



# INSTALLATION, OPERATION, MAINTENANCE, AND PARTS LIST

## SERIES I MILLING MACHINES



TP5260

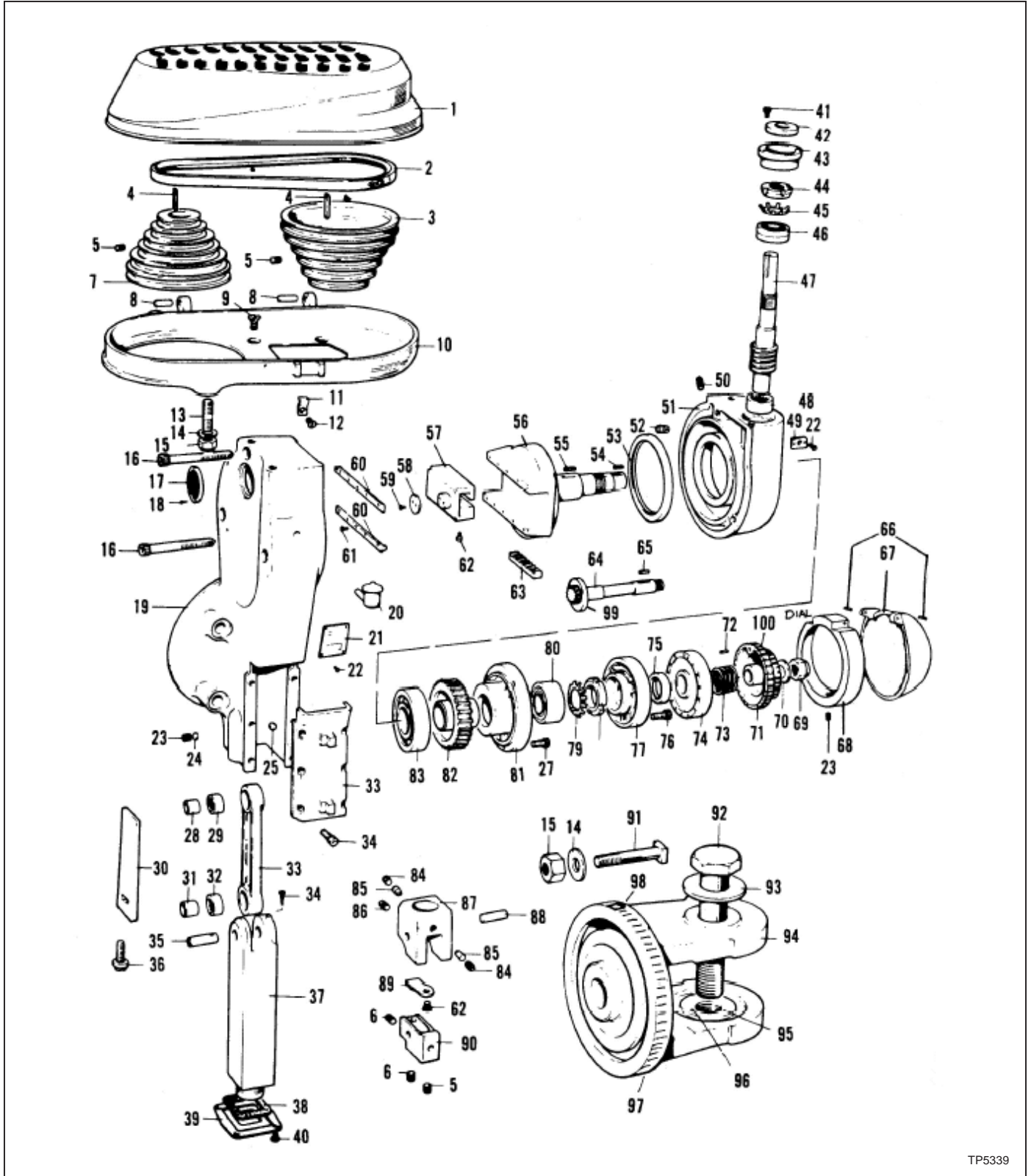
Revised: August 29, 2005

Manual No. M-450  
Part No. M -0009500-0450

Litho in U.S.A.  
June, 2003

# CHAPTER 4 - PARTS LISTINGS

## E-HEAD



TP5339

Figure 4.1 - E-Head Assembly

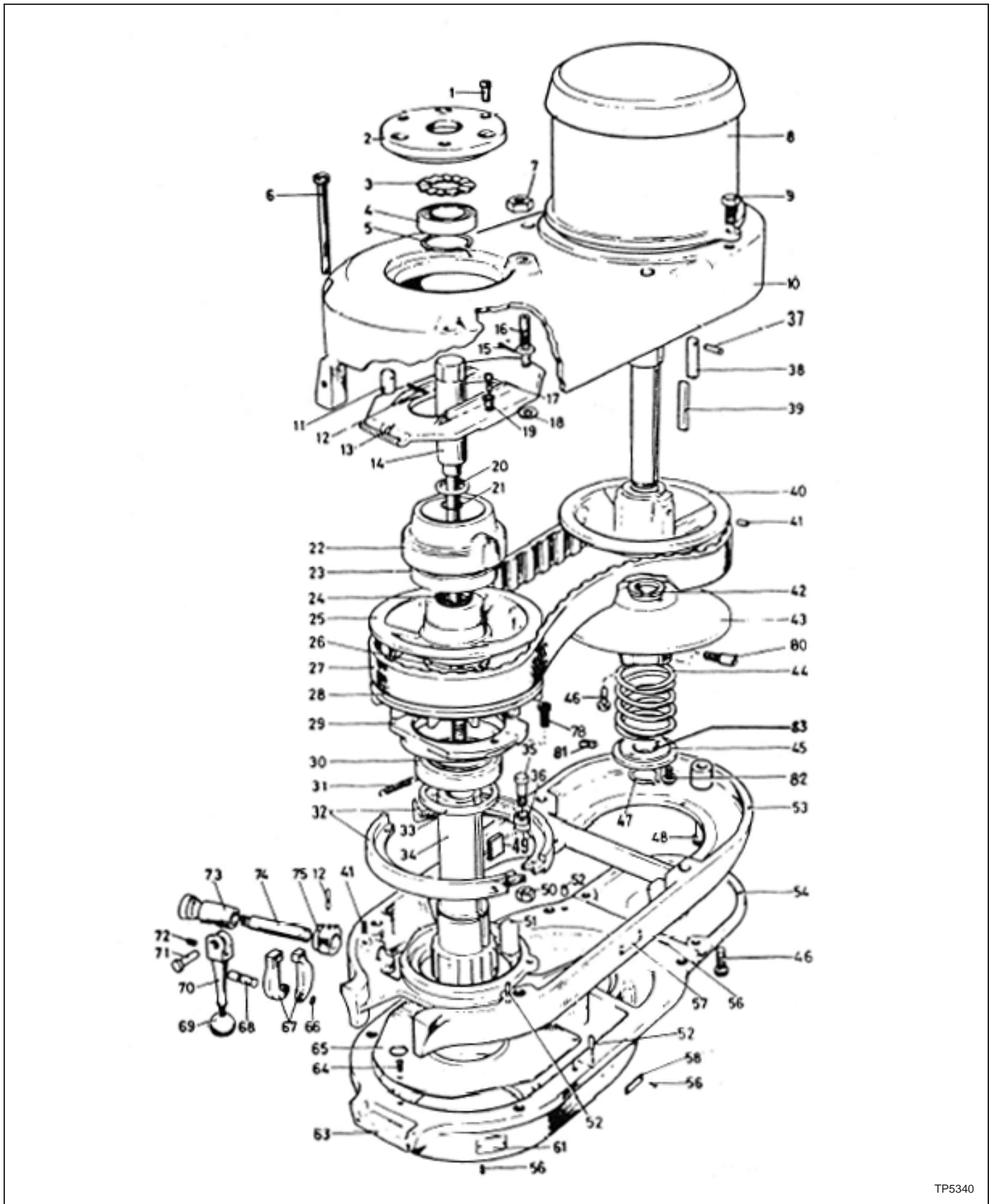
ITEM	CODE NO.	DESCRIPTION	QTY
	12240092	Shaft, Worm Slow Spd	1
48	11240306	Bearing	1
49	11242805	Nameplate, Dial Rotating	1
50	12240091	Plug, Vent	1
51	12240051	Gear, Housing	1
52	11010782	Plug, Pipe, .125" NPT Sq Hd	1
53	11243180	Seal, Oil	1
54	12240082	Key, Sq, .125" x .230"	1
55	12240085	Key, Sq, .187" x 1.00"	1
56	12240063	Shaft, Crank	1
57	12240064	Block, Crank Pin	1
58	12240074	Washer, Bearing Retainer	1
59	11011502	Screw, Round Hd Machine, 5-40 x .250" Lg	1
60	12240070	Hold-Down, Crank Pin Block	1
61	11011515	Screw, Flat Hd, #10-24 x .375"	10
62	11011427	Screw, Round Hd, #8-32 x .375"	4
63	12240069	Rack, Pitch	1
64	12240080	Pinion, Gear and Shaft	1
65	12240084	Key, Sq, .125" x .667"	1
66	11010517	Pin, Roll,.125" x .750"	2
67	11240116	Cover, Stroke	1
68	11240115	Ring, Dial Cover	1
69	12240089	Nut, Acorn	1
70	12240088	Washer, Dial	1
71	11240055	Dial, Stroke Adjustment	1
72	12240083	Pin	1
73	11242050	Dial, Spring	1
74	12240066	Plate, Stroke Adjustment	1
75	11243181	Seal, Oil	1
76	11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	3
77	12240068	Cover, Crank Bearing	1
78	11241786	Locknut	1
79	11241940	Lockwasher	1
80	11240216	Bearing, Ball	1
81	12240052	Cover, Gear Housing	1
82	12240071	Gear, Worm Standard Spd	1
	12240093	Gear, Worm Slow Spd	1
83	11240214	Bearing, Ball	1
84	11011270	Screw, Stainless Steel, .312"-18 x .312"	2
85	12240077	Pin, Clapper Box	2
**	12240024	Assembly, Clapper	
86	11011214	Screw, Stainless Steel, #10-24 x .250"	1
87**	12240075	Box, Clapper	1
88**	11010748	Pin	1
89**	12240062	Spring, Clapper	1
90**	12240076	Clapper	1
91	11241605	Bolt, Mounting	4
92	12060062	Bolt, Hex Lock Indexing Arm	1
93	12060063	Washer	1
94	12249000	Adapter, Back 'V'-Ram	1

ITEM	CODE NO.	DESCRIPTION	QTY
95	12060064	Locknut, Adapter	1
96	11010713	Pin, Dowel, .187" x .500"	1
97	11060603	Scale, Ram Adapter	1
98	11980426	Screw, Drive, Type U, #4 x .312"	2
99	12240081	Collar	1
100	11242804	Nameplate, Stroke Adj - Inch	1
	11242810	nameplate, Stroke Adj - Metric	1
	11011552	Screw, Drive, Type U, #0 x .250"	2
	12240135	Assembly, Motor (Not Shown)	1

\*Items 1 and 10 sold as assembly only.

\*\*Items 87, 88, 89 and 90 sold as assembly only.

# 2J-HEAD TOP HOUSING



TP5340

Figure 4.2 - 2J-Head Assembly

## 2J-HEAD TOP HOUSING

ITEM	CODE NO.	DESCRIPTION	QTY
1	11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	3
2	12180094	Cap, Top Bearing	1
3	11181977	Washer, Wave Spring	1
4	11180252	Bearing, Ball, Fafnir #9107 NNP	1
5	11180848	Ring, Snap, #5100-137	1
6	11011069	Screw, Socket Hd Cap, .312"-18 x 6.00"	2
7	11011745	Nut, UNC Hex Jam, .375"-16	1
8	11550001	Motor, 2 HP, Multi Volt, 50/60	1
9	11011148	Screw, Hex Hd Cap, .375"-16 x 1.00"	2
10**	12180051	Housing, Upper Belt (see 12183923)	1
11	12180066	Stud, Speed Change Chain	1
12	11010535	Pin, Roll, .156"Ø x 1.00" Lg	2
13	11180058	Plate, Speed Change	1
14	12183920	Assembly, Drawbar	1
15	11010606	Pin, Cotter, .093"Ø x .750"	1
16	12180074	Stud, Speed Change Plate Pivot	1
17	11011020	Screw, Socket Hd Cap, #10-32 x .750"	2
18	11180095	Washer	1
19	12180089	Sleeve, Pivot	2
20	12180093	Washer, Drawbar	1
21	11180915	"O"-Ring, Parker # 2-14	1
22	12180056	Housing, Spindle Pulley Bearing Sliding	1
23	11170262	Bearing, #RM9110NPP	1
24	11182124	Insert, Plastic	2
25	12183934	Varidisc, Adjustable Drive A	1
26	11180855	Ring, Retaining, #5102-156	1
27	11182120	Belt, Varispeed	1
28	12180082	Varidisc, Stationary Drive	1
29	12180043	Cap, Brake and Bearing	1
30	11170262	Bearing, #RM9110NPP	1
31	11182081	Spring, Brake	2
32	12180073	Shoes, Brake	2
33	12180078	Spacer, Spindle Pulley	1
34	12180042	Assembly, Spindle Pulley Hub	1
35	11011138	Screw, Hex Hd Cap, .250"-20 x .750"	1
36	12180071	Sleeve, Brake Shoe Pivot Sleeve	1
37	11010513	Pin, Roll, .125" x .437"	1
38	12550007	Key, Drive, Fixed Varidisc	1
39	12550004	Assembly, Key, Drive, Varidisc	1
40	12550006	Varidisc, Stationary Motor	1
41	11011287	Screw, Stainless Steel, .250"-20 x .250"	2
42*	11182126	Insert, Plastic Replaceable Type	2
43	12550029	Assembly, Varidisc and Spring	1
44	11182083	Spring, Varidisc Motor Shaft	1
45	11550003	Collar, Adjustable Varidisc Spring	1
46	11011022	Screw, Socket Hd Cap, #10-24 x 1.00"	3
47	11150843	Ring, Snap	1
48	11011052	Screw, Socket Hd Cap, .132"-18 x .750" Lg	1

ITEM	CODE NO.	DESCRIPTION	QTY
49	11182122	Key, Plastic	1
50	11011707	Nut, Hex Jam, .250"-20	1
51	12180084	Key	1
52	12180107	Pin, Taper, #4 x 1.00"	4
53**	12180052	Base, Belt Housing (see 12183923)	1
54	12180088	Cover, Motor Pulley	1
56	11011552	Screw, Drive, Type U, #0 x .250"	4
58	11182893	Nameplate, Hi-Low Range	1
61	11182894	Nameplate, Quill Feed	1
63	12180053	Housing, Gear	1
64	11011443	Screw, Round Hd Machine, #10-24 x .375"	3
65	11185030	Plate, Gear Housing	1
66	11180818	Ring, Snap, #5100-25	1
67	11182306	Finger, Brake Operating	2
68	12180083	Stud, Brake Finger Pivot	1
69	11192151	Knob, Bakelite, .250"-20	1
70	12190133	Handle, Brake	1
71	12190134	Pin, Brake Lock	1
72	11011260	Screw, Stainless Steel, #10-32 UNF x .250"	1
73	12180104	Sleeve, Brake Lock Shaft	1
74	28025521	Shaft, Brake Lock	1
75	12180069	Cam, Brake Lock	1
78	11011031	Screw, Socket Hd Cap, .250"-20 x .625"	1
80	11011019	Screw, Flat Hd Cap, #10-32 x .500"	1
82	11011006	Screw, Socket Hd Cap, #8-32 x .250"	1
83	12550008	Key	1

\* Non-replaceable turcite bushing must be purchased as part of varidisc assembly #12550029.

\*\*Items 10 and 53 sold as assembly only.

**- NOTE -**

IMPORTANT - for 1-1/2 HP, substitute the following parts.

ITEM	CODE NO.	DESCRIPTION	QTY
34	12182004	Assembly, Spindle Pulley Hub	1
37	11010513	Pin, Roll, .125" x .437"	1
38	12180102	Key, Pulley	1
39	11182121	Key, Plastic	1
40	12180080	Varidisc, Stationary Motor	1
42*	11182123	Insert, Plastic	2
43	12180165	Assembly, Varidisc and Spring	1
45	11182305	Collar, Adjustable Varidisc Spring	1
47	11180860	Ring, Snap	1

\* Non-replaceable turcite bushing must be purchased as part of varidisc assembly #12180165.

# 2J-HEAD BACK GEAR

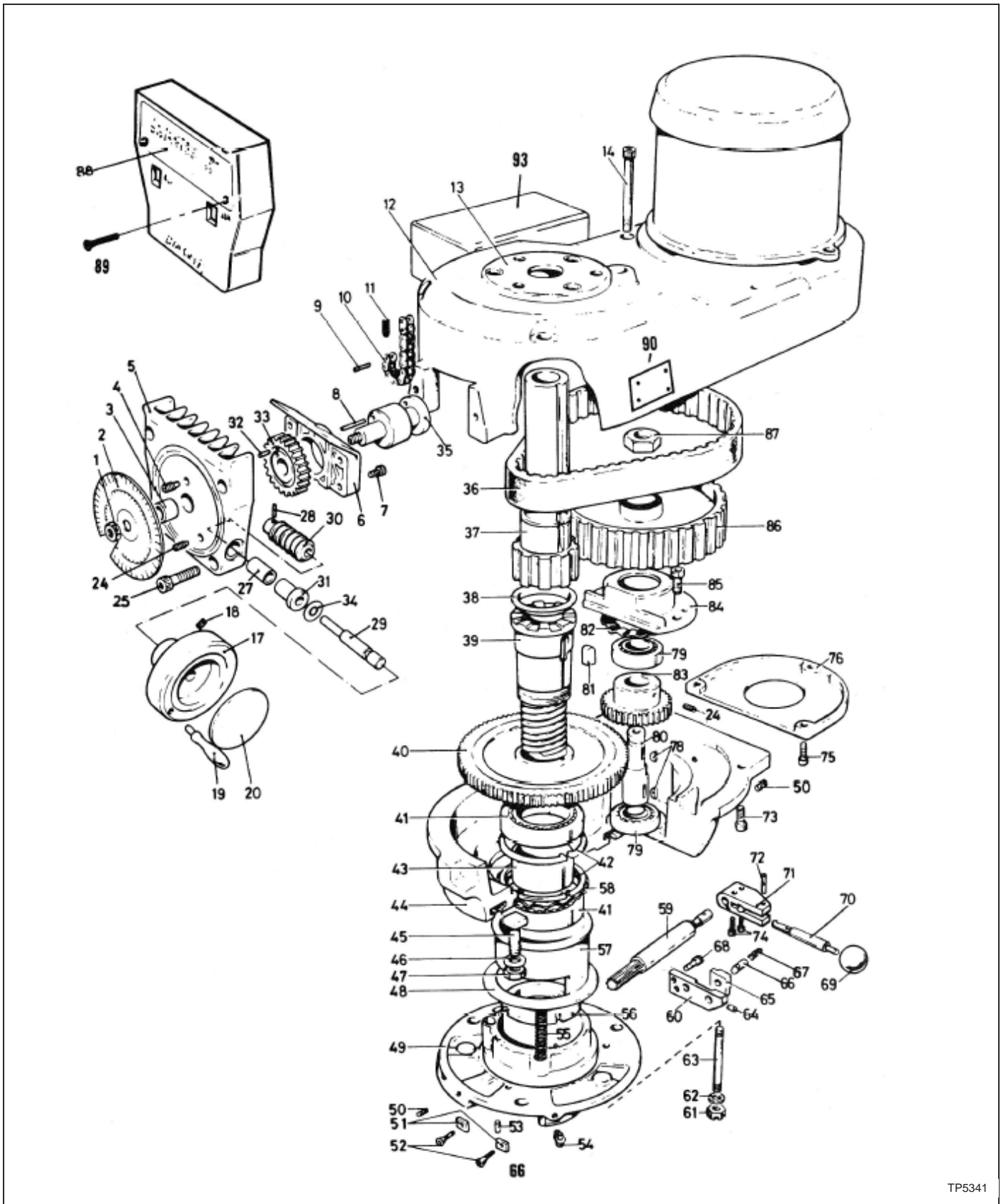


FIGURE 4.3 - 2J-Head Back Gear Assembly



## 2J-HEAD BACK GEAR

ITEM	CODE NO.	DESCRIPTION	QTY
1	11011710	Nut, Hex, .312"	1
2	11180133	Dial, Spindle Speed	1
3	11183646	Bushing, Bronze, .502" x .628" x 5.00"	1
4	11011380	Screw, Full Dog Socket Hd Set, .250"-20 x .500"	1
5	12180055	Housing, Speed Changer	1
6	12182003	Block, Plastic Bearing	1
7	11011031	Screw, Socket Hd Cap, .250"-20 x .625"	4
8	11010516	Pin, Roll, .125" x .625" Lg	1
9	11010520	Pin, Roll, .125"Ø x 1.00" Lg	1
10	11183720	Chain, Speed Changer, Morse #35	1
11	12180066	Stud, Speed Change Chain	1
12	12180051	Housing, Belt (see 12183923)	1
13	12180094	Cap, Top Bearing	1
14	11011065	Screw, Socket Hd Cap, .312"-18 x 4.00"	1
17	12182001	Hub, Speed Change	1
18	11181233	Screw, Socket Hd Set, .250"-UNC x .375"	2
19	11182178	Handle, Machine, #3302	1
20	11182892	Plate, Caution	1
24	11011287	Screw, Stainless Steel, .250"-20 x .250"	2
25	11011037	Screw, Socket Hd Cap, .250"-20 x 1.250"	4
27	11183645	Bushing, Oilite	1
28	28300619	Pin, Roll, 2.5mm x 12mm Lg	1
29	28025716	Shaft, Speed Changer	1
30	28007307	Gear, Boston Worm	1
31	11180214	Bushing, Oilite Flanged, FB	1
32	11010539	Pin, Roll, .187"Ø x .375" Lg	1
33	12180090	Gear, Speed Changer Spur	1
34	11181923	Washer, Wavy Spring	1
35	12180065	Drum, Speed Change Chain	1
36	11552106	Belt, Timing	1
37*	12180042	Hub, Spindle Pulley	1
38*	12180064	Sleeve, Timing Pulley Clutch	1
39	12180059	Hub, Splined Gear	1
40**	12180062	Gear, Spindle Bull (see 12183933)	1
41	11180254	Bearing, Ball, Fafnir #RM9308NPP	2
42	11180803	Ring, Snap, #5000-244	2
43	12180063	Spacer, Bull Gear Bearing	1
44	12180053	Housing, Gear	1
45	11181650	Bolt, Tee	3
46	11181906	Washer, Flat, .469" ID x .938" OD x .063"	3
47	11011750	Nut, HDN Finished Hex Jam, .438"-14	3
48	11181986	Washer, Ball Bearing Gear Sleeve	3
49***	12183924	Bracket, Fixed Clutch	1
50	11011246	Screw, Socket Hd Set, .312"-18 x .312"	2
51	28025615	Guide	2
52	28025671	Screw, Flat Socket Hd Cap, #10-32 x .375"	2
53	11010511	Pin, Roll, .125" x .250" Lg	1
54	11183104	Cup, Oil, Gits #1202 Style L	1

ITEM	CODE NO.	DESCRIPTION	QTY
55	11182071	Spring, Compression, .375" OD x .3.00" Lg	3
56	11181794	Locknut, Bearing, #N-08	1
57***	12183924	Sleeve, Bearing	1
58	11181977	Washer, Wave Spring	1
59	12180067	Pinion, Bull Gear Shift	1
60	12180161	Plate, Hi-Low Detent	1
61	11181732	Nut, Hex, .375"-16	3
62	11151913	Lockwasher, .375"	3
63	12180085	Stud	3
66	12180100	Plunger, Hi-Low Detent	1
67	11182072	Spring, .750" x .032 x .563"	1
68	11011017	Screw, Socket Hd Cap, #10-32 x .500" Lg	2
69	11192151	Knob, Bakelite, .250"-20	1
70	12180099	Crank, Hi-Low Shift	1
71	12180096	Block, Hi-Low Pinion	1
72	11010516	Pin, Roll, .125" x .625" Lg	1
73	11011052	Screw, Socket Hd Cap, .132"-18 x .750" Lg	4
74	11181007	Screw, Socket Hd Cap, #8-32 x .625"	2
75	11011022	Screw, Socket Hd Cap, #10-24 x 1.00"	1
76	12180088	Cover, Motor Pulley	1
78	11013079	Key, Woodruff #9	2
79	11180235	Bearing, #203NPP-C8	2
80	12180075	Shaft, Bull Gear Pinion Counter	1
81	12180103	Key, Sq, .312" x .540"	1
82	11181975	Washer, Wave Spring	1
83**	12180077	Pinion, Bull Gear (see 12183933)	1
84	12180076	Cap, Bull Gear Pinion Bearing	1
85	11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	2
86	12550016	Pulley, Timing Belt	1
87	11191738	Nut, Hex Jam, .625"-18	1
88	11182912	Nameplate, Speed Change	1
89	11011139	Screw, Flat Hd Machine, #8-32 x .750"	2
90	11182897	Plate, Lubrication	1
93	11598117	Assembly, Reversing Switch	1

\*Items 37 and 38 sold as assembly only.

\*\*Items 40 and 83 sold as assembly only.

\*\*\*Items 49 and 57 sold as assembly only.

**- NOTE -**

IMPORTANT - For 1-1/2 HP, substitute the following parts.

ITEM	CODE NO.	DESCRIPTION	QTY
36	11182106	Belt, Timing	1
37	12182004	Hub, Spindle Pulley	1
86	12180091	Pulley, Timing Belt	1

# J-HEAD TOP HOUSING

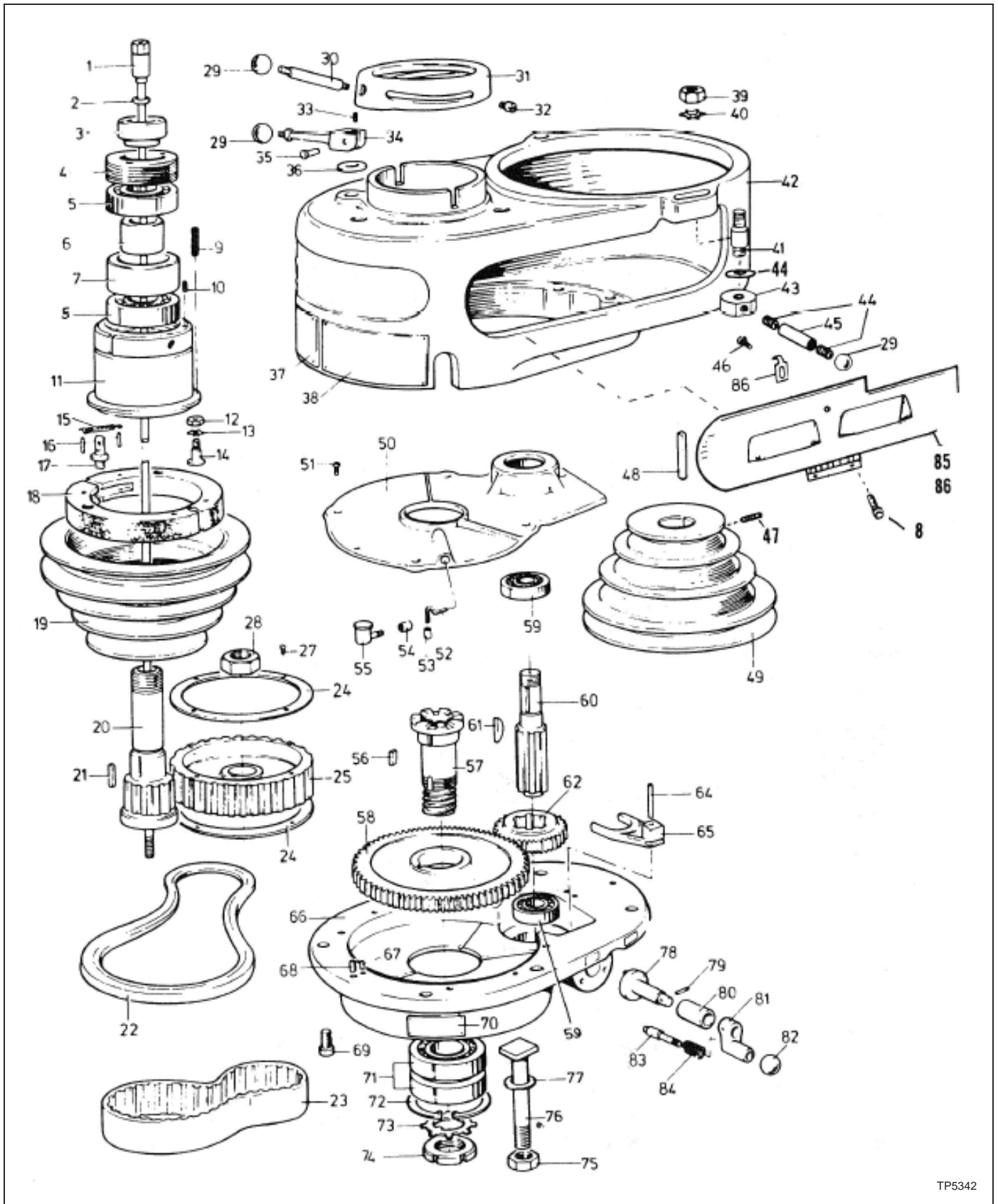


Figure 4.4 - J-Head Top Housing Assembly

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## J-HEAD TOP HOUSING

ITEM	CODE NO.	DESCRIPTION	QTY
1	12193502	Assembly, Drawbar	1
2	12180093	Washer, Drawbar	1
3	12190126	Locknut, Upper Bearing	1
4	12190125	Locknut, Bearing Sleeve	1
5	11190232	Bearing, #RM207 KDD-DB	2
6*	12193506	Spacer, Upper Bearing Small	1
7*		Spacer, Upper Bearing Large	1
8	11651199	Screw, Button Hd Cap, #10-32 x .500"	4
9	11192032	Spring, Compression	4
10	11011255	Screw, Socket Hd Set, #6-32-NC x .250" KP	1
11	12193512	Sleeve, Spindle Pulley Bearing	1
12	11011743	Nut, Jam, .312"-18	3
13	11191965	Lockwasher, External, .312"	3
14	12190130	Screw, Brake Ring	3
15	11192084	Spring, Extension	2
16	11010507	Pin, Roll, .093" x .625" Lg	4
17	12190131	Stud, Brake Shoe	1
18	11193620	Set, Brake Shoe (see 12193477)	1
19	12190055	Pulley, Spindle	1
20	12190118	Hub, Spindle Pulley (see 12193478)	1
21	12190122	Key, Spindle Pulley Sq, .250" x .820"	1
22	11192101	Belt, Vee	1
23	11182106	Belt, Timing	1
24	12190058	Flange, Timing Belt Pulley	2
25	12190057	Pulley, Timing Belt	1
27	11011506	Screw, Flat Hd, #6-32 x .375" Lg	8
28	11191738	Nut, Hex Jam, .625"-18	1
29	11192151	Knob, Bakelite, .250"-20	4
30	12190128	Lever, Spindle Clutch	1
31	12190127	Ring, Cam	1
32	12190129	Pin, Spindle Clutch Cam Ring	2
33	11011260	Screw, Stainless Steel, #10-32 UNF x .250"	1
34	12190133	Handle, Brake	1
35	12190134	Pin, Brake Lock	1
36	12190132	Washer, Brake Lock	1
37	11192810	Nameplate, Spindle Speed	1
38	11192835	Nameplate, J-Head Operating Instruction	1
39	11011713	Nut, Hex, .375"-24	2
40	11191922	Lockwasher, .375"	2
41	12190173	Stud, Motor Mounting	2
42	12190054	Housing, Belt	1
43	12190171	Locknut, Motor	2
44	12190174	Washer, Motor Mounting Stud	2
45	12190172	Motor Locknut Handle	2
47**	11011240	Screw, Set, .312"-18 x .750"	1
48**	12430068	Key, Square, .187" x 1.500"	1
49**	12190056	Pulley, Motor	1

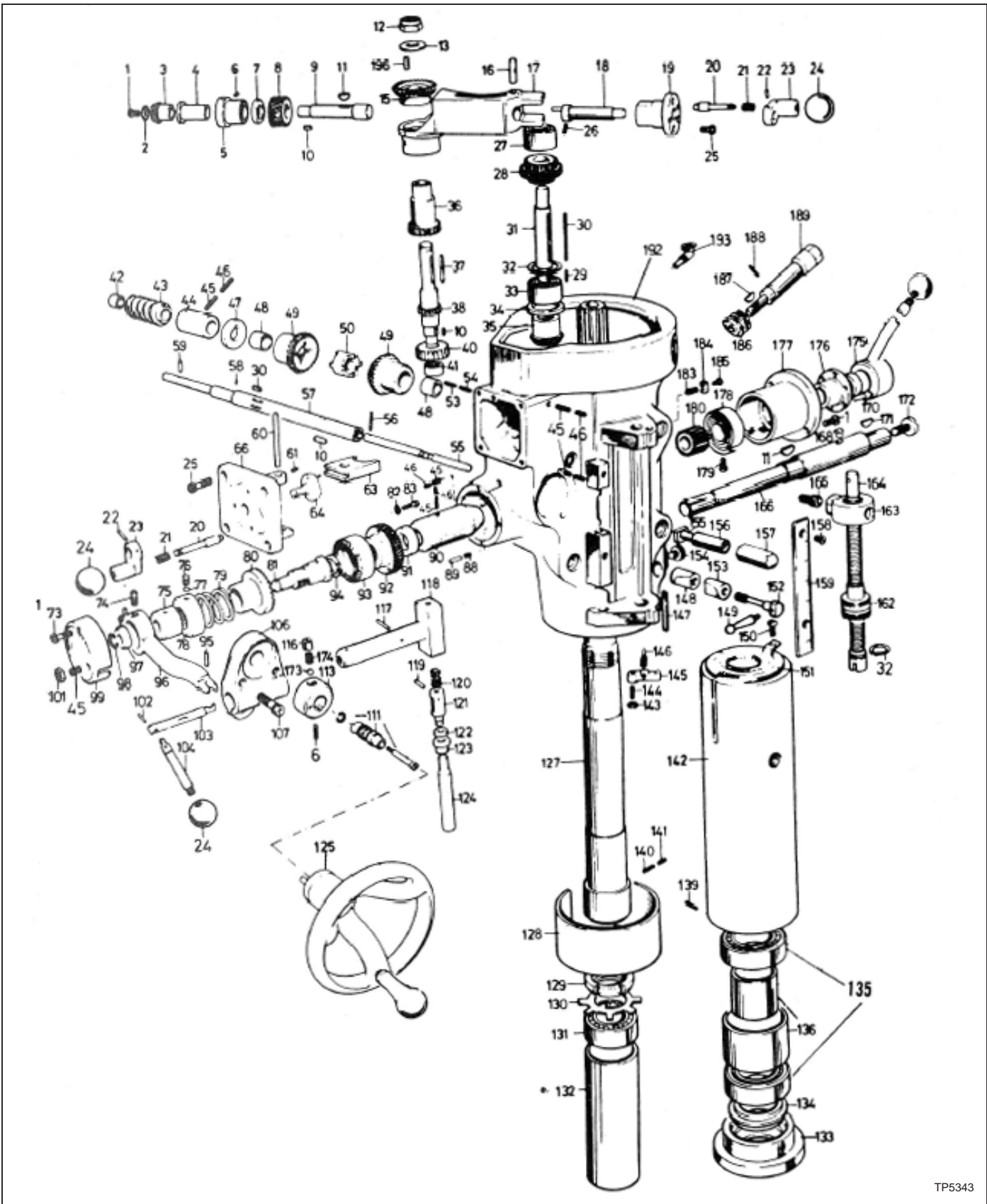
ITEM	CODE NO.	DESCRIPTION	QTY
50	12143452	Assembly, Gear Housing Cover (see 12193452)	1
	12190053	Cover, Gear Housing	1
51	11011445	Screw, Round Hd Machine, #10-24 x .375" Lg	5
52*	11195720	Wick, .125" OD (Common Pipe Cleaner)	1
53*	12190120	Tube, Oiler	1
54*	12190121	Plug, Oil	1
55	11193105	Cup, Oil, Gits #1207	1
56	12180103	Key, Sq, .312" x .540"	1
57	12190115	Hub, Splined Gear	1
58	12193548	Kit, Gear Bull, J-Belt Housing	1
59	11180235	Bearing, #203NNP-C8	1
60***	12193548	Kit, Gear Bull, J-Belt Housing	1
61	11013079	Key, Woodruff #9	1
62***	12193548	Kit, Gear Bull, J-Belt Housing	1
64	11010747	Pin, Dowel, .312" x 2.00"	1
65	12190062	Fork, Back Gear Shifter	1
66	12190052	Housing, Gear	1
67	11010540	Pin, Roll, .187" x .500" Lg	2
68	11010555	Pin, Roll, .250" x .750"	2
69	11011104	Screw, Socket Hd Cap, .312"-18 x .625" Lg	6
70	11192832	Nameplate, Disengage Feed Instruction	1
71	11190230	Bearing, Fafnir #RM208K-DB	2
72	11190806	Ring, Snap, #5000-315	1
73	11191944	Lockwasher, #W-08	1
74	11191793	Locknut, Bearing, #N-08 Sp .312" thk	1
75	11011718	Nut, Hardened Hex, .438"-14	1
76	11191615	Bolt, Vertical Tee	3
77	11190114	Washer, Vertical Tee	3
78	12190187	Crank, Back Gear Shift	1
79	11010517	Pin, Roll, .125" x .750"	1
80	12190186	Bushing, Back Gear Shift	1
81	12190064	Crank, Shift (see 12193443)	1
83	12190138	Pin, Shift	1
84	11192052	Spring, Compression	1
85	11190420	Guard, RH Belt	1
86	11190421	Guard, LH Belt	1
88	12190119	Collar, Pulley Hub	1
90	11598117	Assembly, Reversing Switch (Not Shown)	1
91	11190161	Motor, 1 HP, 230/460 (Not Shown)	1

\*Items 6 and 7 sold as assembly only.

\*\*Items 47, 48, and 49 part of assembly 12193508.

\*\*\*Items 60 and 62 sold as assembly only.

# 2J- AND J-HEAD LOWER HOUSING



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Figure 4.5 - 2J- and J-Head Lower Housing Assembly

## 2J- AND J-HEAD LOWER HOUSING

ITEM	CODE NO.	DESCRIPTION	QTY
1	11011445	Screw, Round Hd Machine, #10-24 x .375" Lg	3
2	12190163	Washer, Bevel Pinion	1
3	12190203	Gear, Feed Bevel Pinion	1
4	12190164	Sleeve, Feed Worm Gear Shaft	1
5	11192303	Bushing, Worm Cradle	1
6	11011287	Screw, Stainless Steel, .250"-20 x .250"	2
7	12190165	Spacer, Worm Gear	1
8	12190166	Gear, Feed Drive Worm	1
9	12190167	Shaft, Feed Drive Worm Gear	1
*	12193440	Assembly, Gear Drive Shaft	1
10*	12190162	Key, Worm Shaft, Sq, .125" x .312"	3
11	11013078	Key, Woodruff #7	3
12	11191796	Locknut, Flexlok, .375"-24	1
13	12190199	Washer, .375"	1
15	11192209	Gear, Feed Reverse Bevel	1
16	12190168	Pin, Feed Engage	1
17	12190059	Cradle, Worm Gear	1
18	12190169	Throw-Out, Worm Gear Cradle	1
19	12190170	Sleeve, Shift	1
20	12190138	Pin, Shift	2
21	11192052	Spring, Compression	2
22	11010517	Pin, Roll, .125" x .750"	2
23	12190064	Crank, Shift (see 12193443)	1
24	11192151	Knob, Bakelite, .250"-20	4
25	11011010	Screw, Socket Hd Cap, #10-24 x .500" Lg	7
26	11011258	Screw, Set, #10-24 x .375"	1
27	12190181	Bushing, Cluster Gear Shaft Upper	1
28	28007099	Assembly, Cluster Gear (see 12193504)	1
29	12190148	Key, Sq, .125" x 1.750"	1
*	12193544	Assembly, Bevel Feed Pinion	1
30*	12190175	Assembly, Key, Sq, .125" x .563"	2
31	28007106	Shaft, Cluster Gear	1
32**	11190836	Ring, External Retaining, #5100-62	2
33**	12190149	Bearing, Bevel Gear	1
34**	12190150	Spacer, Bevel Gear Thrust	1
35**	12190180	Pinion, Feed Reverse Bevel	1
36*	12190146	Gear, Feed Driving	1
37*	12190176	Key, Round End, Sq, .125" x .750"	1
38*	12190145	Shaft, Cluster Gear Input	1
40*	12190144	Gear, Feed Drive	1
41	11190310	Bearing, Needle, Torrington #B-66	1
42	11193637	Bushing	1
43	28007307	Gear, Worm Speed Control	1
44	12190155	Bushing, Feed Worm Shaft	1
45	11011268	Screw, Stainless Steel, Cup	6
46	11011542	Screw, Set, .312"-18 x .938"	5
47	11190152	Washer, Feed Worm Shaft Thrust	1

ITEM	CODE NO.	DESCRIPTION	QTY
*	12193435	Assembly, Bevel Feed Gear	1
48*	11183646	Bushing, Bronze, .502" x .628" x 5.00"	2
49*	12190151	Gear, Feed Reverse Bevel	2
50	12190153	Clutch, Feed Reverse	1
53	11011547	Lock, Screw, Stainless Steel, .312"-18 x .156"	1
54	11011375	Screw, Stainless Steel, .312"-18 x .312"	1
55	12190157	Rod, Reverse Clutch	1
56	11010509	Pin, Roll, .093" x .750"	1
57	12190198	Shaft, Feed Worm	1
58	12190200	Pin, .093" x .312" Lg	1
59	28007308	Pin, .100 x .438" Lg	1
60	12190179	Rod, Feed Shift	1
61	11011260	Screw, Stainless Steel, #10-32 UNF x .250"	1
63	11190061	Fork, Feed Gear Shift	1
64	12193446	Assembly, Cluster Gear Shift Crank	1
66	12190065	Cover, Cluster Gear	1
73	11011014	Screw, Cap, #10-24 x 1.500" Lg	2
74	12190188	Pin, Stop	2
75	12190098	Ring, Clutch	1
76	11011265	Screw, Stainless Steel, .250"-20 x .250" Lg	1
77	12190073	Plug, Brass, .187"Ø x .093"	1
78	12190105	Locknut, Overload Clutch	1
79	11192055	Spring, Safety Clutch	1
80	11192302	Clutch, Overload	1
81	12193549	Sleeve, Overload Clutch	1
82	11191920	Washer, Single Spring	3
83	11011431	Screw, Round Hd Machine, #8-32 x .625"	3
88	11192032	Spring, Compression, .250"Ø x 1.250"	1
89	12190096	Plunger, Overload Clutch Lever Spring	1
90	12190106	Bushing, Quill Pinion Shaft	1
91	12190104	Spacer, Pinion Shaft Worm Gear	1
92	11190103	Gear, Overload Clutch Worm	1
93	12190102	Ring, Overload Clutch	1
94	11190870	Ring, External Retaining	1
95	11010717	Pin, Dowel, .187" x .750"	1
96	12193427	Assembly, Overload Clutch Trip Lever	1
97	12190097	Washer, Overload Clutch	1
98	11190822	Ring, External Retaining, #5100-37	1
99	12190068	Cover, Clutch Arm	1
101	11011740	Nut, Hex Jam, .250"-20	1
102	11010717	Pin, Dowel, .187" x .750"	1
103	12190094	Rod, Cam	1
104	12190095	Handle, Trip	1
106	12190067	Bracket, Feed Trip	1
107	11011035	Screw, Socket Hd Cap, .250"-20 x 1.00"	1
111	12193433	Assembly, Reverse Knob	2
113	12190159	Assembly, Handwheel Clutch (see 12193519)	1
116	12190154	Assembly, Handwheel Clutch Spring	1
117	11010515	Pin, Roll, .125" x .562"	1
118	12190093	Assembly, Cam Rod Sleeve	1



ITEM	CODE NO.	DESCRIPTION	QTY
119	11010513	Pin, Roll, .125" x .437"	1
120	11192053	Spring, Compression	1
121	12190091	Plunger, Trip	1
122	12190092	Bushing, Feed Trip Plunger	1
123	12190090	Bushing, Trip Plunger	1
125	12190089	Plunger, Feed Trip	1
125	12193519	Assembly, Handwheel	1
127	12190191	Spindle	1
128	11190081	Skirt, Quill	1
129	11191790	Locknut, #06	1
130	11191942	Lockwasher, #W-06	1
131	11190237	Bearing, Spindle	1
132	12190197	Sleeve, Bearing	1
133	12190196	Nosepiece	1
134	12780915	Shield, Spindle Dirt	1
135	11190238	Bearing, Spindle, Set	1
136	12193513	Bearing, Spindle, Set	1
139	11011265	Screw, Stainless Steel, .250"-20 x .250" Lg	1
140	12193540	Screw, Set, R-8 Collet	1
141	11011545	Screw, Locking Set, .250"-32 x .125"	1
142*	12190192	Quill (See 12194541)	1
143	28300336	Nut, Steel, #6-32 NC	1
144	28300609	Screw, Stainless Steel, #6-32 x .750"	1
145	28007042	Lever, Feed Trip (see 12193498)	1
146	12190185	Pin, Trip Lever	1
147	12200103	Rod, Indicator	1
148	12190109	Sleeve, Quill Lock, Tapped	1
149	12200098	Handle, Lock	2
150	11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
151	11192403	Strainer, Felt	1
152	12190111	Bolt, Quill Lock	1
153	12190110	Sleeve, Quill Lock, Untapped	1
154	12200102	Screw, Rod Indicator Thumb	4
155	12191620	Bolt, Tee, .500"	2
156	12190135	Spacer, Lower Clamping Bolt	2
157	12191736	Nut, Hex, .500" x 1.500"	2
158	11011411	Screw, Chem Black Round Hd Machine, #6-32 x .250"	1
159	11195306	Scale, Quill Micrometer Inch	1
162	12190344	Assembly, Quick Nut	1
163	12190082	Nut, Quill Stop	1
164	12190083	Screw, Quill Stop Micro	1
165	11011090	Screw, Socket Hd Cap, .375"-24 x .625" Lg	1
166	28007063	Shaft, Quill Pinion	1
168	12200111	Pin, Spring	1
170	11010541	Pin, Roll, .187" x .750" Lg	1
171	11013076	Key, Woodruff #3	1
172	12190182	Screw, Pinion Shaft Hub	1
173	11192165	Ball, Steel	1
174	11192054	Spring, Compression	1
175	12201033	Assembly, Quill Feed Handle	1

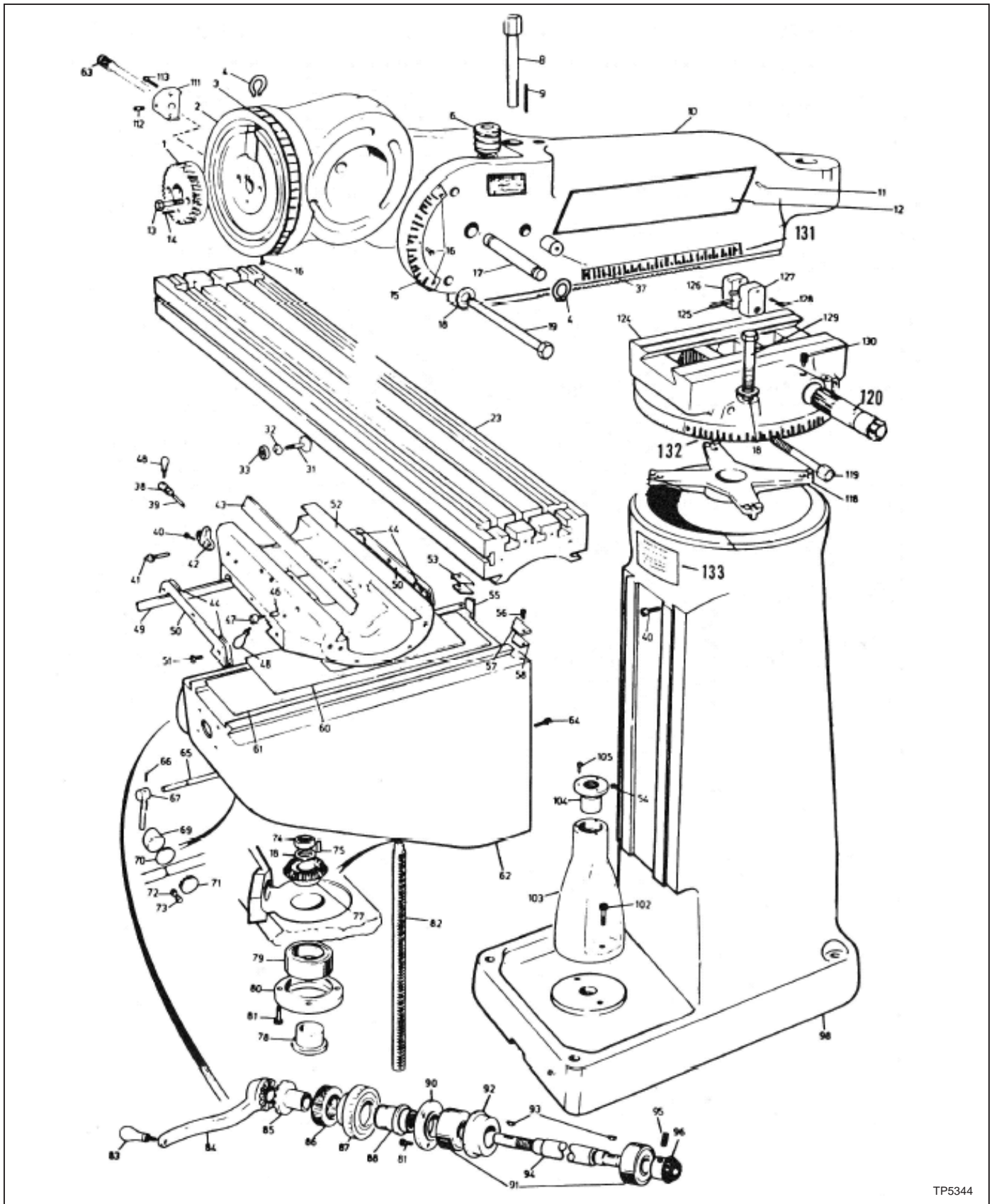
ITEM	CODE NO.	DESCRIPTION	QTY
176	12190079	Hub, Quill Pinion	1
177***	12190066	Cover, Spring	1
178***	11192020	Spring, Clock	1
179***	28007150	Pin, Outside Clock Spring	1
180	28007064	Pinion, Quill (see 12190108)	1
183	12190085	Lever, Reverse Trip Ball	1
184	12190086	Plunger, Feed Reverse Trip	1
185	12190087	Screw, Reverse Trip Ball Lever	1
186	11192207	Gear, Worm	1
187	11013077	Key, Woodruff #5	1
188	11011370	Screw, Socket Hd Set, .250"-UNC x 20 x .375"	1
189	12190850	Shaft, Adjustable Worm	1
192*	12190051	Housing, Quill (see 12194541)	1
193	11193111	Cup, Oil	1
196	12190162	Key, Worm Shaft, Sq, .125" x 5/16"	1

\*Items 10, 36, 37 and 40 sold as assembly 12193440.

\*\*Items 32, 33, 34 and 35 sold as assembly 12193544.

\*\*\*Items 177, 178 and 179 sold as assembly 12193437

# BASIC MACHINE



TP5344

Figure 4.6 - Basic Machine Assembly

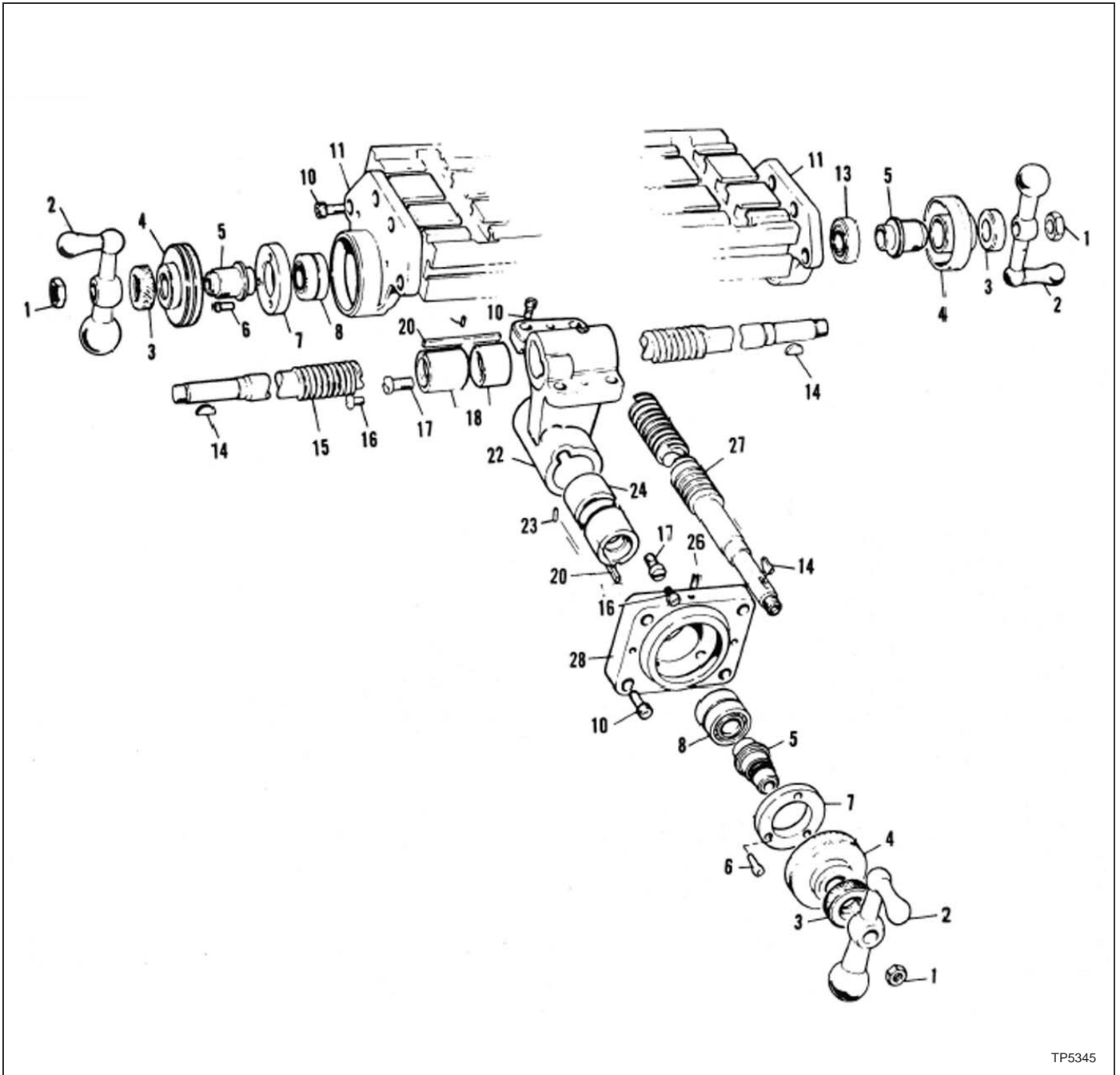
## BASIC MACHINE

ITEM	CODE NO.	DESCRIPTION	QTY
1	12190178	Gear, Quill Housing Adj Tilting (see 12193500)	1
2	12069013	Assembly, Ram Adapter (see 12060129)	1
3	11060603	Scale, Adapter	1
4	11060892	Ring, External Retaining	2
6	11062206	Worm, Vertical Adjusting	1
8	12060130	Shaft, Vertical Adjusting Worm	1
9	12060138	Key, Sq, .187" x 1.938"	1
10	12060128	Ram	1
11	11011556	Screw, Drive, Type 0, 6 x .375"	4
12	11060502	Nameplate, Ram	2
13	11011035	Screw, Socket Hd Cap, .250"-20 x 1.00"	2
14	11010590	Pin, Roll, .312" x 1.500"	1
15	11062826	Plate, Graduated Angle	1
16	11011555	Screw, Round Hd Drive	5
17	12061028	Pin, Adapter Pivot	1
18	11200109	Washer, Chamfer, Hardened, .500" x .125" x 1.00"	2
19	11061180	Bolt, Adapter Locking, Hex Hd, .500"-13 x 7.25"	3
23	12060346	Table, 42" Lg	1
	12060347	Table, 48" Lg	1
31	11061602	Bolt, Square Hd, .375"-16 x 1.375"	1
32	11062301	Piece, Table Stop	2
33	11011720	Nut, Hex, .375"-16	3
34	12060122	Washer, Tee Bolt	2
37	12060328	Bushing, Clamping	1
38	12060119	Bolt, Saddle Lock	1
39	12060125	Plunger, Saddle Lock	1
40	11770252	Screw, Low Hd	2
41	11060088	Screw, Gib Adjusting	3
42	12060300	Bracket, Stop, Power Feed	1
43	12060117	Gib, Table, without Chrome	1
	12060482	Gib, Table, with Chrome	1
44	11062406	Wiper, Felt	4
46	12060118	Plug, Table Lock	2
47	12060119	Bolt, RH Table Lock	1
	12060114	Bolt, LH Table Lock	1
48	11062179	Handle, Table Lock	2
49	12060124	Gib, Saddle/Knee	1
50	12060123	Plate, Wiper, Knee	2
51	11011580	Screw, Oval Hd, #10-32 x .500"	6
52	12060097	Saddle, without Chrome	1
	12060487	Saddle, with Chrome	1
53	12060093	Holder, LH Column Wiper	1
55	12060146	Gib, Knee/Column	1
56	11011031	Screw, Socket Hd Cap, .250"-20 x .625"	2
57	12060094	Holder, RH Column Wiper	1
58	11062405	Wiper, Felt	2
60	11060153	Guard, Upper Chip	1
61	11060152	Guard, Lower Chip	1

ITEM	CODE NO.	DESCRIPTION	QTY
62	12060206	Knee, without Chrome	1
	12060493	Knee, with Chrome	1
63	12069999	Pin, Head Rotation Stop	1
64	11770252	Screw, Low Hd	1
65	12060148	Shaft, Knee Lock (see 12061230)	1
66	11010409	Pin, Taper, #1 x 1.00"	1
67	12061230	Hub, Lock Shaft	1
69	12060089	Plunger, Knee Lock	1
70	12150131	Washer, Table Locking	1
71	11010786	Plug, Knee Binder, Plastic	1
72	11011375	Screw, Stainless Steel, .312"-18 x .312"	1
73	11011270	Screw, Stainless Steel, .312"-18 x .312"	1
74	11011755	Nut, Hex Jam, .500"-20	1
75	12060071	Key, .187" x .187" x .875"	1
77	11062204	Gear, Bevel	1
79	11060205	Bearing, #W306PP3	1
80	12060070	Ring, Bearing Retainer	1
81	11011031	Screw, Socket Hd Cap, .250"-20 x .625"	6
82	12060069	Screw, Elevating Inch	1
83	12060060	Handle	1
84	11060080	Crank, Elevating	1
85	12060079	Clutch, Gearshaft	1
86	12060078	Nut, Dial Lock, Knurled	1
87	12060213	Dial, 100-Graduation	1
88	12060077	Holder, Dial	1
90	12060210	Ring, Bearing Retainer	1
91	11060204	Bearing, #H204KTT	2
92	11011030	Screw, Socket Hd Cap, .250"-20 x .500"	3
93	11013078	Key, Woodruff #7	2
94	12060147	Shaft, Z-Axis Elevating	1
95	11011220	Screw, Set, .250"-20 x .250" Lg	1
96	11062205	Gear, Bevel Pinion	1
98	12060209	Column	1
102	11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	2
103	12060207	Pedestal	1
104	12060051	Nut, Elevating Screw	1
105	11011195	Screw, Button Hd Cap, .250"-20 x 1.00"	3
111	12650180	Block, Head Rotation Stop	1
112	11152094	Plunger, Spring	1
113	11011017	Screw, Socket Hd Cap, #10-32 x .500" Lg	2
118	12060144	Spider	1
119	11060112	Stud, Ram Lock	2
120	12060255	Pinion, Ram	1
124	12060208	Turret	1
125	12060137	Bar, Ram Clamp	2
126	12060141	Clamp, Ram, Blank	2
127	12060113	Clamp, Ram, Tapped	2
128	11010619	Pin, Cotter	2
129	11061178	Bolt, Hex Hd, .500"-13 x 5.00"	4
130	12060140	Screw, Ram Pinion	1

ITEM	CODE NO.	DESCRIPTION	QTY
131	11060602	Scale, Ram	1
	11980426	Screw, Drive, Type U, #4 x .312"	2
132	11060601	Turret, Scale	1
	11989426	Screw, Drive	2
133	11010200	Nameplate, Warning	1
	11980426	Screw, Drive, Type U, #4 x .312"	4

# LEAD SCREW ASSEMBLY



TP5345

Figure 4.7 - Lead Screw Assembly

## LEAD SCREW ASSEMBLY

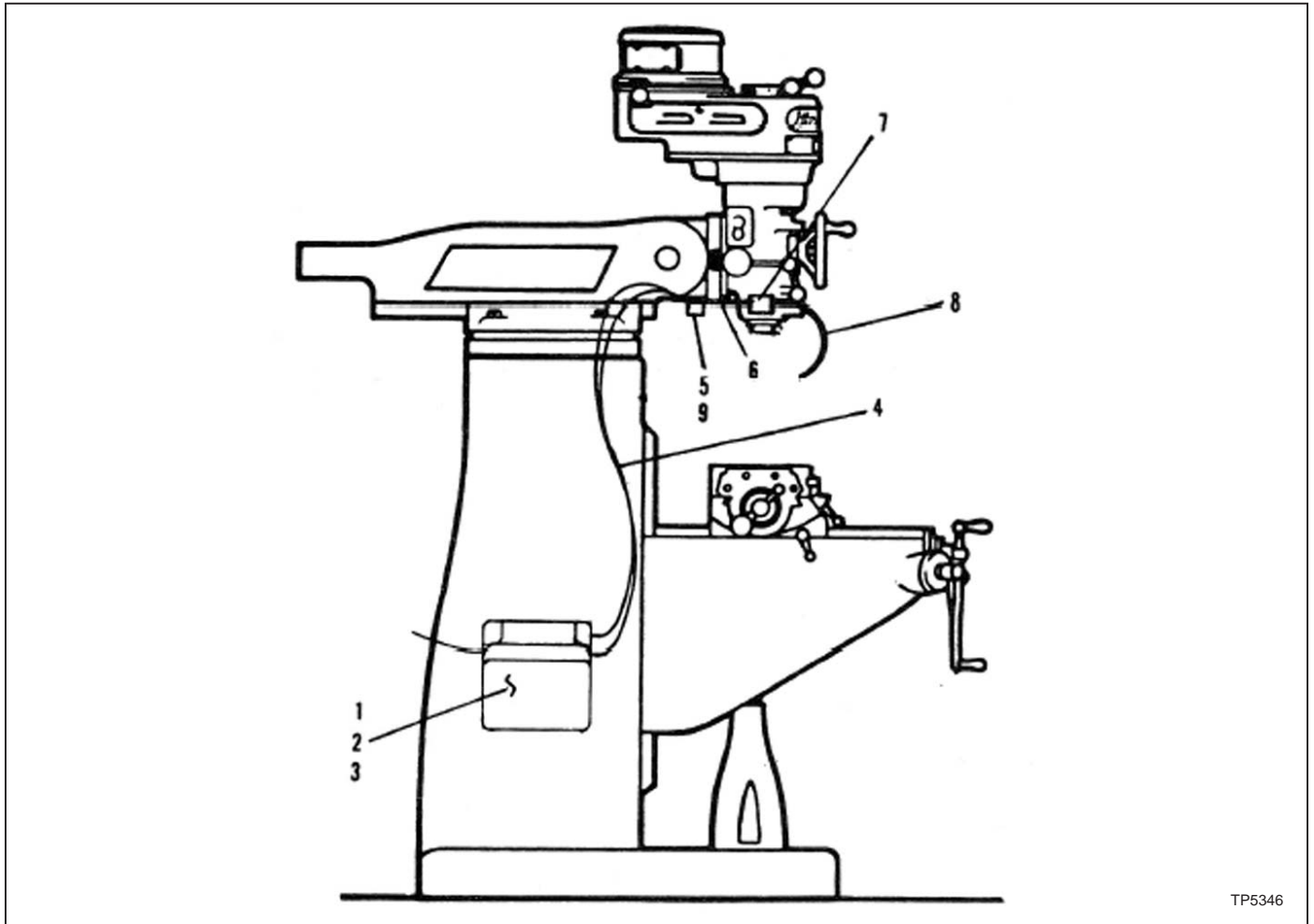
ITEM	CODE NO.	DESCRIPTION	QTY
1	11011755	Nut, Hex Jam, .500"-20	3
2	12060271	Handle, Ball Crank	3
	12150780	Assembly, Ball Crank, Quick Release	1
3	12060078	Nut, Dial Lock, Knurled	3
4	12060214	Dial, 200-Graduation	1
		Chrome, X- and Y-Axis Inch	3
5	12060084	Holder, Dial, Standard Handle Size	3
	12630301	Holder, Dial, Quick Release Handle Size	1
6	11011030	Screw, Socket Hd Cap, .250"-20 x .500"	6
7	11060075	Ring, Bearing Retainer	2
8	11060203	Bearing, #RM 204KT4-DB	2
10	11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	16
11	12060115	Bracket, Table End	2
13	11060204	Bearing, #H204KTT	1
14	11013078	Key, Woodruff #7	3
15*	12061222	Screw, Table Feed, 42" without Chrome	1
	12060458	Screw, Table Feed, 42" with Chrome	1
	12061223	Screw, Table Feed, 48" without Chrome	1
	12060459	Screw, Table Feed, 48" with Chrome	1
16	11011592	Screw, Washer Hd, #8-32 x .375"	3
17	11060100	Screw, Cross Feed Nut Retaining	2
18	12060630	Nut, Table Feed, Matched Set	1
20	12060099	Key, .187" x .187" x 2.500"	2
22*	12060628	Assembly, Feed Nut Bracket (see 12060632)	1
23	12060096	Pin, Nut Key	2
24	12060631	Nut, Cross Feed, Matched Set	1
26	12190188	Pin, Stop	1
27*	12061233	Screw, Cross Feed, without Chrome Inch	1
	12060485	Screw, Cross Feed, with Chrome Inch	1
28	11060082	Bracket, Cross Feed Bearing	1

\*Complete Feed Nut Bracket Assembly (Including X- and Y-Axis Nut) can be purchased by #12060627.

Table Feed Screws are purchased with keys.



## SPRAY MIST

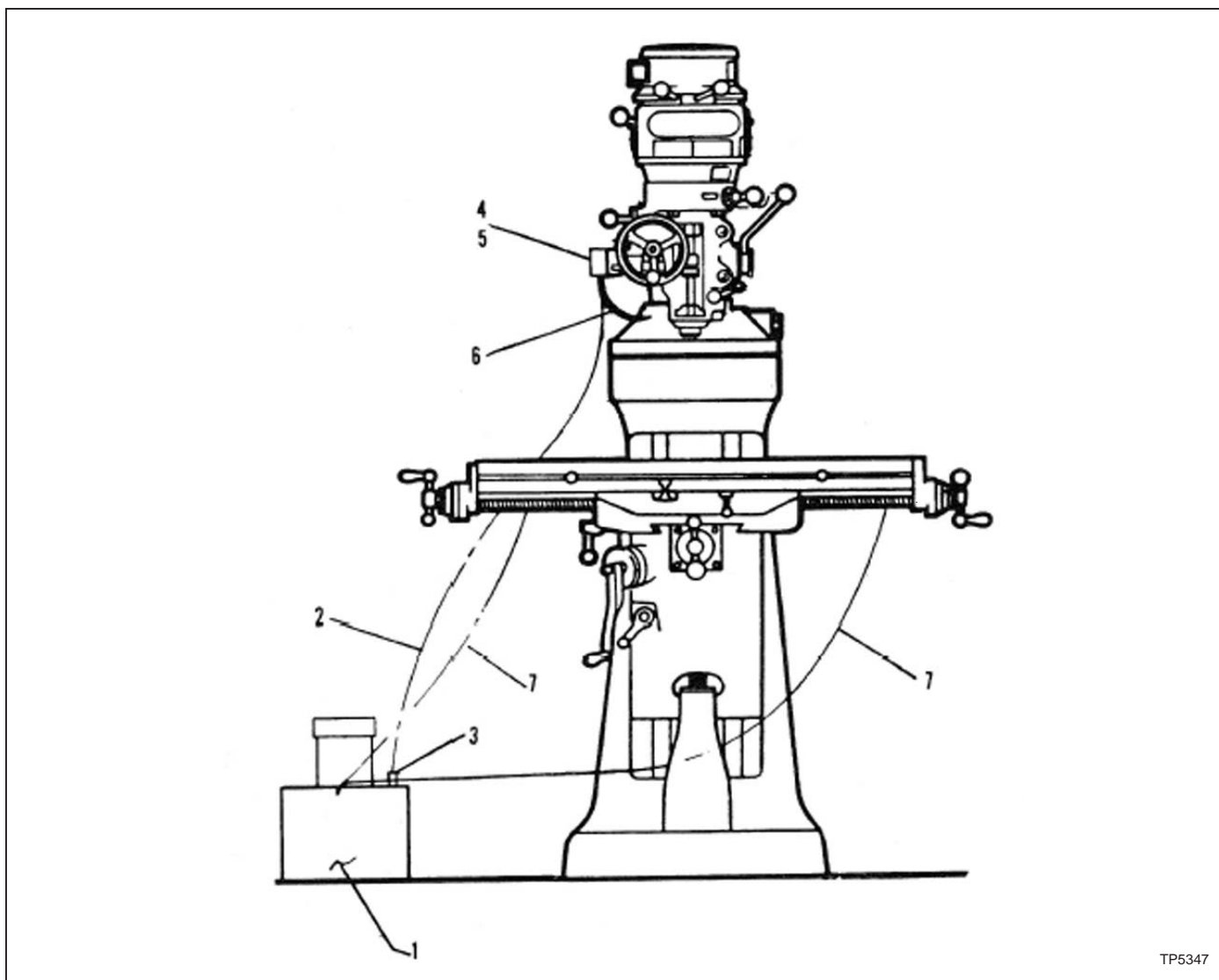


TP5346

Figure 4.8 - Spray Mist Assembly

ITEM	CODE NO.	DESCRIPTION	QTY
1	11560085	Tank, Spray Mist, 1 Gal Cap, 110-120v-50/60 Hz	1
1	11560095	Tank, Spray Mist, 5 Gal Cap, 110-120v-50/60 Hz	1
2	11151987	Washer	2
3	11011477	Screw, Round Hd Machine, .250"-20 x 1.00"	2
4	11560087	Assembly, Dual Hose, 6 ft	1
<b>ONE NOZZLE</b>			
7	11560091	Holder, Magnetic Jet	1
8	11560086	Jet, Flexible Extension	1
<b>TWO NOZZLES</b>			
5	11560092	Block, Tee	1
6	11560093	Hose, 24"	2
7	11560091	Holder, Magnetic Jet	2
8	11560086	Jet, Flexible Extension	2
9	11011040	Screw, Socket Hd Cap, .250"-20 x 1.750"	2

## FLOOD COOLANT



TP5347

Figure 4.9 - Flood Coolant Assembly

ITEM	CODE NO.	DESCRIPTION	QTY
1	11713642	Tank, Pump and Motor	1
2	11715470	Tubing, Coolant Pressure Hose, Vinyl, .50"Ø x .625"	10 ft
3	11565476	Valve, Check	1
4	12561010	Block, Manifold	1
7	11565470	Tubing, Drain Hose, Vinyl, .750" x 1000"	15 ft
<b>ONE NOZZLE</b>			
5	11563490	Valve, Shut-Off	1
6	11560264	Hose, Flexible Nozzle Coolant, 21" Lg	1
<b>TWO NOZZLES</b>			
5	11563490	Valve, Shut-Off	2
6	11560264	Hose, Flexible Nozzle Coolant, 21" Lg	2

# LUBRICATION SYSTEM

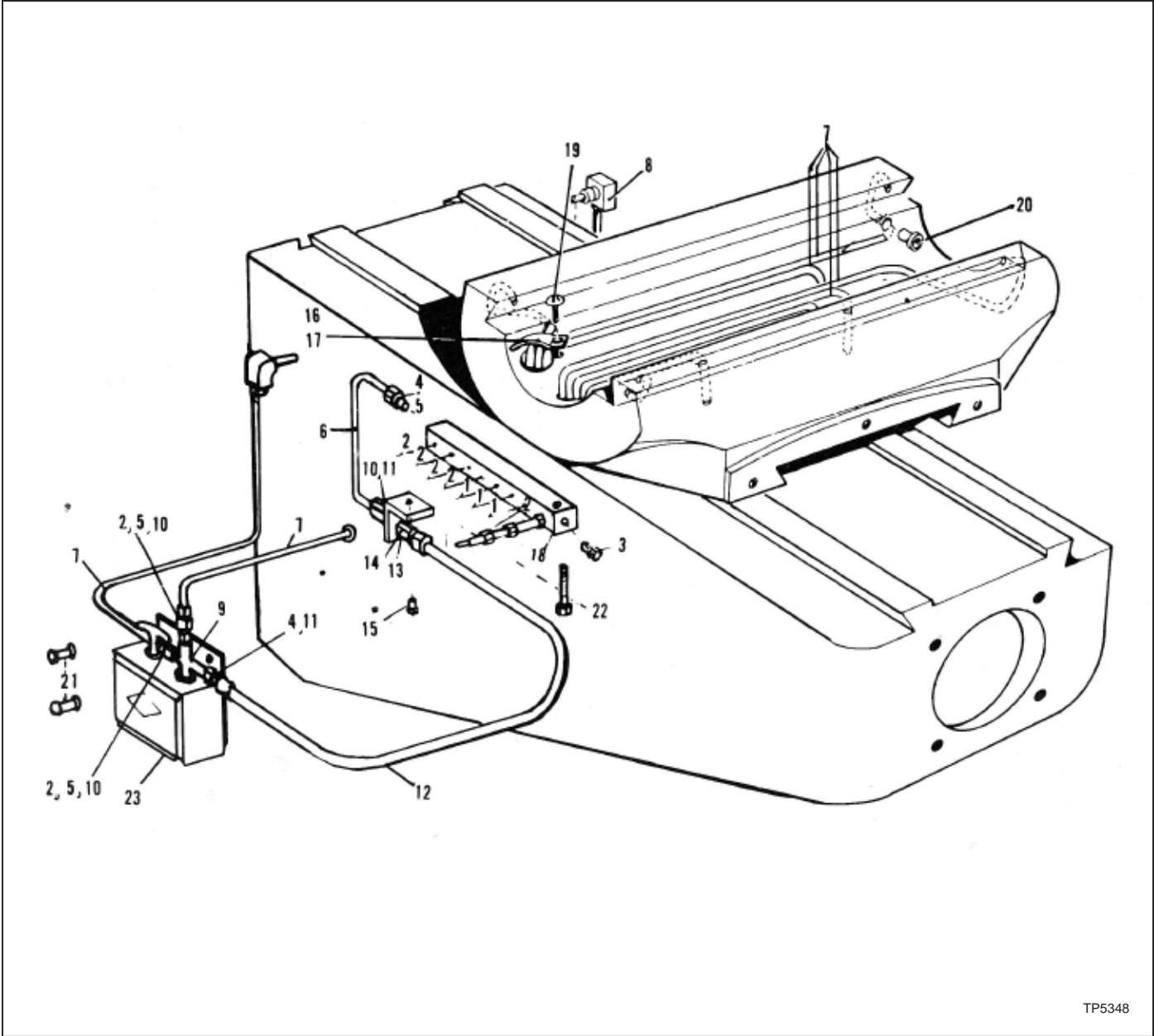


Figure 4.10 - Lubrication System Assembly

TP5348

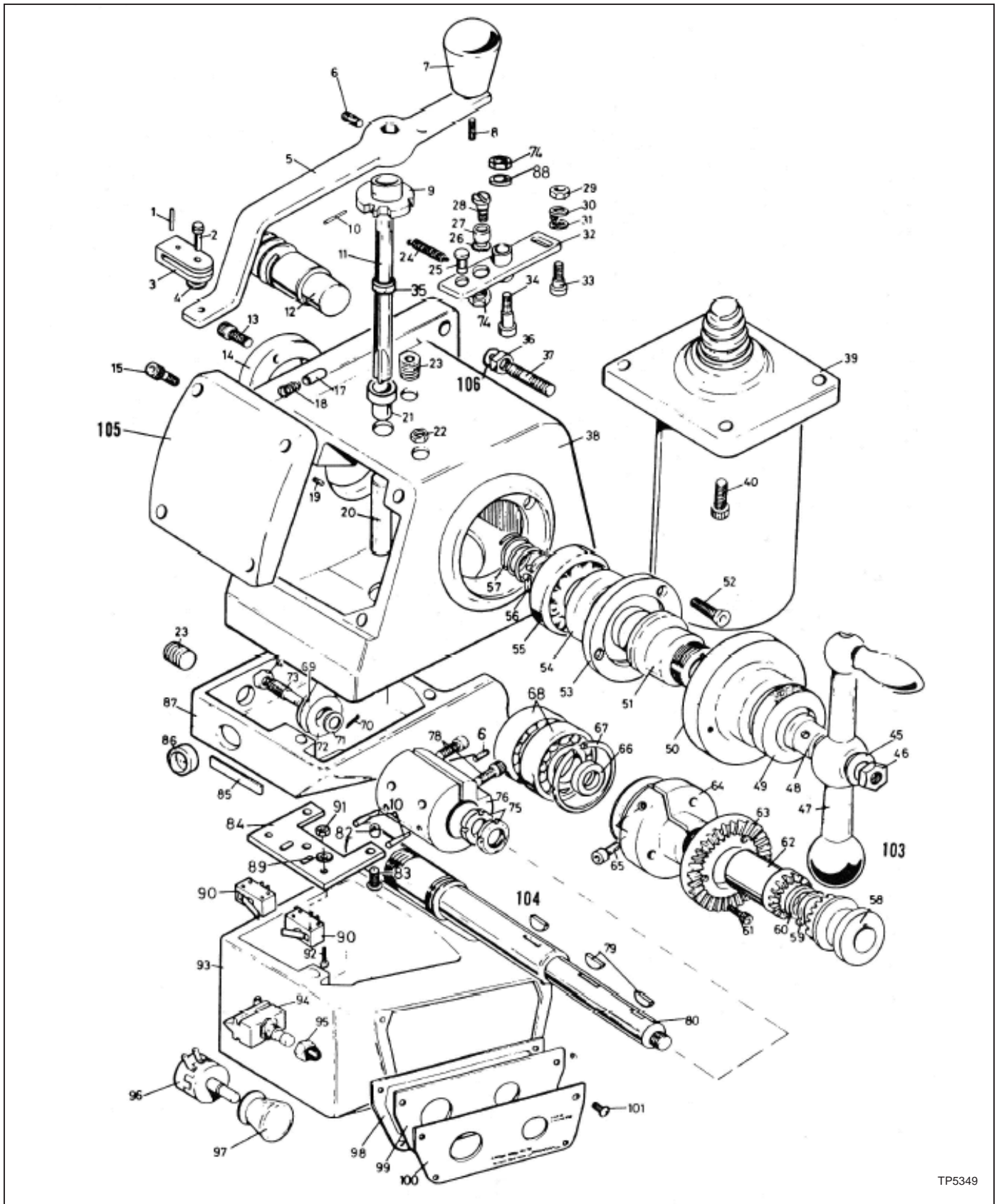
## LUBRICATION SYSTEM

ITEM	CODE NO.	DESCRIPTION	QTY
1*	11413210	Unit, Metering, Bijur #B-2495	3
2*	11413211	Unit, Metering, #FJB-1, B-2496	6
3	11413226	Plug, Closure, #B-3784	1
4	11413220	Bushing, Compression, Bijur #1371	11
5	11413221	Sleeve, Compression, Bijur #B-8272	11
6	11413224	Tubing, Brass, .156"	1
7	11413225	Tubing, Nylon, .156"	to
suit			
8	11413222	Connector, 90° EL	2
9	11410017	Junction, 4-Way	1
10	11413219	Nut, Compression	11
11	11413293	Bushing, Compression Sleeve	1
12	11410053	Hose, Flexible, 18" Lg	1
13	11413230	Bracket, Hose	1
14	11413233	Nut, Terminal	1
15	11011475	Screw, Round Hd Machine, .250"-20 x .500"	1
16	11413236	Clip, Tubing, #B-7535	2
17	11413290	Clip, Tubing, #A-2435	1
18	11410063	Junction, 10-Way	1
19	11011420	Screw, Round Hd Machine, #8-32 x .250"	3
20	11413235	Bushing, Drive	8
21	11011194	Screw, Button Hd Cap, .250"-20 x .500"	2
22	11011195	Screw, Button Hd Cap, .250"-20 x 1.00"	2
23	11413209	Pump, Auto Lube	1
	11410324	Pump, One Shot Lube, Manual	1

**- CAUTION -**

**When replacing metering units be sure you replace with correct number meter units. A wrong installation will cause poor lubrication.**

# POWER FEED Y-AXIS



TP5349

Figure 4.11 - Power Feed Y-Axis Assembly

## POWER FEED Y-AXIS

ITEM	CODE NO.	DESCRIPTION	QTY
1	11010507	Pin, Roll, .093" x .625" Lg	1
2	28001075	Pin, Fork	1
3	12630071	Fork, Stop Rod	1
4	28300093	Lockwasher	1
5	28002018	Lever, Polished Control,	1
6	11011268	Screw, Stainless Steel, Cup	1
7	11632152	Knob, Red Bakelite, .375"	1
8	11980336	Screw, Socket Hd Set, .375"-UNC x 16 x .750"	1
9	28006028	Cam, Clutch Detent	1
10	28300574	Pin, Taper #2, .193" x 1.500"	3
11	28002005	Shaft, Clutch and Limit Switch Actuating	1
12	12630321	Screw, Lead, Cross Feed, Y-Axis, with Chrome	1
	12630017	Screw, Lead, Cross Feed, Y-Axis, without Chrome	1
13	11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	3
14	28002237	Cap, Bearing	1
15	11011010	Screw, Socket Hd Cap, #10-24 x .500" Lg	4
16	28002003	Cover, Power Feed Top Side	1
17	28006021	Pin, Detent	1
18	28006061	Spring, Detent Pin	1
19	28006031	Pin, Spring Retaining	1
20	28302029	Bearing, Bronze	1
21	28014617	Bearing, Oilite, .375"Ø x .500" x .375"	1
22	11011740	Nut, Hex Jam, .250"-20	3
23	28006071	Plug, Taper, .250"-NPTF x .375" Lg	1
24	28006024	Spring	1
25	28006032	Pin, Clutch Arm Spring	1
26	28300396	Lockwasher	1
27	28006030	Roller, Clutch Arm Detent	1
28	28006040	Pin, Detent Roller	1
29	28300338	Nut, Hex, #10-32 UNF	1
30	28300374	Lockwasher, #8	1
31	28300376	Washer, Chem Black, 187"	1
32	28006029	Arm, Clutch, with Adapter Bronze Bush	1
33	28302026	Bearing	1
34	28006086	Screw, Special Shoulder	1
35	28014677	Seal, Rubber	1
36	11011720	Nut, Hex, .375"-16	4
37	11010053	Stud, .375-16 x 1.625"	4
38	28002015	Housing, Main	1
39*	11630148	Motor, Standard Torque with Slinger, Fracmo	1
	28006140	Brush	2
	28006141	Holder, Brush	2
	28006142	Cap, Brush	2
	28600001	Motor, Standard Torque with Slinger (see 12631051), Baldor	1
	11632511	Brush	1
	11632512	Cap	1
40	28300160	Screw, Socket Hd Cap, .250"-UNC x .750"	4
45	28300379	Washer, .125" x 1.00" x .125"	1

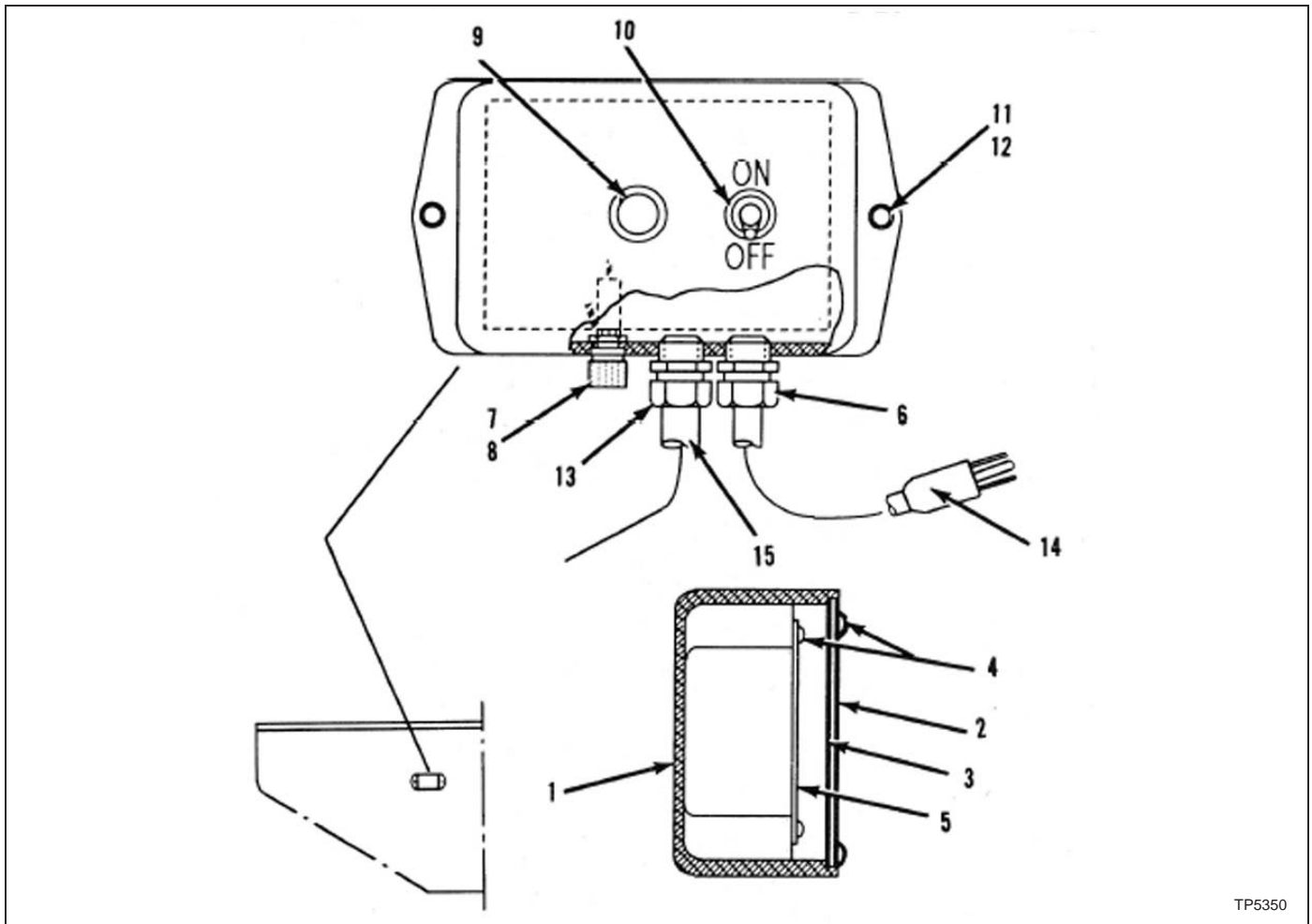
ITEM	CODE NO.	DESCRIPTION	QTY
46	28300349	Nut, Hex Jam	1
47	11630158	Assembly, Handle, Power Feed	1
48	11630011	Crank, Handle Bush	1
49	28005069	Locknut, Dial	1
50	12060214	Dial, 200-Graduation	1
51	28006222	Holder, RH Dial	1
52	28300316	Screw, Socket Hd Cap, #10-24 x .500" Lg	3
53	28006044	Cap	1
54	28006020	Seal, Head Screw	1
55	28302027	Bearing	1
56	28300100	Ring, Retaining, #ST 100	1
57	28006033	Spring, Clutch	1
58	28006016	Driven, Clutch	1
59	28300094	Ring, Retaining, #ST 94	1
60	28006026	Washer, RH Thrust Bearing,	1
61	28300151	Screw, Socket Hd Cap, #10-32 x .375"	3
62	28006015	Driver, Clutch	1
63	28006022	Gear, Drive Shaft, Spiroid	1
64	28002430	Hub, Gear Mounting	1
65	28300467	Screw, Socket Hd Cap, .250"-20 x .250" Lg	1
66	28006048	Washer, LH Thrust	1
67	28000548	Ring, Retaining	1
68	28302016	Bearing, #RHP-MBU-011	2
69	28002227	Carrier, Spring Oil	1
70	28300107	Pin, Split, .062" x .750" Lg	1
71	28300376	Washer, Chem Black, .187"	1
72	28002231	Pulley, Roller	1
73	28002232	Pin, Roller	1
74	11011740	Nut, Hex Jam, .250"-20	3
75	11011714	Nut, Retaining, .750" x 16-UNF	2
76	11630130	Coupling	1
78	11011035	Screw, Socket Hd Cap, .250"-20 x 1.00"	2
79	11013078	Key, Woodruff #7	2
80	28002049	Shaft, Drive	1
82	28006019	Spacer, Switch Mounting Plate	2
83	28300250	Screw, Round Hd Machine, #10-24 x .625"	3
84	28006006	Plate, Switch Mounting	1
85	28006100	Plate, Lubrication	1
86	28006069	Sight, Oil	1
87	28002019	Sump, Oil	1
88	28300579	Washer, Steel, 6mm Bore	1
89	28300393	Washer, Steel, .125" Bore	4
90	28500630	Switch, Micro, Waterproof	2
91	28300327	Nut, Hex, #4-40	4
92	28300639	Screw, Pan Hd Machine, #4-40 x .750"	2
93	28002016	Box, Control	1
94	28500358	Switch, Rapid Traverse	1
95	11632506	Boot, Insul PB/Switch	1
96	11632618	Potentiometer, 500Ω, Log Taper	1
97	11632153	Knob, Black	1

ITEM	CODE NO.	DESCRIPTION	QTY
98	28006280	Gasket, Control Box	1
99	28006004	Cover, Control Box	1
100	28006281	Plate, Control Box Scale	1
101	28300206	Screw, Button Hd Cap, #8-32 x .500" Lg	4
102	12630033	Rod, Stop	1
103	11630224	Handle, Ball	1
104	11013089	Key, Woodruff #11	1
105	28014616	Gasket, Power Feed Cover	1
106	11181981	Washer, .875" x .375" x .064"	4

\* Baldor Boehm motor assemblies are interchangeable with Fracmo motor assemblies.



## POWER FEED Y-AXIS CONTROL BOX



TP5350

Figure 4.12 - Power Feed Y-Axis Control Box Assembly

ITEM	CODE NO.	DESCRIPTION	QTY
1	12630088	Housing, Control	1
2	11632504	Plate, Control Box Back Cover	1
3	11630032	Gasket, Cover	1
4	11011420	Screw, Round Hd Machine, #8-32 x .250"	8
5	11632568	Board, PC, Series I Power Feed	1
	11630417	Board, KB (for Models after 1989)	1
6	31501502	Connector, Cable Grip, .375"Ø	1
7	11632607	Fuseholder, Panel Mount	1
8	11632606	Fuse, 10 Amp	1
9	11632593	Light, Pilot	1
10	11632659	Switch, Toggle 2PST	1
11	11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	2
12	11651943	Washer, EL	2
13	31506372	Connector, Cable Grip, .625"Ø	1
14	11632553	Cord, Power, 8"	1
15	31934792	Assembly, Cable	1
	31630509	Assembly, Y-Axis Harness (for Models after 1989)	1

## POWER FEED TYPE (SERVO TYPE)

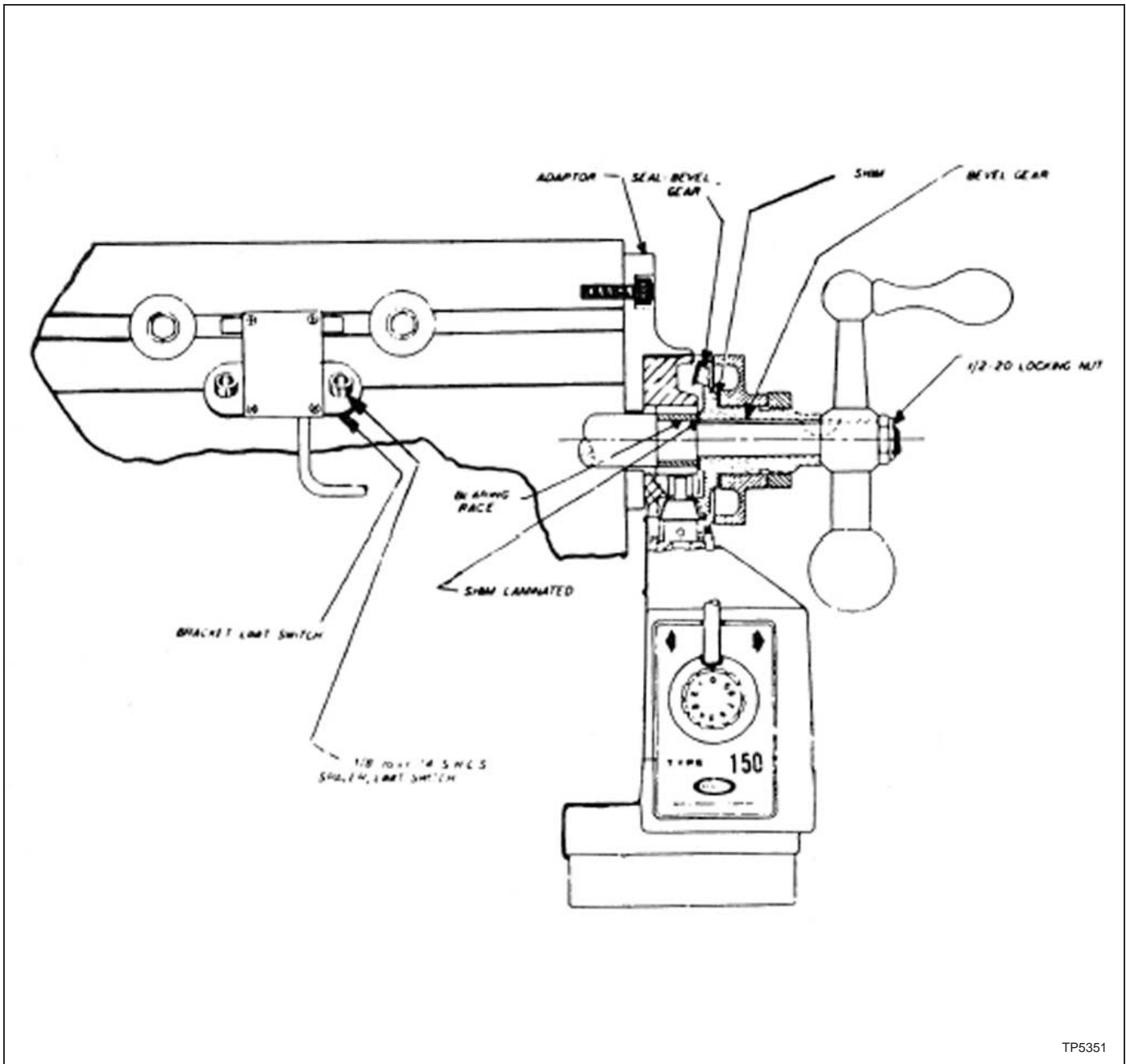
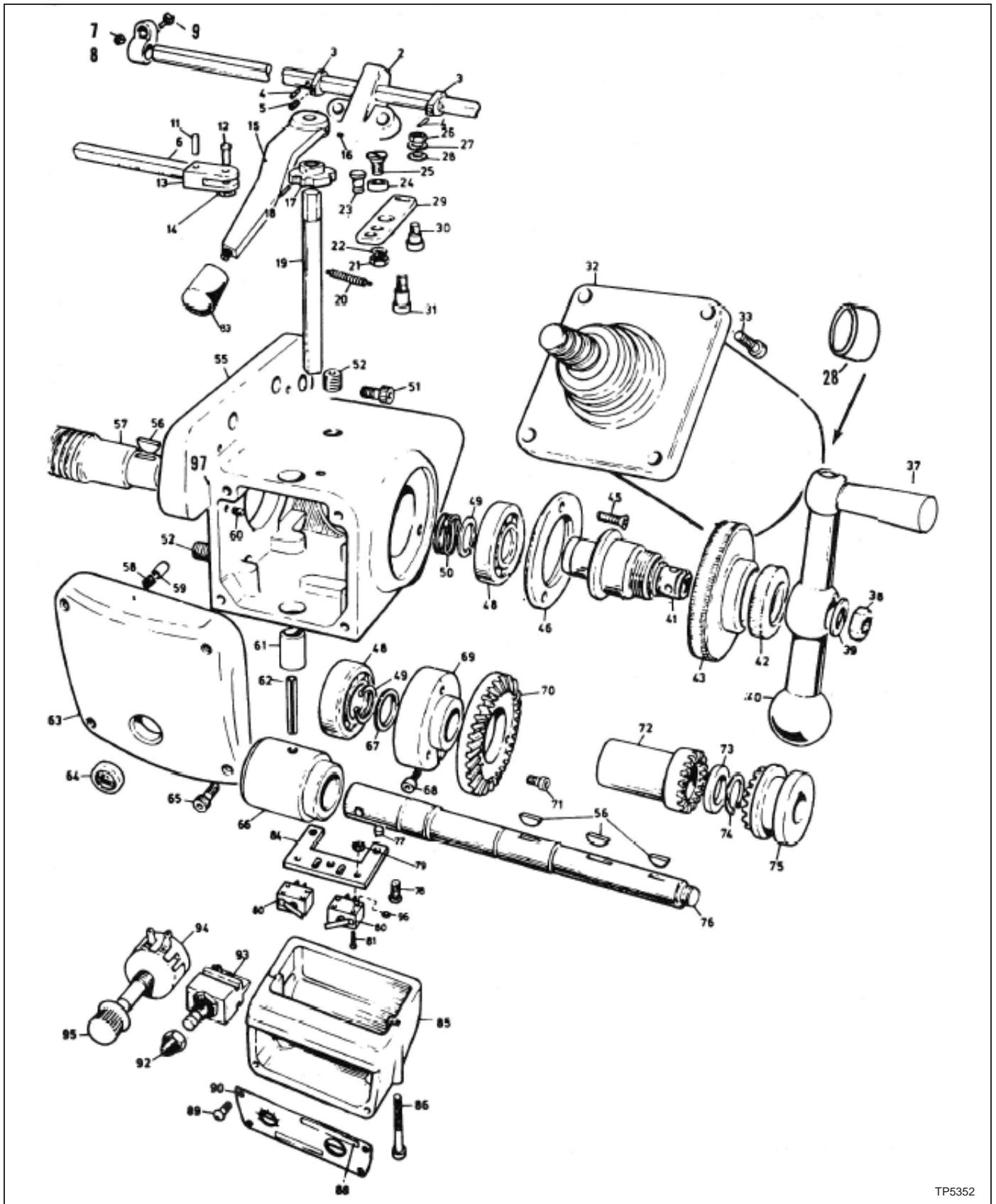


Figure 4.13 - Power Feed Type Assembly

ITEM	CODE NO.	DESCRIPTION	QTY
	11060200	Unit, Servo Power Feed, X-Axis	1
	11060201	Unit, Servo Power Feed, Y-Axis	1
	11060202	Unit, Servo Power Feed, Z-Axis	1

# 6F POWER FEED X-AXIS



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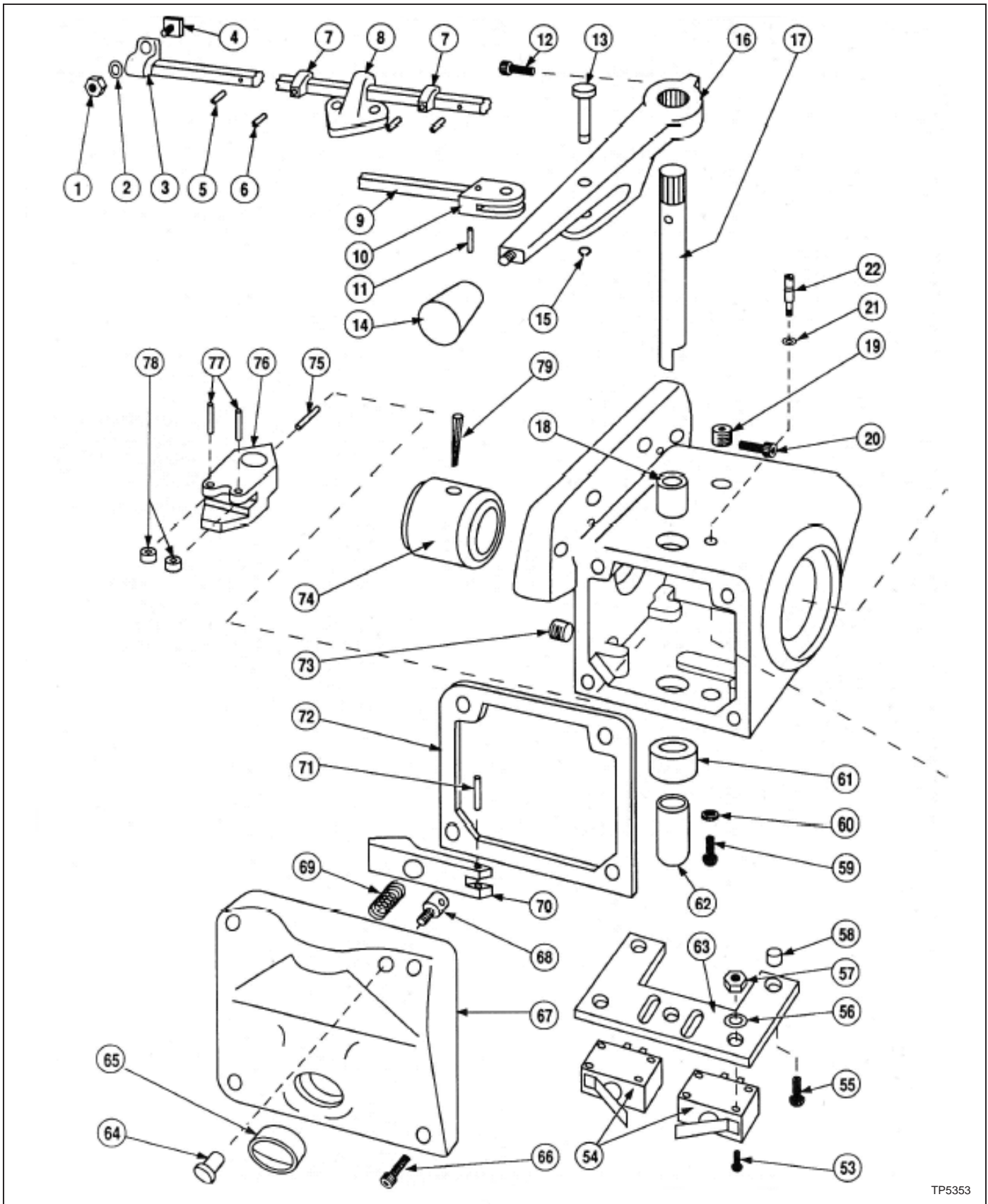
Figure 4.14 - 6F Power Feed X-Axis Assembly

## 6F POWER FEED X-AXIS

ITEM	CODE NO.	DESCRIPTION	QTY
1	11430097	Clamp, Stop Rod	1
2	12060300	Bracket, Stop, Power Feed	1
3	12632304	Collar, Stop	2
4	11010507	Pin, Roll, .093" x .625" Lg	2
5	11011265	Screw, Stainless Steel, .250"-20 x .250" Lg	2
6	12630079	Rod, Table Stop, 42"	1
	12630080	Rod, Table Stop, 48"	1
7	11011720	Nut, Hex, .375"-16	1
8	12060122	Washer, Tee Bolt	1
9	11061602	Bolt, Square Hd, .375"-16 x 1.375"	1
11	11010507	Pin, Roll, .093" x .625" Lg	1
12	11632470	Pin, Fork	1
13	12630071	Fork, Stop Rod	1
14	11630890	Ring, Retaining, #5115-18	1
15	12630065	Handle, Control Lever, Aluminum	1
16	12190162	Screw, Set, #10-24 x .25" Lg	1
17	12630072	Cam, Clutch Detent	1
18	11010516	Pin, Roll, .125" x .625" Lg	1
19	12636005	Shaft, Switch and Clutch	1
20	11630200	Spring	1
21	11011740	Nut, Hex Jam, .250"-20	1
23	11630076	Spring, Clutch Arm	1
24	12630074	Roller, Clutch Arm Detent	1
25	12630087	Pin, Detent Roller	1
26	11011705	Nut, Hex, #10-32	1
27	11631925	Lockwasher, #10	1
28	11633728	Cap, Motor End	1
29	12630231	Assembly, Clutch Arm	1
30	11630320	Follower, Cam	1
31	11011575	Screw, Self-Locking Shoulder, .312" x .625"-.250"-20	1
32	12631051	Motor, Standard Torque with Slinger, Baldor	1
	28006140	Brush	2
	28006141	Holder, Brush	2
	28006142	Cap, Brush	2
	12636423	Motor, High Torque with Slinger, Baldor	1
	11632511	Brush	2
	11632512	Cap	2
33	11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	4
38	11011755	Nut, Hex Jam, .500"-20	1
39	12150164	Spacer, Washer	1
40	11630158	Assembly, Handle, Power Feed	4
41	12630167	Holder, Dial	3
42	12060078	Nut, Dial Lock, Knurled	1
43	12060214	Dial, 200-Graduation	1
45	11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	3
46	12630325	Cap, Take-Up	1
48	11630261	Bearing, Single Row, Loose Fit	2
49	11630814	Ring, Retaining, #5100-78	1

ITEM	CODE NO.	DESCRIPTION	QTY
50	11632074	Spring, Clutch	1
51	11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	3
52	11635040	Plug, Pipe, .250"-18 NPT x .375"	2
53	11013089	Key, Woodruff #11	1
54	11633638	Bushing, Bronze, #B-68-3	1
55	12630051	Housing, Power Feed Main	1
56	11013078	Key, Woodruff #7	3
57	12061305	Screw, Lead, 42" Table, without Chrome Inch	1
	12061304	Screw, Lead, 48" Table, without Chrome Inch	1
	12060452	Screw, Lead, 42" Table, with Chrome Inch	1
	12060453	Screw, Lead, 48" Table, with Chrome Inch	1
58	11632073	Spring, Compound, .1800Ø x .750" Lg	1
59	12630068	Pin, Detent	1
60	12630075	Pin, Spring	1
61	11633650	Bushing, Bronze, #M-68-12	1
62	11010411	Pin, Taper, #2 x 1.500"	1
63	12630053	Cover, Power Feed	1
64	11413280	Sight, Oil	1
65	11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	4
66	12630060	Coupling	1
67	12630091	Washer, Thrust	1
68	11011128	Screw, Socket Hd Cap, .250"-20 x 1.250"	1
69	12632051	Hub, Gear Mounting	1
70	11632216	Gear, Drive Shaft, Standard Torque	1
	11632218	Gear, Drive Shaft, High Torque	1
71	11011016	Screw, Socket Hd Cap, #10-32 x .375"	3
72	12630062	Clutch, Drive (see 12632050)	1
73	12630070	Bearing, Thrust	1
74	11630838	Ring, Retaining, #5100-68	1
75	12630063	Clutch, Drive Shaft	1
76	12630015	Shaft, Drive, Power Feed	1
77	12630066	Spacer, Switch Mounting Plate	3
78	11631549	Screw, Slotted Round Hd Machine, #10-24 x .625"	3
79	11011701	Nut, Hex, #4-40	4
80	11630131	Micro Switch, Sealed	2
81	11011403	Screw, Round Hd Machine, #4-40 x .625" Lg	4
82	11770844	Washer, Flat	4
83	11632152	Knob, Red Bakelite, .375"	1
84	11636006	Plate, Micro Switch Mount	1
85	12630052	Box, Control	1
86	11011046	Screw, Socket Hd Cap, .250"-20 x 2.500"	2
89	11011190	Screw, Button Hd Cap, #8-32 x .250"	4
90	11632576	Cover, Control Box	1
92	11632506	Boot, Insul PB/Switch	1
93	11632620	Pushbutton, 1PST	1
94	11632618	Potentiometer, 500Ω, Log Taper	1
95	11632153	Knob, Black	1
97	11630134	Gasket, Power Feed Cover	1
98	11636413	Seal, Shaft	1

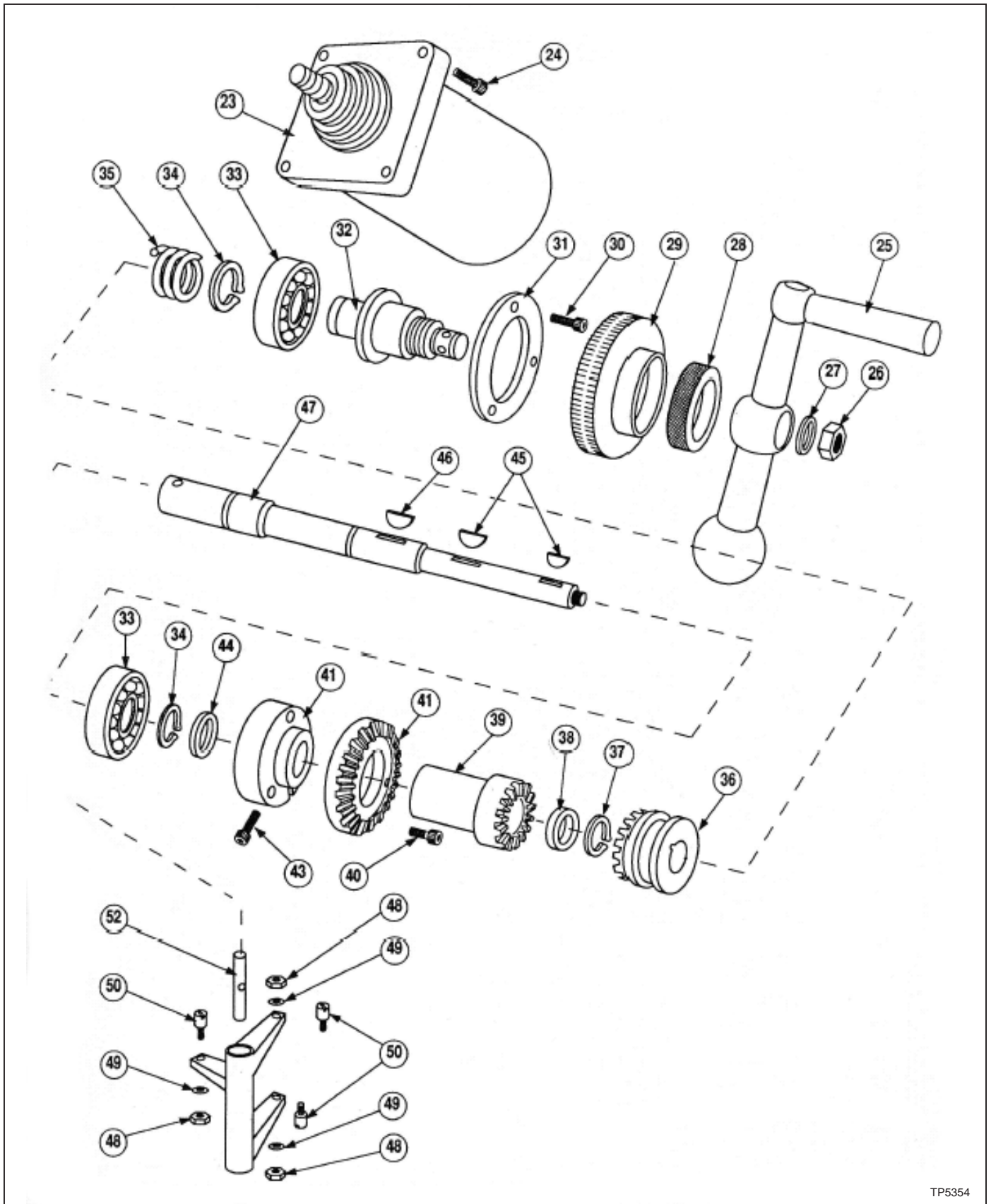
# 8F POWER FEED X-AXIS



TP5353

Figure 4.15 - 8F Power Feed X-Axis Assembly

# 8F POWER FEED X-AXIS



TP5354

Figure 4.16 - 8F Power Feed X-Axis Assembly

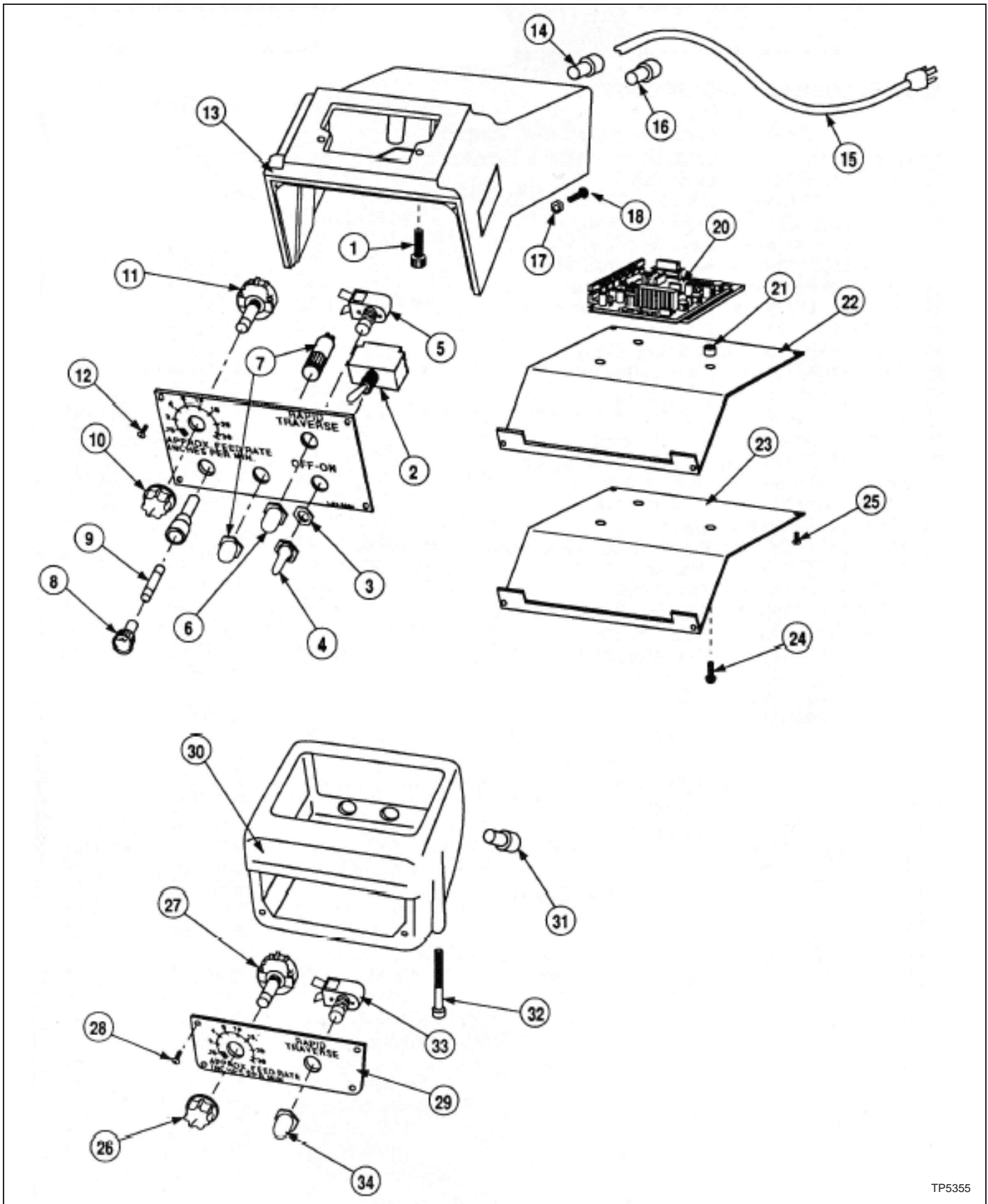
## 8F POWER FEED X-AXIS

ITEM	CODE NO.	DESCRIPTION	QTY
1	11011720	Nut, Hex, .375"-16	1
2	12060122	Washer, Tee Bolt	1
3	11061602	Bolt, Square Hd, .375"-16 x 1.375"	1
4	12430097	Guide, Stop Rod	1
5	11010507	Pin, Roll, .093" x .625" Lg	1
6	11011265	Screw, Stainless Steel, .250"-20 x .250" Lg	1
7	12632304	Collar, Stop	1
8	12060300	Bracket, Stop, Power Feed	1
9	12630079	Rod, Table Stop, 42"	1
	12630080	Rod, Table Stop, 48"	1
10	12630071	Fork, Stop Rod	1
11	11010516	Pin, Roll, .125" x .625" Lg	1
12	11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	1
13	11630426	Pin, Fork	1
14	11632152	Knob, Red Bakelite, .375"	1
15	11630890	Ring, Retaining, #5115-18	1
16	12630423	Lever, Control	1
17	12636618	Shaft, Clutch	1
18	11633638	Bushing, Bronze, #B-68-3	1
19	11635040	Plug, Pipe, .250"-18 NPT x .375"	1
20	11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	1
21	11420905	O-Ring	1
22	12636616	Pivot, Shoulder	1
23	12631051	Motor, Standard Torque, Fracmo	1
	8006140	Brush	2
	8006141	Holder, Brush	2
	8006142	Cap, Brush Holder	2
	12636423	Motor, High Torque with Slinger, Baldor	1
	11630149	Motor, High Torque without Slinger, Baldor	1
	11632511	Brush	2
	11632512	Cap	2
24	11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	1
25	12150780	Assembly, Ball Crank, Quick Release	1
26	11011755	Nut, Hex Jam, .500"-20	1
27	12150108	Washer	1
28		Nut, Dial Lock, Knurled	1
29	12060214	Dial, 200-Graduation	1
30	11011010	Screw, Socket Hd Cap, #10-24 x .500" Lg	3
31	12630325	Cap, Take-Up	1
32	12150289	Holder, Dial	1
33	11630261	Bearing, Single Row, Loose Fit	2
34	11630814	Ring, Retaining, #5100-78	2
35	11633500	Spring	1
36	12636626	Clutch, Driven	1
37	11630838	Ring, Retaining, #5100-68	1
38	12630070	Bearing, Thrust	1
39	12636650	Assembly, Clutch Driver	1
40	11011016	Screw, Socket Hd Cap, #10-32 x .375"	3



ITEM	CODE NO.	DESCRIPTION	QTY
41	11632216	Gear, Drive Shaft, Standard Torque	1
	11632218	Gear, Drive Shaft, High Torque	1
42	12632051	Hub, Gear	1
43	11011128	Screw, Socket Hd Cap, .250"-20 x 1.250"	1
44	12630091	Washer, Thrust	1
45	11013078	Key, Woodruff #7	2
46	11013089	Key, Woodruff #11	1
47	12630015	Shaft, Drive, Power Feed	1
48	11011705	Nut, Hex, #10-32	3
49	11631925	Washer	3
50	11630320	Follower, Cam	3
51	12636610	Fork, Shifting	1
52	12636615	Shaft, Pivot	1
53	11011403	Screw, Round Hd Machine, #4-40 x .625" Lg	8
54	11630131	Switch, Limit	2
55	11631549	Screw, Pan Hd Machine, #10-24 x 1.250"	3
56	11981089	Washer, Star, #6	8
57	11011701	Nut, Hex, #4-40	8
58	12630066	Spacer, Switch Mounting Plate	3
59	11011200	Screw, Round Hd Machine, .250"-20 x .750"	1
60	11980089	Washer	1
61	11636413	Seal, Shaft	1
62	11633650	Bushing, Bronze, #M-68-12	1
63	11636006	Plate, Micro Switch Mount	1
64	11981315	Nut, Allen, #10-32	1
65	11313280	Sight, Oil Glass	1
66	11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	4
67	12636603	Cover	1
68	12636617	Pivot, Cam	1
69	11636625	Spring	1
70	12630429	Follower, Cam	1
71	11010516	Pin, Roll, .125" x .625" Lg	1
72	11630134	Gasket, Cover	1
73	11635040	Plug, Pipe, .250"-18 NPT x .375"	1
74	12630060	Coupling	1
75	11010517	Pin, Roll,.125" x .750"	1
76	12636609	Cam	1
77	11650706	Pin, Dowel	2
78	12630428	Roller, Cam	2
79	11010411	Pin, Taper, #2 x 1.500"	1

# 8F POWER FEED X-AXIS



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Figure 4.17 - 8F Power Feed X-Axis Control Assembly, Exploded View

## 8F POWER FEED X-AXIS

ITEM	CODE NO.	DESCRIPTION	QTY
1	11011031	Screw, Socket Hd Cap, .250"-20 x .625"	2
2	11632659	Switch, Toggle 2PST	1
3	11632599	Nut, Hex	1
4	11632628	Boot, Toggle Switch Insulator	1
5	11632620	Pushbutton, 1PST	1
6	11632506	Boot, Insul PB/Switch	1
7	11632593	Light, Pilot	1
8	11632607	Fuseholder, Panel Mount	1
9	11632606	Fuse, 10 Amp	1
10	11632153	Knob, Black	1
11	11630445	Potentiometer	1
12	11011189	Screw, Button Hd Cap, #6-32 x .250"	4
13	12636400	Box, Control	1
14	11636409	Grip, Cord	1
15	11636412	Cord, Power	1
16	11636410	Grip, Cord	1
17	11011704	Nut, Hex, #8-32	1
18	11011429	Screw, Round Hd Machine, #8-32 x .500"	1
19	11630417	Panel, Front	1
20	11630417	Board, Circuit	1
	32632751	Assembly, Harness, Power Feed	1
21	12630066	Spacer, Switch Mounting Plate	3
22	11630422	Gasket, Cover	1
23	11630421	Cover, Bottom	1
24	11011549	Screw, Pan Hd Machine, #10-32 x .500"	3
25	11011189	Screw, Button Hd Cap, #6-32 x .250"	2
26	11632152	Knob, Red Bakelite, .375"	1
27	11630445	Potentiometer, 5K $\Omega$	1
28	11011189	Screw, Button Hd Cap, #6-32 x .250"	4
29	11632576	Cover, Control Box	1
30	12630052	Box, Control	1
31	11152446	Grip, Cord	1
32	11780064	Screw, Socket Hd Cap, .250"-20 x 3.500"	2
33	11632620	Pushbutton, 1PST	1
34	11632506	Boot, Insul PB/Switch	1

## POWER FEED X-AXIS

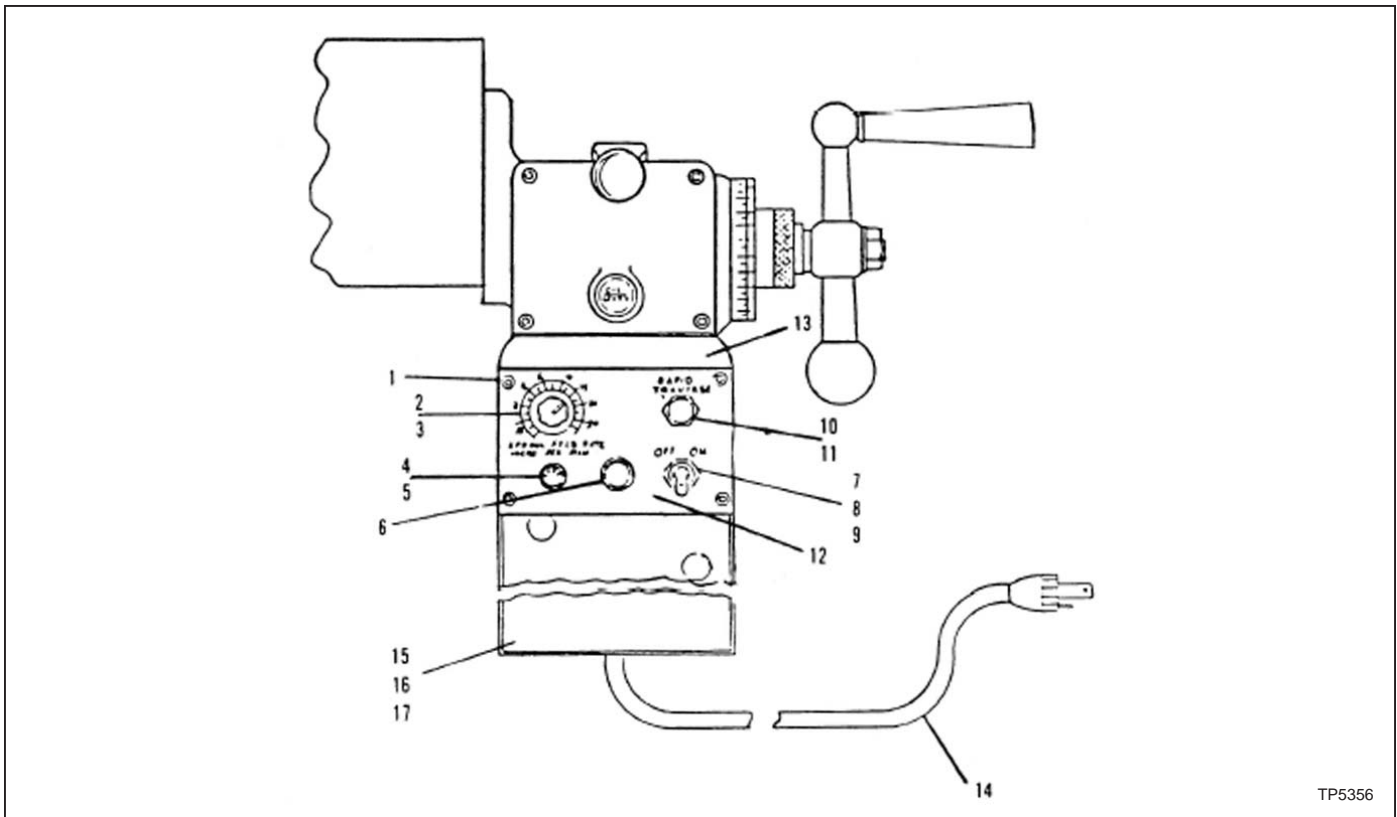


Figure 4.18 - Power Feed X-Axis Control Assembly, Front View

ITEM	CODE NO.	DESCRIPTION	QTY
1	11011189	Screw, Button Hd Cap, #6-32 x .250"	4
2	11632618	Potentiometer, 500Ω, Log Taper	1
	11630445	Potentiometer, 8F Power Feed	1
3	11632153	Knob, Black	1
4	11632607	Fuseholder, Panel Mount	1
5	11632606	Fuse, 10 Amp	1
6	11632593	Light, Pilot	1
7	11632659	Switch, Toggle 2PST	1
8	11632628	Boot, Insulator	1
9	11632599	Nut, Hex	1
10	11632620	Pushbutton, 1PST	1
11	11632506	Boot, Insul PB/Switch	1
12	11636404	Panel	1
13	12636400	Box, Control	1
14	11636412	Cord, Power	1
15	11636411	Cover, Bottom, 6F Power Feed	1
	11630421	Cover, Bottom, 8F Power Feed	1
16	11632568	Board, Printed Circuit, 6F Power Feed (Not Shown)	1
	11630417	Board, Circuit, 8F Power Feed (Not Shown)	1
17	11630416	Assembly, Plug-In Connector Type Harness, 6F	1
	32632751	Assembly, Harness, Power Feed	1

## REPLACEMENT MOTOR ASSEMBLIES AVAILABLE

### Motor Assembly J-Head 1 HP Unified without NFPA, Code No. 12190250

CODE NO.	DESCRIPTION	QTY
11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
11012759	Marker, 208 Volts	1
11012760	Marker, 230 Volts	1
11012761	Marker, 380 Volts	1
11012762	Marker, 460 Volts	1
11012772	Marker, 416 Volts	1
11182556	Set, Cord, 14/4 600 Volts	1
11272643	Term, Wire B/A	3
11011713	Nut, Hex, .375"-24	2
11191922	Lockwasher, .375"	2
12190173	Stud, Motor Mounting	2
12190171	Locknut, Motor	2
12190174	Washer, Motor Mounting Stud	2
12190172	Handle, Motor Locknut	2
11192151	Knob, Bakelite, .250"-20	2
12193508	Assembly, Motor Pulley	1
11190161	Motor, 1 HP, 230/460	1
11192653	Switch, Drum	1
11011475	Screw, Round Hd Machine, .250"-20 x .500"	2
11011476	Screw, Round Hd Machine, .250"-20 x .750"	2

### Motor Assembly J-Head Unified with NFPA

Contact Sales Department for Code No.

### Motor Assembly 2J-Head 2 HP Unified without NFPA, Code No. 12550150

CODE NO.	DESCRIPTION	QTY
11010514	Pin, Roll, .125" x .500"	1
11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
11012759	Marker, 208 Volts	1
11012760	Marker, 230 Volts	1
11012761	Marker, 380 Volts	1
11012762	Marker, 460 Volts	1
11012770	Marker, 200 Volts	1
11012771	Marker, 400 Volts	1
11012772	Marker, 416 Volts	1
11150843	Ring, Retaining, #5100	1
11182556	Set, Cord, 14/4 600 Volts	1
11182557	Assembly, Cable, 600 Volts	1
11182655	Switch, Drum	1
11550001	Motor, 2 HP, Multi Volt, 50/60	1
11562534	Nut, Wire	1
12550029	Assembly, Varidisc and Spring	1
12550007	Key, Drive, Fixed Varidisc	1
12550006	Varidisc, Motor Stationary	1

**Motor Assembly 2J-Head 2 HP Unified with NFPA**

Contact Sales Department for Code No.

**Motor Assembly 2J-Head 2 HP 575 Volts without NFPA, Code No. 12550020**

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11010514	Pin, Roll, .125" x .500"	1
11012763	Marker, 575 Volts	1
11150843	Ring, Retaining, #5100-118	1
11182556	Set, Cord, 14/4 600 Volts	1
11182557	Assembly, Cable, 600 Volts	1
11182655	Switch, Drum	1
11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
11550101	Motor, 2 HP, 575-3-60	1
12550006	Varidisc, Motor Stationary	1
11562534	Connector, Wire Nut, M Type Y	3
12550007	Key, Drive, Fixed Varidisc	1
12550029	Assembly, Varidisc and Spring	1

**Motor Assembly 2J-Head 2 HP 575 Volts with NFPA**

Contact Sales Department for Code No.

**Replacement Motors Available**

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11190161	Motor, 1 HP, 230/460	
11190162	J-Head 1 HP 575 Volts	
11550001	Motor, 2 HP, Multi Volt, 50/60	
11550101	Motor, 2 HP, 575-3-60	

**Code No. 2203000 – M Milling Head – Spare Parts Kit**

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11202102	Drive Belt	1
11202021	Clockspring	1
11200202	Bearing, Spindle	4
11191942	Lockwasher	2

**Code No. 2193000 – J Milling Head – Spare Parts Kit**

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11182120	Belt, Varispeed	1
11182106	Belt, Timing	1
12193477	Shoe, Brake	2
11182081	Spring, Brake	2
12193437	Assembly, Clockspring and Cover	1
12180117	Lubricant, Gear	1
11190238	Bearing, Spindle, Pair	1
11190237	Bearing, Spindle	1
11192403	Strainer, Felt	2
11191942	Lockwasher	2
11011392	Screw, Collet Aligning (see 12193540)	6

**Code No. 2183000 – 2J Milling Head (1-1/2 HP) – Spare Parts Kit**

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11182120	Belt, Varispeed	1
11182106	Belt, Timing	1
12180073	Shoe, Brake, Set	1
11182081	Spring, Brake	1
11182121	Key, Motor	1
11182122	Key, Plastic	1
12193437	Assembly, Clockspring and Cover	1
12180117	Lubricant, Gear	1
11183147	Lubriplate	1
11190238	Bearing, Spindle, Pair	1
11190237	Bearing, Spindle	1
11192403	Strainer, Felt	2
11191942	Lockwasher	2
12193540	Screw, Set, R-8 Collet	6

**Code No. 2553000 – 2J Milling Head (2 HP) – Spare Parts Kit**

Same as above except:

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11552106	Belt, Timing	1
12550004	Assembly, Key, Drive, Varidisc	1
11182122	Key, Plastic	1

**Code No. 2062000 – Series I Standard Machine – Spare Parts Kit**

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
11062405	Wiper, Felt	2
11062406	Wiper, Felt	4
12060631	Nut, Lead Screw Cross Feed Inch Matched	1
12060630	Nut, Lead Screw Feed, Inch Matched, Lg	1
12060123	Plate, Wiper, Knee	1

**Lead Screws for Manually Operated Machines (without Keys)**

Note: Keys for the Following Lead Screws are Code No. 11013078, Woodruff #7.

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
12061233	Y-Axis (Cross Feed) No Chrome Inch	
12060485	Y-Axis (Cross Feed) Chrome Inch	
12060182	Y-Axis (Cross Feed) No Chrome Metric	
12060486	Y-Axis (Cross Feed) Chrome Metric	
12060105	X-Axis (Longitudinal) No Chrome Inch, 42" Table	
12060450	X-Axis (Longitudinal) Chrome Inch, 42" Table	
12060177	X-Axis (Longitudinal) No Chrome Metric, 42" Table	
12060454	X-Axis (Longitudinal) Chrome Metric, 42" Table	
12060106	X-Axis (Longitudinal) No Chrome Inch, 48" Table	
12060451	X-Axis (Longitudinal) Chrome Inch, 48" Table	
12060179	X-Axis (Longitudinal) No Chrome Metric, 48" Table	
12060455	X-Axis (Longitudinal) Chrome Metric, 48" Table	

**Lead Screws Available for Machines with Power Feeds (without Keys)**

Note: Keys for the Following Lead Screws are Code No. 11013078, Woodruff #7.

<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
12630017	Y-Axis (Cross Feed) No Chrome Inch	
12630321	Y-Axis (Cross Feed) Chrome Inch	
12630185	Y-Axis (Cross Feed) No Chrome Metric	
12630487	Y-Axis (Cross Feed) Chrome Metric	
12630084	X-Axis (Longitudinal) No Chrome Inch, 42" Table	
12060452	X-Axis (Longitudinal) Chrome Inch, 42" Table	
12630097	X-Axis (Longitudinal) No Chrome Metric, 42" Table	
12060456	X-Axis (Longitudinal) Chrome Metric, 42" Table	
12630085	X-Axis (Longitudinal) No Chrome Inch, 48" Table	
12060453	X-Axis (Longitudinal) Chrome Inch, 48" Table	
12630098	X-Axis (Longitudinal) No Chrome Metric, 48" Table	
12060457	X-Axis (Longitudinal) Chrome Metric, 48" Table	



## METRIC CONVERSION KITS

### Code No. 2204000 – M Head, Metric Conversion Kit

CODE NO.	DESCRIPTION	QTY
11202846	Scale	1
12209002	Screw, Stop	1
12199002	Nut, Micro	1
12202024	Nut, Stop	1

### Code No. 2184000 – J- and 2J-Head, Metric Conversion Kit

CODE NO.	DESCRIPTION	QTY
11195307	Scale	1
12191013	Assembly, Stop	1

### Code No. 2064001 – Metric Conversion Kits

Hand Feed Machines with 36" Tables

CODE NO.	DESCRIPTION	QTY
12060175	Screw, Lead, Table	1
12060183	Screw, Lead, Elevating	1
12060730	Nut, Table Feed	1
12060731	Nut, Saddle Feed	1
12060170	Nut, Elevating	1
12069016	Dial, Table and Saddle	3
12069015	Dial, Elevating Screw	1
12060182	Screw, Lead, Y-Axis, without Chrome, 12" Knee	1

### Code No. 2064002 – Metric Conversion Kits

Hand Feed Machines with 42" Tables

CODE NO.	DESCRIPTION	QTY
12060177	Screw, Lead, X-Axis, Hand Feed, without Chrome, 42"	1
12060183	Screw, Lead, Elevating	1
12060730	Nut, Table Feed, X-Axis Feed, Matched Set	1
12060731	Nut, Saddle Feed, Y-Axis Feed, Matched Set	1
12060170	Nut, Elevating	1
12069016	Dial, Table and Saddle	3
12069015	Dial, Elevating Screw	1
12060182	Screw, Lead, Y-Axis, without Chrome, 12" Knee	1

## Code No. 2064003 – Metric Conversion Kits

Hand Feed Machines with 48" Tables

CODE NO.	DESCRIPTION	QTY
12060179	Screw, Lead	1
12060183	Screw, Lead, Elevating	1
12060730	Nut, Table Feed	1
12060731	Nut, Saddle Feed	1
12060170	Nut, Elevating	1
12069016	Dial, Table and Saddle	3
12069015	Dial, Elevating Screw	1
12060182	Screw, Lead, Y-Axis, without Chrome, 12" Knee	1

## 6F Power Feed Field Conversion Kits For Machines without NFPA

Note: Field Conversion Kits DO NOT include Lead Screws

CODE NO.	DESCRIPTION	QTY
12630001	X-Axis (Longitudinal) for 36" Table, Standard Torque	
12636450	X-Axis (Longitudinal) for 42" Table, Standard Torque	
12636451	X-Axis (Longitudinal) for 42" Table, High Torque	
12636452	X-Axis (Longitudinal) for 48" Table, Standard Torque	
12636453	X-Axis (Longitudinal) for 48" Table, High Torque	
12630182	Y-Axis (Cross Feed) Standard Torque	

Note: Contact Sales Department For Machines with NFPA.

- NOTES -

