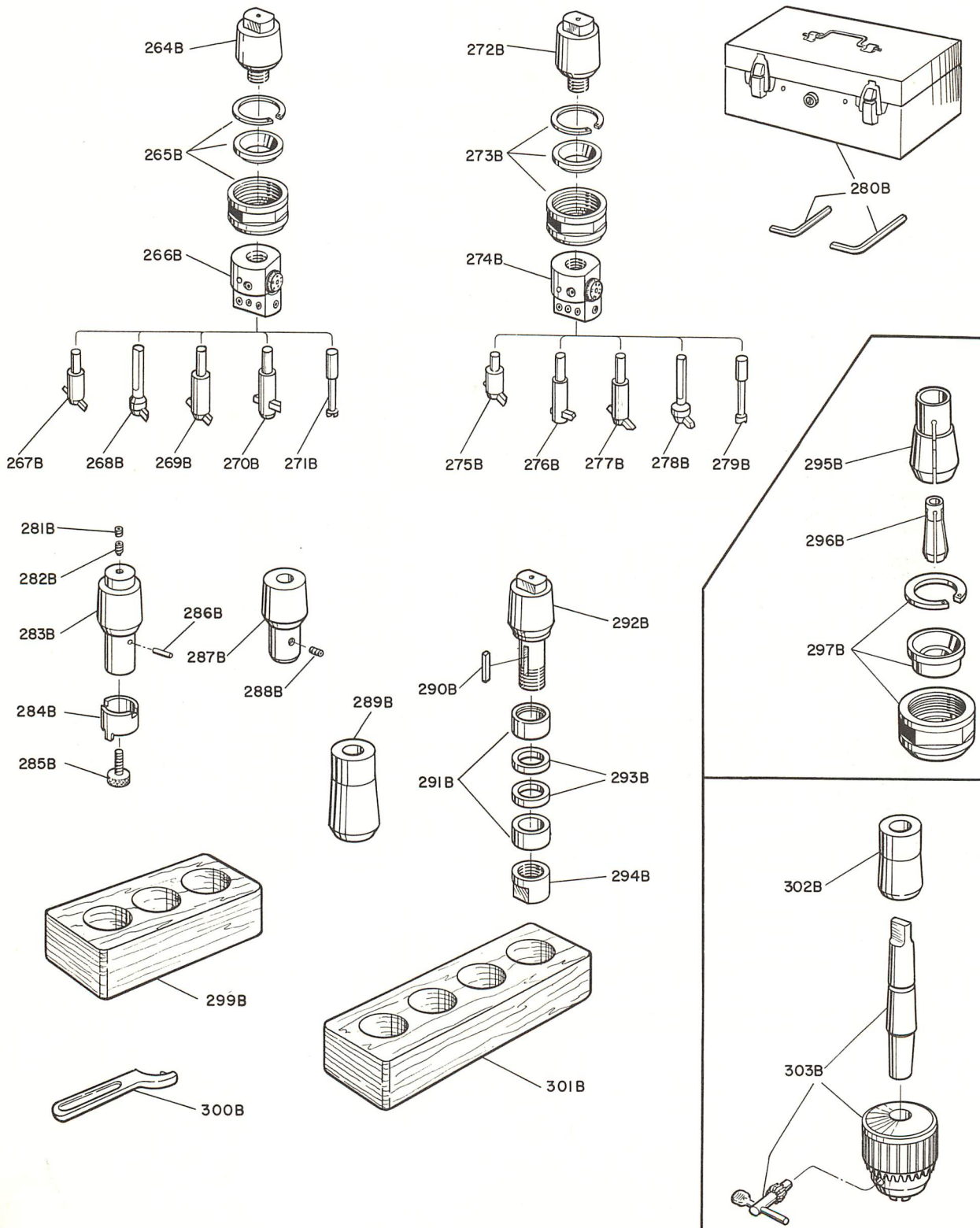
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-222B	153085	Bushing . . . . .	1	6JJR-231B	143279	Adapter - Overarm . . . . .	1
6JJR-223B	153084	Shaft - Spiral Gear . . . . .	1	6JJR-232B	1383	Pin . . . . .	1
6JJR-224B	153085	Bushing . . . . .	1	6JJR-233B	161756	Overarm - Style 1-A or 1-B . . . . .	1
6JJR-225B	3479	Nut . . . . .	4	6JJR-234B	2248	Screw - Set . . . . .	1
6JJR-226B	3442	Washer . . . . .	4	6JJR-235B	105147	Screw. . . . .	2
6JJR-227B	3311	Bolt - Tee . . . . .	4	6JJR-236B	161755	Bushing . . . . .	1
6JJR-228B	143235	Gear-Spiral. . . . .	1	6JJR-237B	148623	Shaft - Spiral Gear . . . . .	1
6JJR-229B	2321	Screw. . . . .	3	6JJR-238B	148624	Bushing . . . . .	1
6JJR-230B	3233	Screw. . . . .	2				

TURRET

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-239B	150700	Handle - #6 Williams Crank . . . . .	1	6JJR-251B	3480	Nut . . . . .	2
6JJR-240B	151458	Shaft - Pinion . . . . .	1	6JJR-252B	161746	Stud - Clamping . . . . .	2
6JJR-241B	151461	Bushing - Bronze . . . . .	1	6JJR-253B	161754	Spacer . . . . .	2
6JJR-242B	151460	Bushing - Bronze . . . . .	1	6JJR-254B	153491	Clamp - Overarm. . . . .	1
6JJR-243B	2343	Screw. . . . .	1	6JJR-255B	3480	Nut . . . . .	4
6JJR-244B	2355	Screw. . . . .	1	6JJR-256B	1040	Washer . . . . .	4
6JJR-245B	2343	Screw. . . . .	1	6JJR-257B	151451	Turret (Altered per Drawing 143447 if Coolant Pump is Provided) . . . . .	1
6JJR-246B	2316	Screw. . . . .	1	6JJR-258B	3228	Screw. . . . .	1
6JJR-247B	151459	Pinion - Overarm. . . . .	1	6JJR-259B	2332	Screw. . . . .	1
6JJR-248B	148717	Roll - Pin . . . . .	1	6JJR-260B	1387	Pin . . . . .	2
6JJR-249B		Bushing - Connector		6JNN-261B	150703	Plate - Electrical. . . . .	1
	151457	With Shaping Attachment . . . . .	1	6JNN-262B	3199	Screw. . . . .	2
	152376	Without Shaping Attachment . . . . .	1	6JJR-263B	143424	Bolt - Tee . . . . .	4
6JJR-250B	3605	Wrench . . . . .	1				



CRALEY HEAD - COLLETS - CHUCKS



37EEE  
45EEE

## CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

*WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."*

### HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR (Continued)

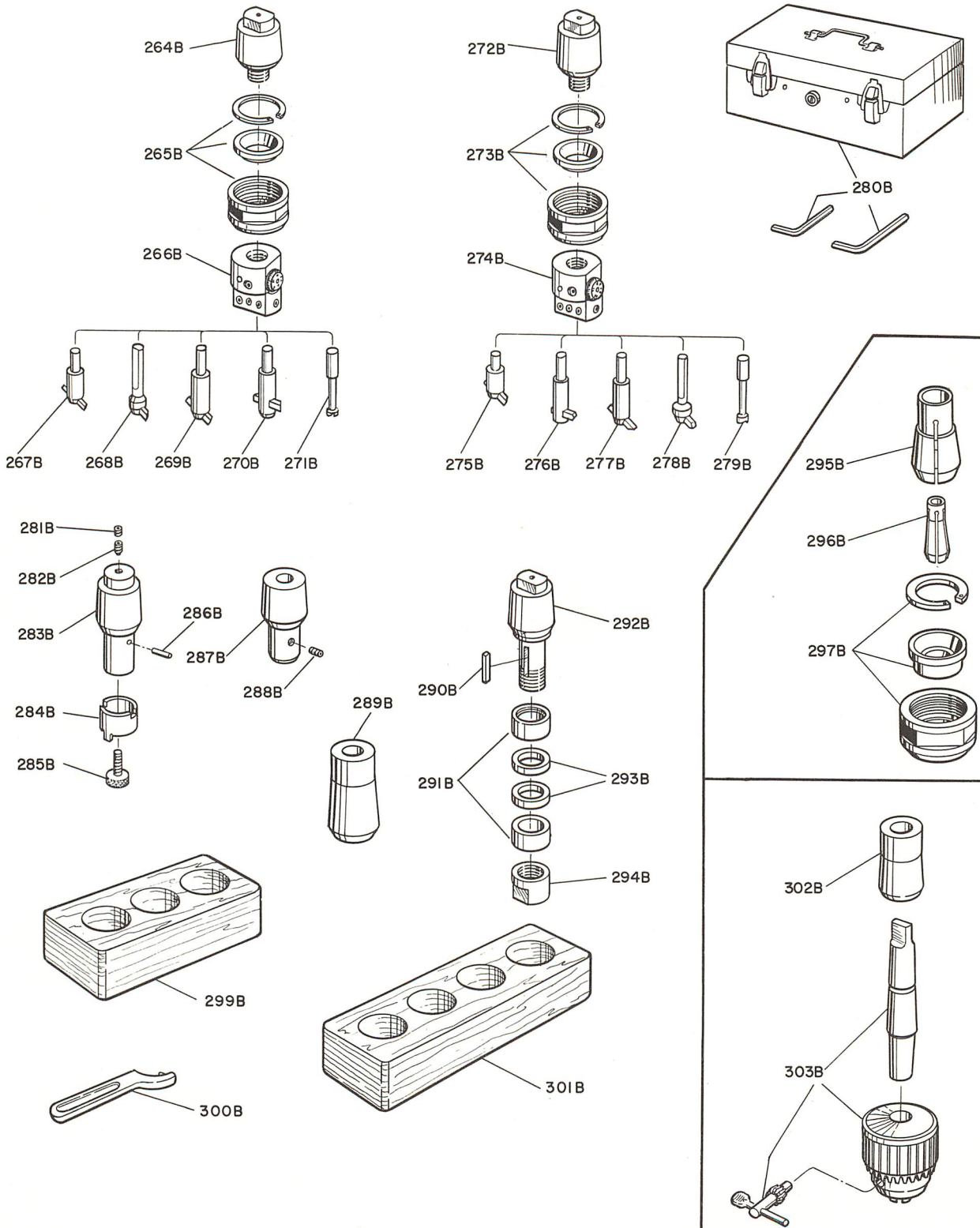
#### STYLE 1-A AND 1-B

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-264B	153459	Adapter - No. 3 Craley Head . . . . .	1	6JJR-284B		Collar - Arbor	
6JJR-265B	170511	Nut - Spindle . . . . .	1		152351	1/2" Diameter Hole Shell End Mill . . . . .	1
6JJR-266B	157751	Head - No. 3 Craley Offset Boring . . . . .	1		152350	3/4" Diameter Hole Shell End Mill . . . . .	1
6JJR-267B	153099	Bar - Boring (No. 2 Bar for No. 3 Craley Head) . . . . .	1		152349	1" Diameter Hole Shell End Mill . . . . .	1
6JJR-268B	153450	Bar - Boring (No. 3 Bar for No. 3 Craley Head) . . . . .	1	6JJR-285B		Screw - Arbor	
6JJR-269B	153451	Bar - Boring (No. 4 Bar for No. 3 Craley Head) . . . . .	1		4167	1/2" Diameter Hole Shell End Mill . . . . .	1
6JJR-270B	153452	Bar - Boring (No. 5 Bar for No. 3 Craley Head) . . . . .	1		4168	3/4" Diameter Hole Shell End Mill . . . . .	1
6JJR-271B		Bar - Boring, Two Lip (For No. 3 Craley Head)			4169	1" Diameter Hole Shell End Mill . . . . .	1
	153453	(A-1) - 1/8" Across Lips - Min. Bore . . . . .	1	6JJR-286B		Pin - Driving	
	153454	(A-2) - 3/16" Across Lips - Min. Bore . . . . .	1		152346	1/2" Diameter Hole Shell End Mill . . . . .	1
	153455	(A-3) - 1/4" Across Lips - Min. Bore . . . . .	1		152347	3/4" Diameter Hole Shell End Mill . . . . .	1
	153456	(A-4) - 5/16" Across Lips - Min. Bore . . . . .	1		152348	1" Diameter Hole Shell End Mill . . . . .	1
	153098	(A-5) - 3/8" Across Lips - Min. Bore . . . . .	1	6JJR-287B		Adapter - End Mill	
	153457	(A-6) - 1/2" Across Lips - Min. Bore . . . . .	1		152352	3/8" End Mill . . . . .	1
	153458	(A-7) - 5/8" Across Lips - Min. Bore . . . . .	1		152353	1/2" End Mill . . . . .	1
6JJR-272B	153460	Adapter - No. 0 Craley Head . . . . .	1		152354	5/8" End Mill . . . . .	1
6JJR-273B	170511	Nut - Spindle . . . . .	1		152355	3/4" End Mill . . . . .	1
6JJR-274B	157750	Head - No. 0 Craley Offset Boring . . . . .	1	6JJR-288B	2301	Screw . . . . .	1
6JJR-275B	153462	Bar - Boring (No. 3 Bar for No. 0 Craley Head) . . . . .	1	6JJR-289B		Collet	
6JJR-276B	153463	Bar - Boring (No. 4 Bar for No. 0 Craley Head) . . . . .	1		156218	3 mm Hole . . . . .	1
6JJR-277B	153464	Bar - Boring (No. 1 Bar for No. 0 Craley Head) . . . . .	1		156219	4 mm Hole . . . . .	1
6JJR-278B	153465	Bar - Boring (No. 5 Bar for No. 0 Craley Head) . . . . .	1		156220	5 mm Hole . . . . .	1
6JJR-279B		Bar - Boring, Two Lip (For No. 0 Craley Head)			156221	6 mm Hole . . . . .	1
	153466	(A-1) - 1/8" Across Lips - Min. Bore . . . . .	1		152107	7 mm Hole . . . . .	1
	153467	(A-2) - 3/16" Across Lips - Min. Bore . . . . .	1		156222	8 mm Hole . . . . .	1
	153468	(A-3) - 1/4" Across Lips - Min. Bore . . . . .	1		156223	10 mm Hole . . . . .	1
	153469	(A-4) - 5/16" Across Lips - Min. Bore . . . . .	1		132108	13 mm Hole . . . . .	1
	153470	(A-5) - 3/8" Across Lips - Min. Bore . . . . .	1		157031	14 mm Hole . . . . .	1
	153471	(A-6) - 1/2" Across Lips - Min. Bore . . . . .	1		157032	15 mm Hole . . . . .	1
	153472	(A-7) - 5/8" Across Lips - Min. Bore . . . . .	1		156224	16 mm Hole . . . . .	1
6JJR-280B		Unit - Craley			157033	18 mm Hole . . . . .	1
	*153097	No. 3 Offset Boring Head. . . . .	1		157026	20 mm Hole . . . . .	1
	**153461	No. 0 Offset Boring Head. . . . .	1		157034	22 mm Hole . . . . .	1
6JJR-281B	2354	Screw. . . . .	1		157027	24 mm Hole . . . . .	1
6JJR-282B	3228	Screw. . . . .	1		157028	25 mm Hole . . . . .	1
6JJR-283B		Adapter - Shell End Mill			157035	26 mm Hole . . . . .	1
	152344	1/2" Diameter Hole Shell End Mill . . . . .	1		157036	28 mm Hole . . . . .	1
	152343	3/4" Diameter Hole Shell End Mill . . . . .	1		157029	30 mm Hole . . . . .	1
	152345	1" Diameter Hole Shell End Mill . . . . .	1		157030	32 mm Hole . . . . .	1
					158150	#3 Morse Taper Hole ("C" Series). . . . .	1
					158151	#2 Morse Taper Hole ("C" Series). . . . .	1
					158152	#7 B and S Taper Hole ("C" Series) . . . . .	1
					158153	#5 B and S Taper Hole ("C" Series) . . . . .	1

\* Part No. 153097 - Unit consists of key numbers 264B through 270B, 271B (A-5) and wrenches.  
 \*\* Part No. 153461 - Unit consists of key numbers 272B through 278B, 279B (A-5) and wrenches.



CRALEY HEAD - COLLETS - CHUCKS



37EEE  
45EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

HIGH SPEED HEAD AND OVERARM - UNIT No. 6JJR (Concluded)

STYLE 1-A AND 1-B

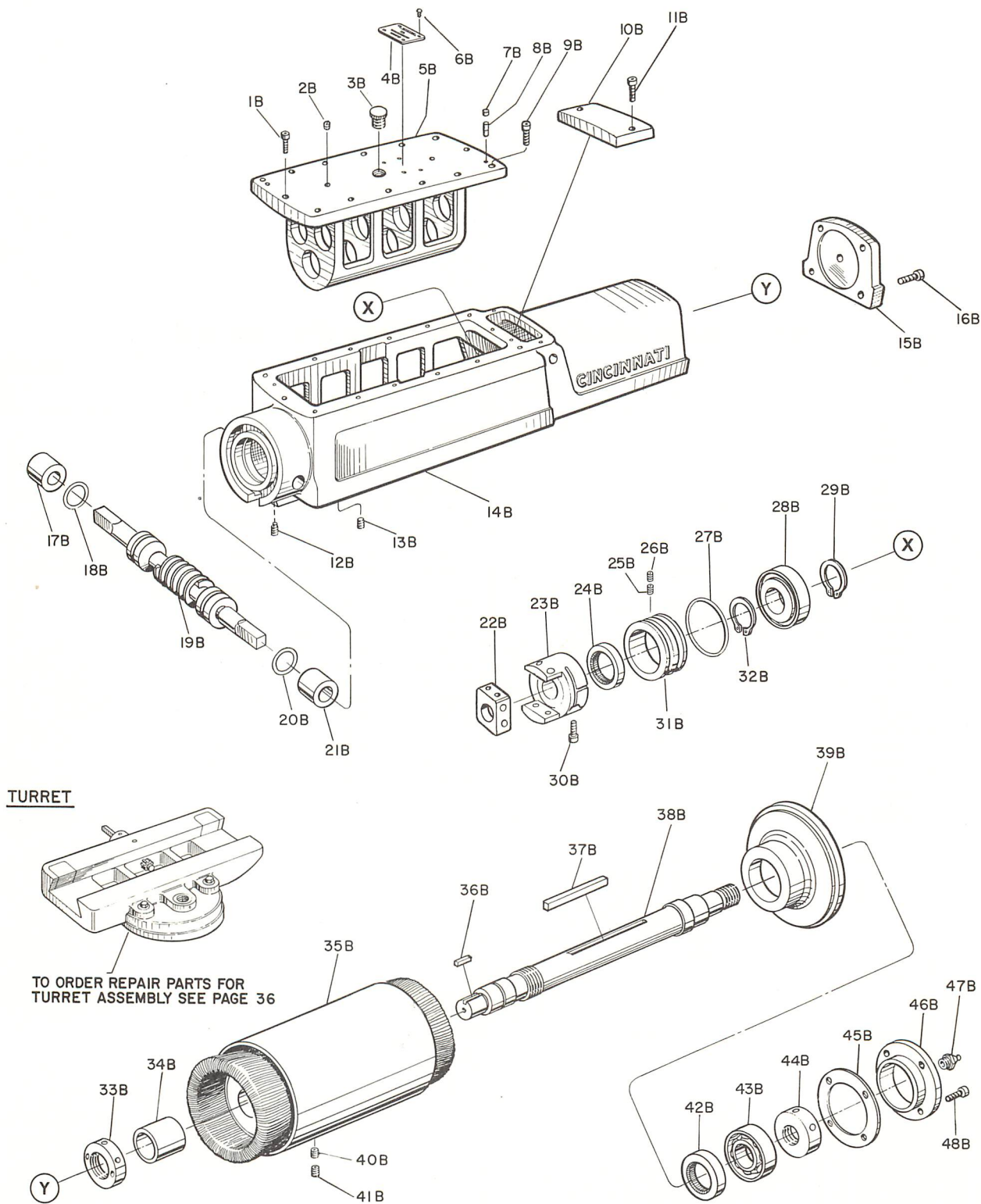
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJR-290B		Key		6JJR-297B	177526	Nut - Small Collet Adapter, "A" Series	1
	864	3/4" Stub Arbor . . . . .	1	6JJR-299B	152374	Block - 3 Adapter. . . . .	1
	864	7/8" Stub Arbor . . . . .	1	6JJR-300B	101759	Wrench - Spanner. . . . .	1
	814	1" Stub Arbor . . . . .	1	6JJR-301B	152373	Block - 4 Adapter. . . . .	1
6JJR-291B		Collar - Arbor Spacing 1/2" Wide		6JJR-302B		Collet - With Jacobs Chuck	
	152365	3/4" Stub Arbor . . . . .	2		158151	#2 Morse Taper . . . . .	1
	152367	7/8" Stub Arbor . . . . .	1		158150	#3 Morse Taper . . . . .	1
	3647	1" Stub Arbor . . . . .	2	6JJR-303B		Jacobs Chuck	
6JJR-292B		Arbor - Stub			603023-1	Chuck - Drill 0" - 1/4"	
	152357	3/4" Stub Arbor . . . . .	1			#2 Morse Taper . . . . .	1
	152356	7/8" Stub Arbor . . . . .	1		603023-2	Chuck - Drill 0" - 1/4"	
	152358	1" Stub Arbor . . . . .	1			#3 Morse Taper . . . . .	1
6JJR-293B		Collar - Arbor Spacing 1/4" Wide			603023-4	Chuck - Drill 0" - 3/8"	
	152366	3/4" Stub Arbor . . . . .	1			#2 Morse Taper . . . . .	1
	152368	7/8" Stub Arbor . . . . .	2		603023-5	Chuck - Drill 0" - 3/8"	
	152369	1" Stub Arbor . . . . .	2			#3 Morse Taper . . . . .	1
6JJR-294B		Nut - Arbor			603023-7	Chuck - Drill 0" - 1/2"	
	152364	3/4" Stub Arbor . . . . .	1			#2 Morse Taper . . . . .	1
	1341	7/8" Stub Arbor . . . . .	1		603023-8	Chuck - Drill 0" - 1/2"	
	3693	1" Stub Arbor . . . . .	1			#3 Morse Taper . . . . .	1
6JJR-295B	177525	Adapter - Small Collet, "A" Series . . . . .	1		603023-11	Chuck - Drill 3/32" - 5/8"	
▲ 6JJR-296B		Collet				#2 Morse Taper . . . . .	1
		"A" Series			603023-12	Chuck - Drill 3/32" - 5/8"	
	128930	1/8" Hole . . . . .	1			#3 Morse Taper . . . . .	1
	161837-1	5/32" Hole . . . . .	1		603023-15	Chuck - Drill 3/32" - 3/4"	
	128931	3/16" Hole . . . . .	1			#2 Morse Taper . . . . .	1
	161837-2	7/32" Hole . . . . .	1		603023-16	Chuck - Drill 3/32" - 3/4"	
	128932	1/4" Hole . . . . .	1			#3 Morse Taper . . . . .	1
	161837-3	9/32" Hole . . . . .	1		603023-19	Chuck - Drill 3/8" - 1"	
	128933	5/16" Hole . . . . .	1			#2 Morse Taper . . . . .	1
	161837-4	11/32" Hole. . . . .	1		603023-20	Chuck - Drill 3/8" - 1"	
	128934	3/8" Hole . . . . .	1			#3 Morse Taper . . . . .	1
	161837-5	13/32" Hole. . . . .	1				
	128935	7/16" Hole . . . . .	1				
	161837-6	15/32" Hole. . . . .	1				
	128936	1/2" Hole . . . . .	1				
		"C" Series					
	153849	3/8" Hole . . . . .	1				
	161841-1	13/32" Hole. . . . .	1				
	153848	7/16" Hole . . . . .	1				
	161841-2	15/32" Hole. . . . .	1				
	153847	1/2" Hole . . . . .	1				
	161841-3	17/32" Hole. . . . .	1				
	161841-4	9/16" Hole . . . . .	1				
	128937	5/8" Hole . . . . .	1				
	128938	3/4" Hole . . . . .	1				
	128939	7/8" Hole . . . . .	1				
	128940	1" Hole . . . . .	1				

▲ "A" Series collets require use of small collet adapter - Key No. 6JJR-295B; "C" Series collets fit directly into spindle.



# HEAVY DUTY OVERARM AND MOTOR

STYLE IC



117 EEE  
163 EEE

## CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

*WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."*

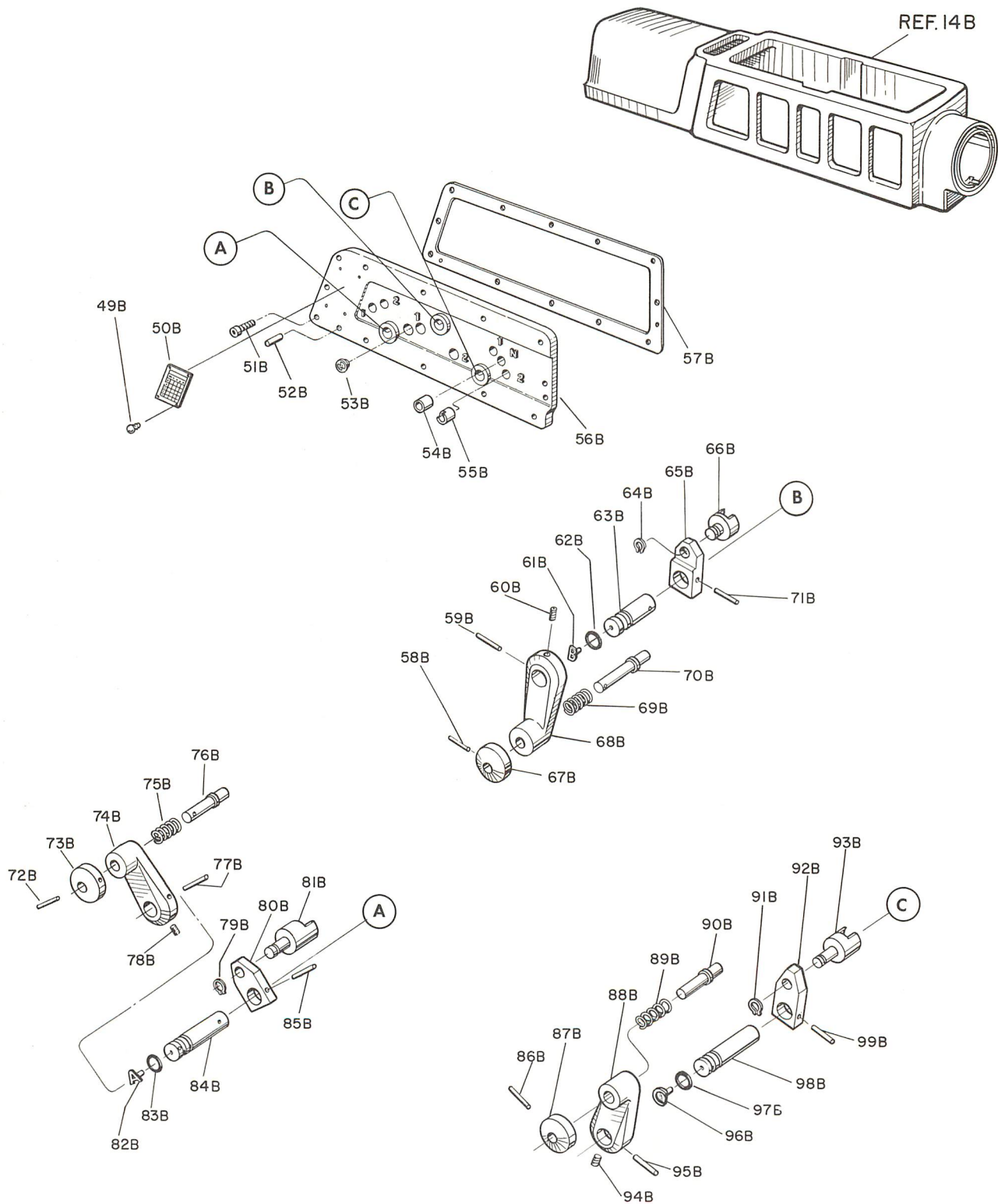
### HEAVY DUTY HEAD AND OVERARM - UNIT No. 6JJS

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJS-1B	3521	Screw . . . . .	2	6JJS-26B	2355	Screw . . . . .	1
6JJS-2B	3251	Screw . . . . .	2	6JJS-27B	139787	Ring - "O" . . . . .	1
6JJS-3B	3987	Plug . . . . .	1	6JJS-28B	221123	Bearing . . . . .	1
6JJS-4B	167039	Plate - Name . . . . .	1	6JJS-29B	122094	Ring - Truarc . . . . .	1
6JJS-5B	143317	Housing - Gear . . . . .	1	6JJS-30B	3400	Screw . . . . .	1
6JJS-6B	2209	Screw - Drive . . . . .	4	6JJS-31B	143298	Retainer - Oil Seal . . . . .	1
6JJS-7B	23173	Plug . . . . .	2	6JJS-32B	122094	Ring - Truarc . . . . .	1
6JJS-8B	1664	Pin . . . . .	2	6JJS-33B	4247	Nut - Lock . . . . .	1
6JJS-9B	3266	Screw . . . . .	12	6JJS-34B	143299	Spacer - Rotor . . . . .	1
6JJS-10B	143301	Cover - Electrical Compartment . . . . .	1	6JM-35B	143292	Motor - Heavy Duty, Style 1-C Machine, 2 H. P., 1200 R. P. M. . . . .	1
6JJS-11B	3266	Screw . . . . .	2	6JJS-36B	3307	Key . . . . .	1
6JJS-12B	105147	Screw - Set . . . . .	2	6JJS-37B	161806	Key . . . . .	1
6JJS-13B	216607	Plug - Pipe . . . . .	1	6JJS-38B	143294	Shaft - Motor . . . . .	1
6JJS-14B	167876	Overarm - Heavy Duty . . . . .	1	6JJS-39B	143296	Housing - Bearing . . . . .	1
6JJS-15B	143295	Cover - Plate, Rear . . . . .	1	6JJS-40B	3233	Screw . . . . .	1
6JJS-16B	3266	Screw . . . . .	4	6JJS-41B	2356	Screw . . . . .	1
6JJS-17B	148624	Bushing . . . . .	1	6JJS-42B	93235	Seal - Oil . . . . .	1
6JJS-18B	243749	Ring - "O" . . . . .	1	6JJS-43B	70656	Bearing - Ball . . . . .	1
6JJS-19B	168165	Shaft - Spiral Gear . . . . .	1	6JJS-44B	4243	Nut - Lock . . . . .	1
6JJS-20B	243749	Ring - "O" . . . . .	1	6JJS-45B	143537	Shim - Retainer . . . . .	1
6JJS-21B	148624	Bushing . . . . .	1	6JJS-46B	143297	Retainer - Bearing . . . . .	1
6JJS-22B	97264	Coupling - Center . . . . .	1	6JJS-47B	3342	Fitting - Alemite . . . . .	1
6JJS-23B	227570	Coupling . . . . .	1	6JJS-48B	2320	Screw . . . . .	4
6JJS-24B	93235	Seal - Oil . . . . .	1				
6JJS-25B	2343	Screw . . . . .	1				



# HEAVY DUTY CONTROL MECHANISM

STYLE IC



117 EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

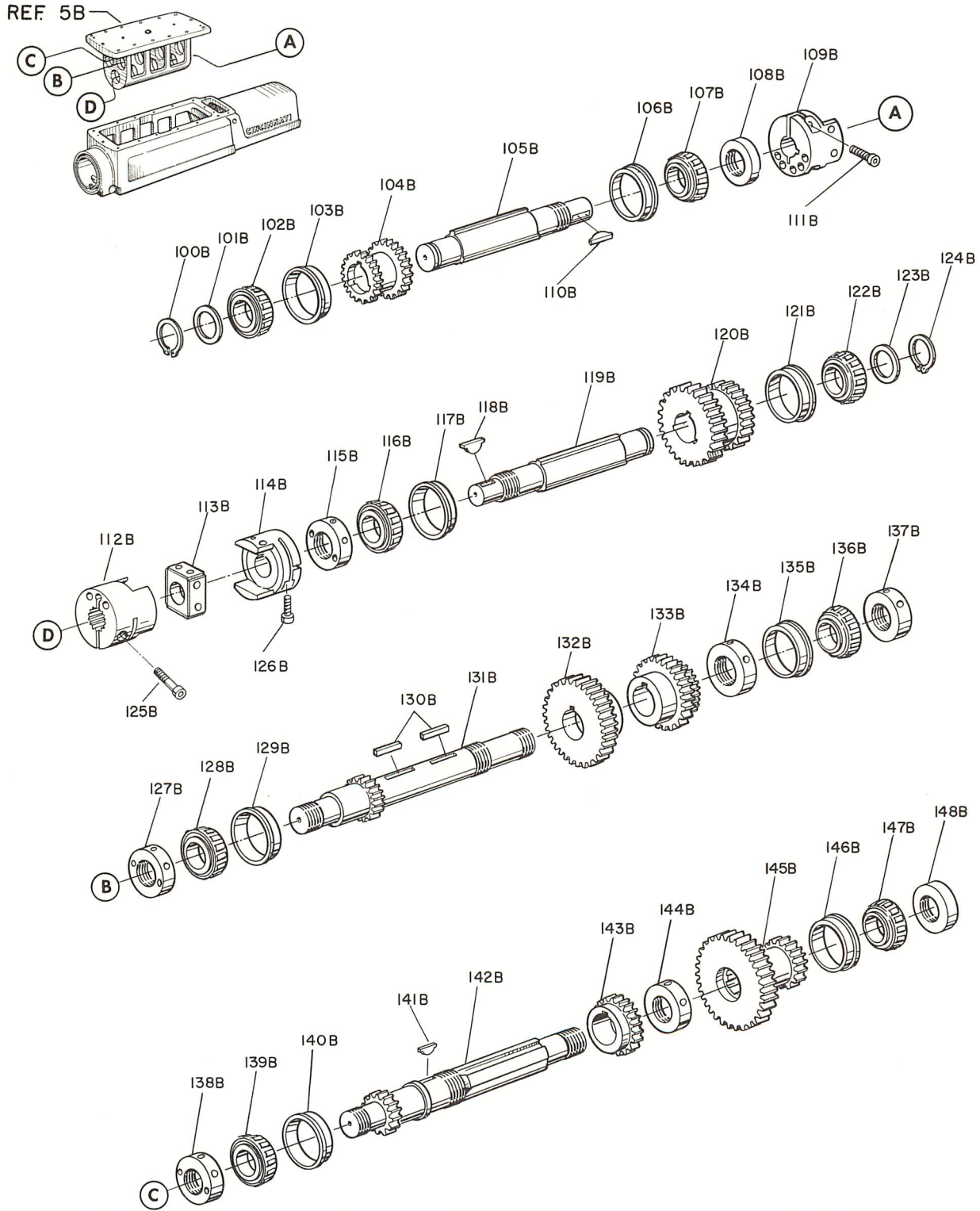
HEAVY DUTY HEAD AND OVERARM - UNIT No. 6JJS (Continued)

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJS-49B	2209	Screw - Drive . . . . .	4	6JJS-75B	122163	Spring . . . . .	1
6JJS-50B	178250	Plate - Speed . . . . .	1	6JJS-76B	150734	Pin - Index . . . . .	1
6JJS-51B	2320	Screw . . . . .	12	6JJS-77B	143311	Roll Pin . . . . .	1
6JJS-52B	1966	Pin . . . . .	2	6JJS-78B	78600	Screw - Set . . . . .	1
6JJS-53B	115591	Gage - Sight Bijur . . . . .	1	6JJS-79B	236956	Ring - Truarc . . . . .	1
6JJS-54B	143304	Stop - Speed Change . . . . .	1	6JJS-80B	143310	Arm - Speed Shifter "A" . . . . .	1
6JJS-55B	143303	Stop - Speed Change . . . . .	6	6JJS-81B	143309	Fork - Shifter . . . . .	1
6JJS-56B	178251	Plate - Speed Control . . . . .	1	6JJS-82B	3334	Letter - "A" . . . . .	1
6JJS-57B	143332	Gasket - Speed Control Plate . . . . .	1	6JJS-83B	129871	Ring - "O" . . . . .	1
6JJS-58B	143329	Roll Pin . . . . .	1	6JJS-84B	143300	Shaft - Speed Shift "A" . . . . .	1
6JJS-59B	143311	Roll Pin . . . . .	1	6JJS-85B	143319	Roll Pin . . . . .	1
6JJS-60B	78600	Screw - Set . . . . .	1	6JJS-86B	143329	Roll Pin . . . . .	1
6JJS-61B	3335	Letter - "B" . . . . .	1	6JJS-87B	151453	Knob - Hand . . . . .	1
6JJS-62B	129871	Ring - "O" . . . . .	1	6JJS-88B	150732	Lever - Speed Selector . . . . .	1
6JJS-63B	143313	Shaft - Speed Shift "B" . . . . .	1	6JJS-89B	122163	Spring . . . . .	1
6JJS-64B	236956	Ring - Truarc . . . . .	1	6JJS-90B	150734	Pin - Index . . . . .	1
6JJS-65B	143314	Arm - Speed Shifter "B" . . . . .	1	6JJS-91B	236956	Ring - Truarc . . . . .	1
6JJS-66B	143312	Fork - Shifter "B" . . . . .	1	6JJS-92B	143310	Arm - Speed Shifter "C" . . . . .	1
6JJS-67B	151453	Knob - Hand . . . . .	1	6JJS-93B	143315	Fork - Shifter "C" . . . . .	1
6JJS-68B	150732	Lever - Speed Selector . . . . .	1	6JJS-94B	78600	Screw - Set . . . . .	1
6JJS-69B	122163	Spring . . . . .	1	6JJS-95B	143311	Roll Pin . . . . .	1
6JJS-70B	150734	Pin - Index . . . . .	1	6JJS-96B	3336	Letter - "C" . . . . .	1
6JJS-71B	143319	Roll Pin . . . . .	1	6JJS-97B	129871	Ring - "O" . . . . .	1
6JJS-72B	143329	Roll Pin . . . . .	1	6JJS-98B	143308	Shaft - Speed Shift "C" . . . . .	1
6JJS-73B	151453	Knob - Hand . . . . .	1	6JJS-99B	143319	Roll Pin . . . . .	1
6JJS-74B	150732	Lever - Speed Selector . . . . .	1				



# HEAVY DUTY DRIVE SHAFTS

STYLE IC



CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

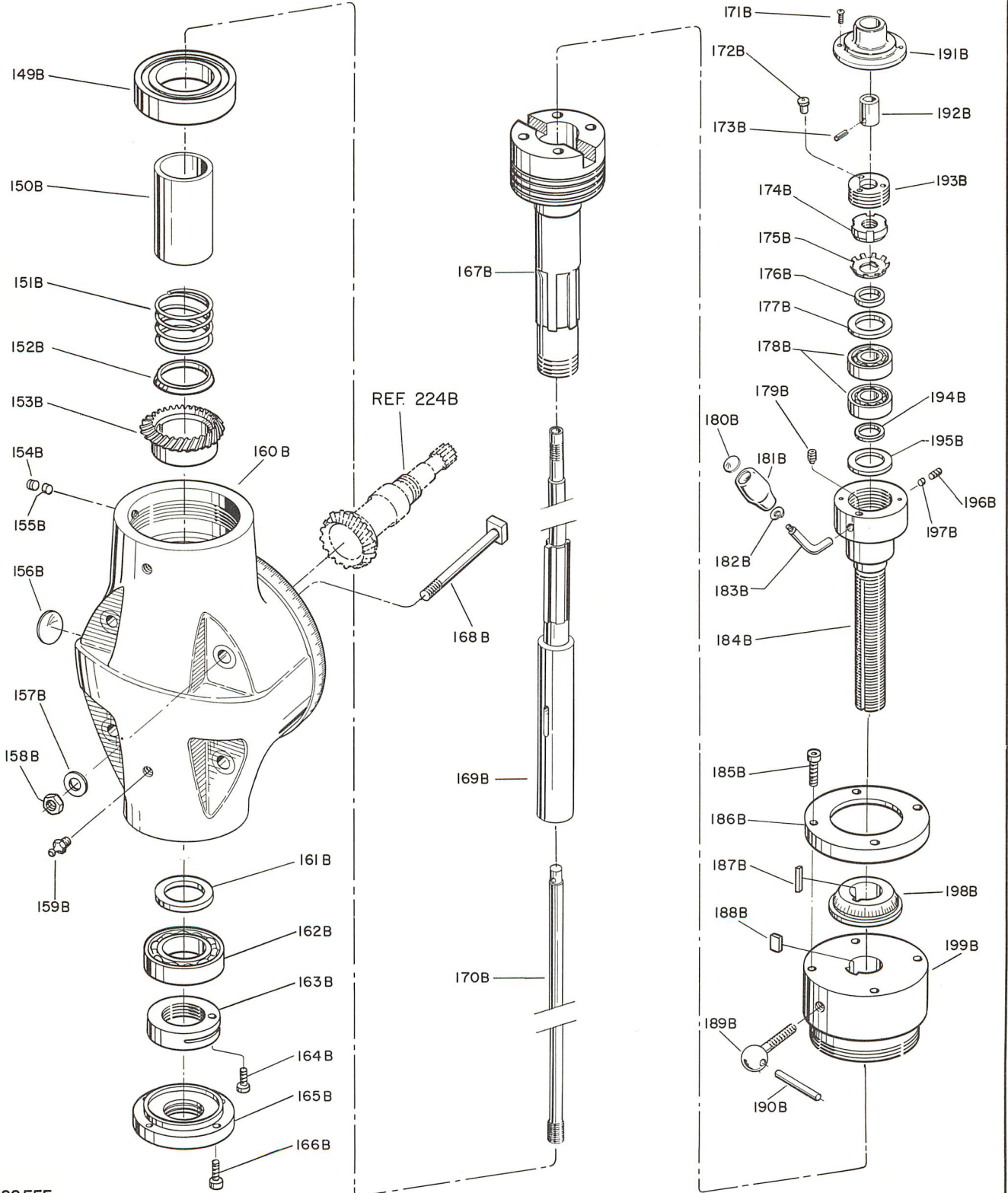
HEAVY DUTY HEAD AND OVERARM - UNIT No. 6JJS (Continued)

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJS-100B	113079	Ring - Truarc . . . . .	1	6JJS-125B	2322	Screw. . . . .	1
6JJS-101B	143330	Washer - Change Gear . . . . .	1	6JJS-126B	3400	Screw. . . . .	1
6JJS-102B	202876	Cone - Bearing . . . . .	1	6JJS-127B	4243	Nut - Lock . . . . .	1
6JJS-103B	202877	Cup - Bearing . . . . .	1	6JJS-128B	108345	Cone - Bearing . . . . .	1
6JJS-104B		Gear - Change		6JJS-129B	202877	Cup - Bearing . . . . .	1
	143321	With 60 Cycle Motor . . . . .	1	6JJS-130B	814	Key . . . . .	2
	158507	With 50 Cycle Motor . . . . .	1	6JJS-131B	143322	Shaft - Cluster Change . . . . .	1
6JJS-105B	143320	Shaft - Change Gear . . . . .	1	6JJS-132B	143323	Gear - Spur. . . . .	1
6JJS-106B	202877	Cup - Bearing . . . . .	1	6JJS-133B		Gear - Cluster Spur	
6JJS-107B	202876	Cone - Bearing . . . . .	1		143324	With 60 Cycle Motor . . . . .	1
6JJS-108B	4242	Nut - Lock . . . . .	1		158508	With 50 Cycle Motor . . . . .	1
6JJS-109B	225482	Coupling . . . . .	1	6JJS-134B	221399	Nut - Lock . . . . .	1
6JJS-110B	3280	Key . . . . .	1	6JJS-135B	202877	Cup - Bearing . . . . .	1
6JJS-111B	3400	Screw. . . . .	1	6JJS-136B	108345	Cone - Bearing . . . . .	1
6JJS-112B	168146	Coupling . . . . .	1	6JJS-137B	4243	Nut - Lock . . . . .	1
6JJS-113B	97264	Center - Coupling. . . . .	1	6JJS-138B	4243	Nut - Lock . . . . .	1
6JJS-114B	225482	Coupling . . . . .	1	6JJS-139B	108345	Cone - Bearing . . . . .	1
6JJS-115B	4242	Nut - Lock . . . . .	1	6JJS-140B	202877	Cup - Bearing . . . . .	1
6JJS-116B	202876	Cone - Bearing . . . . .	1	6JJS-141B	3281	Key . . . . .	1
6JJS-117B	202877	Cup - Bearing . . . . .	1	6JJS-142B	143325	Shaft - Spur Gear. . . . .	1
6JJS-118B	3280	Key . . . . .	1	6JJS-143B	143326	Gear - Spur. . . . .	1
6JJS-119B	143320	Shaft - Change Gear . . . . .	1	6JJS-144B	4245	Nut - Lock . . . . .	1
6JJS-120B	143328	Gear - Change . . . . .	1	6JJS-145B	143327	Gear - Change . . . . .	1
6JJS-121B	202877	Cup - Bearing . . . . .	1	6JJS-146B	202877	Cup - Bearing . . . . .	1
6JJS-122B	202876	Cone - Bearing . . . . .	1	6JJS-147B	202876	Cone - Bearing . . . . .	1
6JJS-123B	143330	Washer - Change Gear . . . . .	1	6JJS-148B	4242	Nut - Lock . . . . .	1
6JJS-124B	113079	Ring - Truarc . . . . .	1				



# SPINDLE AND HOUSING HAND FEED TO QUILL SINGLE SWIVEL

STYLE IC



128 EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

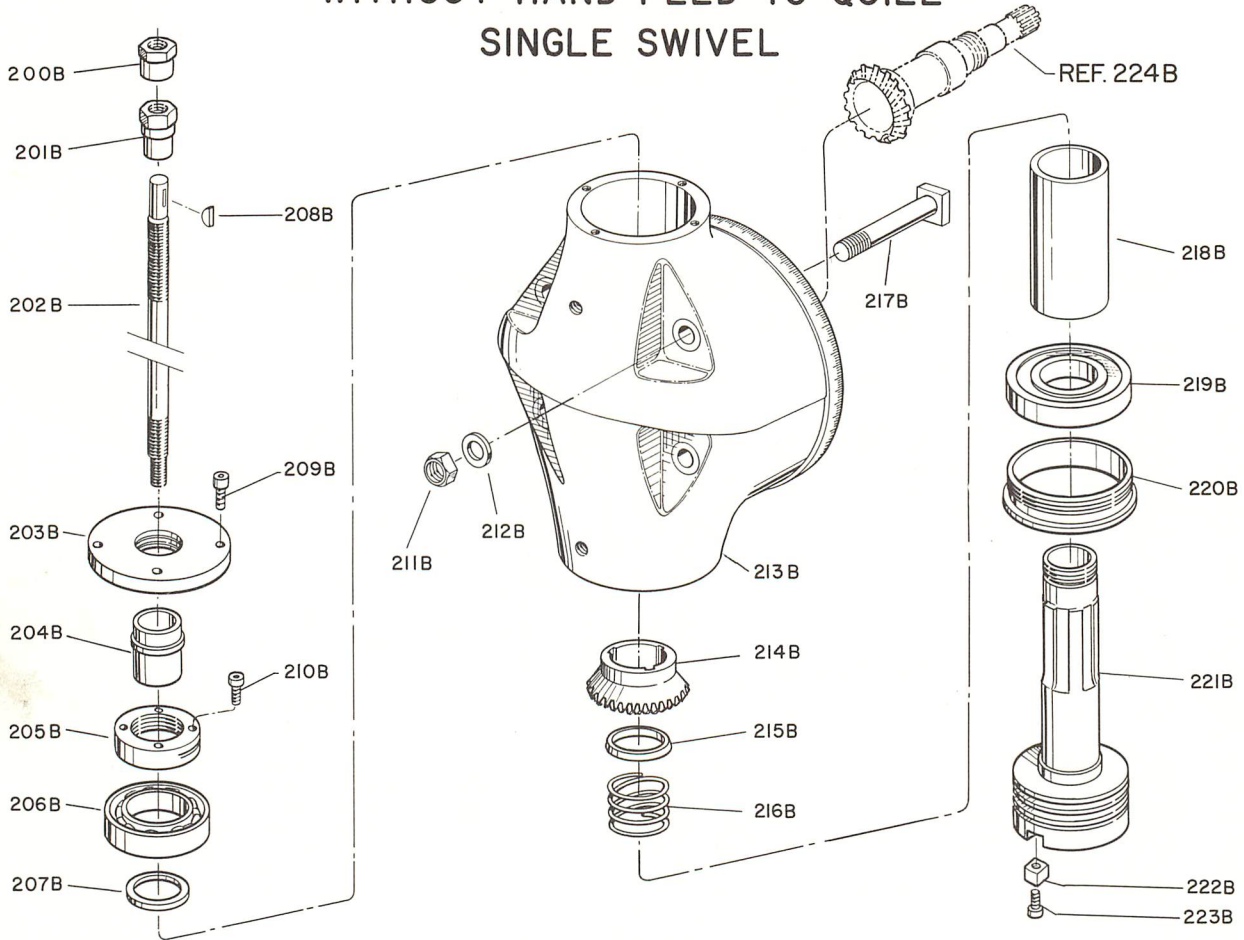
HEAVY DUTY HEAD AND OVERARM - UNIT No. 6JJS (Continued)

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJS-149B	217925	Bearing - Ball, Thrust . . . . .	1	6JJS-174B	76676	Nut - Lock . . . . .	1
6JJS-150B	168160	Seat - Spring . . . . .	1	6JJS-175B	76675	Washer - Lock. . . . .	1
6JJS-151B	78388	Spring - Spindle . . . . .	1	6JJS-176B	93167	Spacer - Bearing . . . . .	1
6JJS-152B	78387	Seat - Spring . . . . .	1	6JJS-177B	93166	Washer - Thrust . . . . .	1
6JJS-153B	143342	Gear - Spiral Drive . . . . .	1	6JJS-178B	168164	Bearing - Ball . . . . .	2
6JJS-154B	3453	Screw - Set . . . . .	1	6JJS-179B	2341	Screw. . . . .	1
6JJS-155B	1844	Plug - Brass . . . . .	1	6JJS-180B	4331	Plate - Name . . . . .	1
6JJS-156B	69448	Plug - Expansion . . . . .	1	6JJS-181B	4327	Knob - Small . . . . .	1
6JJS-157B	143300	Washer . . . . .	4	6JJS-182B	2123	Washer - Lock. . . . .	1
6JJS-158B	2057	Nut - Hex . . . . .	4	6JJS-183B	150744	Lever - Quill Adjusting . . . . .	1
6JJS-159B	3342	Fitting - Alemite . . . . .	2	6JJS-184B	150743	Screw - Quill Adjusting. . . . .	1
6JJS-160B	168151	Housing - Spindle . . . . .	1	6JJS-185B	3396	Screw. . . . .	4
6JJS-161B	102727	Spacer . . . . .	1	6JJS-186B	78920	Retainer - Dial . . . . .	1
6JJS-162B	76659	Bearing - Ball . . . . .	1	6JJS-187B	76667	Key - Square . . . . .	1
6JJS-163B	103308	Nut - Spindle, Lock . . . . .	1	6JJS-188B	3858	Shoe . . . . .	1
6JJS-164B	3218	Screw. . . . .	1	6JJS-189B	76664	Screw - Handle . . . . .	1
6JJS-165B	78925	Cap - Spindle, Bearing . . . . .	1	6JJS-190B	3537	Pin - Handle . . . . .	1
6JJS-166B	3396	Screw. . . . .	4	6JJS-191B	171355	Cover - Draw Bolt . . . . .	1
6JJS-167B	168152	Spindle . . . . .	1	6JJS-192B	171371	Head - Draw Bolt. . . . .	1
6JJS-168B	168159	Bolt - Tee . . . . .	4	6JJS-193B	76677	Nut - Bearing, Lock. . . . .	1
6JJS-169B		Quill		6JJS-194B	93168	Spacer - Bearing . . . . .	1
	168153	#9 B and S Taper . . . . .	1	6JJS-195B	93166	Washer - Thrust . . . . .	1
	168154	#7 B and S Taper . . . . .	1	6JJS-196B	2333	Screw. . . . .	1
6JJS-170B		Bolt - Draw		6JJS-197B	1550	Plug . . . . .	1
	168156	#9 B and S Taper . . . . .	1	6JJS-198B		Dial - Quill Adjusting	
	168157	#7 B and S Taper . . . . .	1		76666	English. . . . .	1
6JJS-171B	2361	Screw. . . . .	2		95250	Metric . . . . .	1
6JJS-172B	60062	Cup - Oiler . . . . .	1	6JJS-199B	168155	Cap - Quill Adjusting . . . . .	1
6JJS-173B	168163	Pin . . . . .	1				

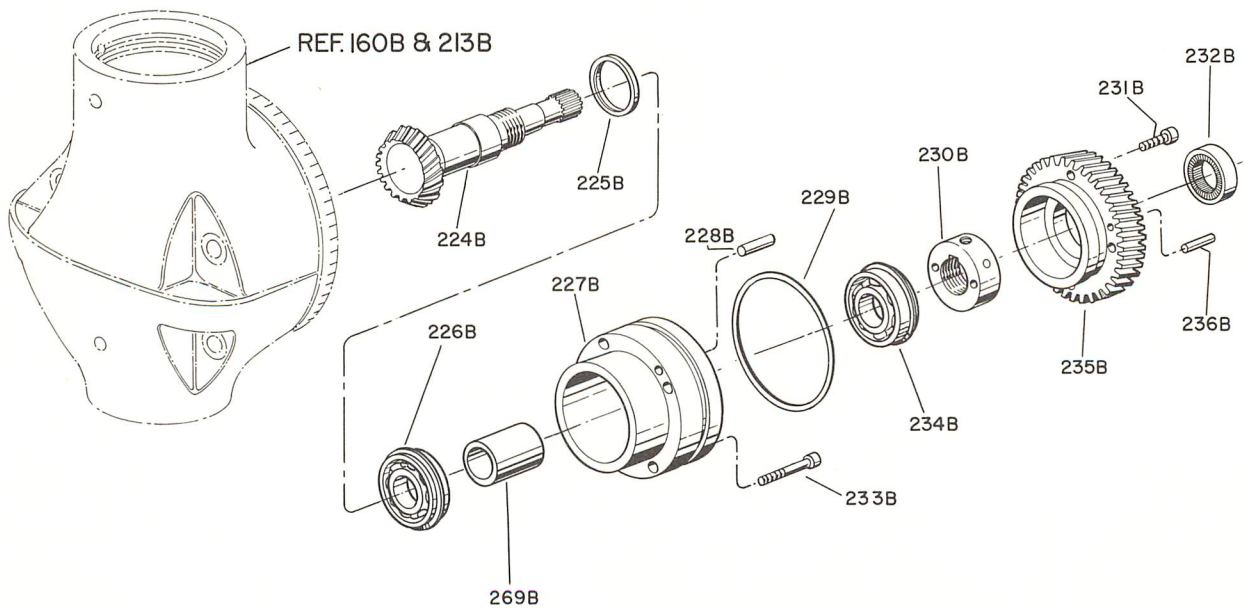


**SPINDLE AND HOUSING  
WITHOUT HAND FEED TO QUILL  
SINGLE SWIVEL**

STYLE 1C



**DRIVE TO HEAD**



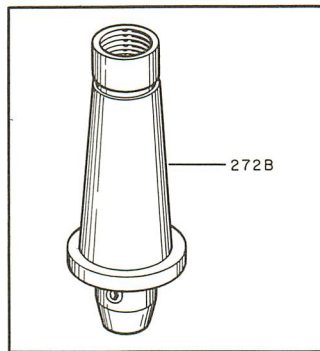
128 EEE

## CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

*WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."*

### HEAVY DUTY HEAD AND OVERARM - UNIT No. 6JJS (Continued)

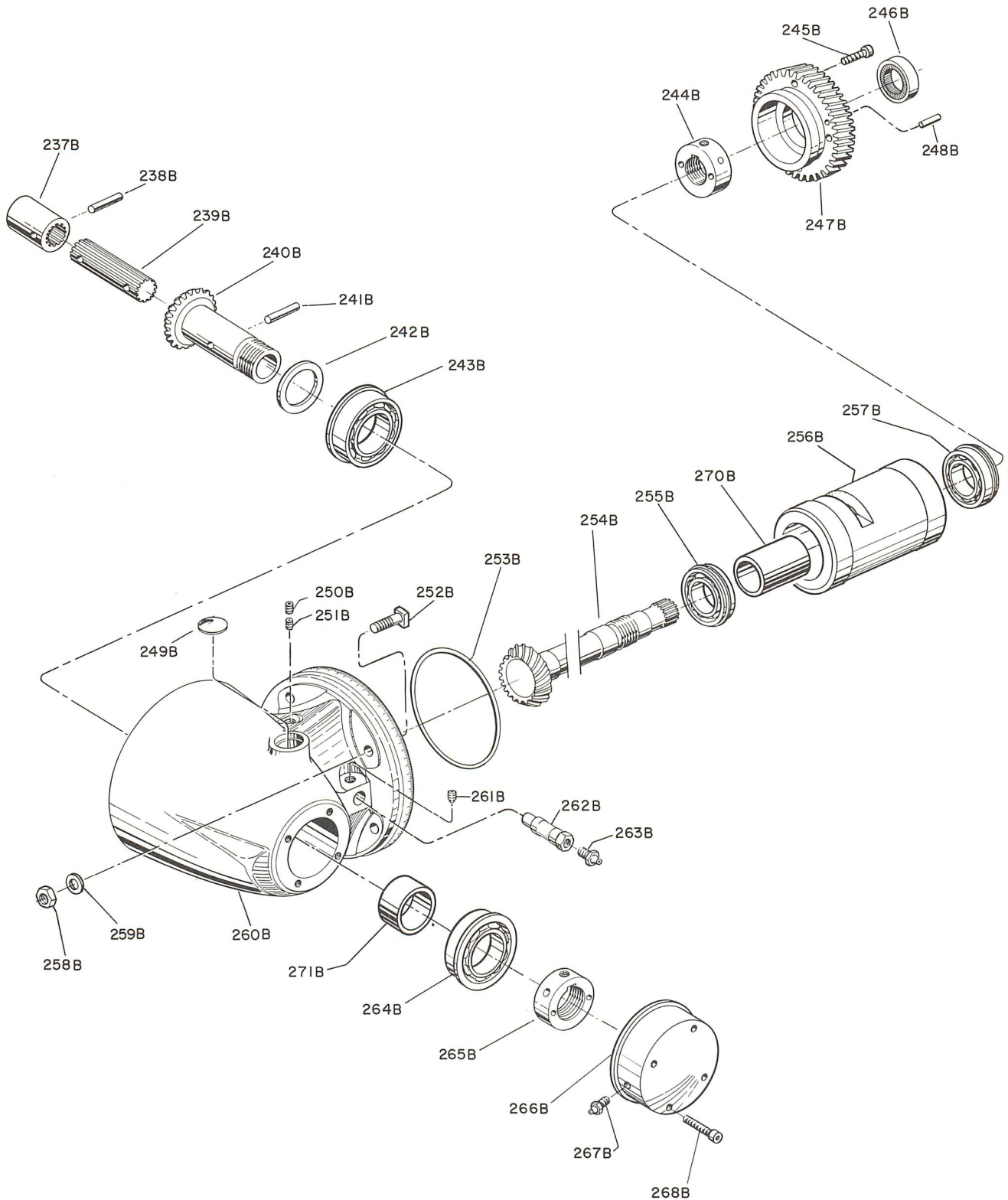
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJS-200B	70059	Head - Arbor . . . . .	1	6JJS-223B	3396	Screw. . . . .	2
6JJS-201B	70058	Nut - Arbor. . . . .	1	6JJS-224B	168162	Shaft - Motor Driven. . . . .	1
6JJS-202B	168161	Bolt - Draw In. . . . .	1	6JJS-225B	102729	Spacer - Bearing . . . . .	1
6JJS-203B	78925	Cap - Spindle Bearing . . . . .	1	6JJS-226B	78394	Bearing - Ball. . . . .	1
6JJS-204B	78986	Plug - Draw In. . . . .	1	6JJS-227B	168141	Housing - Sleeve Adjusting. . . . .	1
6JJS-205B	103308	Nut - Spindle Lock . . . . .	1	6JJS-228B	3543	Pin . . . . .	1
6JJS-206B	76659	Bearing - Ball. . . . .	1	6JJS-229B	251229	Ring - "O" . . . . .	1
6JJS-207B	102727	Spacer . . . . .	1	6JJS-230B	4244	Nut - Lock . . . . .	1
6JJS-208B	3279	Key . . . . .	1	6JJS-231B	3227	Screw. . . . .	4
6JJS-209B	3396	Screw. . . . .	4	6JJS-232B	93233	Seal - Oil . . . . .	1
6JJS-210B	3218	Screw. . . . .	1	6JJS-233B	3158	Screw. . . . .	4
6JJS-211B	2057	Nut . . . . .	4	6JJS-234B	78394	Bearing - Ball. . . . .	1
6JJS-212B	143300	Washer . . . . .	4	6JJS-235B	168147	Gear - Index Head . . . . .	1
6JJS-213B	168151	Housing - Spindle without Hand Feed to Quill. . . . .	1	6JJS-236B	3543	Pin . . . . .	1
6JJS-214B	143342	Gear - Spiral Drive . . . . .	1	6JJS-269B	178952	Spacer . . . . .	1
6JJS-215B	78387	Seat - Spring . . . . .	1	6JJS-272B		Holder-End Mill (No. 40 MM Std. taper)	
6JJS-216B	78388	Spring - Spindle . . . . .	1	179037		3/16" Dia. Hole . . . . .	1
6JJS-217B	168159	Bolt - Tee . . . . .	4	179038		3/8" Dia. Hole . . . . .	1
6JJS-218B	168160	Seat - Spring . . . . .	1	179039		1/2" Dia. Hole . . . . .	1
6JJS-219B	217925	Bearing - Ball. . . . .	1	179040		5/8" Dia. Hole . . . . .	1
6JJS-220B	78982	Cap - Spindle . . . . .	1	179041		3/4" Dia. Hole . . . . .	1
6JJS-221B	168152	Spindle . . . . .	1	179042		7/8" Dia. Hole . . . . .	1
6JJS-222B	70049	Key - Arbor . . . . .	2	179043		1" Dia. Hole . . . . .	1
				179044		1-1/4" Dia. Hole . . . . .	1





# DOUBLE SWIVEL HOUSING

STYLE IC



I28EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

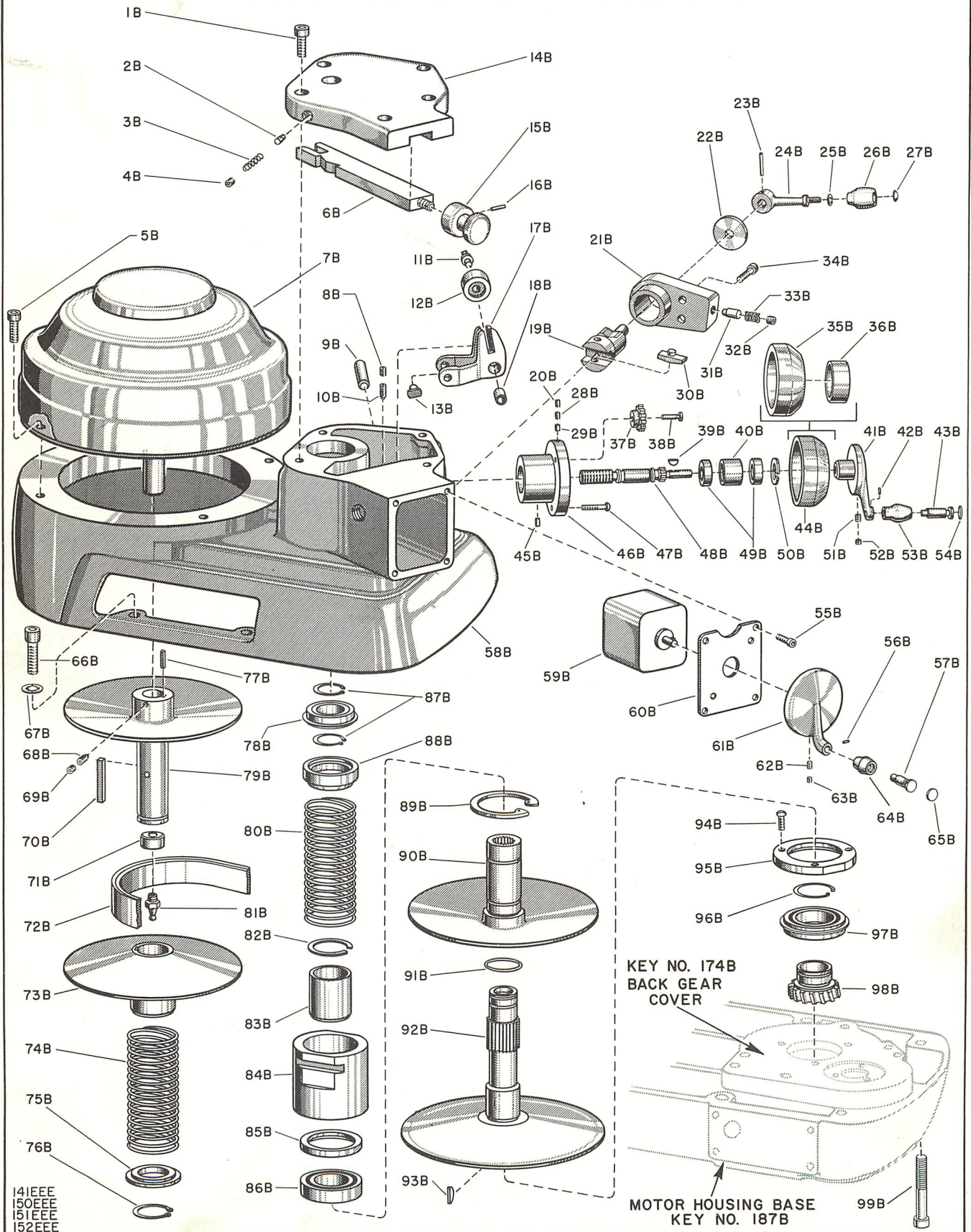
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

HEAVY DUTY HEAD AND OVERARM - UNIT No. 6JJS (Concluded)

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JJS-237B	170764	Coupling . . . . .	1	6JJS-254B	168145	Shaft - Motor . . . . .	1
6JJS-238B	148045	Pin - Roll . . . . .	1	6JJS-255B	252554	Bearing - Ball . . . . .	1
6JJS-239B	170765	Shaft . . . . .	1	6JJS-256B	167900	Sleeve - Bearing . . . . .	1
6JJS-240B	170763	Gear . . . . .	1	6JJS-257B	252554	Bearing - Ball . . . . .	1
6JJS-241B	148417	Pin - Roll . . . . .	1	6JJS-258B	2057	Nut . . . . .	4
6JJS-242B	102729	Spacer - Bearing . . . . .	1	6JJS-259B	143300	Washer . . . . .	4
6JJS-243B	78394	Bearing - Ball . . . . .	1	6JJS-260B	167875	Housing - Swivel . . . . .	1
6JJS-244B	4244	Nut - Lock . . . . .	1	6JJS-261B	3232	Screw . . . . .	1
6JJS-245B	3227	Screw . . . . .	4	6JJS-262B	150741	Eccentric - Stud . . . . .	1
6JJS-246B	93233	Seal - Oil . . . . .	1	6JJS-263B	3342	Fitting - Alemite . . . . .	1
6JJS-247B	168147	Gear - Index Head . . . . .	1	6JJS-264B	78394	Bearing - Ball . . . . .	1
6JJS-248B	3543	Pin . . . . .	1	6JJS-265B	4246	Nut - Lock . . . . .	1
6JJS-249B	69448	Plug - Expansion . . . . .	1	6JJS-266B	143337	Cap - End . . . . .	1
6JJS-250B	1911	Screw . . . . .	1	6JJS-267B	3342	Fitting - Alemite . . . . .	1
6JJS-251B	3211	Screw . . . . .	1	6JJS-268B	3217	Screw . . . . .	4
6JJS-252B	3311	Bolt - Tee . . . . .	4	6JJS-270B	178950	Spacer - Bearing . . . . .	1
6JJS-253B	251229	Ring - "O" . . . . .	1	6JJS-271B	178951	Spacer - Bearing . . . . .	1



I-D MOTOR HOUSING AND VARI-SPEED DRIVE





CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

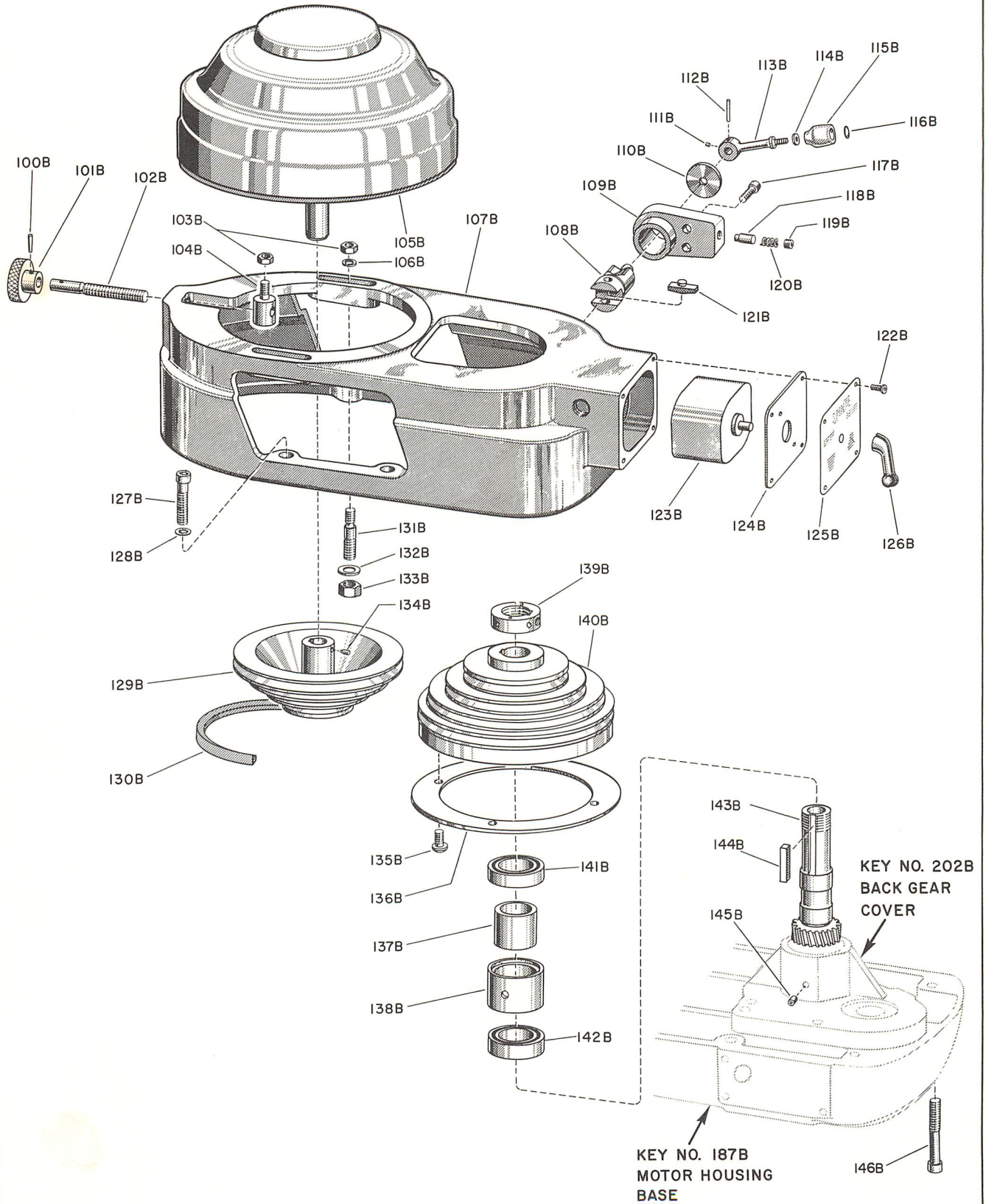
VARI - SPEED HEAD AND OVERARM - UNIT No. 6JKV  
STYLE 1-D

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-1B	3266	Screw . . . . .	4	6JKV-49B	146390	Bearing - Ball . . . . .	2
6JKV-2B	170760	Plunger . . . . .	1	6JKV-50B	171364	Ring - Retaining . . . . .	1
6JKV-3B	229763	Spring . . . . .	1	6JKV-51B	3229	Screw . . . . .	1
6JKV-4B	2301	Screw . . . . .	1	6JKV-52B	2332	Screw . . . . .	1
6JKV-5B	Example	Screw . . . . .	4	6JKV-53B	166214	Knob . . . . .	1
6JKV-6B	167320	Bar - Draw Bolt . . . . .	1	6JKV-54B	4331	Plate - Knob . . . . .	1
6JKV-7B	Example	Motor (*) . . . . .	1	6JKV-55B	3268	Screw . . . . .	4
6JKV-8B	2332	Screw . . . . .	1	6JKV-56B	147822	Pin - Roll . . . . .	1
6JKV-9B	167488	Shaft - Pin . . . . .	1	6JKV-57B	167317	Stud - Spinning Knob . . . . .	1
6JKV-10B	3229	Screw . . . . .	1	6JKV-58B	175501	Housing . . . . .	1
6JKV-11B	171386	Shoe - Lock . . . . .	2	6NN-59B	148189	Switch - Drum . . . . .	1
6JKV-12B	167349	Nut . . . . .	1	6JKV-60B	170508	Plate - Switch . . . . .	1
6JKV-13B	167477	Shoe - Lock . . . . .	2	6JKV-61B	172740	Handle . . . . .	1
6JKV-14B	167331	Cover . . . . .	1	6JKV-62B	3228	Screw . . . . .	1
6JKV-15B	167321	Knob - Draw Bolt . . . . .	1	6JKV-63B	2332	Screw . . . . .	1
6JKV-16B	167492	Pin - Roll . . . . .	1	6JKV-64B	166214	Knob . . . . .	1
6JKV-17B	167348	Yoke . . . . .	1	6JKV-65B	4331	Plate - Knob . . . . .	1
6JKV-18B	259598	Bushing . . . . .	2	6JKV-66B	3404	Screw . . . . .	4
6JKV-19B	176255	Shaft - Brake . . . . .	1	6JKV-67B	3257	Washer . . . . .	4
6JKV-20B	2354	Screw . . . . .	1	6JKV-68B	3228	Screw . . . . .	1
6JKV-21B	175386	Bracket - Brake . . . . .	1	6JKV-69B	2354	Screw . . . . .	1
6JKV-22B	167471	Washer . . . . .	1	6JKV-70B	1632	Key . . . . .	1
6JKV-23B	152449	Pin - Roll . . . . .	1	6JKV-71B	173873	Plug . . . . .	1
6JKV-24B	158617	Lever . . . . .	1	6JKV-72B	158588	Belt - Vari-Speed . . . . .	1
6JKV-25B	2123	Washer . . . . .	1	6JKV-73B	167336	Pulley . . . . .	1
6JKV-26B	4327	Knob . . . . .	1	6JKV-74B	166819	Spring . . . . .	1
6JKV-27B	4331	Plate . . . . .	1	6JKV-75B	167340	Retainer . . . . .	1
6JKV-28B	2332	Screw . . . . .	1	6JKV-76B	170496	Ring - Truarc . . . . .	1
6JKV-29B	2008	Plug . . . . .	1	6JKV-77B	Example	Key (Furnished with Motor)	1
6JKV-30B	176253	Shoe - Brake . . . . .	2	6JKV-78B	167327	Bearing - Ball . . . . .	1
6JKV-31B	175395	Plunger . . . . .	1	6JKV-79B	173872	Pulley . . . . .	1
6JKV-32B	2301	Screw . . . . .	1	6JKV-80B	166819	Spring . . . . .	1
6JKV-33B	173888	Spring . . . . .	1	6JKV-81B	3223	Fitting - Lubrication . . . . .	1
6JKV-34B	3399	Screw . . . . .	2	6JKV-82B	171363	Ring - Retaining . . . . .	1
6JKV-35B	171353	Dial - Metal . . . . .	1	6JKV-83B	167330	Sleeve . . . . .	1
6JKV-36B	171365	Bushing - Metal Dial . . . . .	1	6JKV-84B	167323	Sleeve - Bearing . . . . .	1
6JKV-37B		Gear . . . . .		6JKV-85B	167326	Retainer . . . . .	1
	167344	60 Cycle . . . . .	1	6JKV-86B	167325	Bearing - Ball . . . . .	1
	158587	50 Cycle . . . . .	1	6JKV-87B	239553	Ring - Truarc . . . . .	2
6JKV-38B	167346	Pin - Gear . . . . .	1	6JKV-88B	167328	Retainer . . . . .	1
6JKV-39B	3279	Key . . . . .	1	6JKV-89B	260528	Ring - Truarc . . . . .	1
6JKV-40B	167343	Sleeve . . . . .	1	6JKV-90B	167315	Pulley . . . . .	1
6JKV-41B	167480	Handle . . . . .	1	6JKV-91B	141016	Ring - "O" . . . . .	1
6JKV-42B	167319	Pin - Roll . . . . .	1	6JKV-92B	167316	Pulley . . . . .	1
6JKV-43B	167317	Stud - Spinning Knob . . . . .	1	6JKV-93B	3280	Key . . . . .	1
6JKV-44B		Dial - Plastic . . . . .		6JKV-94B	2371	Screw . . . . .	3
	175397	60 Cycle . . . . .	1	6JKV-95B	167310	Retainer . . . . .	1
	175272	50 Cycle . . . . .	1	6JKV-96B	118579	Ring - Truarc . . . . .	1
6JKV-45B	167486	Pin - Roll . . . . .	1	6JKV-97B	158594	Bearing . . . . .	1
6JKV-46B	167347	Sleeve . . . . .	1	6JKV-98B	175398	Gear - Helical . . . . .	1
6JKV-47B	2371	Screw . . . . .	3	6JKV-99B	3346	Screw . . . . .	2
6JKV-48B	167345	Shaft - Gear . . . . .	1				

\* When ordering specify H. P. , frame size, voltage and cycle.



I-E MOTOR HOUSING AND VARI-SPEED DRIVE



148EEE  
149EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

VARI-SPEED HEAD AND OVERARM - UNIT No. 6JKV (Continued)

STYLE 1-E

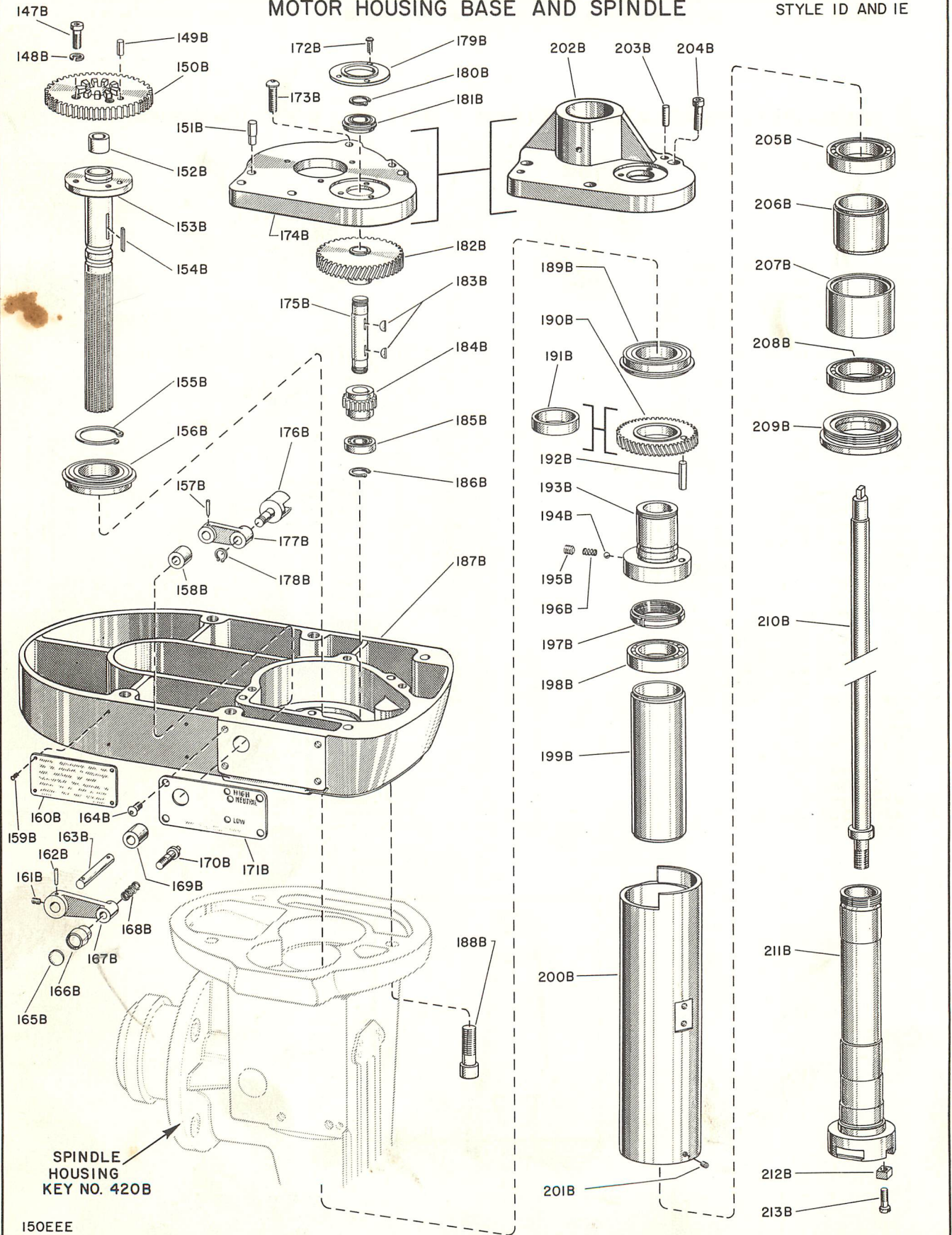
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-100B	141	Pin - Roll . . . . .	1	6JKV-124B	175393	Plate - Switch . . . . .	1
6JKV-101B	240480	Knob - Knurled . . . . .	1	6JKV-125B	175394	Plate - Direction . . . . .	1
6JKV-102B	175390	Shaft - Knob . . . . .	1	6JKV-126B	148189	Handle - Switch Drum . . . . .	1
6JKV-103B	3473	Nut . . . . .	3	6JKV-127B	3405	Screw . . . . .	4
6JKV-104B	175387	Nut . . . . .	1	6JKV-128B	2038	Washer . . . . .	4
6JKV-105B	Example	Motor (*) . . . . .	2	6JKV-129B	175385	Pulley . . . . .	1
6JKV-106B	2135	Washer . . . . .	1	6JKV-130B	175391	Belt - Vee . . . . .	1
6JKV-107B	175375	Housing . . . . .	1	6JKV-131B	175389	Stud - Motor . . . . .	2
6JKV-108B	176254	Shaft - Brake . . . . .	1	6JKV-132B	3442	Washer . . . . .	2
6JKV-109B	175386	Bracket - Brake . . . . .	1	6JKV-133B	3479	Nut . . . . .	2
6JKV-110B	167471	Washer . . . . .	1	6JKV-134B	2343	Screw . . . . .	1
6JKV-111B	2330	Screw . . . . .	1	6JKV-135B	2370	Screw . . . . .	4
6JKV-112B	152449	Pin - Roll . . . . .	1	6JKV-136B	175392	Plate - Brake . . . . .	1
6JKV-113B	158617	Handle . . . . .	1	6JKV-137B	175378	Spacer - Inner, Bearing . . . . .	1
6JKV-114B	2123	Washer . . . . .	1	6JKV-138B	175377	Spacer - Outer, Bearing . . . . .	1
6JKV-115B	4327	Knob . . . . .	1	6JKV-139B	4245	Nut - Lock . . . . .	1
6JKV-116B	4331	Plate - Knob . . . . .	1	6JKV-140B	175384	Pulley . . . . .	1
6JKV-117B	3399	Screw . . . . .	2	6JKV-141B	152813	Bearing - Ball . . . . .	1
6JKV-118B	175395	Plunger . . . . .	1	6JKV-142B	152813	Bearing - Ball . . . . .	1
6JKV-119B	2301	Screw . . . . .	1	6JKV-143B		Gear - Helical . . . . .	1
6JKV-120B	173888	Spring . . . . .	1		175379	60 cycle . . . . .	1
6JKV-121B	176253	Shoe - Brake . . . . .	1		175522	50 cycle . . . . .	1
6JKV-122B	2369	Screw . . . . .	4	6JKV-144B	963	Key . . . . .	1
6JKV-123B	148189	Switch - Drum . . . . .	1	6JKV-145B	175388	Pin . . . . .	1
				6JKV-146B	3346	Screw . . . . .	2

\* When ordering specify H.P., frame size, voltage and cycle.



MOTOR HOUSING BASE AND SPINDLE

STYLE ID AND IE





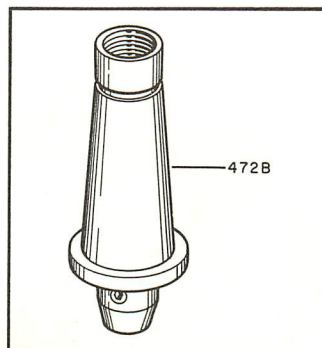
## CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

*WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."*

### VARI-SPEED HEAD AND OVERARM - UNIT No. 6JKV (Continued)

#### STYLE 1-D AND 1-E

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-147B	3218	Screw . . . . .	3	6JKV-185B	158593	Bearing - Ball . . . . .	1
6JKV-148B	2133	Washer . . . . .	3	6JKV-186B	158591	Ring - Truarc . . . . .	1
6JKV-149B	170906	Pin . . . . .	1	6JKV-187B		Base - Motor Housing	
6JKV-150B	158566	Gear - Spur Driven . . . . .	1		167338	1-D Head . . . . .	1
6JKV-151B	1664	Pin (1-D Head Only). . . . .	2		178254	1-E Head . . . . .	1
6JKV-152B	167454	Bushing - Oilite . . . . .	1	6JKV-188B	1929	Screw. . . . .	3
6JKV-153B	167334	Shaft - Spline . . . . .	1	6JKV-189B	145424	Bearing - Ball . . . . .	1
6JKV-154B	3447	Key . . . . .	1	6JKV-190B	158572	Gear - Helical (Power Feed Only) . . . . .	1
6JKV-155B	161729	Ring - Truarc . . . . .	1	6JKV-191B	172704	Bushing (Manual Feed Only) . . . . .	1
6JKV-156B	145424	Bearing - Ball . . . . .	1	6JKV-192B	147821	Pin (Power Feed Only) . . . . .	1
6JKV-157B	140	Pin . . . . .	1	6JKV-193B	158573	Sleeve - Detent . . . . .	1
6JKV-158B	161741	Bushing - Oilite . . . . .	1	6JKV-194B	30060	Ball . . . . .	1
6JKV-159B	2283	Screw - Drive . . . . .	4	6JKV-195B	1213	Screw. . . . .	1
6JKV-160B	172730	Plate - Instruction, Grease . . . . .	1	6JKV-196B	100239	Spring . . . . .	1
6JKV-161B	2339	Screw. . . . .	1	6JKV-197B	158583	Nut - Lock, Bearing . . . . .	1
6JKV-162B	147865	Pin . . . . .	1	6JKV-198B	158592	Bearing - Ball . . . . .	1
6JKV-163B	167455	Shaft . . . . .	1	6JKV-199B	158574	Spacer . . . . .	1
6JKV-164B	2311	Screw. . . . .	4	6JKV-200B	167493	Quill . . . . .	1
6JKV-165B	4331	Plate . . . . .	1	6JKV-201B	2339	Screw. . . . .	1
6JKV-166B	4327	Knob . . . . .	1	6JKV-202B	175376	Cover - Back Gear (1-E Head Only) . . . . .	1
6JKV-167B	167456	Lever - Shifter . . . . .	1	6JKV-203B	1384	Pin (1-E Head Only). . . . .	1
6JKV-168B	151493	Spring . . . . .	1	6JKV-204B	3266	Screw (1-E Head Only) . . . . .	4
6JKV-169B	161741	Bushing - Oilite . . . . .	1	6JKV-205B	158590	Bearing - Ball . . . . .	1
6JKV-170B	151486	Pin - Detent . . . . .	1	6JKV-206B	158650	Spacer - Inner . . . . .	1
6JKV-171B		Plate - Instruction, Speed		6JKV-207B	158584	Spacer - Outer. . . . .	1
	167457	English. . . . .	1	6JKV-208B	158590	Bearing - Ball . . . . .	1
	173328	Metric . . . . .	1	6JKV-209B	167509	Nut - Lock . . . . .	1
6JKV-172B	2368	Screw. . . . .	3	6JKV-210B		Bar - Draw	
6JKV-173B	2378	Screw (1-D Head Only). . . . .	4		171369	1-D Head . . . . .	1
6JKV-174B	167314	Cover - Back Gear (1-D Head Only) . . . . .	1		175383	1-E Head . . . . .	1
6JKV-175B	167309	Shaft - Spur Gear . . . . .	1	6JKV-211B	167342	Spindle . . . . .	1
6JKV-176B	161745	Shifter - Back Gear . . . . .	1	6JKV-212B	94602	Key . . . . .	2
6JKV-177B	151488	Arm - Gear Shifter . . . . .	1	6JKV-213B	3484	Screw. . . . .	2
6JKV-178B	123820	Ring - Truarc . . . . .	1	6JKV-472B		Holder-End Mill (No. 40 MM Std. Taper)	
6JKV-179B	167313	Retainer. . . . .	1		179037	3/16" Dia. Hole . . . . .	1
6JKV-180B	158591	Ring - Truarc . . . . .	1		179038	3/8" Dia. Hole . . . . .	1
6JKV-181B	161748	Bearing - Ball . . . . .	1		179039	1/2" Dia. Hole . . . . .	1
6JKV-182B		Gear - Helical			179040	5/8" Dia. Hole . . . . .	1
	175380	60 Cycle . . . . .	1		179041	3/4" Dia. Hole . . . . .	1
	167312	50 Cycle . . . . .	1		179042	7/8" Dia. Hole . . . . .	1
6JKV-183B	3280	Key . . . . .	2		179043	1" Dia. Hole . . . . .	1
6JKV-184B	167311	Gear - Spur. . . . .	1		179044	1-1/4" Dia. Hole . . . . .	1







CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

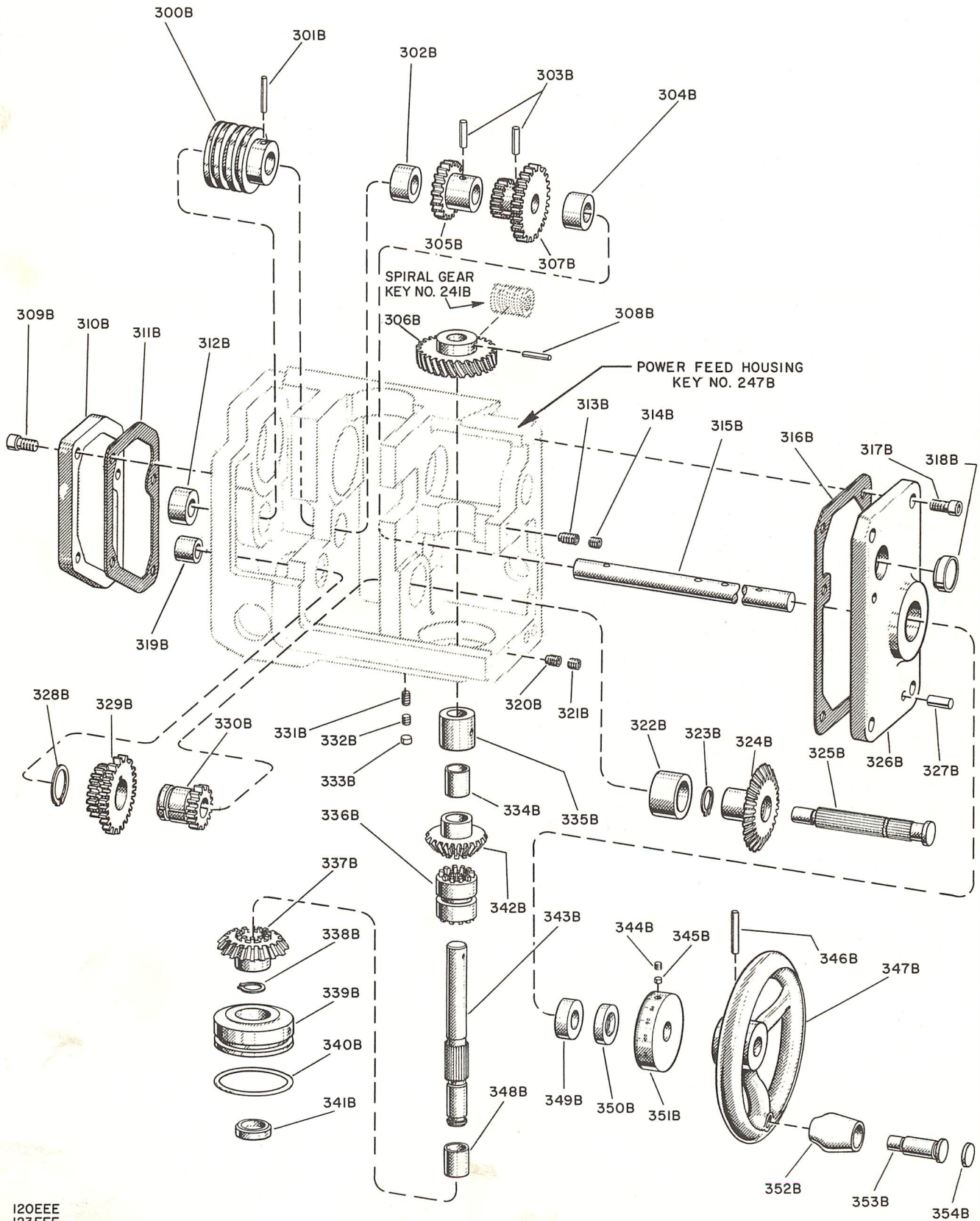
VARI-SPEED HEAD AND OVERARM - UNIT No. 6JKV (Continued)  
STYLE 1-D AND 1-E

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-214B	2301	Screw . . . . .	1	6JKV-257B	2209	Screw . . . . .	1
6JKV-215B	110389	Plug . . . . .	1	6JKV-258B	3175	Screw . . . . .	2
6JKV-216B	166229	Ring . . . . .	1	6JKV-259B	169447	Ring . . . . .	1
6JKV-217B	166228	Sleeve . . . . .	1	6JKV-260B	170495	Screw . . . . .	3
6JKV-218B	79526	Bearing . . . . .	1	6JKV-261B	169448	Bushing - Pinion . . . . .	1
6JKV-219B	140228	Ring . . . . .	1	6JKV-262B	76644	Plug . . . . .	2
6JKV-220B	170475	Shaft . . . . .	1	6JKV-263B	2332	Screw . . . . .	2
6JKV-221B	166231	Gear - Helical . . . . .	1	6JKV-264B	3229	Screw . . . . .	2
6JKV-222B	158697	Hub . . . . .	1	6JKV-265B	3338	Arrow . . . . .	1
6JKV-223B	116965	Bearing . . . . .	2	6JKV-266B	171367	Knob - Gear Shift . . . . .	1
6JKV-224B	140228	Ring . . . . .	1	6JKV-267B	237417	Spring . . . . .	2
6JKV-225B	158696	Spring - Clutch . . . . .	1	6JKV-268B	218832	Ball . . . . .	2
6JKV-226B	158695	Gear - Bevel . . . . .	1	6JKV-269B	3539	Pin . . . . .	1
6JKV-227B	3279	Key . . . . .	2	6JKV-270B	172722	Gasket - Detent . . . . .	1
6JKV-228B	158697	Hub . . . . .	1	6JKV-271B	166246	Bushing - Pinion . . . . .	1
6JKV-229B	158696	Spring - Clutch . . . . .	1	6JKV-272B	76644	Plug . . . . .	1
6JKV-230B	158694	Gear - Bevel . . . . .	1	6JKV-273B	166450	Shaft . . . . .	1
6JKV-231B	161748	Bearing - Ball . . . . .	1	6JKV-274B	246308	Ring . . . . .	1
6JKV-232B	166233	Ring . . . . .	1	6JKV-275B	173341	Bushing - Bronze . . . . .	1
6JKV-233B	266706	Pin - Roll . . . . .	1	6JKV-276B	166451	Arm - Detent . . . . .	1
6JKV-234B	166230	Gear - Bevel . . . . .	1	6JKV-277B	147898	Pin - Roll . . . . .	1
6JKV-235B	173331	Pin . . . . .	1	6JKV-278B	173339	Arm - Shifting . . . . .	1
6JKV-236B	116965	Bearing . . . . .	2	6JKV-279B	154160	Pin - Roll . . . . .	1
6JKV-237B	79526	Bearing . . . . .	1	6JKV-280B	173313	Fork - Gear Shift . . . . .	1
6JKV-238B	166227	Bushing - Pinion . . . . .	1	6JKV-281B	152449	Pin - Roll . . . . .	1
6JKV-239B	158601	Spacer . . . . .	1	6JKV-282B	169445	Plate - Instruction, English . . . . .	1
6JKV-240B	140228	Ring . . . . .	1	6JKV-283B	3399	Screw . . . . .	2
6JKV-241B	170477	Gear - Spiral . . . . .	1	6JKV-284B	3543	Pin . . . . .	1
6JKV-242B	170476	Bearing . . . . .	1	6JKV-285B	1844	Plug . . . . .	1
6JKV-243B	170488	Bushing - Pinion . . . . .	1	6JKV-286B	158618	Pin . . . . .	1
6JKV-244B	76645	Plug . . . . .	1	6JKV-287B	253007	Ring . . . . .	1
6JKV-245B	166232	Sleeve . . . . .	1	6JKV-288B	166249	Pin . . . . .	1
6JKV-246B	161748	Bearing - Ball . . . . .	1	6JKV-289B	173343	Detent - Shifting Shaft . . . . .	1
6JKV-247B	166203	Housing . . . . .	1	6JKV-290B	106035	Screw - Dog Point . . . . .	1
6JKV-248B	2332	Screw . . . . .	1	6JKV-291B	4331	Plate . . . . .	1
6JKV-249B	3228	Screw . . . . .	1	6JKV-292B	4327	Knob . . . . .	1
6JKV-250B	147865	Pin - Roll . . . . .	1	6JKV-293B	158617	Lever . . . . .	1
6JKV-251B	171388	Gear - Spiral . . . . .	1	6JKV-294B	247090	Ring . . . . .	1
6JKV-252B	166238	Bushing . . . . .	1	6JKV-295B	3279	Key . . . . .	1
6JKV-253B	166239	Shaft . . . . .	1	6JKV-296B	173342	Shaft - Shifting . . . . .	1
6JKV-254B	34387	Plug . . . . .	1	6JKV-297B	173340	Fork - Clutch Shifting . . . . .	1
6JKV-255B	172721	Plate - Stop . . . . .	1	6JKV-298B	166248	Spring . . . . .	1
6JKV-256B	2364	Screw . . . . .	1	6JKV-299B	98826	Pin . . . . .	1



POWER FEED GEARING

STYLE ID AND IE



120EEE  
123EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

VARI-SPEED HEAD AND OVERARM - UNIT No. 6JKV (Continued)  
STYLE 1-D AND 1-E

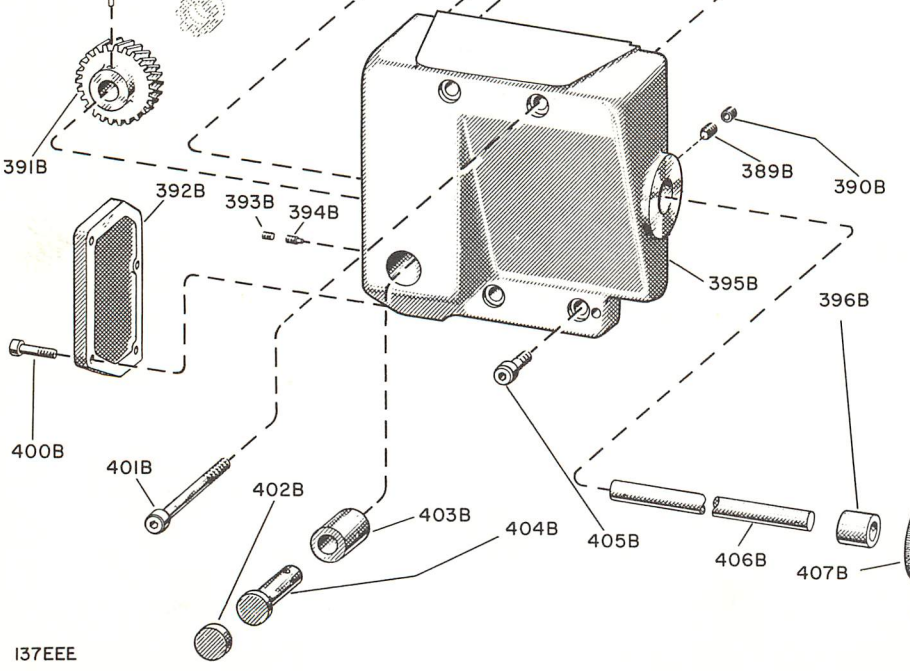
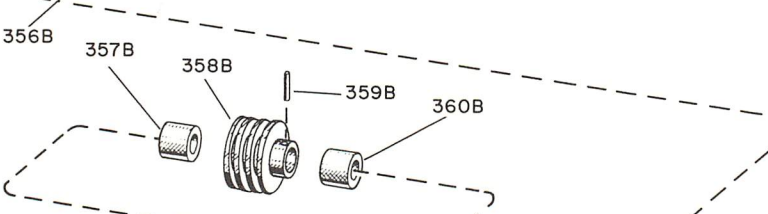
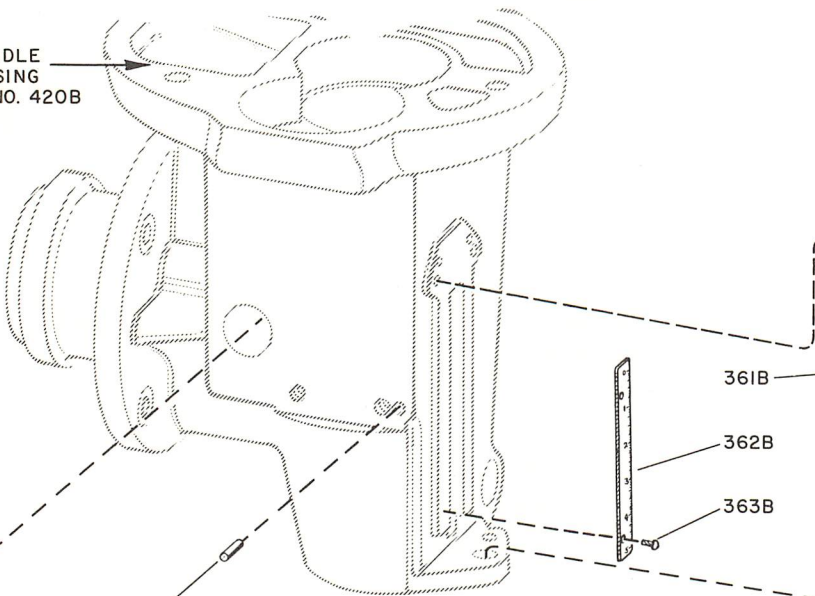
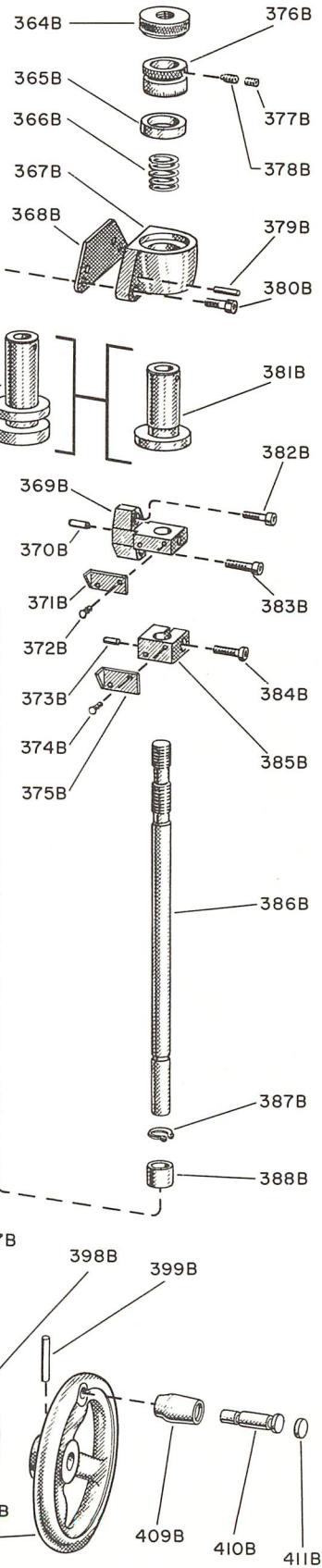
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-300B	170487	Gear - Spiral . . . . .	1	6JKV-329B	170492	Gear - Cluster. . . . .	1
6JKV-301B	150577	Pin - Roll . . . . .	1	6JKV-330B	170491	Gear - Driving. . . . .	1
6JKV-302B	170486	Bushing - Pinion . . . . .	1	6JKV-331B	3229	Screw. . . . .	1
6JKV-303B	150577	Pin - Roll . . . . .	2	6JKV-332B	2332	Screw. . . . .	1
6JKV-304B	170483	Bushing - Pinion . . . . .	1	6JKV-333B	76644	Plug . . . . .	1
6JKV-305B	170484	Gear - Driven . . . . .	1	6JKV-334B	259598	Bushing - Pinion . . . . .	1
6JKV-306B	170478	Gear - Spiral . . . . .	1	6JKV-335B	166205	Bushing - Pinion . . . . .	1
6JKV-307B	170485	Gear - Cluster. . . . .	1	6JKV-336B	170481	Clutch - Reversing . . . . .	1
6JKV-308B	152449	Pin - Roll . . . . .	1	6JKV-337B	170480	Gear - Bevel . . . . .	1
6JKV-309B	3218	Screw. . . . .	4	6JKV-338B	236956	Ring . . . . .	1
6JKV-310B	166225	Cover - Rear . . . . .	1	6JKV-339B	166209	Sleeve . . . . .	1
6JKV-311B	166475	Gasket - Rear . . . . .	1	6JKV-340B	244178	Ring . . . . .	1
6JKV-312B	170486	Bushing - Pinion . . . . .	1	6JKV-341B	166211	Plug . . . . .	1
6JKV-313B	3229	Screw. . . . .	1	6JKV-342B	170479	Gear - Bevel . . . . .	1
6JKV-314B	2332	Screw. . . . .	1	6JKV-343B	166210	Shaft . . . . .	1
6JKV-315B	170482	Shaft . . . . .	1	6JKV-344B	2331	Screw. . . . .	1
6JKV-316B	166474	Gasket - Front. . . . .	1	6JKV-345B	1994	Plug . . . . .	1
6JKV-317B	3218	Screw. . . . .	4	6JKV-346B	143319	Pin - Roll . . . . .	1
6JKV-318B	143496	Gage - Oil . . . . .	1	6JKV-347B	150815	Handwheel . . . . .	1
6JKV-319B	170494	Bushing - Pinion . . . . .	1	6JKV-348B	259598	Bushing - Pinion . . . . .	1
6JKV-320B	3228	Screw. . . . .	1	6JKV-349B	166220	Bushing - Pinion . . . . .	1
6JKV-321B	2332	Screw. . . . .	1	6JKV-350B	166219	Seal - Oil . . . . .	1
6JKV-322B	170490	Bushing - Pinion . . . . .	1	6JKV-351B		Dial - Hand Feed	
6JKV-323B	236956	Ring . . . . .	1		171384	English. . . . .	1
6JKV-324B	170489	Gear - Bevel . . . . .	1		171385	Metric . . . . .	1
6JKV-325B	170493	Shaft . . . . .	1	6JKV-352B	166214	Knob . . . . .	1
6JKV-326B	166217	Cover - Front . . . . .	1	6JKV-353B	166213	Shaft . . . . .	1
6JKV-327B	143599	Pin - Roll . . . . .	2	6JKV-354B	4331	Plate . . . . .	1
6JKV-328B	248065	Ring . . . . .	1				



MANUAL FEED GEAR HOUSING AND  
MICROMETER DEPTH STOP

STYLE ID AND IE

SPINDLE HOUSING  
KEY NO. 420B



137EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

VARI SPEED HEAD AND OVERARM UNIT No. 6JKV (Continued)  
STYLE 1-D AND 1-E

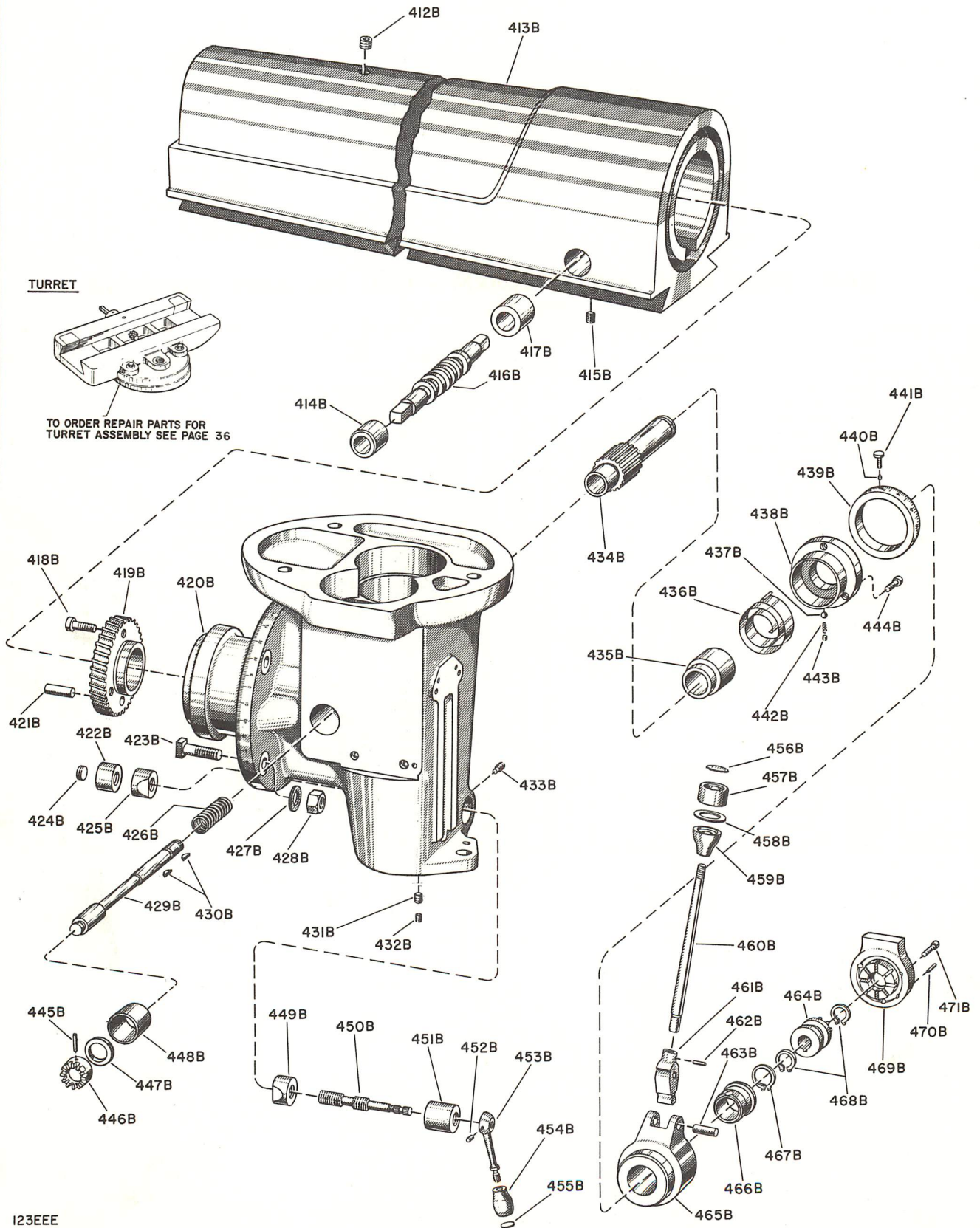
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-355B	147865	*Pin - Roll . . . . .	1	6JKV-382B	124975	Screw. . . . .	1
6JKV-356B	3543	*Pin . . . . .	1	6JKV-383B	3396	Screw. . . . .	1
6JKV-357B	170486	*Bushing . . . . .	1	6JKV-384B	3204	Screw. . . . .	1
6JKV-358B	170487	*Gear - Spiral . . . . .	1	6JKV-385B	165674	Block - Pointer . . . . .	1
6JKV-359B	150577	*Pin - Roll . . . . .	1	6JKV-386B	165680	Shaft . . . . .	1
6JKV-360B	170486	*Bushing . . . . .	1	6JKV-387B	236956	Ring - Truarc . . . . .	1
6JKV-361B	171360	Bushing (Power Feed Only) . . . . .	1	6JKV-388B	165677	Bearing . . . . .	1
6JKV-362B		Scale - Depth		6JKV-389B	3229	*Screw. . . . .	3
	173314	English. . . . .	1	6JKV-390B	2332	*Screw. . . . .	3
	173315	Metric . . . . .	1	6JKV-391B	171388	*Gear - Spiral . . . . .	1
6JKV-363B	3178	Screw. . . . .	2	6JKV-392B	166225	*Cover. . . . .	1
6JKV-364B	165671	Nut - Lock . . . . .	1	6JKV-393B	2332	*Screw. . . . .	1
6JKV-365B	172701	*Washer . . . . .	1	6JKV-394B	3228	*Screw. . . . .	1
6JKV-366B	222029	Spring . . . . .	1	6JKV-395B	172700	*Housing - Gear . . . . .	1
6JKV-367B	171359	Block. . . . .	1	6JKV-396B	170486	*Bushing . . . . .	1
6JKV-368B	166476	Shim . . . . .	1	6JKV-397B	2331	*Screw. . . . .	1
6JKV-369B	165673	Bracket - Shaft . . . . .	1	6JKV-398B	1994	*Plug - Brass . . . . .	1
6JKV-370B	266693	Pin . . . . .	1	6JKV-399B	143319	*Pin - Roll . . . . .	1
6JKV-371B	172717	Pointer . . . . .	1	6JKV-400B	3218	*Screw. . . . .	4
6JKV-372B	3178	Screw. . . . .	2	6JKV-401B	3175	*Screw. . . . .	2
6JKV-373B	1406	Pin . . . . .	1	6JKV-402B	34387	*Plug . . . . .	1
6JKV-374B	3178	Screw. . . . .	2	6JKV-403B	166238	*Bushing . . . . .	1
6JKV-375B		Pointer		6JKV-404B	166239	*Shaft . . . . .	1
	165675	Manual Feed . . . . .	1	6JKV-405B	3266	*Screw. . . . .	2
	172741	Power Feed . . . . .	1	6JKV-406B	172713	*Shaft . . . . .	1
6JKV-376B		Dial - Micrometer Stop		6JKV-407B		Dial - Hand Feed	
	171361	English. . . . .	1		171384	*English . . . . .	1
	171362	Metric . . . . .	1		171385	*Metric . . . . .	1
6JKV-377B	106035	Screw. . . . .	1	6JKV-408B	150815	*Handwheel . . . . .	1
6JKV-378B	2330	Screw. . . . .	1	6JKV-409B	166214	*Knob - Spinning . . . . .	1
6JKV-379B	3541	Pin . . . . .	2	6JKV-410B	166213	*Shaft . . . . .	1
6JKV-380B	124975	Screw. . . . .	2	6JKV-411B	4331	*Plate . . . . .	1
6JKV-381B	172703	*Bushing . . . . .	1				

\* Manual Feed Only.



SPINDLE HOUSING AND OVERARM

STYLE ID AND IE



123EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

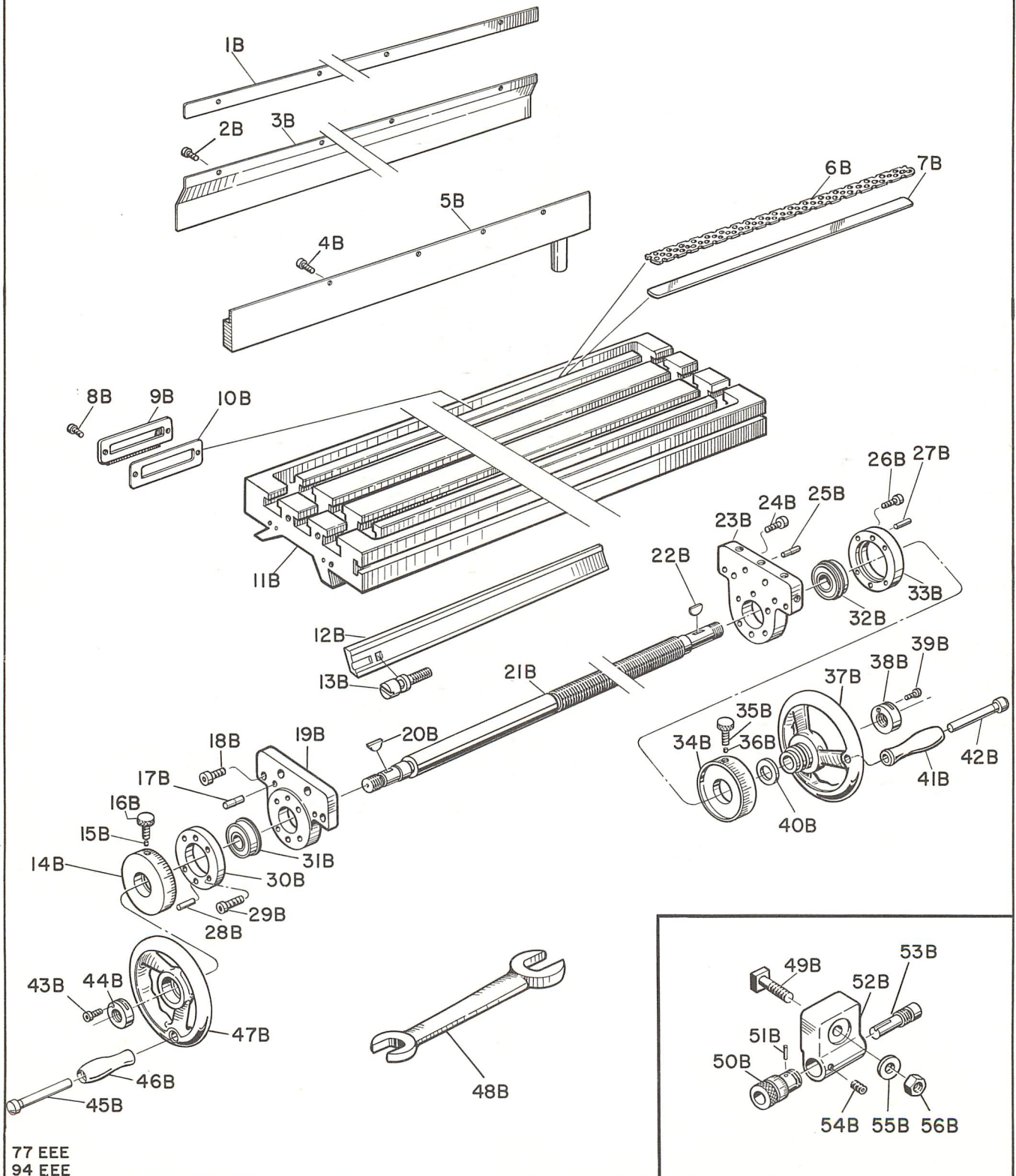
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

VARI - SPEED HEAD AND OVERARM - UNIT No. 6JKV (Concluded)  
STYLE 1-D AND 1-E

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKV-412B	2248	Screw . . . . .	1	6JKV-441B	109182	Screw . . . . .	1
6JKV-413B	161756	Overarm . . . . .	1	6JKV-442B	718	Spring . . . . .	1
6JKV-414B	161755	Bushing . . . . .	1	6JKV-443B	170510	Screw . . . . .	1
6JKV-415B	105147	Screw . . . . .	2	6JKV-444B	3246	Screw . . . . .	3
6JKV-416B	148623	Shaft - Spiral . . . . .	1	6JKV-445B	154160	Pin - Roll . . . . .	1
6JKV-417B	148624	Bushing . . . . .	1	6JKV-446B	171387	Clutch . . . . .	1
6JKV-418B	2321	Screw . . . . .	3	6JKV-447B	169419	Seal - Oil . . . . .	1
6JKV-419B	143235	Gear - Spiral . . . . .	1	6JKV-448B	169418	Bushing - Pinion . . . . .	1
6JKV-420B	167339	Housing - Spindle . . . . .	1	6JKV-449B	167464	Clamp - Quill, L. H. Thread . . . . .	1
6JKV-421B	1383	Pin . . . . .	1	6JKV-450B	167462	Screw - Quill Clamp . . . . .	1
6JKV-422B	167460	Plug . . . . .	1	6JKV-451B	167461	Bushing - Quill Clamp . . . . .	1
6JKV-423B	3311	Bolt - Tee . . . . .	4	6JKV-452B	2339	Screw . . . . .	1
6JKV-424B	2301	Screw . . . . .	1	6JKV-453B	167463	Lever - Quill Clamp . . . . .	1
6JKV-425B	167465	Clamp - Quill, R. H. Thread . . . . .	1	6JKV-454B	4327	Knob . . . . .	1
6JKV-426B	169416	Spring . . . . .	1	6JKV-455B	4331	Plate . . . . .	1
6JKV-427B	3442	Washer . . . . .	4	6JKV-456B	4341	Plate - Name . . . . .	1
6JKV-428B	3479	Nut . . . . .	4	6JKV-457B	4356	Knob - Lever . . . . .	1
6JKV-429B	169420	Shaft . . . . .	1	6JKV-458B	4357	Washer . . . . .	1
6JKV-430B	3280	Key . . . . .	2	6JKV-459B	168055	Knob - Lever . . . . .	1
6JKV-431B	2301	Screw . . . . .	1	6JKV-460B	171368	Lever - Hand Feed . . . . .	1
6JKV-432B	2332	Screw . . . . .	1	6JKV-461B	169409	Shifter . . . . .	1
6JKV-433B	3228	Screw . . . . .	2	6JKV-462B	167889	Pin - Roll . . . . .	1
6JKV-434B	169417	Pinion . . . . .	1	6JKV-463B	173307	Pin - Roll . . . . .	1
6JKV-435B	158684	Bushing - Pinion . . . . .	1	6JKV-464B	169412	Clutch . . . . .	1
6JKV-436B	158699	Spring . . . . .	1	6JKV-465B	171370	Hub . . . . .	1
6JKV-437B	2290	Ball . . . . .	1	6JKV-466B	171375	Bushing - Detent . . . . .	1
6JKV-438B	169415	Housing - Spring . . . . .	1	6JKV-467B	158682	Ring - Truarc . . . . .	1
6JKV-439B		Dial - Hand Feed		6JKV-468B	240852	Ring - Truarc . . . . .	2
	169413	English . . . . .	1	6JKV-469B	171380	Cover - Hub . . . . .	1
	169414	Metric . . . . .	1	6JKV-470B	3541	Pin . . . . .	1
6JKV-440B	1550	Plug . . . . .	1	6JKV-471B	251177	Screw . . . . .	3



TABLE AND LEADSCREW  
WITH OR WITHOUT POWERFEED



77 EEE  
94 EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

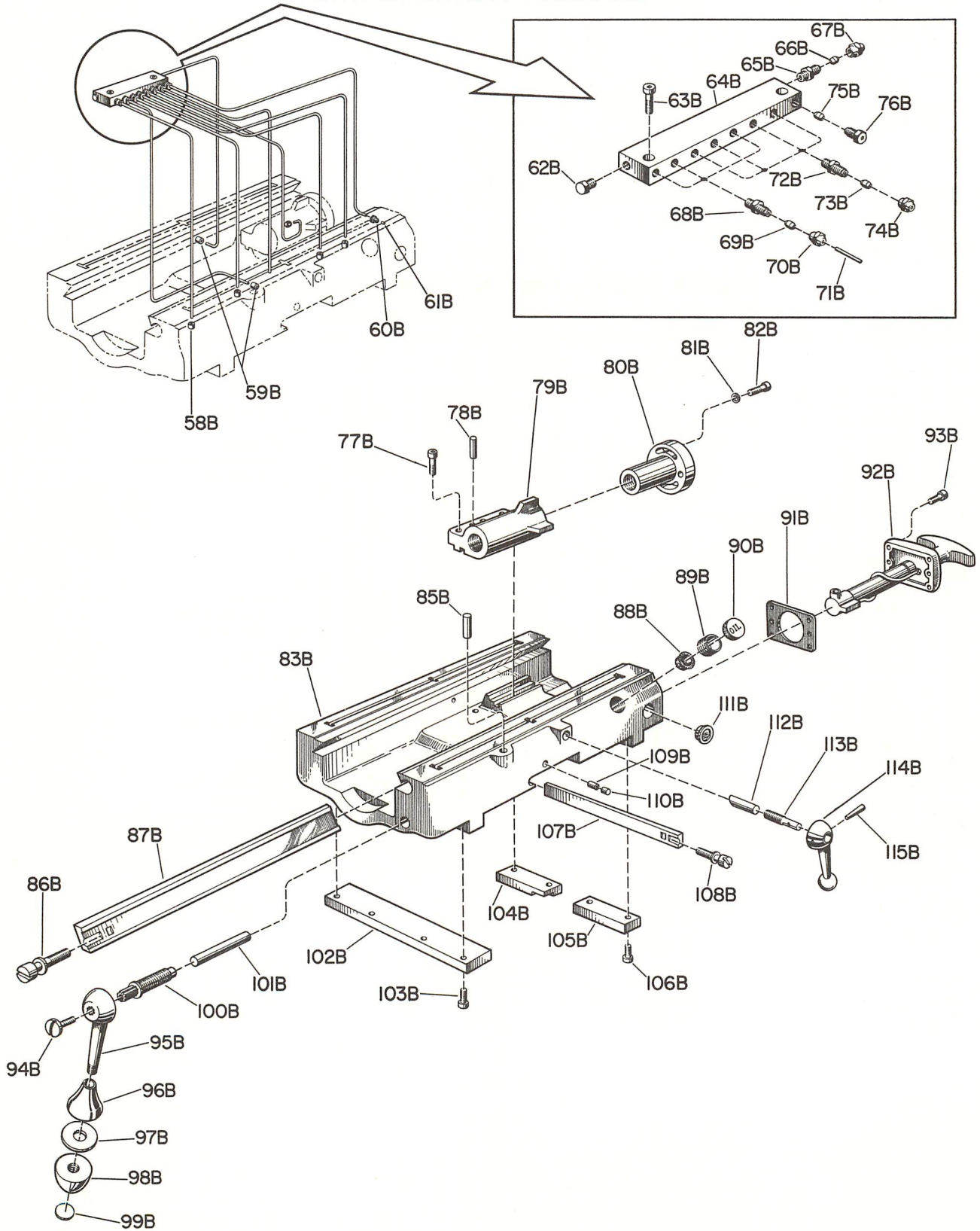
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

SADDLE TABLE - UNIT No. 6JH  
WITH OR WITHOUT POWERFEED TO TABLE

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JP-1B		Gasket - Splash Guard		6JH-22B	679	Key . . . . .	1
	143443	22" Table Travel . . . . .	1	6JH-23B	155650	Apron - Table w/o Powerfeed to Table. . . . .	1
	143445	16" Table Travel . . . . .	1	6JH-24B	3400	Screw. . . . .	1
6JP-2B	3198	Screw. . . . .	5	6JH-25B	145428	Pin - Double Diameter . . . . .	2
6JP-3B		Guard - Splash		6JH-26B	2321	Screw. . . . .	4
	143442	22" Table Travel . . . . .	1	6JH-27B	1383	Pin . . . . .	2
	143444	16" Table Travel . . . . .	1	6JH-28B	1383	Pin . . . . .	2
6JP-4B	2363	Screw. . . . .	5	6JH-29B	2321	Screw. . . . .	4
6JP-5B	158156	Trough - Coolant . . . . .	1	6JH-30B	143374	Retainer - Bearing . . . . .	1
6JP-6B	143382	Strainer - Drain, Coolant . . . . .	1	6JH-31B	143375	Bearing - Ball. . . . .	1
6JH-7B	143381	Cover - Drain, Coolant, without Coolant Pump . . . . .	1	6JH-32B	143376	Bearing - Ball. . . . .	1
		Screw. . . . .	2	6JH-33B	143374	Retainer - Bearing . . . . .	1
6JP-9B	161753	Spout - Coolant . . . . .	1	6JH-34B		Dial - Feed, Long, With or without Powerfeed to Table	
6JP-10B	143384	Gasket - Coolant Spout . . . . .	1		143371	16" or 22" Table Travel (English). . . . .	1
6JH-11B		Table - With or w/o Powerfeed to Table			143372	16" or 22" Table Travel (Metric) . . . . .	1
	155652	22" Travel . . . . .	1	6JH-35B	94710	Screw - Thumb . . . . .	1
	155653	16" Travel . . . . .	1	6JH-36B	2008	Plug . . . . .	1
6JH-12B		Gib - Table		6JH-37B	157557	Handwheel - 7" . . . . .	1
	153095	3/4" Counterbore (Standard). . . . .	1	6JH-38B	124501	Nut - Lock . . . . .	1
	143356	5/8" Counterbore . . . . .	1	6JH-39B	3202	Screw. . . . .	1
6JH-13B		Screw - Gib, Adjusting		6JH-40B	143373	Spacer - Handwheel . . . . .	1
	153092	3/4" Diameter Head (Standard) . . . . .	1	6JH-41B	163680	Handle - Spool. . . . .	1
	143293	5/8" Diameter Head . . . . .	1	6JH-42B	163689	Spool - Handle. . . . .	1
6JH-14B		Dial - Feed, Long, With or w/o Powerfeed to Table		6JH-43B	3202	Screw. . . . .	1
	143371	16" or 22" Table Travel (English). . . . .	1	6JH-44B	124501	Nut - Lock . . . . .	1
	143372	16" or 22" Table Travel (Metric) . . . . .	1	6JH-45B	163681	Stud - Handle . . . . .	1
	2008	Plug . . . . .	1	6JH-46B	163680	Handle - Spool. . . . .	1
6JH-15B	94710	Screw - Thumb . . . . .	1	6JH-47B	157557	Handwheel - 7" . . . . .	1
6JH-16B	145428	Pin - Double Diameter . . . . .	2	6JH-48B	91898	Wrench . . . . .	1
6JH-17B	3400	Screw. . . . .	4	6JH-49B	3328	Bolt - Tee . . . . .	2
6JH-18B	155650	Apron - Table w/o Powerfeed to Table. . . . .	1	6JH-50B		Dial - Positive Stop	
6JH-20B	679	Key . . . . .	1		106576	English. . . . .	2
6JH-21B		Leadscrew			124181	Metric . . . . .	2
	143362	16" Table Travel without Powerfeed to Table (English). . . . .	1	6JH-51B	201112	Pin . . . . .	2
	143359	22" Table Travel without Powerfeed to Table (English). . . . .	1	6JH-52B		Block - Stop, 16" or 22" Table without Powerfeed to Table	
	143363	16" Table Travel without Powerfeed to Table (Metric) . . . . .	1		106579	Left Hand . . . . .	1
	143360	22" Table Travel without Powerfeed to Table (Metric) . . . . .	1		106582	Right Hand . . . . .	1
				6JH-53B	106575	Screw - Stop Block . . . . .	2
				6JH-54B	103321	Screw - Set. . . . .	2
				6JH-55B	3441	Washer . . . . .	2
				6JH-56B	3478	Nut . . . . .	2



SADDLE  
WITH OR WITHOUT POWERFEED



94EEE  
53EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

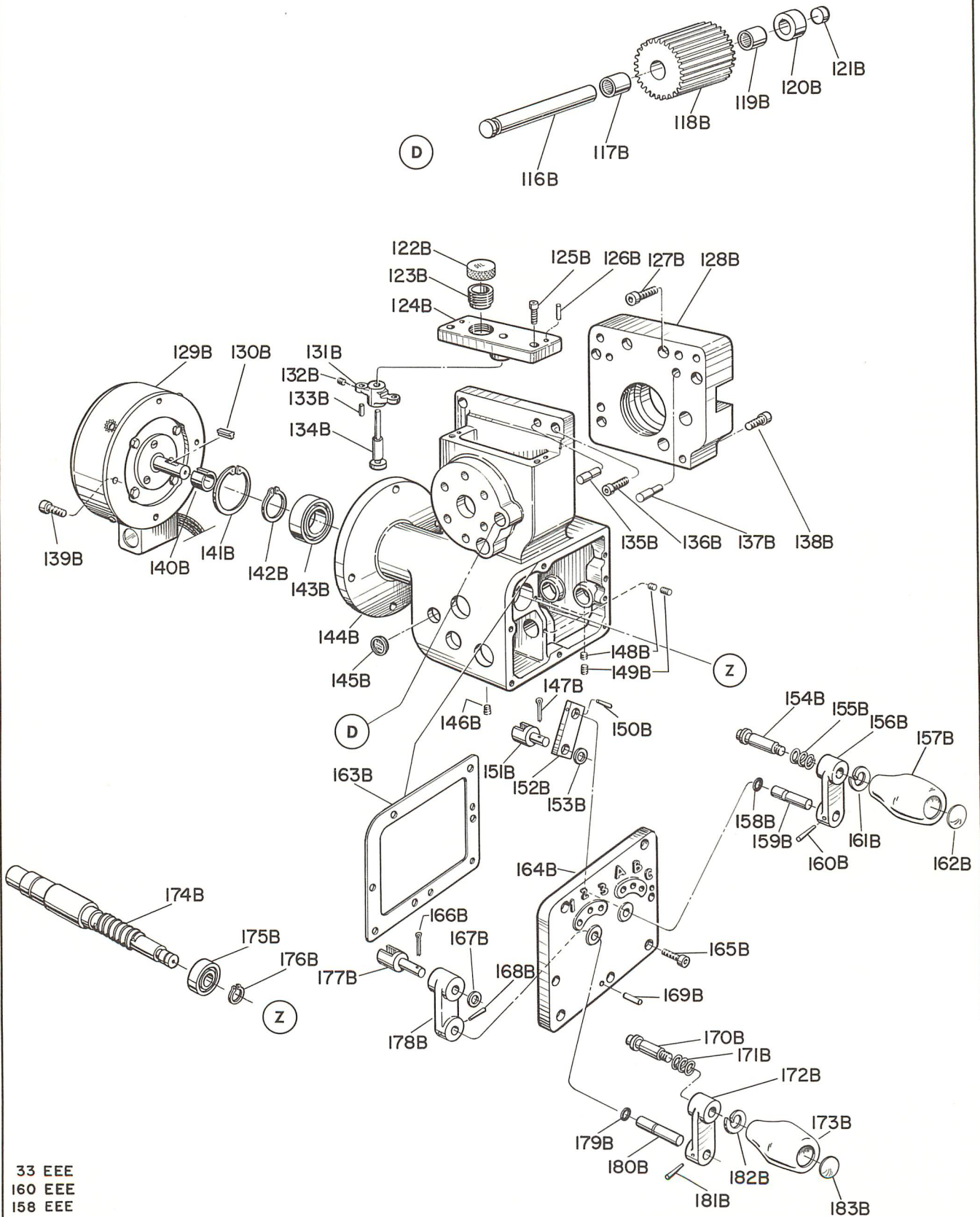
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

**SADDLE TABLE - UNIT No. 6JH (Continued)**  
WITH OR WITHOUT POWERFEED TO TABLE

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JH-58B	77197	Bushing . . . . .	6	6JH-87B	153095	Gib - Table . . . . .	1
6JH-59B	219984	Bushing . . . . .	2	6JH-88B	111460	Screen - One Shot . . . . .	1
6JH-60B	214300	Bushing - Compression . . . . .	1	6JH-89B	3912	Nipple . . . . .	1
6JH-61B	214304	Sleeve - Compression . . . . .	1	6JH-90B	3986	Cap - Oil Filler . . . . .	1
6JH-62B	77411	Plug . . . . .	1	6JH-91B	Example	Gasket (Supplied with Pump) . . . . .	1
6JH-63B	3401	Screw . . . . .	2	6JH-92B	96257	Pump - Lubricator . . . . .	1
6JH-64B	112300	Block - Junction . . . . .	1	6JH-93B	3218	Screw . . . . .	4
6JH-65B	77196	Plug - Drip . . . . .	1	6JH-94B	3514	Screw . . . . .	1
6JH-66B	214304	Sleeve - Compression . . . . .	1	6JH-95B	170780	Lever . . . . .	1
6JH-67B	214294	Nut - Compression . . . . .	1	6JH-96B	168055	Knob . . . . .	1
6JH-68B	77196	Plug - Drip . . . . .	3	6JH-97B	4358	Washer . . . . .	1
6JH-69B	214304	Sleeve - Compression . . . . .	3	6JH-98B	4356	Knob . . . . .	1
6JH-70B	214294	Nut - Compression . . . . .	3	6JH-99B	4333	Plate . . . . .	1
6JH-71B	158174	Tubing - List . . . . .	1	6JH-100B	111378	Stud - Clamping . . . . .	1
6JH-72B	220004	Plug - Drip . . . . .	4	6JH-101B	143353	Shoe - Clamping Saddle . . . . .	1
6JH-73B	214304	Sleeve - Compression . . . . .	4	6JH-102B	143355	Clamp - Side, Long . . . . .	1
6JH-74B	214294	Nut - Compression . . . . .	4	6JH-103B	3266	Screw . . . . .	4
6JH-75B	214304	Sleeve - Compression . . . . .	1	6JH-104B	160047	Clamp - R. H. Rear . . . . .	1
6JH-76B	214300	Bushing - Compression . . . . .	1	6JH-105B	143354	Clamp - Side, Short . . . . .	1
6JH-77B	3401	Screw . . . . .	3	6JH-106B	3266	Screw . . . . .	4
6JH-78B	1385	Pin . . . . .	1	6JH-107B	153094	Gib - Saddle . . . . .	1
6JH-79B	143365	Nut - Leadscrew . . . . .	1	6JH-108B	153092	Screw - Gib Adjusting . . . . .	1
6JH-80B	143368	Nut - Leadscrew, Backlash Eliminator . . . . .	1	6JH-109B	219984	Bushing . . . . .	2
6JH-81B	3441	Washer . . . . .	2	6JH-110B	2245	Plug . . . . .	2
6JH-82B	3400	Screw . . . . .	2	6JH-111B	237701	Gage - Oil Sight . . . . .	1
6JH-83B		Saddle - Table, 16" or 22" Table Travel . . . . .		6JH-112B	143352	Shoe - Clamping, Table . . . . .	1
	156187	With Coolant . . . . .	1	6JH-113B		Screw - Clamping . . . . .	
	165110	Without Coolant . . . . .	1		125645	Without Precision Long. Meas. Att. . . . .	1
6JH-85B	143385	Pin - Positive Stop . . . . .	1		157070	With Precision Long. Meas. Att. . . . .	1
6JH-86B	153092	Screw - Gib Adjusting . . . . .	1	6JH-114B	78907	Lever - Clamping, Saddle . . . . .	1
				6JH-115B	141	Pin . . . . .	1



TABLE POWERFEED GEAR HOUSING



33 EEE  
 160 EEE  
 158 EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

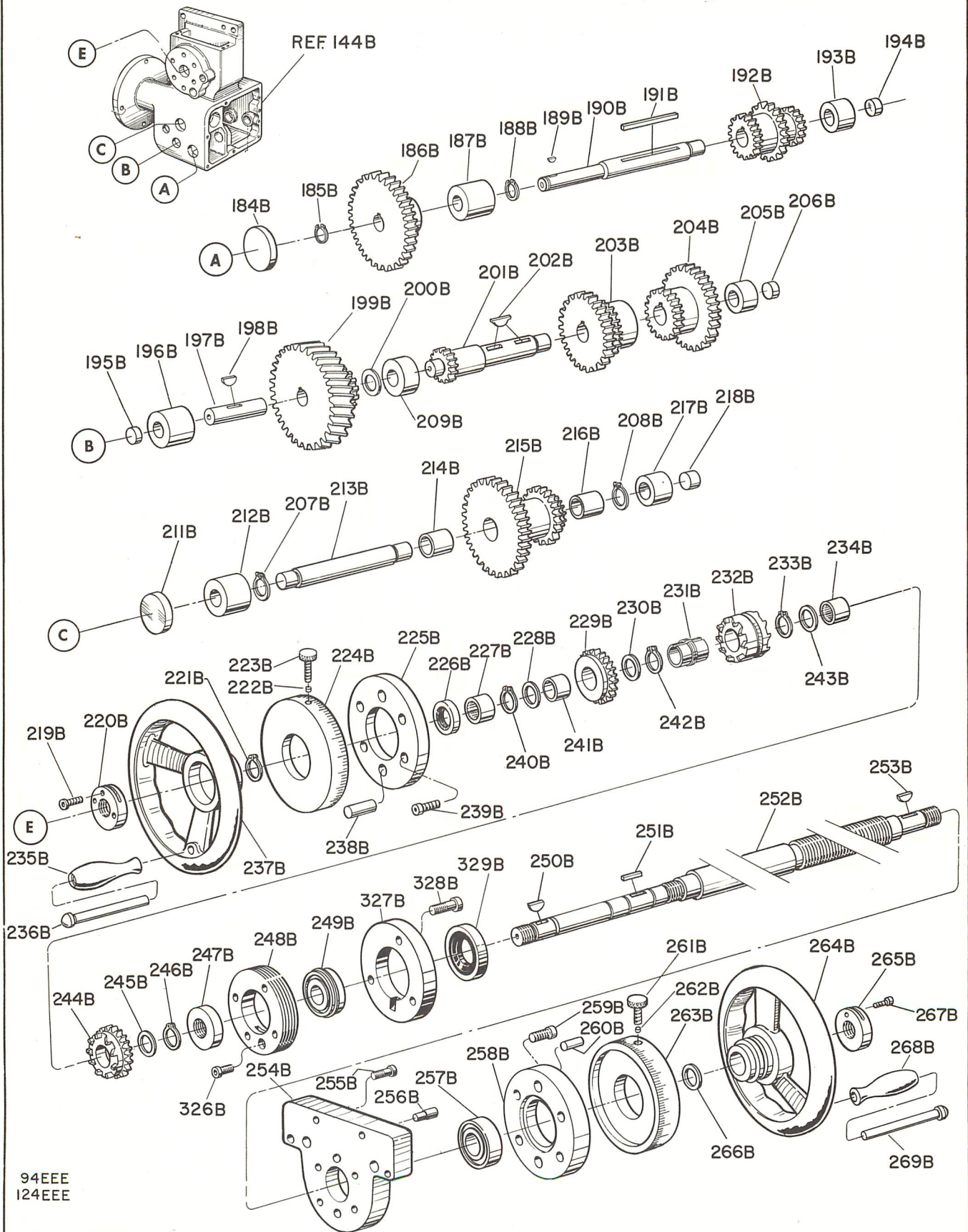
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

SADDLE TABLE - UNIT No. 6JH (Continued)  
WITH POWERFEED TO TABLE

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JH-116B	152308	Shaft - Drive Gear . . . . .	1	6JH-149B	2343	Screw. . . . .	6
6JH-117B	79524	Bearing - Roller . . . . .	1	6JH-150B	140	Pin - Taper. . . . .	1
6JH-118B	152309	Gear - Drive . . . . .	1	6JH-151B	151491	Fork - Shifter Gear . . . . .	1
6JH-119B	79524	Bearing - Roller . . . . .	1	6JH-152B	151489	Arm - Shifting . . . . .	1
6JH-120B	152330	Spacer - Drive Gear . . . . .	1	6JH-153B	151490	Spacer . . . . .	1
6JH-121B	3529	Plug . . . . .	1	6JH-154B	151486	Pin - Detent . . . . .	1
6JH-122B	3986	Cap . . . . .	1	6JH-155B	151493	Spring . . . . .	1
6JH-123B	3912	Nipple . . . . .	1	6JH-156B	151494	Lever - Feed . . . . .	1
6JH-124B	163649	Cover - Housing, Top . . . . .	1	6JH-157B	4327	Knob - Lever . . . . .	1
6JH-125B	2320	Screw. . . . .	2	6JH-158B	130145	Ring - "O" . . . . .	1
6JH-126B	3162	Pin . . . . .	2	6JH-159B	152303	Pin - Lever. . . . .	1
6JH-127B	3251	Screw. . . . .	4	6JH-160B	140	Pin - Taper. . . . .	1
6JH-128B	176275	Apron - Mounting. . . . .	1	6JH-161B	2123	Washer - Lock. . . . .	1
6JH-129B	152543	Motor. . . . .	1	6JH-162B	4331	Plate - Name . . . . .	1
6JH-130B	170521	Key . . . . .	1	6JH-163B	151470	Gasket - Cover . . . . .	1
6JH-131B	158459	Follower - Cam . . . . .	1	6JH-164B	151469	Cover. . . . .	1
6JH-132B	3230	Screw. . . . .	2	6JH-165B	2320	Screw. . . . .	7
6JH-133B	151496	Pin - Cam . . . . .	2	6JH-166B	3329	Pin - Cotter . . . . .	1
6JH-134B	158460	Pin - Follower. . . . .	1	6JH-167B	151490	Spacer . . . . .	1
6JH-135B	1629	Pin . . . . .	2	6JH-168B	140	Pin - Taper. . . . .	1
6JH-136B	3266	Screw. . . . .	3	6JH-169B	3543	Pin . . . . .	2
6JH-137B	223053	Pin . . . . .	2	6JH-170B	151486	Pin - Detent . . . . .	1
6JH-138B	3251	Screw. . . . .	1	6JH-171B	151493	Spring . . . . .	1
6JH-139B	124975	Screw (With single phase motors or Standard Electric three phase motor). . . . .	4	6JH-172B	151494	Lever - Feed . . . . .	1
	3219	Screw (With Fairbanks-Morse three phase motor). . . . .	4	6JH-173B	4327	Knob - Lever . . . . .	1
6JH-140B	170520	Bushing - Nylon . . . . .	1	6JH-174B	176317	Gear - Spiral . . . . .	1
6JH-141B	129835	Ring - Truarc . . . . .	1	6JH-175B	152300	Bearing - Ball. . . . .	1
6JH-142B	238349	Ring - Truarc . . . . .	1	6JH-176B	140228	Ring - Truarc . . . . .	1
6JH-143B	152305	Bearing - Ball. . . . .	1	6JH-177B	151492	Fork - Shifting. . . . .	1
6JH-144B	170759	Bracket - Gear Housing. . . . .	1	6JH-178B	151488	Arm - Shifter . . . . .	1
6JH-145B	143496	Gage - Oil Sight . . . . .	1	6JH-179B	130145	Ring - "O" . . . . .	1
6JH-146B	76644	Plug - Pipe . . . . .	1	6JH-180B	152304	Pin - Lever. . . . .	1
6JH-147B	3329	Pin - Cotter . . . . .	1	6JH-181B	140	Pin - Taper. . . . .	1
6JH-148B	2355	Screw. . . . .	6	6JH-182B	2123	Washer - Lock. . . . .	1
				6JH-183B	4331	Plate - Name . . . . .	1



POWER FEED-GEARING & LEADSCREW - TABLE



94EEE  
124EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

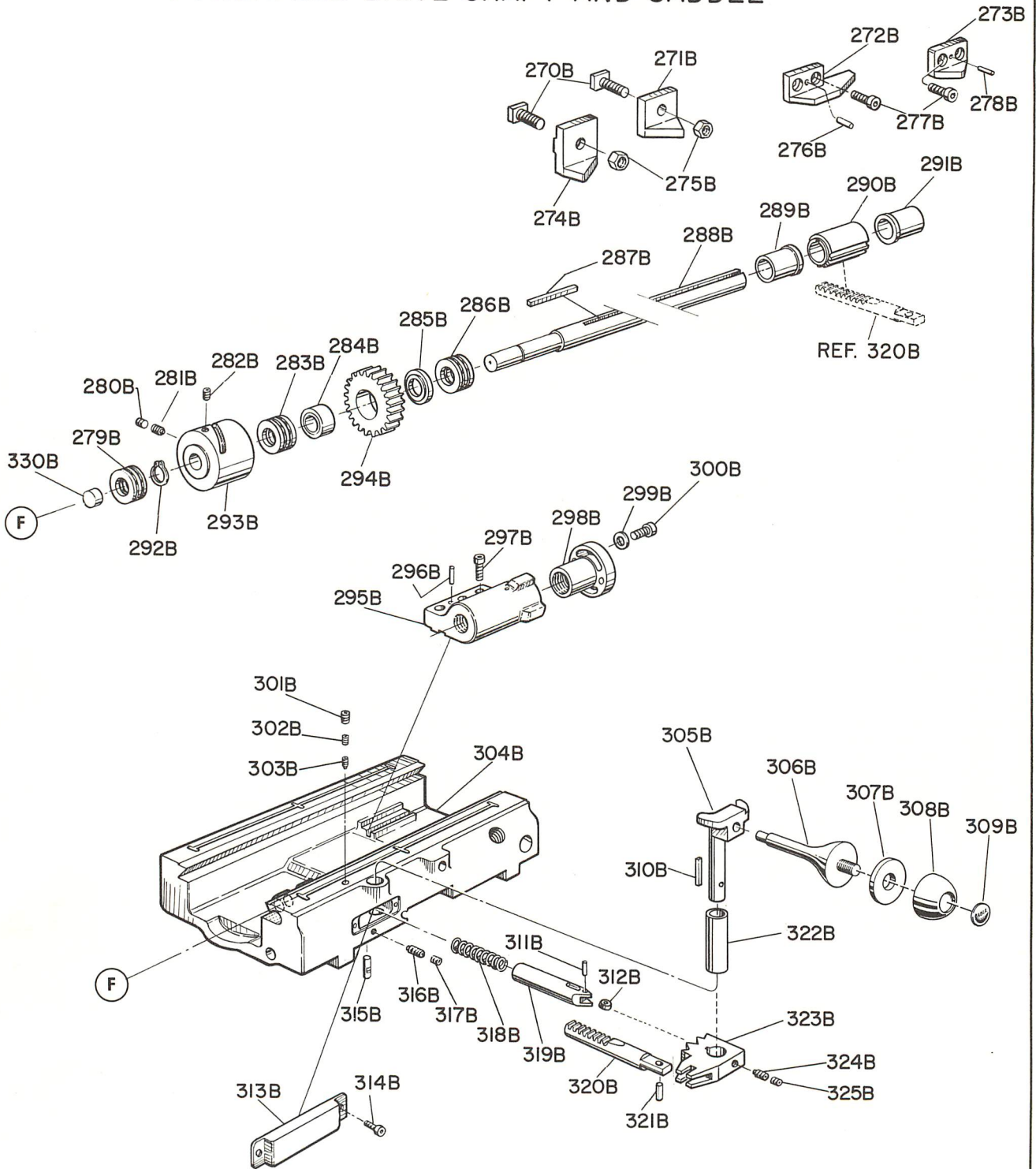
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

**SADDLE TABLE - UNIT No. 6JH (Continued)**  
**WITH POWERFEED TO TABLE**

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JH-184B	76680	Plug . . . . .	1	6JH-232B	158519	Clutch - Reversing . . . . .	1
6JH-185B	237219	Ring - Truarc . . . . .	1	6JH-233B	237432	Ring - Truarc . . . . .	1
6JH-186B	156147	Gear - Drive, Shaft "A" . . . . .	1	6JH-234B	247565	Bushing . . . . .	1
6JH-187B	156146	Bushing . . . . .	1	6JH-235B	163680	Handle - Spool . . . . .	1
6JH-188B	237219	Ring - Truarc . . . . .	1	6JH-236B	163681	Stud - Spool Handle . . . . .	1
6JH-189B	3279	Key . . . . .	1	6JH-237B	157557	Handwheel . . . . .	1
6JH-190B	156138	Shaft - "A" . . . . .	1	6JH-238B	1383	Pin . . . . .	2
6JH-191B	152325	Key . . . . .	1	6JH-239B	2321	Screw. . . . .	4
6JH-192B	152319	Gear - Cluster, "A" . . . . .	1	6JH-240B	237432	Ring - Truarc . . . . .	1
6JH-193B	152331	Bushing - Bronze . . . . .	1	6JH-241B	247565	Bushing . . . . .	1
6JH-194B	152307	Plug . . . . .	1	6JH-242B	237432	Ring - Truarc . . . . .	1
6JH-195B	152307	Plug . . . . .	1	6JH-243B	152315	Spacer . . . . .	1
6JH-196B	152327	Bushing - Bronze . . . . .	1	6JH-244B	158187	Gear - Spur Clutch . . . . .	1
6JH-197B	152335	Shaft - Drive Gear . . . . .	1	6JH-245B	152315	Spacer . . . . .	1
6JH-198B	156205	Key . . . . .	1	6JH-246B	237432	Ring - Truarc . . . . .	1
6JH-199B	152333	Gear - Drive Reduction . . . . .	1	6JH-247B	4185	Nut - Lock . . . . .	1
6JH-200B	152334	Spacer . . . . .	1	6JH-248B	176276	Retainer - Bearing . . . . .	1
6JH-201B	152323	Shaft - Gear and "B" . . . . .	1	6JH-249B	143375	Bearing - Ball . . . . .	1
6JH-202B	3280	Key . . . . .	2	6JH-250B	679	Key . . . . .	1
6JH-203B	152321	Gear - Cluster Intermediate, "B" . . . . .	1	6JH-251B	157762	Key . . . . .	1
6JH-204B	152322	Gear - Cluster Intermediate, "B" . . . . .	1	6JH-252B		Leadscrew	
6JH-205B	152331	Bushing - Bronze . . . . .	1		157766	16" Table Travel, English . . . . .	1
6JH-206B	152307	Plug . . . . .	2		157765	16" Table Travel, Metric . . . . .	1
6JH-207B	237219	Ring - Truarc . . . . .	1		157764	22" Table Travel, English . . . . .	1
6JH-208B	237219	Ring - Truarc . . . . .	1		157763	22" Table Travel, Metric . . . . .	1
6JH-209B	153237	Bushing . . . . .	1	6JH-253B	679	Key . . . . .	1
6JH-211B	76680	Plug . . . . .	1	6JH-254B	55650	Apron - Table . . . . .	1
6JH-212B	152327	Bushing - Bronze . . . . .	1	6JH-255B	3400	Screw. . . . .	4
6JH-213B	152317	Shaft - "C" . . . . .	1	6JH-256B	145428	Pin . . . . .	2
6JH-214B	151495	Bushing - Oilite . . . . .	1	6JH-257B	143376	Bearing - Ball . . . . .	1
6JH-215B	152318	Gear - Cluster, "C" . . . . .	1	6JH-258B	143374	Retainer - Bearing . . . . .	1
6JH-216B	151495	Bushing - Oilite . . . . .	1	6JH-259B	2321	Screw. . . . .	4
6JH-217B	152331	Bushing - Bronze . . . . .	1	6JH-260B	1383	Pin . . . . .	2
6JH-218B	152307	Plug . . . . .	1	6JH-261B	94710	Screw - Thumb . . . . .	1
6JH-219B	3202	Screw. . . . .	1	6JH-262B	2008	Plug . . . . .	1
6JH-220B	124501	Nut - Lock . . . . .	1	6JH-263B		Dial - Feed, Long	
6JH-221B	237432	Ring - Truarc . . . . .	1		143371	16" or 22" Table Travel, English . . . . .	1
6JH-222B	2008	Plug . . . . .	1		143372	16" or 22" Table Travel, Metric . . . . .	1
6JH-223B	94710	Screw - Thumb . . . . .	1	6JH-264B	157557	Handwheel . . . . .	1
6JH-224B		Dial - Feed, Long		6JH-265B	124501	Nut - Lock . . . . .	1
	143371	16" or 22" Table Travel, English . . . . .	1	6JH-266B	3202	Screw. . . . .	1
	143372	16" or 22" Table Travel, Metric . . . . .	1	6JH-267B	143373	Spacer - Handwheel . . . . .	1
6JH-225B	143374	Retainer - Bearing . . . . .	1	6JH-268B	163680	Handle - Spool . . . . .	1
6JH-226B	239435	Seal . . . . .	1	6JH-269B	163681	Stud - Spool Handle . . . . .	1
6JH-227B	158493	Bushing . . . . .	1	6JH-326B	3202	Screw. . . . .	1
6JH-228B	152315	Spacer . . . . .	1	6JH-327B	176277	Retainer - Seal . . . . .	1
6JH-229B	158186	Gear - Spur Clutch . . . . .	1	6JH-328B	122604	Screw. . . . .	3
6JH-230B	152315	Spacer . . . . .	1	6JH-329B	176278	Seal . . . . .	1
6JH-231B	158518	Insert - Nylon . . . . .	2				



POWERFEED DRIVE SHAFT AND SADDLE



158EEE  
160EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

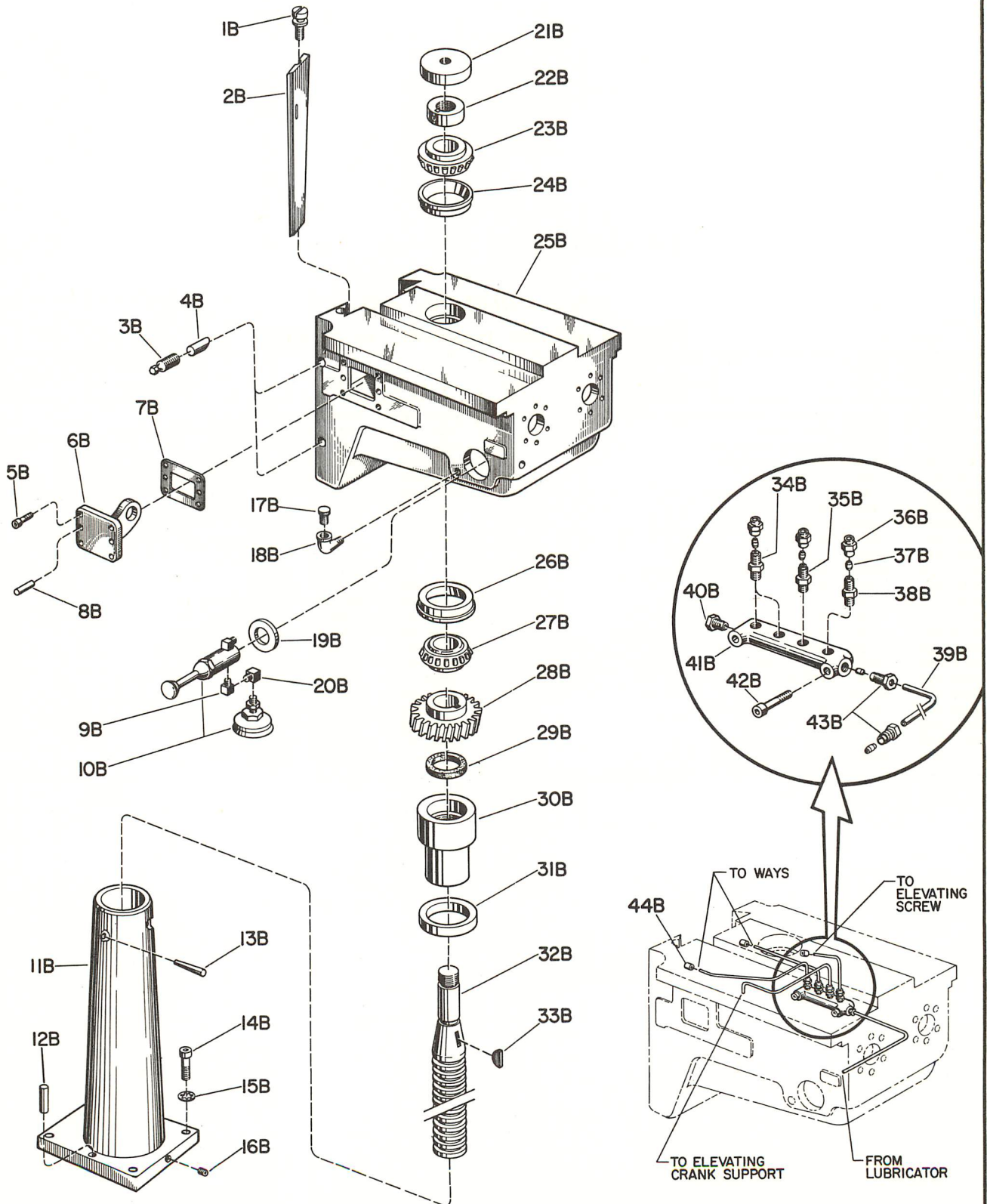
SADDLE TABLE - UNIT No. 6JH (Concluded)

WITH POWERFEED TO TABLE

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JH-270B	3220	Bolt - Tee . . . . .	2	6JH-298B		Nut - Leadscrew, Back Lash Eliminator	
6JH-271B	151482	Dog - Feed, Right Hand. . . . .	1		143368	16" or 22" Table Travel, English . . . . .	1
6JH-272B	151485	Dog - Positive Stop, Left Hand . . . . .	1		143369	16" or 22" Table Travel, Metric . . . . .	1
6JH-273B	176315	Dog - Positive Stop, Right Hand. . . . .	1	6JH-299B	3441	Washer . . . . .	2
6JH-274B	151484	Dog - Feed, Left Hand . . . . .	1		3400	Screw. . . . .	2
6JH-275B	664	Nut . . . . .	2	6JH-301B	76644	Plug - Pipe. . . . .	1
6JH-276B	3636	Pin . . . . .	1	6JH-302B	2332	Screw. . . . .	1
6JH-277B	3199	Screw. . . . .	4	6JH-303B	3229	Screw. . . . .	1
6JH-278B	3636	Pin . . . . .	1	6JH-304B	157582	Saddle - 16" or 22" Table Travel . . . . .	1
6JH-279B	101615	Bearing - Thrust . . . . .	1	6JH-305B	151476	Lever - Trip . . . . .	1
6JH-280B	2332	Screw. . . . .	1	6JH-306B	170777	Lever - Handle . . . . .	1
6JH-281B	3228	Screw. . . . .	1	6JH-307B	4357	Washer . . . . .	1
6JH-282B	2333	Screw. . . . .	1	6JH-308B	4356	Handle . . . . .	1
6JH-283B	101615	Bearing - Thrust . . . . .	1	6JH-309B	4336	Plate - Name . . . . .	1
6JH-284B	152306	Bearing - Needle . . . . .	1	6JH-310B	77281	Key . . . . .	1
6JH-285B	158479	Spacer . . . . .	1	6JH-311B	158455	Pin . . . . .	1
6JH-286B	101615	Bearing - Thrust . . . . .	1	6JH-312B	158457	Bearing - Ball. . . . .	1
6JH-287B	1632	Key . . . . .	1	6JH-313B	151479	Cover - Detent. . . . .	1
6JH-288B	158176	Shaft (Powerfeed Drive to Table). . . . .	1	6JH-314B	3202	Screw. . . . .	2
6JH-289B	124255	Bushing - Flange . . . . .	1	6JH-315B	158452	Pin . . . . .	1
6JH-290B	152339	Gear - Segment . . . . .	1	6JH-316B	3235	Screw. . . . .	1
6JH-291B	124255	Bushing - Flange . . . . .	1	6JH-317B	1917	Screw. . . . .	1
6JH-292B	236956	Ring - Truarc . . . . .	1	6JH-318B	213270	Spring - Plunger . . . . .	1
6JH-293B	152337	Cam - Drum . . . . .	1	6JH-319B	158456	Plunger - Detent . . . . .	1
6JH-294B	152310	Gear - Spur. . . . .	1	6JH-320B	152338	Rack . . . . .	1
6JH-295B		Nut - Leadscrew		6JH-321B	151487	Pin - Rack . . . . .	1
	143365	16" or 22" Table Travel, English . . . . .	1	6JH-322B	152336	Bushing - Oilite . . . . .	1
	143366	16" or 22" Table Travel, Metric . . . . .	1	6JH-323B	156185	Detent . . . . .	1
6JH-296B	1385	Pin . . . . .	1	6JH-324B	3228	Screw. . . . .	1
6JH-297B	3401	Screw. . . . .	1	6JH-325B	2354	Screw. . . . .	1
				6JH-330B	3529	Plug . . . . .	1



### KNEE AND ELEVATING SCREW



I56EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

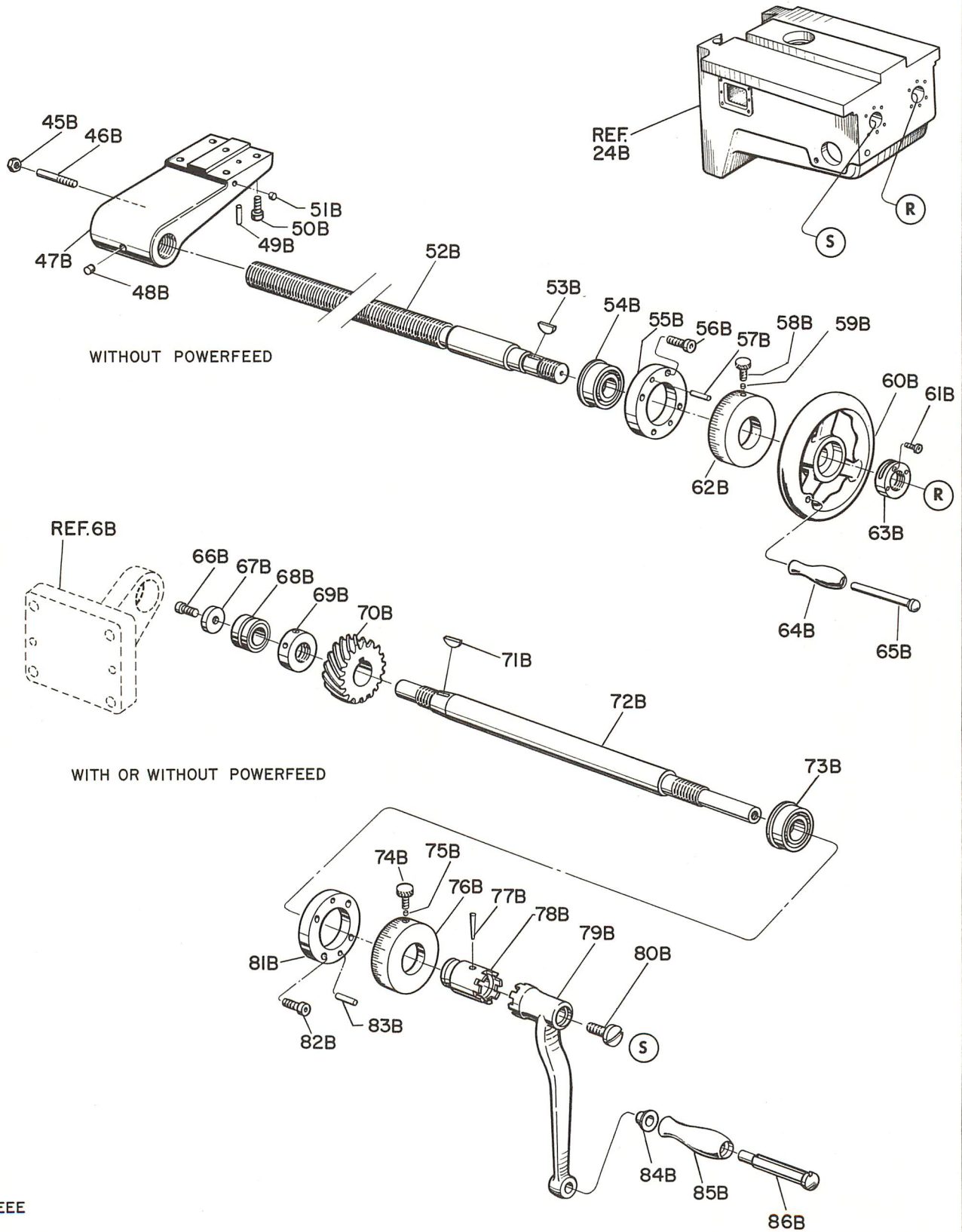
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

KNEE - UNIT No. 6JK  
WITH OR WITHOUT POWERFEED TO SADDLE

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JK-1B	153092	Screw - Gib, Adjusting . . . . .	1	6JK-24B	113516	Cup - Bearing . . . . .	1
6JK-2B	153093	Gib - Knee . . . . .	1	6JK-25B	170756	Knee (Without Power Feed) . . . . .	1
6JK-3B	170767	Screw - Clamping. . . . .	2	6JK-26B	113516	Cup - Bearing . . . . .	1
6JK-4B	170757	Shoe - Clamping . . . . .	2	6JK-27B	113515	Cone - Bearing . . . . .	1
6JK-5B	3266	Screw. . . . .	4	6JK-28B	143394	Gear - Spiral, Elevating Crank . . . . .	1
6JK-6B	143401	Bracket - Support. . . . .	1	6JK-29B	201636	Washer - Felt . . . . .	1
6JK-7B	143402	Shim - Bracket . . . . .	1	6JK-30B	172427	Nut - Elevating Screw . . . . .	1
6JK-8B	88799	Pin . . . . .	2	6JK-31B	175267	Spacer . . . . .	1
6JK-9B	96855	Elbow. . . . .	1	6JK-32B		Screw - Elevating	
6JK-10B	603983	Lubricator - Bijur . . . . .	1		143389	English. . . . .	1
6JK-11B	172427	Pedestal - Elevating Screw . . . . .	1		143390	Metric . . . . .	1
6JK-12B	3369	Pin . . . . .	2	6JK-33B	3497	Key . . . . .	1
6JK-13B	645	Pin . . . . .	2	6JK-34B	220003	Plug - Drip No. 2 . . . . .	2
6JK-14B	3251	Screw. . . . .	4	6JK-35B	220004	Plug - Drip No. 0 . . . . .	1
6JK-15B	3267	Washer - Lock. . . . .	4	6JK-36B	214294	Nut - Compression . . . . .	4
6JK-16B	3211	Screw. . . . .	1	6JK-37B	214304	Sleeve - Compression . . . . .	6
6JK-17B	96198	Plug - Oiler . . . . .	1	6JK-38B	94473	Plug - Drip No. 3 . . . . .	1
6JK-18B	12838	Elbow. . . . .	1	6JK-39B	158185	Tubing List . . . . .	1
6JK-19B	153089	Plug - Bijur . . . . .	1	6JK-40B	115596	Plug - Screw . . . . .	1
6JK-20B	96855	Elbow. . . . .	1	6JK-41B	143414	Block - Junction, Bijur . . . . .	1
6JK-21B	143396	Plug - Steel. . . . .	1	6JK-42B	3227	Screw. . . . .	2
6JK-22B	4184	Nut - Lock . . . . .	1	6JK-43B	214300	Bushing - Bijur . . . . .	2
6JK-23B	113515	Cone - Bearing . . . . .	1	6JK-44B	77197	Bushing . . . . .	3



CROSSFEED SCREW & ELEVATING SHAFT



147EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

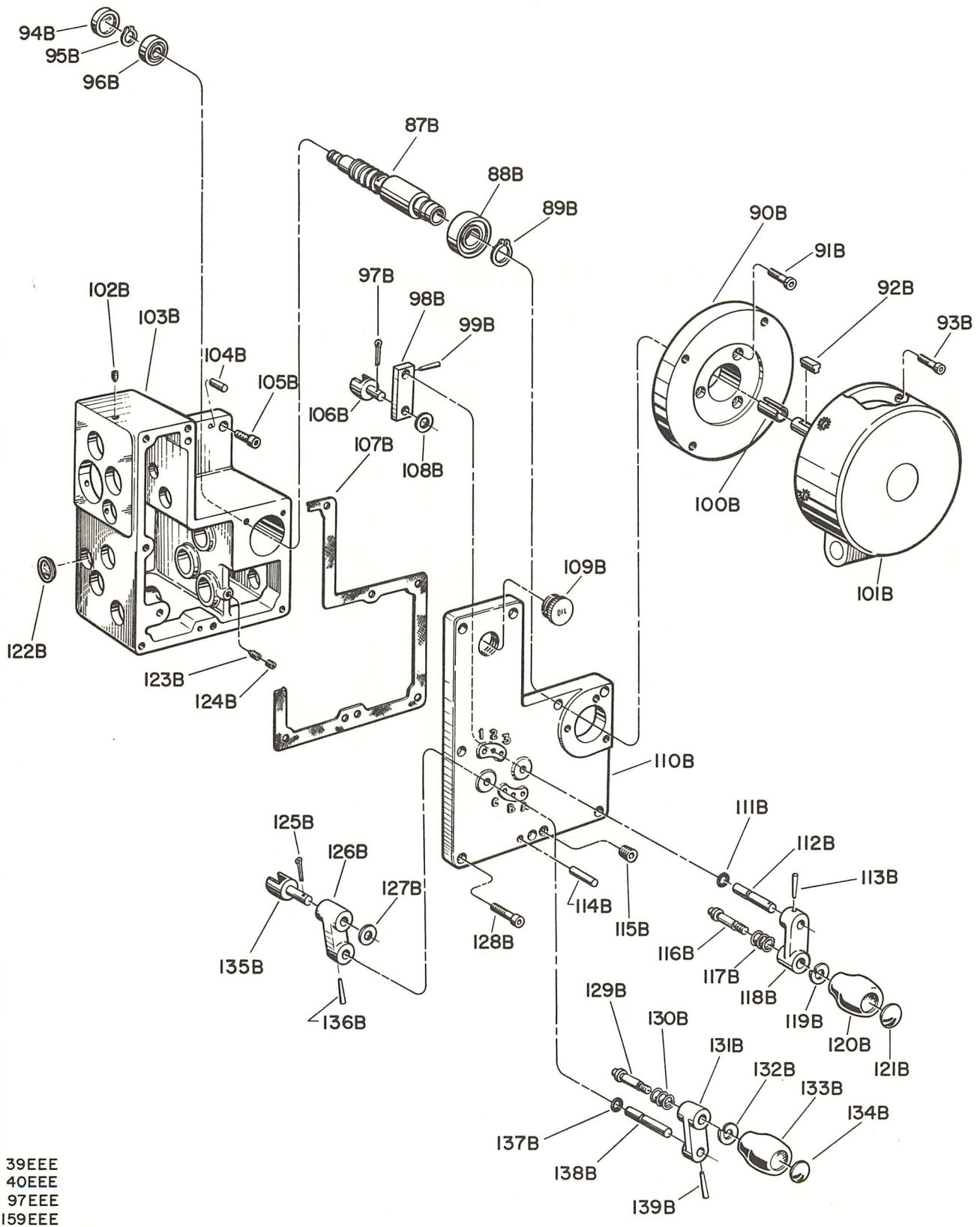
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

KNEE - UNIT No. 6JK (Continued)

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JK-45B	3478	Nut (Without Powerfeed)	1	6JK-64B	163680	Handle - Spool (Without Powerfeed)	1
6JK-46B	143418	Stop - Positive (Without Powerfeed)	1	6JK-65B	163681	Stud - Spool Handle (Without Powerfeed)	1
6JK-47B		Nut - Crossfeed (Without Powerfeed)		6JK-66B	3396	Screw	1
	143408	English	1	6JK-67B	239914	Washer	1
	143409	Metric	1	6JK-68B	231587	Bearing - Roller	1
6JK-48B	2245	Plug (Without Powerfeed)	1	6JK-69B	4242	Nut - Lock	1
6JK-49B	3369	Pin (Without Powerfeed)	1	6JK-70B	143395	Gear - Spiral, Elevating Crank	1
6JK-50B	3251	Screw (Without Powerfeed)	4	6JK-71B	679	Key	1
6JK-51B	1844	Plug (Without Powerfeed)	1	6JK-72B	143397	Shaft - Elevating Crank	1
6JK-52B		Screw - Crossfeed (Without Powerfeed)		6JK-73B	143375	Bearing - Ball	1
	143405	English	1	6JK-74B	94710	Screw - Thumb	1
	143406	Metric	1	6JK-75B	2008	Plug	1
6JK-53B	679	Key (Without Powerfeed)	1	6JK-76B		Dial - Feed, Elevating	
6JK-54B	143375	Bearing - Ball (Without Powerfeed)	1		143399	English	1
6JK-55B	143374	Retainer - Bearing (Without Powerfeed)	1		143400	Metric	1
6JK-56B	2320	Screw (Without Powerfeed)	4	6JK-77B	642	Pin	1
6JK-57B	1383	Pin (Without Powerfeed)	2	6JK-78B	143417	Clutch - Elevating Crank	1
6JK-58B	94710	Screw - Thumb (Without Powerfeed)	1	6JK-79B	153075	Crank - Elevating	1
6JK-59B	2008	Plug (Without Powerfeed)	1	6JK-80B	3514	Screw	1
6JK-60B	157557	Handwheel (Without Powerfeed)	1	6JK-81B	143374	Retainer - Bearing	1
6JK-61B	3202	Screw (Without Powerfeed)	1	6JK-82B	2320	Screw	4
6JK-62B		Dial - Feed (Without Powerfeed)		6JK-83B	1383	Pin	2
	143371	English	1	6JK-84B	3504	Collar - Spool Handle	1
	143372	Metric	1	6JK-85B	3505	Handle - Spool	1
6JK-63B	124501	Nut - Lock (Without Powerfeed)	1	6JK-86B	3503	Stud - Spool Handle	1



**POWER FEED-GEAR HOUSING BRACKET-KNEE**



39EEE  
 40EEE  
 97EEE  
 159EEE

## CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

*WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."*

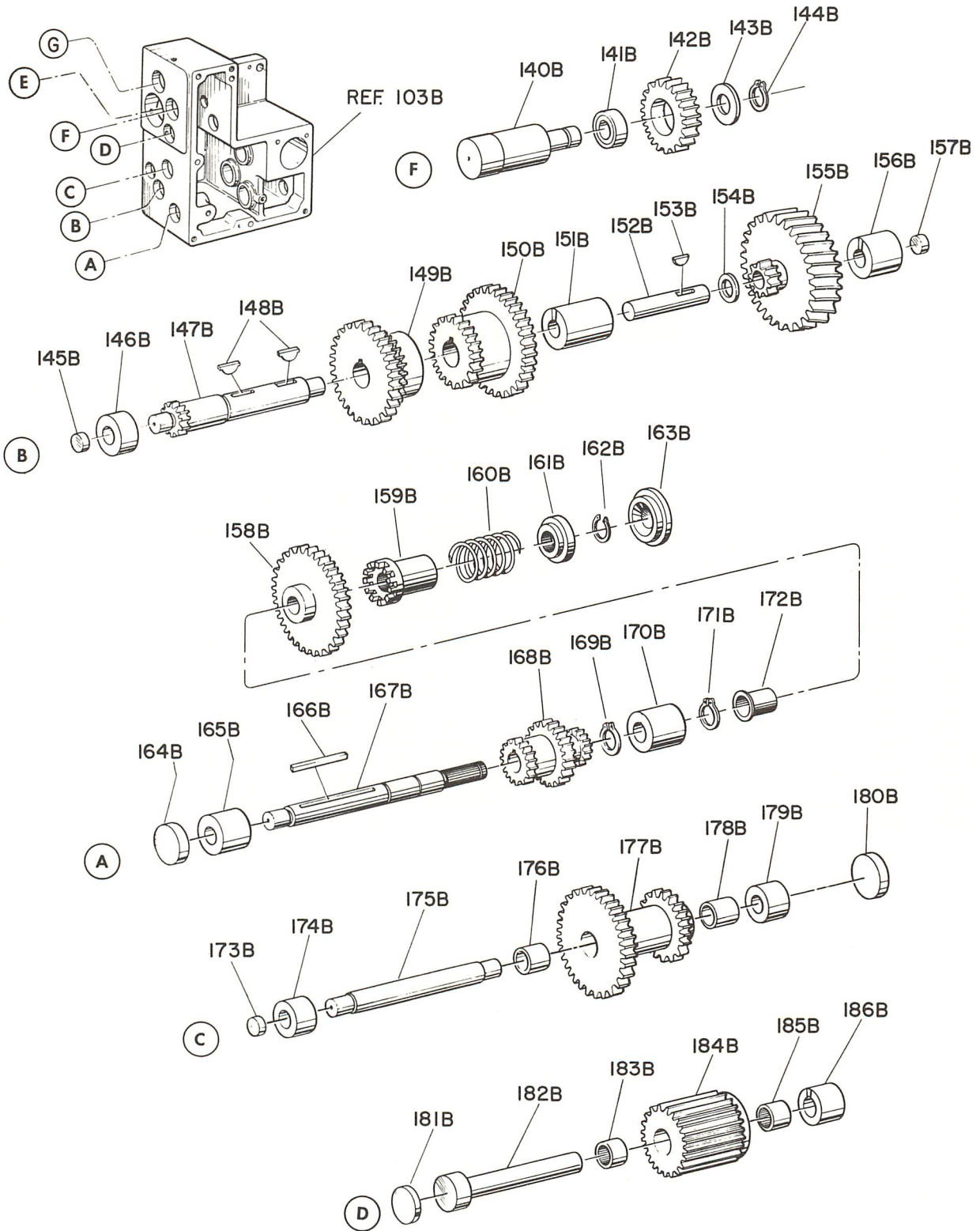
### KNEE - UNIT No. 6JK (Continued)

#### WITH POWERFEED

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JK-87B	176317	Gear - Spiral . . . . .	1	6JK-112B	152303	Pin - Lever, Short . . . . .	1
6JK-88B	152305	Bearing - Ball . . . . .	1	6JK-113B	140	Pin - Taper. . . . .	1
6JK-89B	137926	Retainer - Truarc . . . . .	1	6JK-114B	3543	Pin . . . . .	2
6JK-90B	170758	Plate - Adapter . . . . .	1	6JK-115B	76645	Plug . . . . .	1
6JK-91B	3210	Screw. . . . .	3	6JK-116B	151486	Pin - Detent . . . . .	1
6JK-92B	170521	Key (Supplied with Motor) . . . . .	1	6JK-117B	151493	Spring . . . . .	1
6JK-93B	124975	Screw (With Single Phase Motors or Standard Electric Three-Phase Motors). . . . .	4	6JK-118B	151494	Lever - Feed . . . . .	1
	3219	Screw (With Fairbanks-Morse Three-Phase Motors) . . . . .	4	6JK-119B	2123	Washer - Lock. . . . .	1
6JK-94B	153061	Plug . . . . .	1	6JK-120B	4327	Knob - Lever . . . . .	1
6JK-95B	140228	Retainer . . . . .	1	6JK-121B	4331	Plate - Name . . . . .	1
6JK-96B	152300	Bearing - Ball . . . . .	1	6JK-122B	143496	Gage - Oil Sight . . . . .	1
6JK-97B	3329	Pin - Cotter . . . . .	1	6JK-123B	2343	Screw - Set. . . . .	8
6JK-98B	151489	Arm - Gear Shifter . . . . .	1	6JK-124B	2355	Screw - Set. . . . .	8
6JK-99B	140	Pin - Taper. . . . .	1	6JK-125B	3329	Pin - Cotter . . . . .	1
6JK-100B	170520	Bushing - Nylon . . . . .	1	6JK-126B	151488	Arm - Gear Shifter . . . . .	1
6JK-101B	152543	Motor. . . . .	1	6JK-127B	151490	Spacer . . . . .	1
6JK-102B	3229	Screw. . . . .	1	6JK-128B	2320	Screw. . . . .	8
6JK-103B	152396	Bracket - Gear Housing. . . . .	1	6JK-129B	151486	Pin - Detent . . . . .	1
6JK-104B	3369	Pin . . . . .	2	6JK-130B	151493	Spring . . . . .	1
6JK-105B	3403	Screw. . . . .	4	6JK-131B	151494	Lever - Feed . . . . .	1
6JK-106B	151491	Fork - Gear Shifter . . . . .	1	6JK-132B	2123	Washer - Lock. . . . .	1
6JK-107B	153064	Gasket . . . . .	1	6JK-133B	4327	Knob - Lever . . . . .	1
6JK-108B	151490	Spacer . . . . .	1	6JK-134B	4331	Plate - Name . . . . .	1
6JK-109B	3987	Plug - Oil Filler . . . . .	1	6JK-135B	151492	Fork - Gear Shifter . . . . .	1
6JK-110B	152397	Cover - Gear Housing . . . . .	1	6JK-136B	140	Pin - Taper. . . . .	1
6JK-111B	130145	Ring - "O" . . . . .	1	6JK-137B	130145	Ring - "O" . . . . .	1
				6JK-138B	152304	Pin - Lever, Long . . . . .	1
				6JK-139B	140	Pin - Taper. . . . .	1



POWER FEED-GEARING-KNEE



I59EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

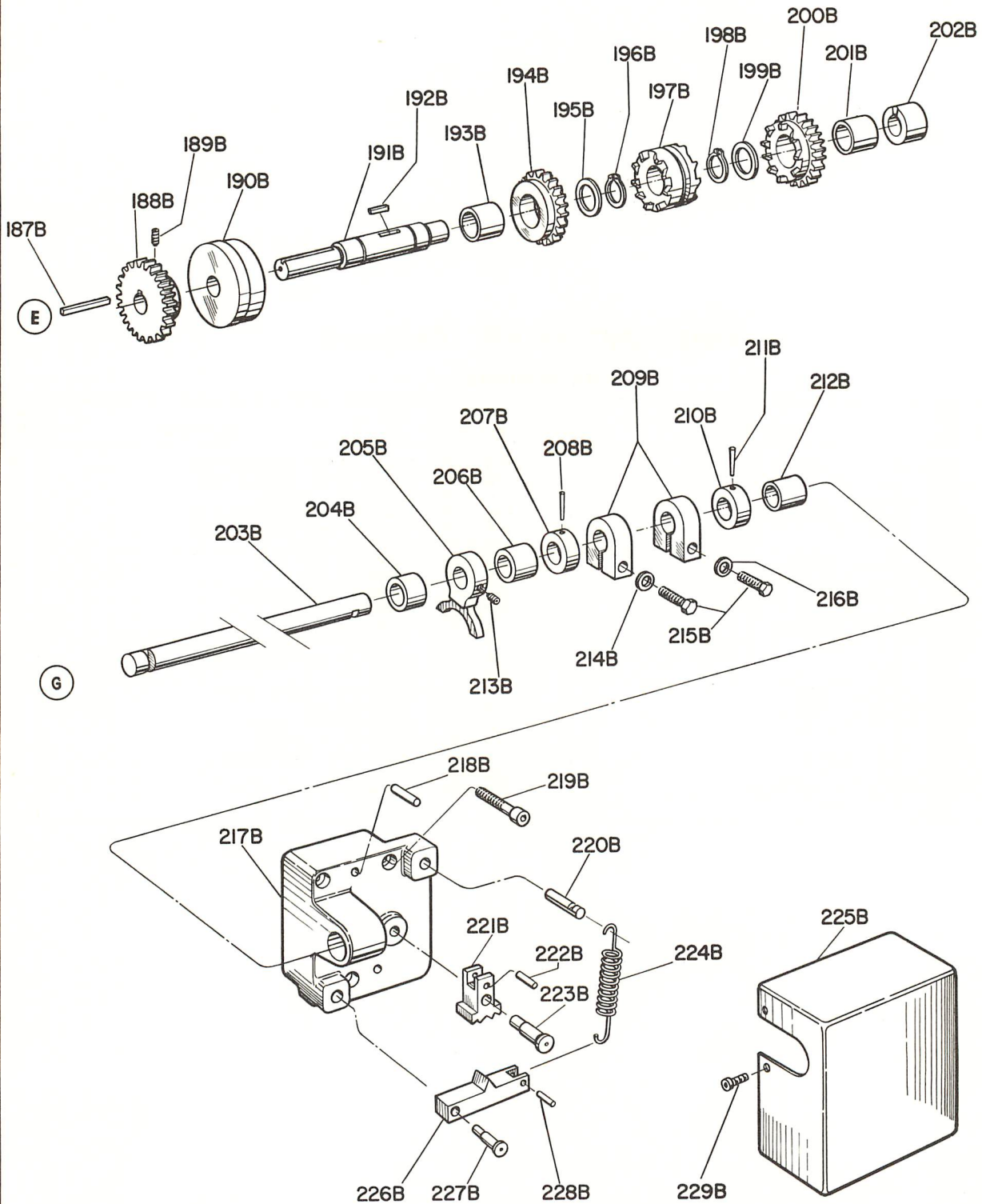
KNEE - UNIT No. 6JK (Continued)

WITH POWERFEED

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JK-140B	152378	Shaft - "F" . . . . .	1	6JK-164B	3830	Plug . . . . .	1
6JK-141B	152306	Bearing - Needle . . . . .	1	6JK-165B	152388	Bushing - Bronze . . . . .	1
6JK-142B	152310	Gear - Reversing . . . . .	1	6JK-166B	152325	Key . . . . .	1
6JK-143B	158479	Spacer . . . . .	1	6JK-167B	175560	Shaft - "A" . . . . .	1
6JK-144B	236956	Retainer - Truarc . . . . .	1	6JK-168B	152319	Gear - Cluster Shifting . . . . .	1
6JK-145B	152307	Plug . . . . .	1	6JK-169B	237219	Ring - External Truarc . . . . .	1
6JK-146B	152389	Bushing - Bronze . . . . .	1	6JK-170B	175565	Bushing - Bronze . . . . .	1
6JK-147B	152380	Shaft - Gear and "B" . . . . .	1	6JK-171B	179049	Ring - Truarc . . . . .	1
6JK-148B	3280	Key . . . . .	2	6JK-172B	179050	Bushing - Nylon . . . . .	1
6JK-149B	152321	Gear - Cluster . . . . .	1	6JK-173B	152307	Plug . . . . .	1
6JK-150B	152322	Gear - Cluster . . . . .	1	6JK-174B	152386	Bushing . . . . .	1
6JK-151B	152387	Bushing - Bronze . . . . .	1	6JK-175B	152317	Shaft - "C" . . . . .	1
6JK-152B	152391	Shaft - Cluster Gear . . . . .	1	6JK-176B	151495	Bushing - Oilite . . . . .	1
6JK-153B	156205	Key . . . . .	1	6JK-177B	152318	Gear - Cluster "C" . . . . .	1
6JK-154B	175567	Spacer . . . . .	1	6JK-178B	151495	Bushing - Oilite . . . . .	1
6JK-155B	175562	Gear - Drive . . . . .	1	6JK-179B	152386	Bushing . . . . .	1
6JK-156B	152388	Bushing - Bronze . . . . .	1	6JK-180B	76680	Plug . . . . .	1
6JK-157B	152307	Plug . . . . .	1	6JK-181B	158533	Plug - Seal . . . . .	1
6JK-158B	175561	Gear . . . . .	1	6JK-182B	152379	Shaft - "D" . . . . .	1
6JK-159B	175557	Clutch - Safety . . . . .	1	6JK-183B	79524	Bearing - Roller . . . . .	1
6JK-160B	603984	Spring . . . . .	1	6JK-184B	152390	Gear - "D" Drive . . . . .	1
6JK-161B	175556	Retainer - Spring . . . . .	1	6JK-185B	79524	Bearing - Roller . . . . .	1
6JK-162B	236956	Ring - Truarc . . . . .	1	6JK-186B	152383	Bushing - Bronze . . . . .	1
6JK-163B	175566	Plug . . . . .	1				



**POWER FEED-"E" & SHIFTER SHAFTS-KNEE**



39EEE  
159EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

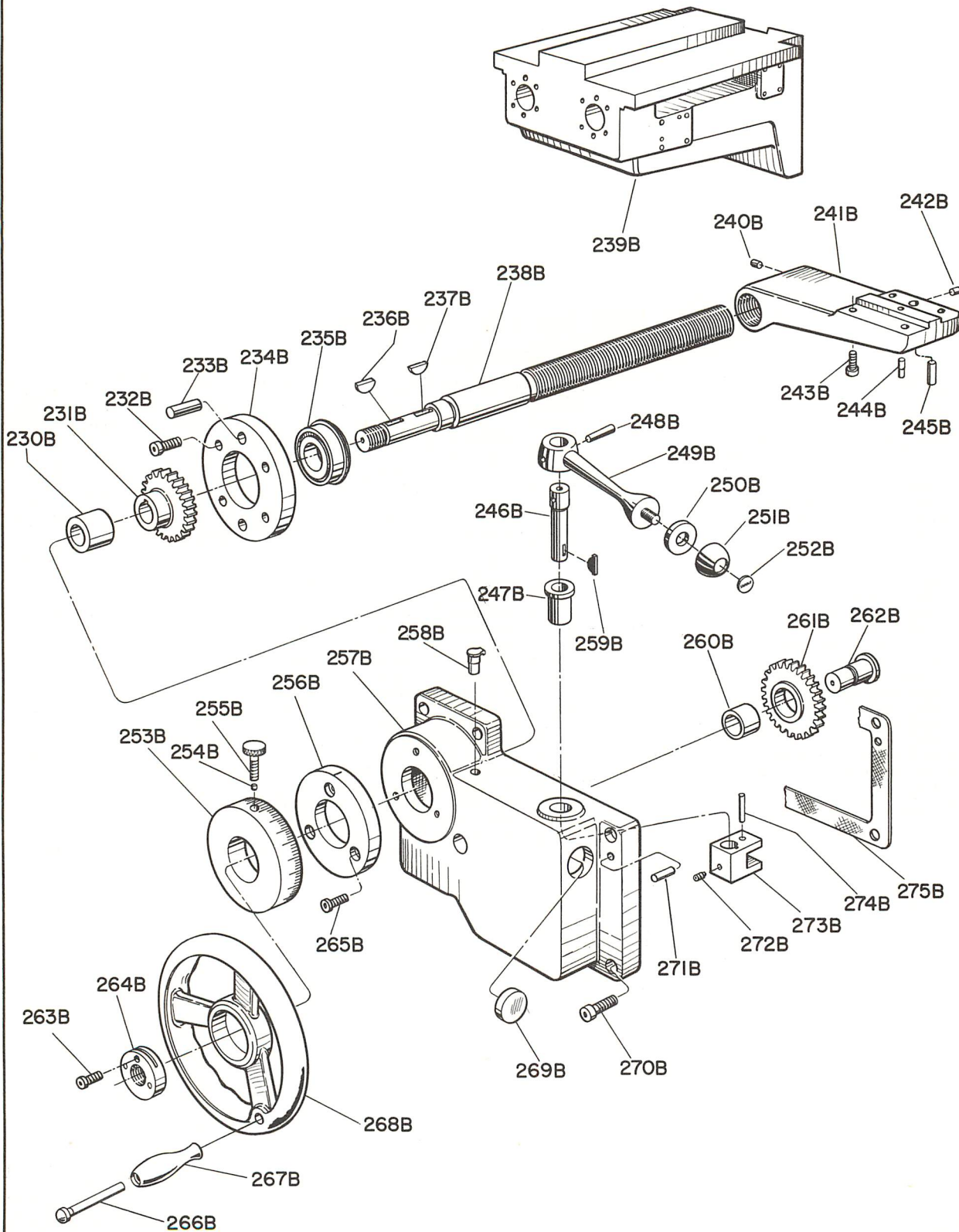
KNEE - UNIT No. 6JK (Continued)

WITH POWERFEED

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JK-187B	99199	Key . . . . .	1	6JK-209B	153071	Block - Adjusting Stop . . . . .	2
6JK-188B	152399	Gear - Drive . . . . .	1	6JK-210B	153070	Block - Positive Stop . . . . .	1
6JK-189B	3226	Screw. . . . .	1	6JK-211B	663	Pin - Taper. . . . .	1
6JK-190B	157761	Bushing - Bronze . . . . .	1	6JK-212B	154418	Bushing - Oilite . . . . .	1
6JK-191B	157759	Shaft - "E" . . . . .	1	6JK-213B	3229	Screw. . . . .	1
6JK-192B	157762	Key . . . . .	1	6JK-214B	246088	Washer . . . . .	1
6JK-193B	247565	Bushing - Oilite . . . . .	1	6JK-215B	1062	Screw. . . . .	2
6JK-194B	158182	Gear - Spur Clutch . . . . .	1	6JK-216B	246088	Washer . . . . .	1
6JK-195B	152315	Spacer . . . . .	1	6JK-217B	150824	Bracket - Rear . . . . .	1
6JK-196B	237432	Ring - Truarc . . . . .	1	6JK-218B	3543	Pin . . . . .	2
6JK-197B	158183	Clutch - Reversing . . . . .	1	6JK-219B	2300	Screw. . . . .	3
6JK-198B	237432	Ring - Truarc . . . . .	1	6JK-220B	3382	Pin - Spring . . . . .	1
6JK-199B	152315	Spacer . . . . .	1	6JK-221B	157040	Detent - Shifting Shaft . . . . .	1
6JK-200B	158181	Gear - Reversing . . . . .	1	6JK-222B	230058	Pin . . . . .	1
6JK-201B	247565	Bushing - Oilite . . . . .	1	6JK-223B	154420	Pin - Pivot, Detent . . . . .	1
6JK-202B	152383	Bushing - Bronze . . . . .	1	6JK-224B	93970	Spring . . . . .	1
6JK-203B	154422	Shaft - Shifting. . . . .	1	6JK-225B	154421	Cover - Detent. . . . .	1
6JK-204B	124668	Bushing - Bronze . . . . .	1	6JK-226B	155656	Arm - Detent . . . . .	1
6JK-205B	152382	Fork - Shifter . . . . .	1	6JK-227B	155657	Pin - Detent Arm. . . . .	1
6JK-206B	124668	Bushing - Bronze . . . . .	1	6JK-228B	3431	Pin . . . . .	1
6JK-207B	153070	Block - Positive Stop . . . . .	1	6JK-229B	3194	Screw. . . . .	3
6JK-208B	663	Pin - Taper. . . . .	1				



**POWER FEED-CROSSFEED SCREW & FRONT COVER-KNEE**



39EEE  
40EEE  
97EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

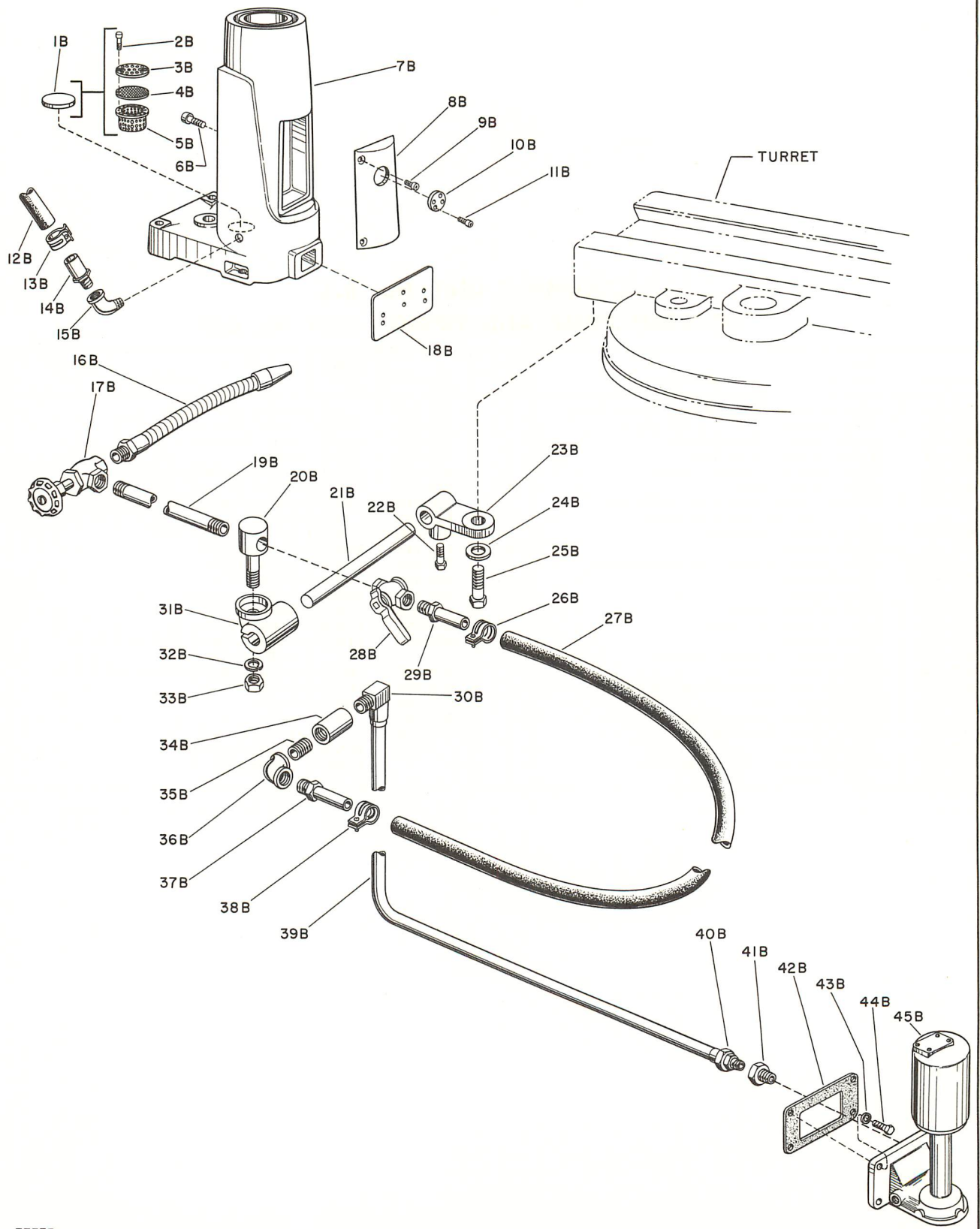
KNEE - UNIT No. 6JK (Concluded)

WITH POWERFEED

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JK-230B	153052	Spacer - Handwheel . . . . .	1	6JK-252B	4352	Plate - Name . . . . .	1
6JK-231B	152398	Gear - Saddle Traversing . . . . .	1	6JK-253B		Dial - Feed	
6JK-232B	2320	Screw. . . . .	4	143371		English. . . . .	1
6JK-233B	1383	Pin . . . . .	2	143372		Metric . . . . .	1
6JK-234B	143374	Retainer - Bearing . . . . .	1	6JK-254B	2008	Plug . . . . .	1
6JK-235B	143375	Bearing - Ball . . . . .	1	6JK-255B	94710	Screw - Thumb . . . . .	1
6JK-236B	679	Key . . . . .	1	6JK-256B	153051	Indicator - Cross Movement . . . . .	1
6JK-237B	679	Key . . . . .	1	6JK-257B	152393	Cover - Front . . . . .	1
6JK-238B		Screw - Crossfeed		6JK-258B	83512	Oiler . . . . .	1
	153067	English. . . . .	1	6JK-259B	1266	Key - Hypro . . . . .	1
	153068	Metric . . . . .	1	6JK-260B	143701	Bushing - Oilite . . . . .	1
6JK-239B	170756	Knee (Alter per 158521). . . . .	1	6JK-261B	152394	Gear - Idler . . . . .	1
6JK-240B	247024	Plug . . . . .	1	6JK-262B	153050	Shaft - Idler Gear. . . . .	1
6JK-241B		Nut - Crossfeed		6JK-263B	3202	Screw. . . . .	1
	153072	English. . . . .	1	6JK-264B	124501	Nut - Lock . . . . .	1
	153476	Metric . . . . .	1	6JK-265B	4093	Screw. . . . .	3
6JK-242B	1844	Plug . . . . .	1	6JK-266B	163681	Stud - Spool. . . . .	1
6JK-243B	3251	Screw. . . . .	4	6JK-267B	163680	Handle - Spool. . . . .	1
6JK-244B	3369	Pin . . . . .	1	6JK-268B	143377	Handwheel . . . . .	1
6JK-245B	1900	Pin . . . . .	1	6JK-269B	93985	Plug . . . . .	1
6JK-246B	153060	Shaft - Shifter Arm . . . . .	1	6JK-270B	3399	Screw. . . . .	6
6JK-247B	157563	Bushing - Shifter Shaft . . . . .	1	6JK-271B	1383	Pin . . . . .	2
6JK-248B	642	Pin . . . . .	1	6JK-272B	3229	Screw. . . . .	1
6JK-249B	169208	Lever. . . . .	1	6JK-273B	153053	Arm - Shifter . . . . .	1
6JK-250B	4357	Washer . . . . .	1	6JK-274B	230058	Pin . . . . .	1
6JK-251B	4356	Knob . . . . .	1	6JK-275B	153073	Gasket . . . . .	1



### COLUMN AND COOLANT PUMP



77EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

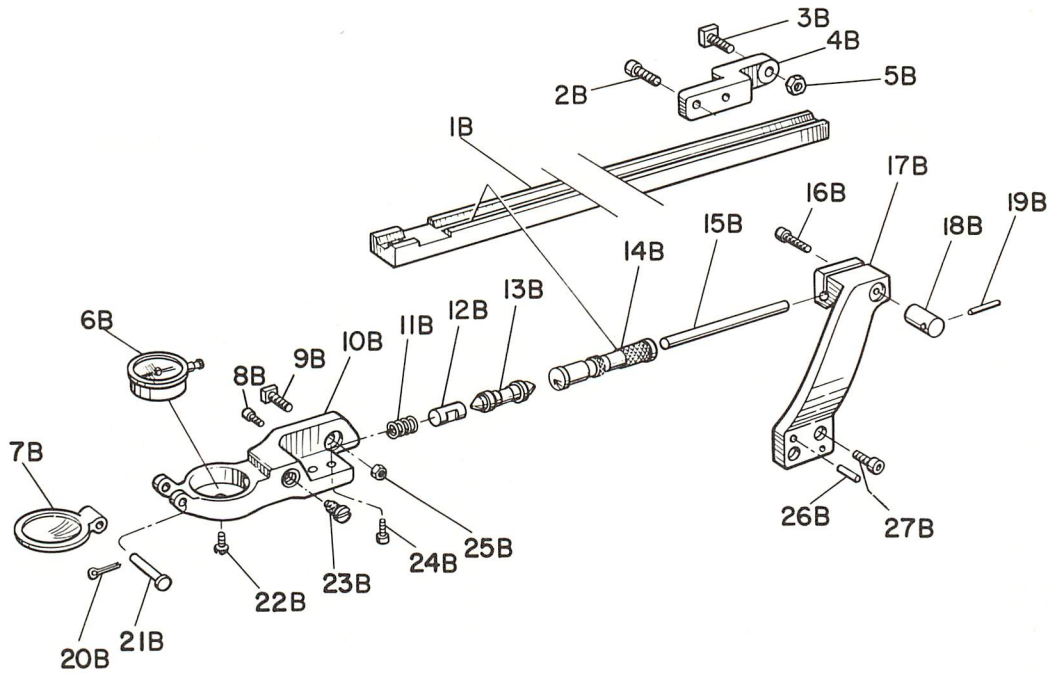
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

COLUMN - UNIT No. 6JC  
COOLANT PUMP AND PIPING - UNIT No. 6JP

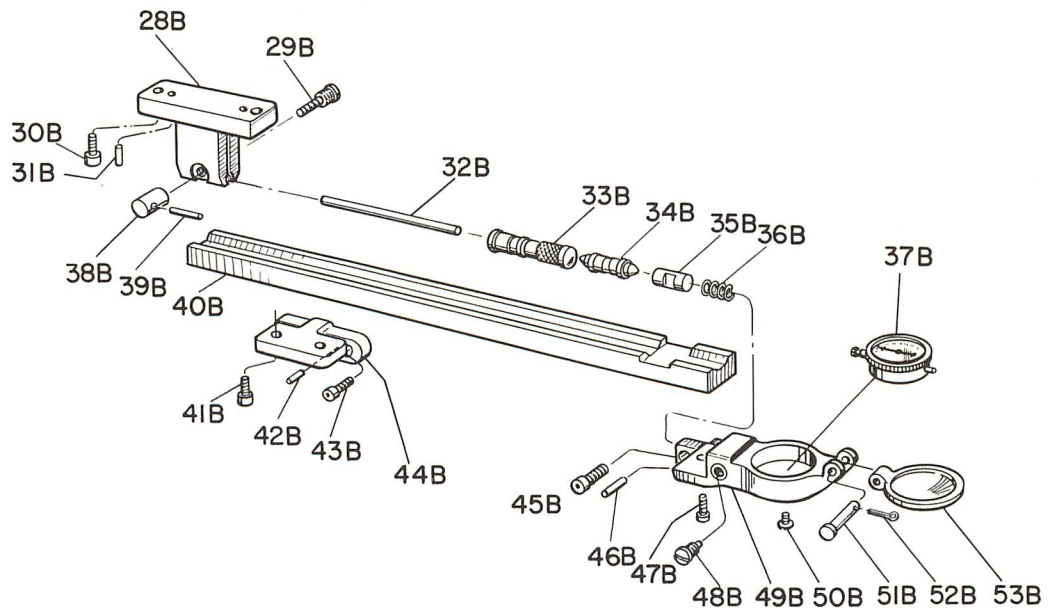
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JC-1B	143421	Cover - Drain, Without Coolant Pump . . .	1	6JP-25B	111	Screw. . . . .	1
6JP-2B	3198	Screw. . . . .	4	6JP-26B	80486	Clamp - Hose . . . . .	1
6JP-3B	143440	Screen - Coarse Mesh . . . . .	1	6JP-27B	143431	Hose - Neoprene . . . . .	1
6JP-4B	143439	Screen - Fine Mesh . . . . .	1	6JP-28B	52054	Valve . . . . .	1
6JP-5B	176342	Strainer - Drain, Coolant . . . . .	1	6JP-29B	143536	Connector - Male . . . . .	1
6JC-6B	158511	Screw - Stop . . . . .	1	6JP-30B	130962	Elbow. . . . .	1
6JC-7B	175266	Column (Altered per 175271 for Vertical Movement Only) . . . . .	1	6JP-31B	38856	Clamp - Supply Pipe . . . . .	1
6JNN-8B	156195	Cover - Electrical . . . . .	1	6JP-32B	855	Washer . . . . .	1
6JC-9B	273171	Screw. . . . .	4	6JP-33B	3479	Nut . . . . .	1
6JNN-10B	163671	Cover (Without Disconnect Switch) . . . . .	1	6JP-34B	166812	Coupling - Pipe . . . . .	1
6JNN-11B	3198	Screw. . . . .	4	6JP-35B	10051	Nipple - Close . . . . .	1
6JP-12B	161768	Hose . . . . .	1	6JP-36B	24024	Elbow - 90° . . . . .	1
6JP-13B	238325	Clamp - Hose . . . . .	2	6JP-37B	143536	Connector - Male . . . . .	1
6JP-14B	107875	Connector - Male . . . . .	1	6JP-38B	80486	Clamp - Hose . . . . .	1
6JP-15B	29810	Elbow. . . . .	1	6JP-39B	143429	Tubing - 1/2" . . . . .	1
6JP-16B	113111	Hose - Flexible, Coolant . . . . .	1	6JP-40B	133089	Fitting - Adapter (1/2" N. P. T. to 1/2" Tubing) . . . . .	1
6JP-17B	143433	Valve - Crane . . . . .	1	6JP-41B	89138	Bushing - Shoulder (1/2" to 3/4") . . . . .	1
6JC-18B	150704	Cover (Without Coolant Pump) . . . . .	1	6JP-42B	143428	Gasket . . . . .	1
6JP-19B	143432	Pipe - List . . . . .	1	6JP-43B	2118	Washer . . . . .	4
6JP-20B	143434	Holder - Supply Pipe. . . . .	1	6JP-44B	3463	Screw. . . . .	4
6JP-21B	143435	Shaft - Pipe Clamp . . . . .	1	6JP-45B		Pump - Coolant	
6JP-22B	2260	Screw. . . . .	1		153999	Fairbanks-Morse . . . . .	1
6JP-23B	143436	Bracket - Pipe Clamp Shaft . . . . .	1		156429	Pioneer . . . . .	1
6JP-24B	1040	Washer . . . . .	2				



## PRECISION MEASURING ATTACHMENT LONGITUDINAL MOVEMENT



## CROSS MOVEMENT



87EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

**PRECISION MEASURING EQUIPMENT - UNIT No. 6JLL**  
**LONGITUDINAL MOVEMENT**

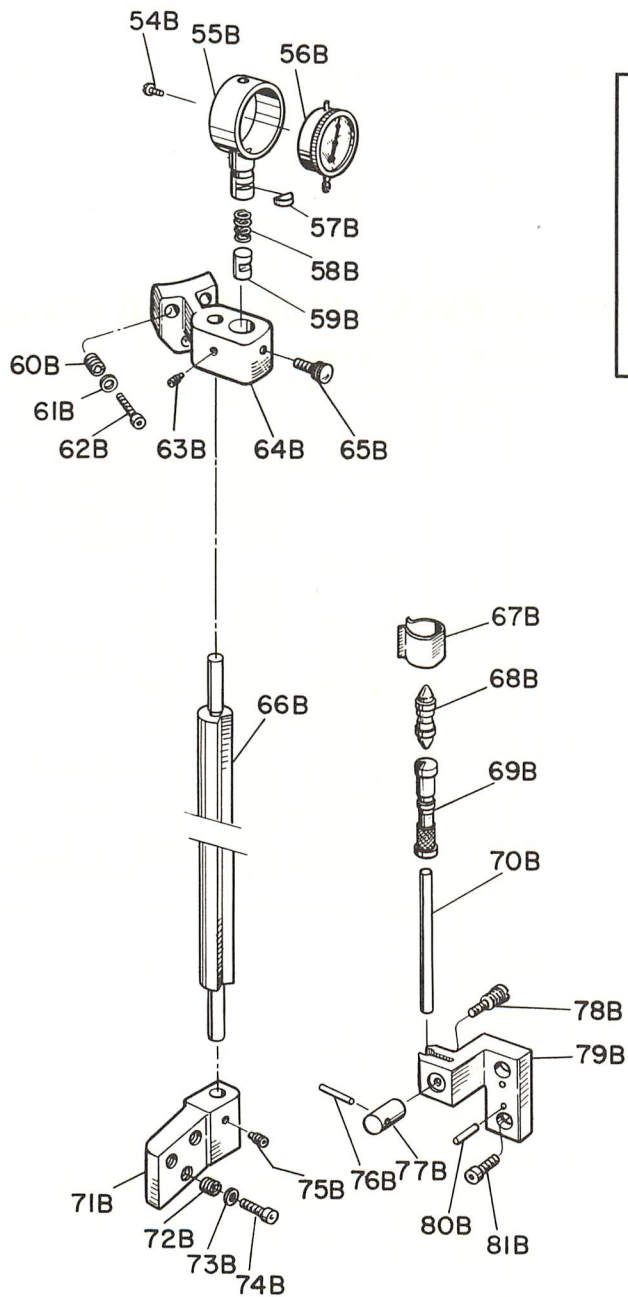
Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JLL-1B	143463	Trough - On Table . . . . .	1		162324	50 M/M Metric . . . . .	1
6JLL-2B	2320	Screw. . . . .	2		163640	100 M/M Metric . . . . .	1
6JLL-3B	3314	Bolt - Tee . . . . .	1		163641	200 M/M Metric . . . . .	1
6JLL-4B	143448	Bracket - Trough . . . . .	1	6JLL-14B		Micrometer	
6JLL-5B	664	Nut . . . . .	1		163643	English. . . . .	1
6JLL-6B		Dial - Indicator			163644	Metric . . . . .	1
	152060	English. . . . .	1	6JLL-15B	68270	Pin - Stop . . . . .	1
	152061	Metric . . . . .	1	6JLL-16B	143460	Bolt - Pin Clamping . . . . .	1
6JLL-7B	153975	Lid - Indicator Bracket . . . . .	1	6JLL-17B	151499	Bracket - Stop Pin . . . . .	1
6JLL-8B	3486	Screw. . . . .	1	6JLL-18B	68716	Nut - Pin Clamping . . . . .	1
6JLL-9B	3314	Bolt - Tee . . . . .	1	6JLL-19B	3277	Pin . . . . .	1
6JLL-10B	152301	Bracket - Indicator Dial	1	6JLL-20B	3329	Pin . . . . .	1
6JLL-11B	68266	Spring - Compression . . . . .	1	6JLL-21B	68269	Pin - Lid . . . . .	1
6JLL-12B	68265	Plunger . . . . .	1	6JLL-22B	68271	Screw - Indicator Fastening . . . . .	1
6JLL-13B		Rod		6JLL-23B	68267	Screw - Stop, Indicator Bracket . . . . .	1
	161846	1" English. . . . .	1	6JLL-24B	3399	Screw. . . . .	2
	161847	2" English. . . . .	1	6JLL-25B	664	Nut . . . . .	1
	161848	4" English. . . . .	1	6JLL-26B	1421	Pin . . . . .	2
	161849	8" English. . . . .	1	6JLL-27B	3266	Screw. . . . .	2
	162323	25 M/M Metric . . . . .	1				

**CROSS MOVEMENT**

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
	158505	Knee Alternation		6JLL-37B		Dial - Indicator	
6JLL-28B	158503	Bracket - Stop Pin . . . . .	1		152060	English. . . . .	1
6JLL-29B	143458	Bolt - Pin Clamping . . . . .	1		152061	Metric . . . . .	1
6JLL-30B	2320	Screw. . . . .	2	6JLL-38B	68716	Nut - Pin Clamping . . . . .	1
6JLL-31B	1421	Pin . . . . .	2	6JLL-39B	3277	Pin . . . . .	1
6JLL-32B	68270	Pin - Stop . . . . .	1	6JLL-40B	143454	Trough - On Knee. . . . .	1
6JLL-33B	163643	Micrometer. . . . .	1	6JLL-41B	2320	Screw. . . . .	2
6JLL-34B		Rod		6JLL-42B	1421	Pin . . . . .	2
	161846	1" English. . . . .	1	6JLL-43B	3399	Screw. . . . .	2
	161847	2" English. . . . .	1	6JLL-44B	143455	Bracket - Trough . . . . .	1
	161848	4" English. . . . .	1	6JLL-45B	3399	Screw. . . . .	2
	161849	8" English. . . . .	1	6JLL-46B	1421	Pin . . . . .	2
	162323	25 M/M Metric . . . . .	1	6JLL-47B	3399	Screw. . . . .	2
	162324	50 M/M Metric . . . . .	1	6JLL-48B	68267	Screw - Stop, Indicator Bracket . . . . .	1
	163640	100 M/M Metric . . . . .	1	6JLL-49B	143453	Bracket - Dial, Indicator . . . . .	1
	163641	200 M/M Metric . . . . .	1	6JLL-50B	68271	Screw - Indicator Fastening . . . . .	1
6JLL-35B	68265	Plunger . . . . .	1	6JLL-51B	68269	Pin - Lid . . . . .	1
6JLL-36B	68266	Spring . . . . .	1	6JLL-52B	3329	Pin - Cotter . . . . .	1
				6JLL-53B	153975	Lid - Indicator Bracket . . . . .	1



# PRECISION MEASURING ATTACHMENT VERTICAL MOVEMENT



58 EEE  
59 EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

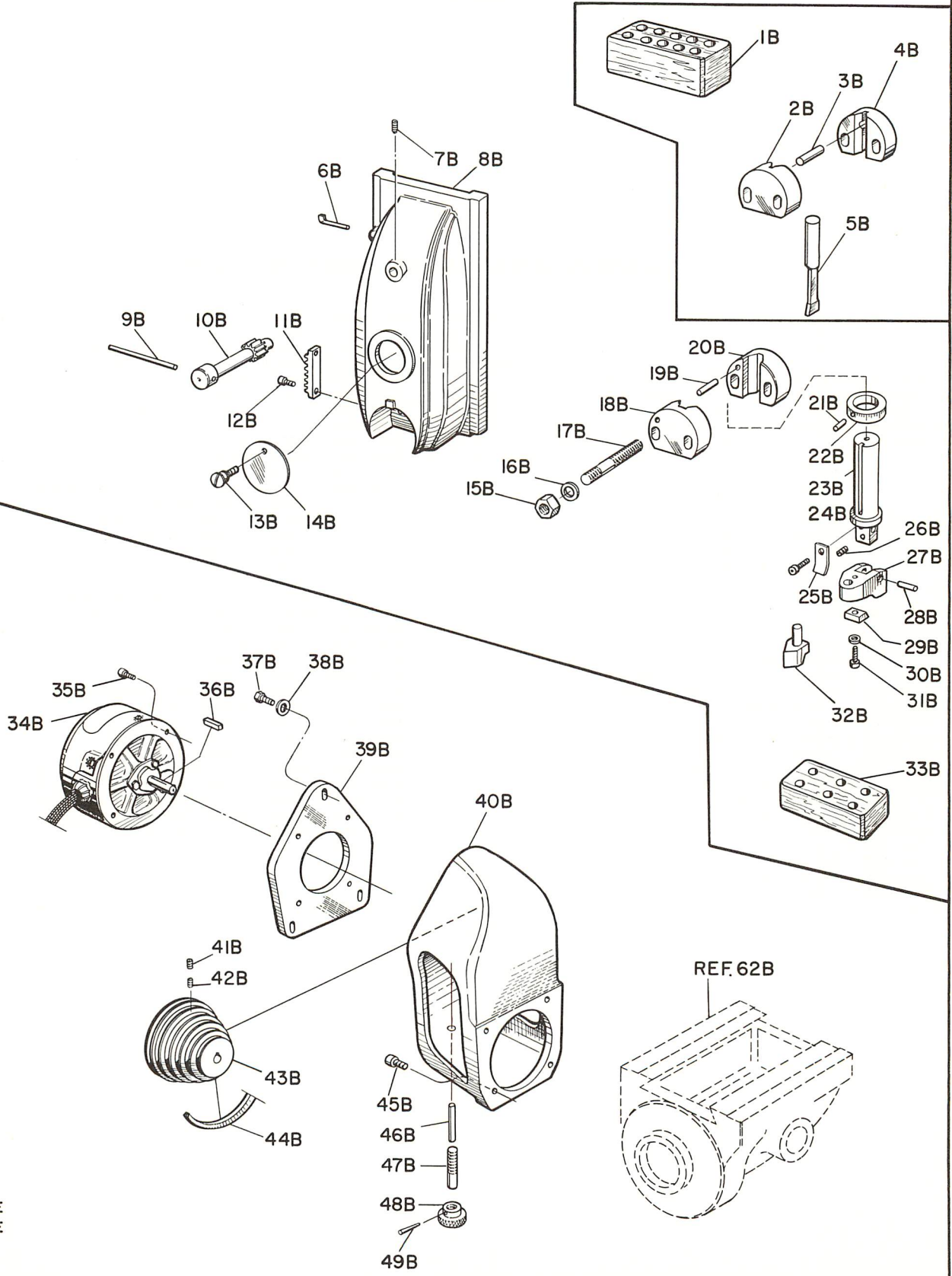
PRECISION MEASURING EQUIPMENT - UNIT No. 6JYL (Concluded)

VERTICAL MOVEMENT

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
	158520	Knee Alternation			161849	8" English. . . . .	1
	143465	Column Alteration			162323	25 M/M Metric. . . . .	1
6JYL-54B	68271	Screw - Indicator Fastening . . . . .	1		162324	50 M/M Metric. . . . .	1
6JYL-55B	79004	Case - Indicator . . . . .	1		163640	100 M/M Metric . . . . .	1
6JYL-56B		Dial - Indicator			163641	200 M/M Metric . . . . .	1
	152060	English. . . . .	1	6JYL-69B		Micrometer	
	152061	Metric . . . . .	1		163643	English. . . . .	1
6JYL-57B	679	Key . . . . .	1		163644	Metric . . . . .	1
6JYL-58B	68266	Spring - Compression . . . . .	1	6JYL-70B	68270	Pin - Stop . . . . .	1
6JYL-59B	68265	Plunger - Indicator Bracket . . . . .	1	6JYL-71B	143450	Bracket - Vertical Shaft . . . . .	1
6JYL-60B	151467	Screw - Bushing . . . . .	3	6JYL-72B	151467	Screw - Bushing . . . . .	3
6JYL-61B	122184	Washer . . . . .	3	6JYL-73B	122184	Washer . . . . .	3
6JYL-62B	3206	Screw. . . . .	3	6JYL-74B	3206	Screw. . . . .	3
6JYL-63B	3232	Screw. . . . .	1	6JYL-75B	3232	Screw. . . . .	1
6JYL-64B	143452	Bracket - Indicator Dial . . . . .	1	6JYL-76B	3277	Pin . . . . .	1
6JYL-65B	2253	Screw. . . . .	1	6JYL-77B	68716	Nut - Pin Clamping . . . . .	1
6JYL-66B	143449	Shaft - Vertical . . . . .	1	6JYL-78B	68715	Bolt . . . . .	1
6JYL-67B	78456	Clip . . . . .	8	6JYL-79B	158501	Bracket - Stop Pin . . . . .	1
6JYL-68B		Rod		6JYL-80B	1421	Pin . . . . .	2
	161846	1" English. . . . .	1	6JYL-81B	3266	Screw. . . . .	2
	161847	2" English. . . . .	1	6JYL-82B	75042	Case - For Precision Rods . . . . .	1
	161848	4" English. . . . .	1				



# SHAPING ATTACHMENT



18 EEE  
20 EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

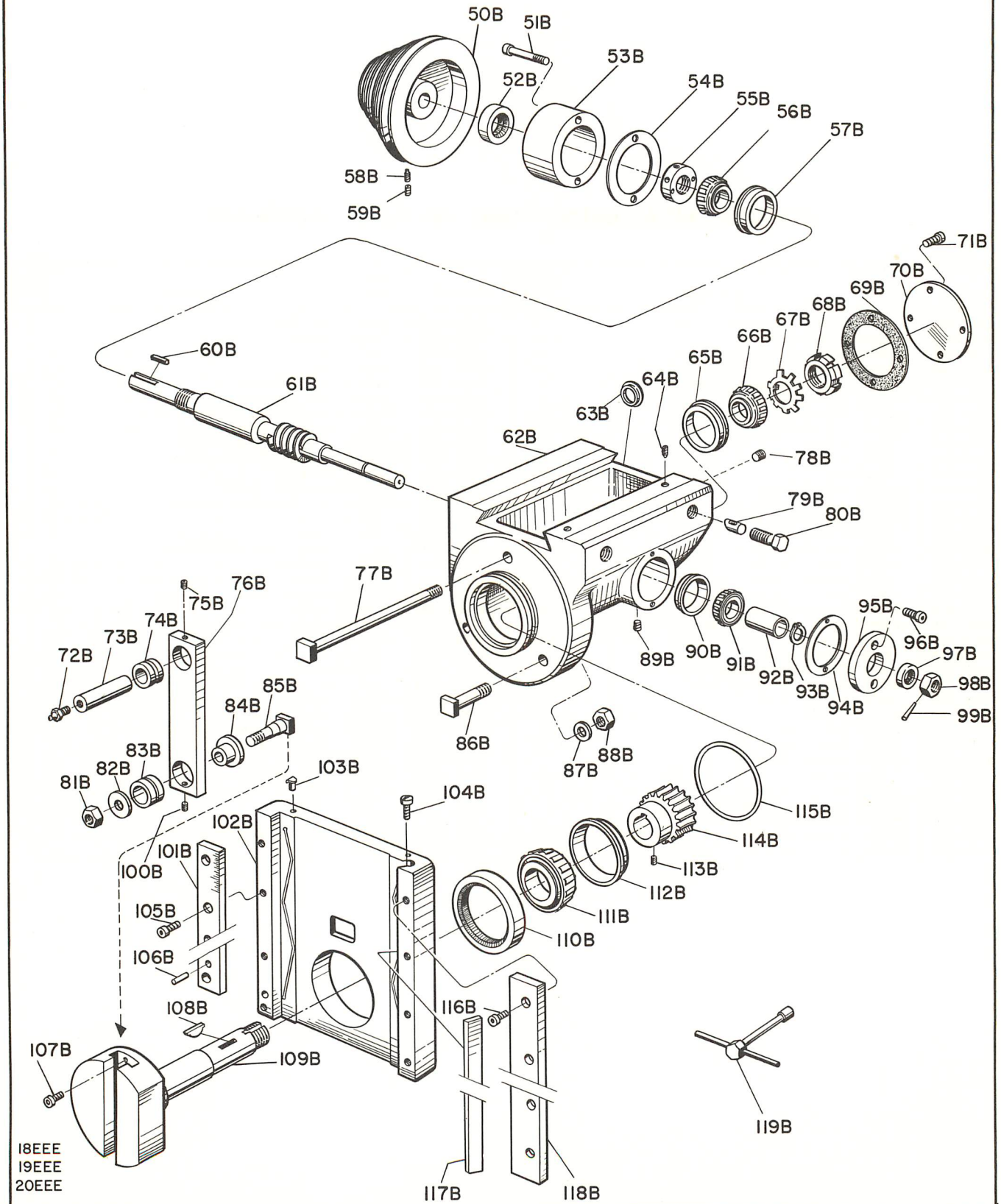
SHAPING ATTACHMENT - UNIT No. 6JHF

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JHF-1B	36714	Block - For Shaping Tools . . . . .	1	6JHF-25B	143511	Spring - Clapper . . . . .	1
6JHF-2B	143526	Clamp - Tool, Outer. . . . .	1	6JHF-26B	2333	Screw. . . . .	1
6JHF-3B	143527	Pin - Tool Stop . . . . .	1	6JHF-27B	143510	Block - Clapper . . . . .	1
6JHF-4B	143525	Clamp - Tool, Inner. . . . .	1	6JHF-28B	137917	Pin - Pivot . . . . .	1
6JHF-5B		Tool - Shaping, Solid Tool Holder		6JHF-29B	143512	Lug - Tool Clamp. . . . .	1
	121121	1/8" Parting . . . . .	1	6JHF-30B	143513	Washer - Tool Clamp . . . . .	1
	121122	3/16" Parting . . . . .	1	6JHF-31B	3227	Screw. . . . .	1
	121123	1/4" Square . . . . .	1	6JHF-32B		Tool - Clapper Box Tool Holder	
	121124	5/16" Square . . . . .	1		150709	Left Diamond Point. . . . .	1
	121125	3/8" Square . . . . .	1		150710	Right Diamond Point . . . . .	1
	121126	1/2" Square . . . . .	1		150711	Straight, Round Nose . . . . .	1
	121127	1/4" Round . . . . .	1		150712	Round Nose . . . . .	1
	121128	3/8" Round . . . . .	1		150713	Diamond Point . . . . .	1
	121129	1/2" Round . . . . .	1		150714	Parting, Straight . . . . .	1
	121130	75° Angle . . . . .	1	6JHF-33B	150715	Block - For Shaping Tools . . . . .	1
6JHF-6B	3518	Pointer . . . . .	1	6JM-34B	Example	Motor - Shaping Attachment (*) . . . . .	1
6JHF-7B	3228	Screw. . . . .	1	6JHF-35B	4093	Screw. . . . .	4
6JHF-8B	143477	Slide . . . . .	1	6JHF-36B	1632	Key . . . . .	1
6JHF-9B	143486	Handle - Wrench . . . . .	1	6JHF-37B	49	Screw. . . . .	3
6JHF-10B	143485	Wrench - Stroke Adjusting. . . . .	1	6JHF-38B	3441	Washer . . . . .	3
6JHF-11B	143483	Rack - Stroke Adjusting. . . . .	1	6JHF-39B	166485	Plate - Motor Mounting. . . . .	1
6JHF-12B	3218	Screw. . . . .	2	6JHF-40B	143478	Housing - Belt. . . . .	1
6JHF-13B	2278	Screw. . . . .	1	6JHF-41B	2332	Screw. . . . .	1
6JHF-14B	143482	Plate - Instruction . . . . .	1	6JHF-42B	3230	Screw. . . . .	1
6JHF-15B	3480	Nut . . . . .	2	6JHF-43B	143514	Sheave - Motor Drive . . . . .	1
6JHF-16B	225188	Washer - Heat . . . . .	2	6JHF-44B	166484	Belt - Vee . . . . .	1
6JHF-17B	240381	Stud . . . . .	2	6JHF-45B	2321	Screw. . . . .	4
6JHF-18B	143489	Clamp - Outer. . . . .	1	6JHF-46B	143481	Pin - Belt Adjusting . . . . .	1
6JHF-19B	3544	Pin . . . . .	1	6JHF-47B	143484	Screw - Belt Adjusting . . . . .	1
6JHF-20B	143488	Clamp - Inner . . . . .	1	6JHF-48B	125141	Knob - Knurled . . . . .	1
6JHF-21B	3541	Pin . . . . .	1	6JHF-49B	140	Pin . . . . .	1
6JHF-22B	143508	Dial - Tool Index . . . . .	1				
6JHF-23B	143509	Bar - Tool Support . . . . .	1				
6JHF-24B	3203	Screw. . . . .	1				

\* When ordering specify H. P. , frame size, voltage and cycle.



# SHAPING ATTACHMENT



18EEE  
19EEE  
20EEE

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

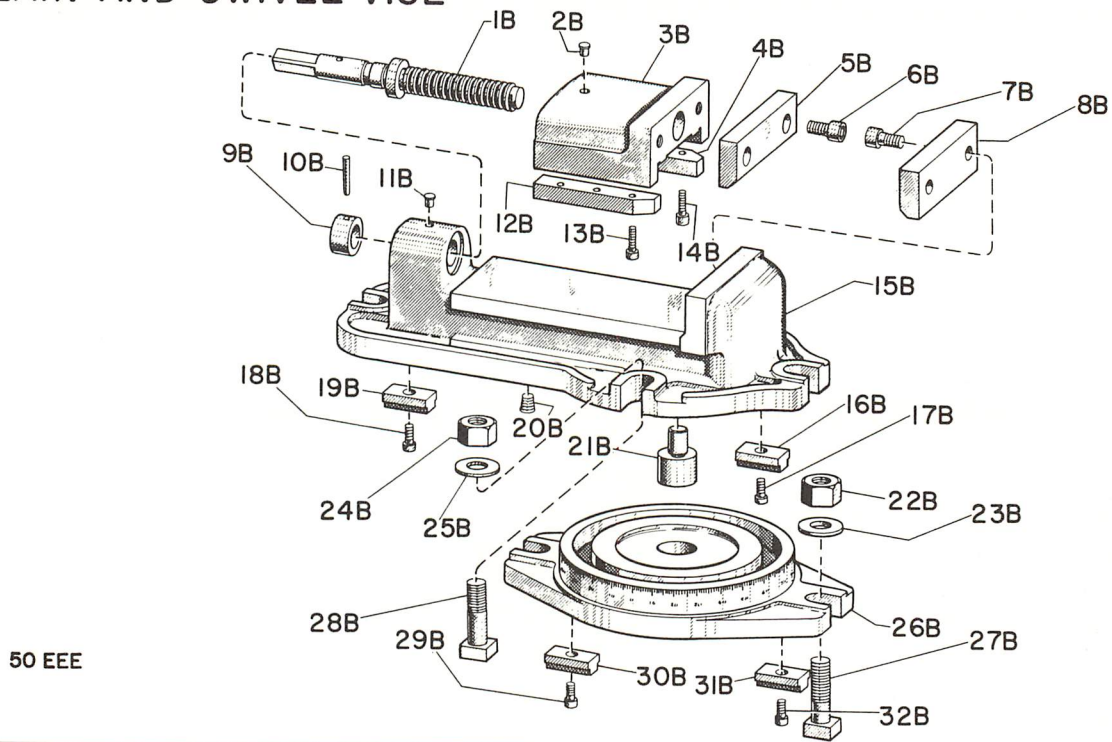
WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

SHAPING ATTACHMENT - UNIT No. 6JHF (Concluded)

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JHF-50B	143515	Sheave - Driven . . . . .	1	6JHF-86B	3274	Bolt - Tee . . . . .	2
6JHF-51B	3158	Screw. . . . .	2	6JHF-87B	3442	Washer . . . . .	3
6JHF-52B	225409	Seal - Oil . . . . .	1	6JHF-88B	3479	Nut . . . . .	3
6JHF-53B	143518	Housing - Oil Seal, Large . . . . .	1	6JHF-89B	76645	Plug . . . . .	2
6JHF-54B	143517	Gasket - Housing, Large . . . . .	1	6JHF-90B	97288	Cup - Bearing . . . . .	1
6JHF-55B	4242	Nut - Lock . . . . .	1	6JHF-91B	97289	Cone - Bearing . . . . .	1
6JHF-56B	221593	Cone - Bearing . . . . .	1	6JHF-92B	143519	Spacer - Worm Shaft. . . . .	1
6JHF-57B	108367	Cup - Bearing . . . . .	1	6JHF-93B	237219	Ring - Retaining . . . . .	1
6JHF-58B	3230	Screw. . . . .	1	6JHF-94B	143520	Gasket - Housing, Small . . . . .	1
6JHF-59B	2332	Screw. . . . .	1	6JHF-95B	143521	Housing - Oil Seal, Small . . . . .	1
6JHF-60B	1632	Key . . . . .	1	6JHF-96B	3218	Screw. . . . .	2
6JHF-61B	143516	Worm - Shaft . . . . .	1	6JHF-97B	143522	Seal - Oil, Garlock . . . . .	1
6JHF-62B	143475	Housing - Gear . . . . .	1	6JHF-98B	143523	Nut - Eccentric, Locating . . . . .	1
6JHF-63B	143496	Gage - Oil Sight . . . . .	1	6JHF-99B	2291	Pin . . . . .	1
6JHF-64B	3228	Screw. . . . .	2	6JHF-100B	4236	Screw. . . . .	1
6JHF-65B	95586	Cup - Bearing . . . . .	1	6JHF-101B		Clamp - Left, On Housing	
6JHF-66B	95585	Cone - Bearing . . . . .	1		143487	English. . . . .	1
6JHF-67B	3809	Washer - Lock. . . . .	1		153499	Metric . . . . .	1
6JHF-68B	3810	Nut . . . . .	1	6JHF-102B	143476	Housing - Slide . . . . .	1
6JHF-69B	143495	Gasket - Drive Housing. . . . .	1	6JHF-103B	44980	Oiler . . . . .	2
6JHF-70B	143494	Plate - Drive Housing, Cover. . . . .	1	6JHF-104B	381	Screw. . . . .	2
6JHF-71B	3203	Screw. . . . .	4	6JHF-105B	3399	Screw. . . . .	4
6JHF-72B	3342	Fitting - Alemite . . . . .	1	6JHF-106B	1383	Pin . . . . .	1
6JHF-73B	143502	Pin - Pitman Mounting . . . . .	1	6JHF-107B	3221	Screw. . . . .	2
6JHF-74B	143501	Bushing - Pitman, Small . . . . .	1	6JHF-108B	3281	Key . . . . .	1
6JHF-75B	4236	Screw. . . . .	1	6JHF-109B	143493	Crank. . . . .	1
6JHF-76B	143503	Pitman . . . . .	1	6JHF-110B	143499	Seal - Oil, Garlock . . . . .	1
6JHF-77B	143492	Bolt - Tee . . . . .	1	6JHF-111B	108365	Cone - Bearing . . . . .	1
6JHF-78B	76645	Plug - Pipe (1/4") . . . . .	1	6JHF-112B	108366	Cup - Bearing . . . . .	1
6JHF-79B	143524	Clamp - Screw. . . . .	2	6JHF-113B	2333	Screw. . . . .	1
6JHF-80B	741	Screw. . . . .	2	6JHF-114B	143497	Worm - Wheel . . . . .	1
6JHF-81B	3480	Nut . . . . .	1	6JHF-115B	143500	Ring - "O" . . . . .	1
6JHF-82B	143506	Washer - Pitman Bearing . . . . .	1	6JHF-116B	3399	Screw. . . . .	4
6JHF-83B	143505	Bushing - Pitman, Large . . . . .	1	6JHF-117B	143491	Gib - Taper. . . . .	1
6JHF-84B	143504	Sleeve - Bearing . . . . .	1	6JHF-118B	143490	Clamp - Right, On Housing . . . . .	1
6JHF-85B	143507	Bolt - Tee . . . . .	1	6JHF-119B	3611	Wrench . . . . .	1

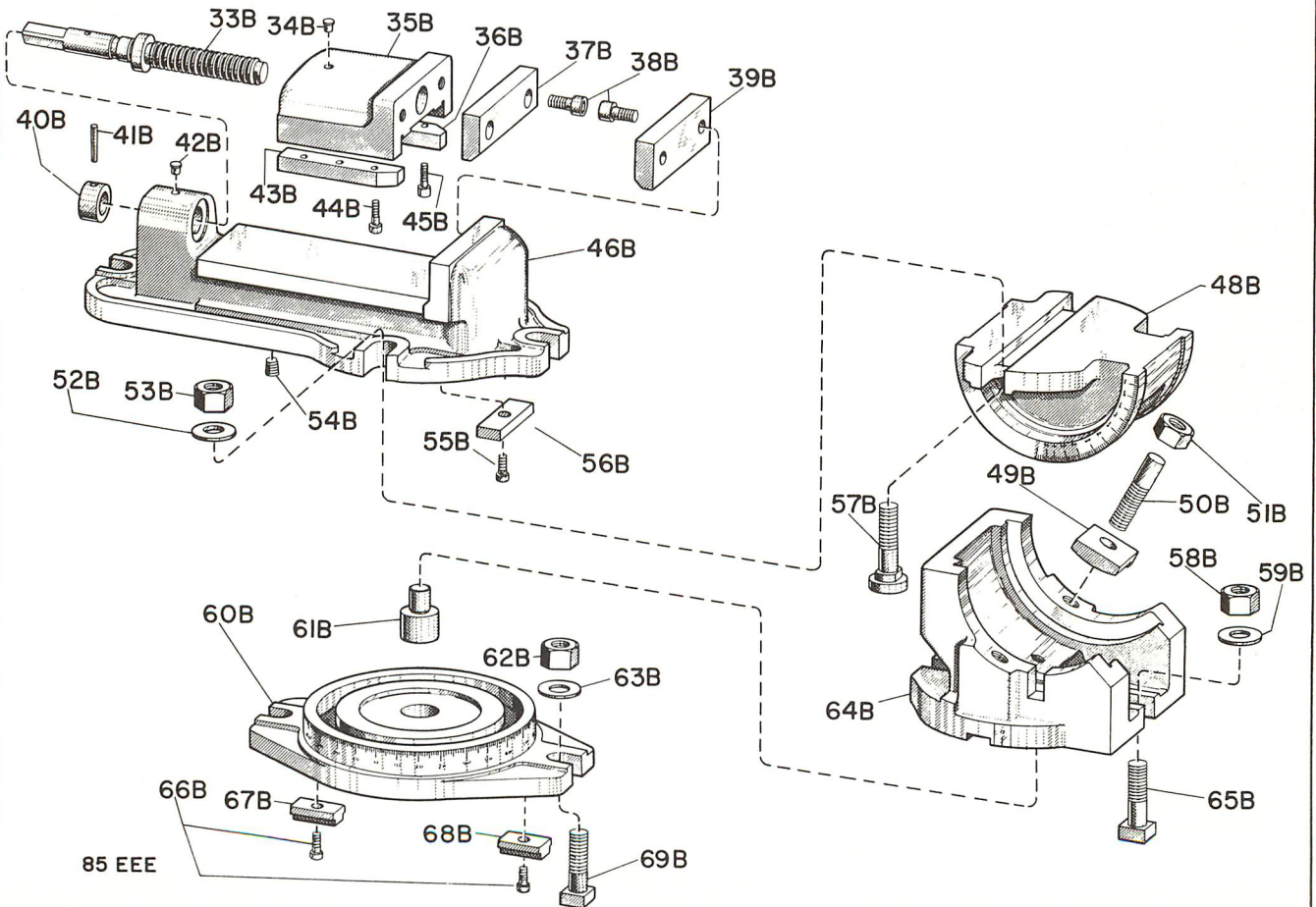


### PLAIN AND SWIVEL VISE



50 EEE

### UNIVERSAL VISE



85 EEE

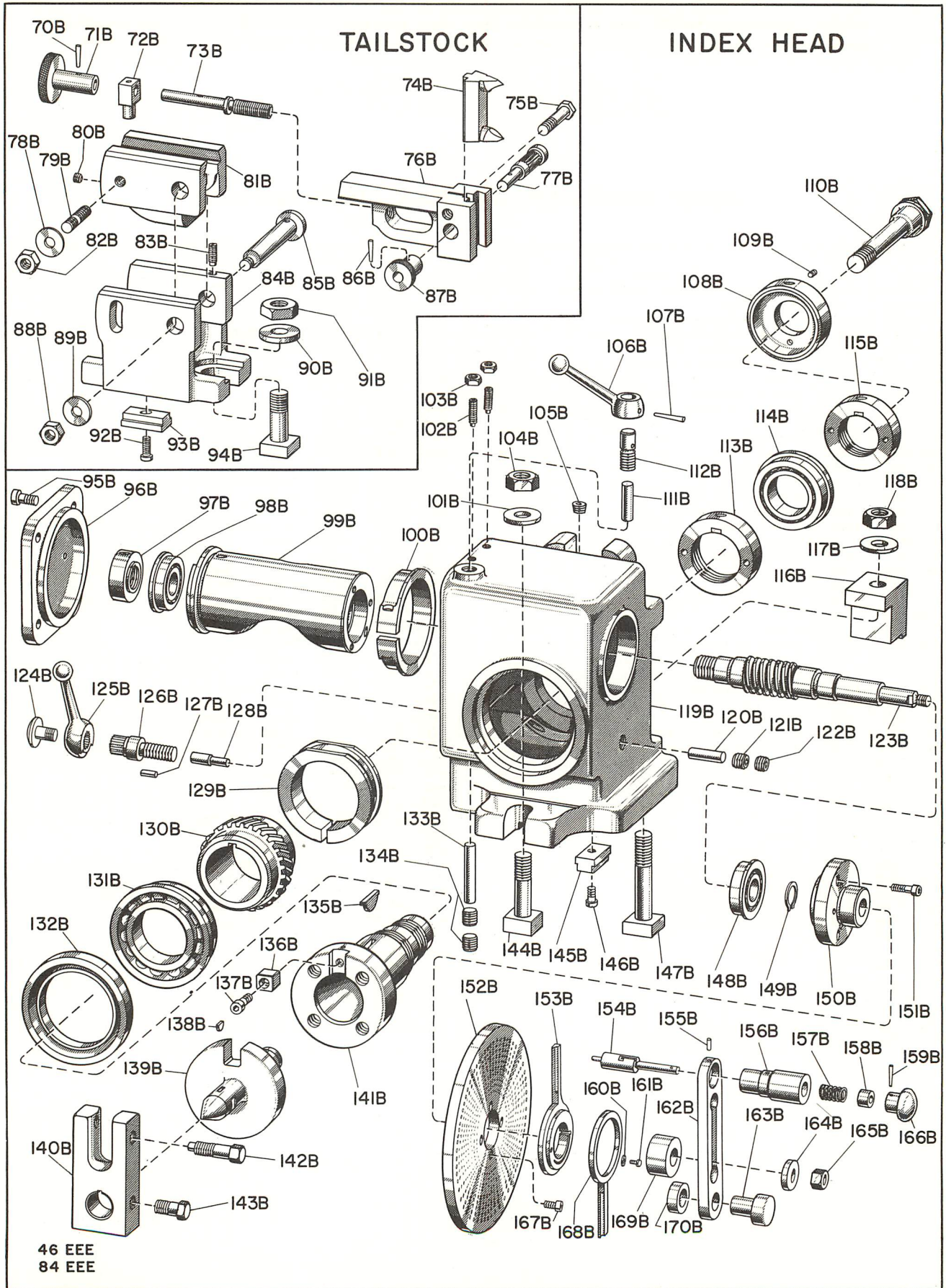
CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

PLAIN, SWIVEL AND UNIVERSAL VISES - UNIT No. 6JKA

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKA-1B	153837	Screw - Vise . . . . .	1	6JKA-35B	153836	Housing - Vise. . . . .	1
6JKA-2B	60062	Oiler . . . . .	1	6JKA-36B	156208	Gib - Housing, Left Hand . . . . .	1
6JKA-3B	153836	Housing - Vise. . . . .	1	6JKA-37B	153840	Jaw - Vise . . . . .	1
6JKA-4B	156208	Gib - Housing, Left Hand . . . . .	1	6JKA-38B	3399	Screw. . . . .	4
6JKA-5B	153840	Jaw - Vise . . . . .	1	6JKA-39B	153840	Jaw - Vise . . . . .	1
6JKA-6B	3399	Screw. . . . .	2	6JKA-40B	153839	Collar - On Screw . . . . .	1
6JKA-7B	3399	Screw. . . . .	2	6JKA-41B	663	Pin - Taper. . . . .	1
6JKA-8B	153840	Jaw - Vise . . . . .	1	6JKA-42B	60062	Oiler . . . . .	1
6JKA-9B	153839	Collar - On Screw . . . . .	1	6JKA-43B	153838	Gib - Housing, Right Hand . . . . .	1
6JKA-10B	663	Pin - Taper. . . . .	1	6JKA-44B	3396	Screw. . . . .	3
6JKA-11B	60062	Oiler . . . . .	1	6JKA-45B	3396	Screw. . . . .	3
6JKA-12B	153838	Gib - Housing, Right Hand . . . . .	1	6JKA-46B	153832	Body - Vise. . . . .	1
6JKA-13B	3396	Screw. . . . .	3	6JKA-48B	161830	Swivel . . . . .	1
6JKA-14B	3396	Screw. . . . .	3	6JKA-49B	161836	Shoe - Clamp . . . . .	2
6JKA-15B	153832	Body - Vise. . . . .	1	6JKA-50B	224115	Stud . . . . .	2
6JKA-16B	3357	Tongue . . . . .	1	6JKA-51B	3480	Nut . . . . .	2
6JKA-17B	3486	Screw. . . . .	1	6JKA-52B	1040	Washer . . . . .	2
6JKA-18B	3486	Screw. . . . .	1	6JKA-53B	3480	Nut . . . . .	2
6JKA-19B	3357	Tongue . . . . .	1	6JKA-54B	76645	Plug - Pipe . . . . .	2
6JKA-20B	76645	Plug - Pipe . . . . .	2	6JKA-55B	3486	Screw. . . . .	2
6JKA-21B	10624	Stud . . . . .	1	6JKA-56B	1954-T	Tongue . . . . .	2
6JKA-22B	3480	Nut . . . . .	2	6JKA-57B	158173	Bolt - Locking Tee . . . . .	2
6JKA-23B	1040	Washer . . . . .	2	6JKA-58B	3480	Nut . . . . .	2
6JKA-24B	3480	Nut . . . . .	2	6JKA-59B	1040	Washer . . . . .	2
6JKA-25B	1040	Washer . . . . .	2	6JKA-60B	153833	Plate - Swivel . . . . .	2
6JKA-26B	153833	Plate - Swivel . . . . .	1	6JKA-61B	10624	Stud . . . . .	1
6JKA-27B	275	Bolt - Tee . . . . .	2	6JKA-62B	3480	Nut . . . . .	2
6JKA-28B	222	Bolt - Tee . . . . .	2	6JKA-63B	1040	Washer . . . . .	2
6JKA-29B	3486	Screw. . . . .	1	6JKA-64B	161835	Base - Swivel . . . . .	1
6JKA-30B	3357	Tongue . . . . .	1	6JKA-65B	222	Bolt - Tee . . . . .	2
6JKA-31B	3357	Tongue . . . . .	1	6JKA-66B	3486	Screw. . . . .	2
6JKA-32B	3486	Screw. . . . .	1	6JKA-67B	3357	Tongue . . . . .	1
6JKA-33B	153837	Screw - Vise . . . . .	1	6JKA-68B	3357	Tongue . . . . .	1
6JKA-34B	60062	Oiler . . . . .	1	6JKA-69B	275	Bolt - Tee . . . . .	2







CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

WHEN ORDERING PARTS, give key number, part name and part number. Be sure to give complete serial number for your machine. For complete instructions, see Page 27, "How to Order Repair Parts."

INDEX HEAD AND TAILSTOCK - UNIT No. 6JKA

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
6JKA-70B	140	Pin - Taper. . . . .	1	6JKA-121B	45668	Screw. . . . .	1
6JKA-71B	142918	Knob - On Screw for Tailstock . . . . .	1	6JKA-122B	2357	Screw. . . . .	1
6JKA-72B	142917	Bearing - Adjusting Screw. . . . .	1	6JKA-123B	170799	Shaft - Worm . . . . .	1
6JKA-73B	142916	Screw - Adjustment . . . . .	1	6JKA-124B	3514	Screw - Retaining. . . . .	1
6JKA-74B	142913	Center - Elevating Tailstock . . . . .	1	6JKA-125B	150430	Lever - Spindle Clamp . . . . .	1
6JKA-75B	3320	Screw. . . . .	1	6JKA-126B	150431	Screw - Spindle Clamp . . . . .	1
6JKA-76B	142912	Slide - Tailstock . . . . .	1	6JKA-127B	3636	Pin . . . . .	1
6JKA-77B	142914	Pinion - Tailstock . . . . .	1	6JKA-128B	150427	Pin - Spindle Clamp . . . . .	1
6JKA-78B	82244	Washer . . . . .	1	6JKA-129B	149779	Clamp - Spindle . . . . .	1
6JKA-79B	225067	Stud . . . . .	1	6JKA-130B	171335	Wheel - Worm . . . . .	1
6JKA-80B	2332	Screw. . . . .	1	6JKA-131B	142612	Bearing - Ball. . . . .	1
6JKA-81B	142911	Block - Swivel . . . . .	1	6JKA-132B	173802	Baffle - Spindle . . . . .	1
6JKA-82B	3478	Nut . . . . .	1	6JKA-133B	153488	Pin - Sleeve Clamp . . . . .	1
6JKA-83B	3230	Screw. . . . .	1	6JKA-134B	2248	Screw. . . . .	2
6JKA-84B	142910	Housing - Tailstock . . . . .	1	6JKA-135B	3281	Key . . . . .	1
6JKA-85B	142919	Shaft - Trunnion . . . . .	1	6JKA-136B	94602	Key - Spindle . . . . .	1
6JKA-86B	140	Pin - Taper. . . . .	1	6JKA-137B	3396	Screw. . . . .	1
6JKA-87B	142915	Knob - Pinion . . . . .	1	6JKA-138B	1266	Key . . . . .	1
6JKA-88B	3478	Nut . . . . .	1	6JKA-139B	151382	Center - Adapter . . . . .	1
6JKA-89B	82244	Washer . . . . .	1	6JKA-140B	134972	Holder - Dog . . . . .	1
6JKA-90B	1040	Washer . . . . .	2	6JKA-141B	168188	Spindle . . . . .	1
6JKA-91B	3475	Nut . . . . .	2	6JKA-142B	51	Screw. . . . .	2
6JKA-92B	3203	Screw. . . . .	2	6JKA-143B	1453	Screw. . . . .	1
6JKA-93B	163935	Tongue . . . . .	2	6JKA-144B	2227	Bolt - Tee . . . . .	1
6JKA-94B	3362	Bolt - Tee . . . . .	1	6JKA-145B	3357	Tongue . . . . .	2
6JKA-95B	4093	Screw. . . . .	4	6JKA-146B	3486	Screw. . . . .	2
6JKA-96B	161831	Cap - Worm Dust . . . . .	1	6JKA-147B	232618	Bolt - Tee . . . . .	1
6JKA-97B	153483	Nut - Lock . . . . .	1	6JKA-148B	150429	Bearing - Ball. . . . .	1
6JKA-98B	150429	Bearing - Ball. . . . .	1	6JKA-149B	125924	Ring - Retaining . . . . .	1
6JKA-99B	161833	Sleeve - Eccentric Engagement . . . . .	1	6JKA-150B	153482	Flange - Eccentric . . . . .	1
6JKA-100B	161832	Clamp - Eccentric Sleeve . . . . .	1	6JKA-151B	3396	Screw. . . . .	3
6JKA-101B	1040	Washer . . . . .	1	6JKA-152B	153478	Plate - Index . . . . .	1
6JKA-102B	3165	Screw - Set. . . . .	1	6JKA-153B	157954	Sector - Bottom Part . . . . .	1
6JKA-103B	3472	Nut - Thin . . . . .	1	6JKA-154B	70861	Plunger - Index . . . . .	1
6JKA-104B	3475	Nut . . . . .	1	6JKA-155B	2160	Pin . . . . .	1
6JKA-105B	76644	Plug - Pipe. . . . .	1	6JKA-156B	37750	Holder - Pin Index . . . . .	1
6JKA-106B	115999	Lever. . . . .	1	6JKA-157B	253	Spring . . . . .	1
6JKA-107B	232350	Pin - Taper. . . . .	1	6JKA-158B	295	Bushing . . . . .	1
6JKA-108B	150418	Cap - Spindle Dust . . . . .	1	6JKA-159B	140	Pin - Taper. . . . .	1
6JKA-109B	2332	Screw. . . . .	2	6JKA-160B	294	Washer . . . . .	1
6JKA-110B	156438	Bolt - Arbor, Draw-In . . . . .	1	6JKA-161B	2285	Screw. . . . .	1
6JKA-111B	153487	Pin - Sleeve Clamp . . . . .	1	6JKA-162B	149772	Carrier - Index Pin Holder . . . . .	1
6JKA-112B	153486	Screw - Sleeve Clamp . . . . .	1	6JKA-163B	76948	Stud - Balancing . . . . .	1
6JKA-113B	4249	Nut . . . . .	1	6JKA-164B	661	Washer . . . . .	1
6JKA-114B	236701	Bearing - Ball. . . . .	1	6JKA-165B	3478	Nut . . . . .	1
6JKA-115B	4247	Nut . . . . .	1	6JKA-166B	149778	Knob - Index . . . . .	1
6JKA-116B	153490	Clamp - Hold Down . . . . .	1	6JKA-167B	3197	Screw. . . . .	4
6JKA-117B	1040	Washer . . . . .	1	6JKA-168B	157953	Sector - Top Part. . . . .	1
6JKA-118B	3475	Nut . . . . .	1	6JKA-169B	153484	Collar - Sector Retaining . . . . .	1
6JKA-119B	161834	Body - Index Head . . . . .	1	6JKA-170B	76949	Collar - Balancing Stud. . . . .	1
6JKA-120B	153489	Pin - Spindle Clamping . . . . .	1				





**FEED CONTROL**  
INCHES PER REVOLUTION

PUSH .006  
PULL .002

**SPINDLE SPEEDS**  
JACK SHAFT MOTOR 900 R.P.M.

2825	475
1700	285
1125	185
650	108
HIGH	LOW

108078

**SPINDLE SPEEDS**  
JACK SHAFT MOTOR 900 R.P.M.

2825	475
1700	285
1125	185
650	108
HIGH	LOW

**DANGER - KEEP DOOR CLOSED**  
**ELECTRICAL CONTROL**

VOLTS POWER AC \_\_\_\_\_ PH \_\_\_\_\_ DC \_\_\_\_\_  
VOLTS CONTROL \_\_\_\_\_ CY \_\_\_\_\_ FLI \_\_\_\_\_  
NEMA INT CAP-CCT BREAKER \_\_\_\_\_  
MACHINE SERIAL NO \_\_\_\_\_  
WIRING DIAGRAM NO \_\_\_\_\_

THE CINCINNATI MILLING MACHINE CO. 4218

**START**

**STOP**

**POWER FEED**  
OFF ON

**COOLANT**  
OFF ON

188097

HIGH  
 NEUTRAL

LOW

STOP MOTOR BEFORE SHIFTING  
167457

**RPM A B C**

100	1	2	2
140	2	2	2
215	1	2	1
310	2	2	1
490	1	1	2
700	2	1	2
1070	1	1	1
1530	2	1	1
N			N

**TABLE FEEDS**

POSITION OF LEVERS	1A	1B	1C	2A	2B	2C	3A	3B	3C
INCHES PER MIN	.75	1.1	1.7	2.4	3.4	5.2	6.6	10	15

158002

**SADDLE FEEDS**

POSITION OF LEVERS	1A	1B	1C	2A	2B	2C	3A	3B	3C
INCHES PER MIN	.75	1.1	1.7	2.4	3.4	5.2	6.6	10	15

158008

**SPINDLE**  
LEFT RIGHT

MOTOR SPINDLE

3000	400
1750	234
1030	137
600	80
HIGH	LOW

60 CYCLE

176394

GREASE LIGHTLY ONCE A DAY WITH SPINDLE SPEED SET TO 1400 RPM OR LESS. RUN AT THIS SPEED FOR ONE MINUTE.

172730

**POWER FEED**

DO NOT SHIFT GEARS WITH POWER FEED ENGAGED

UP

FEED

DOWN

.003 INCHES PER SPINDLE REV.

188445

12B

CINCINNATI NO. 1 TOOLMASTER MILLING MACHINE

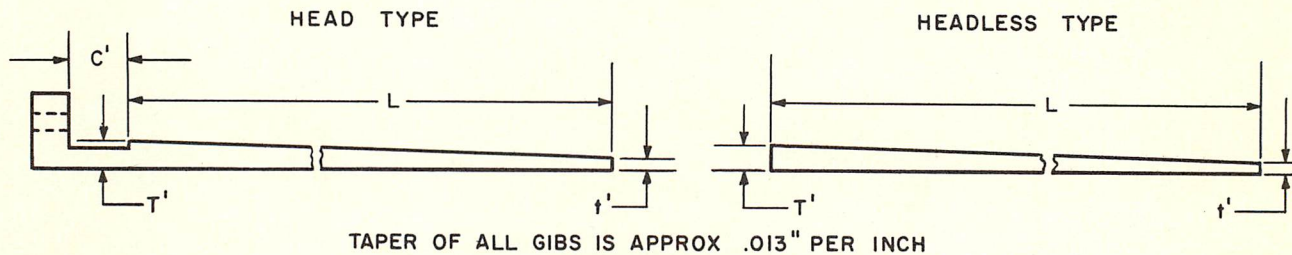
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MACHINE INSTRUCTION PLATES

Key No.	Part No.	Part Name	Amt. Used	Key No.	Part No.	Part Name	Amt. Used
1B		Plate - Speed (1-B Head)		3B	158086	Plate - Name . . . . .	1
	158074	750 RPM Motor . . . . .	1	4B	4318	Plate - Electrical Control . . . . .	1
	158076	900 RPM Motor . . . . .	1	5B	158097	Plate - Push Button Cover . . . . .	1
	158078	1000 RPM Motor . . . . .	1	6B	178251	Plate - Speed (1-D Head) . . . . .	1
	158075	1200 RPM Motor . . . . .	1	7B	167457	Plate - Instruction Speed (1-D & 1-E) . . . . .	1
	158077	1500 RPM Motor . . . . .	1	8B	175394	Plate - Reversing (1-E Head) . . . . .	1
2B	158079	1800 RPM Motor . . . . .	1	9B	159445	Plate - Instruction, Powerfeed to Spindle (1-E and 1-E Head) . . . . .	1
	158080	750 RPM Motor . . . . .	1	10B	158087	Plate - Table Feeds . . . . .	1
	158081	900 RPM Motor . . . . .	1	11B	158088	Plate - Saddle Feeds. . . . .	1
	158082	1000 RPM Motor . . . . .	1	12B	172730	Plate - Instruction, Grease . . . . .	1
	158084	1200 RPM Motor . . . . .	1				
	158085	1500 RPM Motor . . . . .	1				
	158083	1800 RPM Motor . . . . .	1				
		Plate - Speed (1-A Head)					
		750 RPM Motor . . . . .	1				
		900 RPM Motor . . . . .	1				

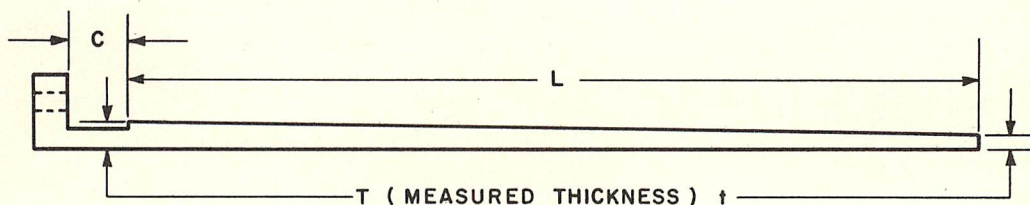


## ORDERING REPLACEMENT GIBS



Measurements of Old Gib

When ordering replacement gibs, be certain to give length and thickness at both ends of old gib. Also specify the amount of stock you wish left on gib for fitting. (Normally a replacement gib has 0.020" extra stock for planing and scraping to fit.)



Measurements of New Gib

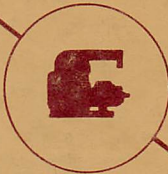
**Example:**

Assume that the old gib had been readjusted so there was no clearance under head and the ways had been scored so 0.010" had to be removed to clean them. If a clearance under head (C) of 1" is desired, specify a gib of length L having  $T = T' + 0.023"$  and  $t = t' + 0.023"$ . (0.010" is amount of stock removed; 0.013" increased gib thickness that will move gib out approximately 1".)





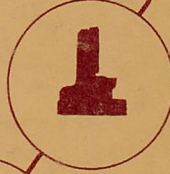
MILLING MACHINES



DIE SINKING MACHINES



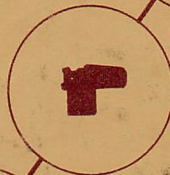
BROACHING MACHINES



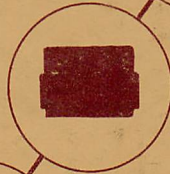
CUTTER SHARPENING MACHINES



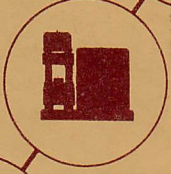
OPTICAL PROJECTION GRINDERS



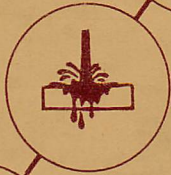
FLAME HARDENING MACHINES



METAL FORMING MACHINES



CUTTING FLUIDS



PRECISION GRINDING WHEELS



Products of The Cincinnati Milling Machine Co. are listed and symbolized here. Products of their associate company, Cincinnati Grinders Incorporated, include a complete line of Centertype, Centerless, and Roll Grinding Machines.

\* \* \*

The products of The Cincinnati Milling Machine Co. and of Cincinnati Grinders Incorporated are sold by Cincinnati Milling and Grinding Machines, Inc.

**THE CINCINNATI MILLING MACHINE CO., CINCINNATI 9, OHIO, U.S.A.**

Publication No. M-2109  
Supersedes M-1890-1 & 1½

Litho in U. S. A.  
2500-2/60-S