



INSTALLATION, OPERATION, MAINTENANCE, AND PARTS LIST

SERIES I MILLING MACHINES



Manual No. M-450A

Part No. M A-0009500-0450

GENERAL PURPOSE SAFEGUARDS

There is no single safeguard which can match the versatility of the Series I machine. As a result, you will find that the guard assemblies shown in Figures 1.1 and 1.11, like all safeguards, will be suitable for some operations, but not for others. Carefully analyze the operation to be performed before deciding whether this safeguard is suitable. Adjust the guard to suit your special requirements. If you find that it is not suitable for a particular application, you should use an alternate form of protection.

Installation for Machines with R-8 Spindle Taper

If the machine was manufactured on or after January 1, 1983, the manufacturer has drilled and tapped two holes in the nose cap of the spindle to be used for mounting the guard (the two untapped holes serve to remove the nose cap with a spanner wrench).

1. Place the mounting ring (Item 11) underneath the top of the guard (Item 7).
2. Place two socket head cap screws (Item 12) through the holes in ring, and hand-start them into the threaded holes in the nose cap until hand tight.
3. Align guard to be square with table of machine (unless angular mounting is desired).
4. Tighten screws with a hex wrench.

Retrofits

If the machine was manufactured prior to January 1, 1983, you must retrofit as follows:

1. Manually tap the existing spanner wrench holes with a .250"-20 bottoming tap.

- CAUTION -

There is no need to drill new holes or deepen the existing holes. Attempts at either practice may result in spindle damage.

2. Mount the guard as indicated above.

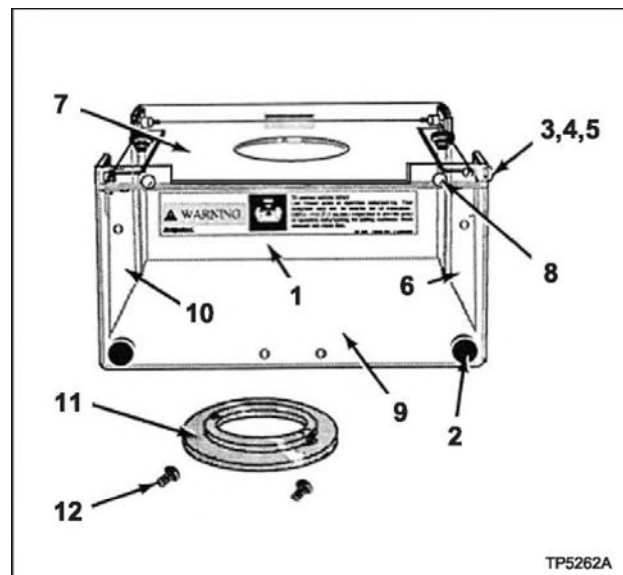


Figure 1.1 - Spindle Guard Assembly
(R8 Spindle)

Machines with Erickson #30 Quick Change or Universal #200 Quick Change Spindles

If the machine was manufactured after January 1, 1985 and has either an Erickson #30 or a Universal #200 quick change spindle, the manufacturer has drilled and tapped four #8-32 holes in the nose cap of the spindle for mounting the guard.

ERICKSON SPINDLE

1. Remove the spindle locknut. This is done by removing the long button head black finish screw, which is normally left of the cadmium-finished button head screw on the locknut of the spindle. This will allow you to unscrew the locknut by turning it counter-clockwise.

-NOTE-

Observe the orientation of the mounting holes in the spindle and the mounting ring to orient the quill guard as desired.

2. Place the mounting ring (Item 11) on the top of the guard (Item 7).
3. Place the locking ring (Item 12) underneath the top of the guard (Item 7).
4. Secure the two rings together with four #8-32 x 5/8 button head cap screws.
5. Lower the quill.
6. Position the guard under the spindle.
7. Use four #8-32 x 1/2 button head cap screws to secure the guard to the spindle.
8. Reinstall the quick change locknut. Refer to assembly instructions.

UNIVERSAL #200 QUICK CHANGE SPINDLES

The quick change locknut is not to be removed. To install the spindle safeguard, follow the preceding steps listed above: 2, 3, 4, 5, 6, and 7.

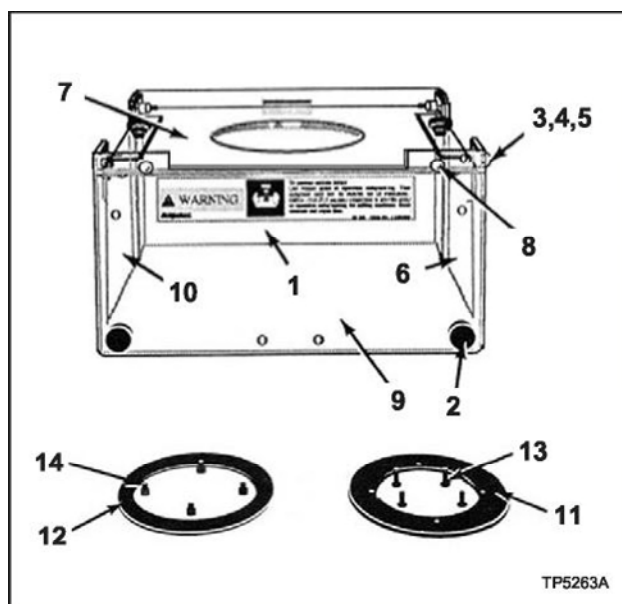


Figure 1.11 - Spindle Guard Assembly
(#30 Quick Change or Universal
#200 Quick Change Spindle)

BP 11060813 — R-8 Shield Assembly

Refer to Figure I.I.

Item	Part Number	Description	Qty
1	BP 11191203	Shield Assembly, Rear	1
2	BP 11010060	Screw, Hand 8-32 x .500	4
3	0300312	Screw, BHC 10-32 x .750	4
4	BP 11010065	Washer, Plastic #10-32	8
5	BP 11010055	Nut, Stop, #10-32 (Elastic)	4
6	BP 11060824	Shield, Right Side	1
7	BP 11060817	Shield Assembly, Top	1
8	BP 11010063	Screw, Drive, "Type U" #12 x .625	2
9	BP 11060820	Shield Assembly, Front	1
10	BP 11060822	Shield, Left Side	1
11	BP 11191201	Ring, Guard Mounting	1
12	0100610	Screw, SHC 1/4-20 x 5/8	2

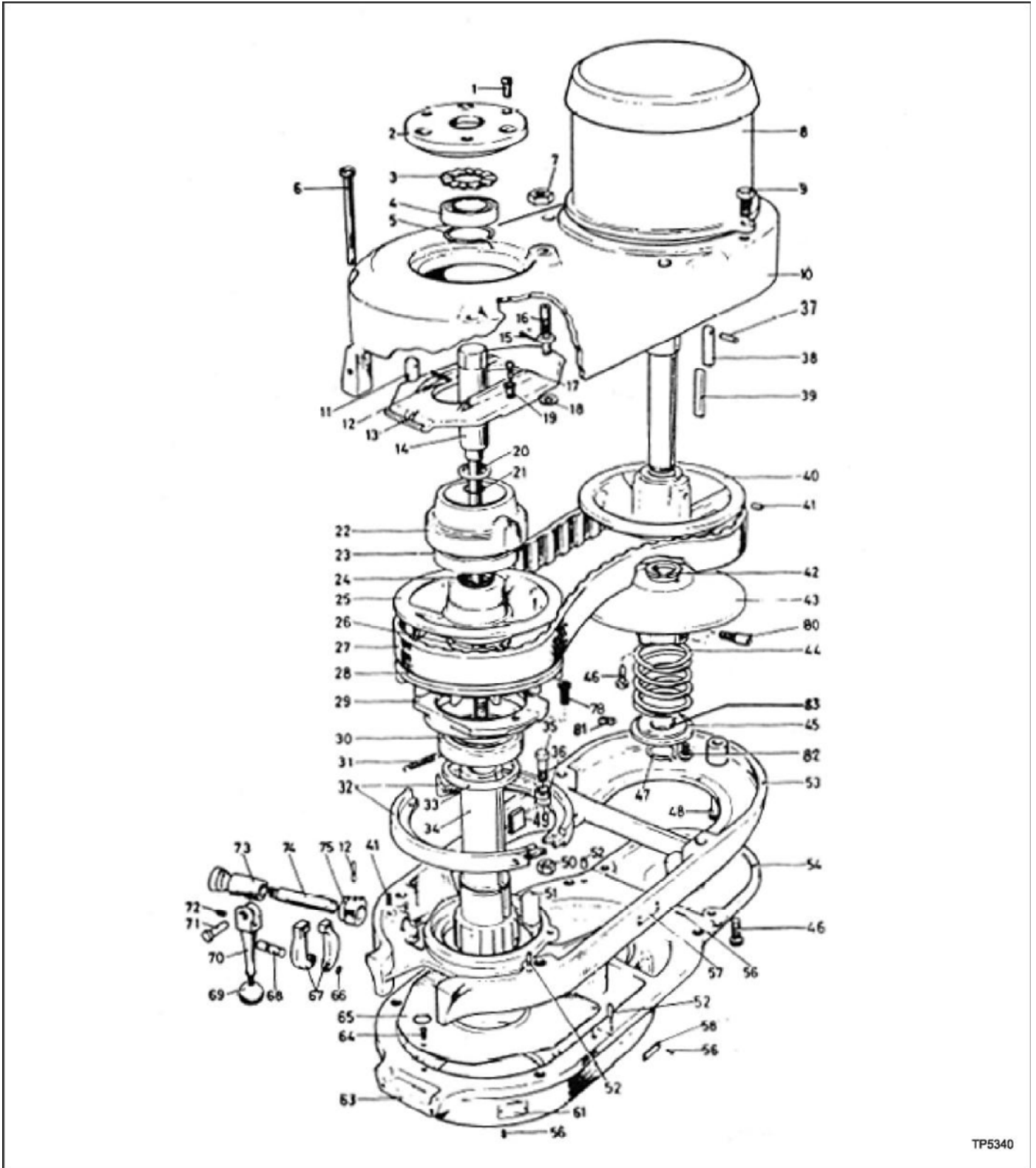
BP 11060814 — Quick Change Shield Assembly

Refer to Figure 1.11.

Item	Part Number	Description	Qty
1	BP 11191203	Shield Assembly, Rear	1
2	BP 11010060	Screw, Hand 8-32 x .500	4
3	0300312	Screw, BHC 10-32 x .750	4
4	BP 11010065	Washer, Plastic #10-32	8
5	BP 11010055	Nut, Stop, #10-32 (Elastic)	4
6	BP 11060824	Shield, Right Side	1
7	BP 11060816	Shield Assembly, Top	1
8	BP 11010063	Screw, Drive, "Type U" #12 x .625	2
9	BP 11060820	Shield Assembly, Front	1
10	BP 11060822	Shield, Left Side	1
11	BP 12190330	Ring, Guard Mounting	1
12	BP 12190331	Ring, Guard Locking	1
13	0300208	Screw, BHC #8-32 x 1/2	4
14	0300210	Screw, BHC #8-32 x 5/8	4

CHAPTER 4 - PARTS LISTINGS

2J-HEAD TOP HOUSING



TP5340

Figure 4.1 - 2J-Head Assembly

2J-HEAD TOP HOUSING

Item	Part Number	Description	Qty
1	BP 11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	3
2	BP 12180094	Cap, Top Bearing	1
3	BP 11181977	Washer, Wave Spring	1
4	BP 11180252	Bearing, Ball, Fafnir #9107 NNP	1
5	BP 11180848	Ring, Snap, #5100-137	1
6	BP 11011069	Screw, Socket Hd Cap, .312"-18 x 6.00"	2
7	BP 11011745	Nut, UNC Hex Jam, .375"-16	1
8	BP 11550001	Motor, 2 HP, Multi Volt, 50/60	1
9	BP 11011148	Screw, Hex Hd Cap, .375"-16 x 1.00"	2
10**	BP 12180051	Housing, Upper Belt (see BP 12183923)	1
11	BP 12180066	Stud, Speed Change Chain	1
12	BP 11010535	Pin, Roll, .156"0 x 1.00" Lg	2
13	BP 11180058	Plate, Speed Change	1
14	BP 12183920	Assembly, Drawbar	1
15	BP 11010606	Pin, Cotter, .093"0 x .750"	1
16	BP 12180074	Stud, Speed Change Plate Pivot	1
17	BP 11011020	Screw, Socket Hd Cap, #10-32 x .750"	2
18	BP 11180095	Washer	1
19	BP 12180089	Sleeve, Pivot	2
20	BP 12180093	Washer, Drawbar	1
21	BP 11180915	"O"-Ring, Parker # 2-14	1
22	BP 12180056	Housing, Spindle Pulley Bearing Sliding	1
23	BP 11170262	Bearing, #RM9110NPP	1
24	BP 11182124	Insert, Plastic	2
25	BP 12183934	Varidisc, Adjustable Drive A	1
26	BP 11180855	Ring, Retaining, #5102-156	1
27	BP 11182120	Belt, Varispeed	1
28	BP 12180082	Varidisc, Stationary Drive	1
29	BP 12180043	Cap, Brake and Bearing	1
30	BP 11170262	Bearing, #RM9110NPP	1
31	BP 11182081	Spring, Brake	2
32	BP 12180073	Shoes, Brake	2
33	BP 12180078	Spacer, Spindle Pulley	1
34	BP 12180042	Assembly, Spindle Pulley Hub	1
35	BP 11011138	Screw, Hex Hd Cap, .250"-20 x .750"	1
36	BP 12180071	Sleeve, Brake Shoe Pivot Sleeve	1
37	BP 11010513	Pin, Roll, .125" x .437"	1
38	BP 12550007	Key, Drive, Fixed Varidisc	1
39	BP 12550004	Assembly, Key, Drive, Varidisc	1
40	BP 12550006	Varidisc, Stationary Motor	1
41	BP 11011287	Screw, Stainless Steel, .250"-20 x .250"	2
42*	BP 11182126	Insert, Plastic Replaceable Type	2
43	BP 12550029	Assembly, Varidisc and Spring	1
44	BP 11182083	Spring, Varidisc Motor Shaft	1
45	BP 11550003	Collar, Adjustable Varidisc Spring	1
46	BP 11011022	Screw, Socket Hd Cap, #10-24 x 1.00"	3
47	BP 11150843	Ring, Snap	1
48	BP 11011052	Screw, Socket Hd Cap, .132"-18 x .750" Lg	1

Item	Part Number	Description	Qty
49	BP 11182122	Key, Plastic	1
50	BP 11011707	Nut, Hex Jam, .250"-20	1
51	BP 12180084	Key	1
52	BP 12180107	Pin, Taper, #4 x 1.00"	4
53**	BP 12180052	Base, Belt Housing (see BP 12183923)	1
54	BP 12180088	Cover, Motor Pulley	1
56	BP 11011552	Screw, Drive, Type U, #0 x .250"	4
58	BP 11182893	Nameplate, Hi-Low Range	1
61	BP 11182894	Nameplate, Quill Feed	1
63	BP 12180053	Housing, Gear	1
64	BP 11011443	Screw, Round Hd Machine, #10-24 x .375"	3
65	BP 11185030	Plate, Gear Housing	1
66	BP 11180818	Ring, Snap, #5100-25	1
67	BP 11182306	Finger, Brake Operating	2
68	BP 12180083	Stud, Brake Finger Pivot	1
69	BP 11192151	Knob, Bakelite, .250"-20	1
70	BP 12190133	Handle, Brake	1
71	BP 12180046	Pin, Brake Lock	1
72	BP 11011260	Screw, Stainless Steel, #10-32 UNF x .250"	1
73	BP 12180104	Sleeve, Brake Lock Shaft	1
74	BP 28025521	Shaft, Brake Lock	1
75	BP 12180069	Cam, Brake Lock	1
78	BP 11011031	Screw, Socket Hd Cap, .250"-20 x .625"	1
80	BP 11011019	Screw, Flat Hd Cap, #10-32 x .500"	1
82	0100204	Screw, Socket Hd Cap, #8-32 x .250"	1
83	BP 12550008	Key	1

* Non-replaceable turcrite bushing must be purchased as part of varidisc assembly BP 12550029. **Items 10 and 53 sold as assembly only.

-NOTE-

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

Item	Part Number	Description	Qty
34	BP 12182004	Assembly, Spindle Pulley Hub	1
37	BP 11010513	Pin, Roll, .125" x .437"	1
38	BP 12180102	Key, Pulley	1
39	BP 11182121	Key, Plastic	1
40	BP 12180080	Varidisc, Stationary Motor	1
42*	BP 11182123	Insert, Plastic	2
43	BP 12180165	Assembly, Varidisc and Spring	1
45	BP 11182305	Collar, Adjustable Varidisc Spring	1
47	BP 11180860	Ring, Snap	1

* Non-replaceable turcrite bushing must be purchased as part of varidisc assembly BP 12180165.

2J-HEAD BACK GEAR

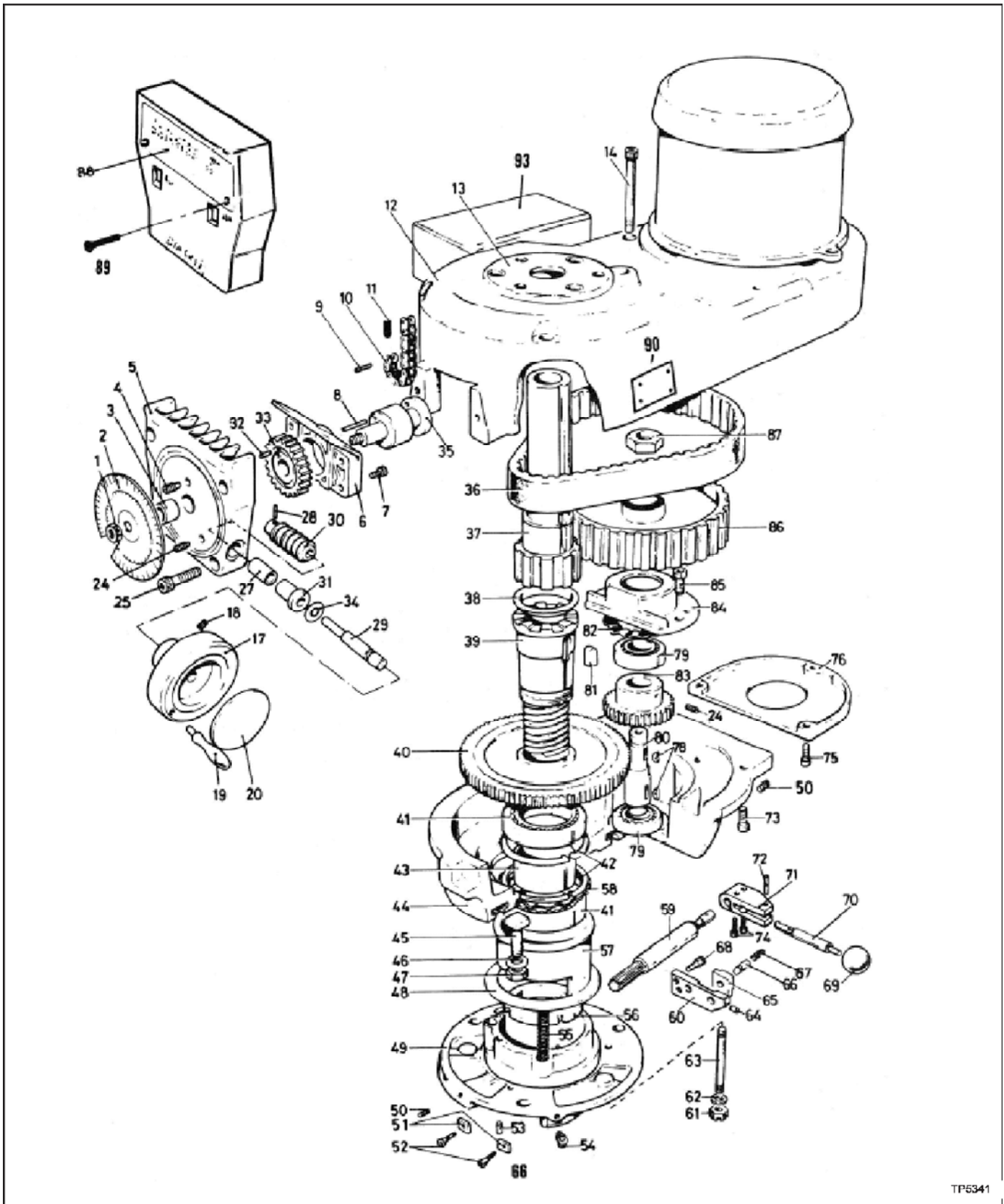


Figure 4.2 - 2J-Head Back Gear Assembly

2J-HEAD BACK GEAR

Item	Part Number	Description	Qty
1	BP 11011710	Nut, Hex, .312"	1
2	BP 11180133	Dial, Spindle Speed	1
3	BP 11183646	Bushing, Bronze, .502" x .628" x 5.00"	1
4	BP 11011380	Screw, Full Dog Socket Hd Set, .250"-20 x .500"	1
5	BP 12180055	Housing, Speed Changer	1
6	BP 12182003	Block, Plastic Bearing	1
7	BP 11011031	Screw, Socket Hd Cap, .250"-20 x .625"	4
8	BP 11010516	Pin, Roll, .125" x .625" Lg	1
9	BP 11010520	Pin, Roll, .125"0 x 1.00" Lg	1
10	BP 11183720	Chain, Speed Changer, Morse #35	1
11	BP 12180066	Stud, Speed Change Chain	1
12	BP 12180051	Housing, Belt (see BP 12183923)	1
13	BP 12180094	Cap, Top Bearing	1
14	BP 11011065	Screw, Socket Hd Cap, .312"-18 x 4.00"	1
17	BP 12182001	Hub, Speed Change	1
18	BP 11181233	Screw, Socket Hd Set, .250"-UNC x .375"	2
19	BP 11182178	Handle, Machine, #3302	1
20	BP 11182892	Plate, Caution	1
24	BP 11011287	Screw, Stainless Steel, .250"-20 x .250"	2
25	BP 11011037	Screw, Socket Hd Cap, .250"-20 x 1.250"	4
27	BP 11183645	Bushing, Oilite	1
28	BP 28300619	Pin, Roll, 2.5mm x 12mm Lg	1
29	BP 28025716	Shaft, Speed Changer	1
30	BP 28007307	Gear, Boston Worm	1
31	BP 11180214	Bushing, Oilite Flanged, FB	1
32	BP 11010539	Pin, Roll, .187"0 x .375" Lg	1
33	BP 12180090	Gear, Speed Changer Spur	1
34	BP 11181923	Washer, Wavy Spring	1
35	BP 12180065	Drum, Speed Change Chain	1
36	BP 11552106	Belt, Timing	1
37*	BP 12180042	Hub, Spindle Pulley	1
38*	BP 12180064	Sleeve, Timing Pulley Clutch	1
39	BP 12180059	Hub, Splined Gear	1
40**	BP 12180062	Gear, Spindle Bull (see BP 12183933)	1
41	BP 11180254	Bearing, Ball, Fafnir #RM9308NPP	2
42	BP 11180803	Ring, Snap, #5000-244	2
43	BP 12180063	Spacer, Bull Gear Bearing	1
44	BP 12180053	Housing, Gear	1
45	BP 11181650	Bolt, Tee	3
46	BP 11181906	Washer, Flat, .469" ID x .938" OD x .063"	3
47	BP 11011750	Nut, HDN Finished Hex Jam, .438"-14	3
48	BP 11181986	Washer, Ball Bearing Gear Sleeve	3
49***	BP 12183924	Bracket, Fixed Clutch	1
50	BP 11011246	Screw, Socket Hd Set, .312"-18 x .312"	2
51	BP 28025615	Guide	2
52	BP 28025671	Screw, Flat Socket Hd Cap, #10-32 x .375"	2
53	BP 11010511	Pin, Roll, .125" x .250" Lg	1
54	BP 11183104	Cup, Oil, Gits #1202 Style L	1

Item	Part Number	Description	Qty
55	BP 11182071	Spring, Compression, .375" OD x .3.00" Lg	3
56	BP 11181794	Locknut, Bearing, #-08	1
57***	BP 12183924	Sleeve, Bearing	1
58	BP 11181977	Washer, Wave Spring	1
59	BP 12180067	Pinion, Bull Gear Shift	1
60	BP 12180161	Plate, Hi-Low Detent	1
61	BP 11181732	Nut, Hex, .375"-16	3
62	BP 11151913	Lockwasher, .375"	3
63	BP 12180085	Stud	3
66	BP 12180100	Plunger, Hi-Low Detent	1
67	BP 11182072	Spring, .750" x .032 x .563"	1
68	BP 11011017	Screw, Socket Hd Cap, #10-32 x .500" Lg	2
69	BP 11192151	Knob, Bakelite, .250"-20	1
70	BP 12180099	Crank, Hi-Low Shift	1
71	BP 12180096	Block, Hi-Low Pinion	1
72	BP 11010516	Pin, Roll, .125" x .625" Lg	1
73	BP 11011052	Screw, Socket Hd Cap, .132"-18 x .750" Lg	4
74	BP 11181007	Screw, Socket Hd Cap, #8-32 x .625"	2
75	BP 11011022	Screw, Socket Hd Cap, #10-24 x 1.00"	1
76	BP 12180088	Cover, Motor Pulley	1
78	BP 11013079	Key, Woodruff #9	2
79	BP 11180235	Bearing, #203NPP-C8	2
80	BP 12180075	Shaft, Bull Gear Pinion Counter	1
81	BP 12180103	Key, Sq, .312" x .540"	1
82	BP 11181975	Washer, Wave Spring	1
83**	BP 28025529	Pinion, Bull Gear (see BP 12183933)	1
84	BP 12180076	Cap, Bull Gear Pinion Bearing	1
85	BP 11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	2
86	BP 12550016	Pulley, Timing Belt	1
87	BP 11191738	Nut, Hex Jam, .625"-18	1
88	BP 11182912	Nameplate, Speed Change	1
89	BP 11011139	Screw, Flat Hd Machine, #8-32 x .750"	2
90	BP 11182897	Plate, Lubrication	1
93	BP 11598117	Assembly, Reversing Switch	1

*Items 37 and 38 sold as assembly only.

**Items 40 and 83 sold as assembly only.

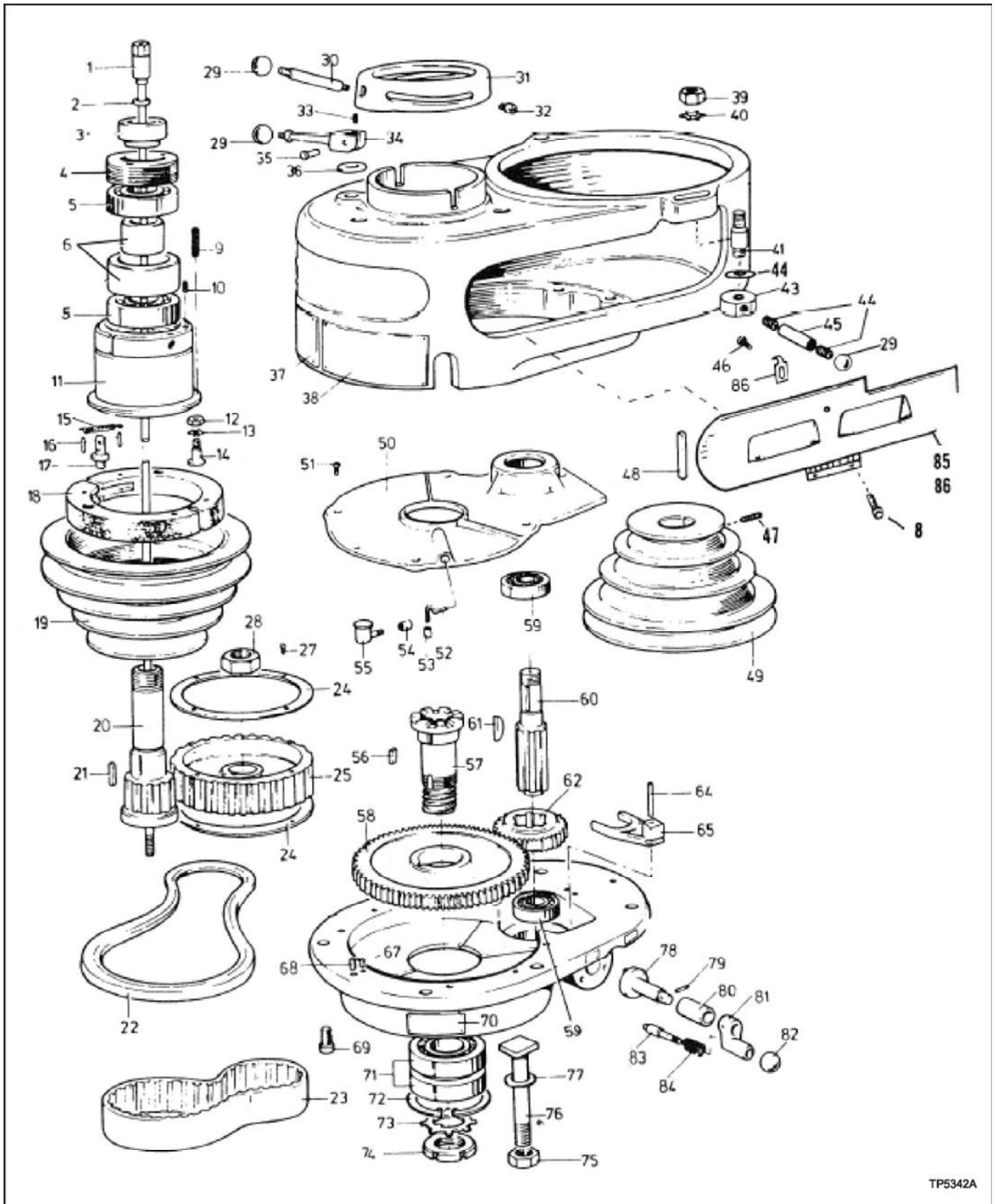
***Items 49 and 57 sold as assembly only.

-NOTE-

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

Item	Part Number	Description	Qty
36	BP 11182106	Belt, Timing	1
37	BP 12182004	Hub, Spindle Pulley	1
86	BP 12180091	Pulley, Timing Belt	1

J-HEAD TOP HOUSING



TP5342A

Figure 4.3 - J-Head Top Housing Assembly

J-HEAD TOP HOUSING

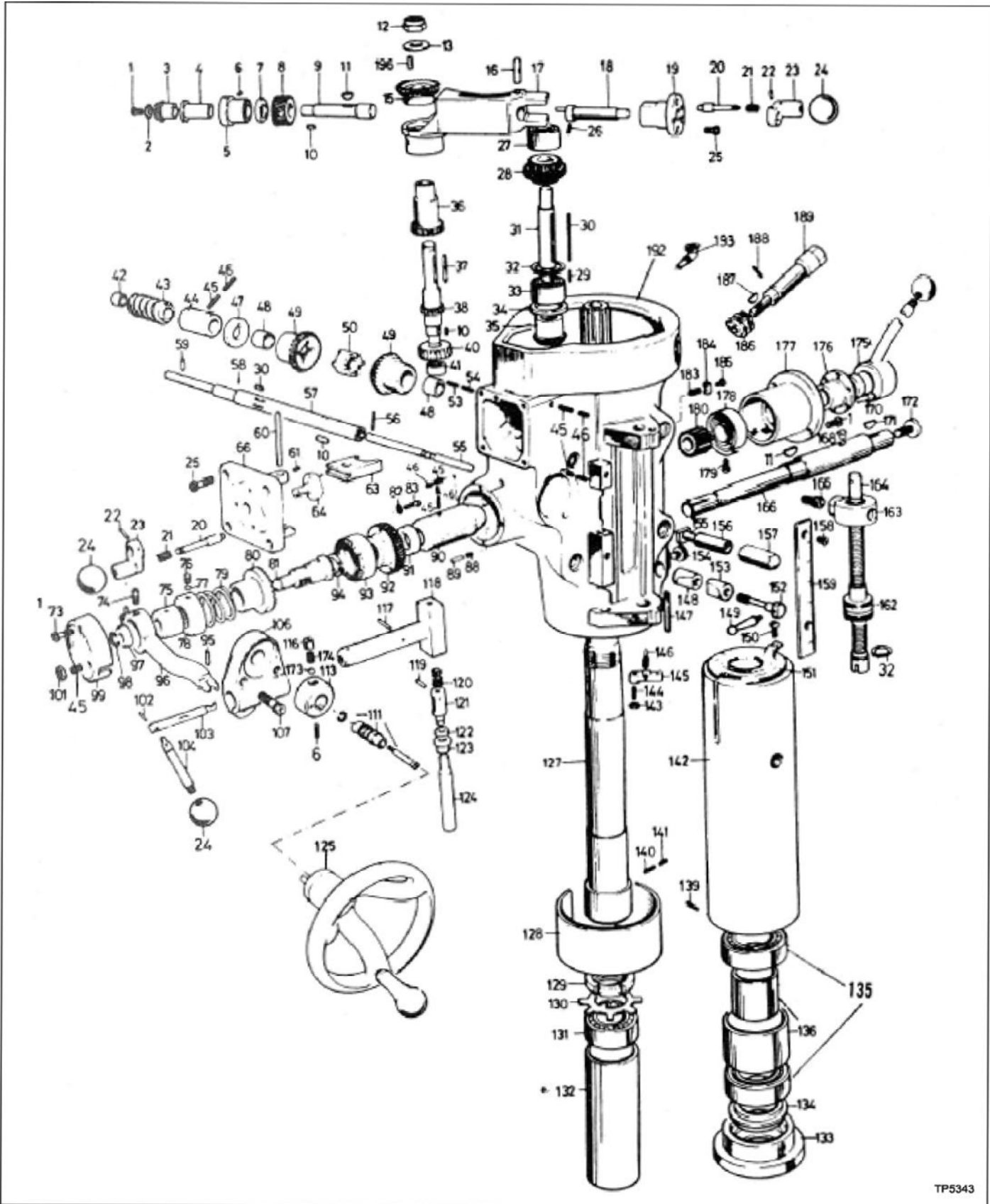
Item	Part Number	Description	Qty
1	BP 12193502	Assembly, Drawbar	1
2	BP 12180093	Washer, Drawbar	1
3	BP 12190126	Locknut, Upper Bearing	1
4	BP 12190125	Locknut, Bearing Sleeve	1
5	BP 11190232	Bearing, #RM207 KDD-DB	2
6	BP 12193506	Spacer Set, Bearing	1
8	BP 11651199	Screw, Button Hd Cap, #10-32 x .500"	4
9	BP 11192032	Spring, Compression	4
10	BP 11011255	Screw, Socket Hd Set, #6-32-NC x .250" KP	1
11	BP 12193512	Sleeve, Spindle Pulley Bearing	1
12	BP 11011743	Nut, Jam, .312"-18	3
13	BP 11191965	Lockwasher, External, .312"	3
14	BP 12190130	Screw, Brake Ring	3
15	BP 11192084	Spring, Extension	2
16	BP 11010507	Pin, Roll, .093" x .625" Lg	4
17	BP 12190131	Stud, Brake Shoe	1
18	BP 11193620	Set, Brake Shoe (see BP 12193477)	1
19	BP 12190055	Pulley, Spindle	1
20	BP 12190118	Hub, Spindle Pulley (see BP 12193478)	1
21	BP 12190122	Key, Spindle Pulley Sq, .250" x .820"	1
22	BP 11192101	Belt, Vee	1
23	BP 11182106	Belt, Timing	1
24	BP 12190058	Flange, Timing Belt Pulley	2
25	BP 12190057	Pulley, Timing Belt	1
27	BP 11011506	Screw, Flat Hd, #6-32 x .375" Lg	8
28	UA 0004034 C	Nut, Hex Jam, .625"-18	1
29	BP 11192151	Knob, Bakelite, .250"-20	4
30	BP 12190128	Lever, Spindle Clutch	1
31	BP 12190127	Ring, Cam	1
32	BP 12190129	Pin, Spindle Clutch Cam Ring	2
33	BP 11011260	Screw, Stainless Steel, #10-32 UNF x .250"	1
34	BP 12190133	Handle, Brake	1
35	BP 12190134	Pin, Brake Lock	1
36	BP 12190132	Washer, Brake Lock	1
37	BP 11192810	Nameplate, Spindle Speed	1
38	BP 11192835	Nameplate, J-Head Operating Instruction	1
39	BP 11011713	Nut, Hex, .375"-24	2
40	BP 11191922	Lockwasher, .375"	2
41	BP 12190173	Stud, Motor Mounting	2
43	BP 12190171	Locknut, Motor	2
44	BP 12190174	Washer, Motor Mounting Stud	2
45	BP 12190172	Motor Locknut Handle	2
47*	BP 11011240	Screw, Set, .312"-18 x .750"	1
48*	BP 12430068	Key, Square, .187" x 1.500"	1
49*	BP 12190056	Pulley, Motor	1

Item	Part Number	Description	Qty
50	BP 12143452	Assembly, Gear Housing Cover (see BP 12193452)	1
	BP 12190053	Cover, Gear Housing	1
51	BP 11011445	Screw, Round Hd Machine, #10-24 x .375" Lg	5
52*	BP 11195720	Wick, .125" OD (Common Pipe Cleaner)	1
53*	BP 12190120	Tube, Oiler	1
54*	BP 12190121	Plug, Oil	1
55	BP 11193105	Cup, Oil, Gits #1207	1
56	BP 12180103	Key, Sq, .312" x .540"	1
57	BP 12190115	Hub, Splined Gear	1
58	BP 12193548	Kit, Gear Bull, J-Belt Housing	1
59	BP 11180235	Bearing, #203NNP-C8	1
60**	BP 12193548	Kit, Gear Bull, J-Belt Housing	1
61	BP 11013079	Key, Woodruff #9	1
62**	BP 12193548	Kit, Gear Bull, J-Belt Housing	1
64	BP 11010747	Pin, Dowel, .312" x 2.00"	1
65	BP 12190062	Fork, Back Gear Shifter	1
67	BP 11010540	Pin, Roll, .187" x .500" Lg	2
68	BP 11010555	Pin, Roll, .250" x .750"	2
69	BP 11011104	Screw, Socket Hd Cap, .312"-18 x .625" Lg	6
70	BP 11192832	Nameplate, Disengage Feed Instruction	1
71	BP 11190230	Bearing, Fafnir #RM208K-DB	2
72	BP 11190806	Ring, Snap, #5000-315	1
73	BP 11191944	Lockwasher, #W-08	1
74	BP 11191793	Locknut, Bearing, #-08 Sp .312" thk	1
75	BP 11011718	Nut, Hardened Hex, .438"-14	1
76	BP 11191615	Bolt, Vertical Tee	3
77	BP 11190114	Washer, Vertical Tee	3
78	BP 12190187	Crank, Back Gear Shift	1
79	BP 11010517	Pin, Roll, .125" x .750"	1
80	BP 12190186	Bushing, Back Gear Shift	1
81	BP 12190064	Crank, Shift (see BP 12193443)	1
83	BP 12190138	Pin, Shift	1
84	BP 11192052	Spring, Compression	1
85	BP 11190420	Guard, RH Belt	1
86	BP 11190421	Guard, LH Belt	1
88	BP 12190119	Collar, Pulley Hub	1
90	BP 11598117	Assembly, Reversing Switch (Not Shown)	1
91	BP 11190161	Motor, 1 HP, 230/460 (Not Shown)	1

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

** Items 60 and 62 sold as assembly only.

2J- AND J-HEAD LOWER HOUSING



TP5343

Figure 4.4 - 2J- and J-Head Lower Housing Assembly

2J- AND J-HEAD LOWER HOUSING

Item	Part Number	Description	Qty
1	BP 11011445	Screw, Round Hd Machine, #10-24 x .375" Lg	3
2	BP 12190163	Washer, Bevel Pinion	1
3	BP 12190203	Gear, Feed Bevel Pinion	1
4	BP 12190164	Sleeve, Feed Worm Gear Shaft	1
5	BP 11192303	Bushing, Worm Cradle	1
6	BP 11011287	Screw, Stainless Steel, .250"-20 x .250"	2
7	BP 12190165	Spacer, Worm Gear	1
8	BP 12190166	Gear, Feed Drive Worm	1
9	BP 12190167	Shaft, Feed Drive Worm Gear	1
*	BP 12193440	Assembly, Gear Drive Shaft	1
10*	BP 12190162	Key, Worm Shaft, Sq, .125" x .312"	3
11	BP 11013078	Key, Woodruff #7	3
12	BP 11191796	Locknut, Flexlok, .375"-24	1
13	BP 12190199	Washer, .375"	1
15	BP 11192209	Gear, Feed Reverse Bevel	1
16	BP 12190168	Pin, Feed Engage	1
17	BP 12190059	Cradle, Worm Gear	1
18	BP 12190169	Throw-Out, Worm Gear Cradle	1
19	BP 12190170	Sleeve, Shift	1
20	BP 12190138	Pin, Shift	2
21	BP 11192052	Spring, Compression	2
22	BP 11010517	Pin, Roll, .125" x .750"	2
23	BP 12190064	Crank, Shift (see BP 12193443)	1
24	BP 11192151	Knob, Bakelite, .250"-20	4
25	BP 11011010	Screw, Socket Hd Cap, #10-24 x .500" Lg	7
26	BP 11011258	Screw, Set, #10-24 x .375"	1
27	BP 12190181	Bushing, Cluster Gear Shaft Upper	1
28	BP 28007099	Assembly, Cluster Gear (see BP 12193504)	1
29	BP 12190148	Key, Sq, .125" x 1.750"	1
*	BP 12193544	Assembly, Bevel Feed Pinion	1
30*	BP 12190175	Assembly, Key, Sq, .125" x .563"	2
31	BP 12193517	Shaft, Cluster Gear	1
32**	BP 11190836	Ring, External Retaining, #5100-62	2
33**	BP 12190149	Bearing, Bevel Gear	1
34**	BP 12190150	Spacer, Bevel Gear Thrust	1
35**	BP 12190180	Pinion, Feed Reverse Bevel	1
36*	BP 12190146	Gear, Feed Driving	1
37*	BP 12190176	Key, Round End, Sq, .125" x .750"	1
38*	BP 12190145	Shaft, Cluster Gear Input	1
40*	BP 12190144	Gear, Feed Drive	1
41	BP 11190310	Bearing, Needle, Torrington #B-66	1
42	BP 11193637	Bushing	1
43	BP 28007307	Gear, Worm Speed Control	1
44	BP 12190155	Bushing, Feed Worm Shaft	1
45	BP 11011268	Screw, Stainless Steel, Cup	6
46	BP 11011542	Screw, Set, .312"-18 x .938"	5
47	BP 11190152	Washer, Feed Worm Shaft Thrust	1

Item	Part Number	Description	Qty
*	BP 12193435	Assembly, Bevel Feed Gear	1
48*	BP 11183646	Bushing, Bronze, .502" x .628" x 5.00"	2
49*	BP 12193432	Gear, Feed Reverse Bevel	2
50	BP 12190153	Clutch, Feed Reverse	1
53	BP 11011547	Lock, Screw, Stainless Steel, .312"-18 x .156"	1
54	BP 11011375	Screw, Stainless Steel, .312"-18 x .312"	1
55	BP 12190157	Rod, Reverse Clutch	1
56	BP 11010509	Pin, Roll, .093" x .750"	1
57	BP 12190198	Shaft, Feed Worm	1
58	BP 12190200	Pin, .093" x .312" Lg	1
59	BP 28007308	Pin, .100 x .438" Lg	1
60	BP 12190179	Rod, Feed Shift	1
61	BP 11011260	Screw, Stainless Steel, #10-32 UNF x .250"	1
63	BP 11190061	Fork, Feed Gear Shift	1
64	BP 12193446	Assembly, Cluster Gear Shift Crank	1
66	BP 12190065	Cover, Cluster Gear	1
73	0100424	Screw, Cap, #10-24 x 1.500"	2
74	BP 12190188	Pin, Stop	2
75	BP 12190098	Ring, Clutch	1
76	BP 11011265	Screw, Stainless Steel, .250"-20 x .250"	1
77	BP 12190073	Plug, Brass, .187"0 x .093"	1
78	BP 12190105	Locknut, Overload Clutch	1
79	BP 11192055	Spring, Safety Clutch	1
80	BP 11192302	Clutch, Overload	1
81	BP 12193549	Sleeve, Overload Clutch	1
82	BP 11191920	Washer, Single Spring	3
83	0350210	Screw, Round Hd Machine, #8-32 x .625"	3
88	BP 11192032	Spring, Compression, .250"0 x 1.250"	1
89	BP 12190096	Plunger, Overload Clutch Lever Spring	1
90	BP 12190106	Bushing, Quill Pinion Shaft	1
91	BP 12190104	Spacer, Pinion Shaft Worm Gear	1
92	BP 12190103	Gear, Overload Clutch Worm	1
93	BP 12190102	Ring, Overload Clutch	1
94	BP 11190870	Ring, External Retaining	1
95	BP 11010717	Pin, Dowel, .187" x .750"	1
96	BP 12193427	Assembly, Overload Clutch Trip Lever	1
97	BP 12190097	Washer, Overload Clutch	1
98	37 000823102	Ring, External Retaining, #5100-37	1
99	BP 12190068	Cover, Clutch Arm	1
101	BP 11011740	Nut, Hex Jam, .250"-20	1
102	BP 11010717	Pin, Dowel, .187" x .750"	1
103	BP 12190094	Rod, Cam	1
104	BP 12190095	Handle, Trip	1
106	BP 12190067	Bracket, Feed Trip	1
107	BP 11011035	Screw, Socket Hd Cap, .250"-20 x 1.00"	1
111	BP 12193433	Assembly, Reverse Knob	2
113	BP 12190159	Assembly, Handwheel Clutch (see BP 12193519)	1
116	BP 12190154	Assembly, Handwheel Clutch Spring	1
117	BP 11010515	Pin, Roll, .125" x .562"	1
118	BP 12190093	Assembly, Cam Rod Sleeve	1

Item	Part Number	Description	Qty
119	BP 11010513	Pin, Roll, .125" x .437"	1
120	BP 11192053	Spring, Compression	1
121	BP 12190091	Plunger, Trip	1
122	BP 12190092	Bushing, Feed Trip Plunger	1
123	BP 12190090	Bushing, Trip Plunger	1
125	BP 12190089	Plunger, Feed Trip	1
125	BP 12193519	Assembly, Handwheel	1
127	BP 12190191	Spindle	1
128	BP 11190081	Skirt, Quill	1
129	BP 11191790	Locknut, #06	1
130	BP 11191942	Lockwasher, #W-06	1
131	BP 11190237	Bearing, Spindle	1
132	BP 12190197	Sleeve, Bearing	1
133	BP 12190196	Nosepiece	1
134	BP 12780915	Shield, Spindle Dirt	1
135	BP 11190238	Bearing, Spindle, Set	1
136	BP 12193513	Bearing, Spindle, Set	1
139	BP 11011265	Screw, Stainless Steel, .250"-20 x .250"	1
140	BP 12193540	Screw, Set, R-8 Collet	1
141	BP 11011545	Screw, Locking Set, .250"-32 x .125"	1
142*	BP 12190192	Quill (See BP 12194541)	1
143	BP 28300336	Nut, Steel, #6-32 NC	1
144	BP 28300609	Screw, Stainless Steel, #6-32 x .750"	1
145	BP 28007042	Lever, Feed Trip (see BP 12193498)	1
146	BP 12190185	Pin, Trip Lever	1
147	BP 12200103	Rod, Indicator	1
148	BP 12190109	Sleeve, Quill Lock, Tapped	1
149	BP 12200098	Handle, Lock	2
150	BP 11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
151	BP 11192403	Strainer, Felt	1
152	BP 12190111	Bolt, Quill Lock	1
153	BP 12190110	Sleeve, Quill Lock, Untapped	1
154	BP 12200102	Screw, Rod Indicator Thumb	4
155	BP 12191620	Bolt, Tee, .500"	2
156	BP 12190135	Spacer, Lower Clamping Bolt	2
157	BP 12191736	Nut, Hex, .500" x 1.500"	2
158	0350104	Screw, Round Hd Machine, #6-32 x .250"	1
159	BP 11195306	Scale, Quill Micrometer Inch	1
162	BP 12190344	Assembly, Quick Nut	1
163	BP 12190082	Nut, Quill Stop	1
164	BP 12190083	Screw, Quill Stop Micro	1
165	BP 11011121	Screw, Socket Hd Cap, .375"-24 x .625"	1
166	BP 28007063	Shaft, Quill Pinion	1
168	BP 12200111	Pin, Spring	1
170	BP 11010541	Pin, Roll, .187" x .750" Lg	1
171	BP 11013076	Key, Woodruff #3	1
172	BP 12190182	Screw, Pinion Shaft Hub	1
173	BP 11192165	Ball, Steel	1
174	BP 11192054	Spring, Compression	1
175	BP 12201033	Assembly, Quill Feed Handle	1

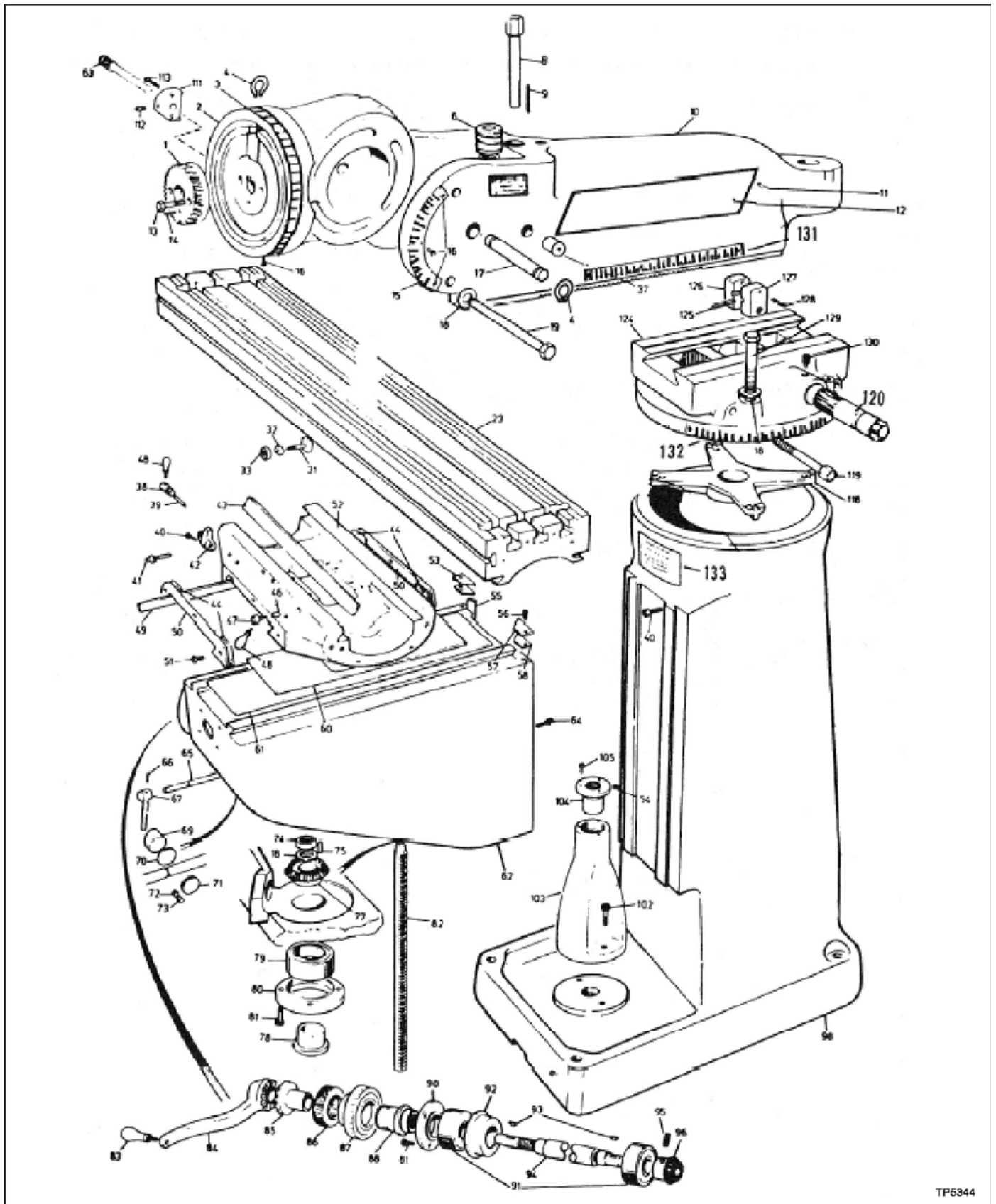
Item	Part Number	Description	Qty
176	BP 12190079	Hub, Quill Pinion	1
177***	BP 12190066	Cover, Spring	1
178***	BP 11192020	Spring, Clock	1
179***	BP 28007150	Pin, Outside Clock Spring	1
180	BP 28007064	Pinion, Quill (see BP 12190108)	1
183	BP 12190085	Lever, Reverse Trip Ball	1
184	BP 12190086	Plunger, Feed Reverse Trip	1
185	BP 12190087	Screw, Reverse Trip Ball Lever	1
186	BP 11192207	Gear, Worm	1
187	5 0001465	Key, Woodruff #405	1
188	BP 11011370	Screw, Socket Hd Set, .250"-UNC x 20 x .375"	1
189	BP 12190850	Shaft, Adjustable Worm	1
192*	BP 12190051	Housing, Quill (see BP 12194541)	1
193	BP 11193111	Cup, Oil	1
196	BP 12190162	Key, Worm Shaft, Sq, .125" x 5/16"	1

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

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

*****Items 177, 178 and 179 sold as assembly BP 12193437.**

BASIC MACHINE



TP5344

Figure 4.5 - Basic Machine Assembly

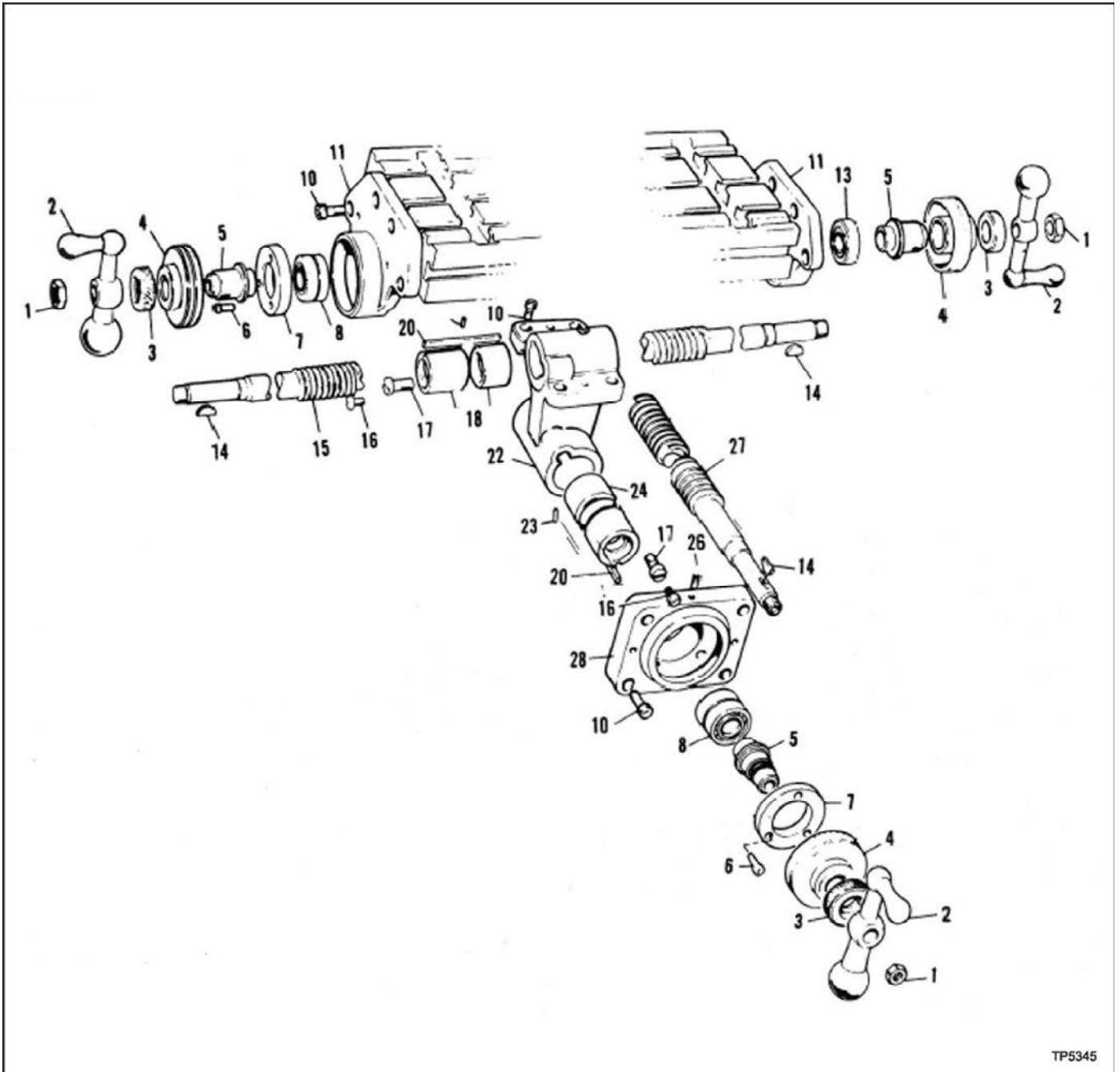
BASIC MACHINE

Item	Part Number	Description	Qty
1	BP 12190178	Gear, Quill Housing Adj Tilting (see BP 12193500)	1
2	BP 12069013	Assembly, Ram Adapter (see BP 12060129)	1
3	BP 11060603	Scale, Adapter	1
4	BP 11060892	Ring, External Retaining	2
6	BP 11062206	Worm, Vertical Adjusting	1
8	BP 12060130	Shaft, Vertical Adjusting Worm	1
9	BP 12060138	Key, Sq, .187" x 1.938"	1
10	BP 12060128	Ram	1
11	BP 11011556	Screw, Drive, Type 0, 6 x .375"	4
12	BP 11060502	Nameplate, Ram	2
13	BP 11011035	Screw, Socket Hd Cap, .250"-20 x 1.00"	2
14	BP 11010590	Pin, Roll, .312" x 1.500"	1
15	BP 11062826	Plate, Graduated Angle	1
16	BP 11011555	Screw, Round Hd Drive	5
17	BP 12061028	Pin, Adapter Pivot	1
18	BP 11200109	Washer, Chamfer, Hardened, .500" x .125" x 1.00"	2
19	BP 11061180	Bolt, Adapter Locking, Hex Hd, .500"-13 x 7.25"	3
23	BP 12060346	Table, 42" Lg	1
	BP 12060347	Table, 48" Lg	1
31	BP 11061602	Bolt, Square Hd, .375"-16 x 1.375"	1
32	BP 11062301	Piece, Table Stop	2
33	BP 11011720	Nut, Hex, .375"-16	3
34	BP 12060122	Washer, Tee Bolt	2
37	BP 12060328	Bushing, Clamping	1
38	BP 12060119	Bolt, Saddle Lock	1
39	BP 12060125	Plunger, Saddle Lock	1
40	BP 11770252	Screw, Low Hd	2
41	BP 11060088	Screw, Gib Adjusting	3
42	BP 12060300	Bracket, Stop, Power Feed	1
43	BP 12060117	Gib, Table, without Chrome	1
	BP 12060482	Gib, Table, with Chrome	1
44	BP 11062406	Wiper, Felt	4
46	BP 12060118	Plug, Table Lock	2
47	BP 12060119	Bolt, RH Table Lock	1
	BP 12060114	Bolt, LH Table Lock	1
48	BP 11062179	Handle, Table Lock	2
49	BP 12060124	Gib, Saddle/Knee	1
50	BP 12060123	Plate, Wiper, Knee	2
51	BP 11011580	Screw, Oval Hd, #10-32 x .500"	6
52	BP 12060097	Saddle, without Chrome	1
	BP 12060487	Saddle, with Chrome	1
53	BP 12060093	Holder, LH Column Wiper	1
55	BP 12060146	Gib, Knee/Column	1
56	BP 11011031	Screw, Socket Hd Cap, .250"-20 x .625"	2
57	BP 12060094	Holder, RH Column Wiper	1
58	BP 11062405	Wiper, Felt	2
60	BPA11060153	Cover Plate, Upper	1
61	BPA11060152	Cover Plate, Lower	1

Item	Part Number	Description	Qty
62	BP 12060206	Knee, without Chrome	1
	BP 12060493	Knee, with Chrome	1
63	BP 12069999	Pin, Head Rotation Stop	1
64	BP 11770252	Screw, Low Hd	1
65	BP 12060148	Shaft, Knee Lock (see BP 12061230)	1
66	BP 11010409	Pin, Taper, #1 x 1.00"	1
67	BP 12061230	Hub, Lock Shaft	1
69	BP 12060089	Plunger, Knee Lock	1
70	BP 12150131	Washer, Table Locking	1
71	BP 11010786	Plug, Knee Binder, Plastic	1
72	BP 11011375	Screw, Stainless Steel, .312"-18 x .312"	1
73	BP 11011270	Screw, Stainless Steel, .312"-18 x .312"	1
74	5A 0001466 C	Nut, Hex Jam, .500"-20	1
75	BP 12060071	Key, .187" x .187" x .875"	1
77	BP 11062204	Gear, Bevel	1
79	BP 12060205	Bushing, Bearing Assembly	1
80	BP 12060070	Ring, Bearing Retainer	1
81	BP 11011031	Screw, Socket Hd Cap, .250"-20 x .625"	6
82	BP 12060069	Screw, Elevating Inch	1
83	BP 12060060	Handle	1
84	BP 12061249	Crank Assembly, Knee	1
85	BP 12060079	Clutch, Gearshaft	1
86	BP 12060078	Nut, Dial Lock, Knurled	1
87	BP 12060213	Dial, 100-Graduation	1
88	BP 12060077	Holder, Dial	1
90	BP 12060210	Ring, Bearing Retainer	1
91	BP 11060204	Bearing, #H2O4KTT	2
92	BP 11011030	Screw, Socket Hd Cap, .250"-20 x .500"	3
93	BP 11013078	Key, Woodruff #7	2
94	BP 12060147	Shaft, Z-Axis Elevating	1
95	BP 11011220	Screw, Set, .250"-20 x .250" Lg	1
96	BP 11062205	Gear, Bevel Pinion	1
98	BP 12060209	Column	1
102	BP 11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	2
103	BP 12060207	Pedestal	1
104	BPA12060051	Nut, Elevating Screw	1
105	0300616	Screw, Button Hd Cap, .250"-20 x 1.00"	3
111	BP 12650180	Block, Head Rotation Stop	1
112	BP 11152094	Plunger, Spring	1
113	BP 11011017	Screw, Socket Hd Cap, #10-32 x .500" Lg	2
118	BPA12060144	Spider	1
119	BP 11060112	Stud, Ram Lock	2
120	BP 12060255	Pinion, Ram	1
124	BP 12060208	Turret	1
125	BP 12060137	Bar, Ram Clamp	2
126	BP 12060141	Clamp, Ram, Blank	2
127	BPA12061000	Clamp Assembly, V-Ram	2
128	BP 11010619	Pin, Cotter	2
129	BP 11061178	Bolt, Hex Hd, .500"-13 x 5.00"	4
130	BP 12060140	Screw, Ram Pinion	1

Item	Part Number	Description	Qty
131	BP 11060602	Scale, Ram	1
	BP 11980426	Screw, Drive, Type U, #4 x .312"	2
132	BP 11060601	Turret, Scale	1
	BP 11989426	Screw, Drive	2
133	BP 11010200BBH	Nameplate, Warning	1
	BP 11980426	Screw, Drive, Type U, #4 x .312"	4

LEAD SCREW ASSEMBLY



TP5345

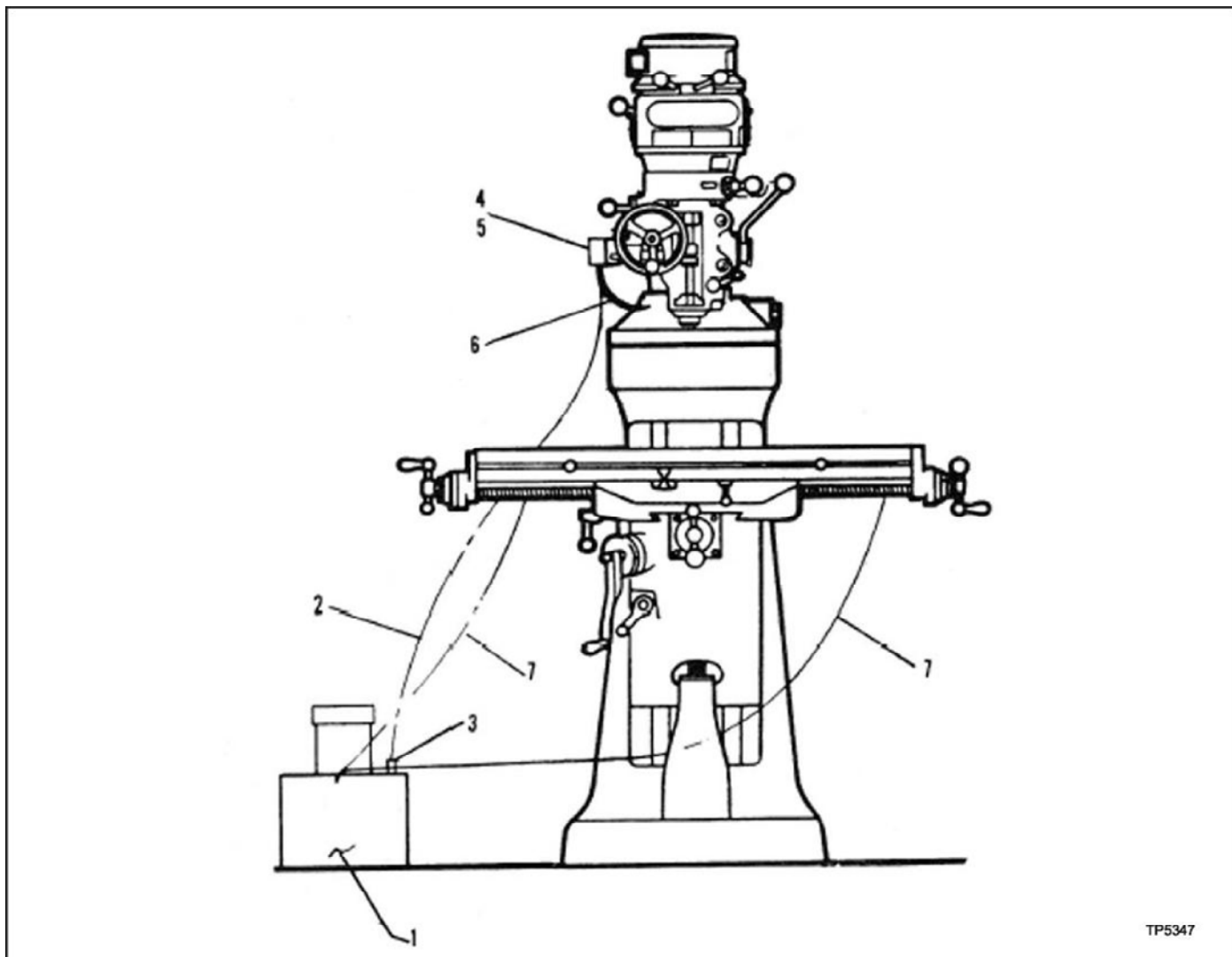
Figure 4.6 - Lead Screw Assembly

LEAD SCREW ASSEMBLY

Item	Part Number	Description	Qty
1	5A 0001466 C	Nut, Hex Jam, .500"-20	3
2	BP 12060271	Handle, Ball Crank	3
	BP 12150780	Assembly, Ball Crank, Quick Release	1
3	BP 12060078	Nut, Dial Lock, Knurled	3
4	BP 12060214	Dial, 200-Graduation	1
		Chrome, X- and Y-Axis Inch	3
5	BP 12060084	Holder, Dial, Standard Handle Size	3
	BP 12630301	Holder, Dial, Quick Release Handle Size	1
6	BP 11011030	Screw, Socket Hd Cap, .250"-20 x .500"	6
7	BP 11063642	Ring, Bearing Retainer	2
8	BP 11060203	Bearing, #RM 204KT4-DB	2
10	BP 11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	16
11	BP 12060115	Bracket, Table End	2
13	BP 11060204	Bearing, #H2O4KTT	1
14	BP 11013078	Key, Woodruff #7	3
15*	BP 12061222	Screw, Table Feed, 42" without Chrome	1
	BP 12060458	Screw, Table Feed, 42" with Chrome	1
	BP 12061223	Screw, Table Feed, 48" without Chrome	1
	BP 12060459	Screw, Table Feed, 48" with Chrome	1
16	BP 11011592	Screw, Washer Hd, #8-32 x .375"	3
17	BP 11060100	Screw, Cross Feed Nut Retaining	2
18	BP 12060630	Nut, Table Feed, Matched Set	1
20	BP 12060099	Key, .187" x .187" x 2.500"	2
22*	BP 12060628	Assembly, Feed Nut Bracket (see BP 12060632)	1
23	BP 12060096	Pin, Nut Key	2
24	BP 12060631	Nut, Cross Feed, Matched Set	1
26	BP 12190188	Pin, Stop	1
27*	BP 12061233	Screw, Cross Feed, without Chrome Inch	1
	BP 12060485	Screw, Cross Feed, with Chrome Inch	1
28	BP 11060082	Bracket, Cross Feed Bearing	1

***Complete Feed Nut Bracket Assembly (Including X- and Y-Axis Nut) can be purchased by BP 12060627. Table Feed Screws are purchased with keys.**

FLOOD COOLANT



TP5347

Figure 4.7 - Flood Coolant Assembly

Item	Part Number	Description	Qty
1	BP 11713642	Tank, Pump and Motor	1
2	BP 11715470	Tubing, Coolant Pressure Hose, Vinyl, .50"0 x .625"	10 ft
3	BP 11565476	Valve, Check	1
4	BP 12561010	Block, Manifold	1
7	BP 11565470	Tubing, Drain Hose, Vinyl, .750" x 1000"	15 ft

One Nozzle

5	BP 11563490	Valve, Shut-Off	1
6	BP 11560264	Hose, Flexible Nozzle Coolant, 21" Lg	1

Two Nozzles

5	BP 11563490	Valve, Shut-Off	2
6	BP 11560264	Hose, Flexible Nozzle Coolant, 21" Lg	2

LUBRICATION SYSTEM

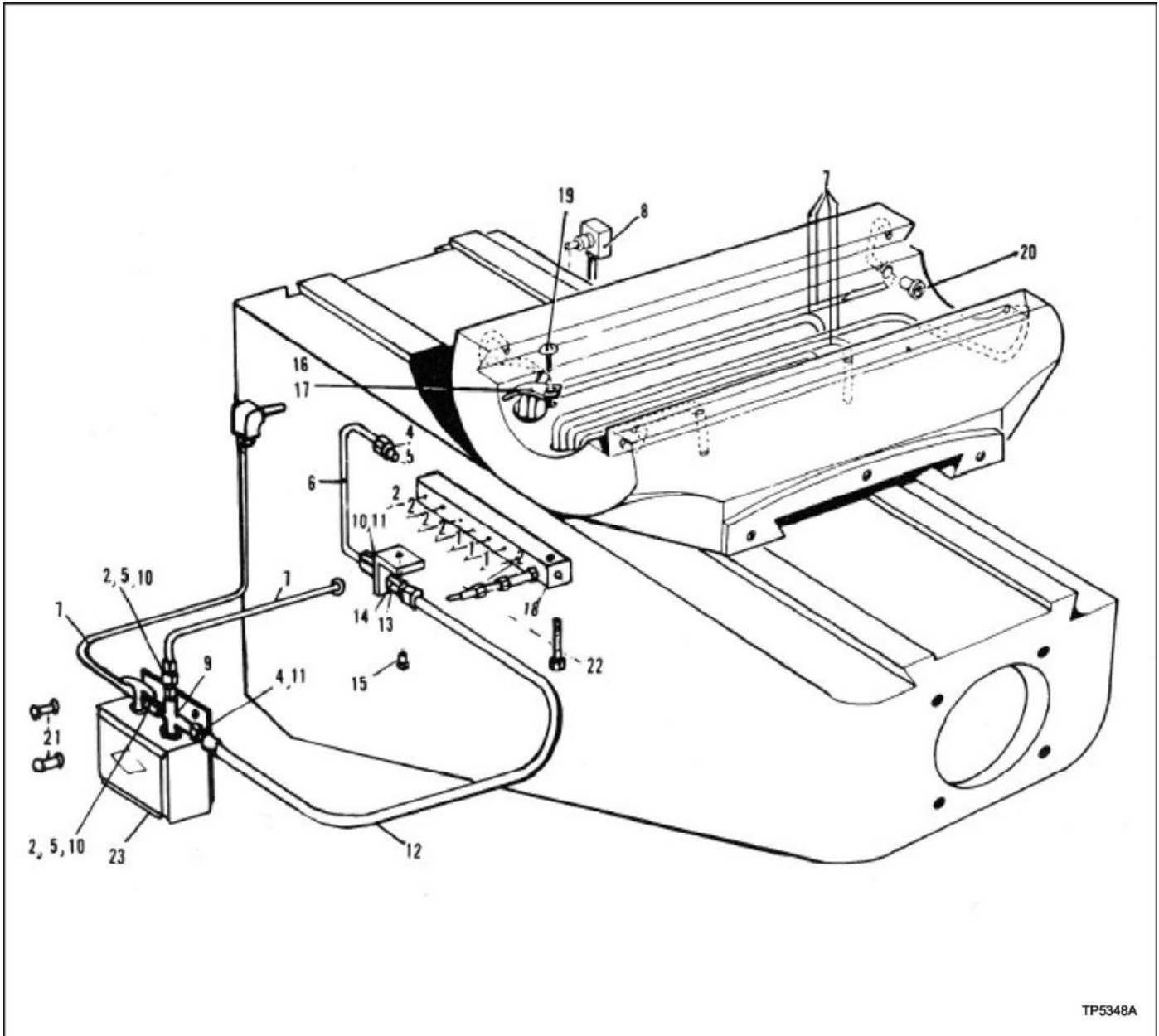


Figure 4.8 - Lubrication System Assembly

TP5348A

LUBRICATION SYSTEM

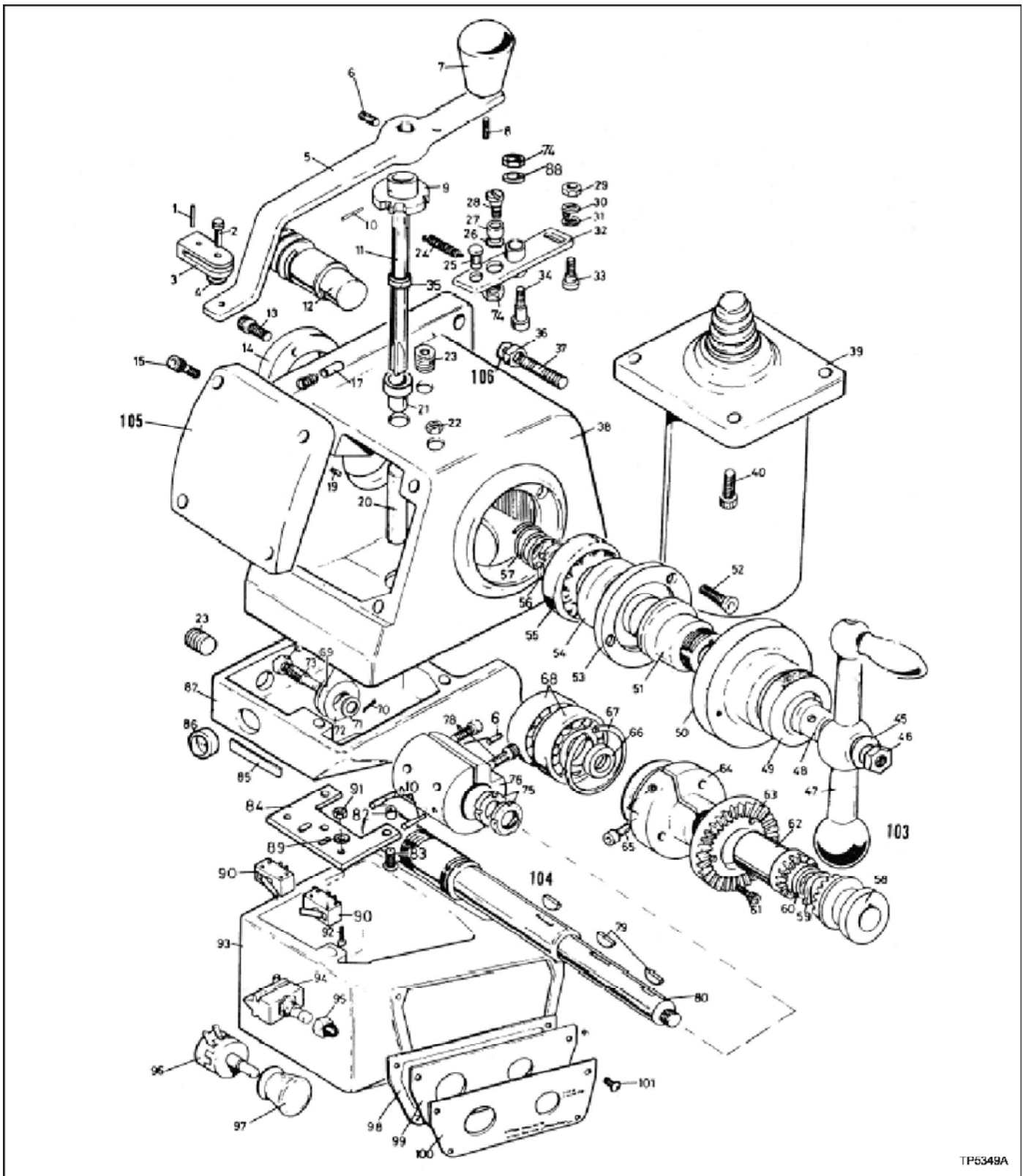
Item	Part Number	Description	Qty
1*	BP 11413210	Unit, Metering, Bijur #B-2495	3
2*	BP 11413211	Unit, Metering, #FJB-1, B-2496	6
4	BP 11413220	Bushing, Compression, Bijur #1371	11
5	BP 11413221	Sleeve, Compression, Bijur #B-8272	11
6	BP 11413224	Tubing, Brass, .156"	1
7	BP 11413225	Tubing, Nylon, .156"	
8	BP 11413222	Connector, 90° EL	2
9	BP 11410017	Junction, 4-Way	1
10	BP 11413219	Nut, Compression	11
11	BP 11413293	Bushing, Compression Sleeve	1
12	BP 11413216	Hose, Flexible, 18" Lg	1
13	BP 11413230	Bracket, Hose	1
14	BP 11413233	Nut, Terminal	1
15	BP 11011475	Screw, Round Hd Machine, .250"-20 x .500"	1
16	BP 11413236	Clip, Tubing, #B-7535	2
17	BP 11413290	Clip, Tubing, #A-2435	1
18	BP 11410063	Junction, 10-Way	1
19	BP 11011420	Screw, Round Hd Machine, #8-32 x .250"	3
20	BP 11413235	Bushing, Drive	8
21	BP 11011194	Screw, Button Hd Cap, .250"-20 x .5.00"	2
22	BP 11011195	Screw, Button Hd Cap, .250"-20 x 1.00"	2
23	BP 11413209	Pump, Auto Lube	1
	BP 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

(Old Style)



TP5349A

Figure 4.9 - Power Feed Y-Axis Assembly

POWER FEED Y-AXIS

(Old Style)

Item	Part Number	Description	Qty
1	BP 11010507	Pin, Roll, .093" x .625" Lg	1
2	BP 28001075	Pin, Fork	1
3	BP 12630071	Fork, Stop Rod	1
4	BP 28300093	Lockwasher	1
5	BP 28002018	Lever, Polished Control,	1
6	BP 11011268	Screw, Stainless Steel, Cup	1
7	BP 11632152	Knob, Red Bakelite, .375"	1
8	BP 11980336	Screw, Socket Hd Set, .375"-UNC x 16 x .750"	1
9	BP 28006028	Cam, Clutch Detent	1
10	BP 28300574	Pin, Taper #2, .193" x 1.500"	3
11	BP 28002005	Shaft, Clutch and Limit Switch Actuating	1
12	BP 12630321	Screw, Lead, Cross Feed, Y-Axis, with Chrome	1
	BP 12630017	Screw, Lead, Cross Feed, Y-Axis, without Chrome	1
13	BP 11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	3
14	BP 28002237	Cap, Bearing	1
15	BP 11011010	Screw, Socket Hd Cap, #10-24 x .500" Lg	4
17	BP 28006021	Pin, Detent	1
19	BP 28006031	Pin, Spring Retaining	1
20	BP 28302029	Bearing, Bronze	1
21	BP 28014617	Bearing, Oilite, .375"0 x .500" x .375"	1
22	BP 11011740	Nut, Hex Jam, .250"-20	3
23	BP 28006071	Plug, Taper, .250"-NPTF x .375" Lg	1
24	BP 28006024	Spring	1
25	BP 28006032	Pin, Clutch Arm Spring	1
26	BP 28300396	Lockwasher	1
27	BP 28006030	Roller, Clutch Arm Detent	1
28	BP 28006040	Pin, Detent Roller	1
29	BP 28300338	Nut, Hex, #10-32 UNF	1
30	BP 28300374	Lockwasher, #8	1
31	BP 28300376	Washer, Chem Black, 187"	1
32	BP 28006029	Arm, Clutch, with Adapter Bronze Bush	1
33	BP 28302026	Bearing	1
34	BP 28006086	Screw, Special Shoulder	1
35	BP 28014677	Seal, Rubber	1
36	BP 11011720	Nut, Hex, .375"-16	4
37	BP 11010053	Stud, .375-16 x 1.625"	4
38	BP 28002015	Housing, Main	1
39*	BP 11630148	Motor, Standard Torque	1
	BP 28006140	Brush	2
	BP 28006141	Holder, Brush	2
	BP 28006142	Cap, Brush	2
	BP 11632511	Brush	1
	BP 11632512	Cap	1

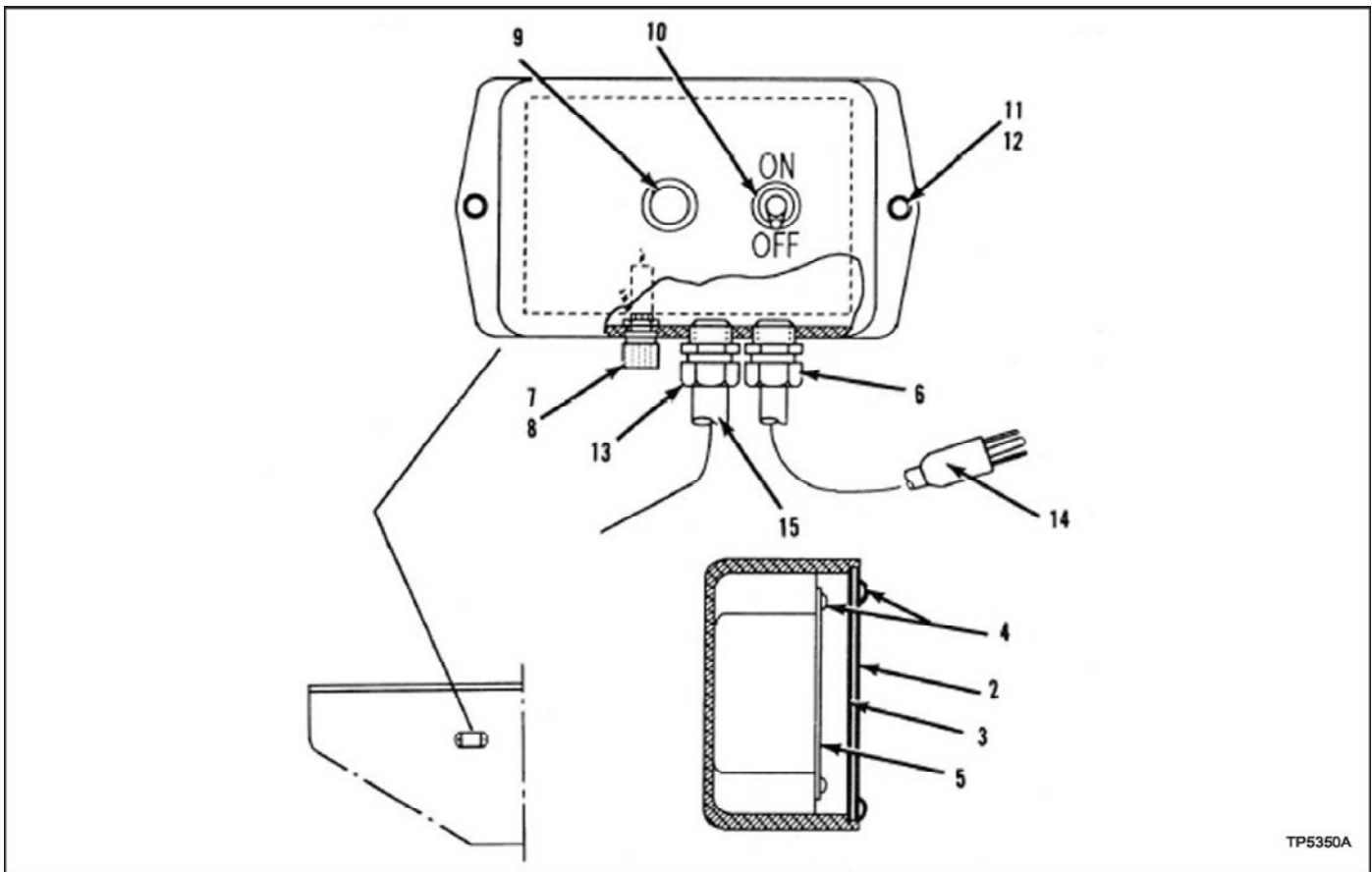
Item	Part Number	Description	Qty
40	BP 28300160	Screw, Socket Hd Cap, .250"-UNC x .750"	4
45	BP 28300379	Washer, .125" x 1.00" x .125"	1
46	BP 28300349	Nut, Hex Jam	1
47	BP 11630158	Assembly, Handle, Power Feed	1
48	BP 11630011	Crank, Handle Bush	1
49	BP 28005069	Locknut, Dial	1
50	BP 12060214	Dial, 200-Graduation	1
51	BP 28006222	Holder, RH Dial	1
52	BP 28300316	Screw, Socket Hd Cap, #10-24 x .500" Lg	3
53	BP 28006044	Cap	1
54	BP 28006020	Seal, Head Screw	1
55	BP 28302027	Bearing	1
56	BP 28300100	Ring, Retaining, #ST 100	1
57	BP 28006033	Spring, Clutch	1
58	BP 28006016	Driven, Clutch	1
59	BP 28300094	Ring, Retaining, #ST 94	1
60	BP 28006026	Washer, RH Thrust Bearing,	1
61	BP 28300151	Screw, Socket Hd Cap, #10-32 x .375"	3
62	BP 28006015	Driver, Clutch	1
63	BP 28006022	Gear, Drive Shaft, Spiroid	1
64	BP 28002430	Hub, Gear Mounting	1
65	BP 28300467	Screw, Socket Hd Cap, .250"-20 x .250" Lg	1
66	BP 28006048	Washer, LH Thrust	1
67	BP 28000548	Ring, Retaining	1
68	BP 28302016	Bearing, #RHP-MBU-011	2
69	BP 28002227	Carrier, Spring Oil	1
70	BP 28300107	Pin, Split, .062" x .750" Lg	1
71	BP 28300376	Washer, Chem Black, .187"	1
72	BP 28002231	Pulley, Roller	1
73	BP 28002232	Pin, Roller	1
74	BP 11011740	Nut, Hex Jam, .250"-20	3
75	BP 11011714	Nut, Retaining, .750" x 16-UNF	2
76	BP 11630130	Coupling	1
78	BP 11011035	Screw, Socket Hd Cap, .250"-20 x 1.00"	2
79	BP 11013078	Key, Woodruff #7	2
80	BP 28002049	Shaft, Drive	1
82	BP 28006019	Spacer, Switch Mounting Plate	2
83	BP 28300250	Screw, Round Hd Machine, #10-24 x .625"	3
84	BP 28006006	Plate, Switch Mounting	1
85	BP 28006100	Plate, Lubrication	1
86	BP 28006069	Sight, Oil	1
87	BP 28002019	Sump, Oil	1
88	BP 28300579	Washer, Steel, 6mm Bore	1
89	BP 28300393	Washer, Steel, .125" Bore	4
90	BP 28500630	Switch, Micro, Waterproof	2
91	BP 28300327	Nut, Hex, #4-40	4
92	BP 28300639	Screw, Pan Hd Machine, #4-40 x .750"	2
93	BP 28002016	Box, Control	1
94	BP 28500358	Switch, Rapid Traverse	1
95	BP 11632506	Boot, Insul PB/Switch	1

Item	Part Number	Description	Qty
96	BP 11632618	Potentiometer, 5000, Log Taper	1
97	BP 11632153	Knob, Black	1
98	BP 28006280	Gasket, Control Box	1
99	BP 28006004	Cover, Control Box	1
100	BP 28006281	Plate, Control Box Scale	1
101	0300208	Screw, Button Hd Cap, #8-32 x .500"	4
102	BP 12630033	Rod, Stop	1
103	BP 11630224	Handle, Ball	1
104	BP 11013089	Key, Woodruff #11	1
105	BP 28014616	Gasket, Power Feed Cover	1
106	BP 11181981	Washer, .875" x .375" x .064"	4

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

POWER FEED Y-AXIS CONTROL BOX

(Old Style)



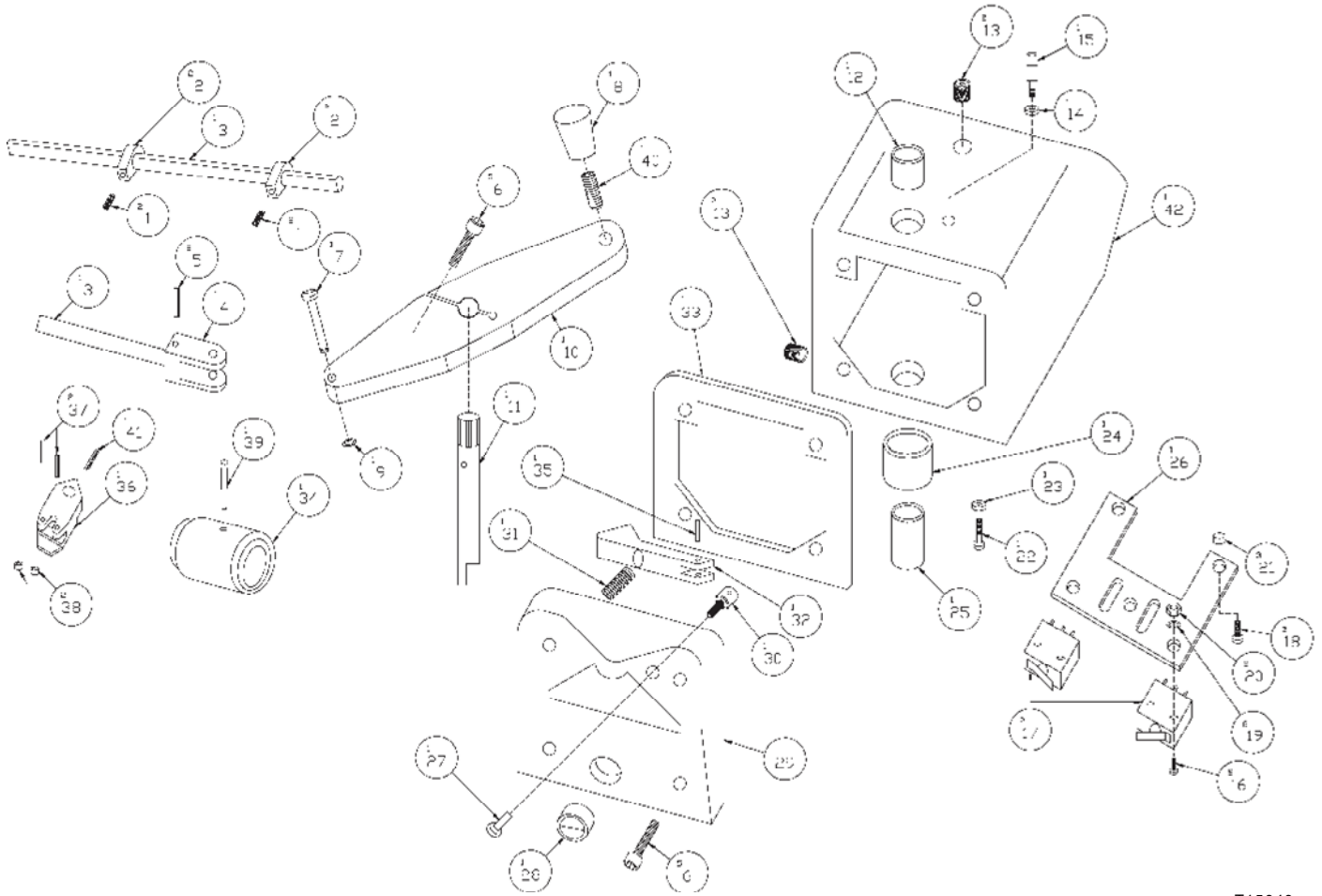
TP5350A

Figure 4.10 - Power Feed Y-Axis Control Box Assembly
(Old Style)

Item	Part Number	Description	Qty
2	BP 11632504	Plate, Control Box Back Cover	1
3	BP 11630032	Gasket, Cover	1
4	BP 11011420	Screw, Round Hd Machine, #8-32 x .250"	8
5	BP 11632568	Board, PC, Series I Power Feed	1
	BP 11630417	Board, KB (for Models after 1989)	1
6	BP 31501502	Connector, Cable Grip, .375"0	1
7	BP 11632607	Fuseholder, Panel Mount	1
8	BP 11632606	Fuse, 10 Amp	1
9	BP 11632593	Light, Pilot	1
10	BP 11632659	Switch, Toggle 2PST	1
11	BP 11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	2
12	BP 11651943	Washer, EL	2
13	BP 31506372	Connector, Cable Grip, .625"0	1
14	BP 11636412	Cord, Power	1
15	BP 31630509	Assembly, Cable	1

POWER FEED Y-AXIS

(New Style)



T15646

Figure 4.11 - Power Feed Y Axis Housing with Internal Components
(View 1)

POWER FEED Y-AXIS

(New Style)

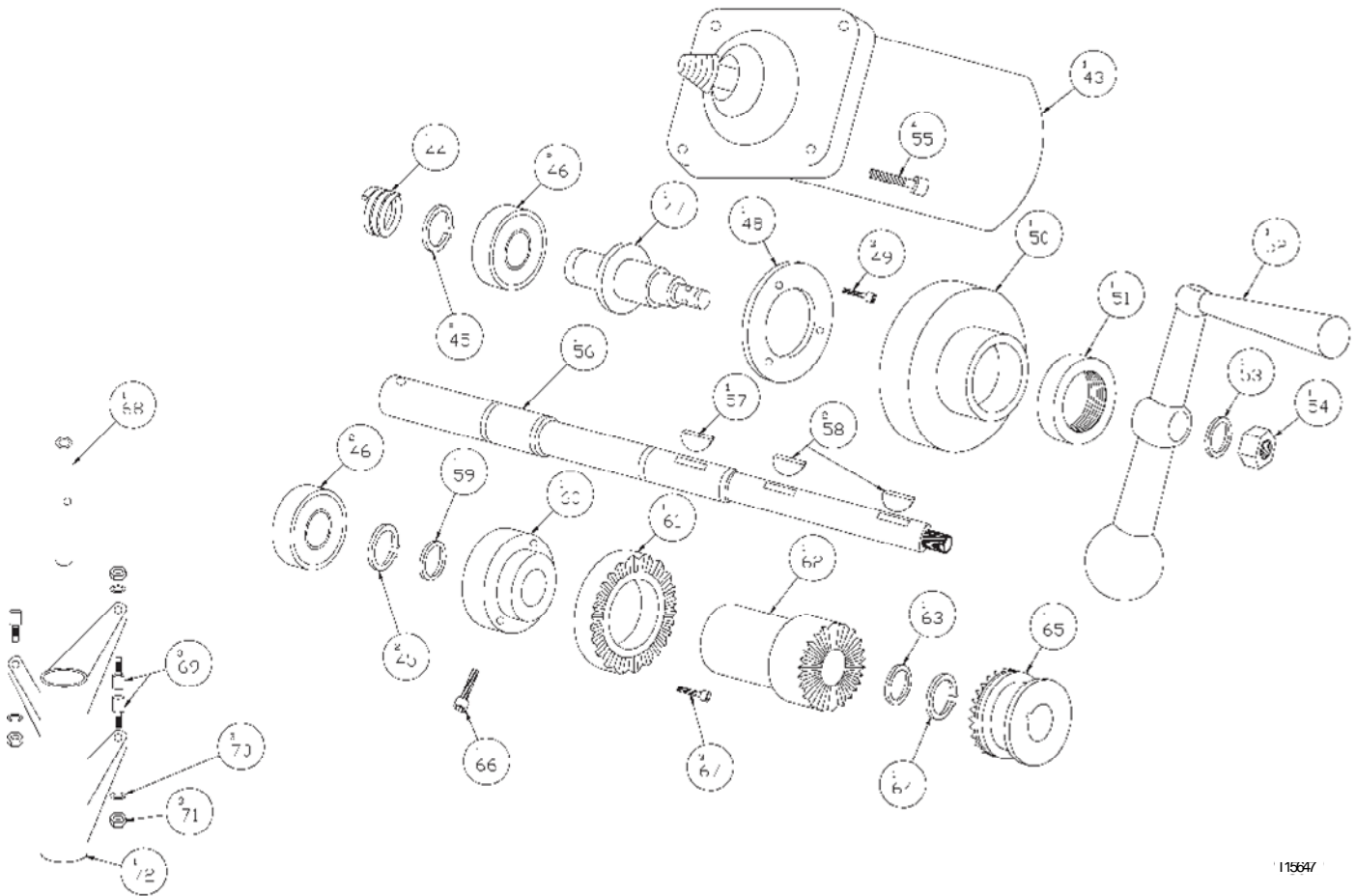
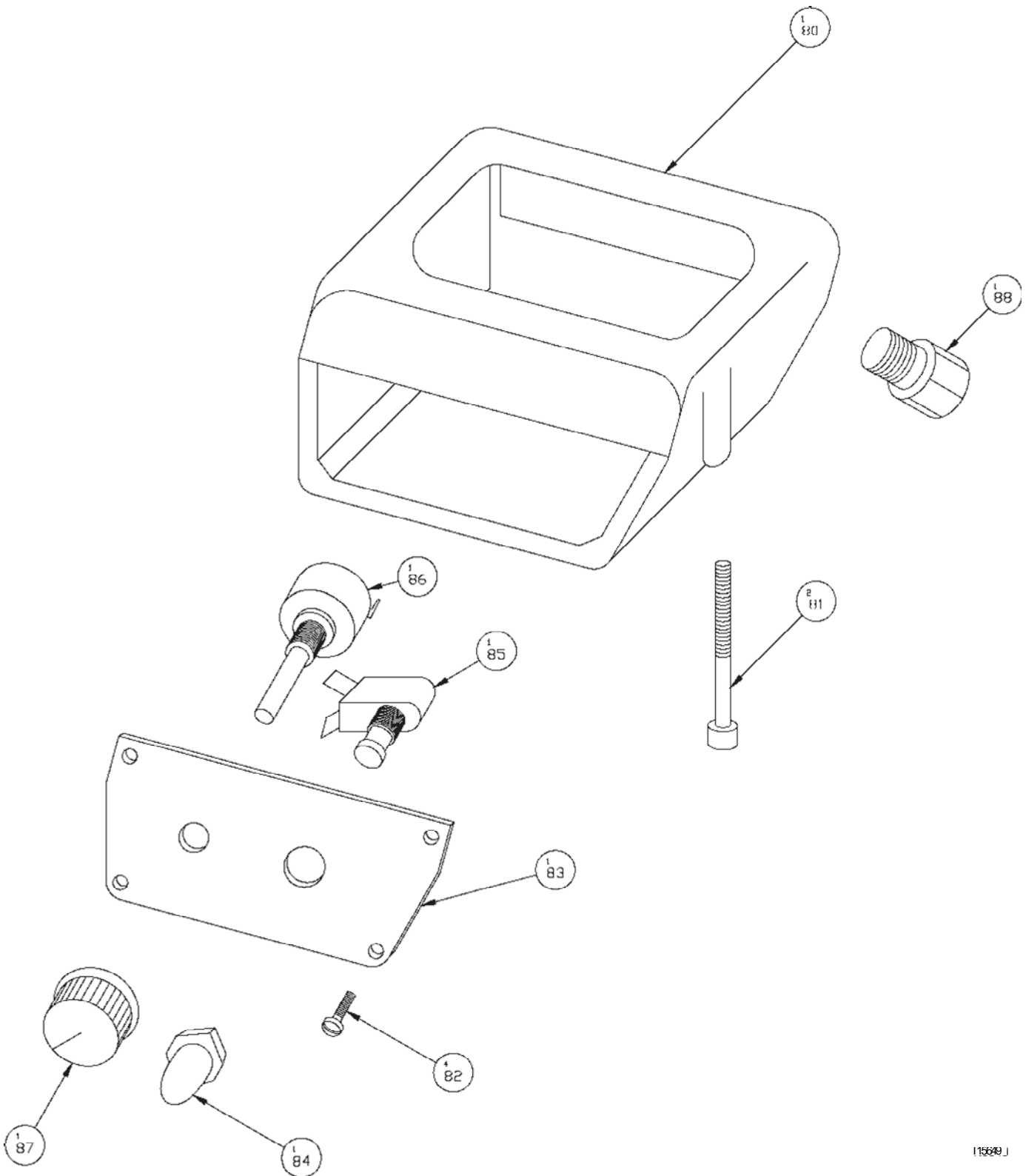


Figure 4.12 - Power Feed Y Axis Housing with Internal Components
(View 2)

POWER FEED Y-AXIS CONTROL BOX

(New Style)



115639 J

Figure 4.14 - Power Feed Y-Axis Control Box

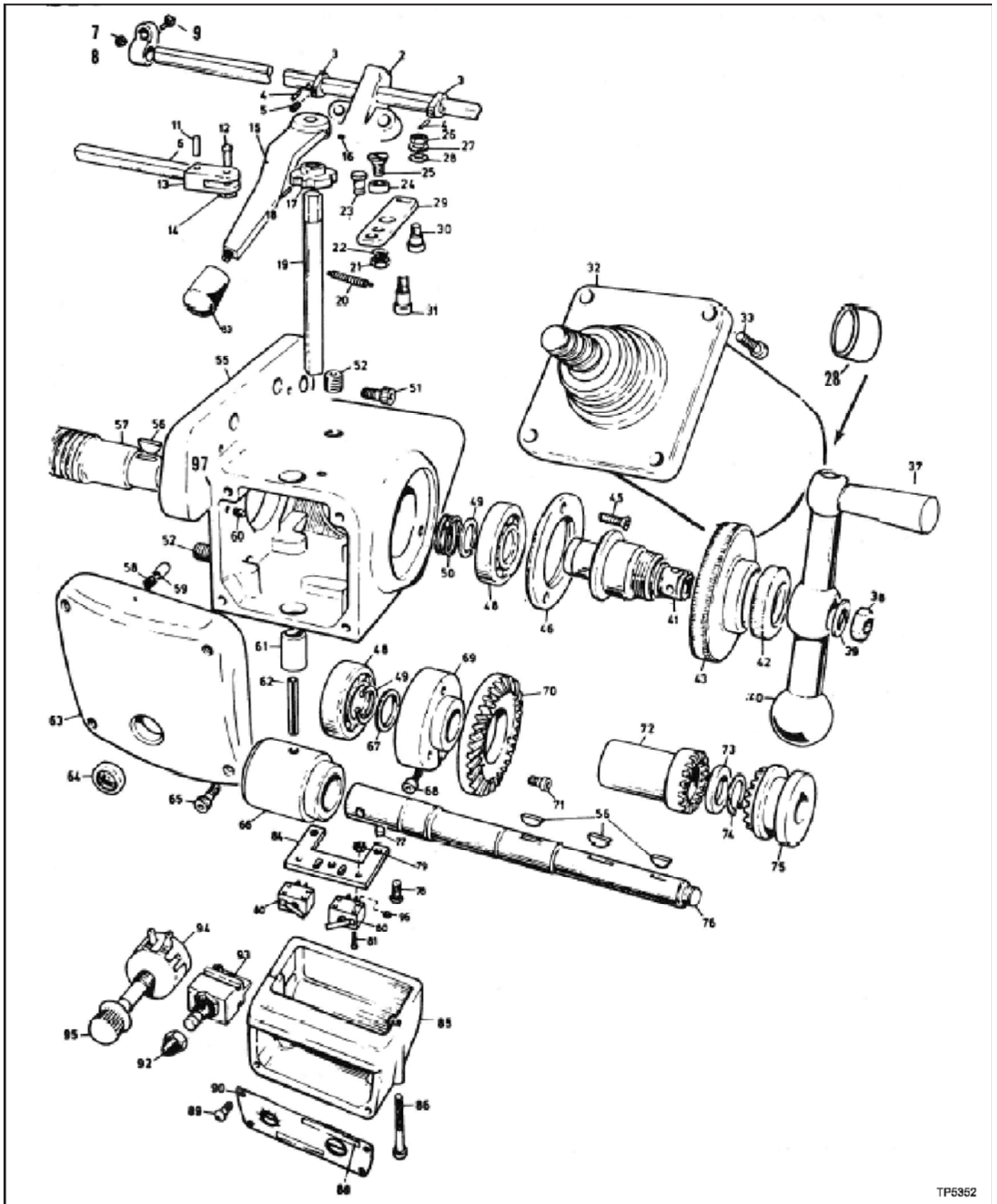
POWER FEED Y-AXIS

(New Style)

Item	Part Number	Description	Qty
1	BP 11011265	Set Screw	4
2	BP 12632304	Stop Collar	4
3	BP 12630033002	Stop Rod	2
4	BP 12630071	Fork	1
6	BP 11011011	Screw	13
7	BP 11630426	Clevis Pin	1
8	BP 11632152	Knob	1
9	BP 11630890	Retaining Ring	1
10	BP 12630138002	Lever	1
11	BP 12636618	Shaft	1
12	BP 11633638	Bushing	1
13	BP 11635040	Plug	4
14	BP 11420905	O-Ring	1
15	BP 12636616	Pivot	1
16	BP 11011403	Screw	8
17	BP 11630131	Switch	2
18	BP 11631549	Screw	3
19	BP 11981089	Lock Washer	8
20	BP 11011701	Nut	8
21	BP 12630066	Spacer	3
22	BP 11011200	Screw	1
23	BP 11980089	Washer	1
24	BP 11636413	Seal	1
25	BP 11633650	Bushing	1
26	BP 11636006	Plate	1
27	BP 11981315	Nut	1
28	BP 11313280	Sight Glass	1
29	BP 12636603	Cover	1
30	BP 12636617	Pivot	1
31	BP 11636625	Spring	1
32	BP 12630429	Cam Follower	1
33	BP 11630134	Gasket	1
34	BP 12630060002	Coupling	1
35	BP 11010516	Roll Pin	3
36	BP 12636609	Cam	1
37	BP 11650706	Dowel Pin	2
38	BP 12630428	Roller	2
39	BP 11010411	Pin	1
40	BP 11980336	Set Screw	1
41	BP 11010517	Roll Pin	1
42	BP 12630222002	Housing	1
43	BP 12636423	Motor	1
44	BP 11633500	Clutch Spring	1
45	BP 11630814	Retaining Ring	4

Item	Part Number	Description	Qty
46	BP 11630261	Bearing	4
47	BP 12150289	Power Feed Dial Holder	1
48	BP 12630325	Bearing Cap	1
49	BP 11011010	Screw	3
50	BP 12060214	Dial	1
51	BP 12060078	Locknut	1
52	BP 12150780	Ballcrank Handle Assy	1
53	BP 12150108	Washer	1
55	BP 11011033	Screw	5
56	BP 12630015	Shaft	1
57	BP 11013089	Woodruff Key #11	1
58	BP 11013078	Woodruff Key #7	2
59	BP 12630091	Thrust Washer	1
60	BP 12630069	Gear Hub	1
61	BP 12632218	Drive Shaft	1
62	BP 12636650	Clutch Assy Driver	1
63	BP 12630070	Thrust Bearing	1
64	68 000823102	Retaining Ring	1
65	BP 12636626	Clutch	1
66	0100620	Screw	1
67	0100306	Screw	3
68	BP 12636615	Pivot Shaft	1
69	BP 11630320	Cam Follower	3
70	BP 11631925	Lock Washer	3
71	BP 11011705	Hex Nut	3
72	BP 12636610	Shifting Fork	1
73	BP 12060082003	Lead Screw Bracket	1
74	BP 28302016	Bearing	2
75	BP 12063642	Bearing Retainer	1
76	BP 11013089	Woodruff Key #11	1
78	BP 12630017001	Leadscrew	1
79	BP 11011074	Set Screw	4
80	BP 12630052	Power Feed Housing	1
81	0100640	Screw	2
82	BP 11011190	Screw	4
83	BP 11632576	Switch Panel	1
84	BP 11632506	Switch Boot	1
85	BP 11632620	Rapid Switch	1
86	BP 11632618	Potentiometer	1
87	BP 11632153	Speed Adj Knob	1
88	BP 11152446	Cord Grip	1

6F POWER FEED X-AXIS



TP5352

Figure 4.15 - 6F Power Feed X-Axis Assembly

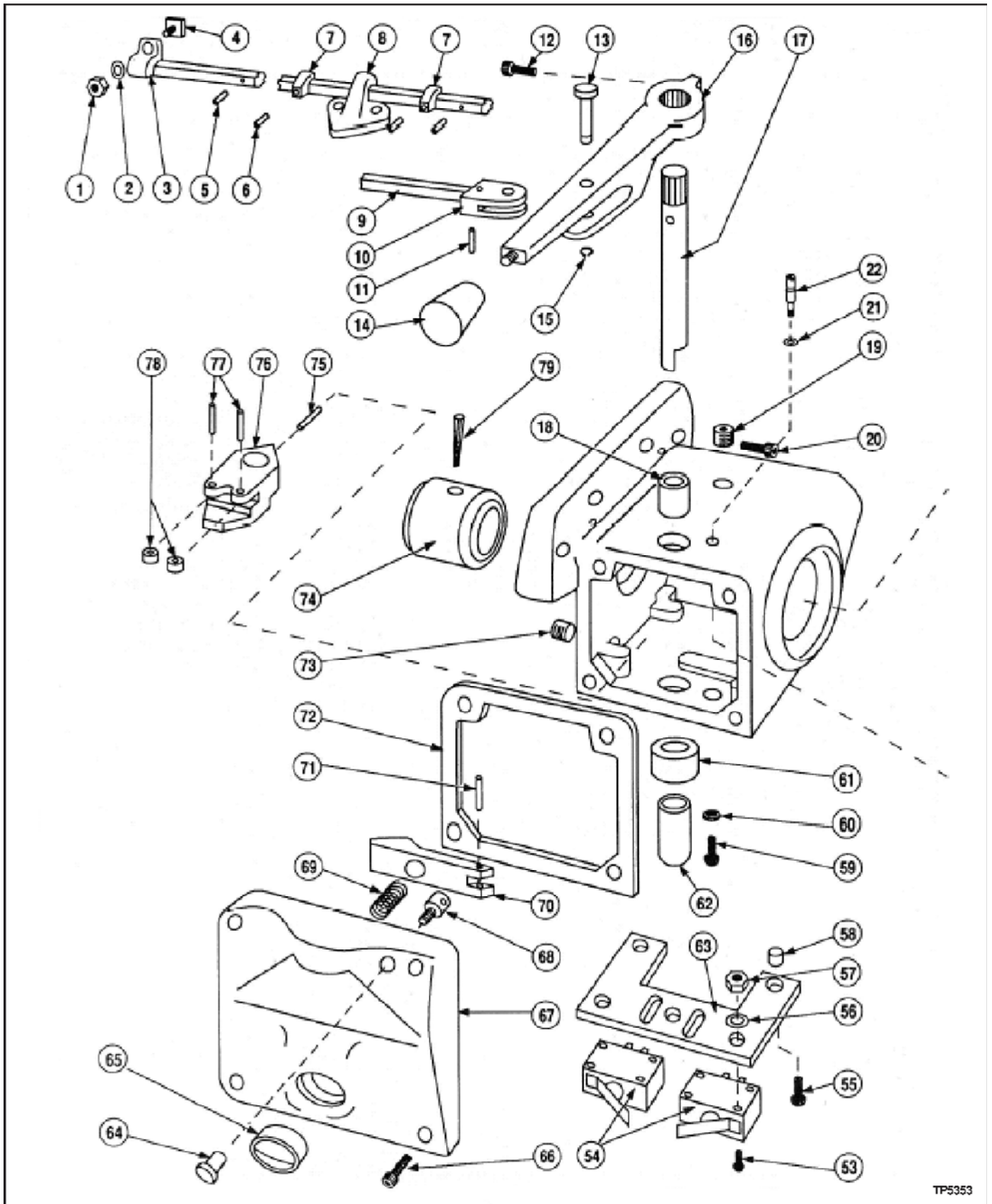
6F POWER FEED X-AXIS

Item	Part Number	Description	Qty
1	BP 11430097	Clamp, Stop Rod	1
2	BP 12060300	Bracket, Stop, Power Feed	1
3	BP 12632304	Collar, Stop	2
4	BP 11010507	Pin, Roll, .093" x .625" Lg	2
5	BP 11011265	Screw, Stainless Steel, .250"-20 x .250" Lg	2
6	BP 12630079	Rod, Table Stop, 42"	1
	BP 12630080	Rod, Table Stop, 48"	1
7	BP 11011720	Nut, Hex, .375"-16	1
8	BP 12060122	Washer, Tee Bolt	1
9	BP 11061602	Bolt, Square Hd, .375"-16 x 1.375"	1
11	BP 11010507	Pin, Roll, .093" x .625" Lg	1
12	BP 11632470	Pin, Fork	1
13	BP 12630071	Fork, Stop Rod	1
14	BP 11630890	Ring, Retaining, #5115-18	1
15	BP 12630065	Handle, Control Lever, Aluminum	1
16	BP 12190162	Screw, Set, #10-24 x .25" Lg	1
17	BP 12630072	Cam, Clutch Detent	1
18	BP 11010516	Pin, Roll, .125" x .625" Lg	1
19	BP 12636005	Shaft, Switch and Clutch	1
20	BP 11630200	Spring	1
21	BP 11011740	Nut, Hex Jam, .250"-20	1
23	BP 11630076	Spring, Clutch Arm	1
24	BP 12630074	Roller, Clutch Arm Detent	1
25	BP 12630087	Pin, Detent Roller	1
26	BP 11011705	Nut, Hex, #10-32	1
27	BP 11631925	Lockwasher, #10	1
28	BP 11633728	Cap, Motor End	1
29	BP 12630231	Assembly, Clutch Arm	1
30	BP 11630320	Follower, Cam	1
31	BP 11011575	Screw, Self-Locking Shoulder, .312" x .625"-.250"-20	1
32	BP 12631051	Motor, Standard Torque with Slinger, Baldor	1
	BP 28006140	Brush	2
	BP 28006141	Holder, Brush	2
	BP 12636423	Motor, High Torque with Slinger, Baldor	1
	BP 11632511	Brush	2
	BP 11632512	Cap, Brush	2
33	BP 11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	4
38	5A 0001466 C	Nut, Hex Jam, .500"-20	1
39	BP 12150164	Spacer, Washer	1
40	BP 11630158	Assembly, Handle, Power Feed	4

Item	Part Number	Description	Qty
41	BP 12630167	Holder, Dial	3
42	BP 12060078	Nut, Dial Lock, Knurled	1
43	BP 12060214	Dial, 200-Graduation	1
45	BP 11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	3
46	BP 12630325	Cap, Take-Up	1
48	BP 11630261	Bearing, Single Row, Loose Fit	2
49	BP 11630814	Ring, Retaining, #5100-78	1
50	BP 11632074	Spring, Clutch	1
51	BP 11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	3
52	BP 11635040	Plug, Pipe, .250"-18 NPT x .375"	2
53	BP 11013089	Key, Woodruff #11	1
54	BP 11633638	Bushing, Bronze, #B-68-3	1
55	BP 12630051	Housing, Power Feed Main	1
56	BP 11013078	Key, Woodruff #7	3
57	BP 12061305	Screw, Lead, 42" Table, without Chrome Inch	1
	BP 12061304	Screw, Lead, 48" Table, without Chrome Inch	1
	BP 12060458	Screw, Lead, 42" Table, with Chrome Inch	1
	BP 12060453	Screw, Lead, 48" Table, with Chrome Inch	1
58	BP 11632073	Spring, Compound, .18000 x .750" Lg	1
59	BP 12630068	Pin, Detent	1
60	BP 12630075	Pin, Spring	1
61	BP 11633650	Bushing, Bronze, #M-68-12	1
62	BP 11010411	Pin, Taper, #2 x 1.500"	1
63	BP 12630053	Cover, Power Feed	1
64	BP 11413280	Sight, Oil	1
65	BP 11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	4
66	BP 12630060	Coupling	1
67	BP 12630091	Washer, Thrust	1
68	0100620	Screw, Socket Hd Cap, .250"-20 x 1.250"	1
69	BP 12632051	Hub, Gear Mounting	1
70	BP 11632216	Gear, Drive Shaft, Standard Torque	1
71	0100306	Screw, Socket Hd Cap, #10-32 x .375"	3
72	BP 12630062	Clutch, Drive (see BP 12632050)	1
73	BP 12630070	Bearing, Thrust	1
74	68 000823102	Ring, Retaining, #5100-68	1
75	BP 12630063	Clutch, Drive Shaft	1
76	BP 12630015	Shaft, Drive, Power Feed	1
77	BP 12630066	Spacer, Switch Mounting Plate	3
78	BP 11631549	Screw, Slotted Round Hd Machine, #10-24 x .625"	3
79	BP 11011701	Nut, Hex, #4-40	4
80	BP 11630131	Micro Switch, Sealed	2
81	BP 11011403	Screw, Round Hd Machine, #4-40 x .625" Lg	4
83	BP 11632152	Knob, Red Bakelite, .375"	1

Item	Part Number	Description	Qty
84	BP 11636006	Plate, Micro Switch Mount	1
85	BP 12630052	Box, Control	1
86	0100640	Screw, Socket Hd Cap, .250"-20 x 2.500"	2
89	BP 11011190	Screw, Button Hd Cap, #8-32 x .250"	4
90	BP 11632576	Cover, Control Box	1
92	BP 11632506	Boot, Insul PB/Switch	1
93	BP 11632620	Pushbutton, SPST	1
94	BP 11632618	Potentiometer, 5000, Log Taper	1
95	BP 11632153	Knob, Black	1
97	BP 11630134	Gasket, Power Feed Cover	1
98	BP 11636413	Seal, Shaft	1

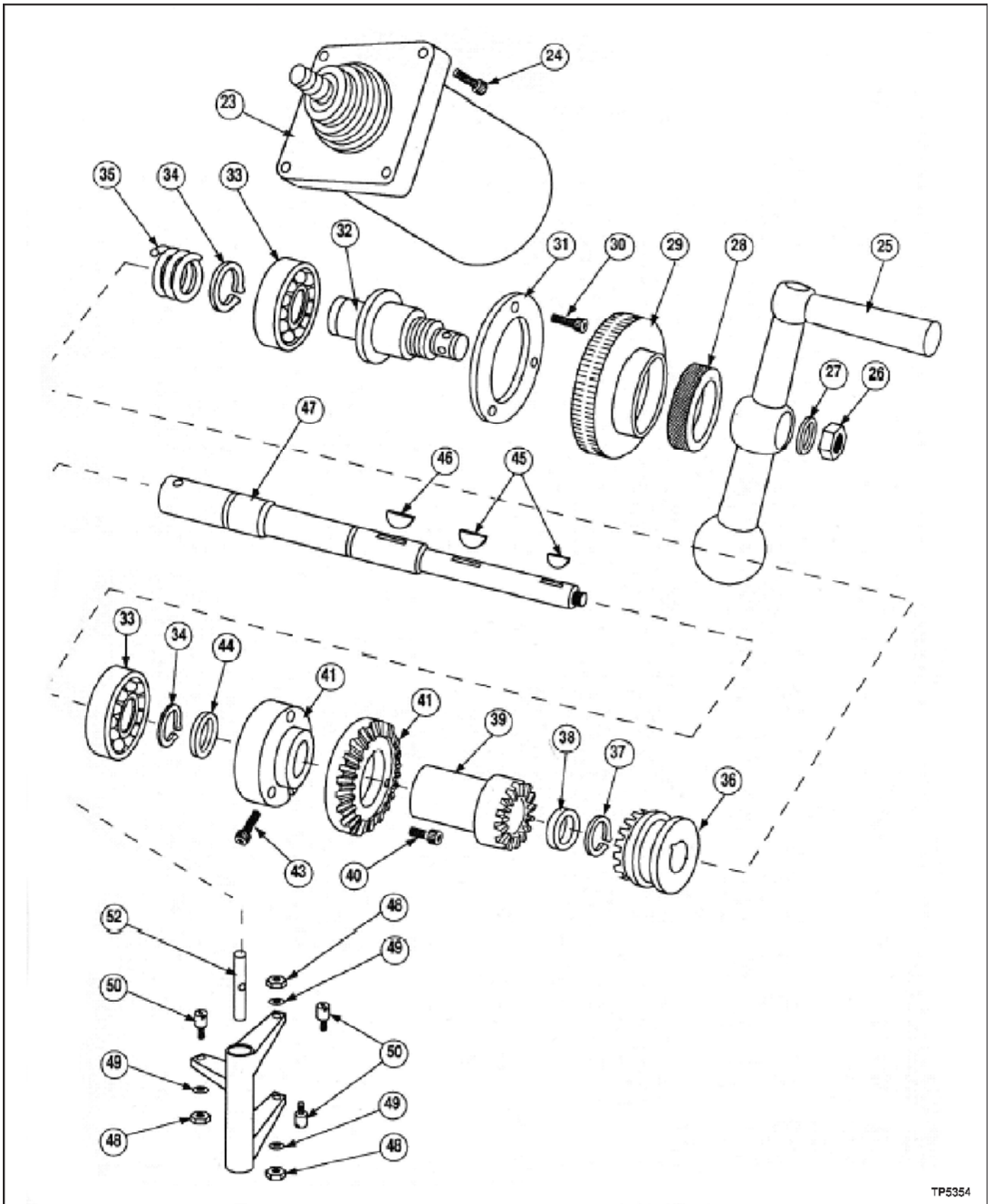
8F POWER FEED X-AXIS



TP5353

Figure 4.16 - 8F Power Feed X-Axis Assembly

8F POWER FEED X-AXIS



TP5354

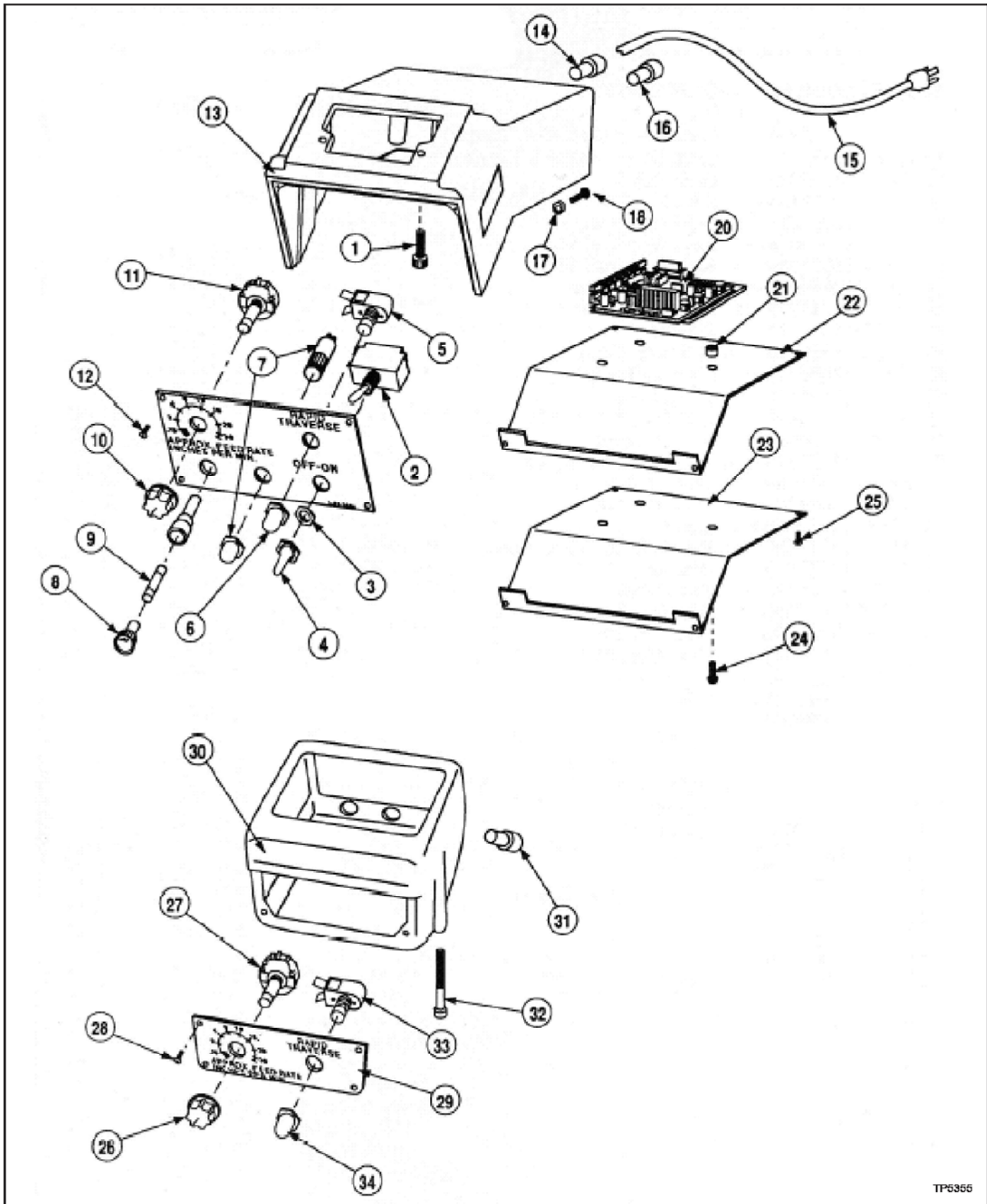
Figure 4.17 - 8F Power Feed X-Axis Assembly

8F POWER FEED X-AXIS

Item	Part Number	Description	Qty
1	BP 11011720	Nut, Hex, .375"-16	1
2	BP 12060122	Washer, Tee Bolt	1
3	BP 11061602	Bolt, Square Hd, .375"-16 x 1.375"	1
4	BP 12430097	Guide, Stop Rod	1
5	BP 11010507	Pin, Roll, .093" x .625" Lg	1
6	BP 11011265	Screw, Stainless Steel, .250"-20 x .250" Lg	1
7	BP 12632304	Collar, Stop	1
8	BP 12060300	Bracket, Stop, Power Feed	1
9	BP 12630079	Rod, Table Stop, 42"	1
	BP 12630080	Rod, Table Stop, 48"	1
10	BP 12630071	Fork, Stop Rod	1
11	BP 11010516	Pin, Roll, .125" x .625" Lg	1
12	BP 11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	1
13	BP 11630426	Pin, Fork	1
14	BP 11632152	Knob, Red Bakelite, .375"	1
15	BP 11630890	Ring, Retaining, #5115-18	1
16	BP 12630423	Lever, Control	1
17	BP 12636618	Shaft, Clutch	1
18	BP 11633638	Bushing, Bronze, #B-68-3	1
19	BP 11635040	Plug, Pipe, .250"-18 NPT x .375"	1
20	BP 11011074	Screw, Socket Hd Cap, .375"-16 x 1.00"	1
21	BP 11420905	O-Ring	1
22	BP 12636616	Pivot, Shoulder	1
23	BP 12631051	Motor, Standard Torque, Fracmo	1
	BP 28006140	Brush	2
	BP 28006141	Holder, Brush	2
	BP 28006142	Cap, Brush Holder	2
	BP 12636423	Motor, High Torque with Slinger, Baldor	1
	BP 11630149	Motor, High Torque without Slinger, Baldor	1
	BP 11632511	Brush	2
	BP 11632512	Cap	2
24	BP 11011033	Screw, Socket Hd Cap, .250"-20 x .750" Lg	1
25	BP 12150780	Assembly, Ball Crank, Quick Release	1
26	5A 0001466 C	Nut, Hex Jam, .500"-20	1
27	BP 12150108	Washer	1
28	BP 12060078	Nut, Dial Lock, Knurled	1
29	BP 12060214	Dial, 200-Graduation	1
30	BP 11011010	Screw, Socket Hd Cap, #10-24 x .500" Lg	3
31	BP 12630325	Cap, Take-Up	1
32	BP 12150289	Holder, Dial	1
33	BP 11630261	Bearing, Single Row, Loose Fit	2
34	BP 11630814	Ring, Retaining, #5100-78	2
35	BP 11633500	Spring	1
36	BP 12636626	Clutch, Driven	1
37	68 000823102	Ring, Retaining, #5100-68	1
38	BP 12630070	Bearing, Thrust	1
39	BP 12636650	Assembly, Clutch Driver	1
40	0100306	Screw, Socket Hd Cap, #10-32 x .375"	3

Item	Part Number	Description	Qty
41	BP 11632216	Gear, Drive Shaft, Standard Torque	1
	BP 11632218	Gear, Drive Shaft, High Torque	1
42	BP 12632051	Hub, Gear	1
43	0100620	Screw, Socket Hd Cap, .250"-20 x 1.250"	1
44	BP 12630091	Washer, Thrust	1
45	BP 11013078	Key, Woodruff #7	2
46	BP 11013089	Key, Woodruff #11	1
47	BP 12630015	Shaft, Drive, Power Feed	1
48	BP 11011705	Nut, Hex, #10-32	3
49	BP 11631925	Washer	3
50	BP 11630320	Follower, Cam	3
51	BP 12636610	Fork, Shifting	1
52	BP 12636615	Shaft, Pivot	1
53	BP 11011403	Screw, Round Hd Machine, #4-40 x .625" Lg	8
54	BP 11630131	Switch, Limit	2
55	BP 11631549	Screw, Pan Hd Machine, #10-24 x 1.250"	3
56	BP 11981089	Washer, Star, #6	8
57	BP 11011701	Nut, Hex, #4-40	8
58	BP 12630066	Spacer, Switch Mounting Plate	3
59	BP 11011200	Screw, Round Hd Machine, .250"-20 x .750"	1
60	BP 11980089	Washer	1
61	BP 11636413	Seal, Shaft	1
62	BP 11633650	Bushing, Bronze, #M-68-12	1
63	BP 11636006	Plate, Micro Switch Mount	1
64	BP 11981315	Nut, Allen, #10-32	1
65	BP 11313280	Sight, Oil Glass	1
66	BP 11011011	Screw, Socket Hd Cap, #10-24 x .625" Lg	4
67	BP 12636603	Cover	1
68	BP 12636617	Pivot, Cam	1
69	BP 11636625	Spring	1
70	BP 12630429	Follower, Cam	1
71	BP 11010516	Pin, Roll, .125" x .625" Lg	1
72	BP 11630134	Gasket, Cover	1
73	BP 11635040	Plug, Pipe, .250"-18 NPT x .375"	1
74	BP 12630060	Coupling	1
75	BP 11010517	Pin, Roll,.125" x .750"	1
76	BP 12636609	Cam	1
77	BP 11650706	Pin, Dowel	2
78	BP 12630428	Roller, Cam	2
79	BP 11010411	Pin, Taper, #2 x 1.500"	1

8F POWER FEED X-AXIS



TP5355

Figure 4.18 - 8F Power Feed X-Axis Control Assembly, Exploded View

8F POWER FEED X-AXIS

Item	Part Number	Description	Qty
1	BP 11011031	Screw, Socket Hd Cap, .250"-20 x .625"	2
2	BP 11632659	Switch, Toggle 2PST	1
3	BP 11632599	Nut, Hex	1
4	BP 11632628	Boot, Toggle Switch Insulator	1
5	BP 11632620	Pushbutton, 1PST	1
6	BP 11632506	Boot, Insul PB/Switch	1
7	BP 11632593	Light, Pilot	1
8	BP 11632607	Fuseholder, Panel Mount	1
9	BP 11632606	Fuse, 10 Amp	1
10	BP 11632153	Knob, Black	1
11	BP 11630445	Potentiometer	1
12	0300104	Screw, Button Hd Cap, #6-32 x .250"	4
13	BP 12636400	Box, Control	1
14	BP 11636409	Grip, Cord	1
15	BP 11636412	Cord, Power	1
16	BP 11636410	Grip, Cord	1
17	BP 11011704	Nut, Hex, #8-32	1
18	BP 11011429	Screw, Round Hd Machine, #8-32 x .500"	1
19	BP 11630417	Panel, Front	1
20	BP 11630417	Board, Circuit	1
	BP 32632751	Assembly, Harness, Power Feed	1
21	BP 12630066	Spacer, Switch Mounting Plate	3
22	BP 11630422	Gasket, Cover	1
23	BP 11630421	Cover, Bottom	1
24	0350308	Screw, Pan Hd Machine, #10-32 x .500"	3
25	0300104	Screw, Button Hd Cap, #6-32 x .250"	2
26	BP 11632152	Knob, Red Bakelite, .375"	1
27	BP 11630445	Potentiometer, 5KS2	1
28	0300104	Screw, Button Hd Cap, #6-32 x .250"	4
29	BP 11632576	Cover, Control Box	1
30	BP 12630052	Box, Control	1
31	BP 11152446	Grip, Cord	1
32	BP 11780064	Screw, Socket Hd Cap, .250"-20 x 3.500"	2
33	BP 11632620	Pushbutton, 1PST	1
34	BP 11632506	Boot, Insul PB/Switch	1

POWER FEED X-AXIS

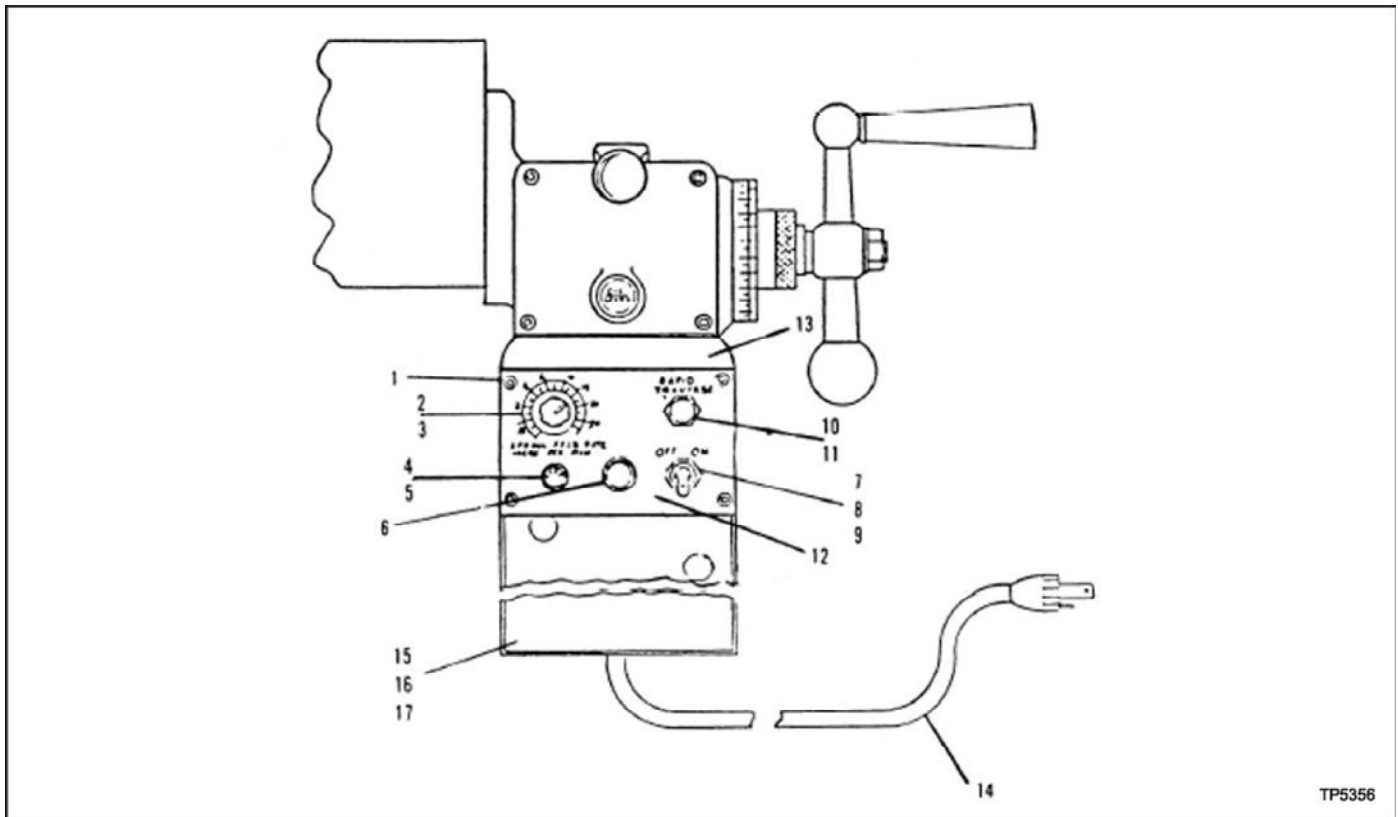


Figure 4.19 - Power Feed X-Axis Control Assembly, Front View

Item	Part Number	Description	Qty
1	0300104	Screw, Button Hd Cap, #6-32 x .250"	4
2	BP 11632618	Potentiometer, 5000, Log Taper	1
	BP 11630445	Potentiometer, 8F Power Feed	1
3	BP 11632153	Knob, Black	1
4	BP 11632607	Fuseholder, Panel Mount	1
5	BP 11632606	Fuse, 10 Amp	1
6	BP 11632593	Light, Pilot	1
7	BP 11632659	Switch, Toggle 2PST	1
8	BP 11632628	Boot, Insulator	1
9	BP 11632599	Nut, Hex	1
10	BP 11632620	Pushbutton, 1PST	1
11	BP 11632506	Boot, Insul PB/Switch	1
12	BP 11636404	Panel	1
13	BP 12636400	Box, Control	1
14	BP 11636412	Cord, Power	1
15	BP 11636411	Cover, Bottom, 6F Power Feed	1
	BP 11630421	Cover, Bottom, 8F Power Feed	1
16	BP 12636100	Board, Printed Circuit, 6F Power Feed (Not Shown)	1
	BP 11630417	Board, Circuit, 8F Power Feed (Not Shown)	1
17	BP 11630416	Assembly, Plug-In Connector Type Harness, 6F	1
	BP 32632751	Assembly, Harness, Power Feed	1

REPLACEMENT MOTOR ASSEMBLIES AVAILABLE

Motor Assembly J-Head 1 HP Unified without NFPA, BP 12190250

Part Number	Description	Qty
BP 11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
BP 11012759	Marker, 208 Volts	1
BP 11012760	Marker, 230 Volts	1
BP 11012761	Marker, 380 Volts	1
BP 11012762	Marker, 460 Volts	1
BP 11012772	Marker, 416 Volts	1
BP 11182556	Set, Cord, 14/4 600 Volts	1
BP 11272643	Term, Wire B/A	3
BP 11011713	Nut, Hex, .375"-24	2
BP 11191922	Lockwasher, .375"	2
BP 12190173	Stud, Motor Mounting	2
BP 12190171	Locknut, Motor	2
BP 12190174	Washer, Motor Mounting Stud	2
BP 12190172	Handle, Motor Locknut	2
BP 11192151	Knob, Bakelite, .250"-20	2
BP 12193508	Assembly, Motor Pulley	1
BP 11190161	Motor, 1 HP, 230/460	1
BP 11192653	Switch, Drum	
BP 11011475	Screw, Round Hd Machine, .250"-20 x .500"	2
BP 11011476	Screw, Round Hd Machine, .250"-20 x .750"	2

Motor Assembly J-Head Unified with NFPA

Contact Sales Department for Part Number

Motor Assembly 2J-Head 2 HP Unified without NFPA, BP 12550150

Part Number	Description	Qty
BP 11010514	Pin, Roll, .125" x .500"	1
BP 11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
BP 11012759	Marker, 208 Volts	1
BP 11012760	Marker, 230 Volts	1
BP 11012761	Marker, 380 Volts	1
BP 11012762	Marker, 460 Volts	1
BP 11012770	Marker, 200 Volts	1
BP 11012771	Marker, 400 Volts	1
BP 11012772	Marker, 416 Volts	1
BP 11150843	Ring, Retaining, #5100	1
BP 11182556	Set, Cord, 14/4 600 Volts	1
BP 11182557	Assembly, Cable, 600 Volts	1
BP 11182655	Switch, Drum	1
BP 11550001	Motor, 2 HP, Multi Volt, 50/60	1
BP 11562534	Nut, Wire	1
BP 12550029	Assembly, Varidisc and Spring	1
BP 12550007	Key, Drive, Fixed Varidisc	1
BP 12550006	Varidisc, Motor Stationary	1

Motor Assembly 2J-Head 2 HP Unified with NFPA

Contact Sales Department for Part Number

Motor Assembly 2J-Head 2 HP 575 Volts without NFPA, BP 12550020

Part Number Description

		Qty
BP 11010514	Pin, Roll, .125" x .500"	1
BP 11012763	Marker, 575 Volts	1
BP 11150843	Ring, Retaining, #5100-118	1
BP 11182556	Set, Cord, 14/4 600 Volts	1
BP 11182557	Assembly, Cable, 600 Volts	1
BP 11182655	Switch, Drum	1
BP 11011595	Screw, Washer Hd Machine, #10-32 x .375"	1
BP 11550101	Motor, 2 HP, 575-3-60	1
BP 12550006	Varidisc, Motor Stationary	1
BP 11562534	Connector, Wire Nut, M Type Y	3
BP 12550007	Key, Drive, Fixed Varidisc	1
BP 12550029	Assembly, Varidisc and Spring	1

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

Contact Sales Department for Part Number

Replacement Motors Available

Part Number	Description	Qty
BP 11190161	Motor, 1 HP, 230/460	
BP 11190162	J-Head 1 HP 575 Volts	
BP 11550001	Motor, 2 HP, Multi Volt, 50/60	
BP 11550101	Motor, 2 HP, 575-3-60	

J Milling Head — Spare Parts

Part Number	Description	Qty
BP 11182120	Belt, Varispeed	1
BP 11182106	Belt, Timing	1
BP 12193477	Shoe, Brake	2
BP 11182081	Spring, Brake	2
BP 12193437	Assembly, Clockspring and Cover	1
BP 12180117	Lubricant, Gear	1
BP 11190238	Bearing, Spindle, Pair	1
BP 11190237	Bearing, Spindle	1
BP 11192403	Strainer, Felt	2
BP 11191942	Lockwasher	2
BP 11011392	Screw, Collet Aligning (see BP 12193540)	6

2J Milling Head (1-1/2 HP) — Spare Parts

Part Number	Description	Qty
BP 11182120	Belt, Varispeed	1
BP 11182106	Belt, Timing	1
BP 12180073	Shoe, Brake, Set	1
BP 11182081	Spring, Brake	1
BP 11182121	Key, Motor	1
BP 11182122	Key, Plastic	1
BP 12193437	Assembly, Clockspring and Cover	1
BP 12180117	Lubricant, Gear	1
BP 11183147	Lubriplate	1
BP 11190238	Bearing, Spindle, Pair	1
BP 11190237	Bearing, Spindle	1
BP 11192403	Strainer, Felt	2
BP 11191942	Lockwasher	2
BP 12193540	Screw, Set, R-8 Collet	6

2J Milling Head (2 HP) — Spare Parts

Same as above except:

Part Number	Description	Qty
BP 11552106	Belt, Timing	1
BP 12550004	Assembly, Key, Drive, Varidisc	1
BP 11182122	Key, Plastic	1

Series I Standard Machine — Spare Parts

Part Number	Description	Qty
BP 11062405	Wiper, Felt	2
BP 11062406	Wiper, Felt	4
BP 12060631	Nut, Lead Screw Cross Feed Inch Matched	1
BP 12060630	Nut, Lead Screw Feed, Inch Matched, Lg	1
BP 12060123	Plate, Wiper, Knee	1

Lead Screws for Manually Operated Machines (without Keys)

Note: Keys for the Following Lead Screws are BP 11013078, Woodruff #7.

Part Number	Description
BP 12061233	Y-Axis (Cross Feed) No Chrome Inch
BP 12060485	Y-Axis (Cross Feed) Chrome Inch
BP 12060182	Y-Axis (Cross Feed) No Chrome Metric
BP 12060105	X-Axis (Longitudinal) No Chrome Inch, 42" Table X-
BP 12060450	Axis (Longitudinal) Chrome Inch, 42" Table X-Axis
BP 12060177	(Longitudinal) No Chrome Metric, 42" Table X-Axis
BP 12060106	(Longitudinal) No Chrome Inch, 48" Table X-Axis
BP 12060451	(Longitudinal) Chrome Inch, 48" Table X-Axis
BP 12060179	(Longitudinal) No Chrome Metric, 48" Table

Lead Screws for Machines with Power Feeds (without Keys)

Note: Keys for the Following Lead Screws are BP 11013078, Woodruff #7.

Part Number	Description
BP 12630017	Y-Axis (Cross Feed) No Chrome Inch
BP 12630321	Y-Axis (Cross Feed) Chrome Inch
BP 12630185	Y-Axis (Cross Feed) No Chrome Metric
BP 12630487	Y-Axis (Cross Feed) Chrome Metric
BP 12630084	X-Axis (Longitudinal) No Chrome Inch, 42" Table
BP 12630097	X-Axis (Longitudinal) No Chrome Metric, 42" Table
BP 12060456	X-Axis (Longitudinal) Chrome Metric, 42" Table
BP 12630085	X-Axis (Longitudinal) No Chrome Inch, 48" Table
BP 12060453	X-Axis (Longitudinal) Chrome Inch, 48" Table
BP 12630098	X-Axis (Longitudinal) No Chrome Metric, 48" Table
BP 12060457	X-Axis (Longitudinal) Chrome Metric, 48" Table

METRIC CONVERSION KITS

BP 2184000 — J- and 2J-Head, Metric Conversion Kit

Part Number	Description	Qty
BP 11195307	Scale	1
BP 12191013	Assembly, Stop	1

BP 2064001 — Metric Conversion Kits

Hand Feed Machines with 36" Tables

Part Number	Description	Qty
BP 12060175	Screw, Lead, Table	1
BP 12060183	Screw, Lead, Elevating	1
BP 12060730	Nut, Table Feed	1
BP 12060731	Nut, Saddle Feed	1
BP 12060170	Nut, Elevating	1
BP 12069016	Dial, Table and Saddle	3
BP 12069015	Dial, Elevating Screw	1
BP 12060182	Screw, Lead, Y-Axis, without Chrome, 12" Knee	1

BP 2064002 — Metric Conversion Kits

Hand Feed Machines with 42" Tables

Part Number	Description	Qty
BP 12060177	Screw, Lead, X-Axis, Hand Feed, without Chrome, 42"	1
BP 12060183	Screw, Lead, Elevating	1
BP 12060730	Nut, Table Feed, X-Axis Feed, Matched Set	1
BP 12060731	Nut, Saddle Feed, Y-Axis Feed, Matched Set	1
BP 12060170	Nut, Elevating	1
BP 12069016	Dial, Table and Saddle	3
BP 12069015	Dial, Elevating Screw	1
BP 12060182	Screw, Lead, Y-Axis, without Chrome, 12" Knee	1

BP 2064003 — Metric Conversion Kits

Hand Feed Machines with 48" Tables

Part Number	Description	Qty
BP 12060179	Screw, Lead	1
BP 12060183	Screw, Lead, Elevating	1
BP 12060730	Nut, Table Feed	1
BP 12060731	Nut, Saddle Feed	1
BP 12060170	Nut, Elevating	1
BP 12069016	Dial, Table and Saddle	3
BP 12069015	Dial, Elevating Screw	1
BP 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

Part Number	Description	Qty
BP 12630001	X-Axis (Longitudinal) for 36" Table, Standard Torque X-Axis (Longitudinal) for 42" Table, Standard Torque X-Axis (Longitudinal) for 42" Table, High Torque X-Axis (Longitudinal) for 48" Table, Standard Torque X-Axis (Longitudinal) for 48" Table, High Torque Y-Axis (Cross Feed) Standard Torque	

Note: Contact Sales Department For Machines with NFPA.