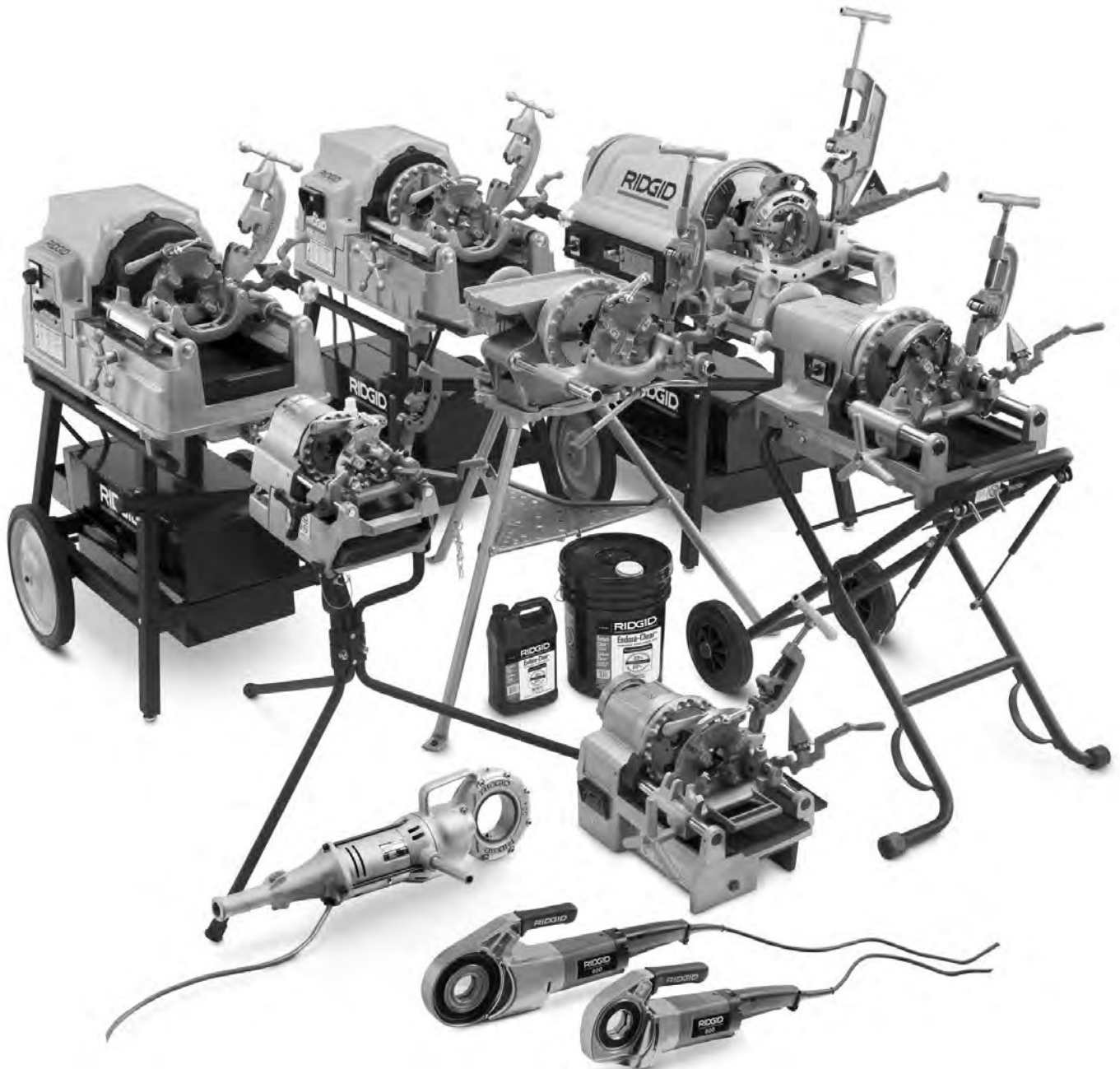


# Parts Catalog

January 2019



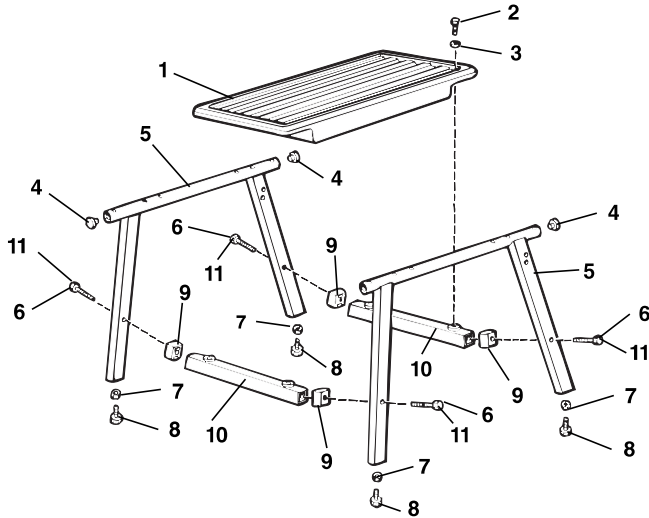
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For additional information contact the Ridge Tool Technical Service Department at 1-800-519-3456

**See Drain Cleaning and Diagnostic Equipment Parts Catalog for Pipe and Drain Cleaning Equipment Parts**

**No. 100A Leg and Tray Stand**

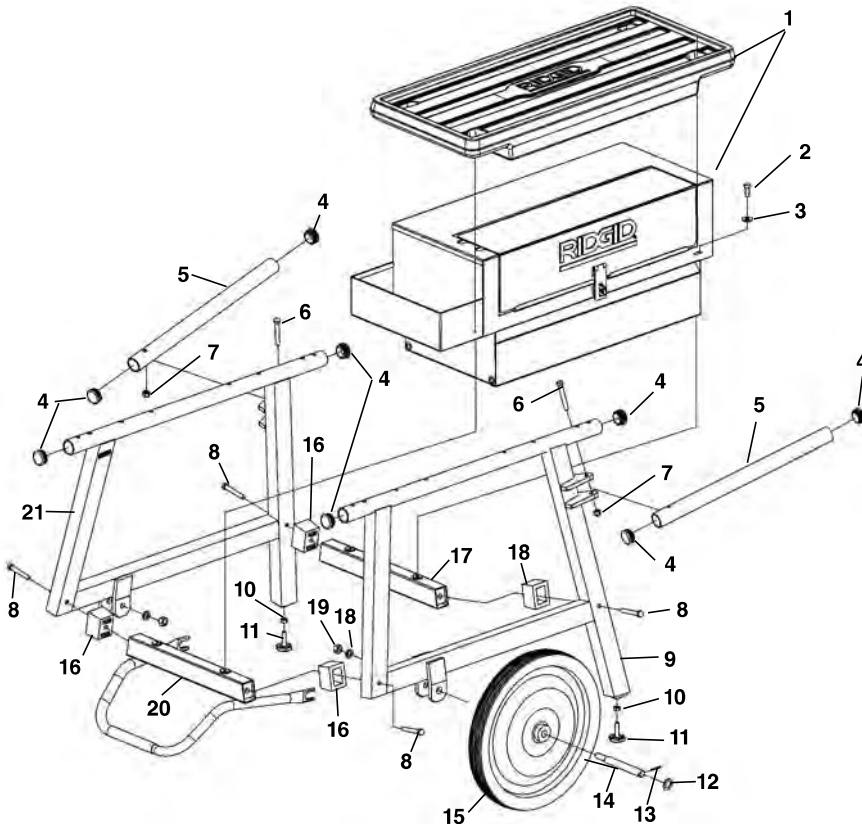


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	92457	Leg Stand Assembly
1	56872	Tray
2	80030	Hex Bolt $\frac{3}{8}$ " - 16 x 1" (4)
3	44230	Flat Washer $\frac{3}{8}$ " (4)
4	58037	End Cap (4)
5	58022	Leg (2)
6	58052	Hex Bolt $\frac{3}{8}$ " - 16 x 2 $\frac{1}{2}$ " (4)
7	44225	Hex Nut $\frac{3}{8}$ " - 16 (4)
8	58027	Leveling Pad (4)
9	58042	Spacer (4) - (1224 Machine Only)
10	58032	Cross Member (2)
11	58047	Hex Bolt $\frac{3}{8}$ " - 16 x 4" (4) (1224 & 535 Auto Machine Only)

**NOTE:  $\frac{3}{8}$ " - 16 x 4" Bolts and spacers used when mounting 1224 & 535 Auto machines.**

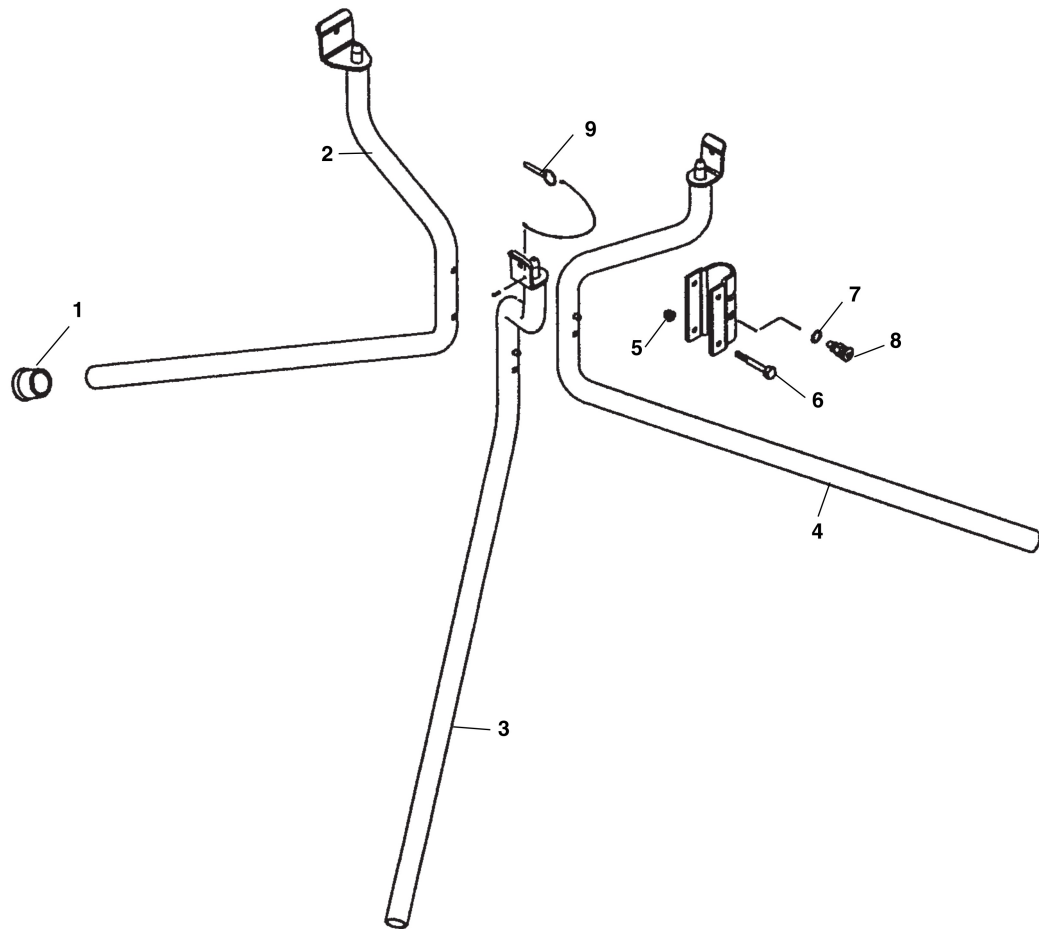
**No. 150A/200A Wheel and Tray Stands**



Ref. No.	Catalog No.	Description
—	92462	150A Wheel and Tray Assembly
—	92467	200A Wheel and Cabinet Assembly
1	56872	Tray
	22563	Cabinet
2	80030	Hex Bolt $\frac{3}{8}$ " - 16 x 1" (4)
3	44230	Flat Washer (4)
4	58037	End Cap (6)
5	58067	Handle (2) includes Ref. No. 6
	34843	Handle - Type 2 (2)
6	46675	Hex Bolt $\frac{3}{8}$ " - 16 x 2 $\frac{3}{4}$ " (2)
7	79985	Locknut $\frac{3}{8}$ " - 16 (2)
8	58052	Hex Bolt $\frac{3}{8}$ " - 16 x 2 $\frac{1}{2}$ " (4)
	58047	Hex Bolt $\frac{3}{8}$ " - 16 x 4" (4) (1224 & 535 Automatic Machine Only)
9	26788	Front Leg
10	44225	Hex Nut $\frac{3}{8}$ " - 16 (4)
11	58027	Leveling Pad
12	47180	Washer (2)
13	47030	Cotter Pin (2)
14	58072	Axle (2)
15	27442	Wheel (2)
16	58042	Spacer (4) (1224 & 535 Automatic Machines Only)
17	58032	Front Cross Member
18	84150	Lock Washer $\frac{1}{2}$ " (2)
19	44745	Locknut $\frac{1}{2}$ " (2)
20	26798	Rear Cross Member w/Stand Stop Assembly
21	26793	Rear Leg

**NOTE:  $\frac{3}{8}$ " - 16 x 4" bolts and spacers used when mounting 1224 & 535 Auto machines.**

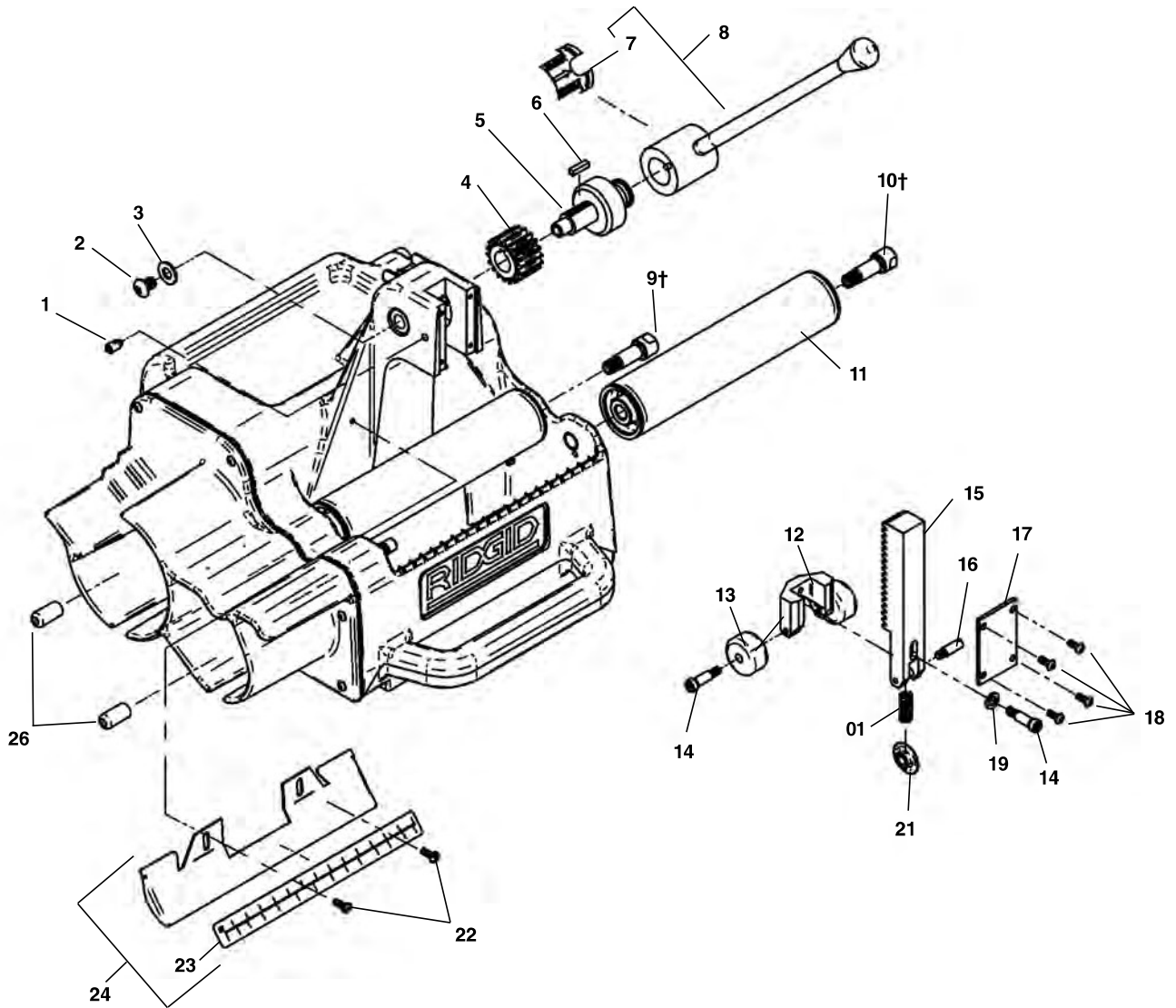
## 120 Stand



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
—	67822	120 Stand
1	37962	Rubber Foot (3)
2	72287	Rear Leg
3	72292	Left Front Leg
4	72297	Right Front Leg
5	83890	Lock Nut 1/4" - 20
6	44510	Screw 1/4" - 20 x 2" Socket Head
7	75695	Lock Washer 7/16" Internal
8	59510	Plunger Assembly (2)
9	51092	Hitch Pin

### Cutting Components

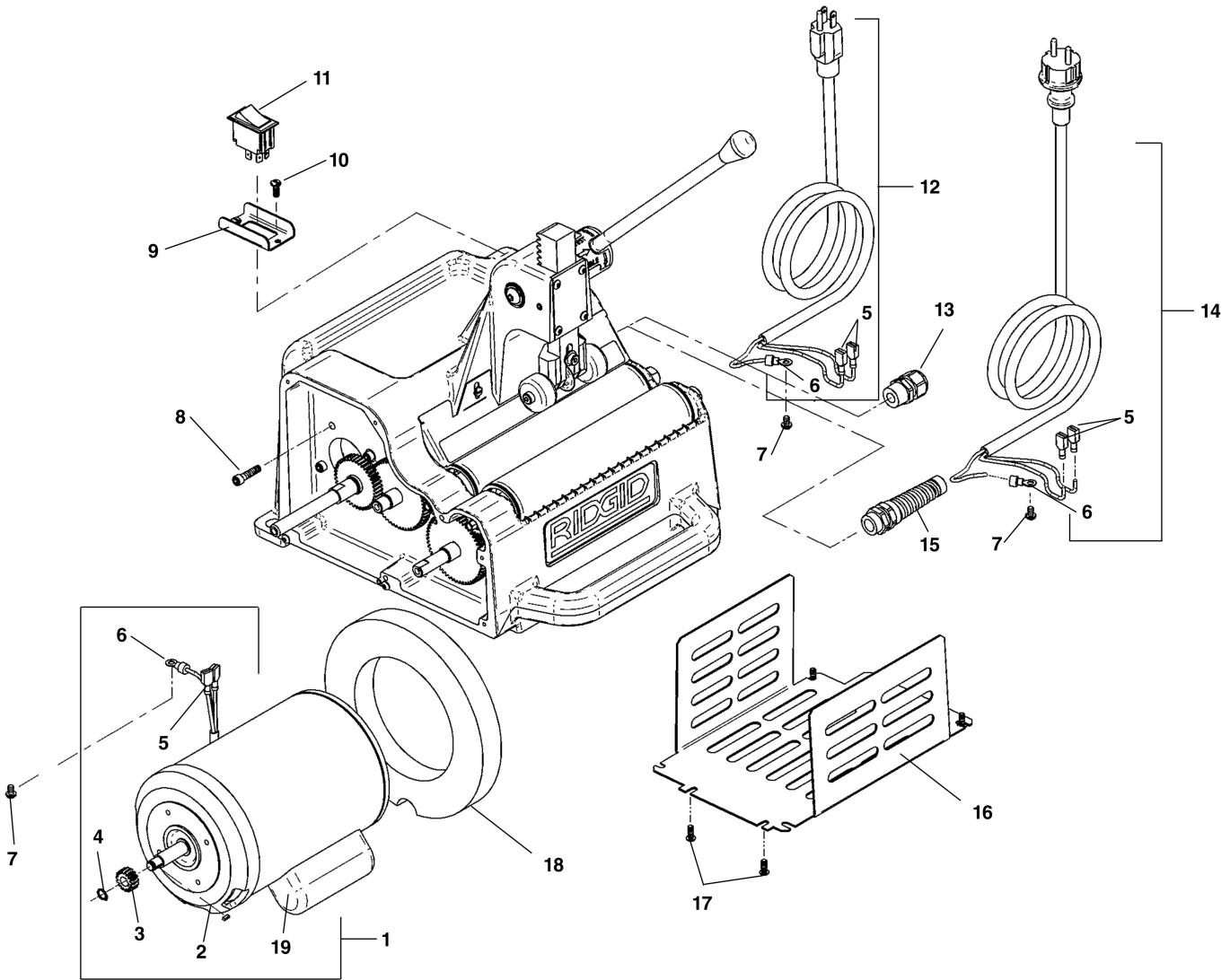


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	94877	Set Screw, Nylon 5/16" - 18 x 1/2"	15	94937	Arbor
2	96915	Screw, Button Head 3/8" - 16 x 1/2"	16	34360	Screw f/Cutter Wheel
3	26307	Washer	10343	10343	Screw f/Cutter Wheel (SS)
4	94882	Gear, Arbor	17	94947	Cover
5	94887	Shaft, Arbor	18	94752	Screw, Phillips #10 - 24 x 3/4" (4)
6	94892	Key, Square 3/16" x 3/4"	19	94952	Washer
7	14393	Indexing Label	20	94942	Spring
8	94897	Handle, Feed	21	33175	Cutter Wheel, E-2191
9†	94907	Shaft, L.H. Thread	33551	33551	Cutter Wheel (SS)
10†	94912	Shaft, L.H. Thread	22	45275	Screw (2)
11	94902	Roller Assembly (2)	23	10393	Scale
12	94932	Slide	24	10388	Roller Guard
13	94927	Roller (2)	25	10573	Plastic Cap (2) (Europe Only)
14	94922	Screw, Shoulder 5/16" x 3/4" (3)			

Service Note: † Left Hand Thread

Electrical



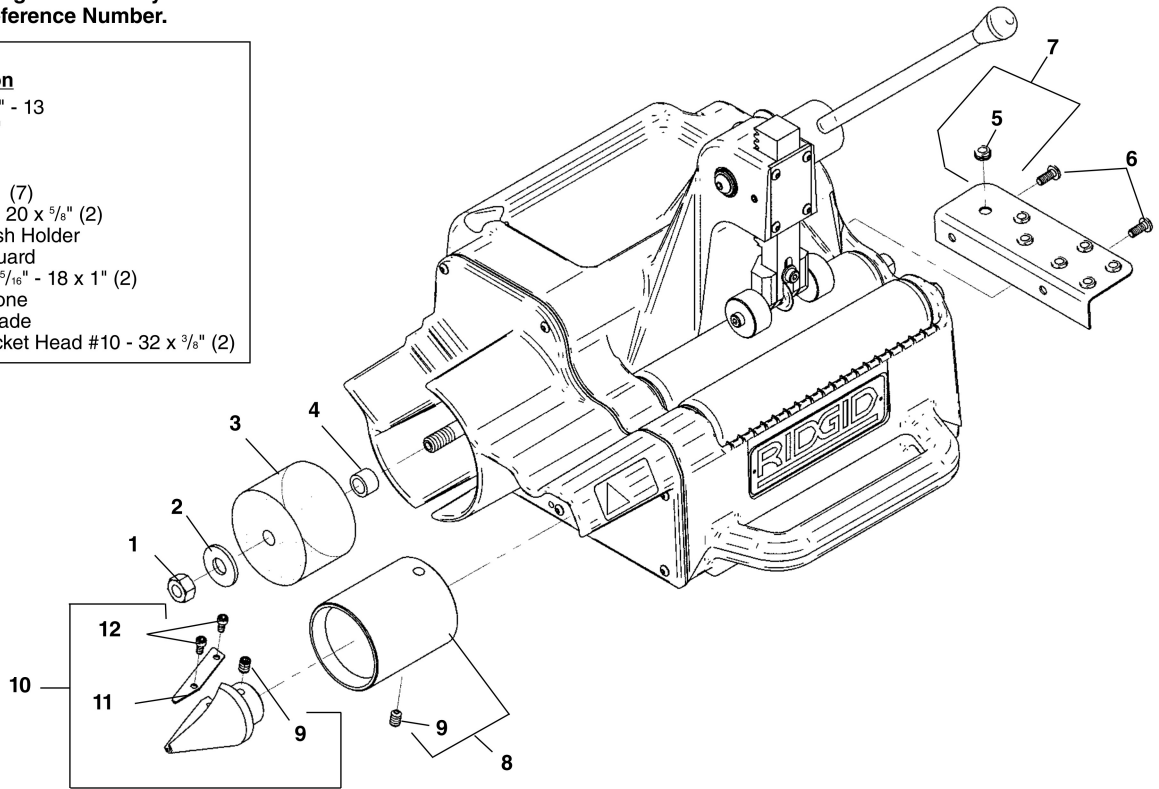
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	94842	Motor, 1/3 H.P. - 115V	10	45275	Screw (2)
	10403	Motor 220V 50Hz (Europe)	11	58597	Switch, DPST
	31143	Motor 100V	12	69327	Line Cord 115V
2	94787	Key, Square 3/32" x 1/4"	13	69107	Strain Relief
3	94847	Gear	14	39562	Line Cord 220V 50Hz (Europe)
4	94822	Retaining Ring	15	27187	Strain Relief (Europe)
5	89190	Female Disconnect (4)	16	94862	Motor Cover
6	58587	Terminal Ring (2)	17	94752	Screw, Phillips #10 - 24 x 3/4" (4)
7	45420	Ground Screw #10 - 24 x 3/8" (2)	18	94667	Motor Baffle
8	83685	Screw, Socket Head 1/4" - 20 (4)	19	20348	Motor Capacitor
9	10408	Switch Guard			

### Prep Components

NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

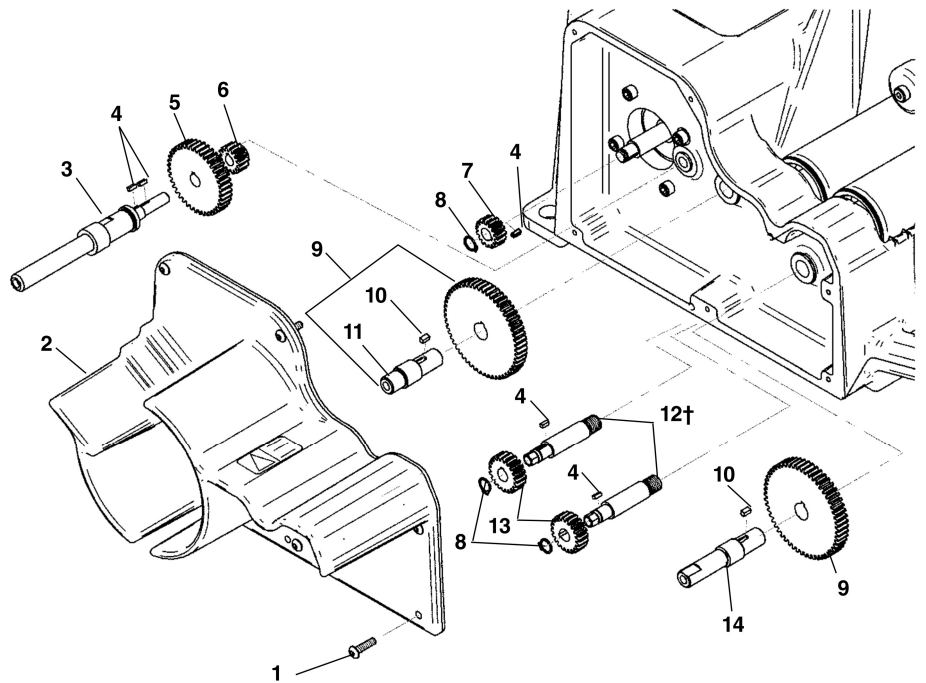
Ref. No.	Catalog No.	Description
1	94662	Hex Nut 1/2" - 13
2	83420	Washer 1/2"
3	94682	Brush
4	94672	Spacer
5	94957	Grommet (7)
6	38940	Screw 1/4" - 20 x 5/8" (2)
7	93712	Fitting Brush Holder
8	94747	Reamer Guard
9	46080	Set Screw 5/16" - 18 x 1" (2)
10	94687	Reamer Cone
11	94692	Reamer Blade
12	46180	Screw, Socket Head #10 - 32 x 3/8" (2)



### Gearbox

Ref. No.	Catalog No.	Description
1	94752	Screw, Phillips #10-24 x 3/4" (10)
2	94647	Gear Cover
3	94782	Brush, Shaft
4	94787	Key, Square 3/32" x 1/4" (4)
5	94792	Gear, Brush
6	94797	Gear, Reduction
7	94847	Gear, Motor
8	94822	Retaining Ring (3)
9	34833	Gear, Reamer (2)
10	94807	Key, Square 1/8" x 1/4"
11	94802	Shaft
12†	94832	Shaft, Stub, Driven L.H. Thread (2)
13	94827	Gear, Roller (2)
14	94817	Shaft, Reamer

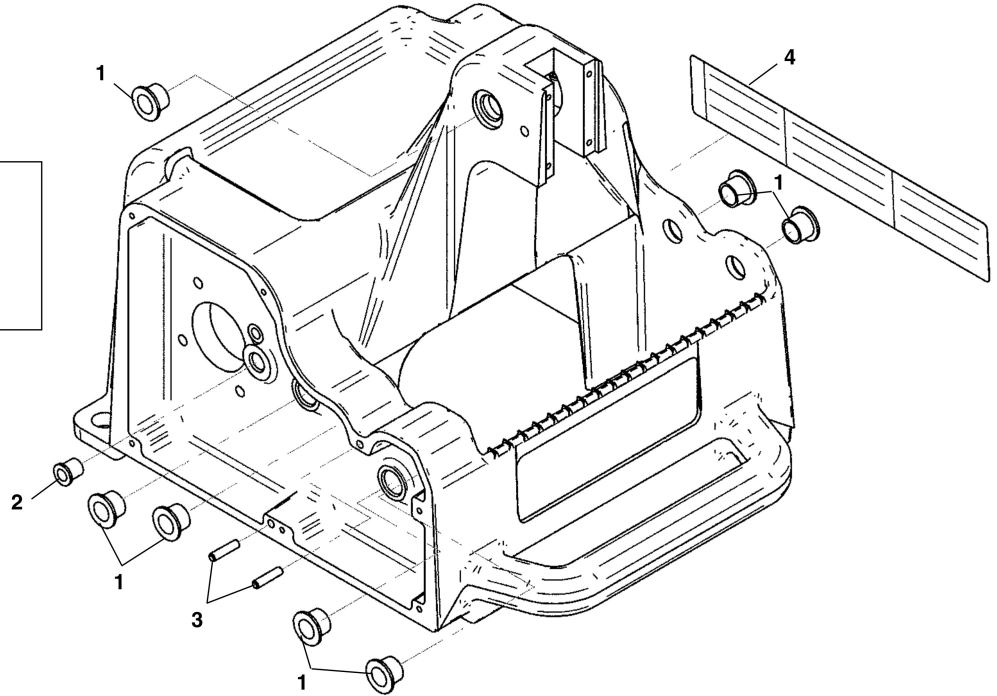
Service Note: † Left Hand Thread



### Body

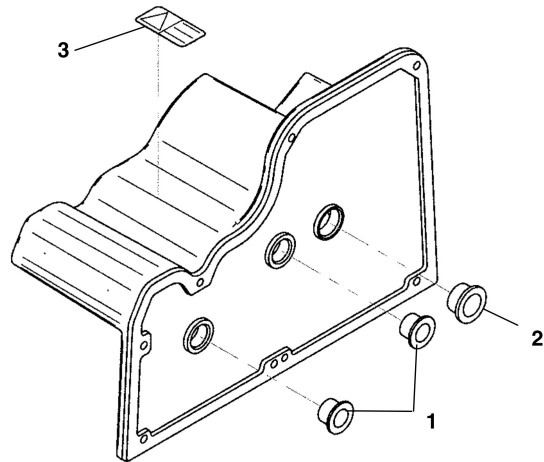
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	94637	Frame Assembly
1	94642	Bearing, Flange (7)
2	94657	Bearing, Flange
3	45165	Dowel Pin (2)
4	95392	Label, Warning



### Gear Cover

Ref. No.	Catalog No.	Description
—	94647	Gear Cover
1	94642	Bearing, Flange (2)
2	94652	Bearing, Flange
3	94867	Label, Warning

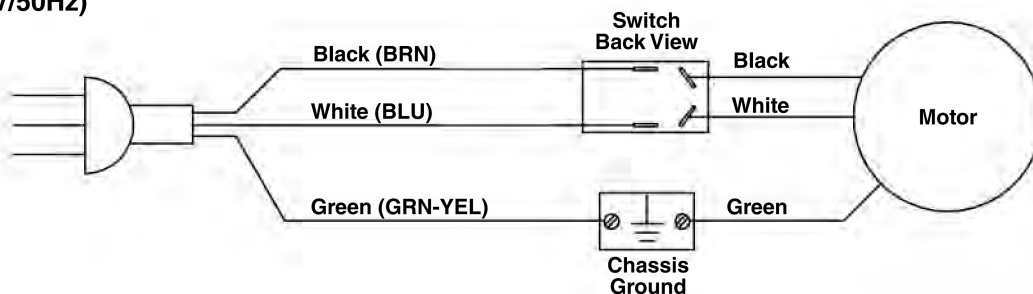


### Wiring Diagram - Variations

115V – 60Hz

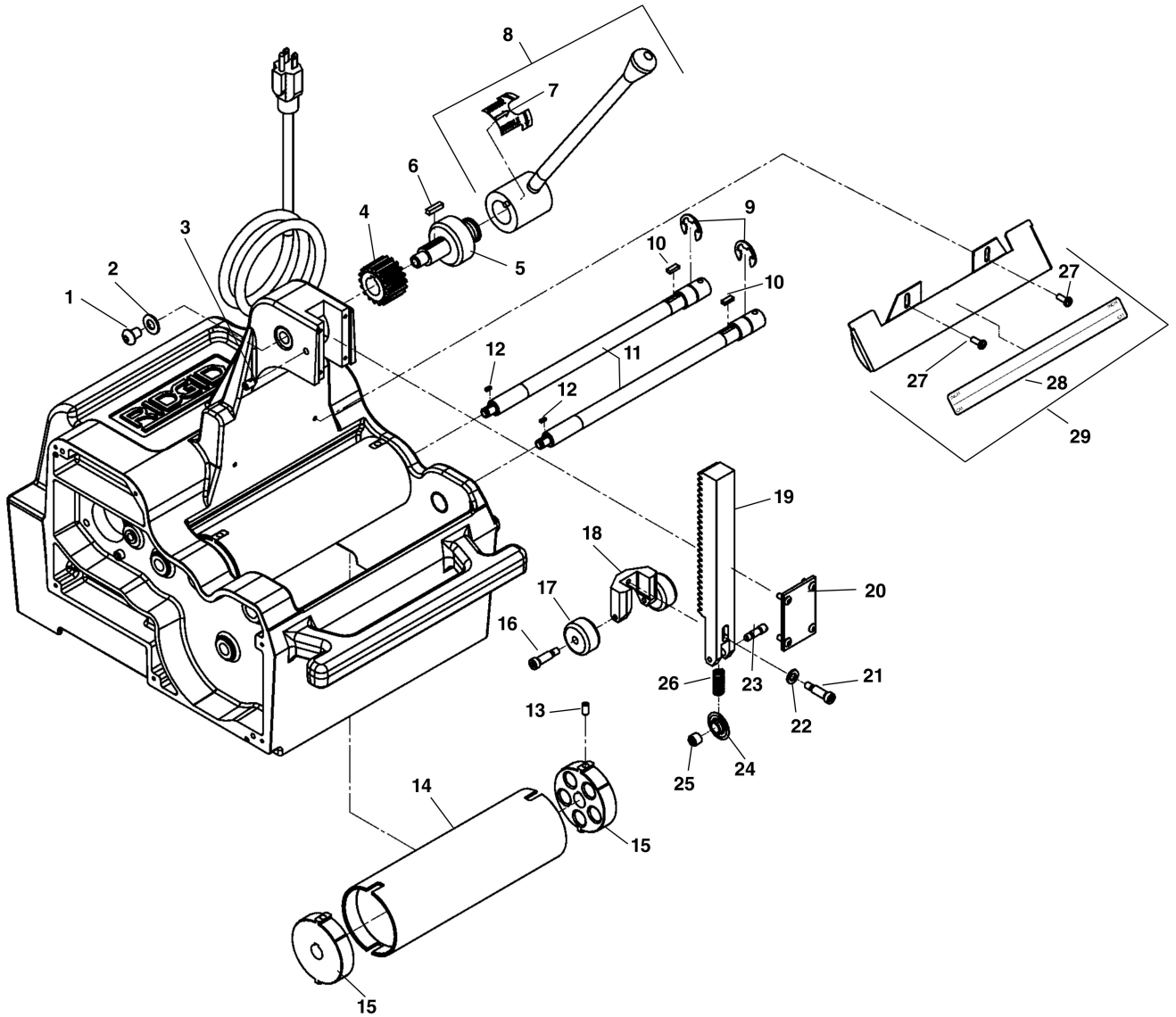
100V – 50/60Hz

(220 – 240V/50Hz)





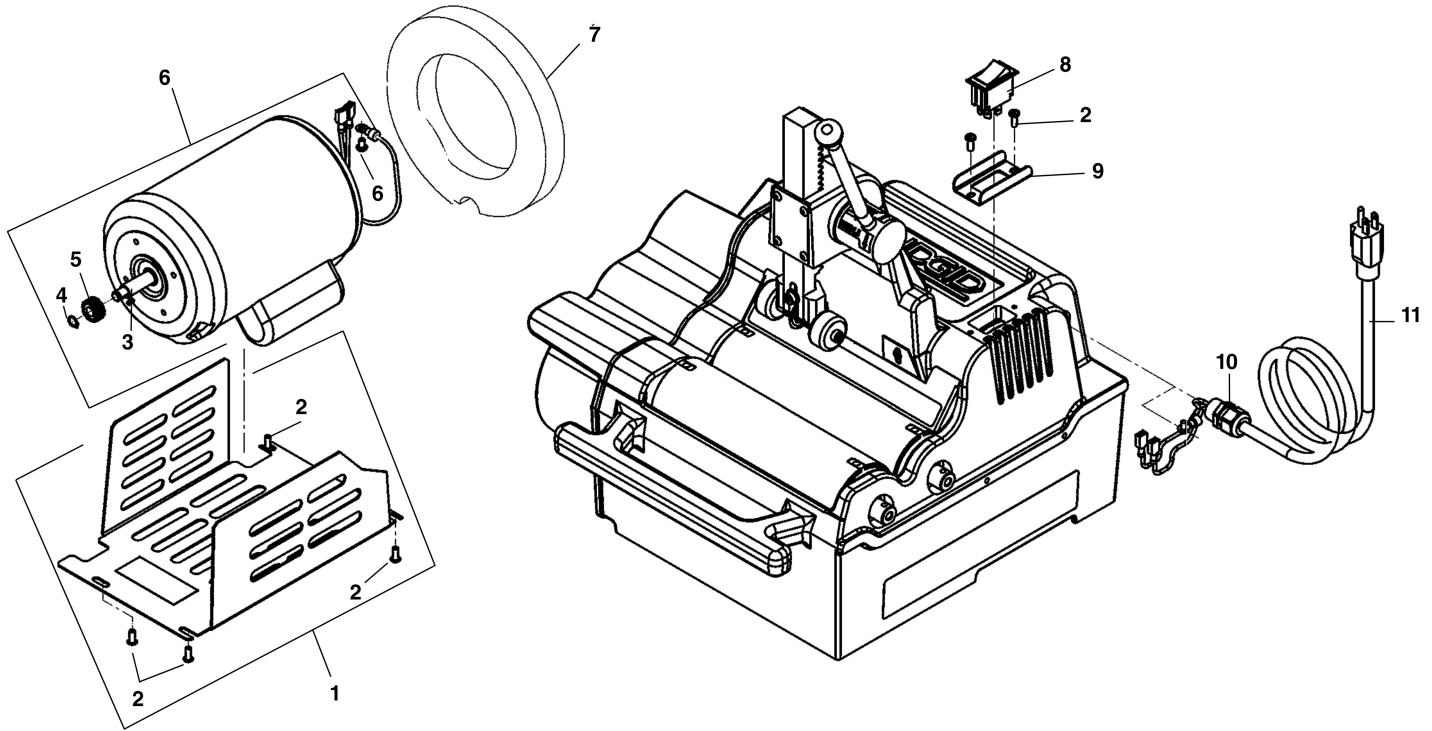
**Main Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	96915	Screw, Button Head 3/8" - 16 x 1/2"	16	94922	Shoulder Screw 5/16" x 3/4"
2	26307	Washer	17	94927	Roller, Cutter Wheel
3	94877	Screw, Nylon 5/16" - 18 x 1/2"	18	94932	Slide
4	94882	Gear, Arbor	19	13163	Arbor
5	94887	Shaft, Arbor	20	94947	Cover
6	94892	Key, Square 3/16" x 3/4"	21	94922	Shoulder Screw 5/16" x 3/4"
7	14393	Indexing Handle Decal	22	94952	Washer
8	94897	Handle, Feed	23	10343	Stainless Steel Wheel Screw
9	58850	Retaining Ring	24	33551	Cutter Wheel
10	13153	Key 1/8" x 3/16" x 3/4"	25	13193	Bearing, Cutter Wheel
11	14208	Roller Shaft (2)	26	94942	Spring
12	94787	Key 3/32" x 1/4"	27	45275	Screw (2)
13	34892	Screw 1/4" - 20	28	10393	Scale
14	13143	Roller Tube 3" (2)	29	10388	Roller Guard
15	13148	Roller End Cap			

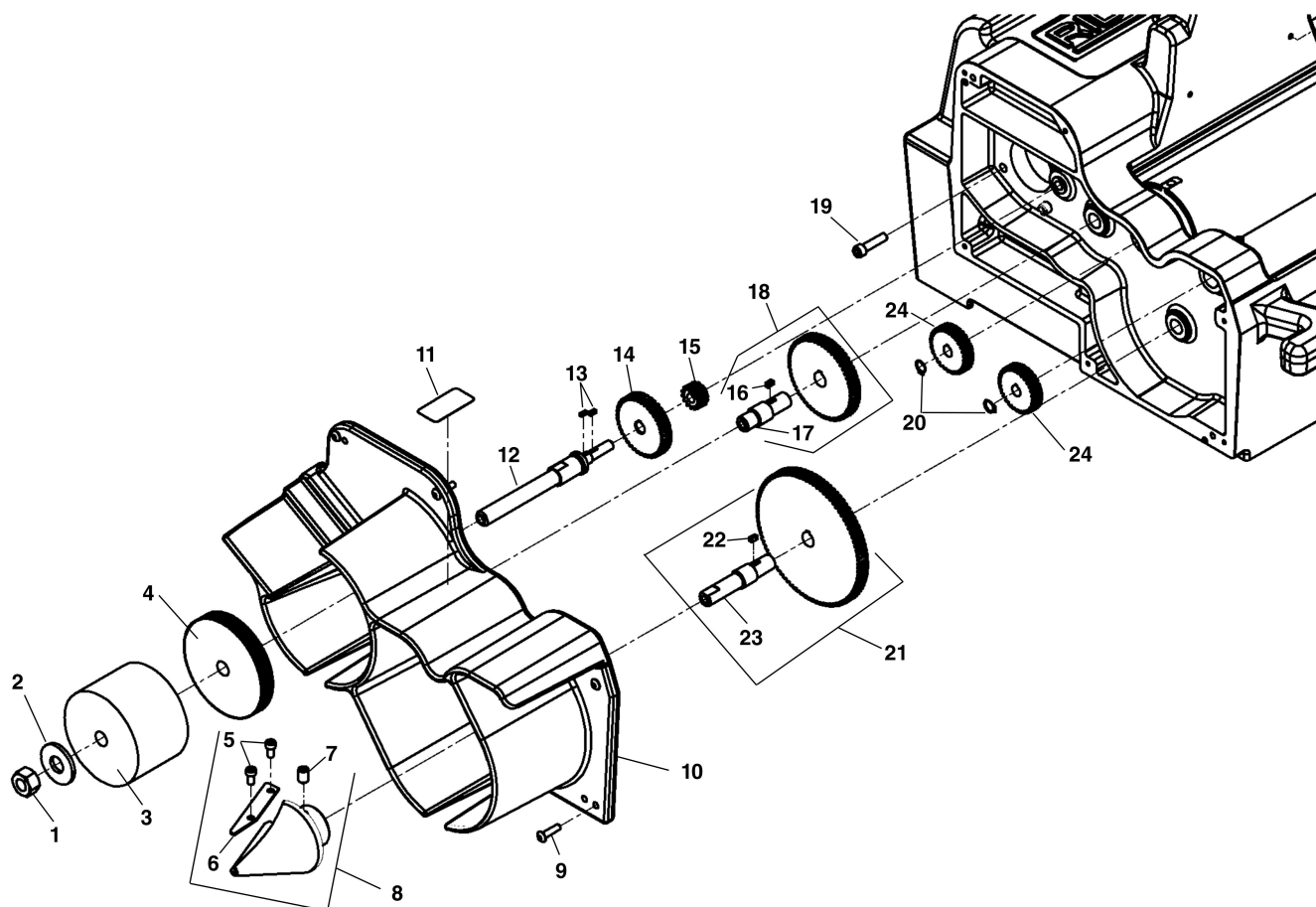
## Electrical



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	13168	Motor Cover (Inc. Ref. 2)
2	94752	Screw 10 - 24
3	94787	Key $\frac{3}{32}$ " x $\frac{1}{4}$ "
4	94822	Retaining Ring
5	94847	Pinion Gear
6	94842	Motor 1/3 Hp 115V
7	94667	Motor Baffle
8	58597	Switch
9	10408	Switch Guard
10	69107	Strain Relief
11	69327	Power Cord 115V
—	20348	Motor Capacitor

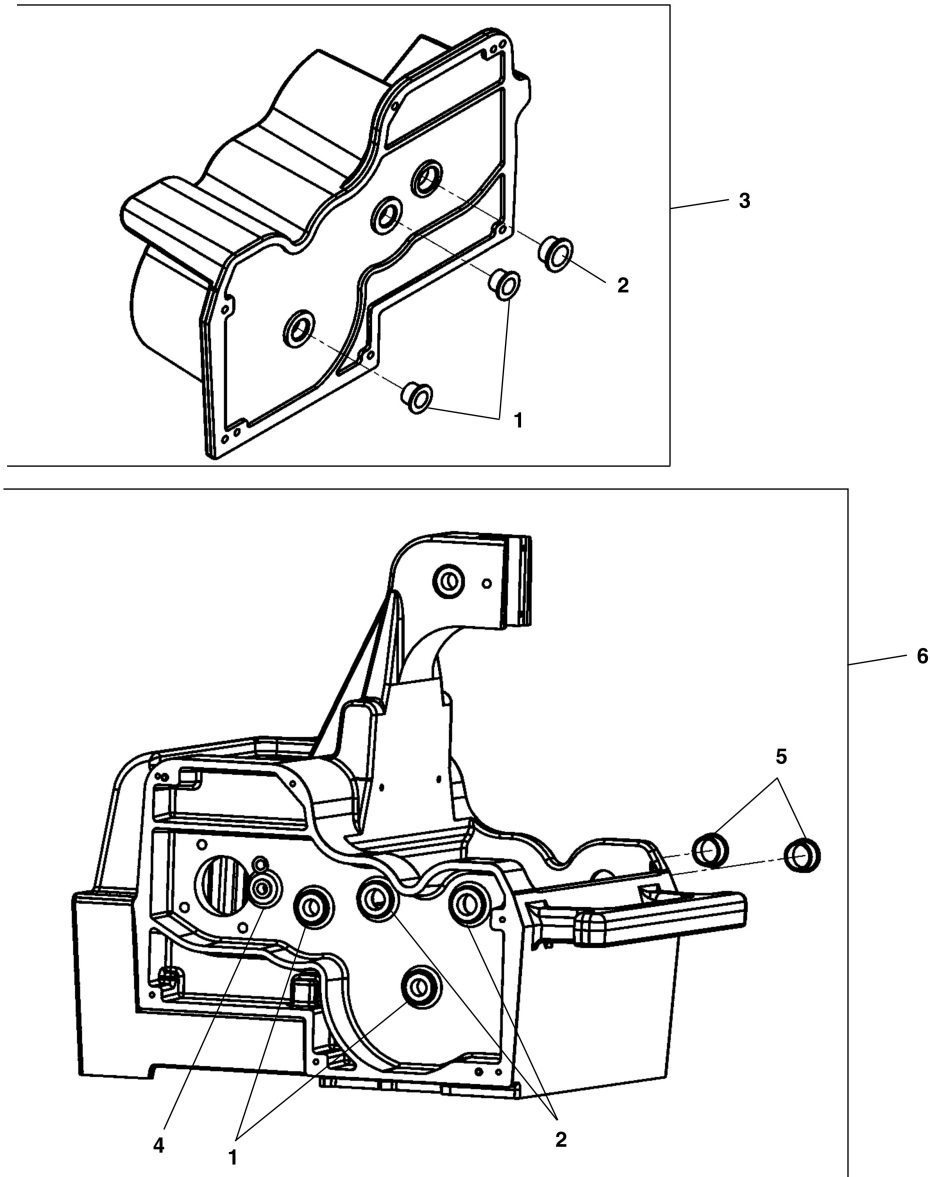
**Gearbox**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	94662	Hex Nut	13	94787	Key $\frac{3}{32}$ " x $\frac{1}{4}$ " (4)
2	83420	Washer	14	94792	Gear Brush
3	42295	External Brush	15	94797	Gear Reduction
4	46105	Deburring Disc	16	94807	Key $\frac{1}{8}$ " x $\frac{1}{4}$ "
5	46180	Screw 10" - 32 x $\frac{3}{8}$ "	17	94802	Shaft
6	94692	Reamer Blade	18	34833	Gear, Reamer
7	46080	Set Screw $\frac{5}{16}$ " - 18 x 1"	19	95530	Screw $\frac{1}{4}$ " - 20 x 1
8	94687	Reamer Cone Assembly	20	94822	Retaining Ring (3)
9	94752	Screw 10" - 24 x $\frac{3}{4}$ "	21	34838	Reamer Gear 4"
10	13183	Gear Cover w/Shelf	22	94807	Key $\frac{1}{8}$ " x $\frac{1}{4}$ "
11	94867	Warning Decal Reamer	23	94817	Shaft Reamer
12	94782	Shaft, Brush	24	13173	Roller Gear

## Gear Cover

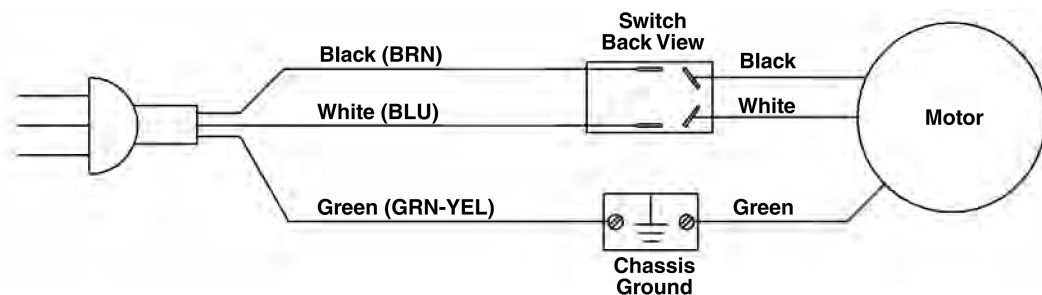


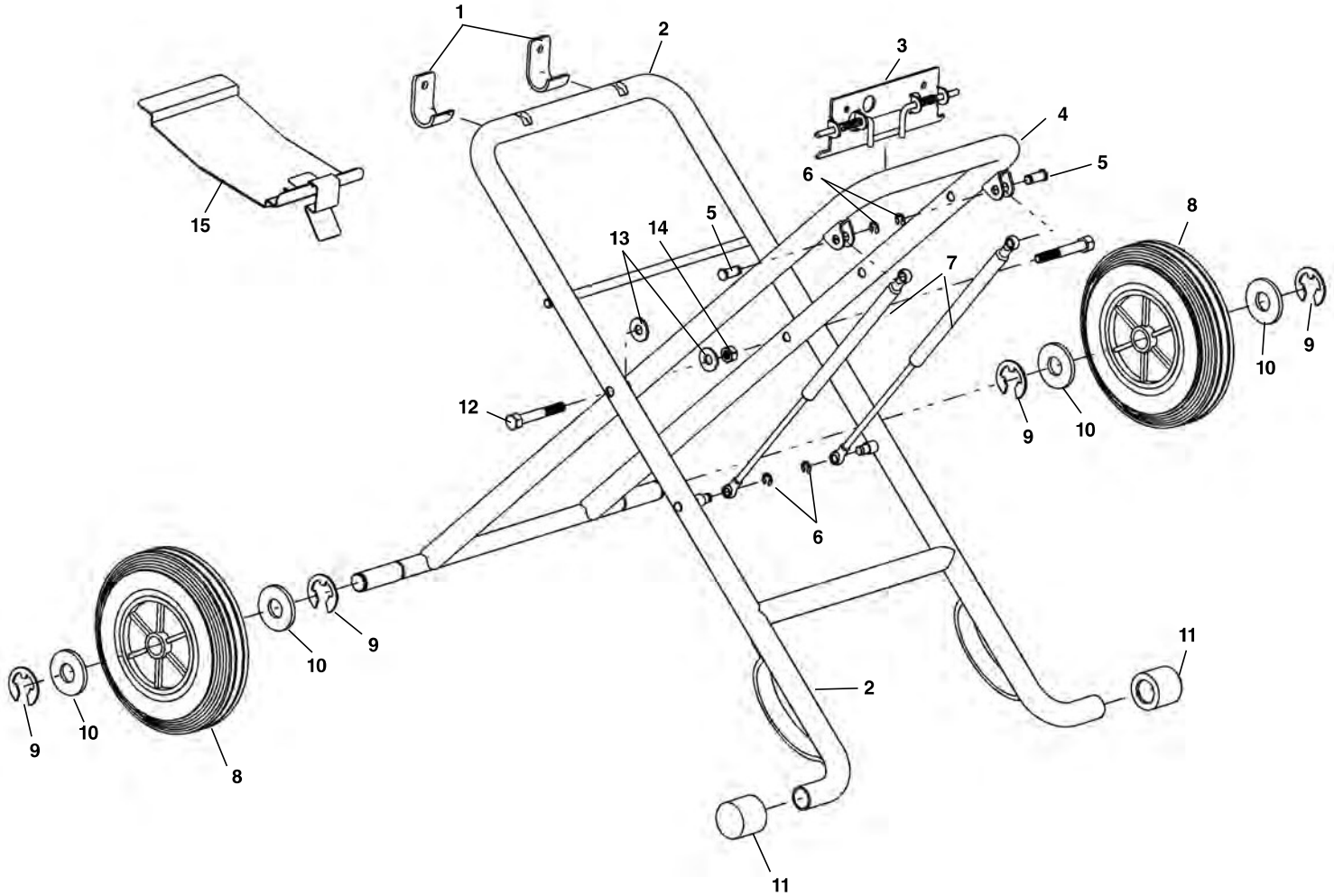
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	94642	Flange 1/2" x 5/8" x 1/2" (7)
2	94652	Flange 5/8" x 3/4" x 1/2" (3)
3	13183	Gear Cover w/Shelf
4	94657	Flange 5/16" x 7/16" x 1/2"
5	14143	Flange 3/4" x 7/8" x 1/2"
6	13138	122XL Frame (Inc. Ref. 1,2,4,5)

## Wiring Diagram

115V – 60Hz  
100V – 50/60Hz  
(220 – 240V/50Hz)

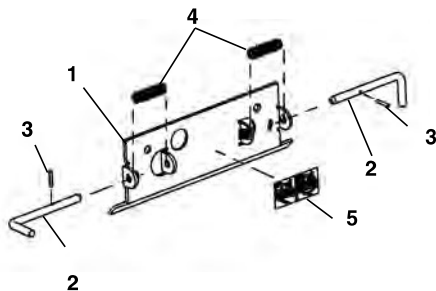




**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	58077	250 Folding Stand	7	48126	Gas Strut (2)
—	67657	250 Folding Stand (North America)	8	43846	Wheel (2)
1	43796	Rear Bracket (2)	9	43856	Retaining Ring (4)
2	43866	Outer Leg Assembly	10	43936	Washer (4)
	70812	Outer Leg Assembly (North America)	11	23607	End Cap (2)
3	70817	Front Bracket Assembly	12	43836	Bolt (2)
4	43906	Inner Leg Assembly	13	43886	Washer (4)
5	43946	Pin (2)	14	43896	Locking Nut M12 (2)
6	48146	Retaining Ring (4)	15	67787	Pressure Plate Assembly (North America)

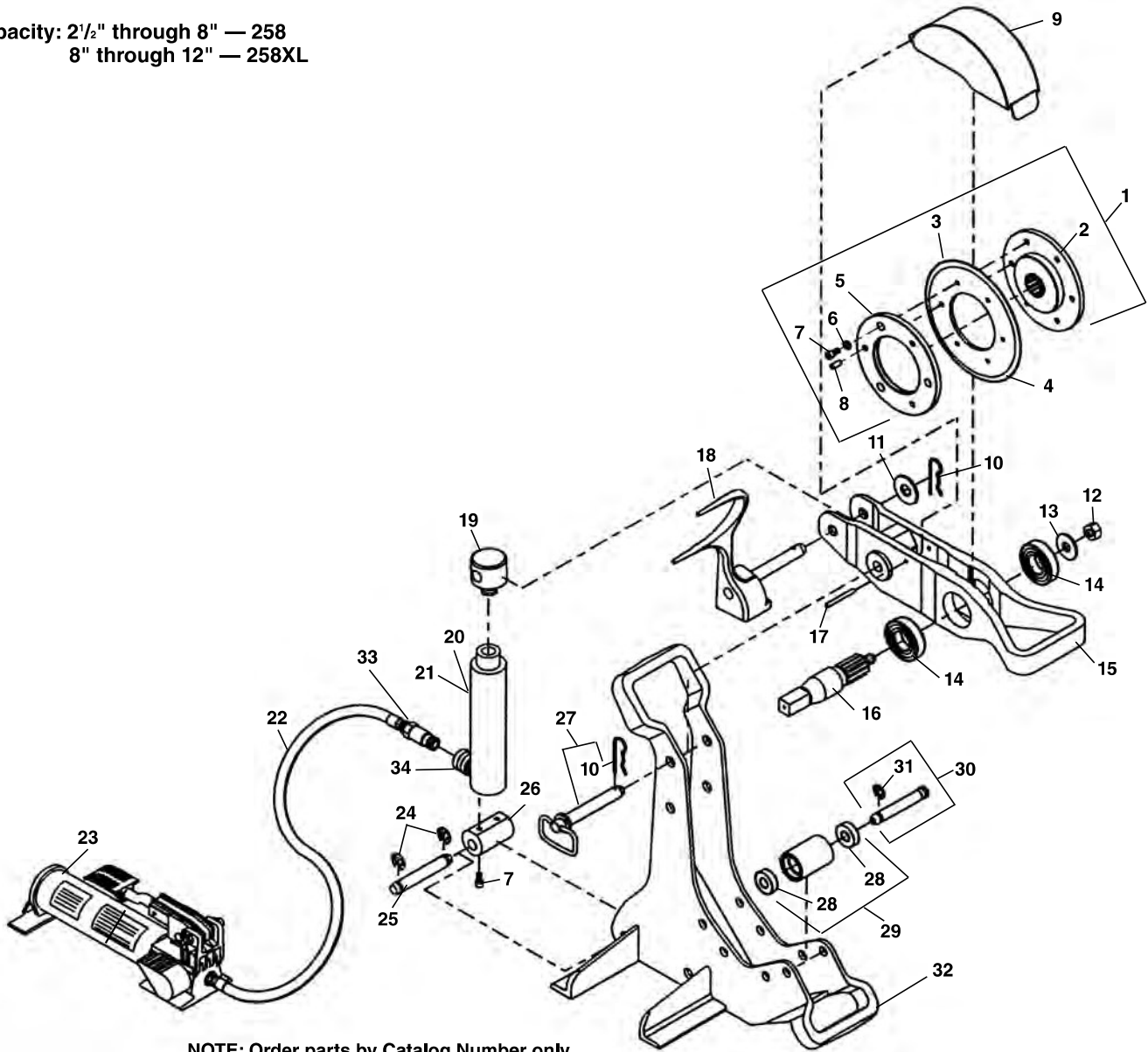
### Front Bracket Assembly



Ref. No.	Catalog No.	Description
—	70817	Front Bracket Assembly
1	43806	Front Bracket
2	43816	Latch Handle (2)
3	43826	Roll Pin (2)
4	43926	Spring (2)
5	43916	Warning Decal

## Frame

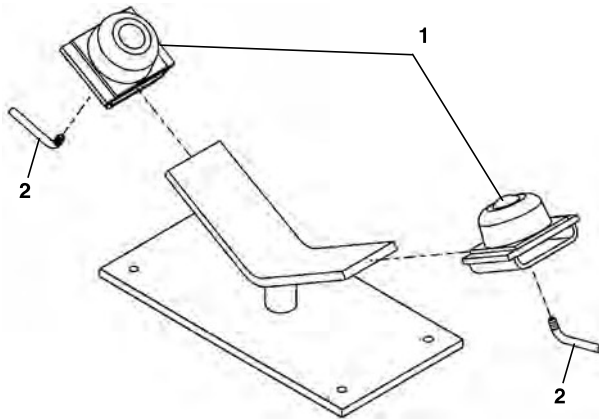
Capacity: 2½" through 8" — 258  
8" through 12" — 258XL



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	50767	258 Pipe Cutter	18	50882	Reaction Arm (258)
—	58227	258XL Pipe Cutter	18	58887	Reaction Arm (258XL)
1	66687	Cutter Wheel Assy. Std. Includes Ref. Nos. 2,3,5,6,7,8	19	50877	Top Clevis
2	50782	Hub w/Pins	20	59517	10 Ton Hyd. Cylinder
3	50812	Cutter Wheel Std.	21	62557	Repair Kit f/Cylinder
4	58222	Cutter Wheel – Thin	22	59507	Hydraulic Hose
5	50792	Cover Plate	23	59512	HF-32 Foot Pump Incl. Ref. No. 22
6	40770	Lock Washer 5/16" (5)	24	58850	E-Clip (2)
7	50997	Screw 5/16" x 3/4" (5)	25	54327	Bottom Clevis Pin
8	50787	Pins (3)	26	50867	Bottom Clevis
9	50777	Guard	27	50847	Hitch Pin w/Hairpin (258 Only)
10	50852	Hairpin Cotter (2)	28	44565	Ball Bearing (8)
11	60995	Flat Washer 3/4" (258XL Only)	29	50837	Roller
12	50797	Locking Nut	30	54887	Roller Pin (4)
13	41220	Flat Washer 5/8"	31	42580	E-Clips (8)
14	50802	Ball Bearing (2)	32	50842	Frame (258)
15	50807	Pivot Arm	32	58882	Frame (258XL)
16	50827	Drive Shaft	33	62552	Hose Half Coupler
17	27052	Roll Pin 1/4" x 2 3/8"	34	62547	Ram Half Coupler

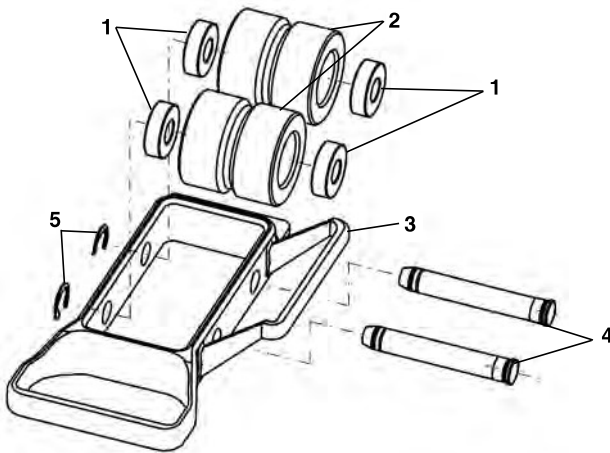
### Pipe Support Assembly



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

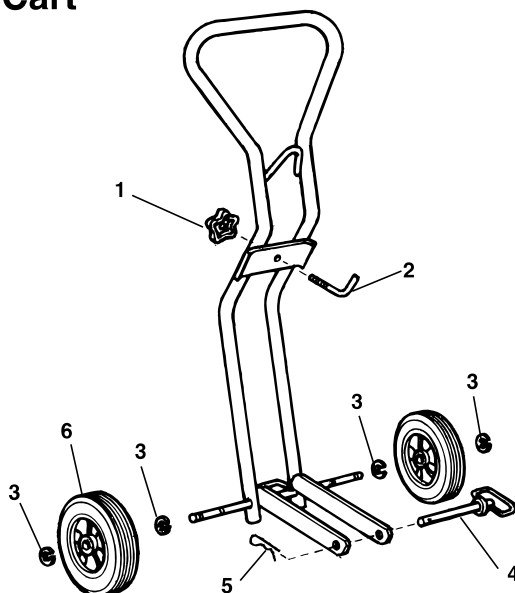
Ref. No.	Catalog No.	Description
—	60002	Pipe Support Assembly
1	60007	Ball Transfer Head Set (Includes Ref. No. 2)
2	60012	Locking Rod

### Pipe Roller Attachment



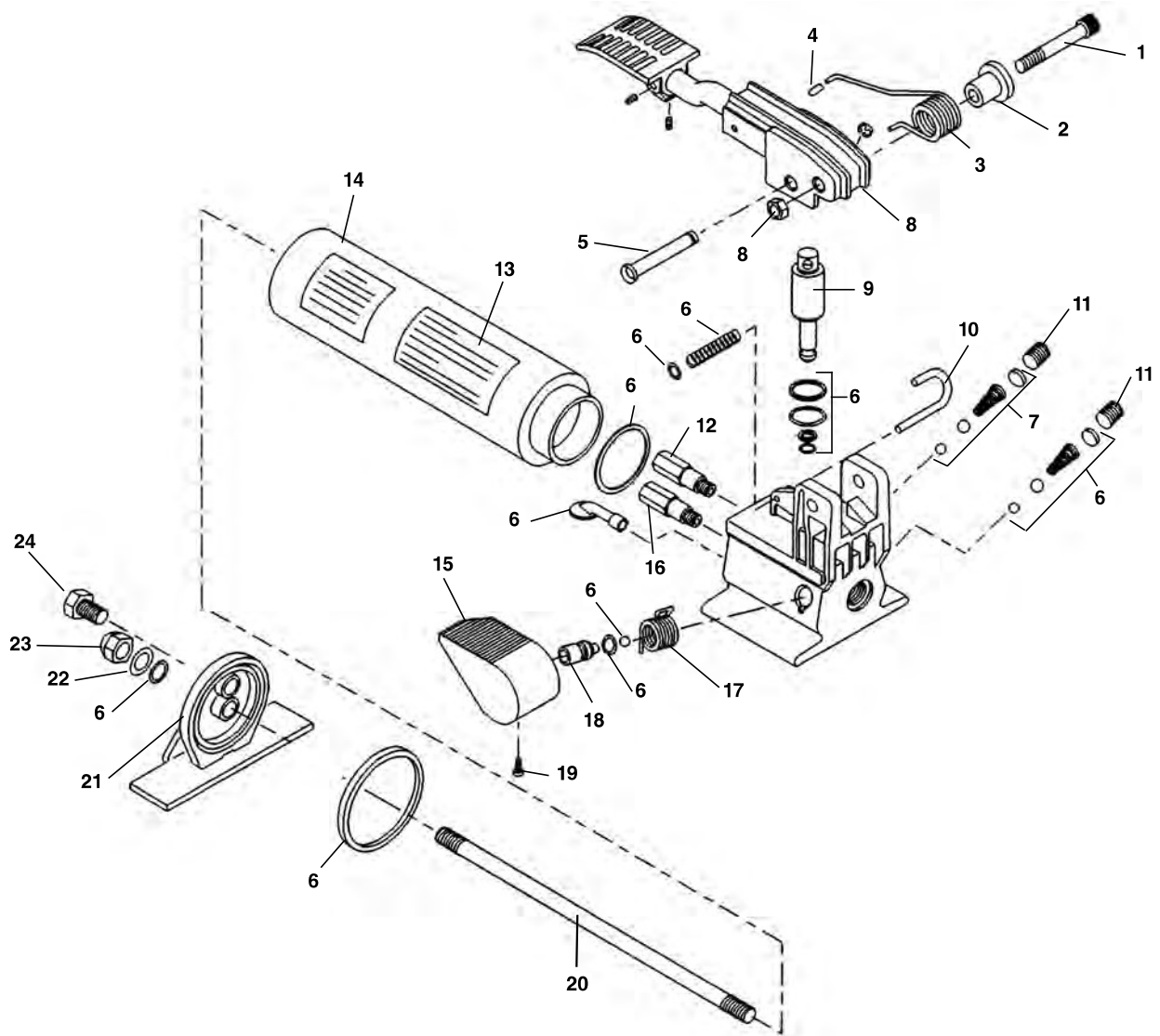
Ref. No.	Catalog No.	Description
—	61757	Pipe Roller Attachment
1	44565	Ball Bearing (4)
2	62447	Roller (2)
3	62452	Frame – Pipe Roller
4	54887	Roller Pin w/Clip (2)
5	42580	Pkg. of 5 E-Clips

### Transport Cart



Ref. No.	Catalog No.	Description
—	54397	Transport Cart
1	54897	Knob
2	62642	Latch Bolt
3	42580	Pkg. of 5 E-Clips
4	50847	Hitch Pin w/Hairpin
5	50852	Hairpin Cotter
6	93325	Wheel (2)

Hydraulic Foot Pump, HF 32

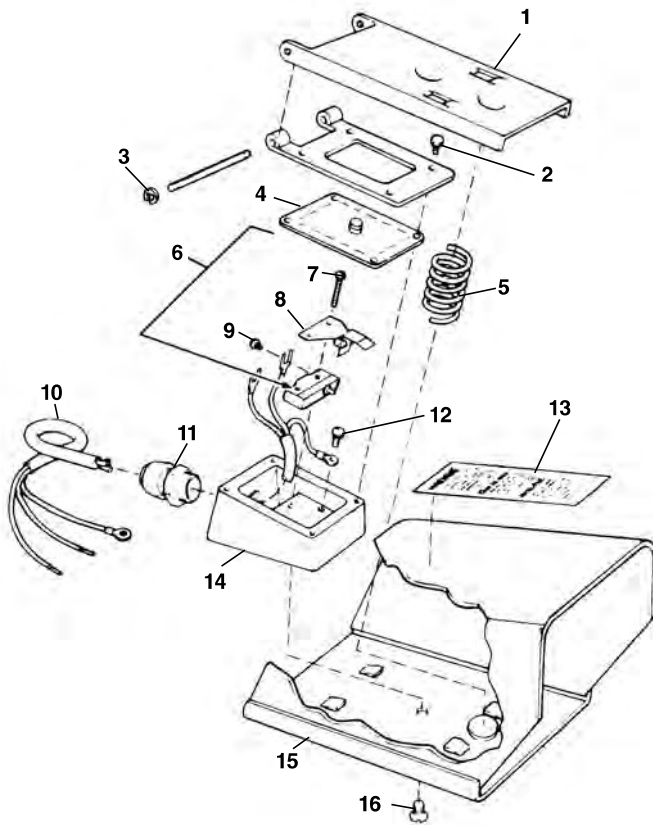


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	59512	HF32 Foot Pump	13	62572	Decal, HF32 Instruction
1	63767	Socket Head Capscrew	14	63687	Reservoir
2	63777	Spacer	15	63727	Release Foot Pedal
3	63772	Torsion Spring	16	63757	Relief Valve Assembly
4	63787	Cap	17	63722	Release Spring
5	63762	Cross Pin w/Ret. Ring	18	63737	Valve Spindle
6	63657	HF32 Repair Kit	19	63732	Screw
7	63782	Hex Nut	20	63692	Tie Rod
8	63812	Foot Pedal	21	63702	Reservoir Support
9	63817	Plunger Assembly	22	63717	Pkg. of 2 Washers
10	63747	Locking Pin	23	63707	Acorn Nut
11	63742	Pipe Plug	24	63712	Plug
12	63752	By-Pass Valve			



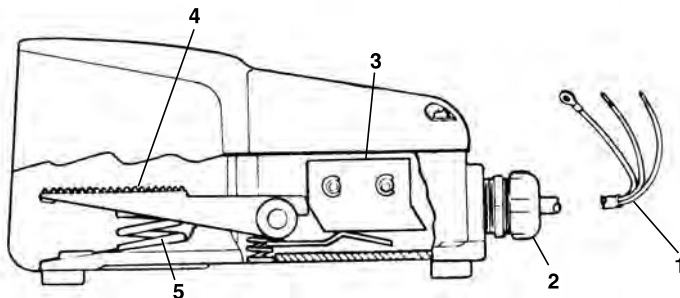
**B-293**  
**B-436**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

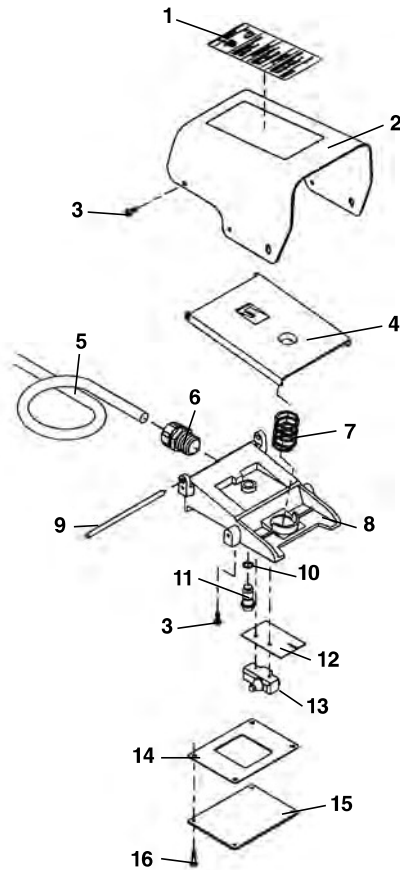
Ref. No.	Catalog No.	Description
1	83565	C-546 Foot Pedal
2	83625	E-3084 Screw (4)
3	78780	E-3562 Ret. Ring (2)
4	83590	E-3050 Diaphragm w/Gasket
5	83615	E-3051 Spring
7	83585	E-2988X Micro Switch
8	83595	E-3060 Screw (2)
9	83575	E-3031 Actuator Assembly
10	46310	Screw #6 - 32 x 3/16" (2)
11	68880	D-620 Cord (B-293)
	83605	D-1297 Cord (B-436)
12	68885	E-1511 Cord Connector (B-293)
	36732	E-2668 Cord Connector (B-436)
13	45420	E-3467 Screw
14	85940	E-2220 Warning Label (B-293) E-3173 Warning Label (B-436)
15	85935	C-532 Housing
16	83560	B-345 Housing Cover
17	83610	E-3095 Screw

**E-2497**  
**301**



Ref. No.	Catalog No.	Description
1	68880	D-620 Cord (E-2497)
	83600	D-1221 Cord (301)
2	68885	E-1511 Connector (E-2497)
	85565	E-2668 Connector (301)
3	83940	E-2900 Micro Switch
4	83945	E-2901 Treadle
5	83950	E-3349 Spring

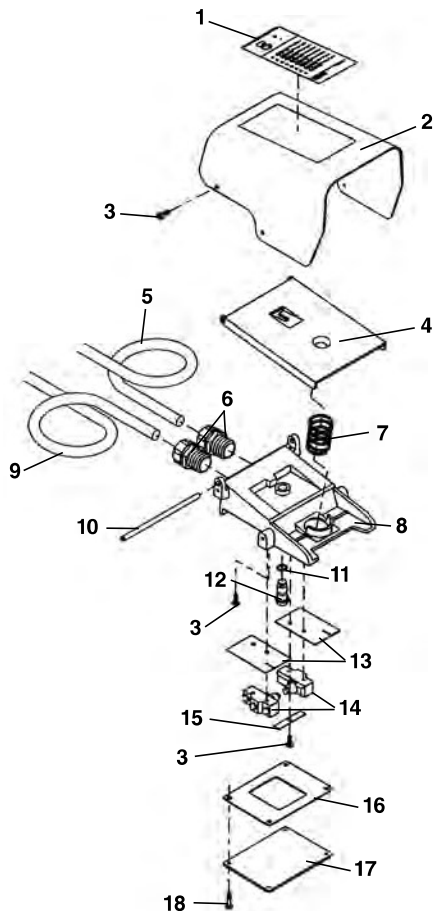
**B-294  
B-295  
301-A  
B-294 HD**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

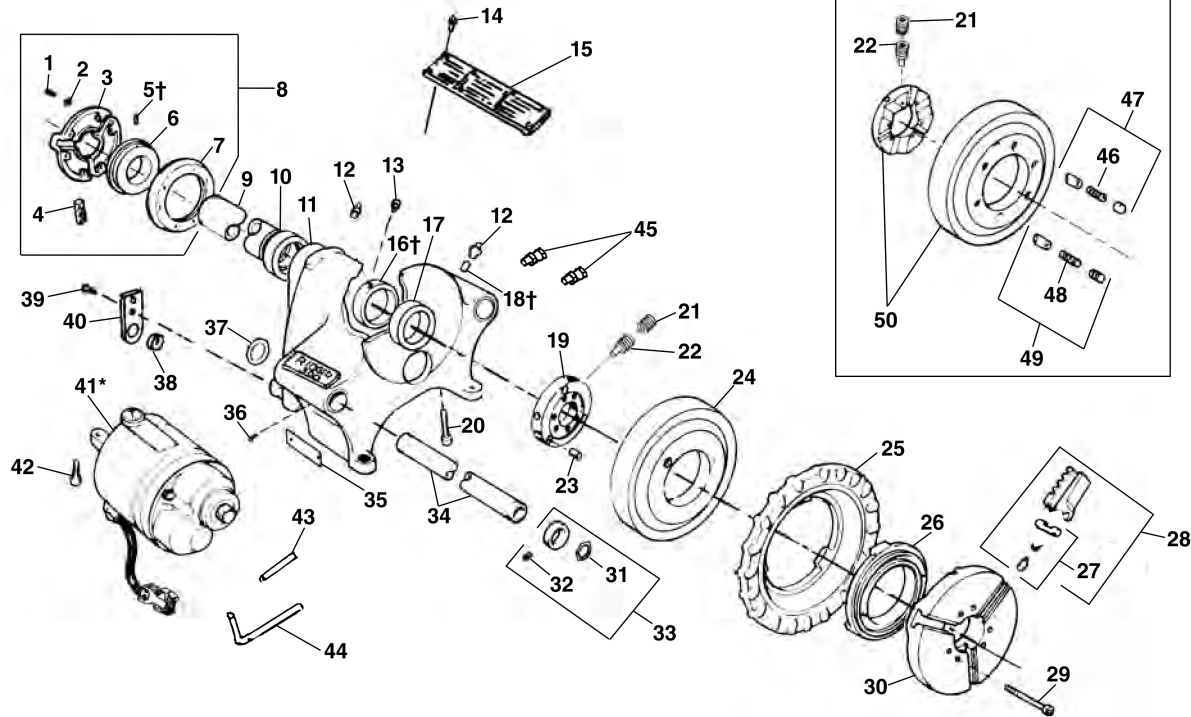
Ref. No.	Catalog No.	Description
—	36642	B-294 Foot Switch
—	36647	B-295 Foot Switch
—	36662	301-A Foot Switch
—	74272	B-294 HD Foot Switch
1	36667	Warning Label (B-294)
	36672	Warning Label (B-295)
	36687	Warning Label (301-A)
	76352	Warning Label (B-294 HD)
2	36692	Cover
3	36787	Screw #10 Self-tapping (5)
4	36697	Foot Pedal
5	68880	Cord (B-294)
	36712	Cord (B-295)
	36727	Cord (301-A)
	75972	Cord (B-294 HD)
6	36732	Cord Connector
	75977	Cord Connector (B-294 HD)
7	36702	Spring
8	54347	Base
9	36747	Pivot Pin
10	36767	O-Ring
11	36772	Poppet
12	54367	Insulator
13	36762	Micro Switch
14	54372	Seal
15	54362	Bottom Cover
16	54357	Bottom Cover Screw (4)

**B-296  
B-297  
B-298  
B-299**



Ref. No.	Catalog No.	Description
—	36652	B-296 Foot Switch
—	36657	B-297 Foot Switch
—	40017	B-298 Foot Switch (U.K.)
—	40022	B-299 Foot Switch (Australia)
1	36677	Warning Label (B-296)
	36682	Warning Label (B-297)
	54392	Warning Label (B-298)
	45017	Warning Label (B-299)
2	54382	Cover
3	36787	Screw #10 Self-tapping (6)
4	36697	Foot Pedal
5	36717	Cord (B-299)
	18906	Cord (B-296)
	36722	Cord (B-297)
	45027	Cord (B-298)
6	36732	Cord Connector (2)
7	36702	Spring
8	54352	Base
9	18916	Line Cord (B-296)
	36797	Line Cord (B-297)
	45022	Line Cord (B-298)
	93210	Line Cord (B-299)
10	36747	Pivot Pin
11	36767	O-Ring
12	36772	Poppet
13	54367	Insulator (2)
14	36762	Micro Switch (2)
15	54377	Switch Bracket
16	54372	Seal
17	54362	Bottom Cover
18	54357	Bottom Cover Screw (4)

**Main Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

**For Information on Cutters, Die Heads and Reamers SEE INDEX**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46790	Screw, 12 - 24 x 3/4" (6)	27	44715	Jaw Insert Set
2	40270	Lock Washer (6)		97365	Jaw Insert Set F/Coated Pipe
3	43735	Centering Head	28	44090	Chuck Jaw Set
	19346	Centering Head (Europe)	29	45295	Screw 5/16" - 18 x 2 3/4" (6)
4	46500	Rear Jaw (3)	30	43525	Cap
5†	45260	Step Pin (3)	31	44720	Snap Ring (2)
6	44095	Scroll	32	46050	Set Screw 1/4" - 18 x 1/4" (2)
7	43740	Back Plate	33	44725	Ring Assembly (2)
	19356	Back Plate (Europe)	34	44425	Support Bar (Incl. Ref. No. 37)
8	44165	Rear Centering Assembly	35	90392	FOR/OFF/REV Label
9	44100	Drive Shaft	36	45280	Screw #8 - 32 x 5/8" (2)
10	45335	Rear Bearing-Bronze	37	44525	Spring Ring (2)
11	42845	300 Body Assembly (Incl. Ref. No. 10, 11, 12, 13, 14, 15, 17, 18, 38, 39, 40)	38	46735	Cord Grommet
	19056	300A Body Assy.- Europe (Incl. Ref. No. 10, 11, 12, 13, 14, 15, 17, 18, 38, 39, 40, 43, 44, 45)	39	44735	Screw 1/4" - 20 x 5/8" (2)
	96805	300A Body Assy. (Incl. Ref. No. 10, 11, 12, 13, 14, 15, 17, 18, 38, 39, 40, 43, 44, 45)	40	45825	Strain Relief Plate
12	46860	Grease Fitting	41*	87740	3177 Motor 115V (300)
13	33785	Set Screw 5/16" - 24 x 1/4" (2)		87780	3277 Motor 230V (300)
14	85920	Pop Rivet (10)		96810	3181 Motor 115V (300A)
15	88690	Warning Plate		96975	3281 Motor 230V (300A)
16†	45345	Thrust Ring		61202	3177-CE Motor 115V (300CE)
17	45270	Front Bearing		61207	3277-CE Motor 230V (300CE)
18†	45310	Split Roll Pin		61192	3181-CE Motor 230V (300A CE)
19	30027	Drive Ring, Type II		61197	3281-CE Motor 115V (300A CE)
20	46035	Screw 5/16" - 18 x 1 3/4"	42	46745	Screw 3/8" - 16 x 1 1/4" (2)
21	45300	Set Screw 5/16" - 24 x 1/4" (2)	43	96850	Tubing (300A)
22	45265	Set Screw 5/16" - 24 x 1/2" (3)	44	96855	Tubing (300A)
23	30022	Drive Pin, Type II (3)	45	96860	Bulkhead Union (2) (300A)
24	30017	Ring Gear, Type II	46	44310	Drive Spring (3)
25	89150	Hand Wheel	47	91552	Drive Wedge Kit
26	43540	Scroll	48	45285	Pressure Spring (3)
			49	91557	Plunger Kit
			50	91562	Conversion Kit (Includes Ref. Nos. 19-24)

\* Refer to Motor Model No. for Component Parts

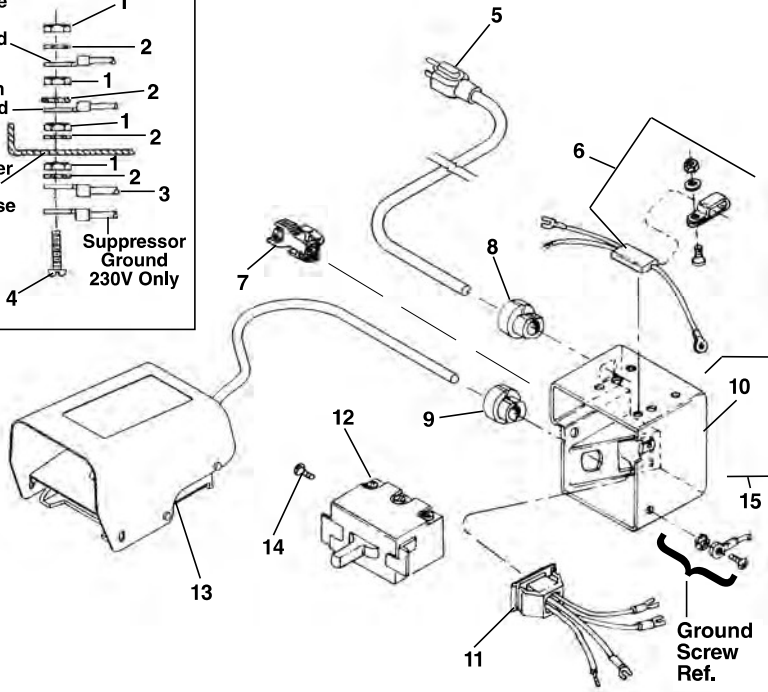
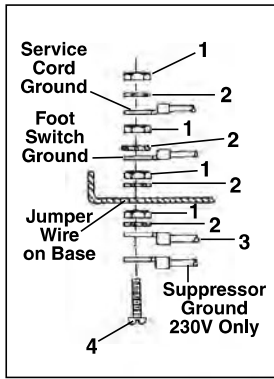
**Service Notes:**

†Ref. 5 Stop Pins are easily removed by pushing from inside to outside.

†Ref. 18 Before removing front bearing sleeve (Ref. No. 17), dowel pin and grease fitting must be pushed out from inside.

†Ref. 16 Position thrust ring so that offset screw holes are closer to chuck.

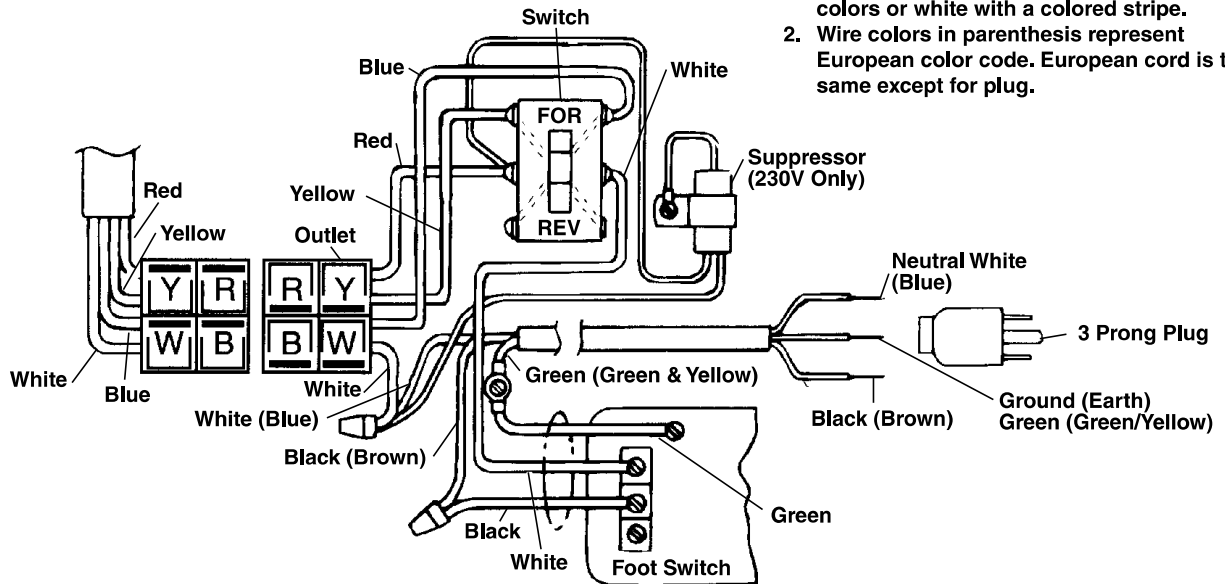
### Electrical Components



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	44695	Hex Nut #10 - 24 (4)
2	46985	Ext. Tooth Washer #10 (4)
3	85925	Jumper Wire
4	92455	Screw #10 - 24 x 3/4"
5	46740	Power Cord w/Plug (115V)
	46410	Power Cord w/Plug (230V)
	75045	Power Cordless Plug (230V Europe/S. Africa)
6	46320	Suppressor Kit (230V Europe)
	99170	Suppressor (230V S. Africa)
7	50552	Plug
8	46735	Cord Grommet
	46730	Cord Grommet (230V Europe/S. Africa)
9	46735	Cord Grommet
10	50612	Switch Box
11	50617	Outlet Jumper Assembly
12	44505	Switch
13	36642	B-294 Foot Switch
14	45405	Screw
15	91187	Switch Box Kit (Includes Ref. Nos. 7-11)

### Wiring Diagram (115/230V)

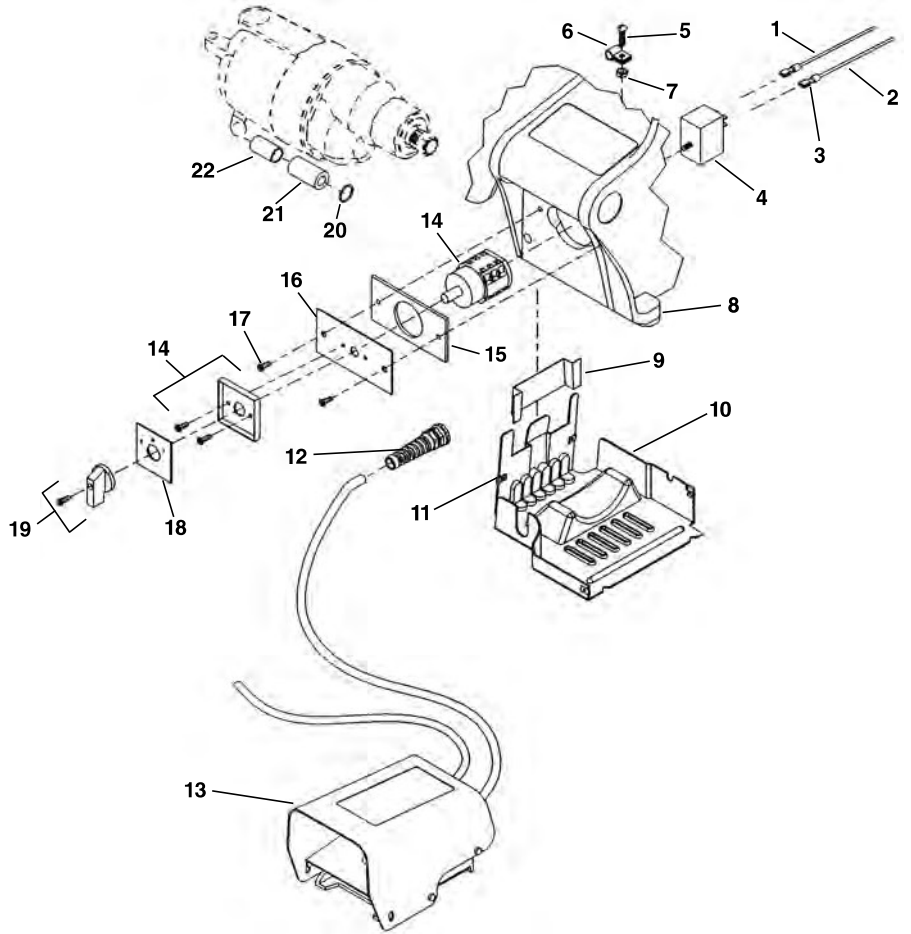


1. Brush and Armature Leads may be solid colors or white with a colored stripe.
2. Wire colors in parenthesis represent European color code. European cord is the same except for plug.

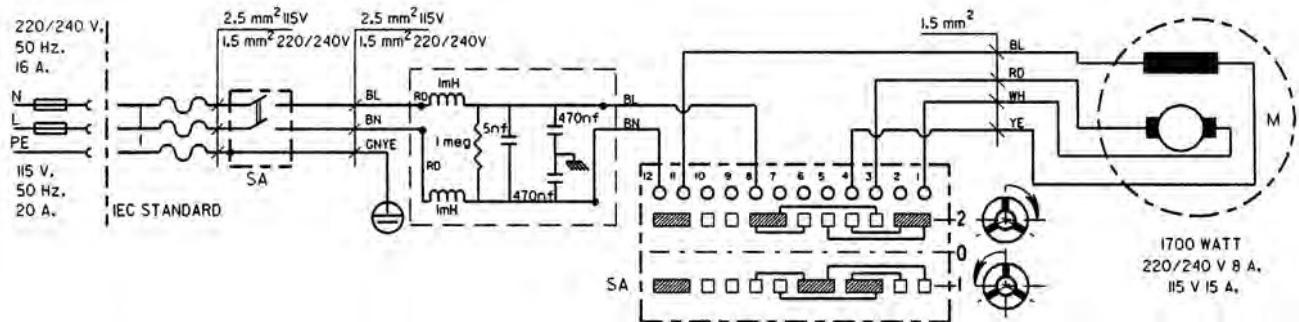
### European Electrical Components

**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

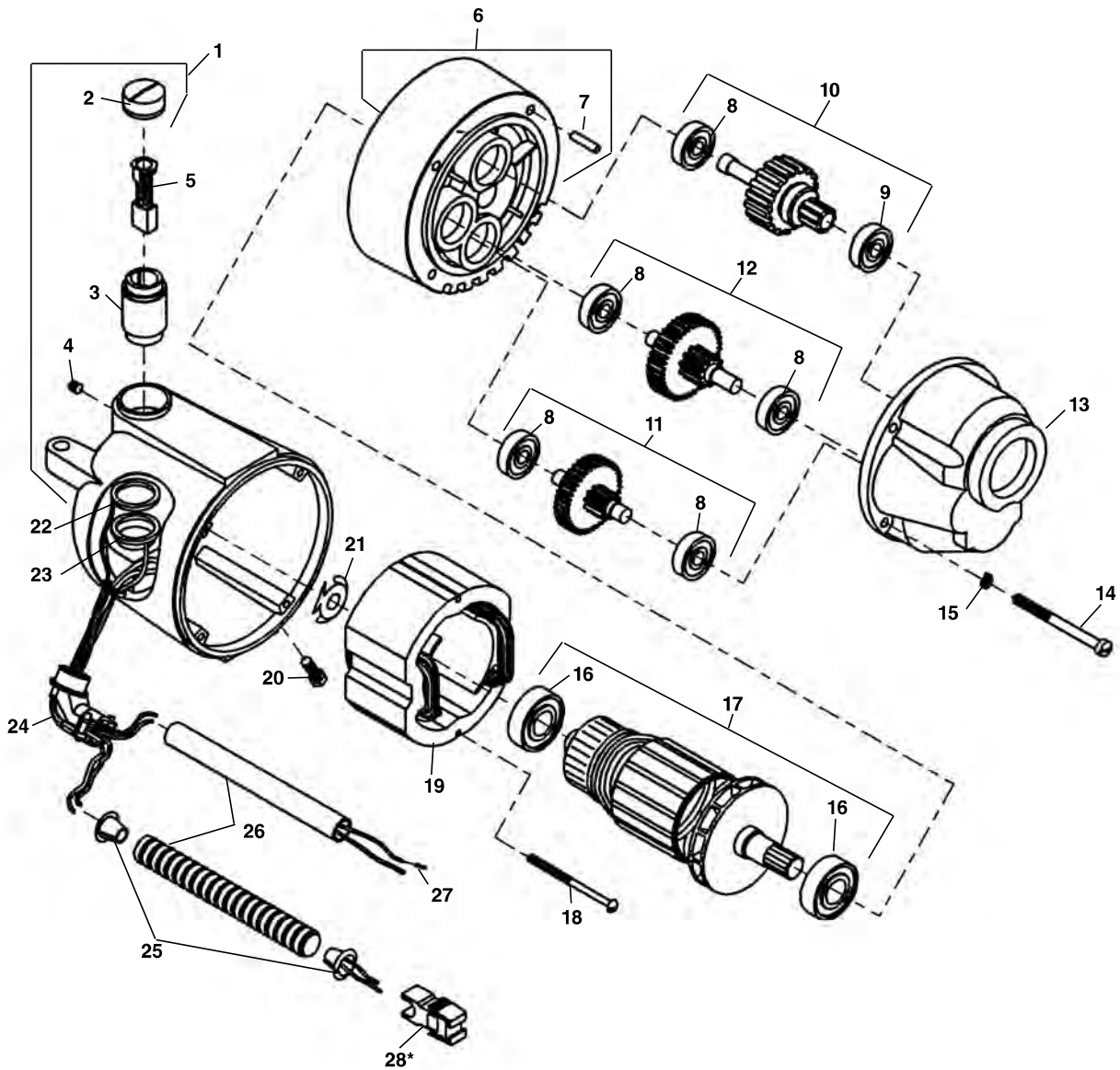
Ref. No.	Catalog No.	Description
1	63387	Brown Lead Wire
2	63392	Blue Lead Wire
3	62027	Quick Disconnect Terminal (4)
4	63372	Suppressor
5	92455	10 - 24 x 3/4" Screw
6	54222	Cord Clamp
7	44695	Nut
8	63417	Base
9	64067	Shield
10	64062	Bottom Cover
11	43362	"J" Clips (6)
12	54177	Strain Relief
13	36652	B- 296 Foot Switch Assembly
14	54157	Switch
15	64052	Switch Plate
16	64057	Switch Gasket
17	41597	12 - 24 x 3/4" Screw
18	57517	Switch Face Plate
19	61397	Switch Knob
20	64467	Cable Tie
21	46880	Plastic Tube
22	63377	Ferrite Bead



### Wiring Diagram – Europe



**3177**  
**3277**  
**3177-CE**  
**3277-CE**

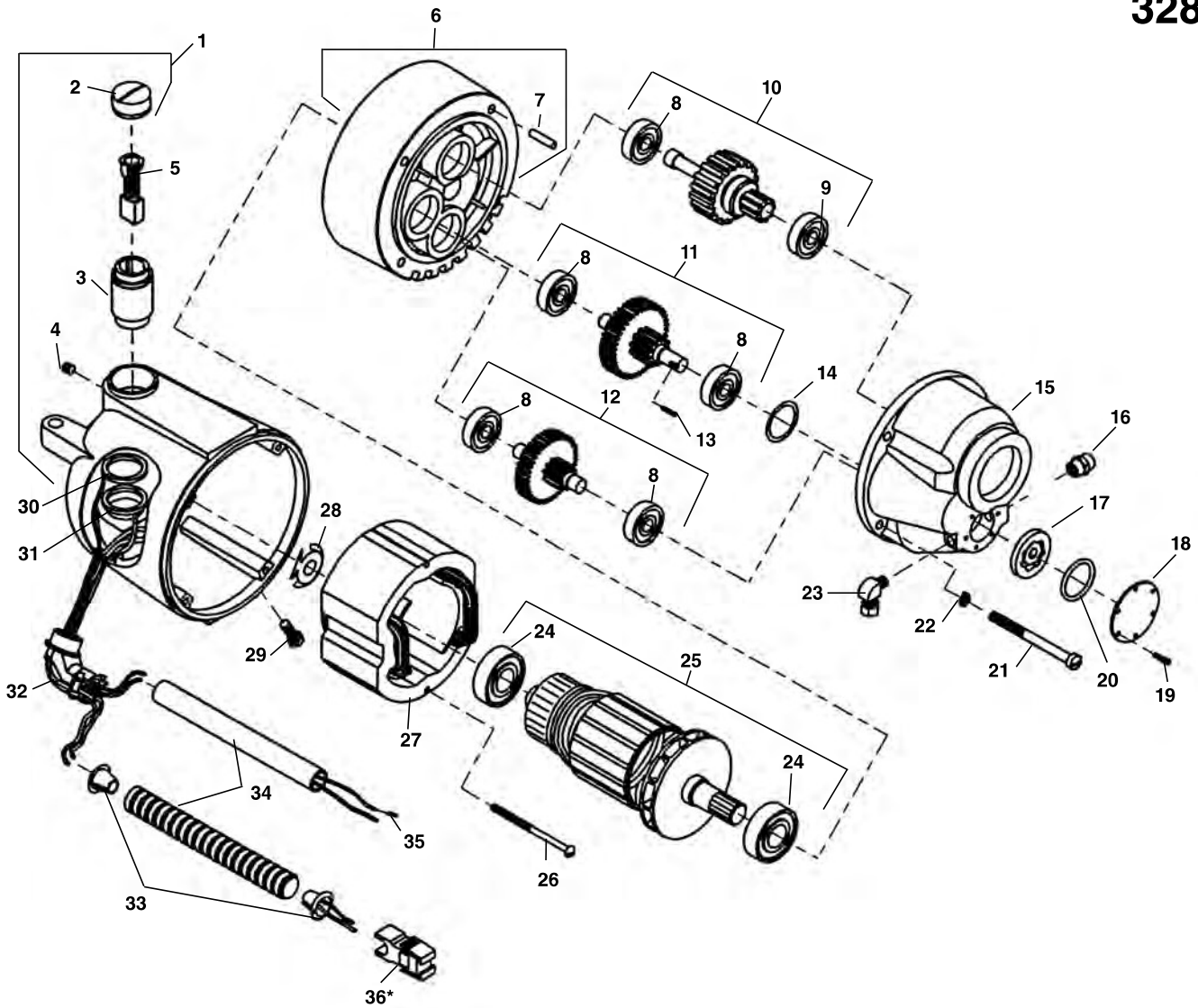


**NOTE: Order parts by Catalog Number only.  
 DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
†	87740	3177 Motor 115V	10	45370	Drive Gear	20	83500	Locking Screw
†	87780	3277 Motor 230V	11	44985	1st Gear Assembly	21	44580	Loading Spring
†	61202	3177-CE Motor 115V	12	45005	2nd Gear Assembly	22	86680	White Upper Lead
†	61207	3277-CE Motor 230V	13	42875	Gear Housing	23	86685	Red Lower lead
1	43160	Housing Assembly	14	45075	Screw (4)	24	46900	Connector 90 Degree
2	44545	Brush Cap Set	15	45150	Lock Washer	25	46890	E-918 Insulator (2)
3	45025	Brush Holder Set	16	44565	Armature Bearing (2)	26	47407	Flexible Conduit
4	39770	Set Screw (2)	17	44010	Armature (115V)		46880	Plastic Tube (CE Only)
5	44540	Brush Assembly Set		44030	Armature (230V)	27	88402	Wire Terminal (4) (CE Only)
6	43165	Fan Housing Assembly	18	44555	Mounting Screw (2)	28*	50552	Plug (Included in Switch Box Assy. 91187)
7	45165	Dowel Pin	19	44015	Field (115V)			
8	45060	Gear Bearings (5)		44035	Field (230V)			
9	45315	Front Bearing						

† Refer to Speed Change Chart for Optional Speeds on Page 25

3181  
3281  
3181-CE  
3281-CE



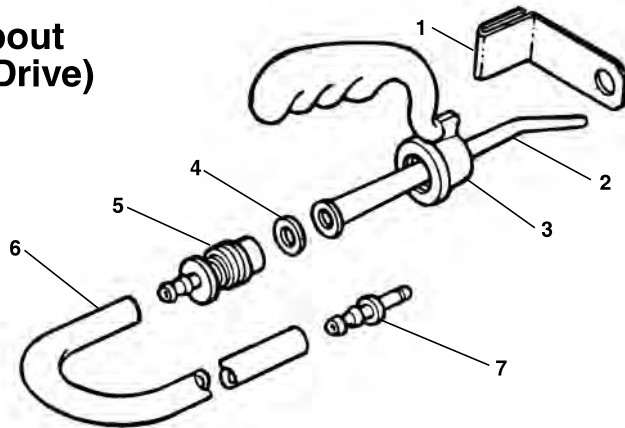
NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
†	96810	3181 Motor 115V	12	45005	2nd Gear Assembly	26	44555	Mounting Screw (2)
†	96975	3281 Motor 230V	13	96885	Pin	27	44015	Field (115V)
†	61197	3181-CE Motor 115V	14	96880	Oil Seal		44035	Field (230V)
†	61192	3281-CE Motor 230V	15	96830	Gear Housing	28	44580	Loading Spring
1	43160	Housing Assembly	16	46830	Male Connector	29	83500	Locking Screw (2)
2	44545	Brush Cap Set	17	96870	Gerotor Set	30	86680	White Upper Lead
3	45025	Brush Holder Set	18	96840	Cover Plate	31	86685	Red Lower lead
4	39770	Set Screw (2)	19	96890	Screw (6)	32	46900	Connector 90
5	44540	Brush Assembly Set	20	96875	O Ring	33	46890	E-918 Insulator (2)
6	43165	Fan Housing Assembly	21	45075	Screw (4)	34	47407	Flexible Conduit
7	45165	Dowel Pin	22	45150	Lock Washer		46880	Plastic Tube (CE Only)
8	45060	Gear Bearings (5)	23	96910	Male Elbow	35	88402	Wire Terminal (4) (CE Only)
9	45315	Front Bearing	24	44565	Armature Bearing (2)	36*	50552	Plug (Included in Switch Box Assy. 91187)
10	45370	Drive Gear	25	44010	Armature (115V)			
11	97000	1st Gear Assembly		44030	Armature (230V)			

† Refer to Speed Change Chart for Optional Speeds on Page 25

**309**  
**330**  
**331**

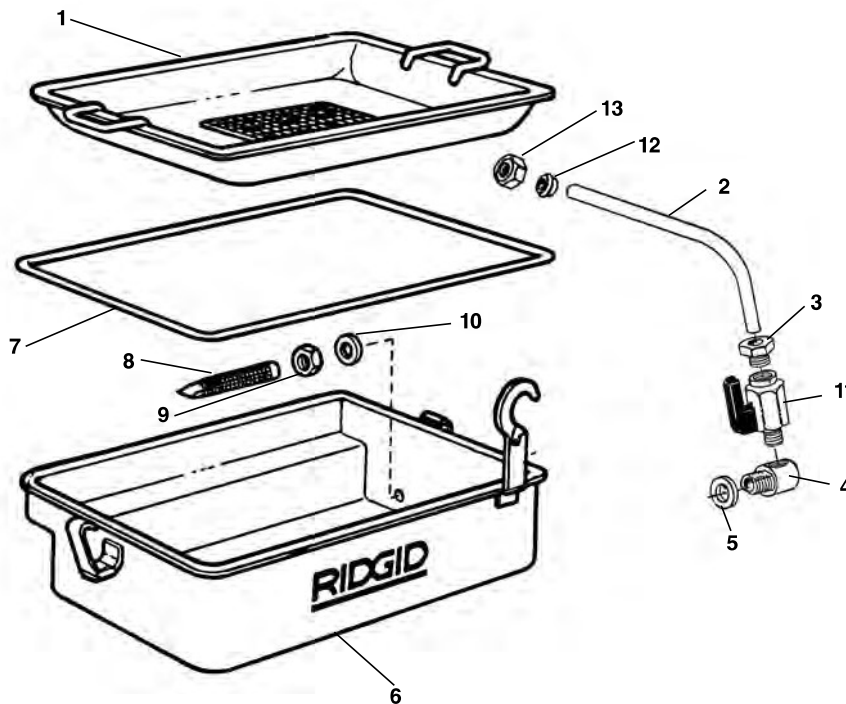
## No. 309 Oil Spout (300A Power Drive)



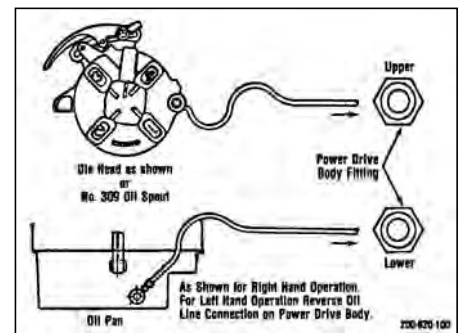
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	97090	309 Oil Spout
1	97110	Spout Bracket Assembly
2	97095	Oil Spout
3	41690	Handle
4	41715	Spout Washer
5	97100	Handle Adapter
6	97195	Hose
7	97105	Hose Adapter

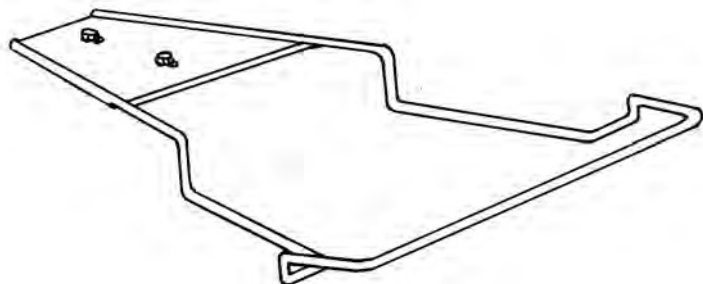
## No. 330 Oil Pan (300A Power Drive)



Ref. No.	Catalog No.	Description
—	97245	330 Oil Pan and Chip Tray
1	96925	Chip Pan Assembly
2	19946	300 Oil Line
3	96930	Union
4	41705	Coupling
5	41780	Washer
6	96920	Oil Pan Assembly
7	96905	Gasket
8	41765	Strainer
9	40640	Hex Jam Nut
10	41790	Washer
11	19936	Valve (Europe)
—	26846	Bolt (Europe) (Not Shown)
12	19966	Ferrule
13	19956	Nut



## No. 331 Oil Pan Support Tray Catalog No. 97250 (300A Power Drive)

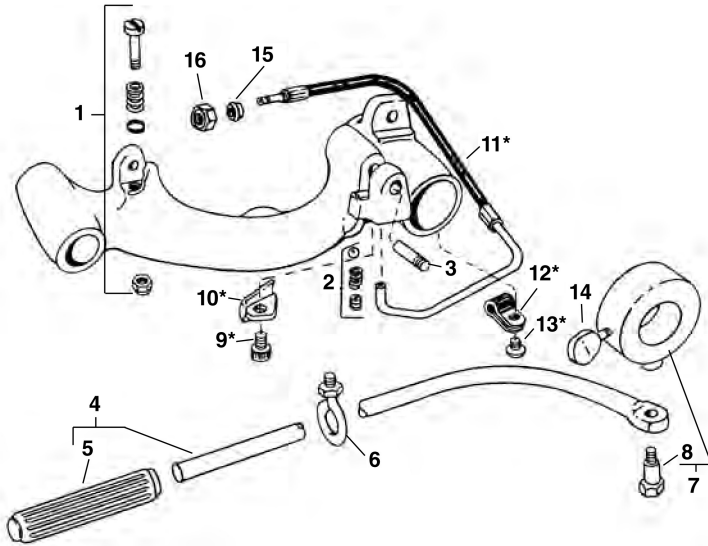




**No. 311 Carriage w/Lever** (200, 300 Power Drive)  
**No. 311A Carriage w/Lever** (300A, 304 Retrofit)

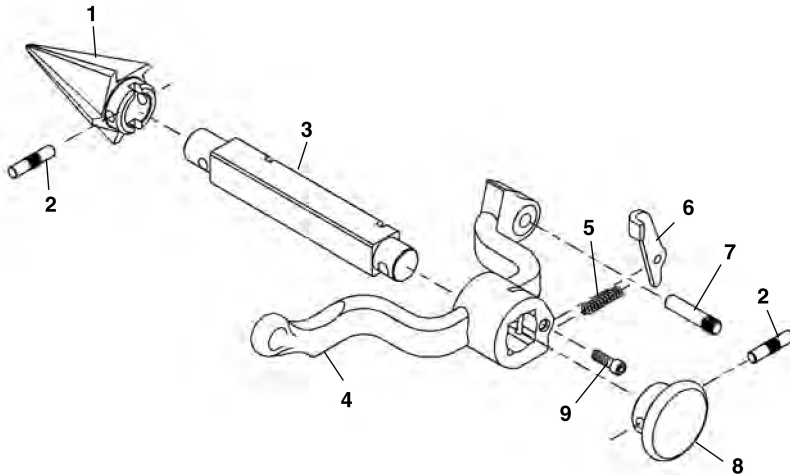
**311**  
**311A**  
**341**  
**360**

**NOTE: Order parts by Catalog Number only.  
 DO NOT order by Reference Number.**



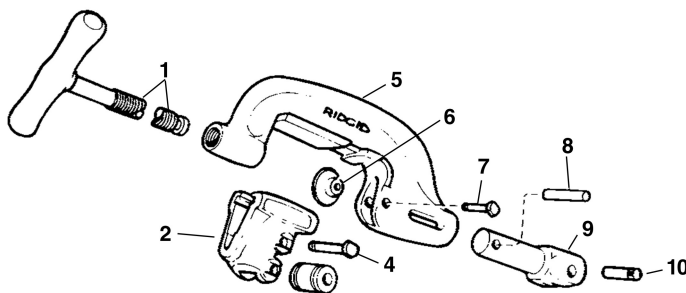
Ref. No.	Catalog No.	Description
—	68815	311 Carriage w/Lever
—	96945	311A Carriage w/Lever
—	42385	312 Lever Kit (incl. Ref. No. 4, 6, 7, 14)
1	45515	Stop Bolt Assembly
2	46810	Detente Assembly
3	47065	Reamer Hinge Pin
4	43400	Lever Arm Assembly
5	46235	Handgrip
6	46205	Eye Bolt Assembly
7	46215	Collar Assembly
8	46210	Shoulder Bolt
9	96900	Screw
10	96970	Oil Line Cover
11	96965	Hose Assembly
	19336	Hose Assembly (Europe)
12	96895	Clamp
13	96915	Screw
14	46220	Thumbscrew
15	19966	Ferrule
16	19956	Nut

**No. 341 Reamer**



Ref. No.	Catalog No.	Description
—	42365	341 Reamer Complete
1	36277	Cone (R.H.)
	46660	Cone (L.H. & R.H.)
2	47155	Pin
3	43790	Reamer Bar
4	43230	Reamer Arm
5	44700	Latch Spring
6	46665	Reamer Latch
7	47065	Hinge Pin
8	46585	Reamer Knob
9	46515	Screw 1/4" - 20 x 3/4"

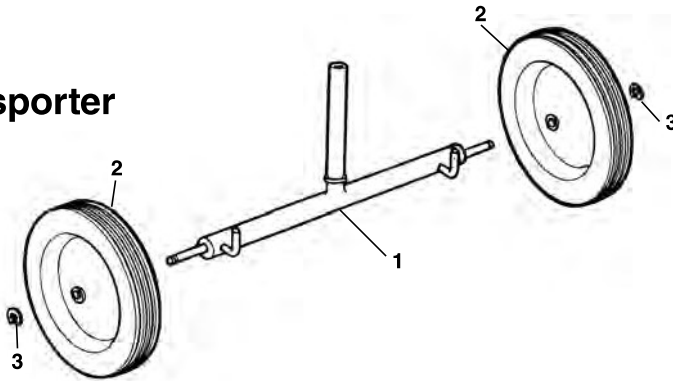
**No. 360 Cutter**



Ref. No.	Catalog No.	Description
—	42370	360 Cutter Complete
1	43625	Screw Handle
2	33400	Roll Housing Assembly
3	34305	Roll (2)
4	34310	Roll Pin (2)
5	43595	Cutter Frame
6	33100	Cutter Wheel Thin
	33105	Cutter Wheel H.D.
	44185	Cutter Wheel Std.
7	34780	Wheel Pin
8	45435	Retaining Pin
9	45505	Support Arm
10	45520	Pin

32  
1452  
1206

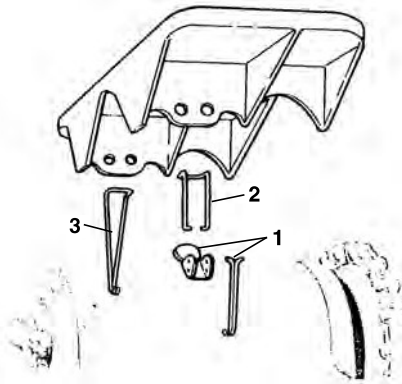
No. 32 Transporter



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

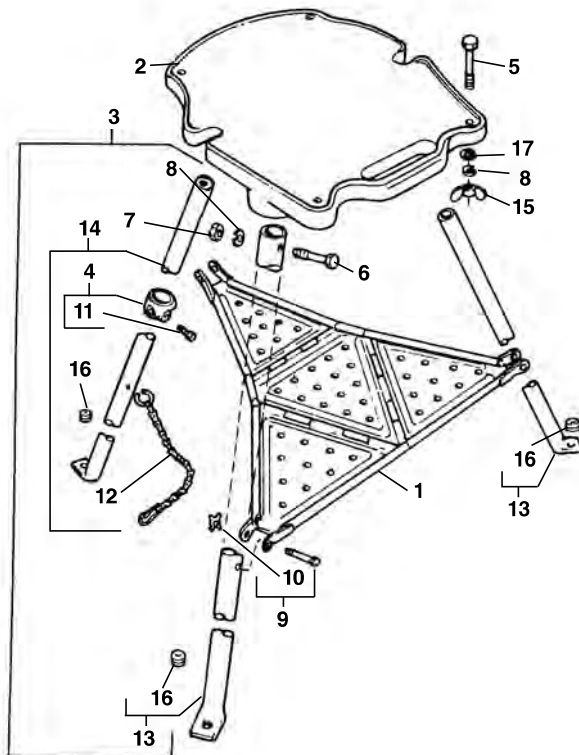
Ref. No.	Catalog No.	Description
—	42575	No. 32 Transporter
1	42590	Axle & Support Tube Assembly
2	42585	Wheel (2)
3	42580	Retaining Ring (2)

No. 1452 Clip-On Tool Tray



Ref. No.	Catalog No.	Description
—	22638	No. 1452 Tool Tray
1	45535	Hook & Lever Assembly
2	45540	Top Hook
3	45545	Side Hook
4	78367	Warning Decal (Not Shown)

No. 1206 Stand



Ref. No.	Catalog No.	Description
—	42360	1206 Stand Complete
—	83540	1206 Stand Export
1	43475	B-547 Tool Tray
2	42870	B-1058 Base
3	42990	B-1983-X Tray & Leg Assembly
4	41235	D-488-X Tray Support
5	46670	E-867 Bolt 3/8" - 16 x 2" (4)
6	46675	E-868 Bolt 3/8" - 16 x 2 3/4" (3)
7	44225	E-1094 Nut 3/8" - 16 (3)
8	40930	E-1095 Lock Washer 3/8" (7)
9	41265	E-1375-X Pin w/Washer (1 7/8" Long)
9	89720	E-10396-X Pin w/Washer (1 1/8" Long)
10	41270	E-1377 X-Washer (6)
11	41245	E-1380 Set Screw 3/8" - 16 x 1"
12	40945	E-1444-X Chain Assembly
13	45325	E-1336-X Front Leg (2)
14	45330	E-3237-X Rear Leg
15	45385	E-3328 Wing Nut 3/8" - 16 (4)
16	40940	F-532 Grommet (3)
17	44230	E-1096 Washer 3/8" (4)

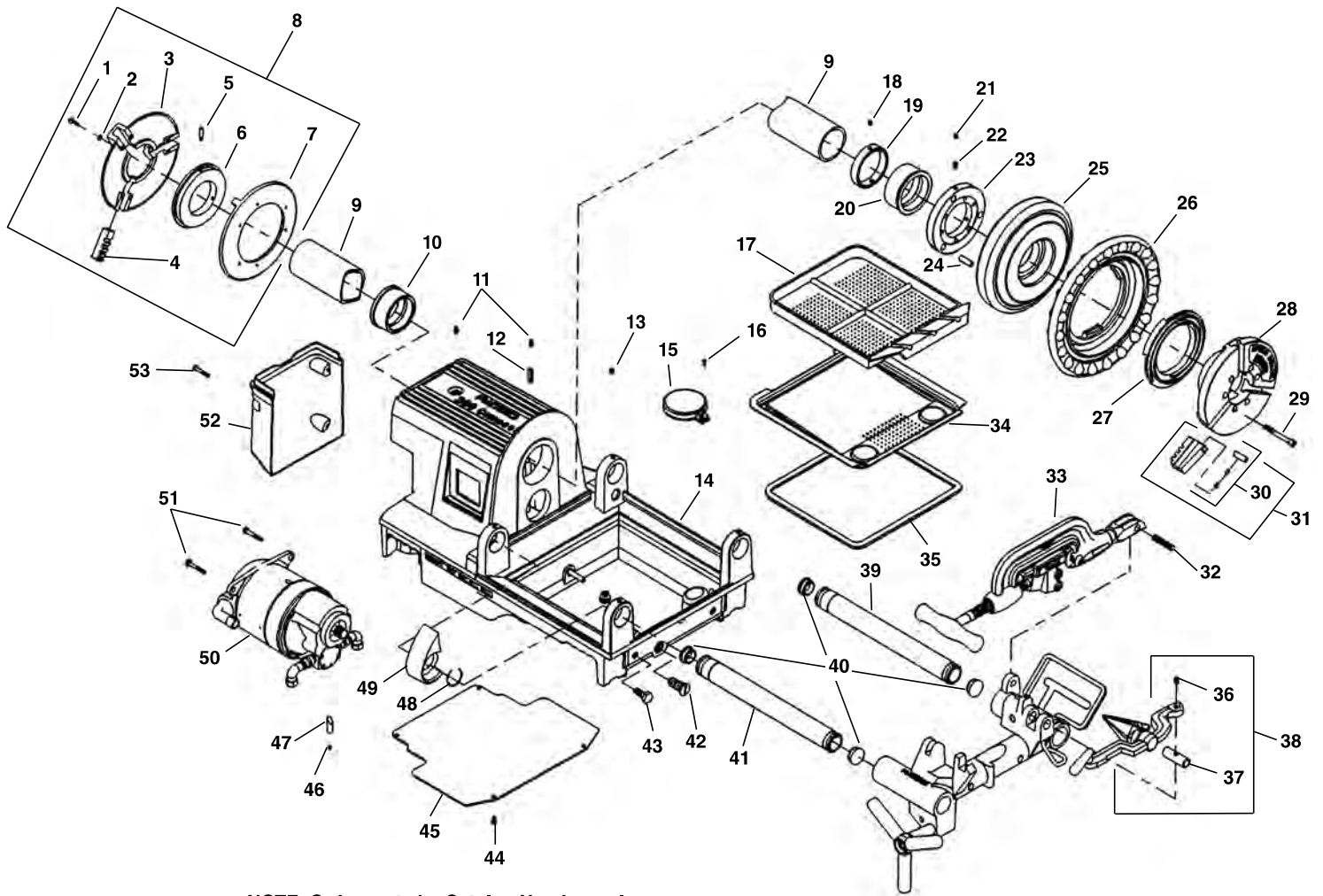
### SPEED CHANGE GEAR CHART MACHINE MODEL NO. 300 MOTORS

Catalog Number	Model No.	Volts	Spindle Speed	Ref. #17 Armature	Ref. No. 11 - 1st Intermediate Gear Assembly	Ref. No. 12 - 2nd Intermediate Gear Assembly	Ref. No. 10 Drive Gear
87740 87780 61202 61207	3177 3277 3177-CE 3277-CE	115V 230V 115V 230V	38 STD.	Pinion - 14 T.	CAT. NO. 44985 (E-2600-X) 51 T. GEAR 12 T. PINION	CAT. NO. 45005 (E-2601-X) 42 T. GEAR 13 T. PINION	CAT. NO. 45370 (E-3283-X) 48 T.
87750 87790	3177A 3277A	115V 230V	57 STD.		CAT. NO. 44985 (E-2600-X) 51 T. GEAR 12 T. PINION	CAT. NO. 44990 (E-2601-AX) 42 T. GEAR 18 T. PINION	CAT. NO. 45375 (E-3284-X) 43 T.
87760 87800	3177B 3277B	115V 230V	77		CAT. NO. 44975 (E-2600-BX) 51 T. GEAR 15 T. PINION	CAT. NO. 44995 (E-2601-BX) 39 T. GEAR 18 T. PINION	CAT. NO. 45375 (E-3284-X) 43 T.
87770 87810	3177C 3277C	115V 230V	108		CAT. NO. 44980 (E-2600-CX) 51 T. GEAR 19 T. PINION	CAT. NO. 45000 (E-2601-CX) 35 T. GEAR 18 T. PINION	CAT. NO. 45375 (E-3284-X) 43 T.

### SPEED CHANGE GEAR CHART MACHINE MODEL NO. 300A MOTORS

Catalog No.	Model No.	Volts	Spindle Speed	Ref. #17 Armature	Ref. No. 11 - 1st Intermediate Gear Assembly	Ref. No. 12 - 2nd Intermediate Gear Assembly	Ref. No. 10 Drive Gear
96810 96975 61192 91197	3181 3281 3181-CE 3281-CE	115V 230V 115V 230V	38 STD.	Pinion - 14 T.	CAT. NO. 97000 (E-2600-X) 51 T. GEAR 12 T. PINION	CAT. NO. 45005 (E-2601-X) 42 T. GEAR 13 T. PINION	CAT. NO. 45370 (E-3283-X) 48 T.
96815 96980	3181A 3281A	115V 230V	57 STD.		CAT. NO. 97000 (E-2600-X) 51 T. GEAR 12 T. PINION	CAT. NO. 44990 (E-2601-AX) 42 T. GEAR 18 T. PINION	CAT. NO. 45375 (E-3284-X) 43 T.
96820 96985	3181B 3281B	115V 230V	77		CAT. NO. 97005 (E-2600-BX) 51 T. GEAR 15 T. PINION	CAT. NO. 44995 (E-2601-BX) 39 T. GEAR 18 T. PINION	CAT. NO. 45375 (E-3284-X) 43 T.

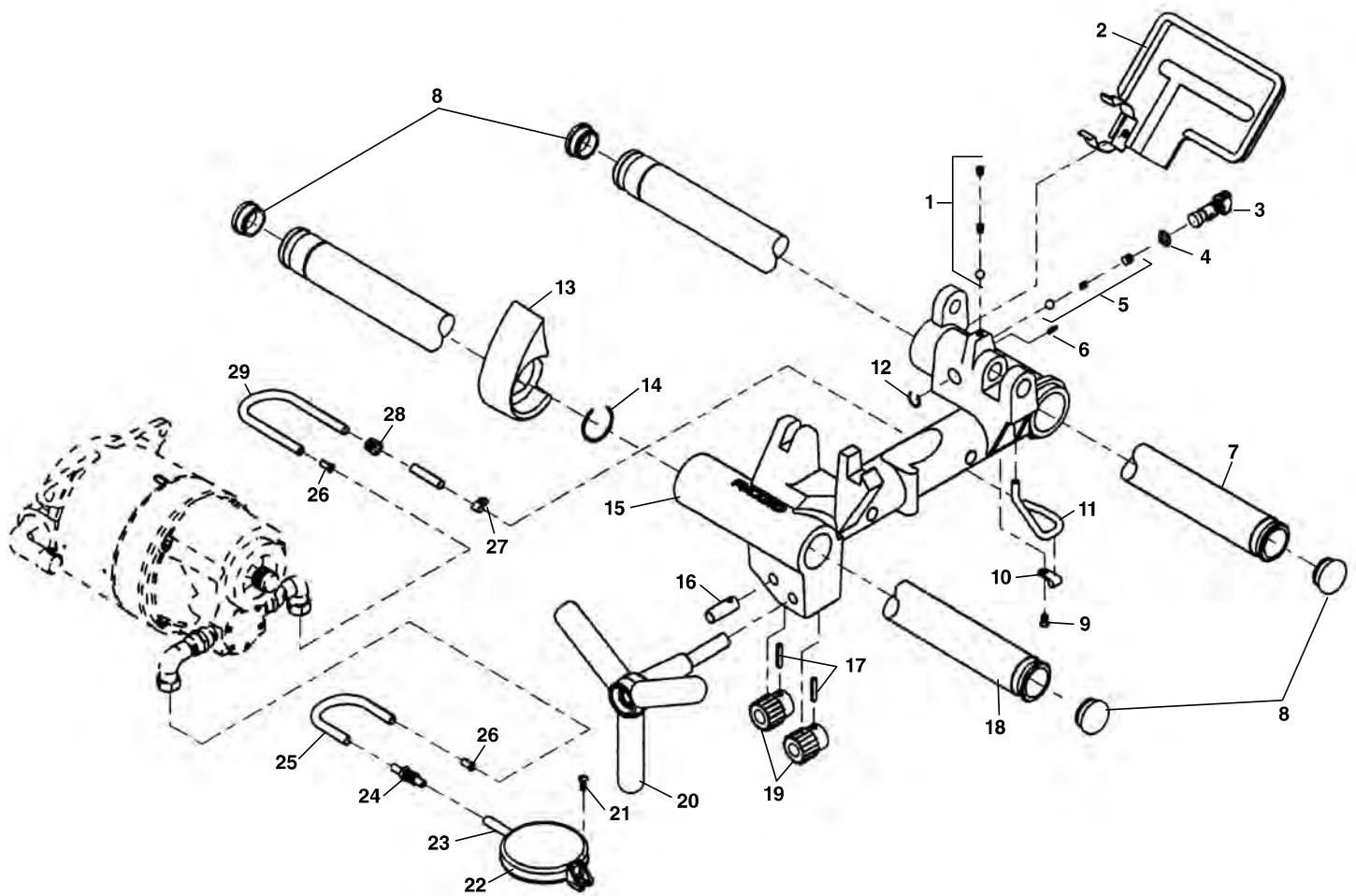
## Main Drive Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46790	Screw 12 - 24 x 3/4" (6)	28	43525	Chuck Cap
2	40270	Lock Washer (6)	29	45295	Screw 5/16" x 2 3/4" (6)
3	43735	Rear Centering Head	30	44715	Jaw Insert Set (3)
	19346	Rear Centering Head (Europe)		97365	Jaw Insert Set f/Coated Pipe (3)
4	46500	Rear Jaw	31	44090	Chuck Jaw Set
5	45260	Step Pin	32	45520	Hinge Pin
6	44095	Scroll	33	42370	360 Cutter Complete
7	43740	Back Plate	34	54052	Oil Pan Liner
	19356	Back Plate (Europe)	35	75632	Oil Pan Liner Gasket
8	44165	Rear Centering Assembly	36	36262	Shoulder Screw
9	44100	Drive Shaft	37	36267	Pivot Pin
10	45335	Rear Bearing	38	34612	344 Reamer
11	46860	Grease Fitting (2)	39	54112	Rear Rail
12	45310	Pin Split Roll	40	35162	Rail Plug (4)
13	60025	Set Screw 5/16" - 18 (4)	41	54117	Front Rail
14	54522	Base Export	42	54302	Drain Plug
	76342	Base N.A.	43	54042	M10-1.5 Hex Hd. Cap Screw
15	58467	Filter Screen Assembly	44	87730	Screw 1/4" x 3/8" (4)
16	45420	Screw 10 - 24 x 3/8"	45	61937	Bottom Cover
17	54047	Chip Tray	46	77905	Set Screw 3/16" x 1/4"
18	33785	Set Screw 5/16" x 24 x 5/16" (3)	47	54037	Motor Wedge
19	45345	Thrust Ring	48	87620	Retaining Ring
20	54502	Front Bearing	49	54507	Carriage Stop
21	45300	Set Screw 5/16" x 24 x 1/4" (3)	50	54797	Model 2192, 115V
22	45265	Set Screw 5/16" x 24 x 1/2" (3)		54802	Model 2292R, 230V
23	30027	Drive Ring		74182	Model 2199R, 115V, 52 RPM
24	30022	Drive Pin (3)	51	85915	Motor Mounting Bolt (2)
25	30017	Ring Gear	52	61932	Motor Cover
26	89150	Hand Wheel	53	54532	Motor Cover Screw (4)
27	43540	Chuck Scroll			

**Carriage and Oil System**

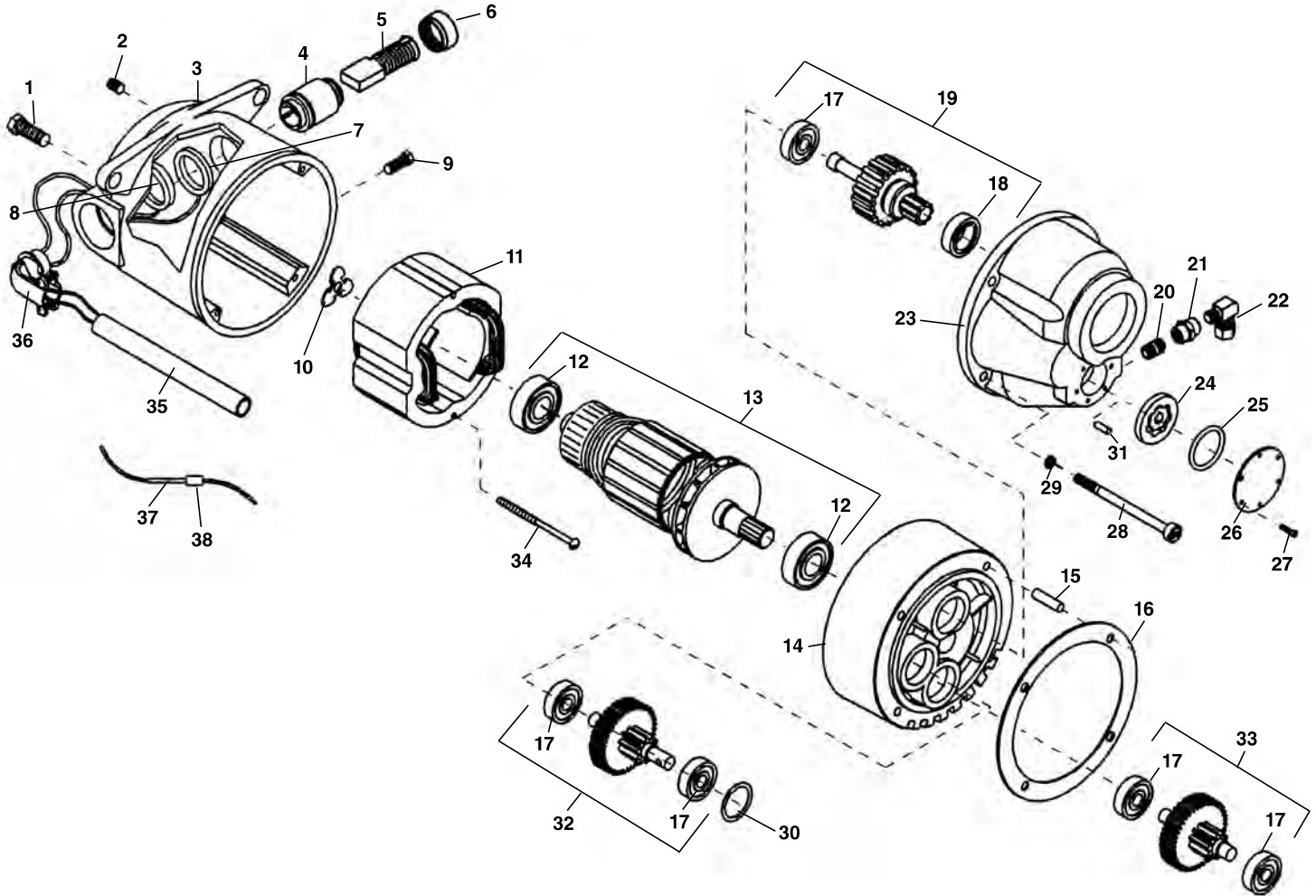


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	46810	Detente Assembly
2	54517	Drip Pan
3	54097	Spool Valve
4	54102	O-Ring
5	35307	Oil Pressure Relief Set
6	58417	Roll Pin 1/8" x 3/8"
7	54112	Rear Rail
8	35162	Rail Plug (4)
9	79965	Screw 10 - 32 x 1/2"
10	35062	Oil Line Clamp
11	35067	Oil Tube
12	54107	Retaining Ring
13	54507	Carriage Stop
14	87620	Retaining Ring
15	54512	Carriage
16	35187	Pinion Idler Shaft
	54122	Cap Plug (not shown)
17	34342	Roll Pin
18	54117	Front Rail
19	59092	Pinion
20	35182	Hand Wheel
21	45420	Screw 10 - 24 x 3/8"
22	58467	Filter Screen Assembly
23	61897	Oil Filter Tube
24	54142	Bulkhead Fitting
25	54152	Oil Intake Line
26	35117	Oil Line Insert
27	35142	Hose Clamp
28	47080	Oil Line Grommet
29	61282	Carriage Oil Line

**2192**  
**2292**  
**2192R**  
**2292R**

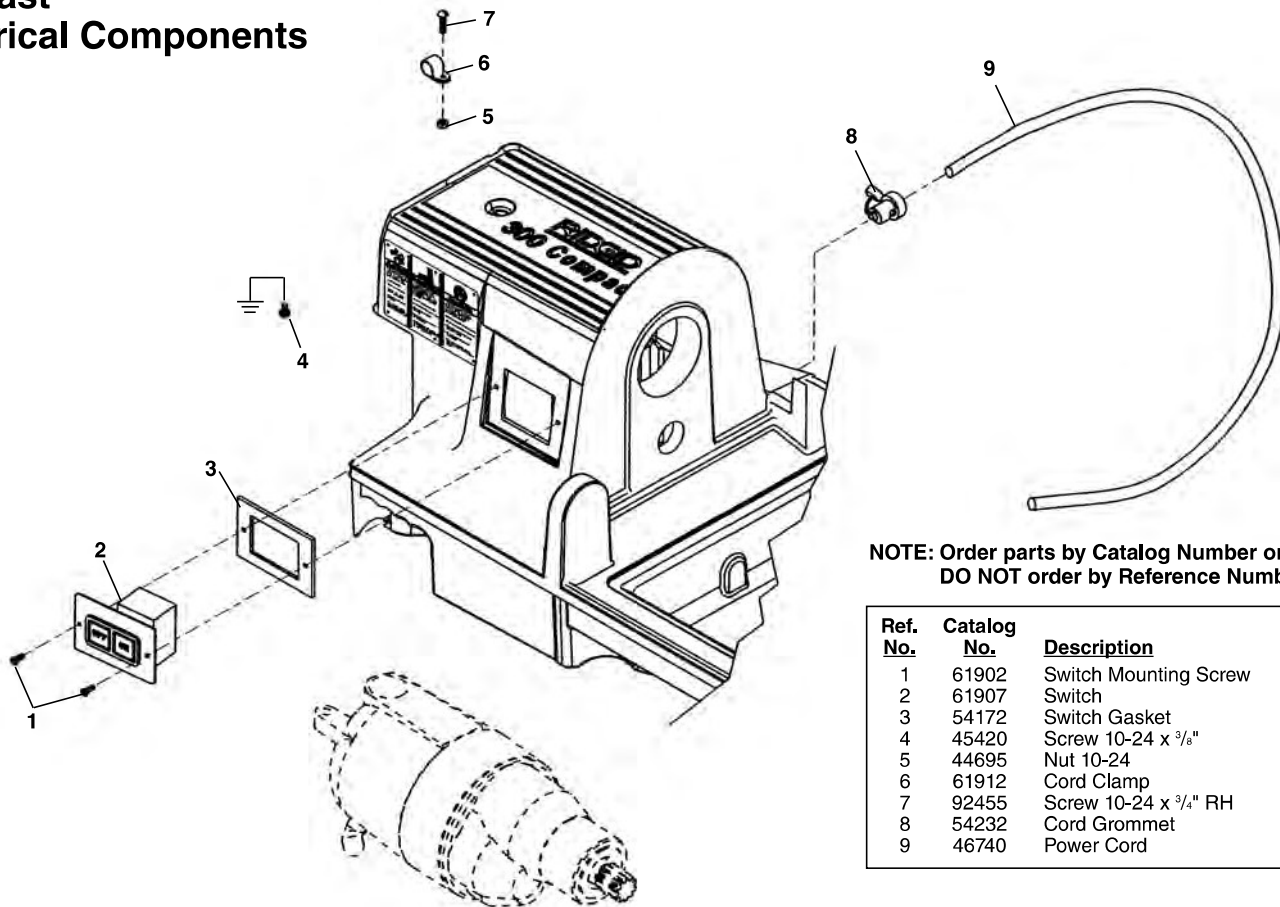
## Motor



**NOTE: Order parts by Catalog Number only.  
 DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	72127	Motor Model 2292, 230V	12	44565	Armature Bearing (2)	26	96840	Cover Plate
—	54797	Motor Model 2192R, 115V	13	52497	115V Armature	27	96890	Screw #4 x 3/8" (6)
—	54802	Motor Model 2292R, 230V	14	54542	230V Armature	28	45075	Screw 1/4" - 20
1	85915	Motor Mounting Bolt (2)	15	54552	Fan Housing Assembly	29	45150	Lock Washer 1/4"
2	39770	Set Screw 1/4" - 20 x 1/4" (2)	16	45165	Dowel Pin	30	96880	Oil Seal
3	52482	Motor Housing	17	52502	Gasket	31	96885	Pin
4	45025	Brush Holder Set (2)	18	44760	Gear Bearing	32	52522	1st Gear Assembly
5	44540	Brush Assembly Set (2)	19	45315	Front Bearing	33	54547	2nd Gear Assembly
6	44545	Brush Cap Set (2)	20	54537	Main Drive Gear Assembly	34	44555	Screw 10 - 24 x 3"
7	86685	Red Brush Lead	21	52507	1/8" NPT Close Nipple (2)	35	63382	Plastic Tube
8	86680	White Brush Lead	22	52512	1/8" Coupling (2)	36	46900	90 Connector
9	83500	Field Locking Screw	23	52517	Elbow Compression Fitting (2)	—	47412	Male Wire Connector
10	44580	Loading Spring	24	96830	Gerotor Set	—	52537	Female Wire Connector
11	44015	Field 100/115V	25	96870	"O" Ring	37	16946	Male Connector
	44035	Field 230V				38	16956	Female Connector

### Far East Electrical Components

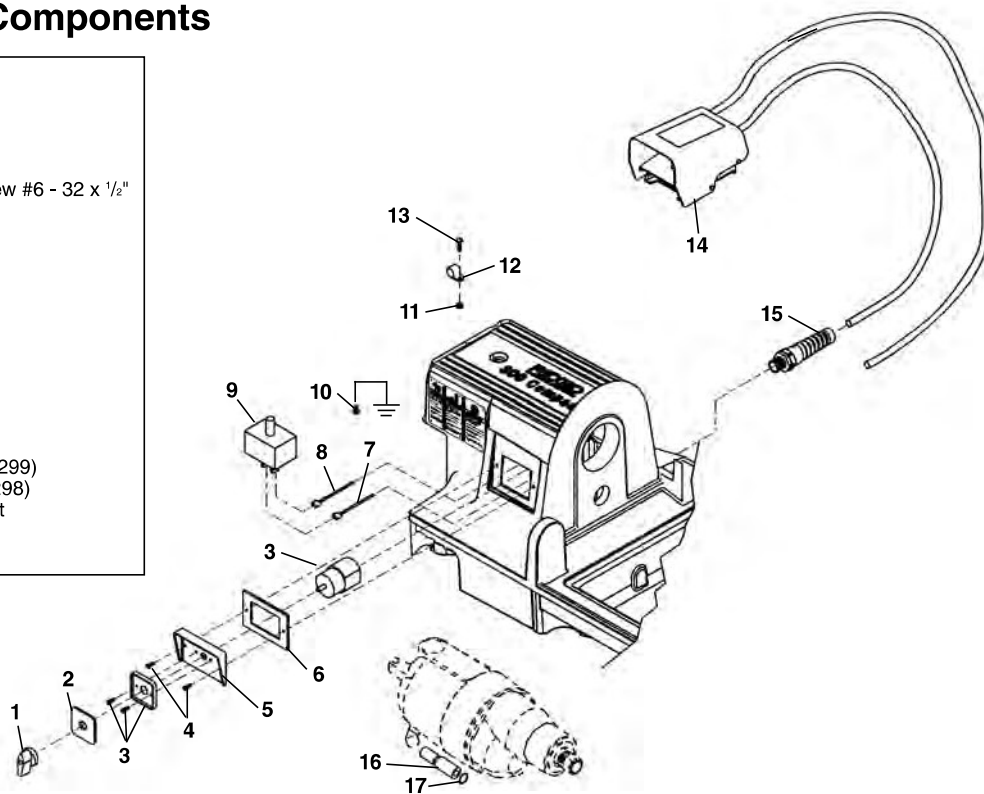


**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	61902	Switch Mounting Screw
2	61907	Switch
3	54172	Switch Gasket
4	45420	Screw 10-24 x 3/8"
5	44695	Nut 10-24
6	61912	Cord Clamp
7	92455	Screw 10-24 x 3/4" RH
8	54232	Cord Grommet
9	46740	Power Cord

### European Electrical Components

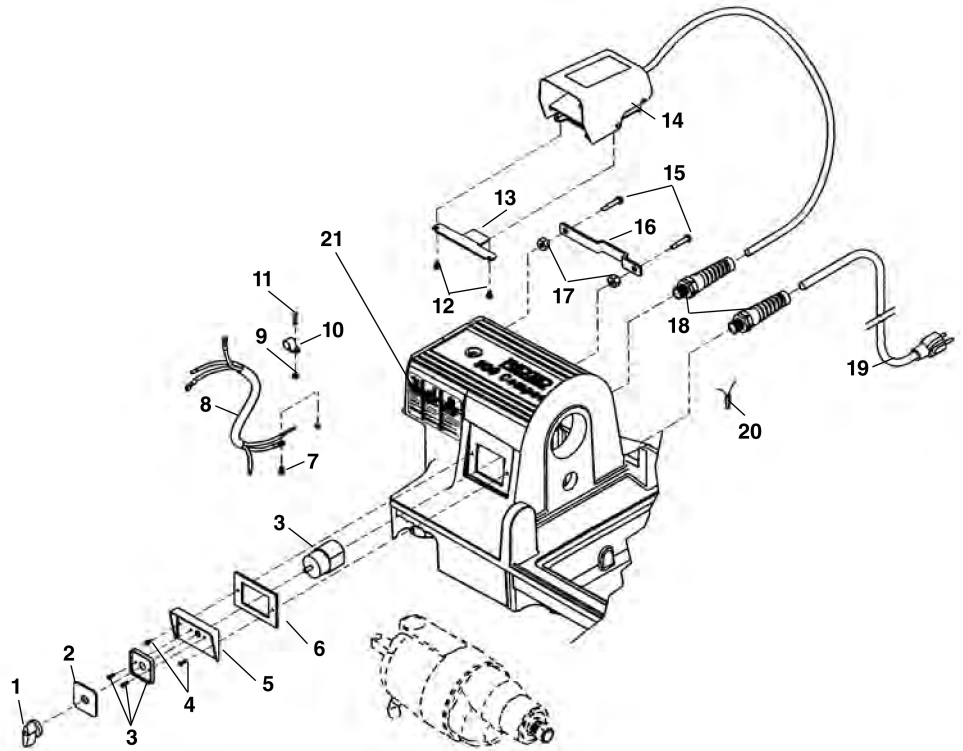
Ref. No.	Catalog No.	Description
1	61397	Switch Knob
2	54167	Switch Face Plate
3	54157	Switch & Screws
4	61902	Slotted Pan Head Screw #6 - 32 x 1/2"
5	61917	Switch Plate
6	54172	Switch Gasket
7	63387	Brown Wire
8	63392	Blue Wire
9	63372	Suppressor
—	63387	Brown Lead Wire
—	63392	Blue Lead Wire
10	45420	Screw 10-24 x 3/8"
11	44695	Nut 10-24
12	61912	Cord Clamp
13	92455	Screw 10-24 x 3/4" RH
14	36652	Foot Switch (B-296)
—	40022	Foot Switch f/Aust. (B-299)
—	40017	Foot Switch f/U.K. (B-298)
15	46730	Strain Relief w/Locknut
16	63377	Ferrite Bead
17	43552	Cable Tie



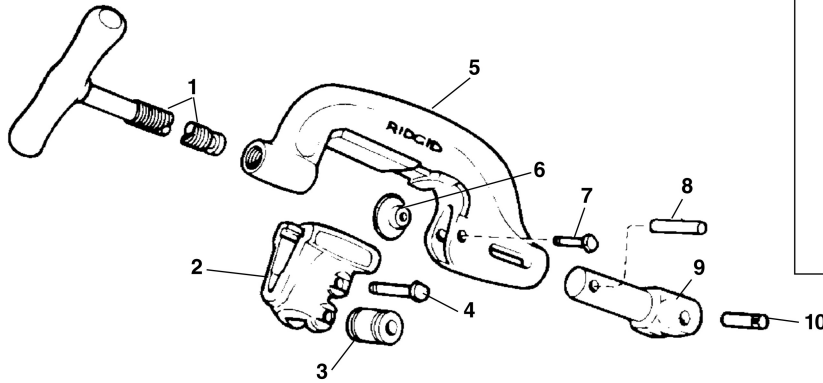
## 120V 60Hz Electrical

**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	61397	Switch Knob
2	61967	Switch Face Plate
3	54157	Switch Assembly
4	54162	Screw (2)
5	61917	Switch Plate
6	54172	Gasket
7	45420	Screw #10 - 24 x 3/8"
8	30953	Connecting Cord
9	44695	Hex Nut #10 - 24
10	61912	Cord Retainer
11	92455	Screw #10 - 24 x 3/4"
12	54357	Screw 5/16" - 18 (2)
13	58602	Foot Switch Hook
14	36642	B-294 Foot Switch
15	54137	Screw (2)
16	58267	Foot Switch Hanger Bracket
17	96730	Hex Nut 5/16" - 18
18	72107	Strain Relief
19	46740	Power Cord
20	44635	End Splice Connector
21	78367	Warning Plate



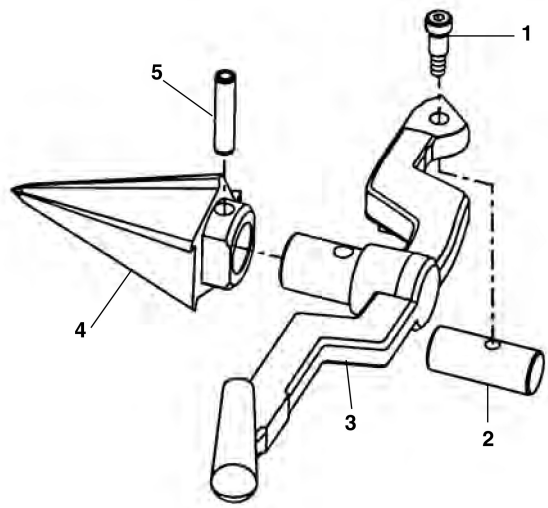
## No. 360 Cutter



Ref. No.	Catalog No.	Description
—	42370	360 Cutter Complete
1	43625	D-1024-X Screw Handle
2	33400	C-878-X Roll Housing Assembly
3	34305	E-1751 Roll (2)
4	34310	E-1752 Roll Pin (2)
5	43595	C-877 Cutter Frame
6	33100	F-514 Cutter Wheel Thin
	33105	F-3 Cutter Wheel H.D.
	44185	E-1032 Cutter Wheel Std.
7	34780	F-9 Wheel Pin
8	45435	E-3549 Retaining Pin
9	45505	E-3759 Support Arm
10	45520	E-3819 Pin

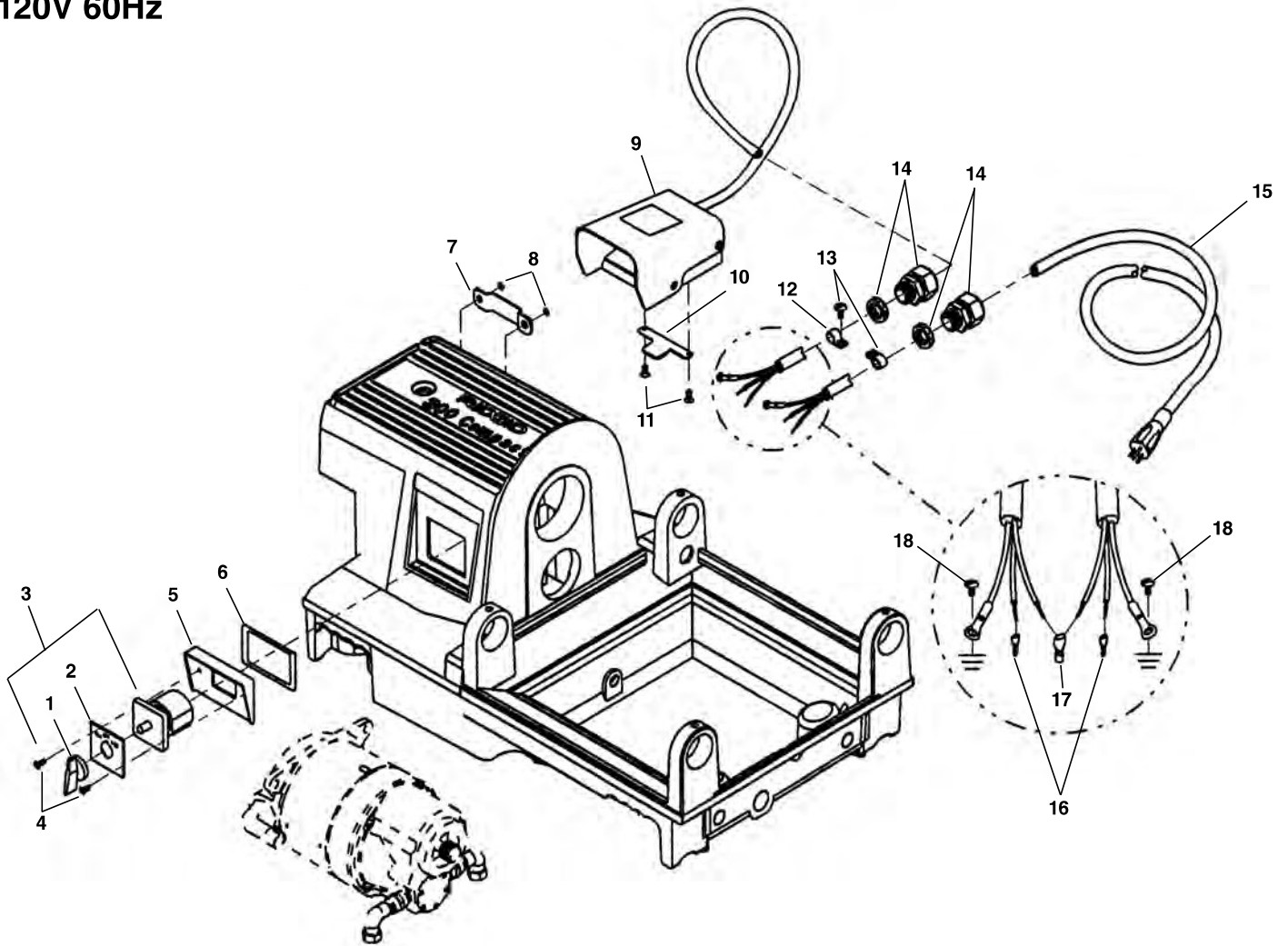
## No. 344 Reamer

Ref. No.	Catalog No.	Description
—	34612	344 Reamer Complete
1	36262	Shoulder Screw
2	36267	Pivot Pin
3	36272	Reamer Arm
4	36277	Reamer Cone
5	35355	Split Roll Pin





**52 RPM Electrical  
120V 60Hz**

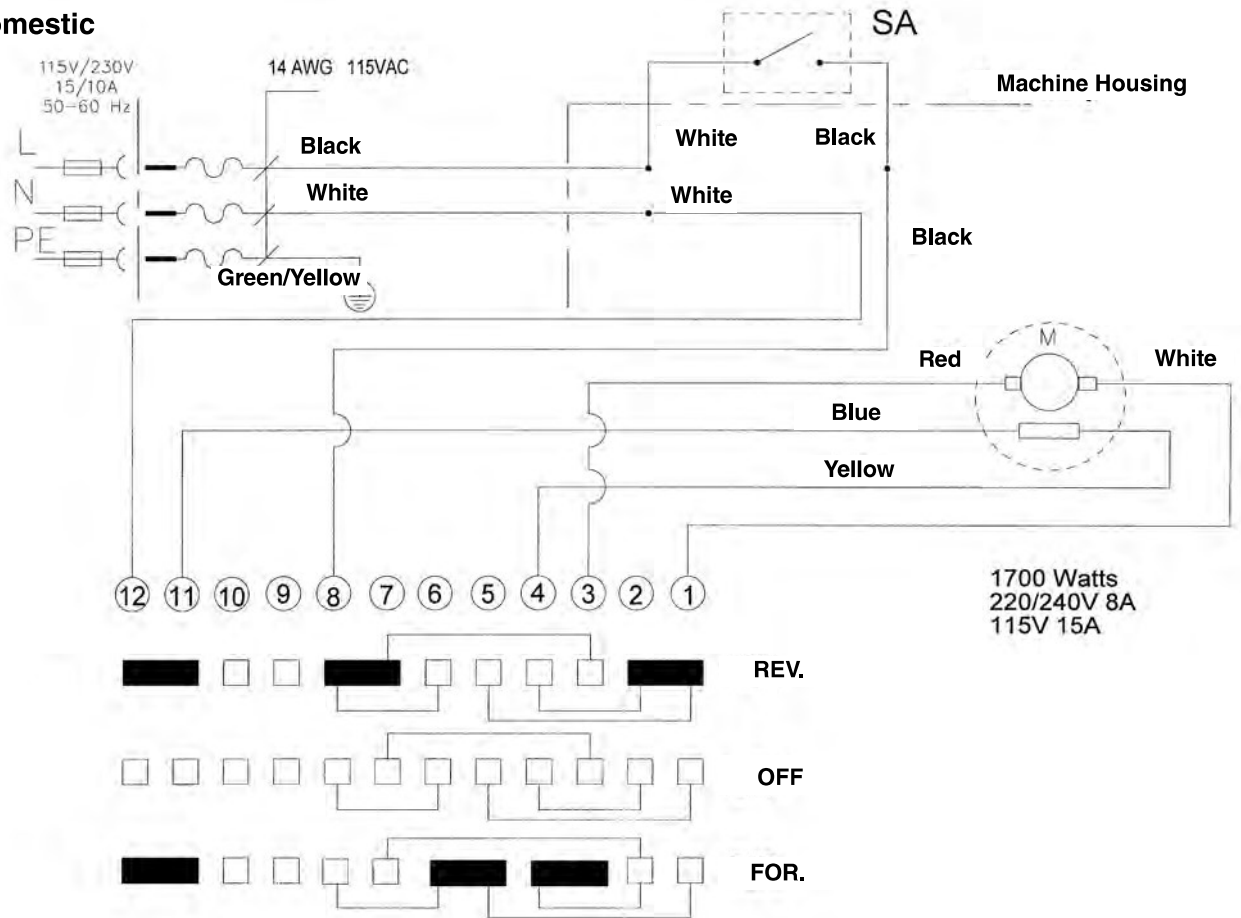


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

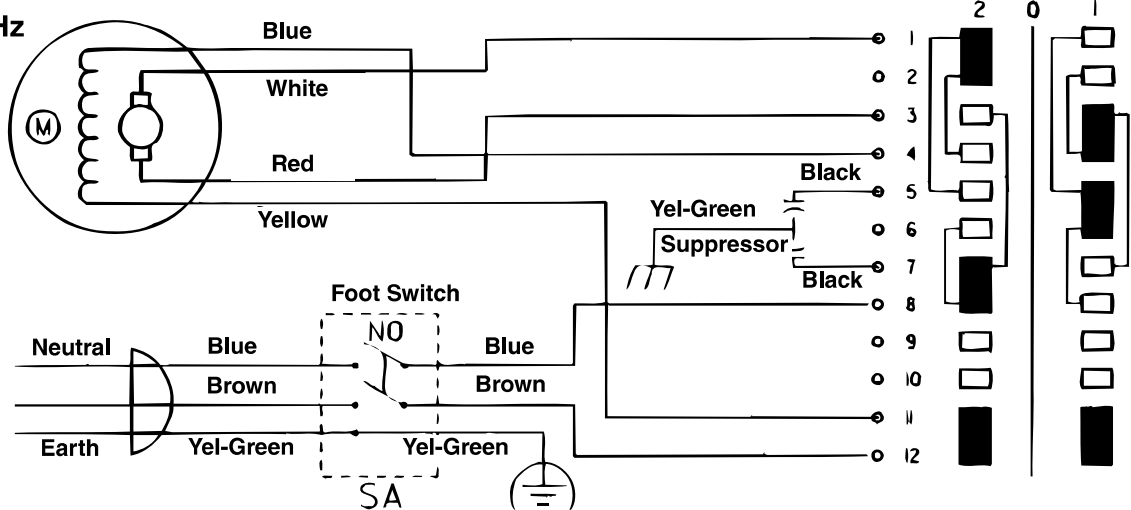
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	61397	Switch Knob	10	58602	Foot Switch Hook
2	61967	Switch Face Plate	11	54357	Screw $\frac{5}{16}$ " - 18 (2)
3	54157	Switch Assembly	12	75937	Cable Clamp (2)
4	54162	Screw (2)	13	92455	Screw #10-24 x $\frac{3}{4}$ "
5	61917	Switch Plate	14	75952	Strain Relief with Nut
6	54172	Gasket	15	75902	Power Cord
7	58267	Foot Switch Hanger Bracket	16	76347	Wire Terminals (6)
8	54137	Screw (2)	17	44635	Wire End Splice
9	74272	B294 HD Foot Switch	18	45420	Grand Screw #10-24 x $\frac{3}{8}$ " (2)

## Wiring Diagrams

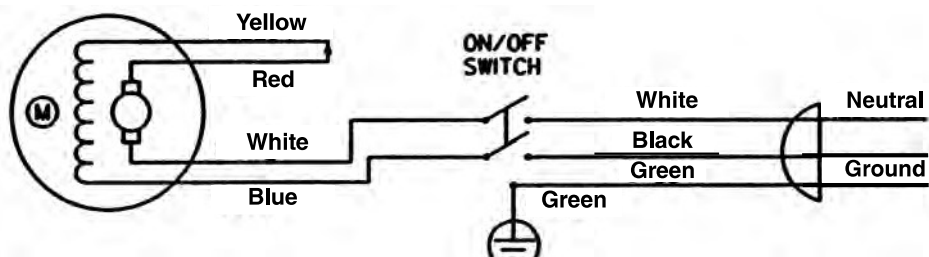
### 115V Domestic



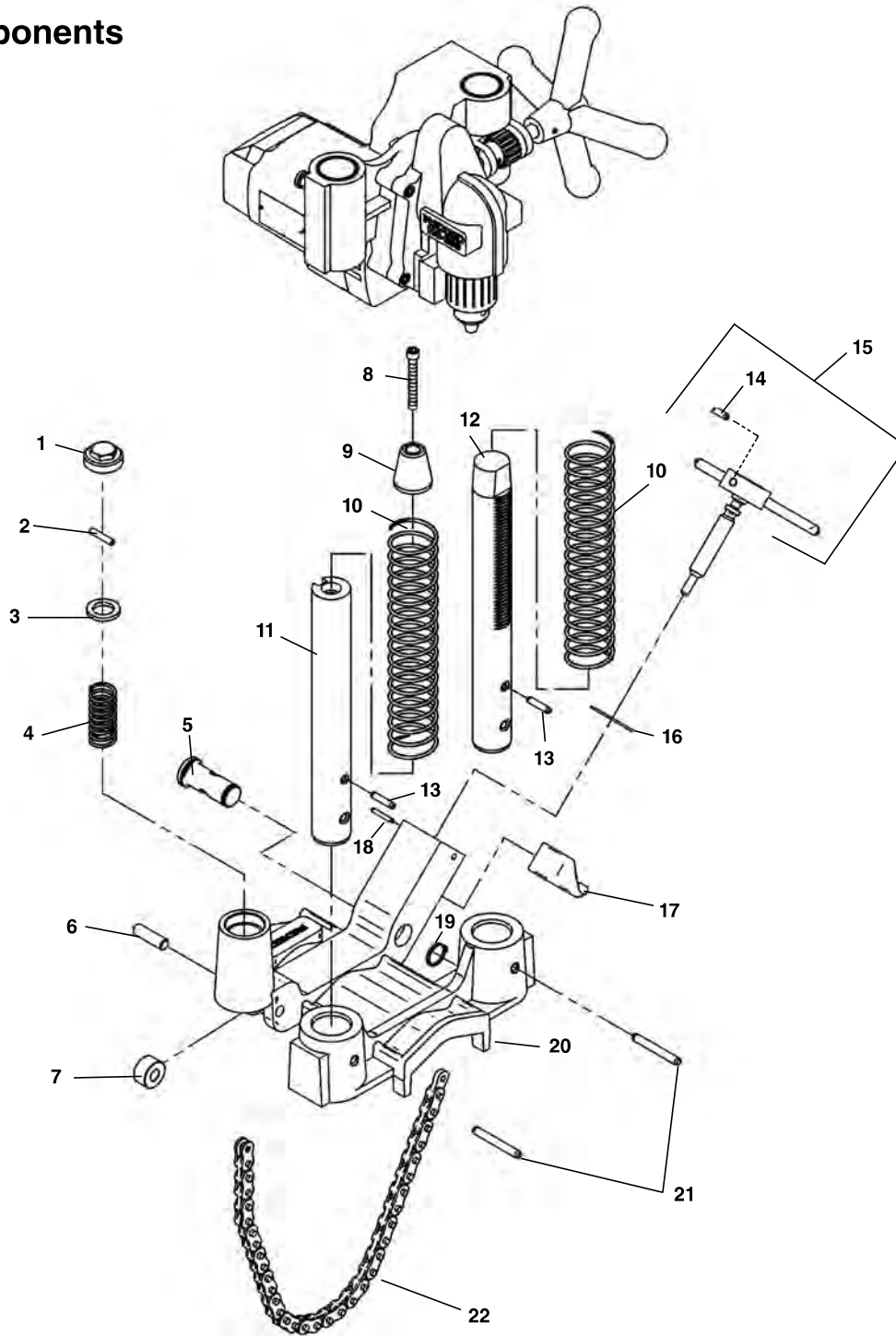
### 115V/230V 25-60 Hz



### 115/230V Far East



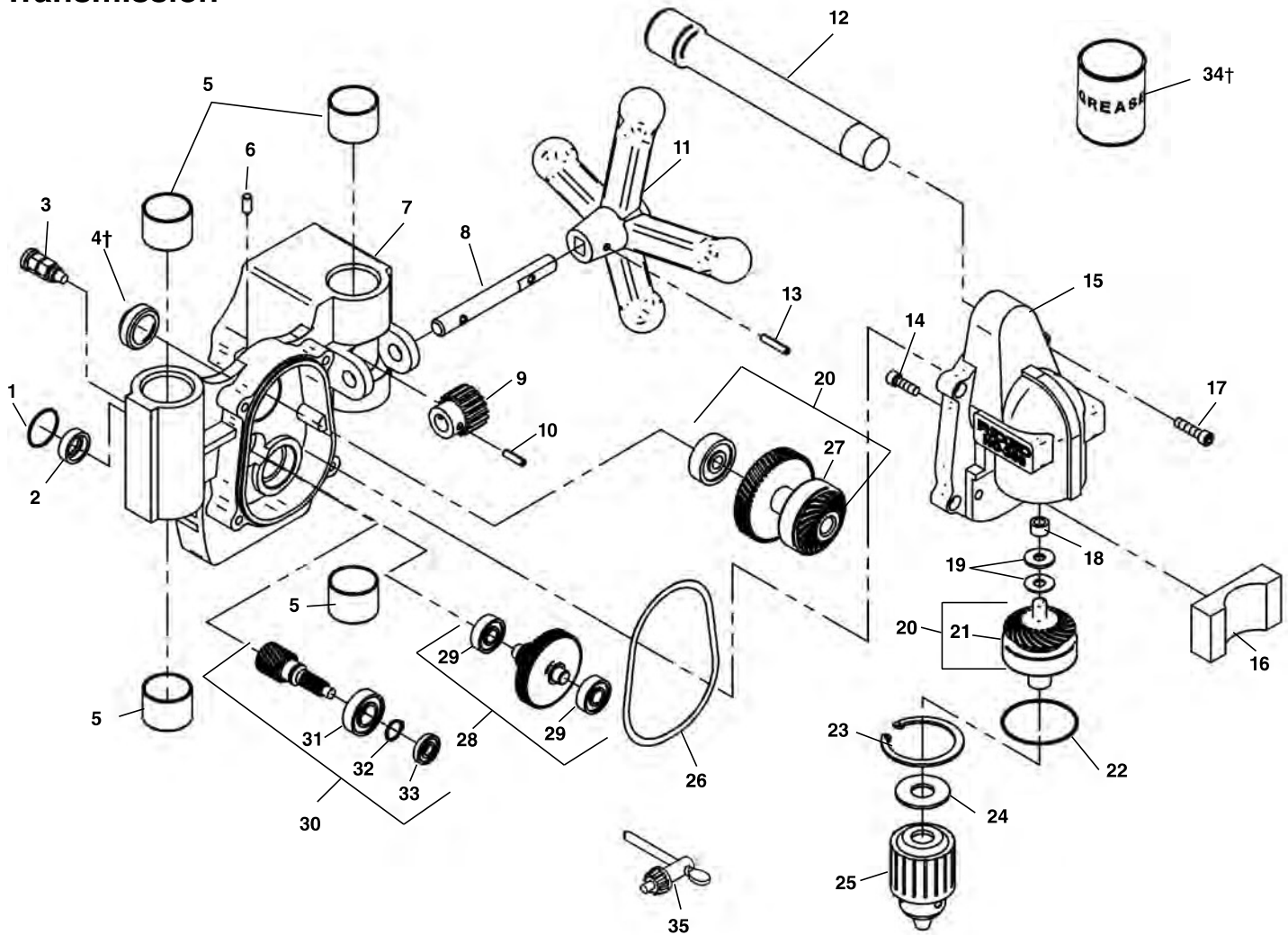
**Main Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	77092	Cap	12	77052	Rack w/Pins (Incls. Refs. 13, 21)
2	77097	Pin	13	34342	Spring Pin (2)
3	77242	Washer	14	77067	Ball Detente
4	77087	Compression Spring	15	77077	Crank Screw Assembly
5	77257	Pivot Pin	16	77072	Friction Ring
6	41035	Roller Pin	17	77082	Chain Hook
7	40990	Roller	18	76735	Spring Pin
8	32145	Soc. Hd. Cap Screw, 1/4" - 20 x 1 1/2"	19	77252	Retaining Ring
9	77262	Plunger Stop	20	77042	Base w/Pins (Incls. Ref. 21)
10	77057	Compression Spring (2)	21	44850	Spring Pin (2)
11	77047	Post Assembly (Incls. Refs. 8, 9, 13, 21)	22	77247	Chain Assembly (Incls. Ref. 2, 3)

## Transmission



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

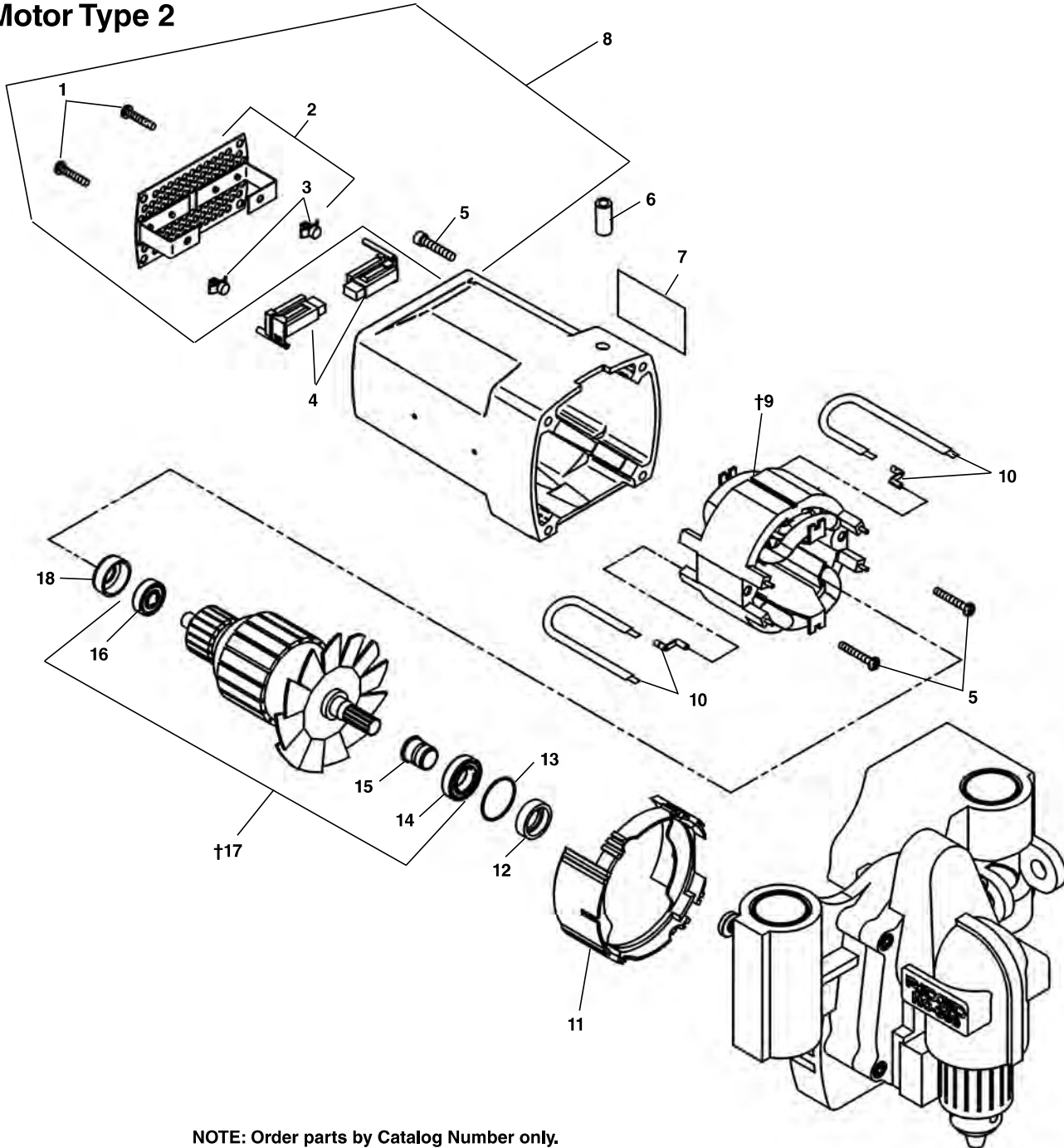
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	77202	O-Ring	13	36387	Roll Pin	25	77012	Chuck w/Key
2	77207	Grease Seal	14	40910	Screws (4)	26	77177	Gasket, Transmission
3	61567	Plunger Assembly	15	77142	Front Gear Case	27	45315	Ball Bearing
†4	77092	Adjusting Cap	16	77172	Chuck Guard	28	77112	2nd Intermediate Gear Assembly
5	59027	Bearing (4)	17	83685	Screw (4)	29	77187	Ball Bearing (2)
6	77167	Set Screw, Nylon Tip	18	77122	Needle Bearing	30	77117	1st Intermediate Gear Assembly
7	77147	Rear Gear Case	19	77127	Thrust Bearing Assembly	31	77197	Ball Bearing
8	77007	Feed Shaft	20	77102	Spiral Gear Set	32	83027	Retaining Ring
9	59092	Carriage Pinion	21	45315	Ball Bearing	33	77192	Ball Bearing
10	44662	Roll Pin	22	77157	O-Ring	†34	26707	Transmission Grease, 1 Lb.
11	58957	Hand Wheel	23	77132	Retaining Ring, Internal	35	77017	Chuck Key
12	77152	Carry Handle	24	46295	Spacer			

† Service Notes:

Ref. 4 Backlash Adjustment – Use 6" C-Clamp to lightly push chuck into housing. Apply thin coat of Loctite No. 545 Hydraulic/Pneumatic Thread Sealant (or equivalent) to threads on adjusting cap, Ref. 4. Tighten cap to 40 - 50 in-lbs then back off to eliminate torque. Re-tighten finger tight then back off 20° to 30°. Remove clamp and check by gripping chuck with fingertips and feeling for minimal rotational backlash in output gear. Tighten set screw, Ref. 6, to hold cap securely.

Ref. 36 Grease Fill – Use only recommended transmission grease (Molytex EPO). Fill bearing pockets with grease and apply coating to gear teeth. Fill two separate transmission cavities approximately 1/2 full of grease using about 1/4 of pound can

**Motor Type 2**

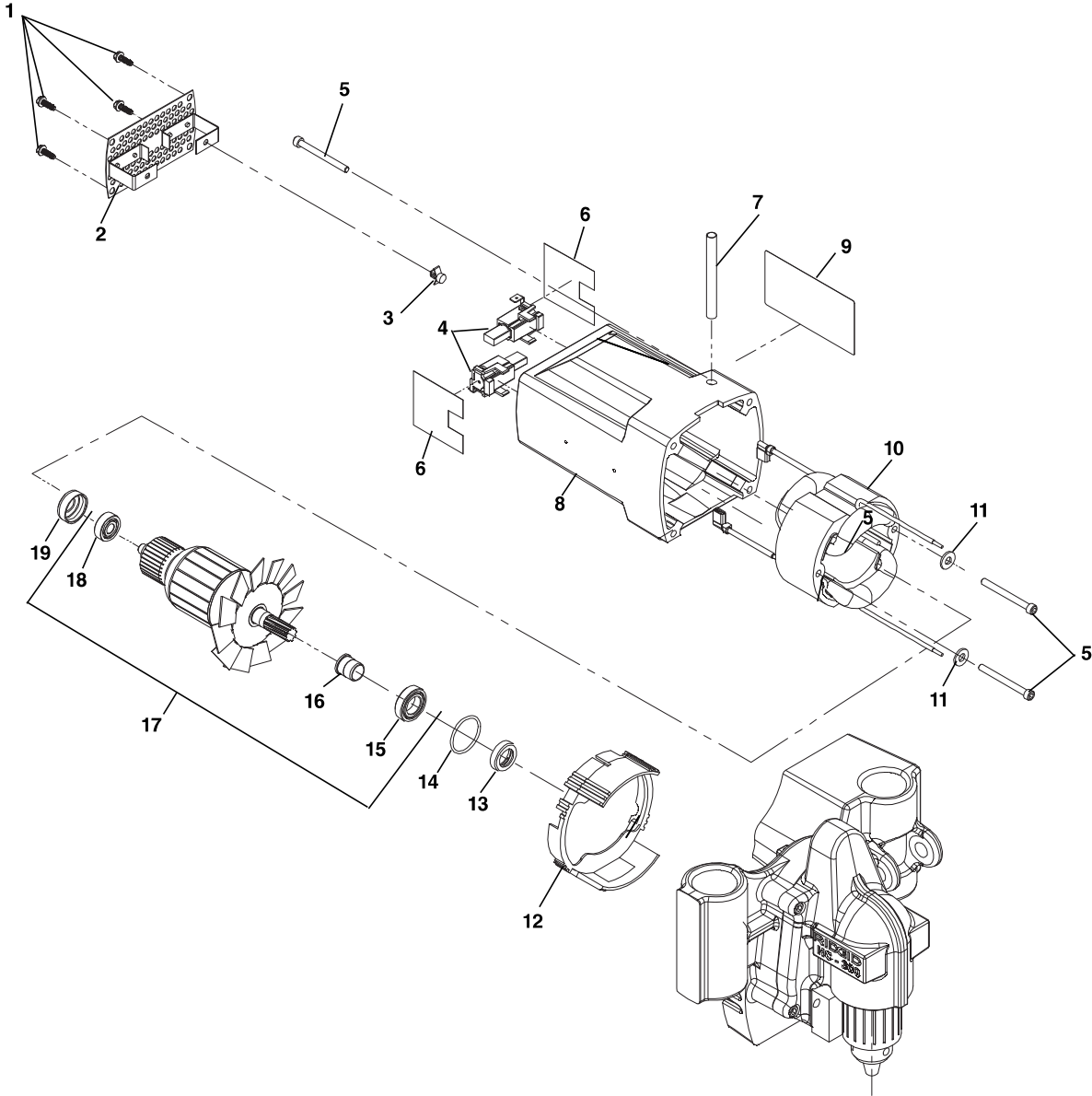


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	10908	Screw, Self Tapping (4)	10	77027	Motor Lead Set
2	10913	End Cap	11	35328	Fan Shroud
3	10918	Bumper (2)	12	77207	Seal
4	34078	Brush Assembly Set 115V	13	77202	O-Ring
	34083	Brush Assembly Set 230V	14	77232	Bearing
5	10923	Screw, #10-24 x 2" Soc. Hd. Cap (6)	15	77227	Armature Sleeve
6	10928	Insulator	16	43017	Bearing
7	77267	Warning Label Set	†17	84087	Armature Assembly 115V
8	22038	Motor Housing		84082	Armature Assembly 230V
†9	45897	Field 115V		84092	Armature Assembly 100V
	58567	Field 230V	18	42777	Rubber Sleeve
	58572	Field 100V			

† Service Note: When replacing early style 115V or 230V armature# or field# you must replace with both new style armature#, field# and brushes#.

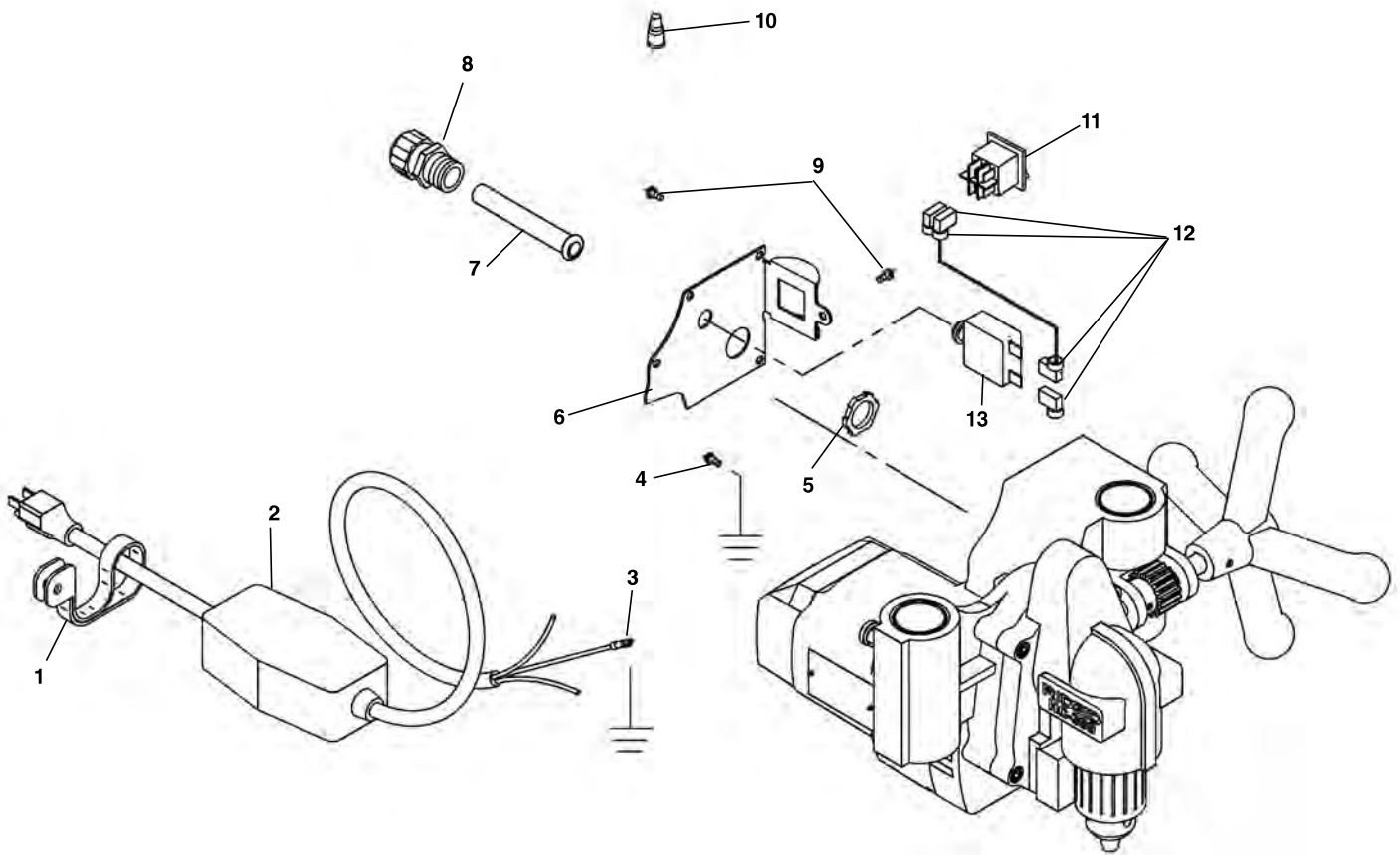
## Motor Type 2 – Motors built after serial number EBH XXXXX 1109



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	10908	Screw, Self Tapping (4)	11	41592	Washer
2	10913	End Cap	12	35328	Fan Shroud
3	10918	Bumper	13	77207	Seal
4	34078	Brushes	14	77202	O-Ring
5	10923	Screw, #10-24 x 2" Soc. Hd. Cap (6)	15	77232	Bearing
6	39003	Shields (2)	16	77227	Armature Sleeve
7	10928	Insulator	17	38833	Armature Assembly 120V
8	22038	Motor Housing HC-300		38838	Armature Assembly 220V
9	77267	Warning Label Set		38843	Armature Assembly 100V
10	38848	Field 115V	18	43017	Bearing
	38853	Field 220V	19	42777	Rubber Sleeve
	38858	Field 100V			

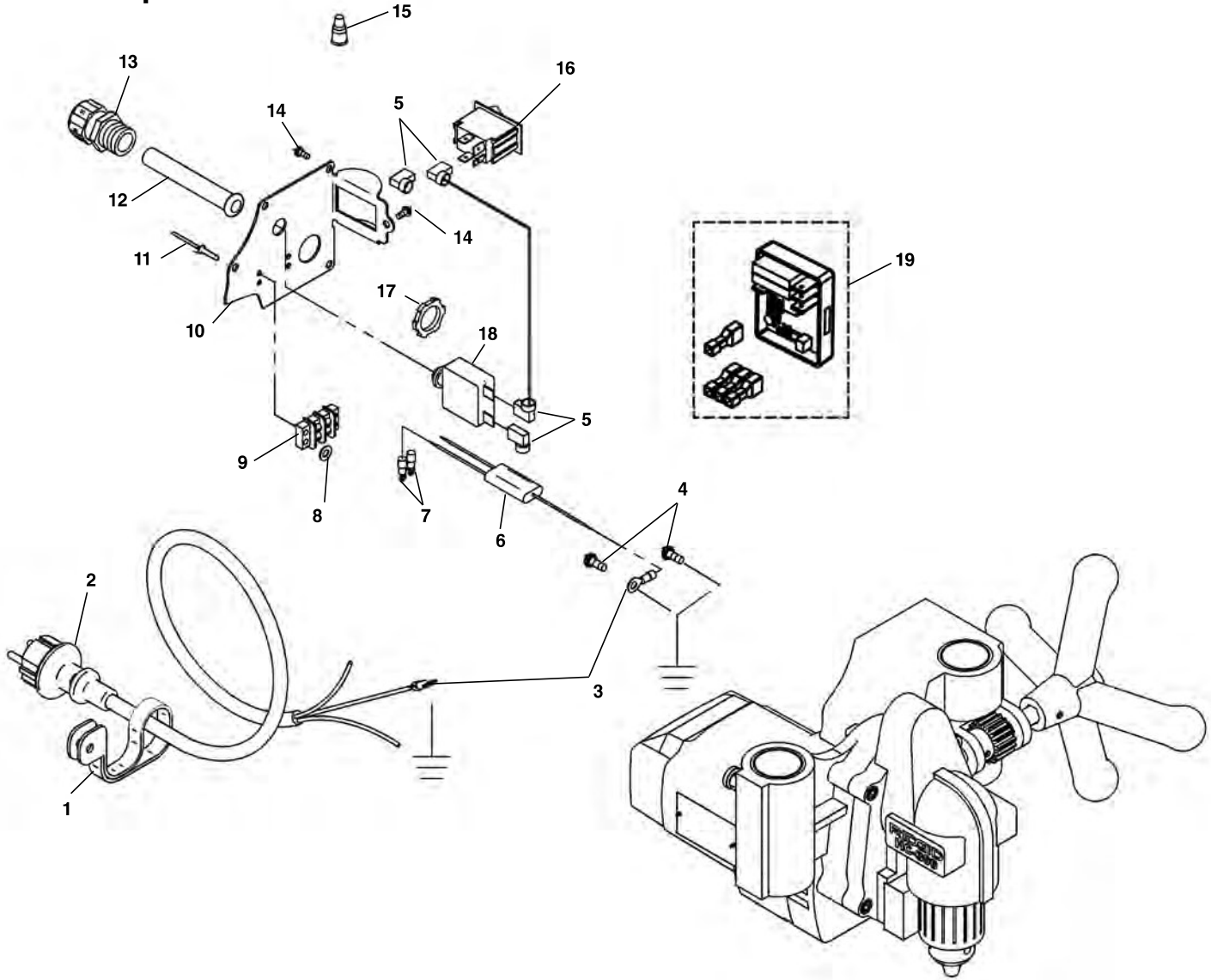
**115V Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>	<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	59102	Key Retainer	8	65602	Strain Relief
2	50502	Line Cord w/GFI	9	46795	Screw #10 - 24 x 1/2" (5)
3	26292	Ring Terminal	10	44635	Wire Nut
4	45420	Screw w/Washer	11	58597	Switch
5	65642	Lock Nut, 1/2" NPT	12	76992	Quick Disconnect, Right Angle (4)
6	87047	Switch Box Cover	13	61302	Circuit Breaker, 12 Amp
7	77002	Cord Guard			

## 230V Components

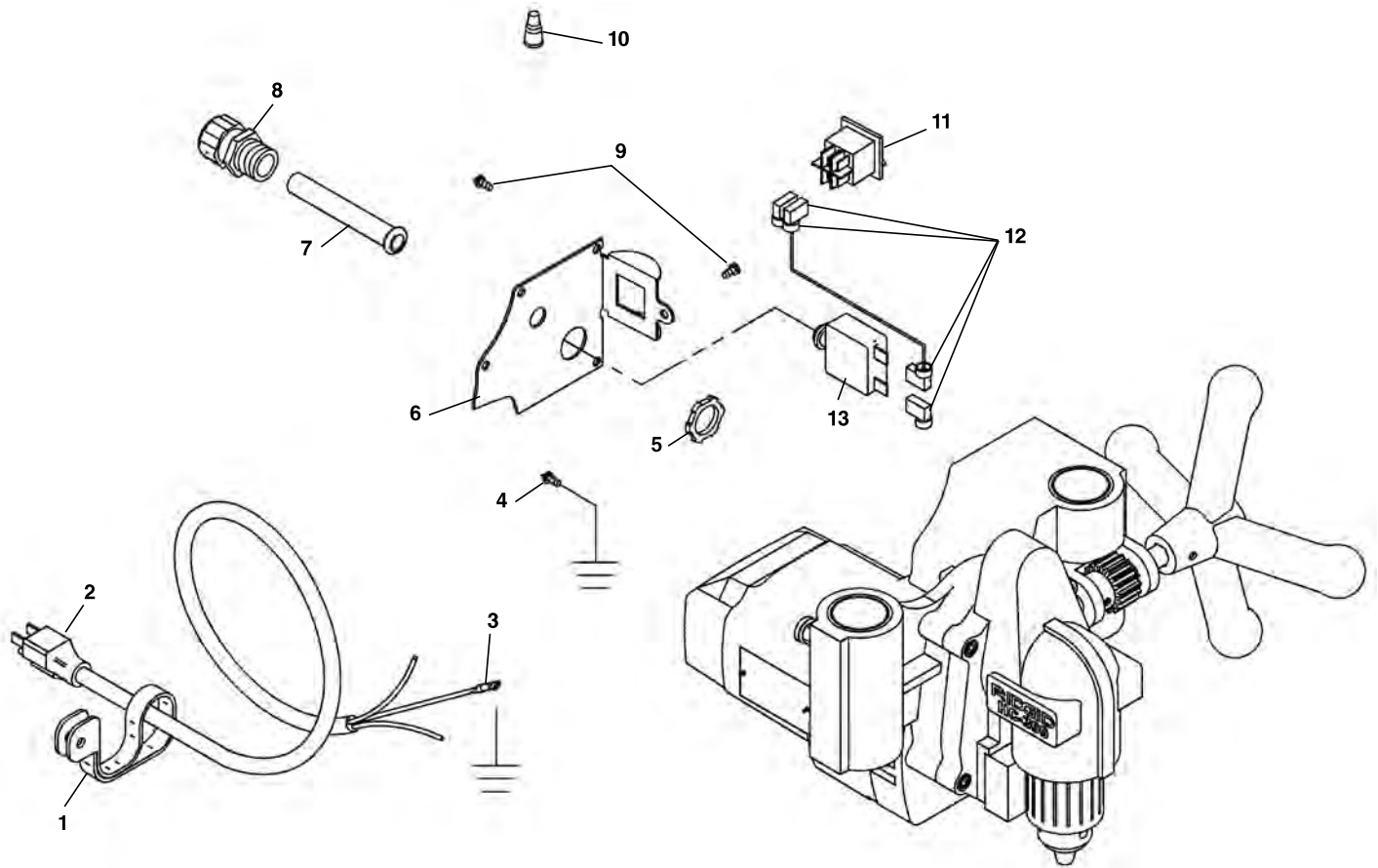


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	59102	Key Retainer	11	59112	Pop Rivet <sup>5</sup> / <sub>32</sub> " (2)
2	65842	Line Cord	12	77002	Cord Guard
3	26292	Ring Terminal	13	65602	Strain Relief
4	45420	Screw w/Washer (2)	14	46795	Screw #10 - 24 x <sup>1</sup> / <sub>2</sub> " (5)
5	76992	Quick Disconnect, Right Angle (4)	15	44635	Wire Nut
6	36502	Suppressor	16	58597	Switch
7	90807	Ring Terminal (2)	17	65642	Lock Nut, <sup>1</sup> / <sub>2</sub> " NPT
8	90817	Washer	18	59357	Circuit Breaker, 6 Amp
9	59367	Terminal Block	19	39318	230 V Soft Start Assy.
10	87052	Switch Box Cover			



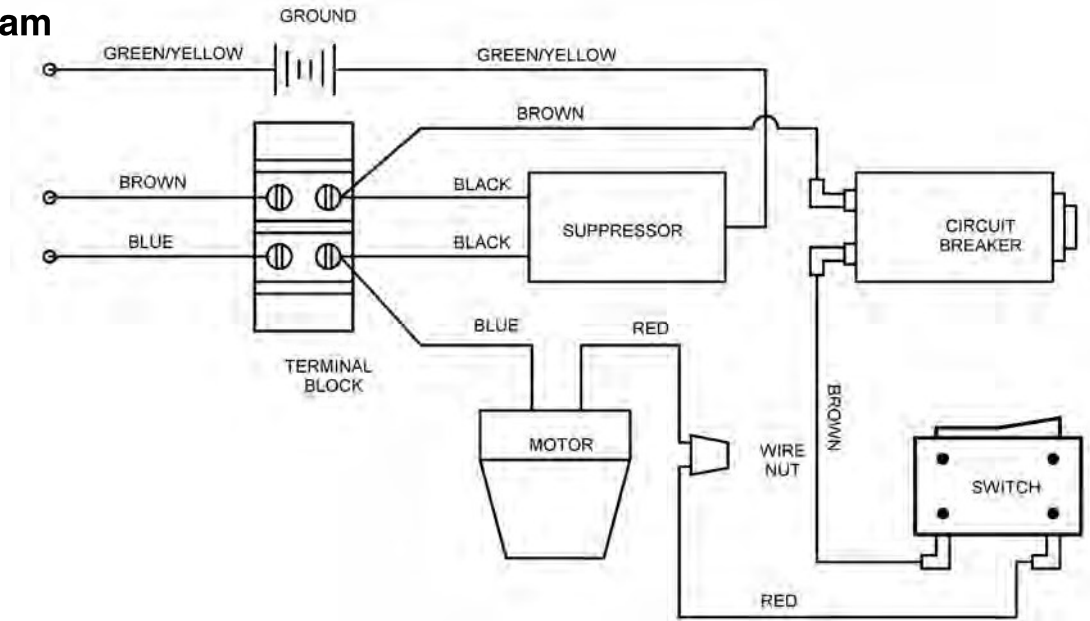
**100V Components**



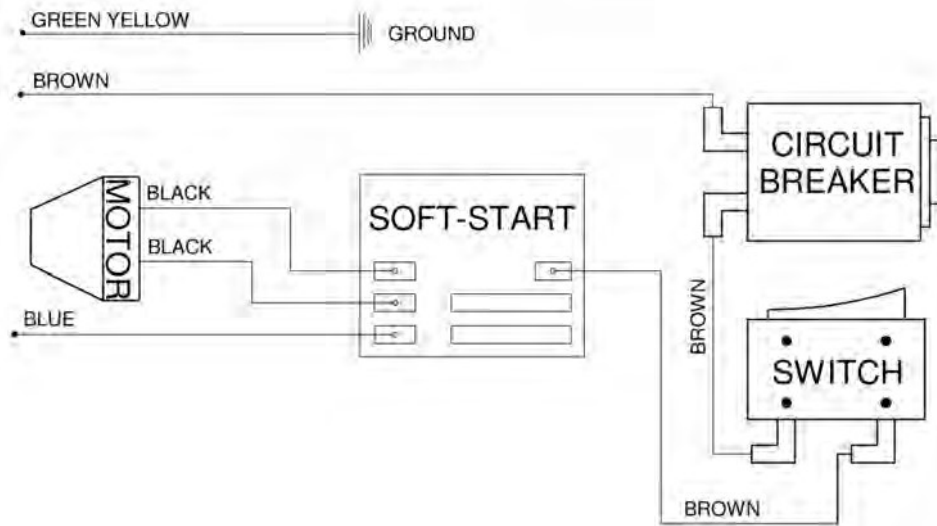
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>	<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	59102	Key Retainer	8	65602	Strain Relief
2	89155	Line Cord	9	46795	Screw #10 - 24 x 1/2" (5)
3	26292	Ring Terminal	10	44635	Wire Nut
4	45420	Screw w/Washer (2)	11	58597	Switch
5	65642	Lock Nut, 1/2" NPT	12	76992	Quick Disconnect, Right Angle (4)
6	87047	Switch Box Cover	13	58962	Circuit Breaker, 15 Amp
7	77002	Cord Guard			

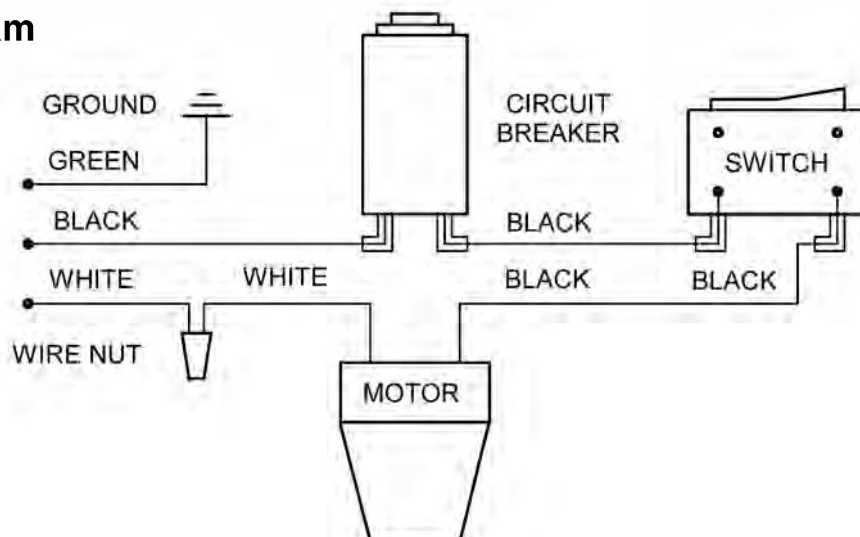
**230V Wiring Diagram**



**230V Wiring Diagram (w/Soft Start)**



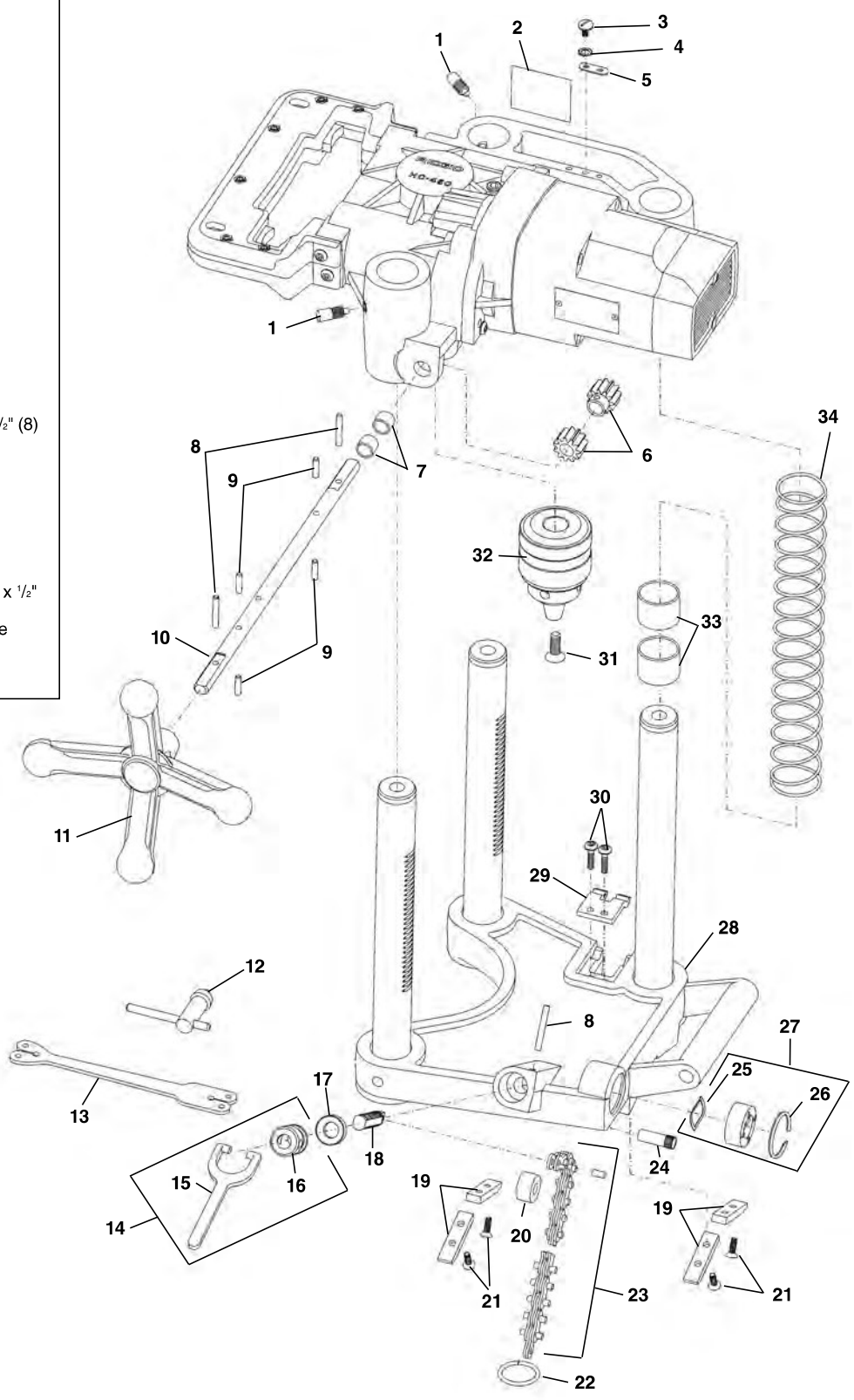
**100V/115V Wiring Diagram**



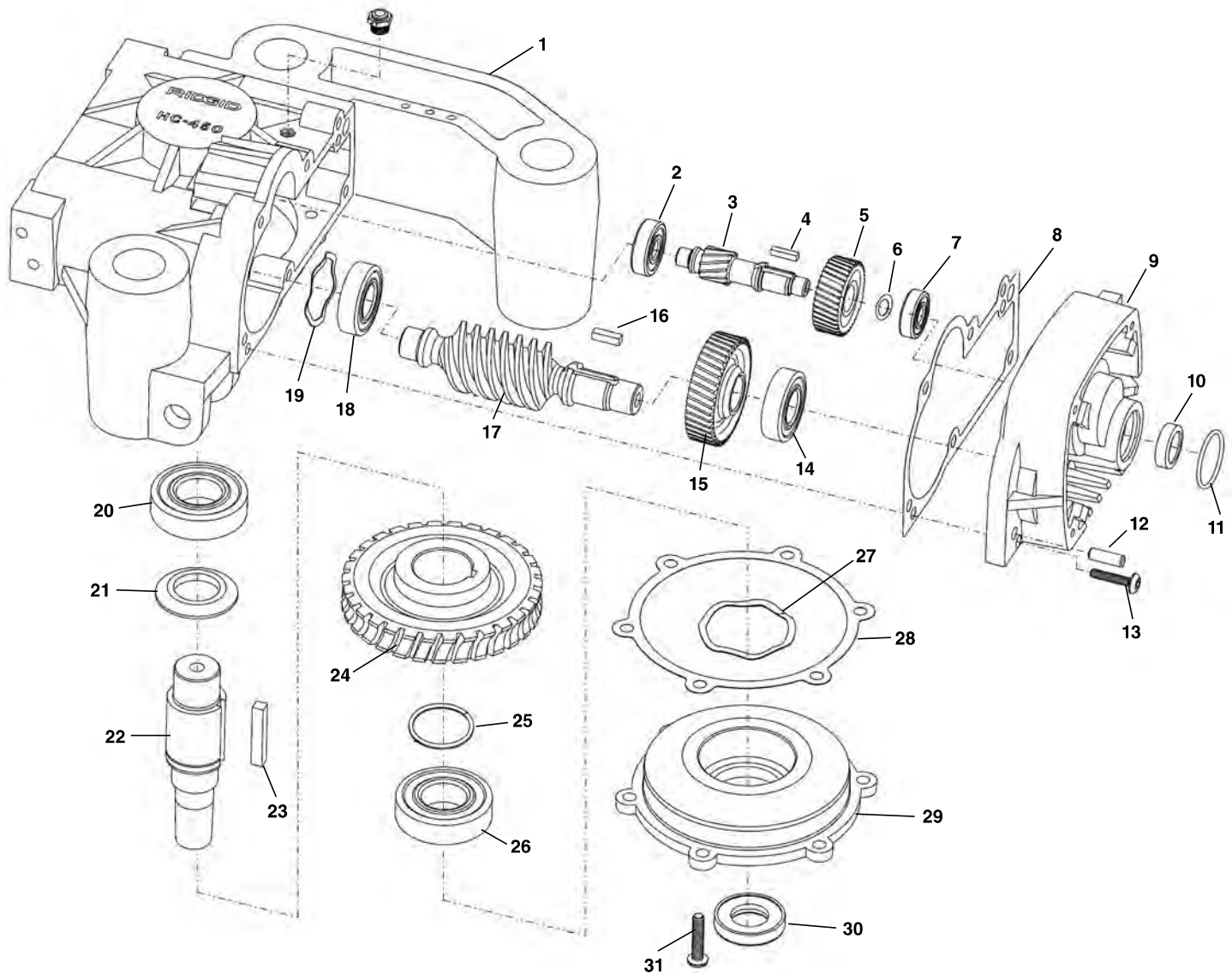
# Main Components

**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	59382	Gib Screw (2)
2	59337	Warning Label
3	45420	Screw, #10-24 x 3/8"
4	46985	Lock Washer #10
5	59407	Ground Spacer
6	59092	Pinion (2)
7	53072	Bearing (3)
8	36387	Split Roll Pin 3/16" x 1" (3)
9	34342	Roll Pin, 3/16" x 15/16" (4)
10	70797	Feed Shaft, 120V/230V
	70802	Feed Shaft, 100V
11	58957	Handwheel
12	59132	Chuck Key – Jacobs Style
	59057	Chuck Key – JIS Style
13	59102	Key Keeper
14	32115	Handle Assembly w/Nut
15	32120	Handle
16	32130	Swivel Nut
17	58987	Friction Ring
18	32135	Chain Screw
19	59187	Wear Pad with Screws (3)
20	40990	Roll
21	59192	Soc. Flat Hd. Screw, #10-24 x 1/2" (8)
22	32555	Wire Ring
23	59012	Chain Assembly
24	41035	Knurl Pin
25	59017	Wave Washer
26	59182	Retaining Ring
27	58997	Level Vial Assembly
28	58977	Base Assembly w/Posts
29	58992	Wear Plate
30	40260	Soc Head Cap Screw, #10-24 x 1/2"
31	59377	Flat Head Screw, 3/16" - 18 x 1"
32	59247	Chuck with Key – Jacobs Style
	59022	Chuck with Key – JIS Style
33	59027	Bearing (6)
34	59177	Compression Spring (3)



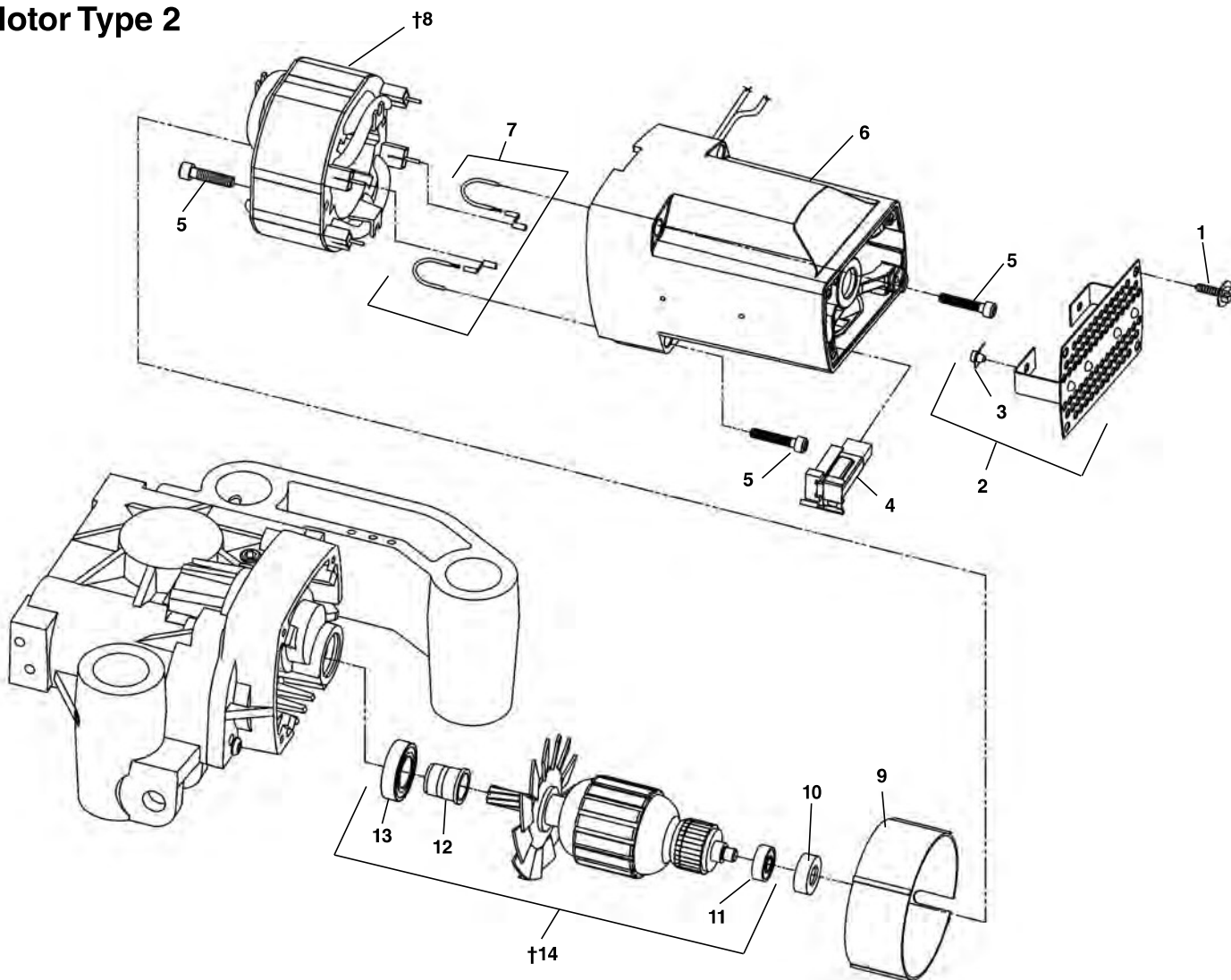
## Transmission



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	59062	Transmission Housing	15	59052	Helical Gear
2	44760	Ball Bearing	16	26657	Key, 3/16" Sq. x 5/8" Lg.
3	77222	Intermediate Gear Shaft, T2	17	59047	Worm Shaft
4	59037	Intermediate Gear Shaft	18	44565	Ball Bearing
5	34472	Key	19	72267	Wave Washer
6	59042	Helical Gear	20	59152	Angular Contact Bearing
7	77237	Spacer, T2	21	59162	Spacer
8	77217	Ball Bearing, T2	22	59142	Output Spindle
9	59147	Ball Bearing	23	26457	Key, 1/4" Sq. x 1 3/16"
10	72192	Gasket, T2	24	59167	Worm Gear
11	59077	Gasket	25	72217	Retaining Ring
12	77212	Motor Adapter, T2	26	45315	Ball Bearing
13	77207	Grease Seal, T2	27	59082	Wave Washer
14	77202	O-Ring, T2	28	72207	Gasket
	60227	O-Ring	29	72202	Cover
	44640	Dowel Pin, 1/4" x 3/4" (2)	30	59392	Oil Seal
	72212	Hex Button Hd Scr w/Sealant (12)	31	59935	Screw, 1/4" x 20 x 1" SHC
	59137	Angular Contact Bearing	32	40628	Breather Plug 100V Only (NOT SHOWN)

**Motor Type 2**

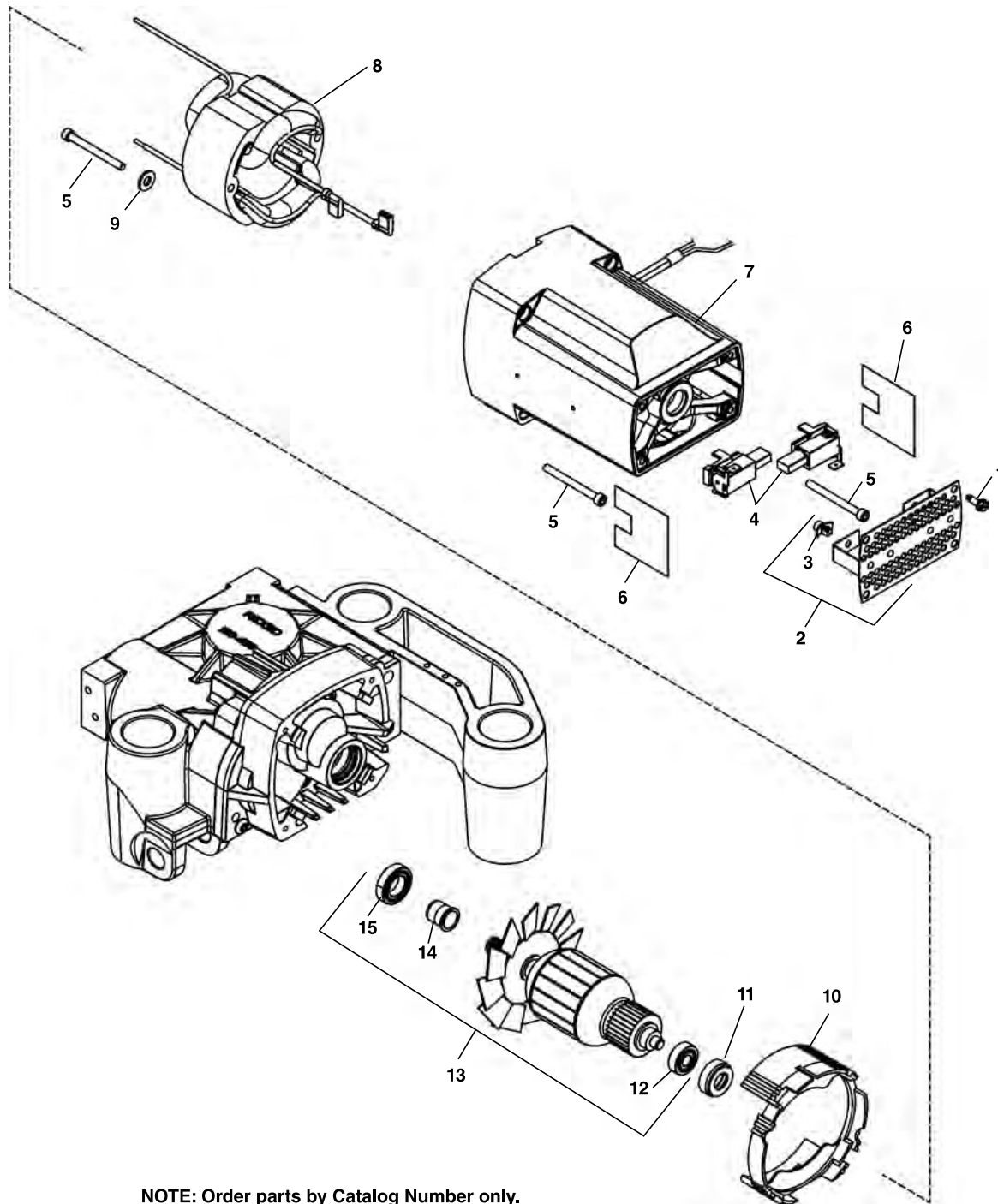


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	10908	Screw, Self Tapping (4)	9	35328	Fan Shroud
2	10913	End Cover	10	42777	Rubber Sleeve
3	10918	Bumper (2)	11	43017	Bearing
4	34078	Brush Assembly Set 115V	12	77227	Armature Sleeve
	34083	Brush Assembly Set 230V	13	77232	Bearing
5	10923	Screw, #10-24 x 2" Soc. Hd. Cap (6)	†14	84087	Armature Assembly 120V
6	10903	Motor Housing		84082	Armature Assembly 230V
7	77027	Motor Lead Set		84092	Armature Assembly 100V
†8	45897	Field 120V			
	58567	Field 220V			
	58572	Field 100V			

† Service Note: When replacing early style 115V or 230V armature# or field# you must replace with both new style armature#, field# and brushes#.

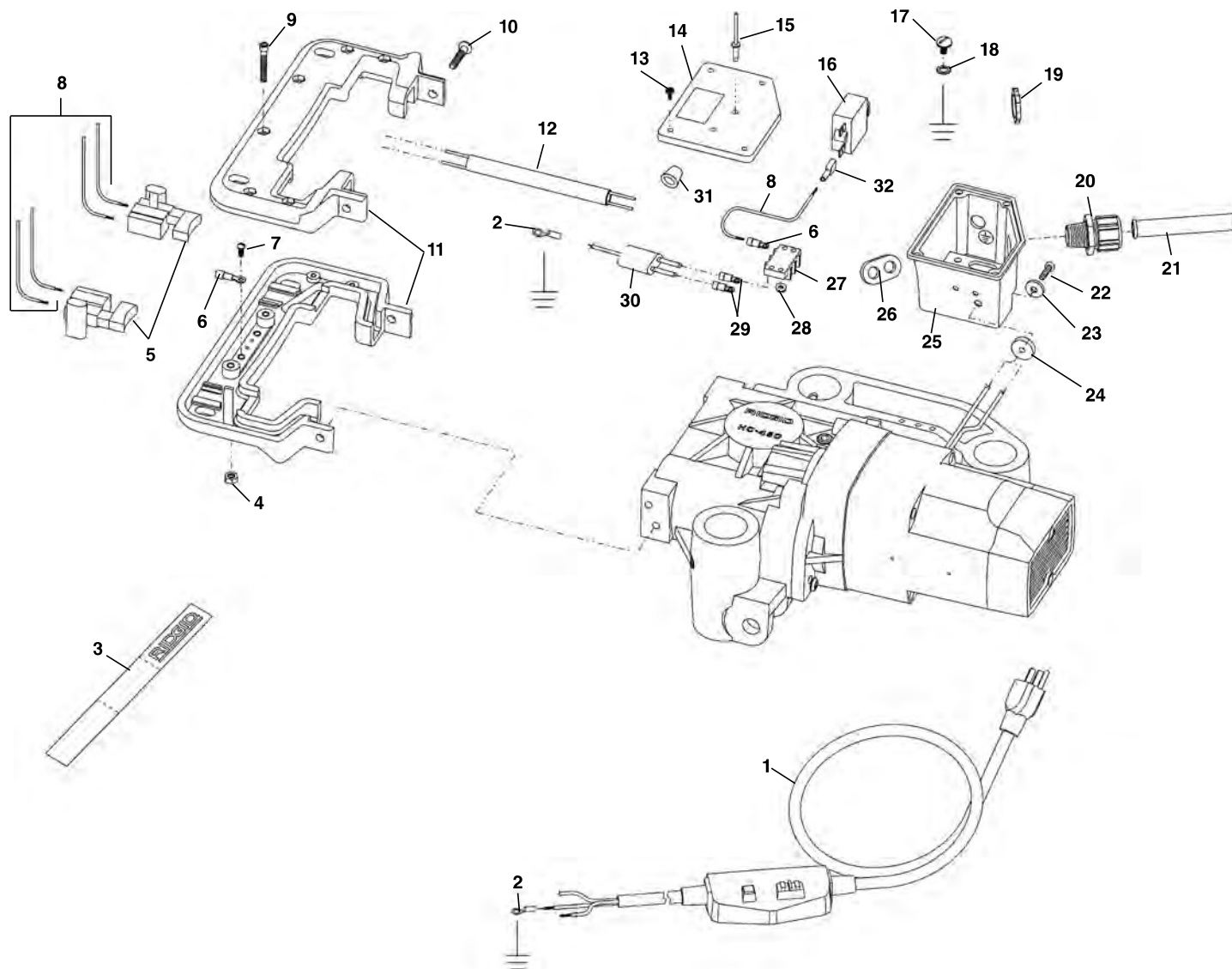
## Motor Type 2 – Motors built after Serial Number EAL XXXX 1109



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	10908	Screw, Self Tapping (4)	9	41592	Washer
2	10913	End Cover	10	35328	Fan Shroud
3	10918	Bumper (2)	11	42777	Rubber Sleeve
4	34078	Brush Assembly Set 115V	12	43017	Bearing
	34083	Brush Assembly Set 230V	13	38833	Armature Assembly 120V
5	10923	Screw, #10-24 x 2" Soc. Hd. Cap (6)		38838	Armature Assembly 230V
6	39003	Shields (2)		38843	Armature Assembly 100V
7	10903	Motor Housing HC-450	14	77227	Armature Sleeve
8	38848	Field 120V	15	77232	Bearing
	38853	Field 220V			
	38858	Field 100V			

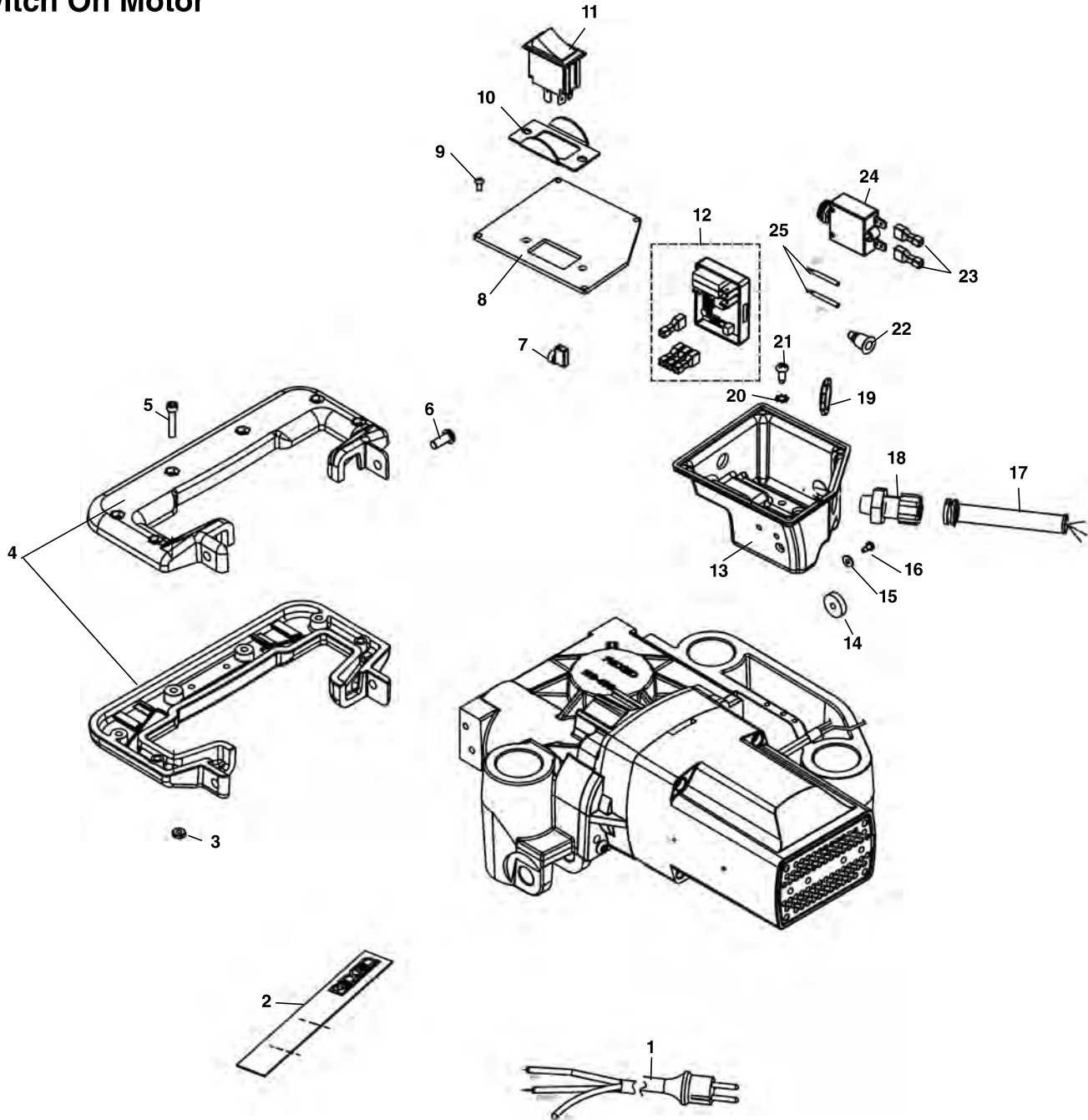
**120V/220 Components  
Switch In Handle**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	50502	Power Cord w/GFCI 120V	11	59257	Handle Set	21	77002	Cord Guard
	65842	Power Cord w/GFCI 220V	12	59342	Insulator Tube	22	93740	Screw Self Tap (2)
2	26292	Ring Terminal	13	72167	Screw, #6-32 x 5/16" (4)	23	90812	Washer
3	59097	Cinch Strap	14	72147	Cover Plate 120V	24	59397	Gasket
4	44695	Hex Nut #10-24 (6)		59227	Cover Plate, 230V	25	59122	Junction Box
5	59317	Switch 115V (2)	15	59112	Pop Rivet, 5/32" (4)	26	59402	Seal
	59362	Switch, 230V (2)	16	61302	Circuit Breaker 15 Amp (120V)	27	59367	Terminal Block (220V Only)
6	83895	Ring Terminal		59357	Circuit Breaker, 6 Amp (220V)	28	90817	Washer (220V only)
7	32318	Screw, #6-32 x 5/16" (2)	17	59192	Screw, #10-24 x 1/2" FH Soc.	29	90807	Ring Terminal (2) (220V Only)
8	77027	Switch Wire Set	18	46985	Lock Washer #10	30	36502	Suppressor (220V Only)
9	93680	Soc. Hd. Cap Screw #10-24 x 1" (8)	19	65642	Lock Nut 1/2" NPT	31	44635	Wire Nut
10	32205	Soc. Hd. Cap Screw, 1/2" - 20 x 5/8" (4)	20	65602	Strain Relief	32	59007	Terminal Set

## Switch On Motor



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

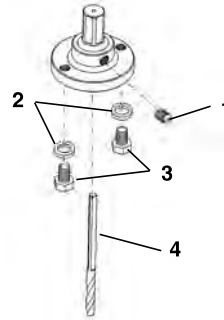
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	50502	Power Cord w GFCI 115V	9	72167	Screw #6-32 x 5/16" (4)	19	65642	Lock Nut 1/2"
	65842	Power Cord w GFCI 220V	10	10408	Switch Guard	20	46985	Washer
	89155	Power Cord 100V	11	58597	Switch	21	59192	Flat Head Screw #10-24 x 1"
2	59097	Cinch Strap	12	39318	Soft Start Assy. (220V Only)	22	44635	Wire Nut
3	44695	Hex Nut #10-24 (6)	13	40758	Junction Box	23	59007	Terminal Set
4	40748	Handle Set w/o Switch Holes	14	59397	Gasket	24	61302	Circuit Breaker 12 Amp (120V)
5	93680	Soc. Hd Cap Screw #10-24 x 1" (6)	15	90812	Washer	25	59357	Circuit Breaker 6 Amp (220V)
6	32205	Soc. Hd Cap Screw 1/2"-20 x 5/8" (4)	16	93740	Self Tap Screw (2)		58962	Circuit Breaker 15 Amp (100V)
7	40773	Right Angle Disconnect (2)	17	77002	Cord Guard		73012	Lead Wire Asm
8	40753	Cover Plate 120V	18	65602	Strain Relief			



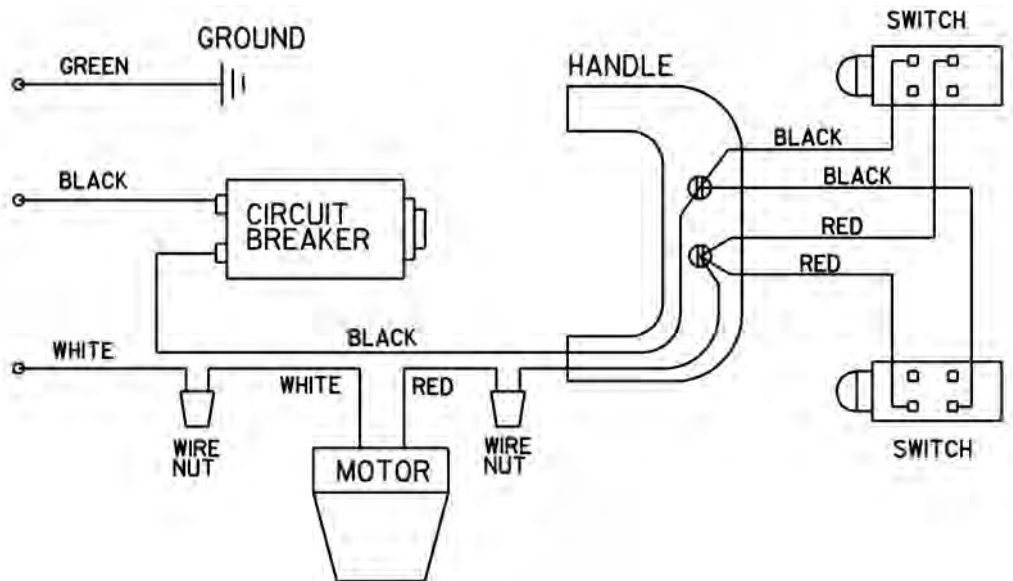
### R-4 Arbor Assembly

NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

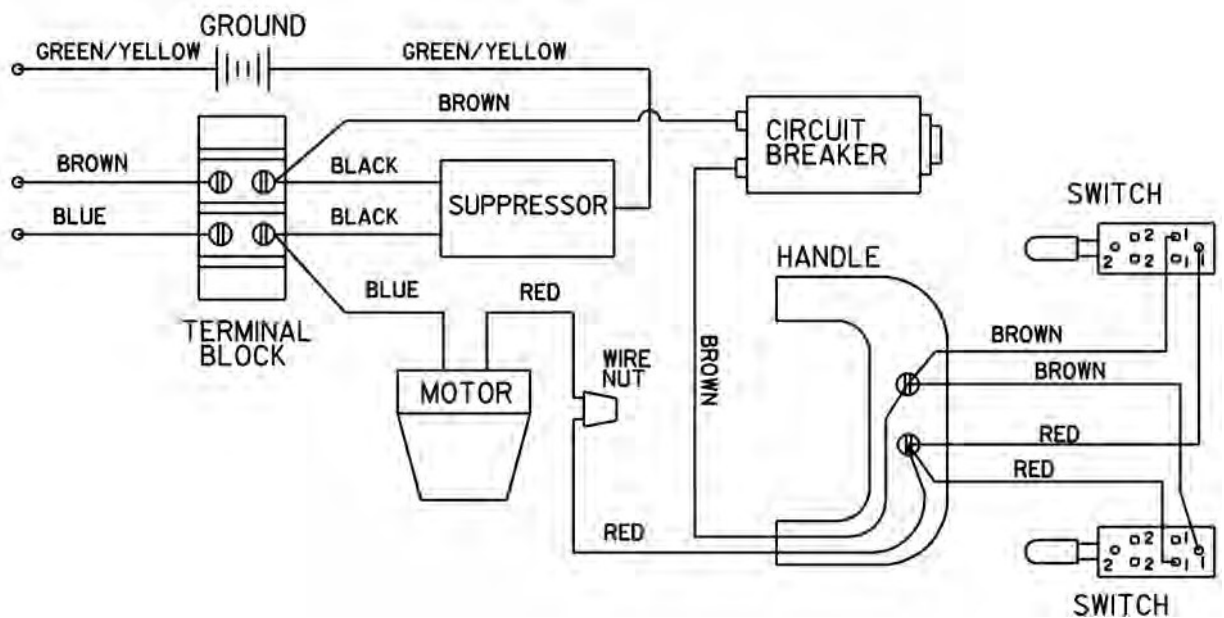
Ref. No.	Catalog No.	Description
—	59502	R-4 Arbor Assembly
1	59387	Set Screw, 5/16" - 24 x 1/2", Cup Pt.
2	60080	Lock Washer, 5/16" (2)
3	60010	Hex Screw, 5/16" - 18 x 1/2" (2)
4	53085	Pilot Drill, 1/4"



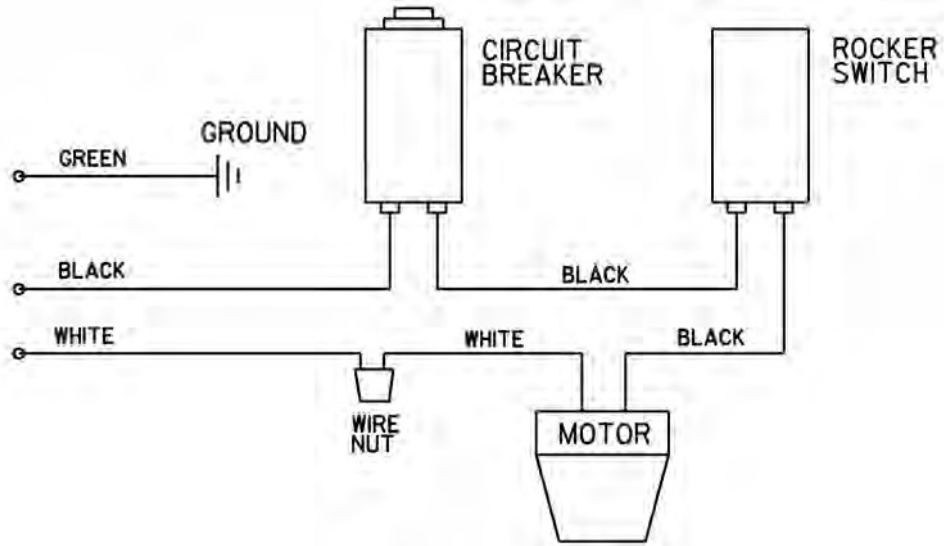
### 120V Wiring Diagram Switch In Handle



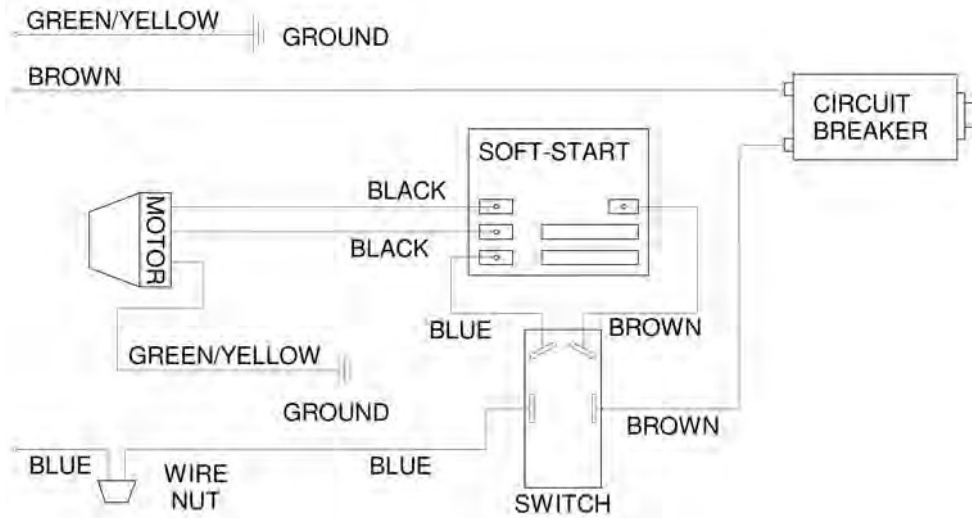
### 230V Wiring Diagram Switch In Handle



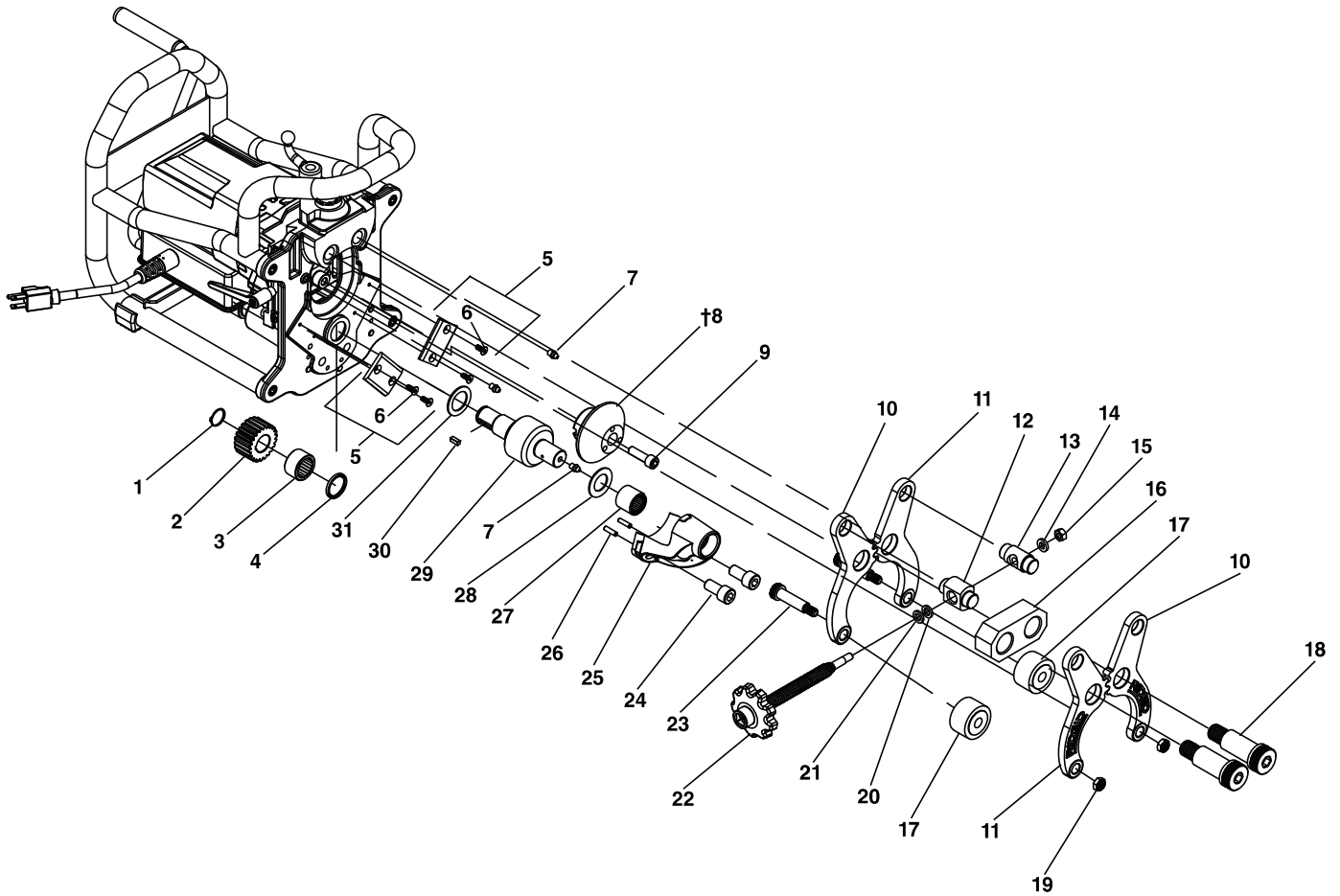
**100V/115V Wiring Diagram  
Switch On Motor**



**230V Wiring Diagram  
Switch On Motor (w/Soft Start)**



**Main Components**

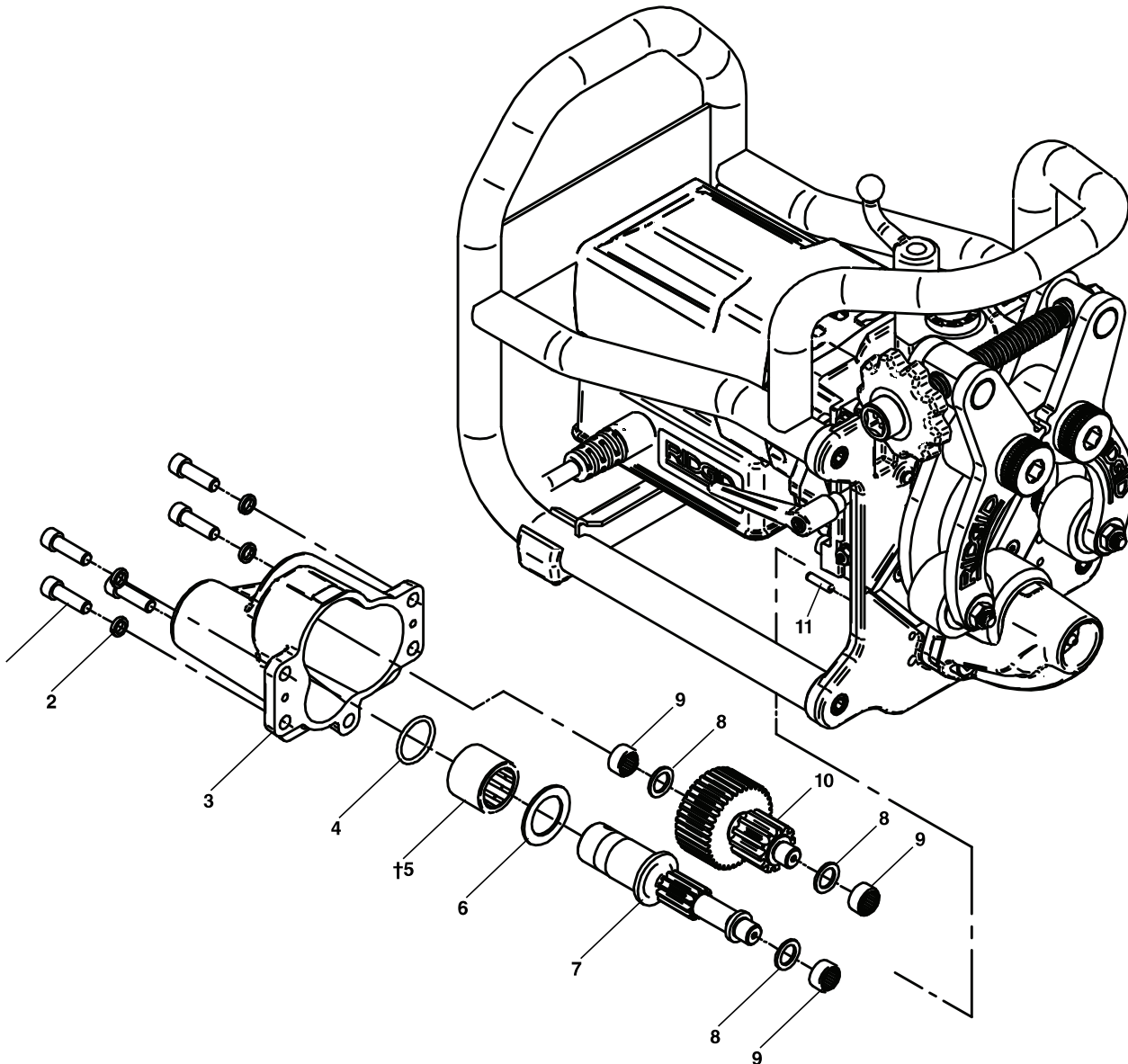


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	93852	Retaining Ring Pkg 4 (1)	17	50413	Grip Roll
2	50473	Hand Crank Drive Roll Gear	18	50528	Shoulder Screw 1" x 2" (2)
3	50533	Roller Bearing	19	50653	Heavy Jam Nylon Lock Nut 3/8- 16 (2)
4	50518	Seal 1 x 1.25 x .125	20	71782	Bronze Thrust Washer (1)
5	50618	Wear Plate Set w/Screws	21	71777	Steel Thrust Washer (1)
6	52447	Screw 10-24 x 1/2 FHC (4)	22	50628	Clamp Screw w/Knob
7	89810	Grease Fitting (3)	23	50418	Shoulder Screw 1/2 x 1.75 (2)
†8	48863	Cutter Head w/Inserts 37.5 deg	24	93857	Screw 1/2- 13 x 1 SHC Pkg 3 (2)
	48858	Cutter Head w/Inserts 30 deg	25	50508	Drive Roll Support
	48868	Cutter Head w/Inserts 45 deg	26	47282	Dowel Pin .188 Dia x .75 L (2)
9	50563	Screw 3/8-24 x 1.25 SHC	27	93877	Needle Bearing
10	50768	Swingarm Set RH	28	93515	Thrust Washer (1)
11	50763	Swingarm Set LH	29	50423	Drive Roll
12	50403	Pivot Nut	30	46930	Square Key 3/8 x 1/2 (1)
13	50408	Pivot Pin	31	50523	Bronze Thrust Washer (1)
14	18983	Washer M8 Class 4 (1)			
15	18978	Locknut 3/8- 18 UNC (1)	Items Not Shown		
16	50398	Swingarm Spacer	48878	Insert Screws w/Anti Seize Pkg 6 (6)	

†Service Note: Ref. No. 8 - Only 6 screws are used on the cutter head for inserts, 2 additional are supplied as extras. Torque insert screws to 30-35 in-lbs.

Hand Crank Gearbox

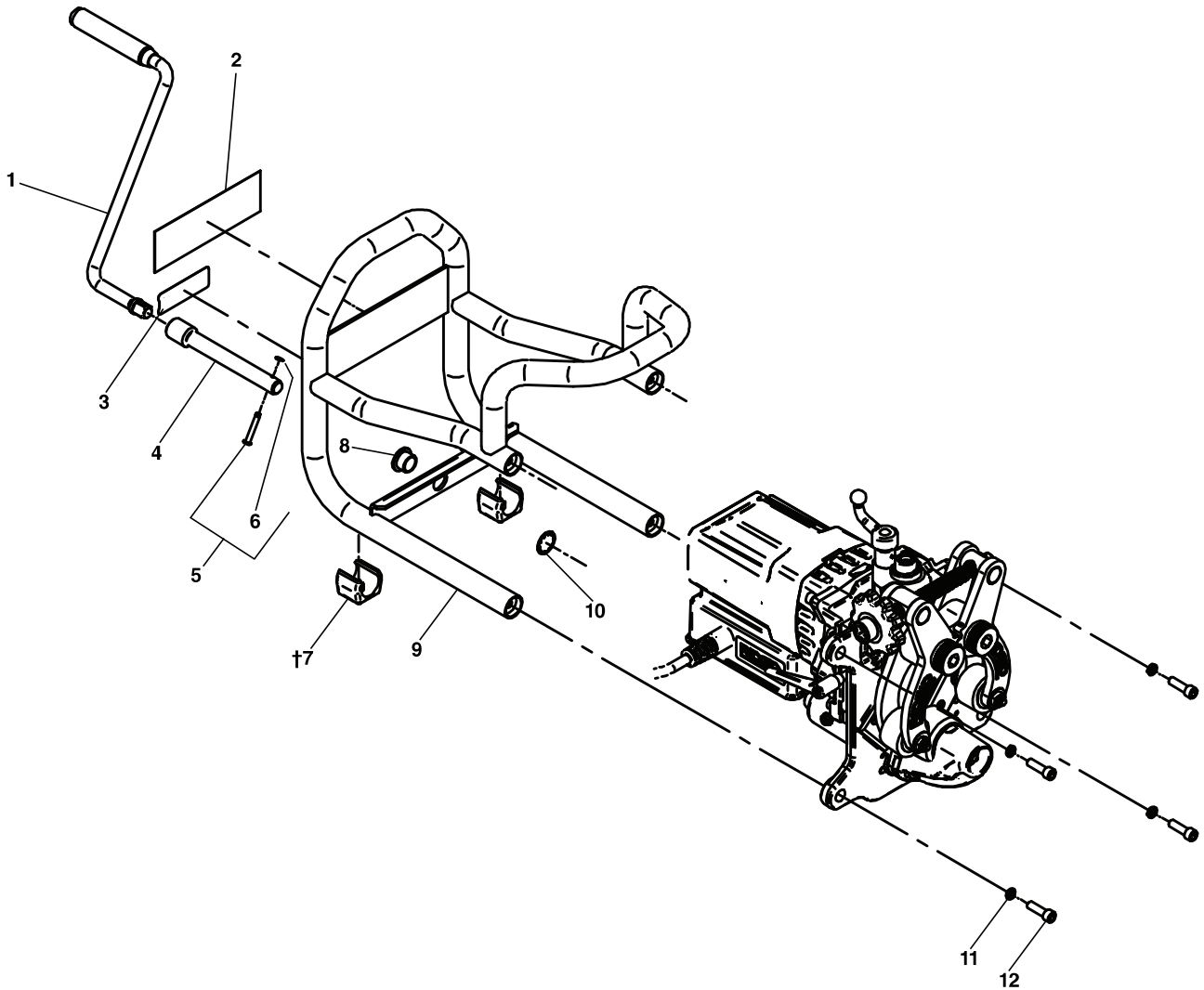


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	44590	Screw SHC 5/16 - 18 x 1 Pkg 5 (5)
2	95837	Hicollar Lock Washer 5/16" Pkg 5 (5)
3	50488	Hand Crank Gearbox
4	50638	O-Ring (1)
†5	50548	Clutch Roller Bearing
6	50523	Bronze Thrust Washer (1)
7	50483	Input Pinion Shaft
8	50388	Thrust Bearing
9	93777	Needle Roller Bearing Pkg 3 (3)
10	50478	Intermediate Gear
11	47282	Dowel Pin .188 x .75 Pkg 5 (2)

†Service Note: Ref. No. 5 - Install bearing with print side out.

**Frame Assembly**

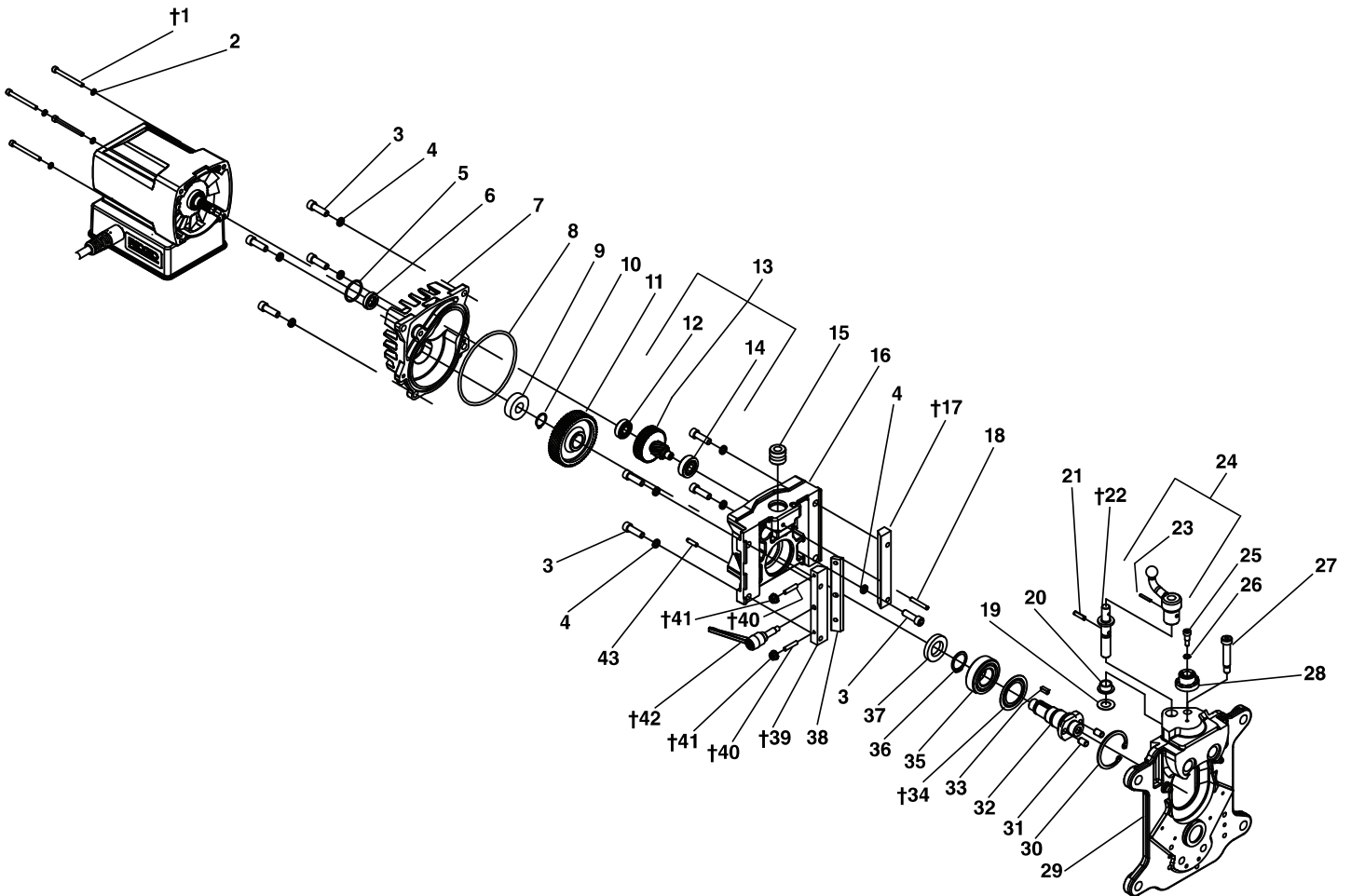


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	50633	Drive Crank Asm ½"
2	19533	RIDGID® Decal
3	50558	QR Code Label
4	50623	Drive Shaft ½"
5	50583	Clevis Pin w/Ring (Shear)
6	33830	Retaining Ring (1)
†7	50588	Frame Foot (2)
8	94652	Flange Bearing
9	50503	Frame
10	50553	Retaining Ring
11	95837	Hicollar Lock Washer ⅝" Pkg 5 (4)
12	44590	Screw ⅝- 18 x 1 SHC Pkg 5 (4)

†Service Note: Ref. No. 7 - Apply Loctite 495 to inside of foot.

Motor Gearbox



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
†1	10923	Screw, 10-24 x 2 SHC Pkg 6 (4)	23	50598	HD Coiled Pin 1/8 x 3/4
2	58542	Lock Washer #10 Pkg 5 (4)	24	50593	Feedscrew Handle w/Pin
3	44590	Screw 3/8-18 x 1 SHC Pkg 5 (9)	25	87947	Shoulder Screw
4	95837	Hicollar Lock Washer 3/8" Pkg 5 (9)	26	87972	Wave Spring
5	77202	O-Ring 2mm x 28mm	27	50632	Shoulder Screw 3/8 x 1 1/2
6	77207	Grease Seal	28	50748	Landwidth Adjustment Gauge
7	50438	Motor Gear Housing	29	50393	Faceplate
8	50443	O-Ring	30	50543	Retaining Ring 52mm INT
9	65477	Bearing	31	50568	Dowel Pin .312 x .50 Pkg 2 (2)
10	77252	Retaining Ring	†32	50453	Cutter Spindle
11	50448	Cutter Output Gear	33	46930	Square Key 3/8 x 1/2
12	58522	Bearing	†34	50608	Bearing Shield
13	50658	Intermediate Gear Shaft Assembly	35	45315	Bearing .9843 ID x.5906L
14	44760	Bearing	36	50538	Retaining Ring 25mm EXT
15	50613	Insert 1/2-13 UNC LH	37	50493	Seal .875 x 1.50 x .25
16	50433	Motor Gear Housing for Rails	38	50458	Gib Plate
†17	50468	Dovetail Slide	†39	50463	Gib Plate Slide
18	76735	Spring Pin 1 1/4 x 3/8 (1)	†40	50758	Cone Point Set Screw #10-32 x 1 Pkg 2 (2)
19	93782	Thrust Washer	†41	50648	Flange Nut #10-32 Pkg 2 (2)
20	50513	Flange Bearing	†42	50603	Gib Lock Handle Assembly
21	51728	HD Coiled Pin 3/8 x 3/4 (1)	43	47282	Dowel Pin .188 x .75 (2)
†22	50498	Cutter Feedscrew			

†Service Notes: Ref. No. 1 - Torque to 20-25 in-lbs.

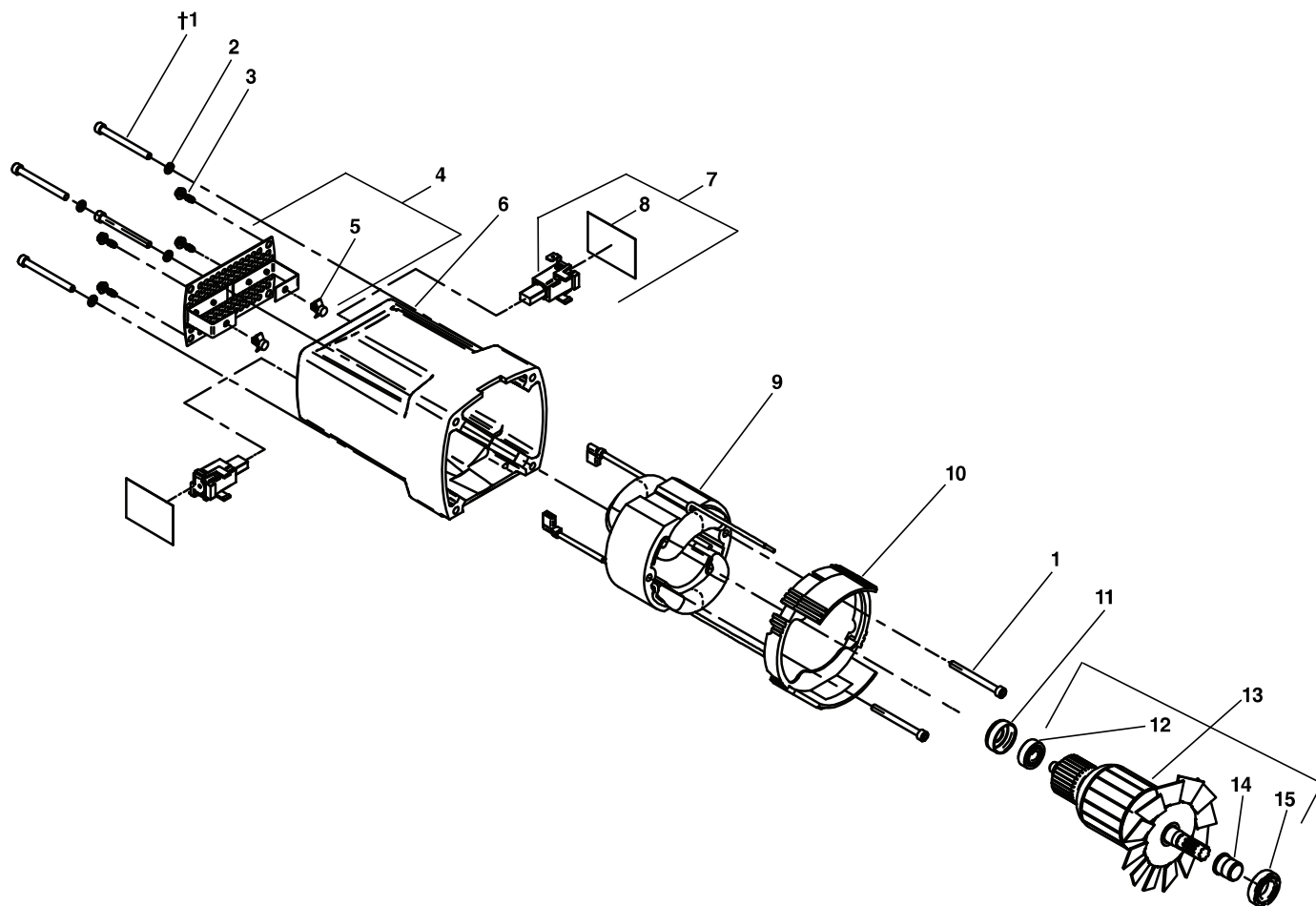
Ref. No's 17, 22, 39, 42 - Apply thin film of general purpose grease to contact surfaces.

Ref. No. 34 - Install concave side of shield towards bearing Ref 35.

Ref. No. 40 - Tighten until it binds, then loosen 1/2 turn. Hold position while tightening Ref 41 to torque spec.

Ref. No. 41 - Torque to 30-35 in-lbs.

**Motor Assembly**

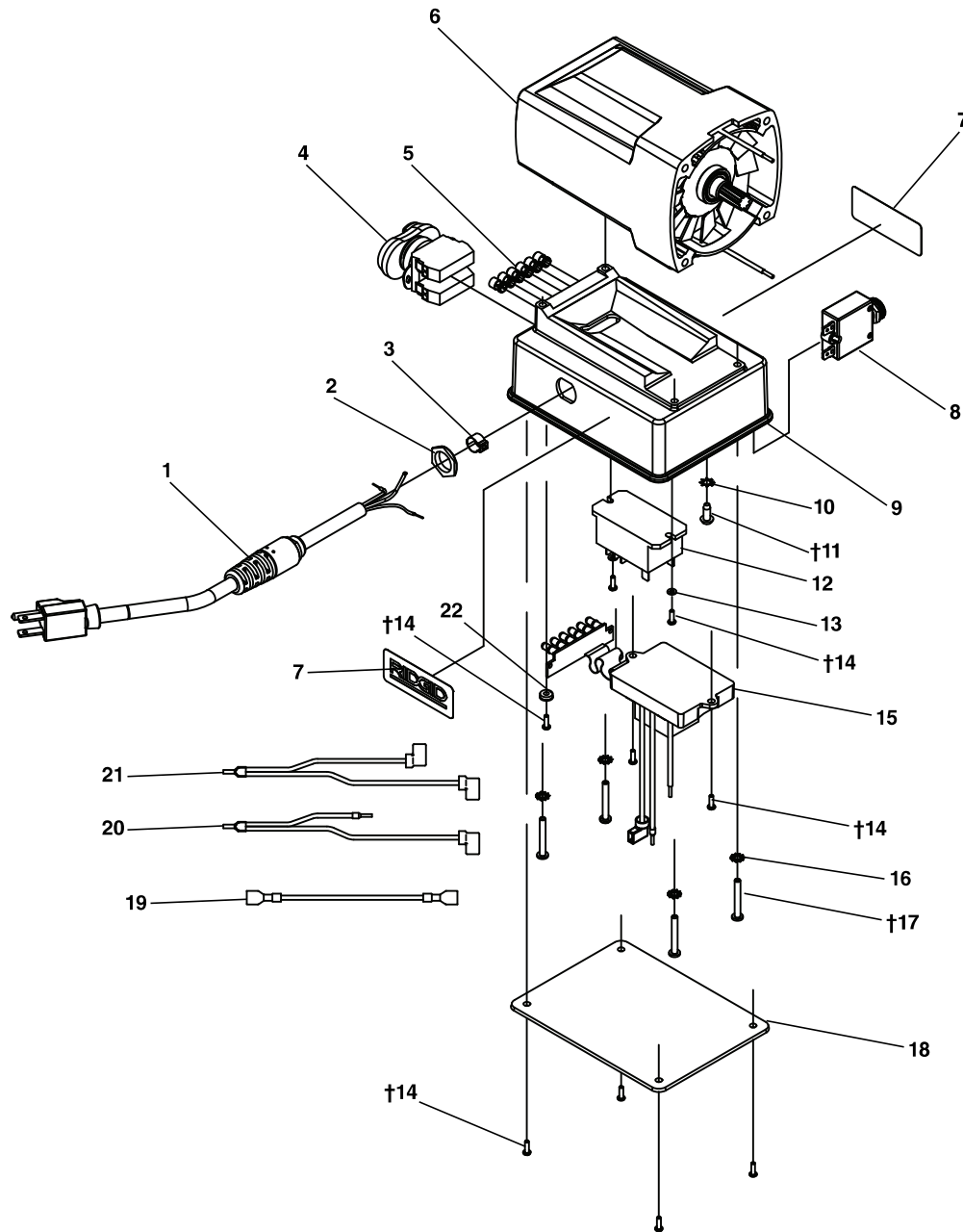


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
	50428	Motor ASM 115V
†1	10923	Screw, 10-24 X 2 SHC Pkg 6 (6)
2	58542	Lock Washer #10 Pkg 5 (4)
3	10908	Screw, 8-32 X .5 Self Tapping Pkg 4 (4)
4	10913	Motor Housing Cover
5	10918	Bumper, Set of 2 (2)
6	50718	Motor Housing
7	34078	Brush Set Assembly 115V (2)
8	39003	Insulator Shield Pkg 2 (2)
9	50713	Field 115V CC
10	35328	Fan Shroud
11	42777	Rubber Sleeve
12	43017	Ball Bearing .315ID X .276L
13	50708	Armature Assembly 115V
14	77227	Armature Sleeve
15	77232	Sealed Ball Bearing

†Service Note: Ref. No. 1 - Torque to 20-25 in-lbs.

## Electronics



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

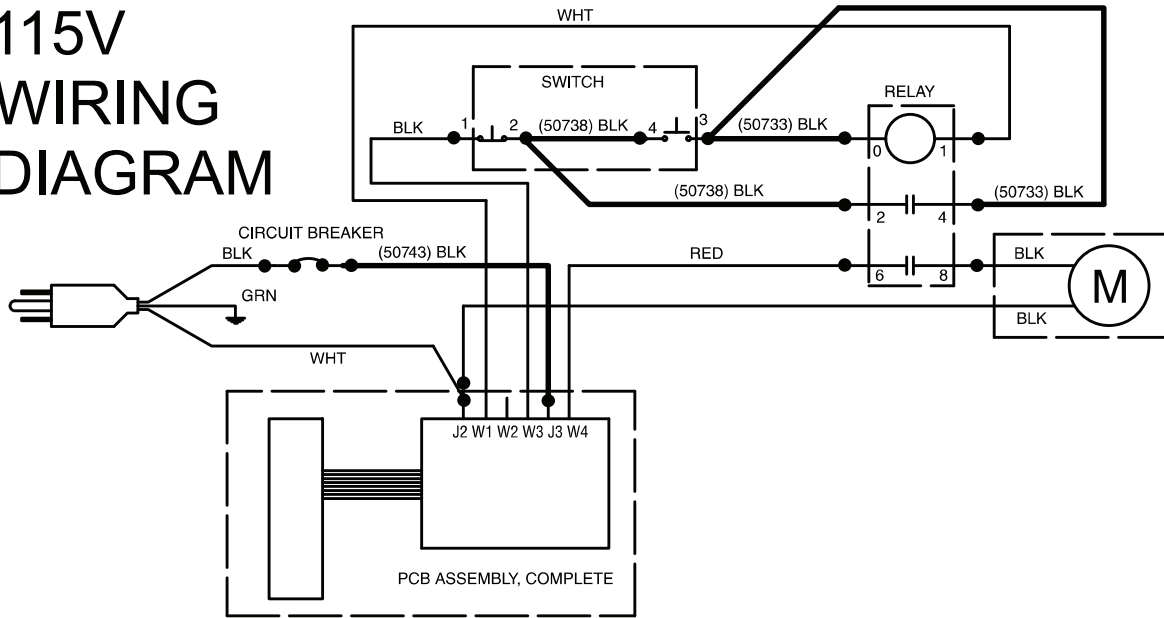
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
	50773	Electronics Box Complete w/o Motor	12	50698	Relay 120VAC 30A
1	31938	Power Cord 115V	13	90817	Narrow Washer #4 Type B Pkg 4 (2)
2	50673	Strain Relief Nut 3/8" NPT	†14	50778	Plastite Screw #4-20 x 3/8" Pkg 4 (10)
3	50668	Ear Clamp	15	50663	PCB Assembly
4	50678	Switch	16	85945	External Tooth Lock Washer (4)
5	50683	LED Clear Lens Pkg 6 (6)	†17	50753	Screw #8 x 1 1/4 Type B SS Pkg 4 (8)
6	50428	Motor ASM 115V	18	50693	Electronics Box Lid
7	50643	RIDGID Label Pkg 2	19	50743	Single Wire
8	58962	Circuit Breaker 15A	20	50738	Double Wire Single 90
9	50688	Electronics Box	21	50733	Double Wire Double 90
10	46985	External Tooth Washer Pkg 5 (1)	22	50703	Neoprene Backed Washer #6 Pkg 2 (2)
†11	45275	Grounding Screw #10-24 x 1/2 PH Pkg 5 (1)			

†Service Note: Ref. No. 11 - Torque to 20-25 in-lbs.  
Ref. No. 14 - Torque to 4-5 in-lbs.  
Ref. No. 17 - Torque to 15-20 in-lbs.

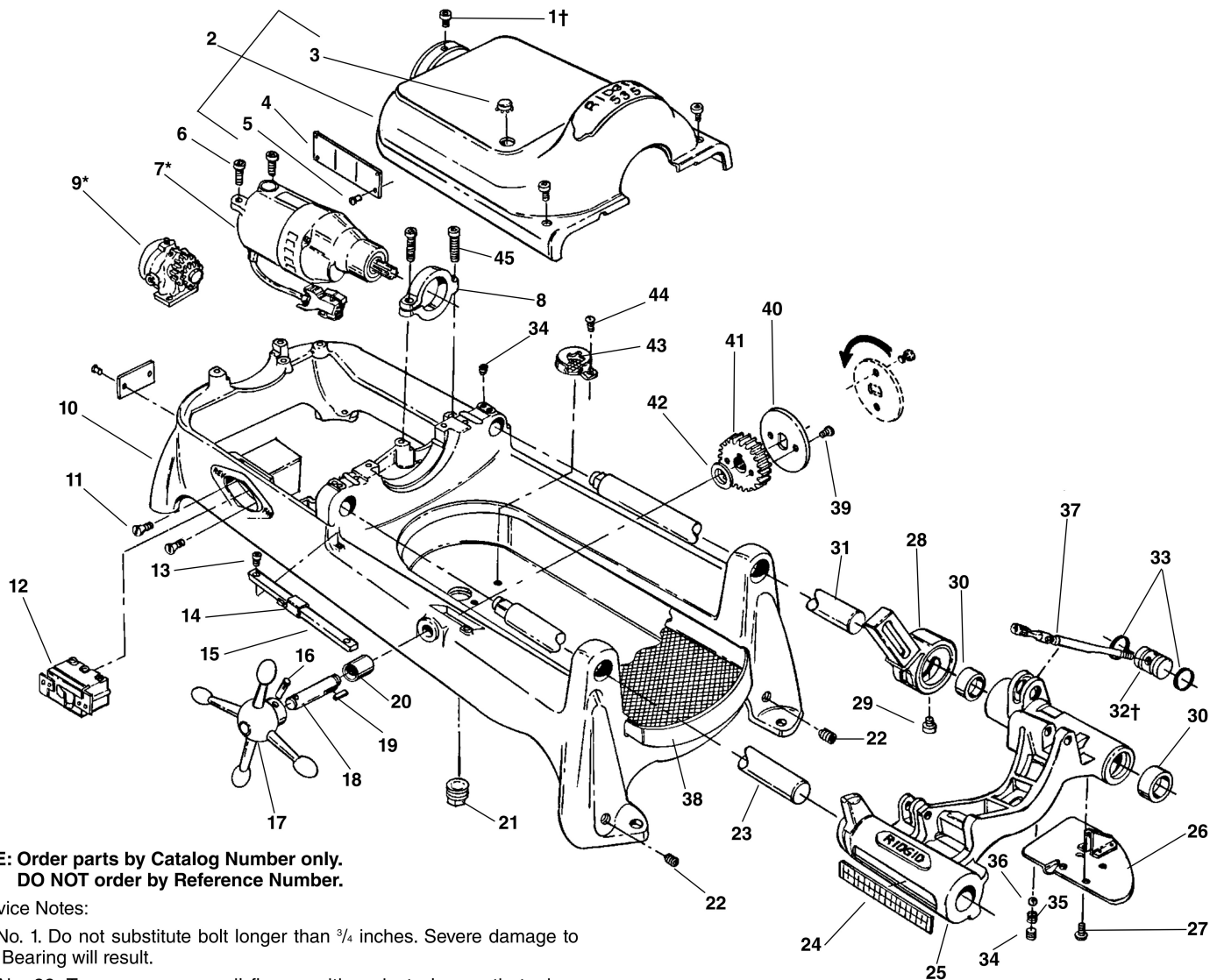


Wiring Diagram

115V  
WIRING  
DIAGRAM



## Main Components – Early Style



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

†Service Notes:

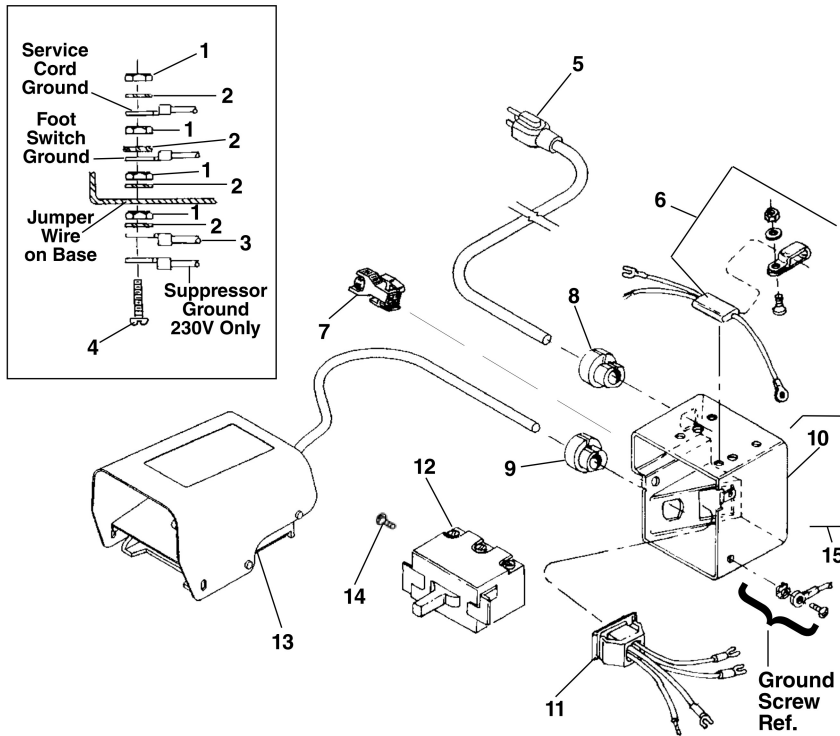
Ref. No. 1. Do not substitute bolt longer than  $\frac{3}{4}$  inches. Severe damage to Rear Bearing will result.

Ref. No. 32. To assure proper oil flow, position pivot plug so that when spout is in up position, oil flow hole is visible in carriage slot below spout.

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1†	46760	Screw $\frac{3}{8}$ " - 16 x $\frac{3}{4}$ " (3)	24	46370	Scale
2	43190	Cover (Incls. Ref. No. 3, 4, 5)	25	62057	Carriage Assy. (Includes Ref. Nos. 24, 26, 27, 28, 29, 30, 34, 35, 36)
3	89310	Plug Button	26	45195	Drip Plate
4	88690	Warning Plate	27	46270	Screw $\frac{1}{4}$ " - 20 x $\frac{1}{2}$ " Pan Head (4)
5	85920	Pop Rivet (8)	28	43690	Cutter Arm
6	46745	Screw $\frac{3}{8}$ " - 16 x $1\frac{1}{4}$ " (2)	29	44930	Screw, $\frac{7}{16}$ " x $\frac{9}{32}$ "
7*	88125	Motor Model 1177, 115V	30	46720	Oil Seal (2)
	88165	Motor Model 2377, 230V	31	45220	Support Bar - Rear
8	43795	Motor Bracket	32†	44340	Pivot Plug
9*	47195	Model A Oil Pump	33	44470	O-Ring (2)
10	43030	Base (Incls. Ref. No. 20, 21, 22, 44)	34	46800	Set Screw $\frac{3}{8}$ " - 16 x $\frac{3}{8}$ " (3)
11	45280	Screw #8-32 x $\frac{5}{8}$ " Flat Head (2)	35	46680	Spring
12	44505	Switch	36	46925	Ball
13	45615	Screw #10-32 x $\frac{1}{2}$ " Flat Head (2)	37	44495	Oil Spout Assembly
14	47110	Indicator Slide	38	43355	Chip Tray
15	47105	Indicator Bar	39	46785	Screw #10-32 x $\frac{3}{8}$ "
16	47165	Pin	40	47120	Lock Plate
17	46510	Handwheel	41	45430	Pinion
18	47115	Pinion Shaft	42	47145	Spacer
19	46930	Key $\frac{3}{16}$ " Square	43	46655	Filter
20	46540	Bushing	44	45420	Screw #10-24 x $\frac{3}{8}$ "
21	44485	Drain Plug	45	44220	Screw $\frac{3}{8}$ " - 16 x $1\frac{1}{2}$ "
22	42037	Set Screw $\frac{1}{2}$ " - 13 x $\frac{1}{2}$ " (4)			
23	45440	Support Bar - Front			

\*Refer to Motor Model No./Refer to Model "A" Oil Pump for Component Parts

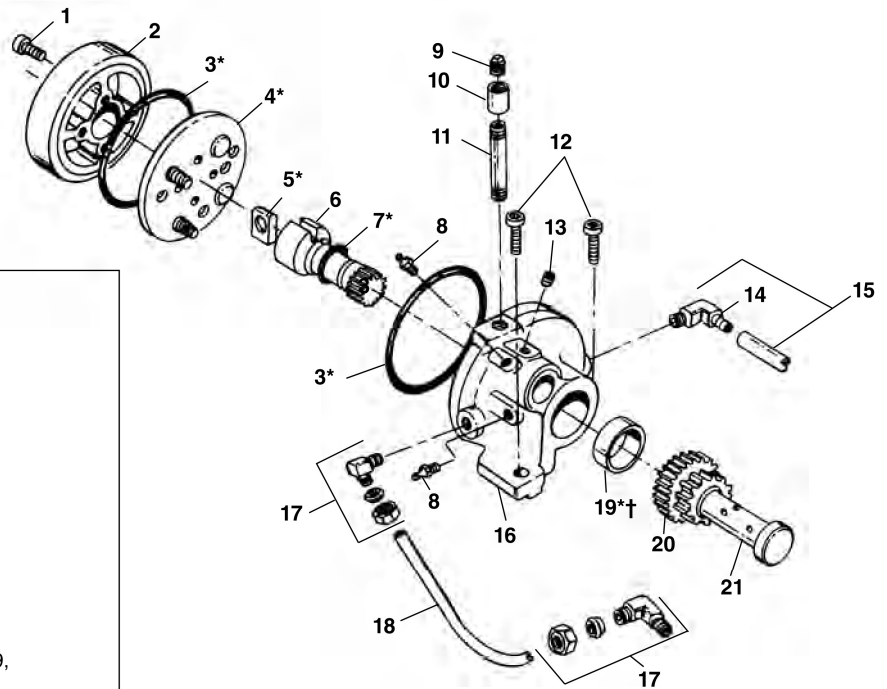
### Electrical Components



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	44695	Hex Nut #10 - 24 (4)
2	46985	Ext. Tooth Washer #10 (4)
3	85925	Jumper Wire
4	92455	Screw #10 - 24 x 3/4"
5	46740	Power Cord w/Plug (115V)
	46410	Power Cord w/Plug (230V)
	75045	Power Cordless Plug (230V Europe/S. Africa)
6	46320	Suppressor Kit (230V Europe)
	99170	Suppressor (230V S. Africa)
7	50552	Plug
8	46735	Cord Grommet
	46730	Cord Grommet (230V Europe/S. Africa)
9	46735	Cord Grommet
10	50612	Switch Box
11	50617	Outlet Jumper Assembly
12	44505	Switch
13	36642	B-294 Foot Switch
14	44180	Screw
15	91187	Switch Box Kit (Includes Ref. Nos. 7-11)

### Model "A" Pump

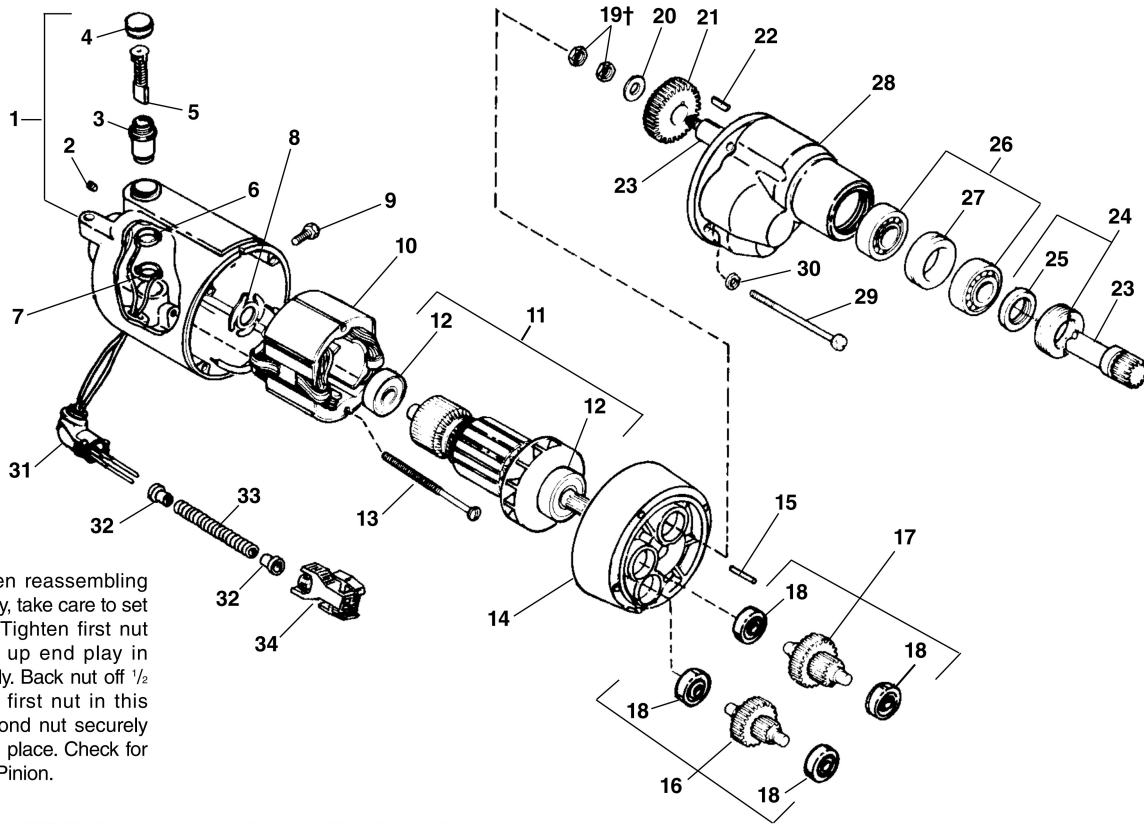


Ref. No.	Catalog No.	Description
1	46770	Screw #10-32 x 1" SHCS (4)
2	46350	Cover
3*	44650	O-Ring (2)
4*	46645	Valve Assembly
5*	47100	Rotor Blade
6	46355	Pinion Shaft
7*	44645	O-Ring
8	46860	Grease Fitting
9	46815	Pipe Plug
10	89725	Coupling
11	89730	Nipple
12	46750	Screw 3/8"-16 x 1" SHCS (2)
13	44455	Set Screw 5/16" x 3/8"
14	87945	90° Fitting
15	75065	Intake Line
16	43470	Pump Body (Incls. Ref. Nos. 3, 8, 16, 19, Roller Bearing)
17	46840	90° Fitting (2)
18	44105	Feed Line
19*†	46715	Oil Seal
20	44350	Idler Gear
21	44345	Gear Shaft
—	91055	Repair Kit (Includes items marked with *)

†Service Note: When replacing Oil Seal, open side should face towards outside of Pump Body. Use care in installing Seal so that lip is not damaged.

1157  
1177  
2357  
2377

**Motors**



†Service Note: When reassembling Drive Pinion Assembly, take care to set Jam Nuts properly. Tighten first nut moderately to take up end play in Pinion Shaft Assembly. Back nut off 1/2 turn. While holding first nut in this position, tighten second nut securely against first to lock in place. Check for free rotation of Drive Pinion.

**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

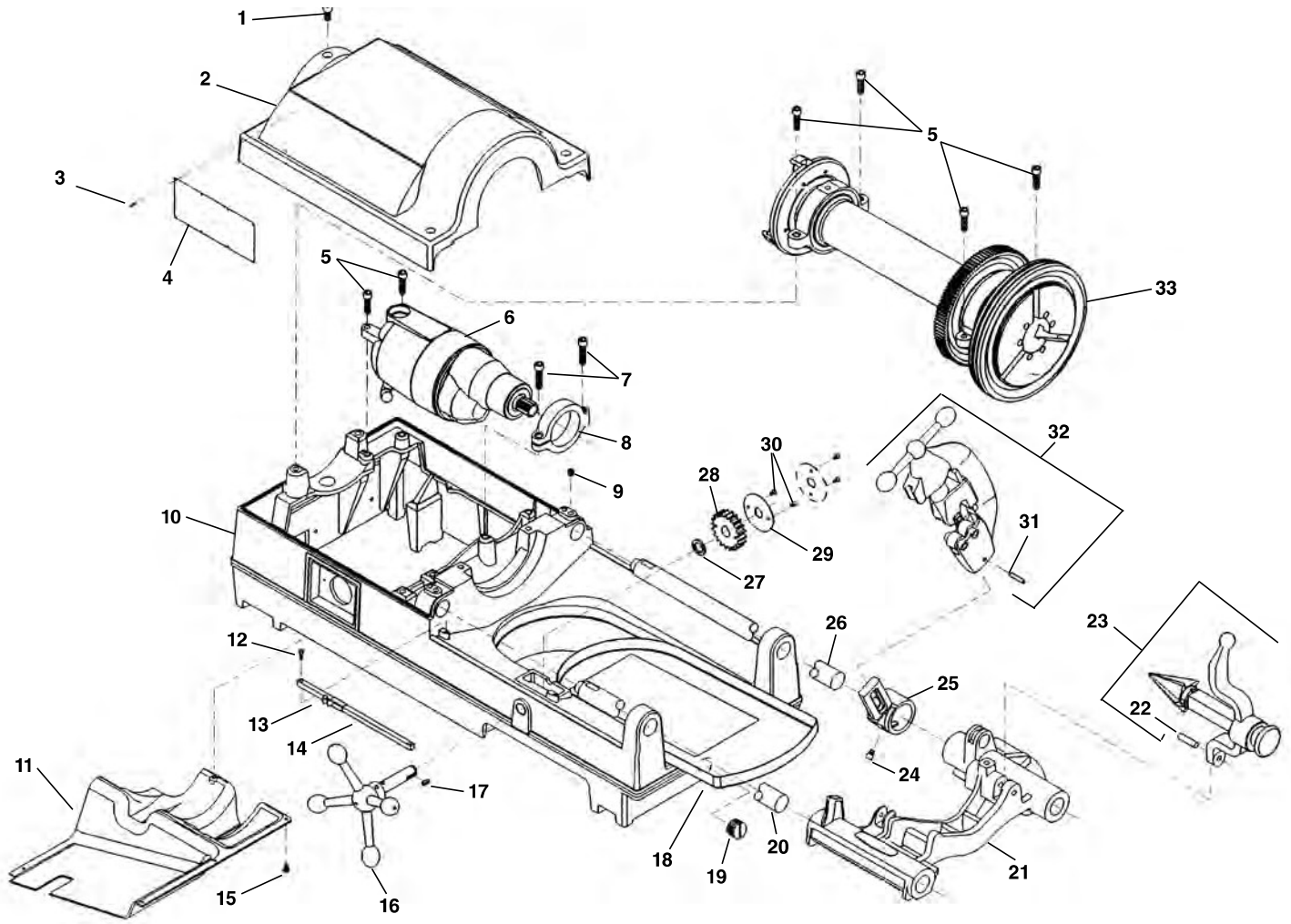
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	43160	Housing	18	45060	Gear Bearing (4)
2	39770	Set Screw 1/4" - 20 x 1/4" (2)	19†	40350	Lock Nut 3/8" - 24 (2)
3	45025	Brush Holder Set	20	45035	Washer
4	44545	Brush Cap Set	21	See Chart	Main Drive Gear
5	44540	Brush Set	22	45015	Key 3/32" Sq.
6	87865	White Upper Lead	23	44960	Drive Pinion
7	87870	Red Lower Lead	24	45010	Lock Nut w/Seal
8	44580	Loading Spring	25	45085	Seal
9	83500	Screw 1/4" - 20 x 3/4"	26	45040	Bearing Set w/Spacer
10	44015	Field - 115V	27	45045	Spacer
	44035	Field - 230V	28	43170	Housing
11	44010	Armature - 115V	29	45075	Screw 1/4" - 20 x 3"
	44030	Armature - 230V	30	45150	Lock Washer (4)
12	44565	Armature Bearing (2)	31	46900	Connector 90°
13	44555	Mounting Screw (2)		46905	Connector 45°
14	43165	Fan Housing Assembly	32	46890	Insulator (2)
15	45165	Dowel Pin	33	47412	Flexible Conduit
16	See Chart	1st Gear Assembly	34	50552	Plug
17	See Chart	2nd Gear Assembly			

**SPEED CHANGE GEAR CHART MACHINE MODEL NO. 400A - 535 - 802**

Model No.	Volts	Spindle Speed	Ref. #11	Ref. No. 16 - 1st Intermediate Gear Assembly	Ref. No. 17 - 2nd Intermediate Gear Assembly	Ref. No. 21 Drive Gear
1177 2377	115V 230V	36 STD.	Armature Pinion - 14 T.	PART NO. 44985 (E-2600-X) 51 T. GEAR 12 T. PINION	PART NO. 45005 (E-2601-X) 42 T. GEAR 13 T. PINION	PART NO. 44965 (E-2597) 48 T.
1177A 2377A	115V 230V	54 STD. ON 802		PART NO. 44985 (E-2600-X) 51 T. GEAR 12 T. PINION	PART NO. 44990 (E-2601-AX) 42 T. GEAR 18 T. PINION	PART NO. 44865 (E-1926) 43 T.
1177B	115V	72		PART NO. 44975 (E-2600-BX) 51 T. GEAR 15 T. PINION	PART NO. 44995 (E-2601-BX) 39 T. GEAR 18 T. PINION	PART NO. 44865 (E-1926) 43 T.
1177C 2377C	115V 230V	102		PART NO. 44980 (E-2600-CX) 51 T. GEAR 19 T. PINION	PART NO. 45000 (E-2601-CX) 35 T. GEAR 18 T. PINION	PART NO. 44865 (E-1926) 43 T.

\*Supplied with Motor Complete

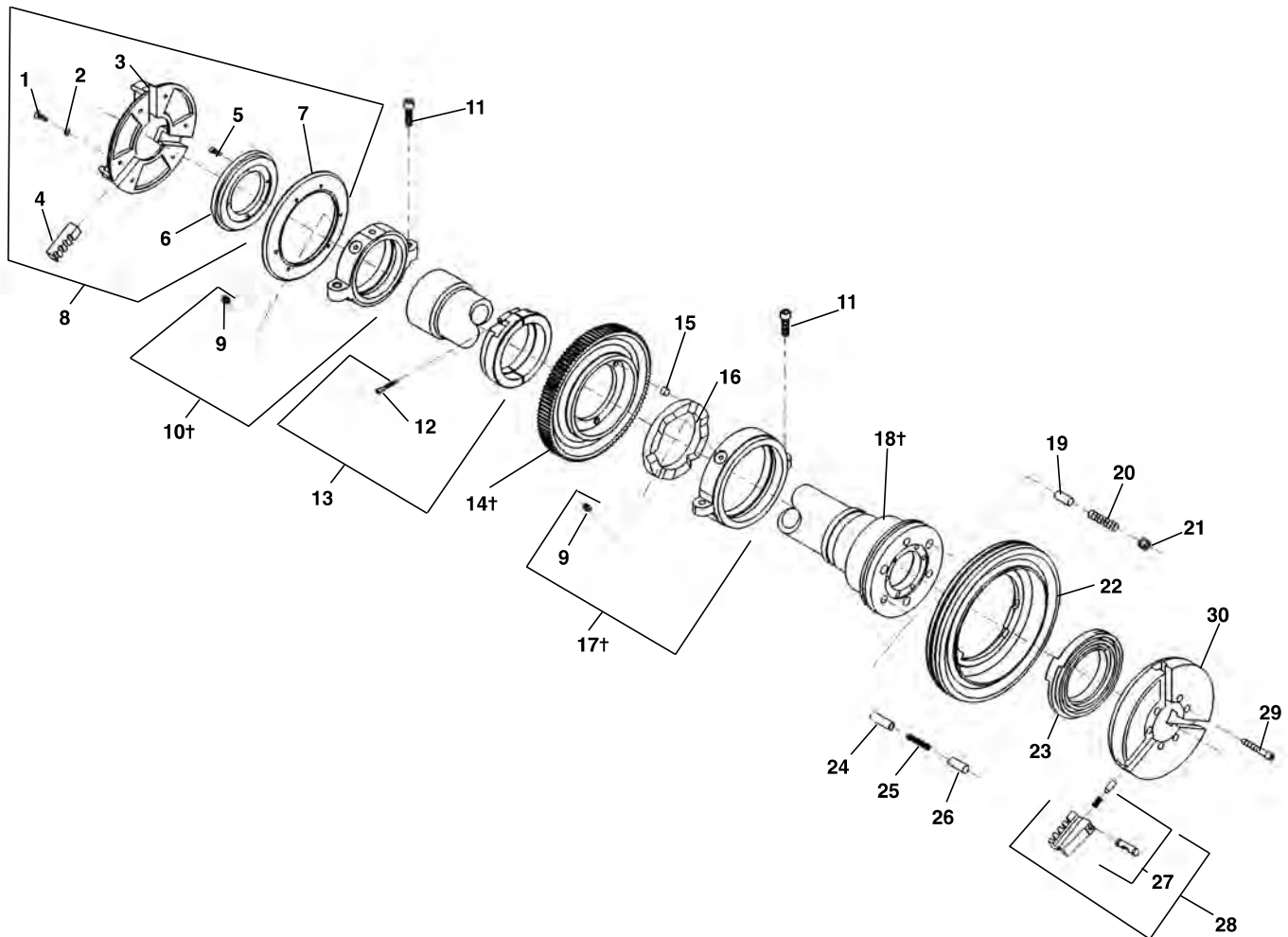
**Main Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<u>Ref. No.</u>	<u>Catalog No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Catalog No.</u>	<u>Description</u>
1	46760	Screw (3)	17	46930	Key 3/16" Sq. x 1/2"
2	62062	Top Cover	18	43355	Chip Tray
3	85920	Pop Rivet (8)	19	48337	Drain Plug
4	88690	Warning Plate	20	45440	Front Support Bar
5	46745	Screw	21	62057	Carriage Assembly
6	64447	1194 Motor, 115V, 36 RPM	22	47065	Hinge Pin
—	64452	1194 A Motor, 115V, 54 RPM	23	42365	341 Reamer Assembly
—	64457	2394 Motor, 230V, 36 RPM	24	44930	Stop Screw
7	44220	Screw (2)	25	43690	Cutter Arm
8	43795	Motor Bracket	26	45220	Rear Support Bar
9	46800	Set Screw (2)	27	47145	Spacer
10	61952	Base	28	45430	Pinion Gear
11	61947	Bottom Cover	29	47120	Lock Plate
12	45615	Screw (2)	30	46785	Screw 10 - 32 x 3/8" (2)
13	47110	Indicator Slide	31	47135	Stop Pin
14	47105	Indicator Bar	32	42390	820 Cutter Assembly
15	45420	Screw (5)	33	47585	Drive Shaft Assembly
16	46510	Handwheel			

## Drive Shaft



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

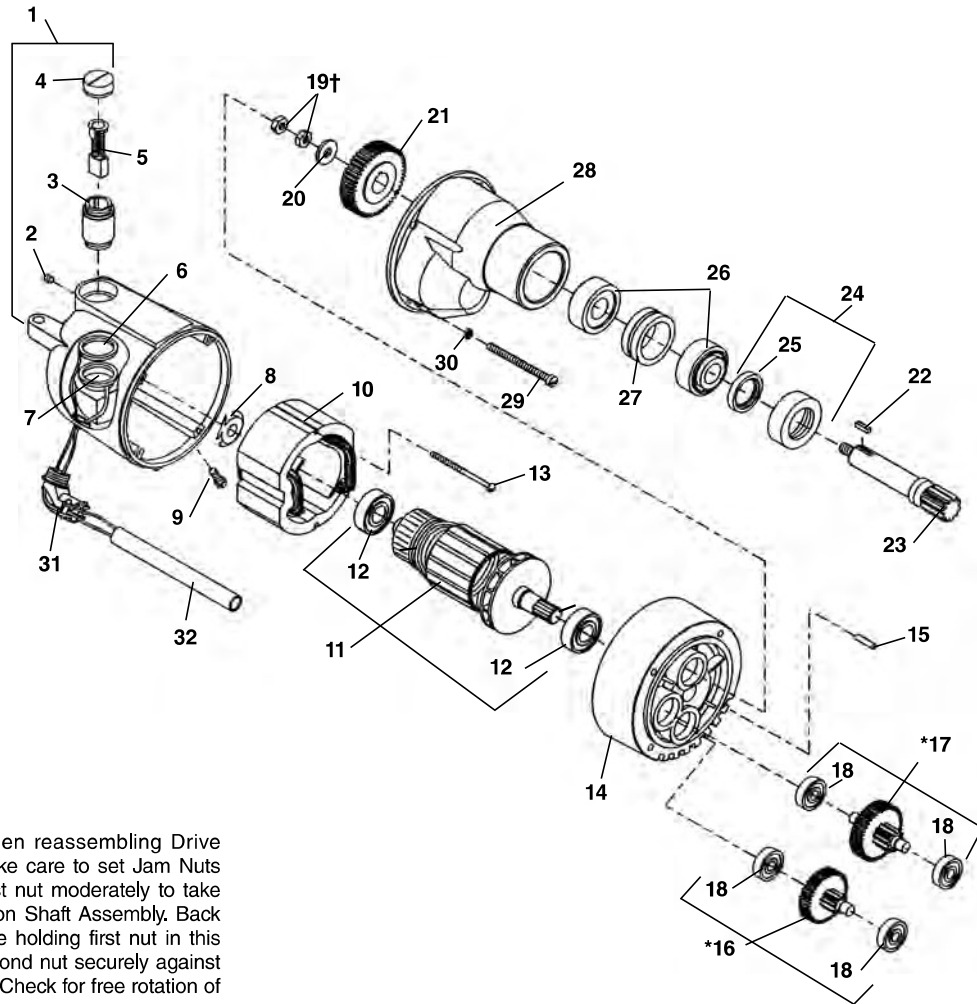
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	47585	Drive Shaft Assembly	15	44490	Drive Plug (3)
1	46790	Screw (6)	16	43895	Pressure Plate
2	40270	Lock Washer (6)	17†	43455	Front Bearing Assembly
3	43735	Centering Head	18†	43105	Drive Shaft
	19346	Centering Head (Europe)	19	44320	Pressure Plunger (3)
4	46500	Centering Jaw Set	20	44325	Pressure Spring (3)
5	46765	Screw 10 – 32 x 1/2"	21	44330	Pressure Set Screw (3)
6	43750	Scroll	22	43420	Handwheel
7	43740	Back Plate	23	43450	Scroll
	19356	Back Plate (Europe)	24	44315	Drive Wedge
8	47570	Centering Head Assembly	25	44310	Drive Spring
9	46860	Grease Fitting	26	44305	Drive Cap
10†	41338	Rear Bearing Assembly	27	44715	Jaw Insert Set
11	46745	Screw 3/8" – 16 x 1 1/4" (4)		97365	Jaw Insert Set f/Plas. Coated Pipe
12	90255	Screw 10 – 32 x 1 1/4"	28	43900	Chuck Jaw Set
13	83525	Split Ring Assembly	29	45160	Screw 5/16" – 18 x 2" (6)
14†	43460	Drive Gear	30	43440	Chuck Cap

† Service Notes: Ref. Nos. 14 & 18 - When installing gear on shaft, align "O" mark on front of gear with "O" mark on the rear of the drive shaft flange.

Ref. Nos. 11 & 17 - When replacing the front or rear bearing brackets, position grease fittings toward the operator's side of the machine.

**1194  
1194A  
2394**

**Motor**



†Service Note: When reassembling Drive Pinion Assembly, take care to set Jam Nuts properly. Tighten first nut moderately to take up end play in Pinion Shaft Assembly. Back nut off 1/2 turn. While holding first nut in this position, tighten second nut securely against first to lock in place. Check for free rotation of Drive Pinion.

**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

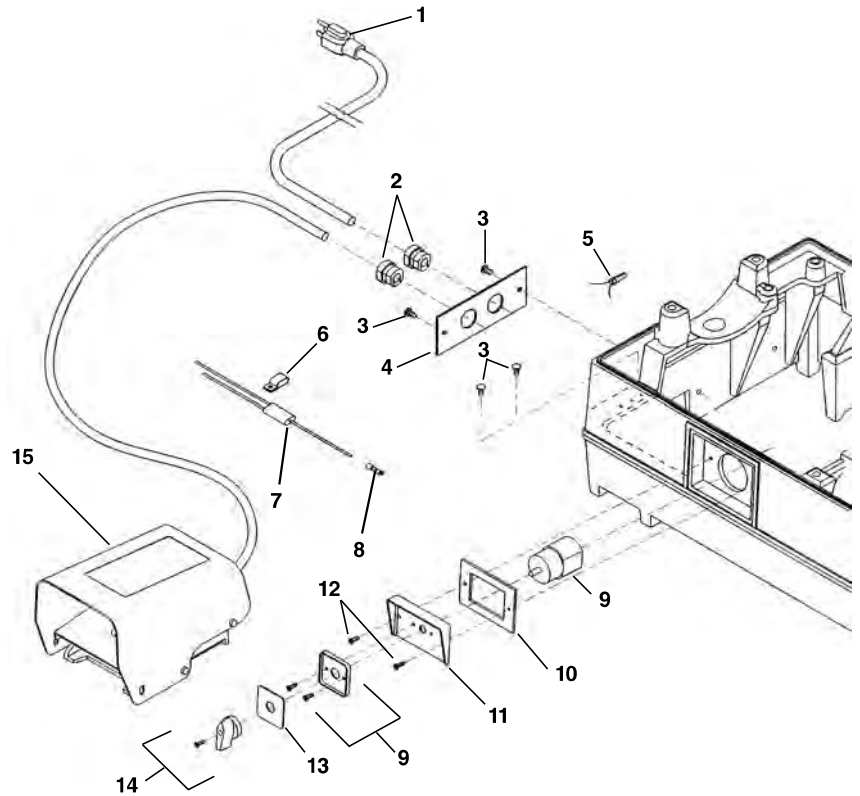
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	64447	1194 Motor, 115V, 36RPM	16*	62022	1st. Int. Gear Assy.— 36RPM
—	64452	1194A Motor, 115V, 54RPM	—	44985	1st. Int. Gear Assy.— 54RPM
—	64457	2394 Motor, 230V, 36RPM	17*	52527	2nd. Int. Gear Assy.— 36RPM
1	43160	Field Housing	—	44990	2nd. Int. Gear Assy.— 54RPM
2	39770	Set Screw 1/4" x 20 x 1/4" (2)	18	45060	Bearing (4)
3	45025	Brush Holder Set	19†	40350	Lock Nut 3/8" – 54RPM
4	44545	Brush Cap Set	20	45035	Washer
5	44540	Brush Set	21	44965	Drive Gear – 36RPM
6	87865	White Upper Lead	—	44865	Drive Gear – 54RPM
7	87870	Red Lower Lead	22	45015	Key 5/32" Square
8	44580	Load Spring	23	44960	Drive Pinion
9	83500	Screw 1/4" x 20 x 3/4"	24	45010	Lock Nut w/Seal
10	44015	Field 115V	25	45085	Seal
—	44035	Field 230V	26	45040	Bearing Set w/Spacer
11*	52497	Armature – 115V - 36RPM	27	45045	Spacer
*	52492	Armature – 230V	28	43170	Gear Housing
—	44010	Armature – 115V - 54RPM	29	45075	Screw 1/4" - 20 x 3" (4)
12	44565	Armature Bearing (2)	30	45150	Lock Washer (4)
13	44555	Mounting Screw (2)	31	46900	Right Angle Connector
14	54552	Fan Housing Assembly	32	64462	PVC Tubing
15	45165	Dowel Pin			

Note: \*Helical gear not interchangeable with old style 535 machines.

## Electrical Components

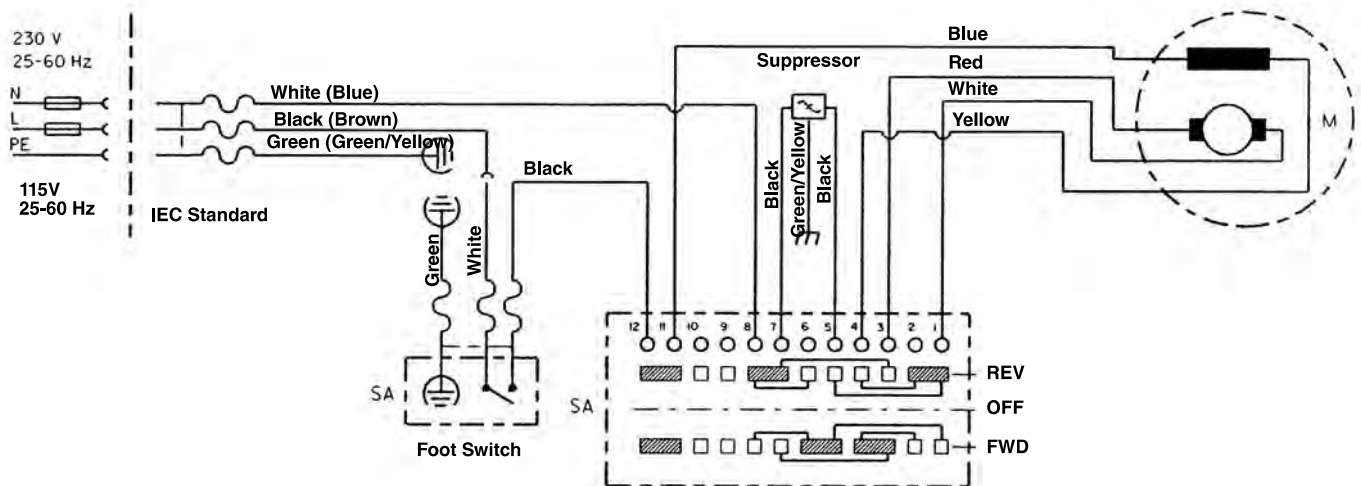
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	46740	Power Cord 115V
—	46410	Power Cord 230V
—	75045	Power Cord 230V Export
2	46735	Grommet (2)
3	45420	Screw (4)
4	62037	Cord Mounting Plate
5	44635	End Splice Connector
6	61962	Clamp (230V)
7	36502	Suppressor (230V)
8	54192	Connector (230V)
9	20138	Switch Assy. (Includes Ref. No. 14)
10	54172	Gasket
11	61917	Switch Plate
12	54162	Screw (2)
13	61967	Switch Face Plate
14	61397	Switch Knob
15	36642	B-294 Foot Switch Assembly



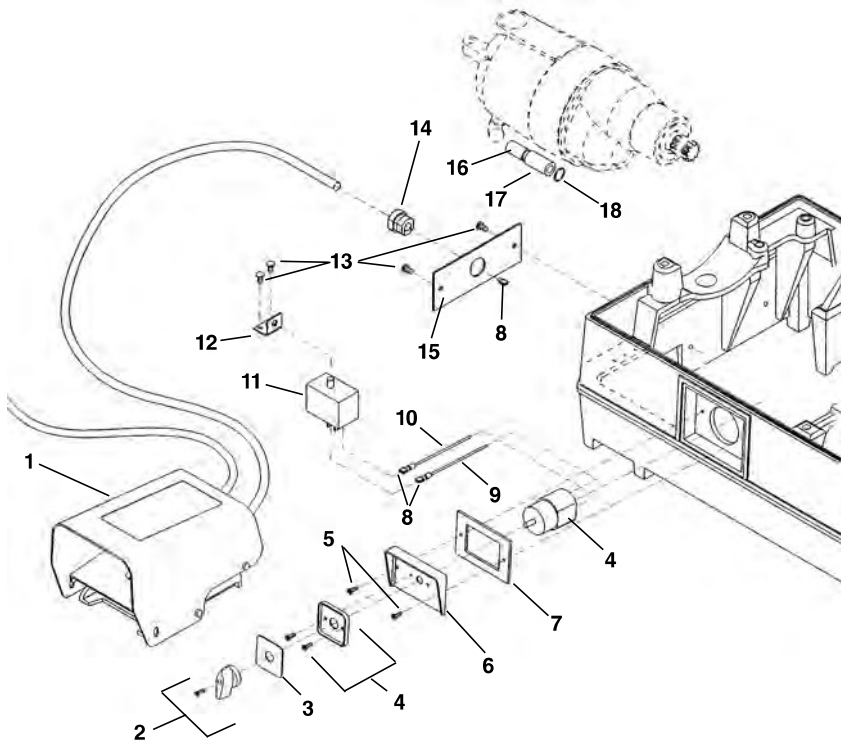
## Wiring Diagram

**1194 Motor (115V)  
2394 Motor (230V)  
1194A Motor (115V)**





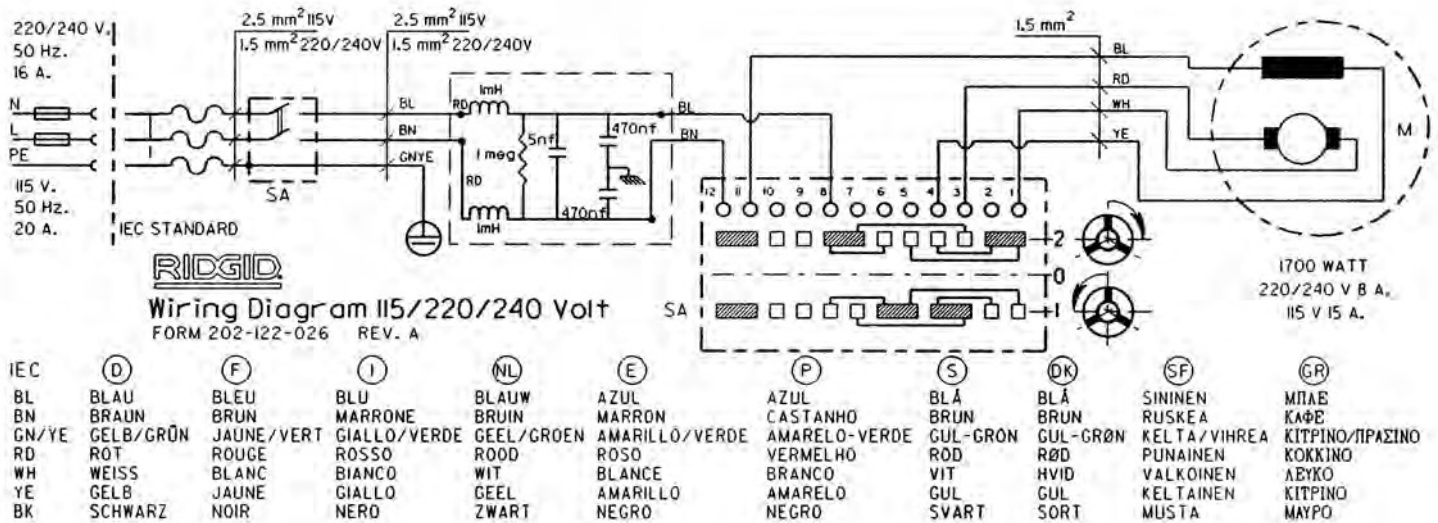
### European Electrical Components



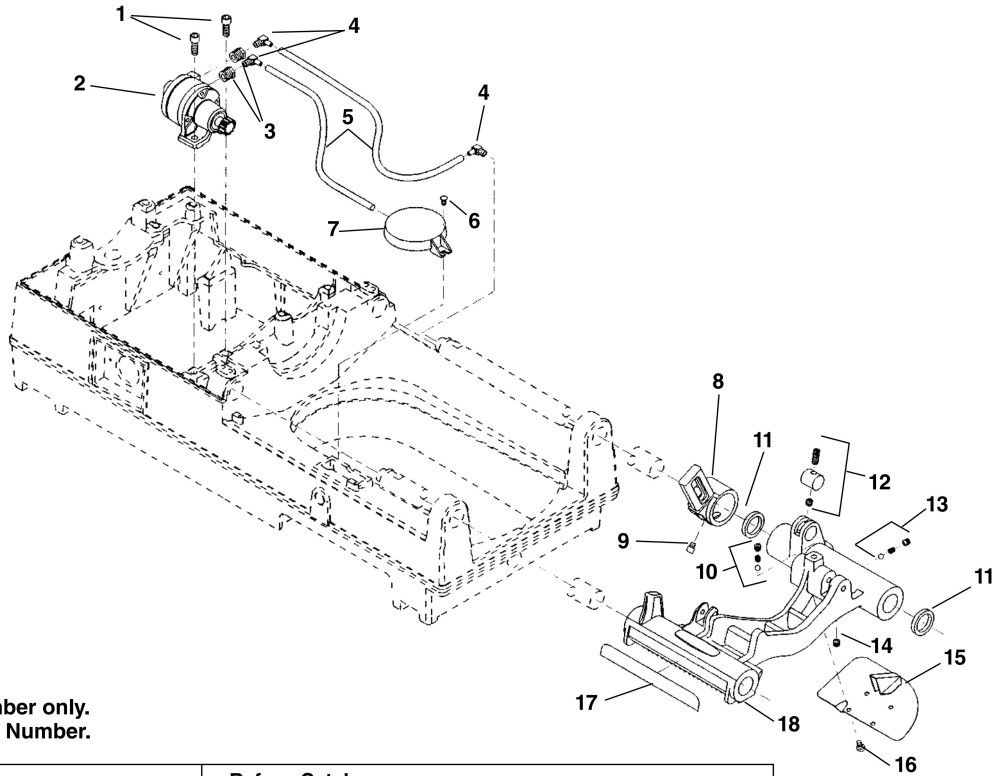
**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	36652	B-296 Foot Switch
2	61397	Switch Knob
3	57517	Switch Face Plate
4	54157	Switch Assy. (includes Ref. No. 2)
5	54162	Screw (2)
6	61917	Switch Plate
7	54172	Gasket
8	89190	Quick Disconnect Terminal (4)
9	63392	Blue Wire
10	63387	Brown Wire
11	63372	Suppressor
12	61987	Mounting Bracket
13	45420	Screw (4)
14	54177	Grommet
15	62042	Cord Mounting Plate
16	64462	PVC Tubing
17	63377	Ferrite Bead
18	64467	Cable Tie

### European Wiring Diagram



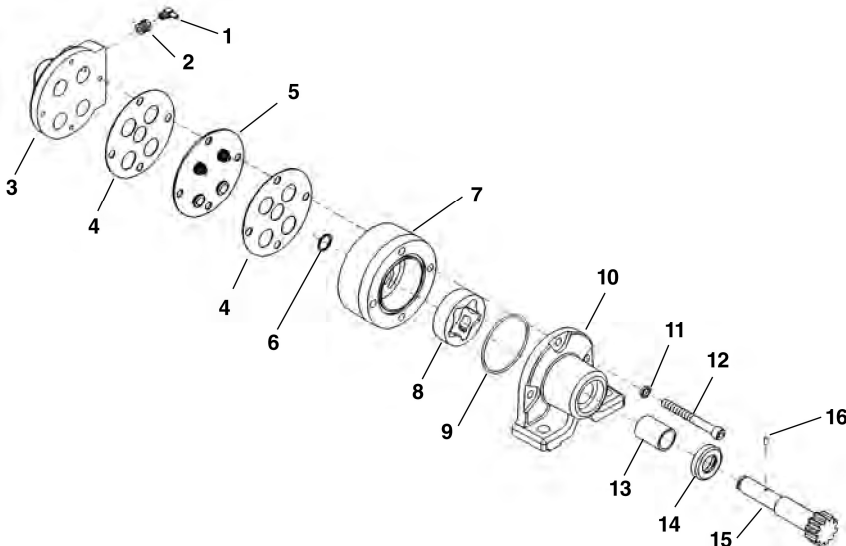
### Carriage and Oiling System



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

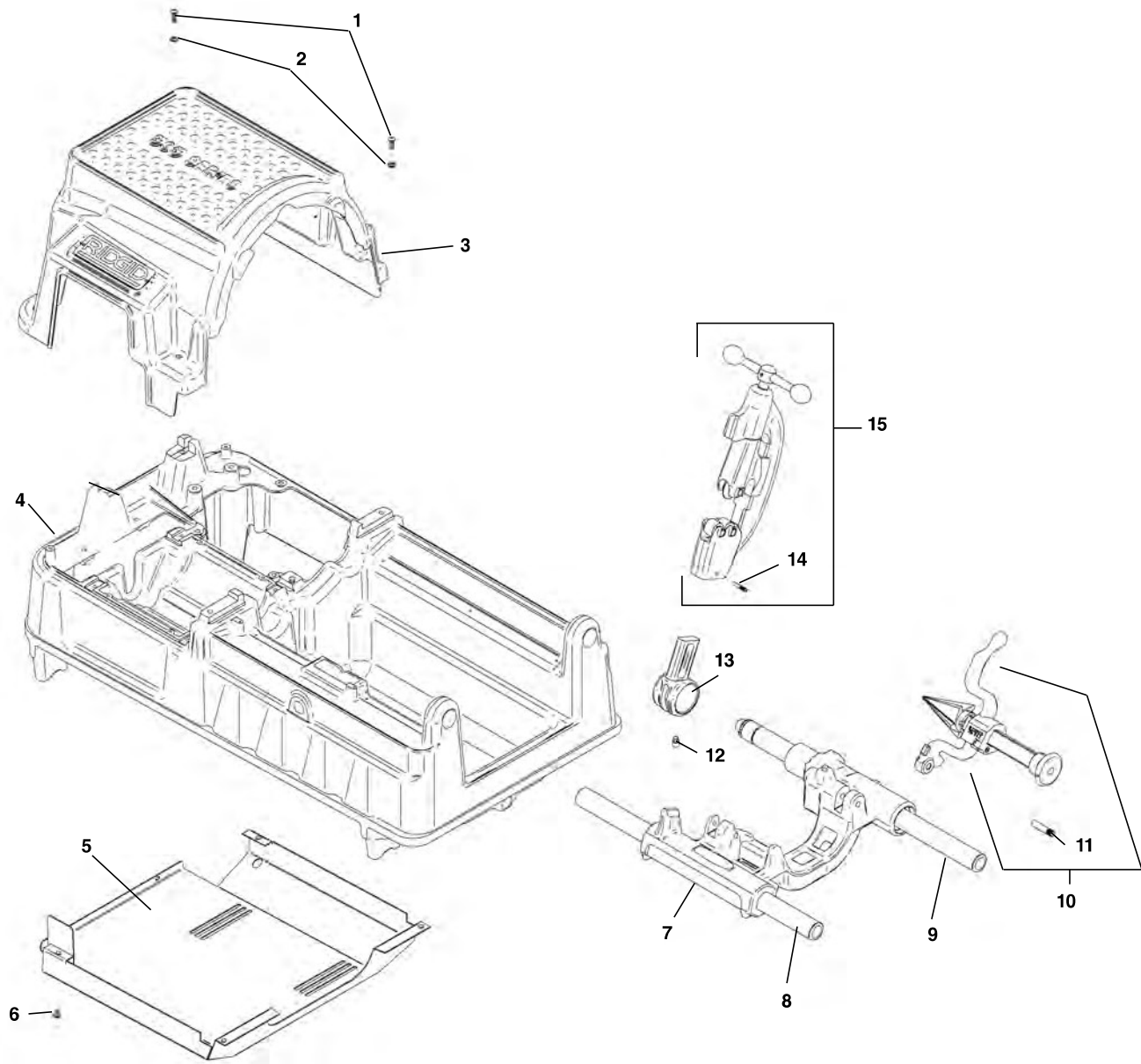
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46750	Screw (2)	10	46810	Detente Assembly
2	62052	Model MJ Oil Pump	11	46720	Oil Seal (2)
3	62047	Reducing Bushing (2)	12	61957	Plug Assembly
4	87945	Right Angle Fitting (3)	13	35307	Pressure Relief Assembly
5	87950	Oil Line (2)	14	46815	Pipe Plug 1/8" NPT
6	45420	Screw	15	45195	Drip Plate
7	58467	Oil Filter Assembly	16	46270	Screw (4)
8	43690	Cutter Arm	17	46370	Scale
9	44930	Stop Screw	18	62057	Carriage Assy. (Includes Ref. No. 8-17)

### Model MJ Oil Pump



Ref. No.	Catalog No.	Description
—	62052	Model MJ Oil Pump
1	87945	Right Angle Fitting (2)
2	62047	Reducing Bushing (2)
3	33442	Valve Body
4	33457	Gasket (2)
5	33452	Valve Body Assembly
6	61997	Retaining Ring
7	62002	Gerotor Housing
8	62007	Gerotor Set
9	33477	O-Ring
10	62012	Pump Body
11	45150	Lock Washer (3)
12	62017	Screw (3)
13	61972	Bushing
14	33472	Oil Seat
15	61982	Pump Shaft
16	26907	Drive Pin
17	61977	Pump Repair Kit (Includes Ref. No. 4-6, 9, 13, 14, and 16)

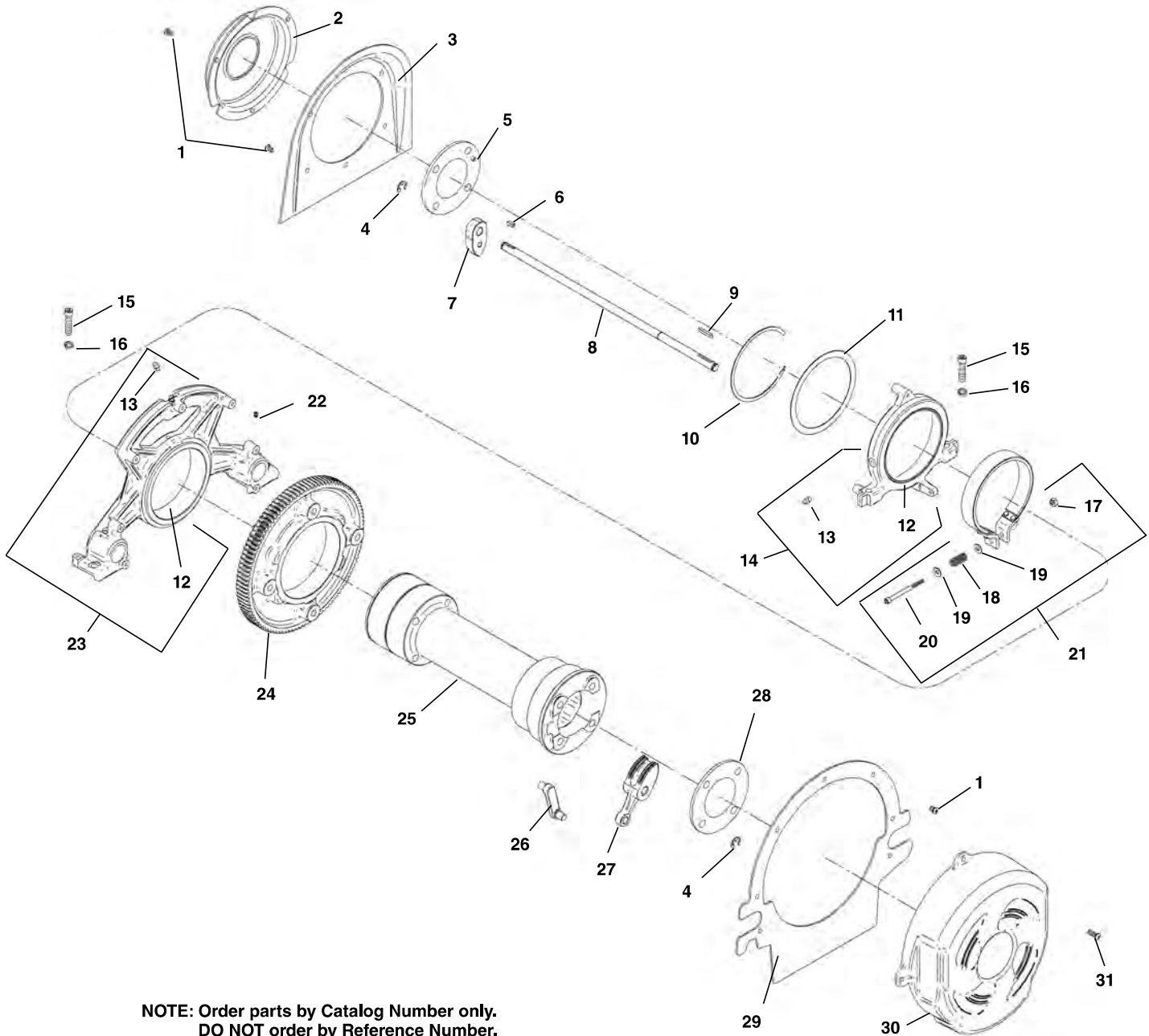
**Main Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>	<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	94332	Screw, Button Head 1/4" - 20 x 3/4" (4)	9	45220	Rear Support Bar
2	94322	Washer, Flat 1/4" (4)	10	42365	341 Reamer Assembly
3	94432	Top Cover	11	47065	Pin
4	94042	Base	12	44930	Stop Screw
5	94147	Bottom Cover	13	43690	Cutter Arm
6	94312	Screw, Pan Head #6 - 32 x 2" (4)	14	47135	Stop Pin
7	94357	Carriage Assembly	15	42390	820 Cutter Assembly
8	45440	Front Support Bar			

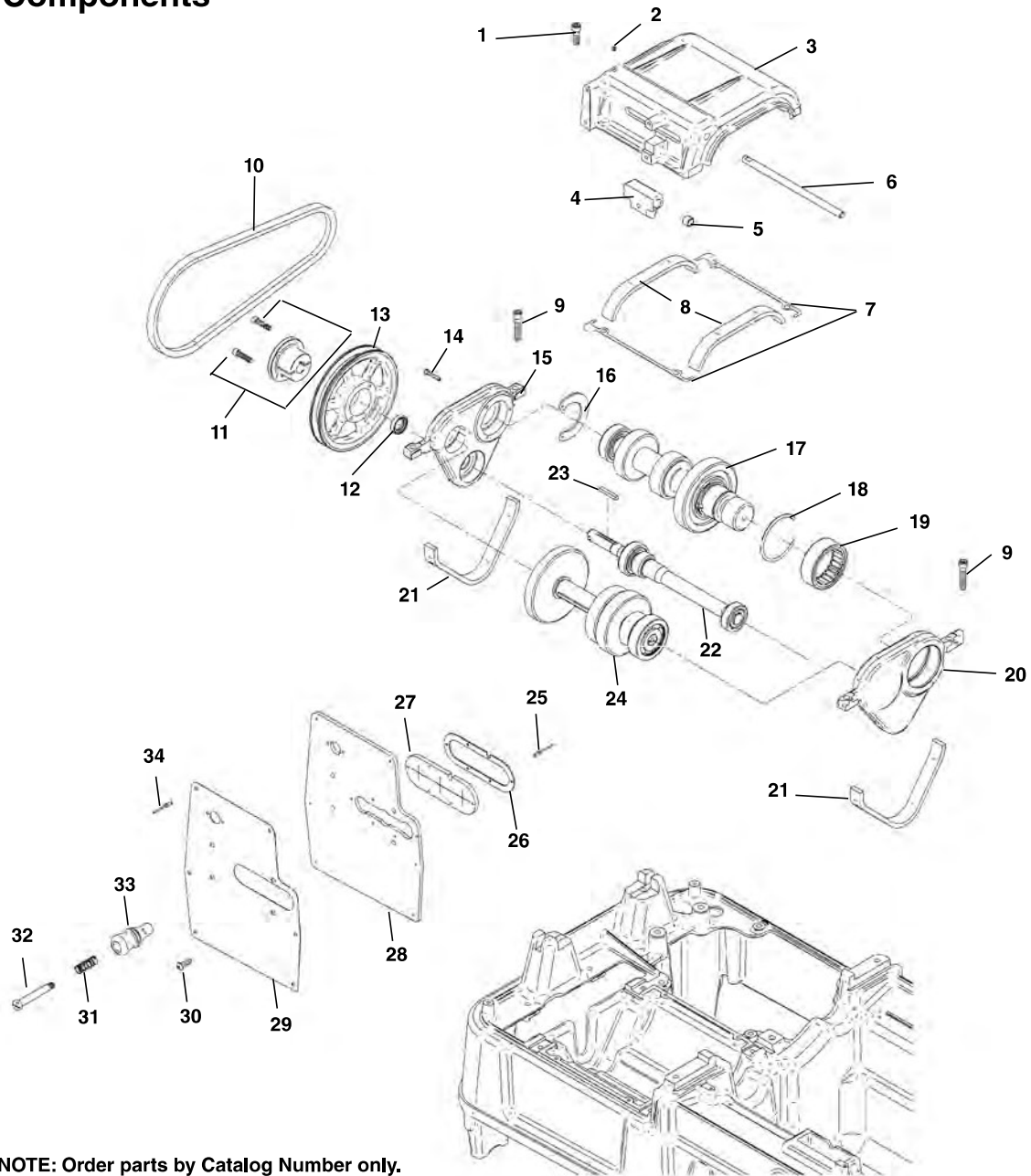
**Drive Shaft Assembly**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	94337	Screw, Button Head 1/4" - 20 x 3/8" (7)	17	77710	Lock Nut 1/4" - 20
2	94082	Rear Cover	18	45895	Spring
3	94077	Rear Plate	19	27402	Washer, Flat 1/4" (2)
4	26937	Retaining Ring (8)	20	94327	Screw, Socket Head 1/4" - 20 x 2 1/2"
5	94022	Rear Pivot Rod Support	21	94002	Brake Assembly
6	94267	Key, 3/16" Square x 1/2" (4)	22	40910	Set Screw 1/4" - 20 x 3/4" (4)
7	93987	Rear Jaw (4)	23	94027	Front Bracket Assembly
8	93977	Pivot Rod (4)	24	94087	Drive Gear
9	94197	Key, 3/16" Square x 1 3/16" (4)	25	94032	Drive Shaft
10	94397	Retaining Ring	26	94047	Connecting Link (4)
11	94392	Thrust Washer	27	94017	Front Jaw (4)
12	93957	Spindle Bearing (2)	28	93992	Front Pivot Rod Support
13	46860	Grease Fitting (2)	29	94072	Front Plate
14	94037	Rear Bracket Assembly	30	94097	Front Cover
15	46745	Screw, 3/8" - 16 x 1 1/4" (4)	31	94332	Screw, Button Head 1/4" - 20 x 3/4" (9)
16	40930	Washer, Lock 3/8" (4)			

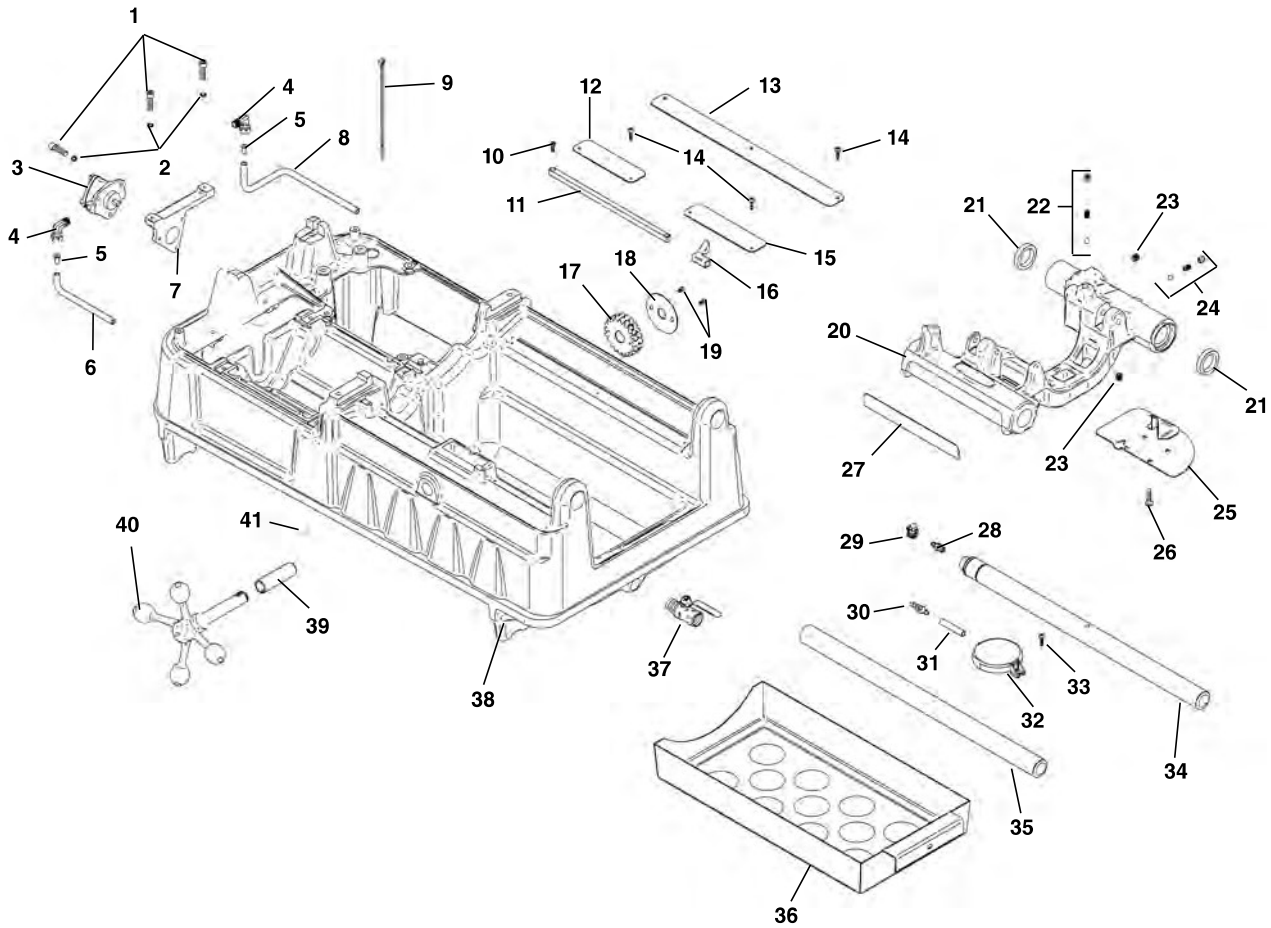
### Gearbox Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	40910	Screw, Socket Head 1/4" - 20 x 3/4" (4)	18	94062	Retaining Ring
2	34892	Set Screw 1/4" - 20 x 1/2"	19	94052	Bearing
3	94107	Transmission Cover	20	94167	Front Transmission Bracket
4	94227	Shifter Fork	21	94247	Gasket (2)
5	26447	Bushing (2)	22	93967	Input Shaft Assembly
6	94132	Shifter Rod	23	94277	Key, 3/16" Square x 1/4"
7	94252	Gasket (2)	24	94182	Intermediate Shaft Assembly
8	94242	Gasket (2)	25	94387	Pop Rivet (5)
9	40367	Screw, Socket Head 5/16" - 18 x 1 1/4" (4)	26	94367	Gasket
10	94262	V Belt	27	94372	Gasket
11	94217	Bushing f/Input Pulley	28	94187	Control Panel
12	94202	Seal	29	94207	Control Panel Label
13	94102	Input Pulley	30	94332	Screw, Button Head 1/4" - 20 x 3/4" (4)
14	94317	Screw, Pan Head #8 - 32 x 1" (3)	31	94292	Spring
15	94172	Rear Transmission Bracket	32	94137	Shifter Shaft
16	94177	Bearing Retainer	33	94142	Shifter Knob
17	93972	Output Shaft Assembly	34	94427	Pop Rivet (6)

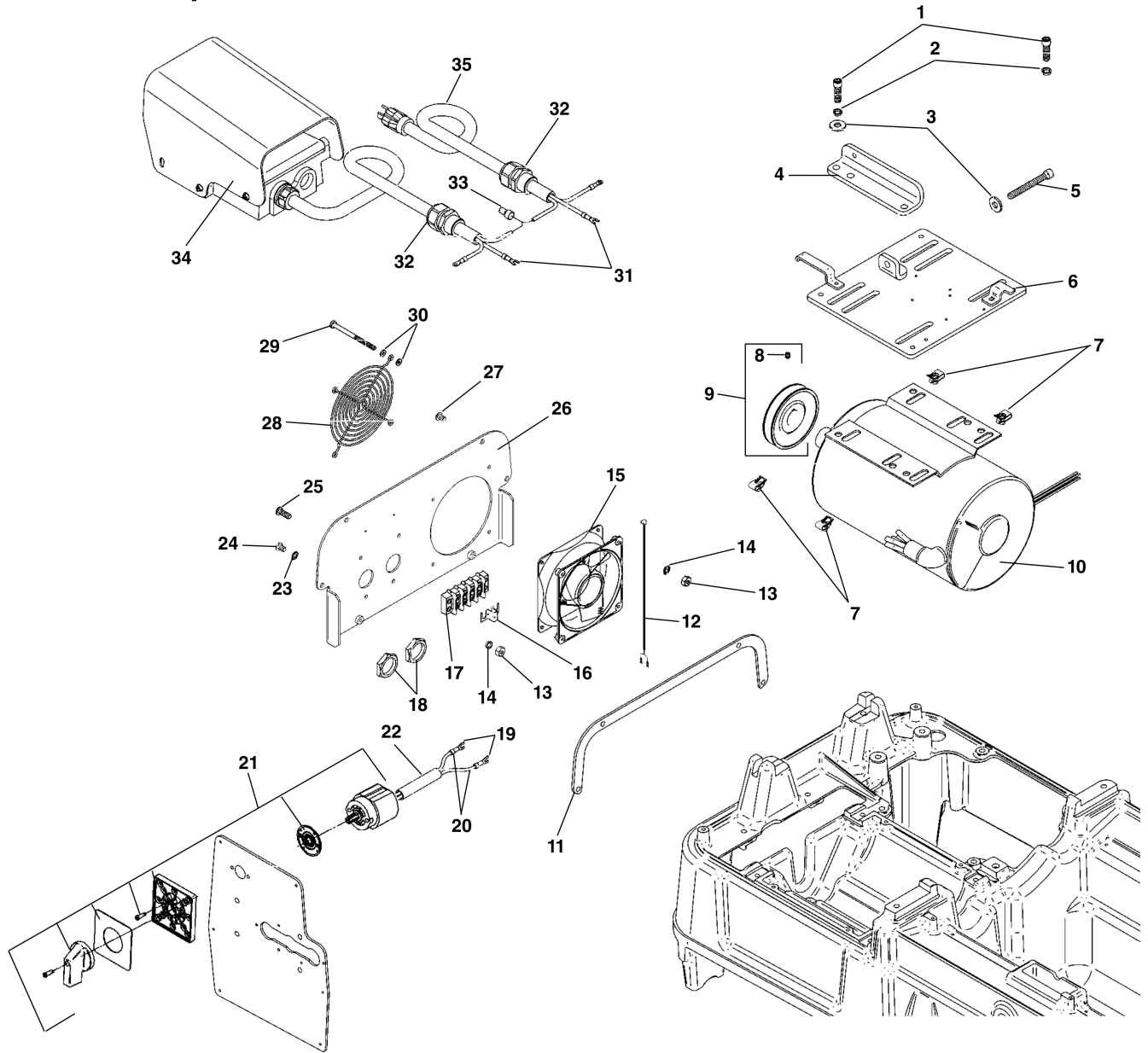
### Carriage and Oiling Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	83685	Screw, Socket Head 1/4" - 20 x 1" (5)	22	46810	Die Head Détente
2	44740	Lock Washer, 1/4" (5)	23	46815	Pipe Plug, 1/8" NPT (2)
3	94092	Oil Pump	24	35307	Pressure Relief Set
4	35122	Fitting (2)	25	45195	Drip Tray
5	35117	Tube Insert	26	46270	Screw, 1/4" - 20 x 1/2" (4)
6	26822	Oil Hose	27	46370	Length Gauge
7	27123	Oil Pump Bracket	28	69157	Barbed Fitting
8	94362	Oil Hose	29	35142	Hose Clamp
9	94407	Cable Tie	30	54142	Bulkhead Fitting
10	45615	Screw, Flat Head #10 - 32 x 1/2" (2)	31	87950	Hose
11	47105	Length Indicator Bar	32	58467	Filter Screen Assembly
12	94122	Drip Edge	33	45420	Screw, #10 - 32 x 3/8"
13	94127	Drip Edge	34	45220	Support Bar, Rear
14	43367	Screw, #8 x 3/4"	35	45440	Support Bar, Front
15	94117	Drip Edge	36	94112	Chip Tray
16	47110	Indicator Slide	37	94347	Valve, Oil Drain
17	45430	Pinion	38	94042	Base
18	47120	Pinion Lock Ring	39	94222	Bushing
19	46785	Screw, Flat Head #10 - 32 x 3/8" (2)	40	94012	Handwheel
20	94357	Carriage Assembly (Includes Ref. Nos. 21 - 27)	41	94267	Key, 3/16" Square x 1/2"
21	46720	Oil Seal (2)			

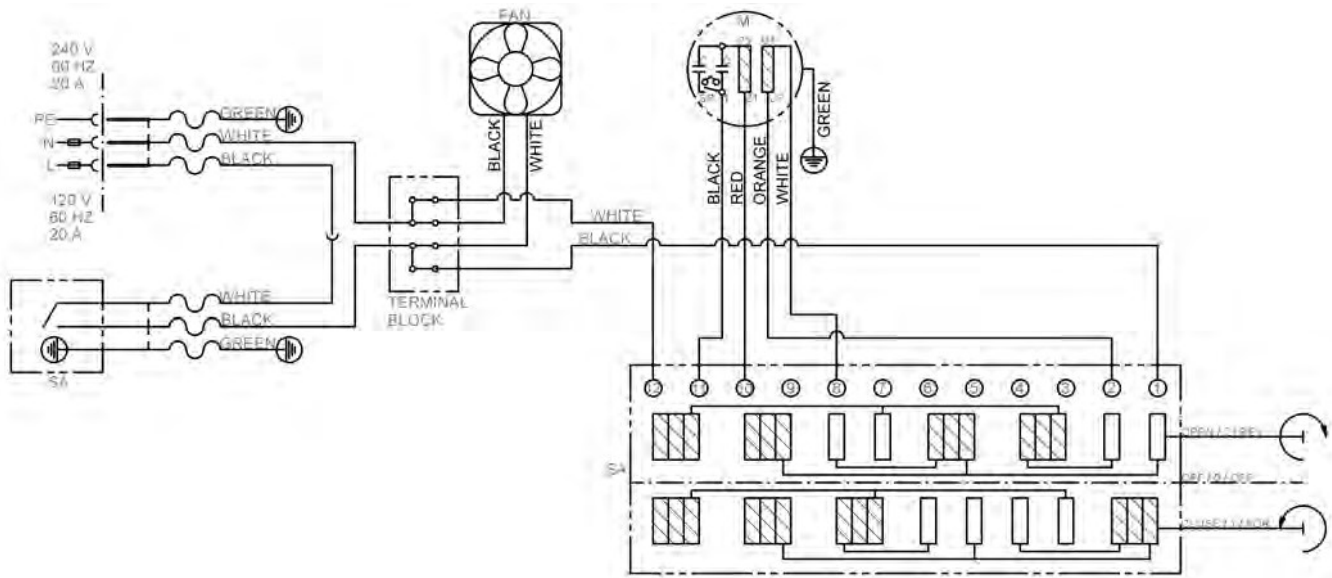
**Electrical Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

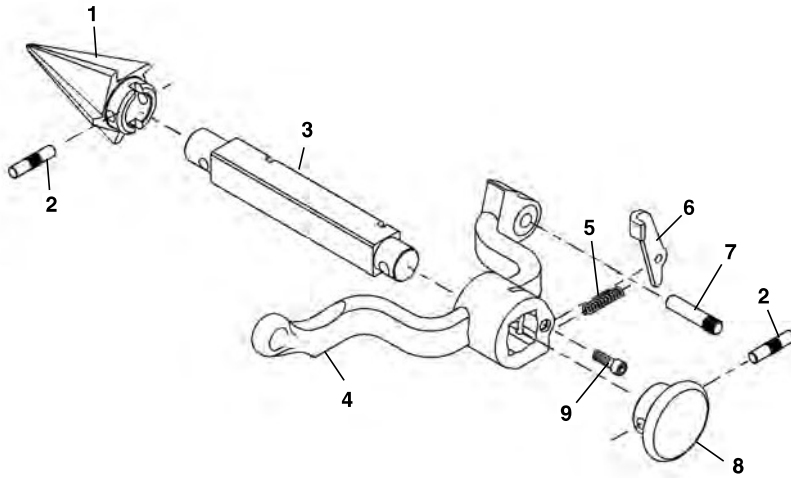
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	40367	Screw, Socket Head 5/16" - 18 x 1 1/4" (8)	19	46875	Spade Terminal (2)
2	40770	Washer, Split Lock 5/16" (12)	20	93947	Wire Set
3	96740	Washer, Flat 5/16" (5)	21	94257	Switch Assembly
4	94162	Adjuster Bracket	22	59342	Insulator Sleeve
5	94402	Screw, Socket Head 5/16" - 18 x 3/4"	23	46985	Washer, Lock Ext. Tooth #10 (2)
6	94192	Motor Table	24	47147	Screw, Button Head #10 - 32 x 3/8" (2)
7	96367	Tinnerman Nut (4)	25	34667	Screw, Button Head #10 - 32 x 3/4" (2)
8	77905	Set Screw 5/16" - 18 x 1/4"	26	94152	Back Cover
9	94237	Pulley	27	94337	Screw, Button Head 1/4" - 20 x 3/8" (4)
10	94007	Motor 120V 60 Hz	28	94232	Fan Guard
11	94422	Gasket	29	94312	Screw, Pan Head #6 - 32 x 2" (4)
12	94447	Fan Cord	30	94302	Washer, Flat #6 (8)
13	34722	Nut, Hex #10 - 32 (4)	31	93952	Spade Terminal (2)
14	58542	Washer, Lock #10 (4)	32	75952	Strain Relief (2)
15	94212	Fan	33	44635	End Splice
16	94377	Jumper	34	74272	Foot Switch, B-294HD
17	94382	Terminal Block	35	75902	Power Cord 115V
18	93962	Lock Nut (2)			

### Wiring Diagram





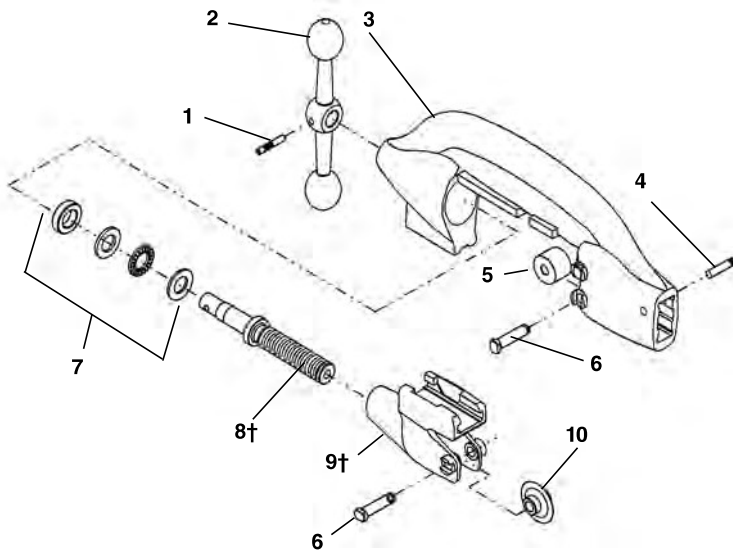
**No. 341 Reamer**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	42365	341 Reamer Complete
1	36277	Cone (R.H.)
	46660	Cone (L.H. & R.H.)
2	47155	Pin
3	43790	Reamer Bar
4	43230	Reamer Arm
5	44700	Latch Spring
6	46665	Reamer Latch
7	47065	Hinge Pin
8	46585	Reamer Knob
9	46515	Screw 1/4" - 20 x 3/4"

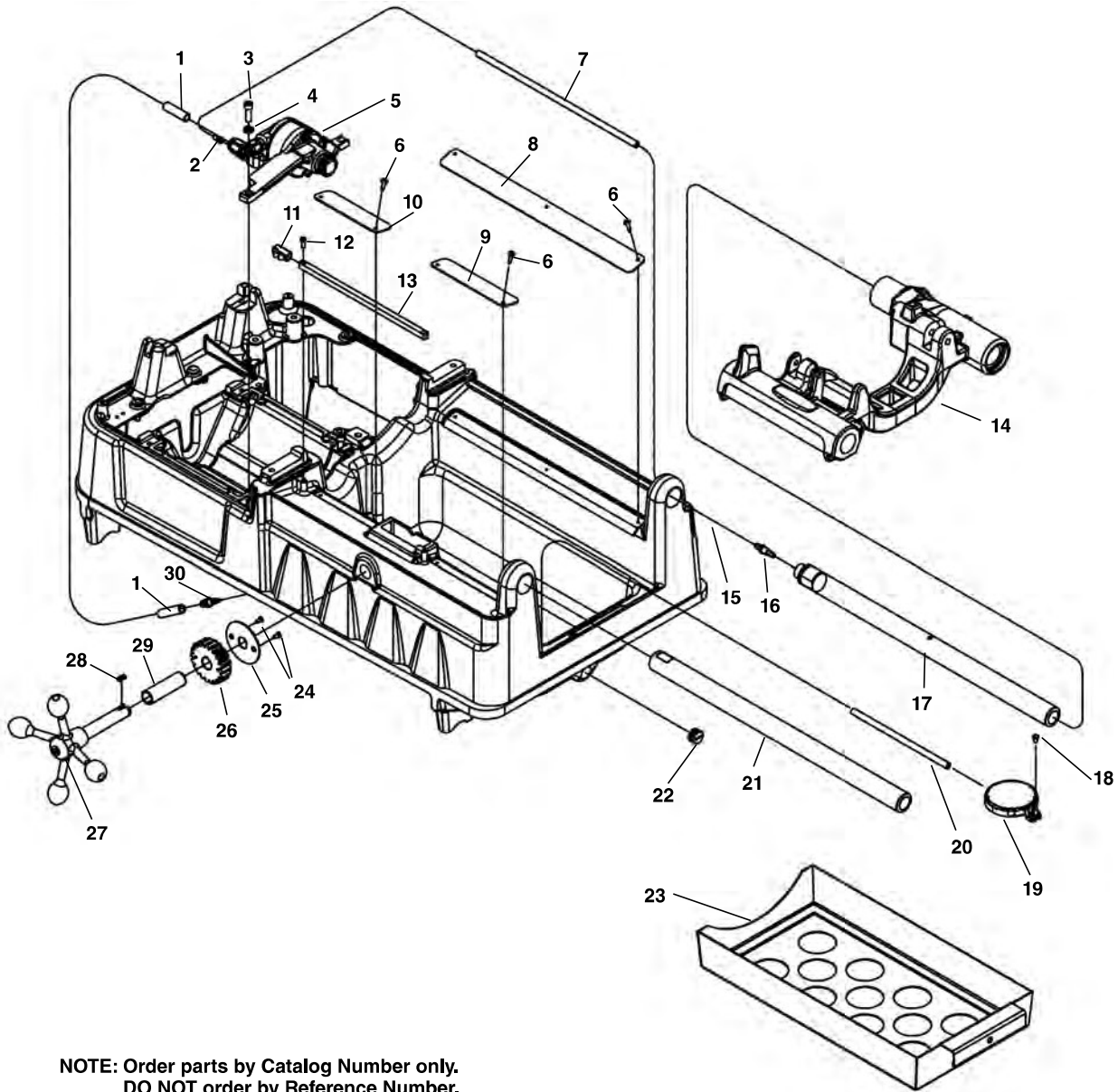
**No. 820 Cutter**



Ref. No.	Catalog No.	Description
—	42390	820 Cutter Complete
1	47160	Crank Pin
2	45765	Feed Screw Crank
3	43040	Cutter Frame
4	47135	Stop Pin
5	34775	Cutter Roll (2)
6	34780	Cutter & Roll Pin (3)
7	46725	Thrust Bearing Assembly
8†	45780	Feed Screw
9†	43245	Wheel Housing
10	44185	Cutter Wheel
	44190	Cutter Wheel f/Stainless

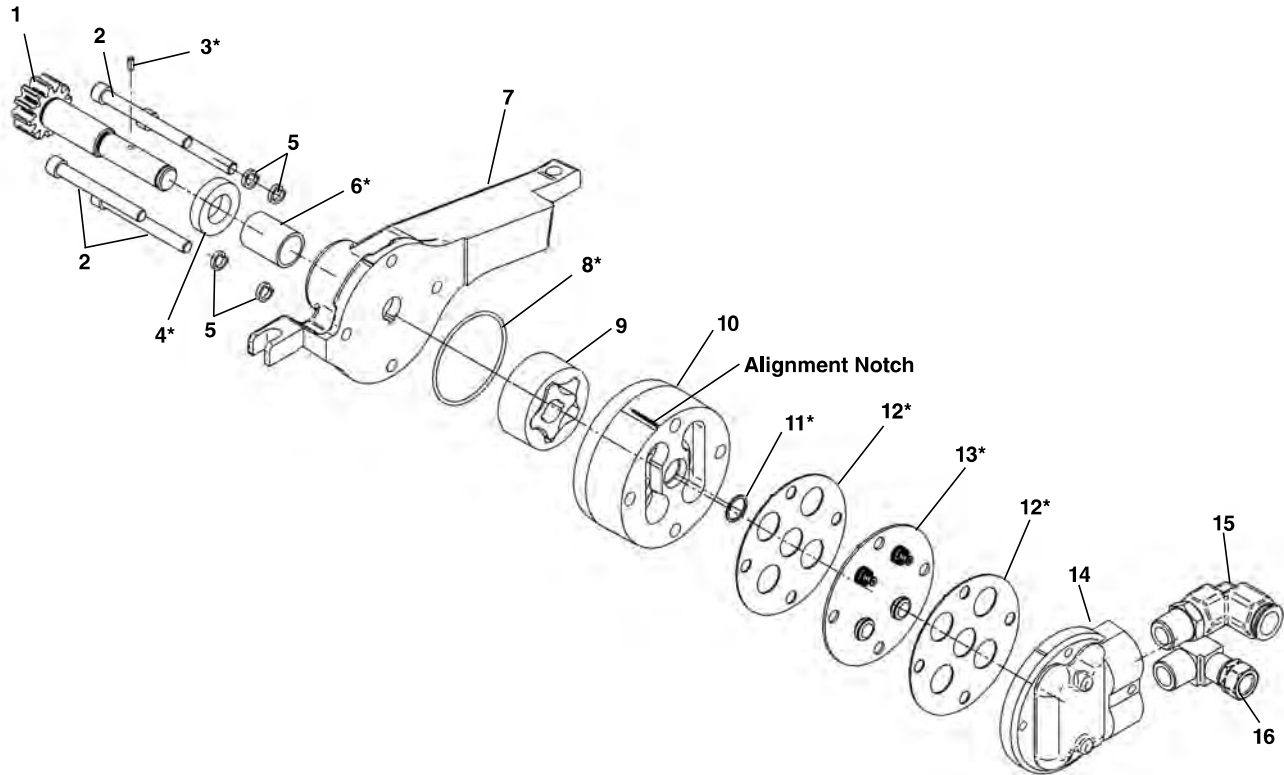
† Service Note: When replacing parts on early style (fine thread) cutters, both feed screw and wheel housing must be replaced.

Carriage and Oiling Components – Universal Motor Machines



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

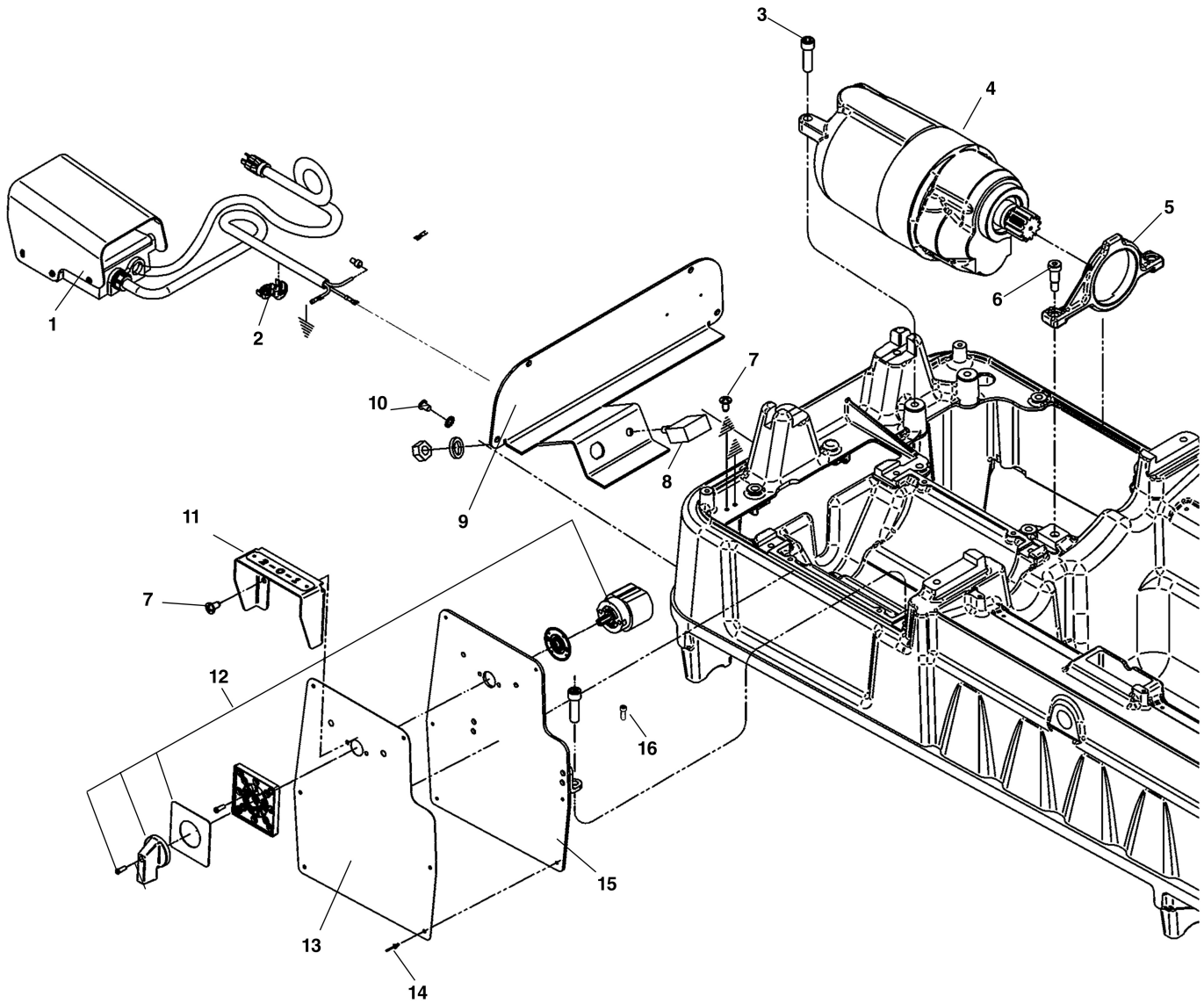
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	26822	Oil Hose, Input 21"	16	69157	Barbed Fitting
2	35117	Tube Insert	17	45220	Support Bar, Rear
3	44590	Screw, 5/16" - 18 x 1" S.H.C.S.	18	45420	Screw, #10 - 32 x 3/8"
4	40770	5/16" Lock Washer	19	58467	Filter Screen Assembly
5	96517	Oil Pump	20	87950	Oil Hose, Filter
6	43367	Screw, #8 x 3/4"	21	45440	Support Bar, Front
7	94362	Oil Hose, Output	22	96447	Drain Plug 1/2" NPT
8	94127	Drip Edge	23	94112	Chip Tray
9	94117	Drip Edge	24	46785	Screw, Flat Head #10 - 32 x 3/8" (2)
10	94122	Drip Edge	25	47120	Pinion Lock Ring
11	47110	Indicator Slide	26	45430	Pinion
12	45615	Screw, Flat Head #10 - 32 x 1/2" (2)	27	94012	Handwheel
13	47105	Length Indicator Bar	28	94267	Key, 3/16" Square x 1/2"
14	94357	Carriage Assembly	29	94222	Bushing
15	35142	Hose Clamp	30	54142	Bulkhead Fitting



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	96517	535M Left Hand Threading Kit
1	21813	Pinion Shaft
2	62017	Screw, Soc. Hd. Cap 1/4" - 20 x 2 1/4" (4)
3	26907	Roll Pin 3/32" x 1/4"
4	33472	Oil Seal
5	45150	Lockwasher (4)
6	61972	Bronze Bearing
7	21818	Pump Body
8	33477	O-Ring
9	62007	Gerotor
10	62002	Gerotor Housing
11	61997	Retaining Ring
12	33457	Valve Gasket (2)
13	33452	Valve Retainer
14	33442	Valve Body
15	21823	Elbow Fitting, Swivel
16	21828	Elbow Fitting, Compression
*	61977	Repair Kit (Includes Ref. Nos. 3, 4, 6, 8 and 11-13)

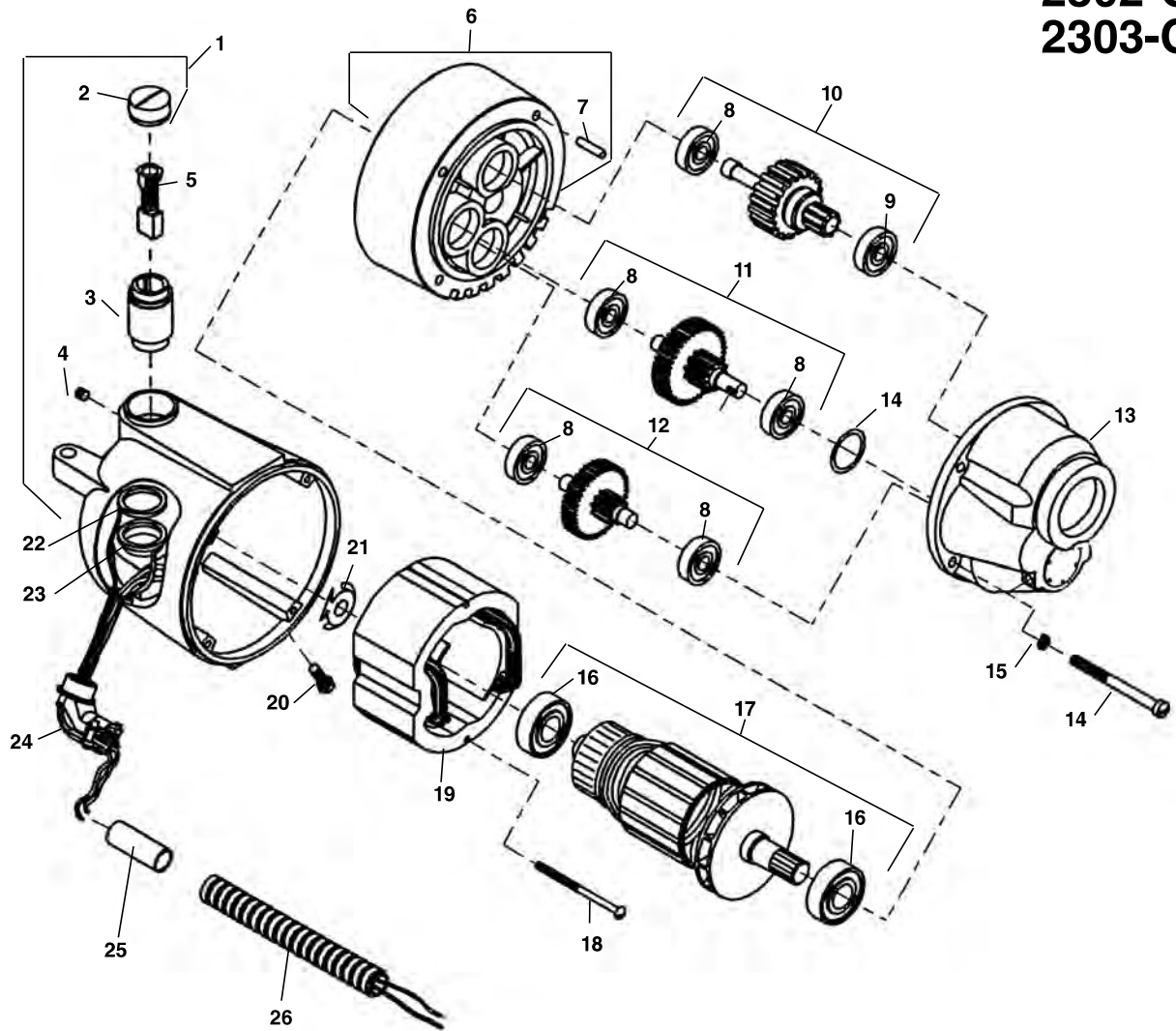
Electrical Components – Universal Motor Machine



NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	36652	Foot Switch, B-296	9	26973	Back Cover
	40017	Foot Switch, B-298	10	47147	Screw (2)
2	75952	Strain Relief (2)	11	96452	Switch Cover
3	46745	Screw (2)	12	20123	Switch Assembly
4	96442	Motor	13	96472	Warning Label
5	96402	Motor Bracket	14	94427	Pop Rivet (6)
6	36262	Shoulder Bolt (2)	15	96457	Control Panel
7	45420	Screw (2)	16	40910	Screw
8	63373	Suppressor			

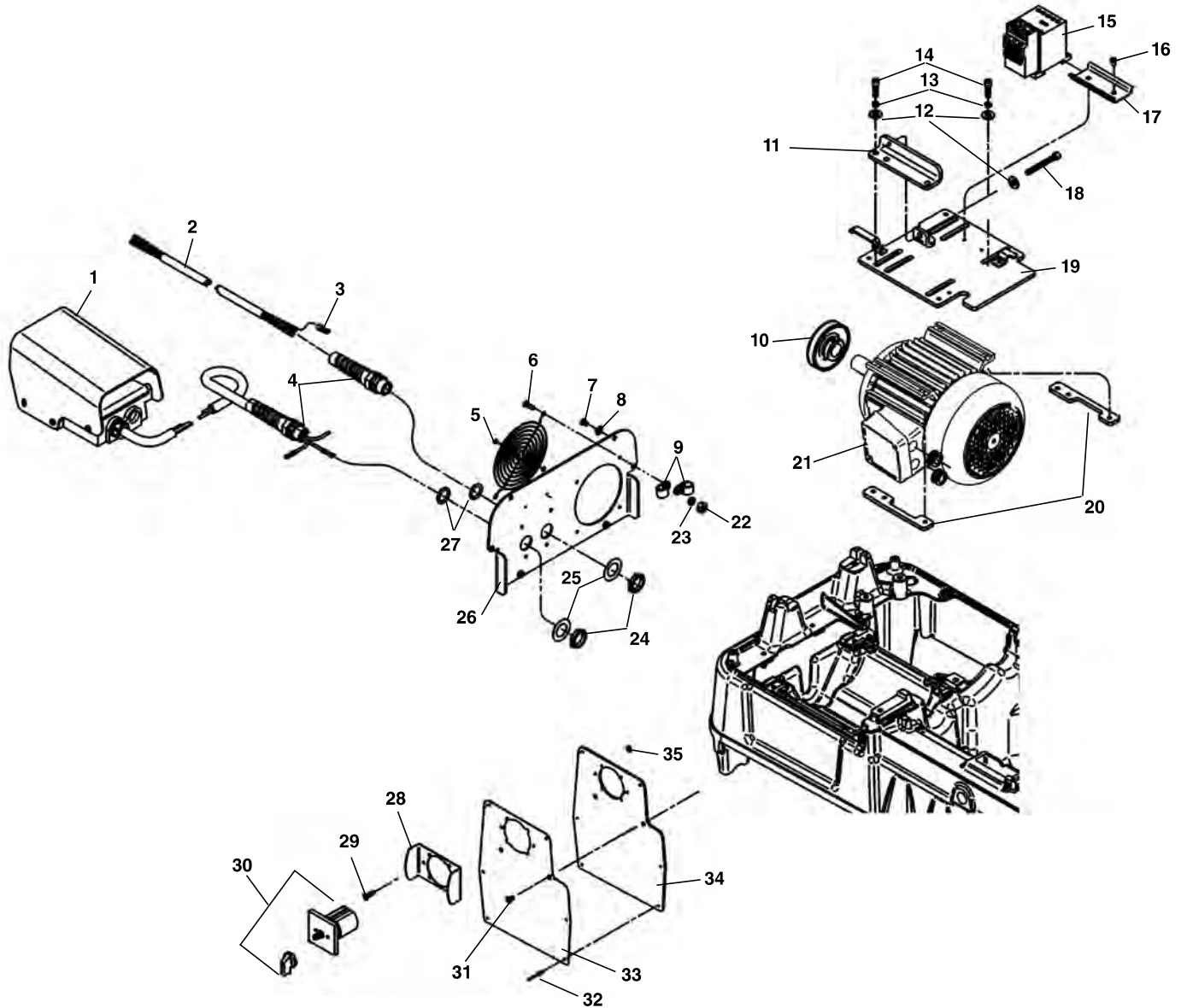
**1102-CE  
1103-CE  
2302-CE  
2303-CE**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	43160	Housing Assembly	11	44985	1st Gear Assembly	17	44010	Armature 1103-CE (115V)
2	44545	Brush Cap Set			1103-CE and 2303-CE		44030	Armature 2303-CE (230V)
3	45025	Brush Holder Set		62022	1st Gear Assembly		52497	Armature 1102-CE (115V)
4	39770	Set Screw (2)			1102-CE and 2302-CE		52492	Armature 2302-CE (230V)
5	44540	Brush Assembly Set	12	45005	2nd Gear Assembly	18	44555	Mounting Screw (2)
6	43165	Fan Housing Assembly		52527	2nd Gear Assembly	19	44015	Field (115V)
	54552	Fan Housing Assembly			1102-CE and 23032		44035	Field (230V)
7	45165	Dowel Pin	13	42875	Gear Housing	20	83500	Locking Screw (2)
8	45060	Gear Bearings (5)	14	45075	Screw (4)	21	44580	Loading Spring
9	45315	Front Bearing	15	45150	Lock Washer	22	86680	White Upper Lead
10	45370	Drive Gear	16	44565	Armature Bearing (2)	23	86685	Red Lower lead
						24	46900	Connector 90 Degree
						25	63377	Ferrite Bead
						26	95690	Flexible Conduit

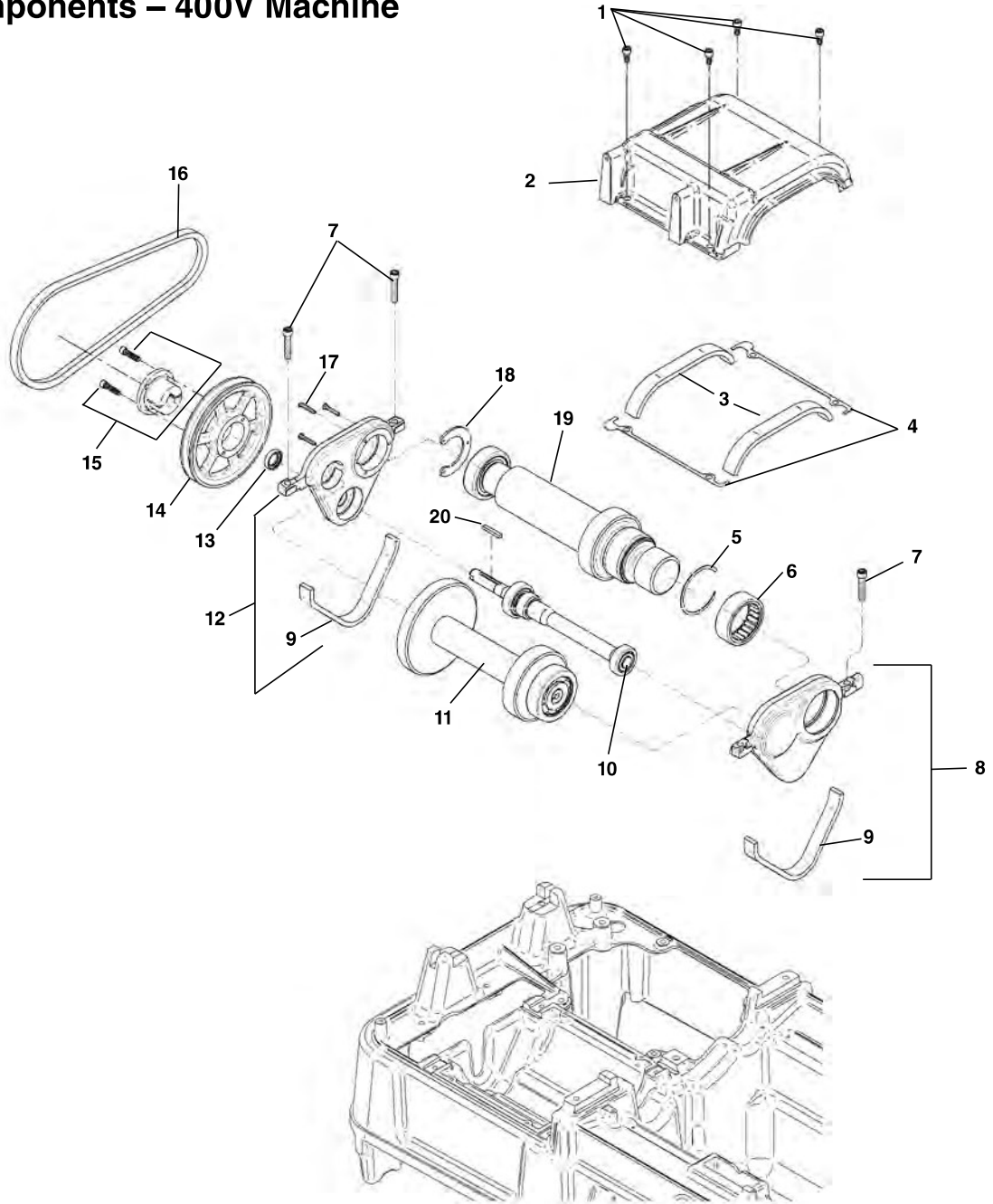
## 400V Electrical



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	27063	Foot Switch	19	94192	Motor Table
2	75902	Power Cord 115V	20	94157	Motor Mounting Brackets
3	44635	End Splice	21	27078	Motor
4	27187	Strain Relief w/Lock Nut (2)	22	34722	Nut, Hex #10 - 32 (4)
5	94232	Fan Guard	23	58542	Washer, Lock #10 (4)
6	27118	Screw, Pan Head #6 - 32 x 3/4" (4)	24	93962	Lock Nut (2)
7	94337	Screw, Button Head 1/2" - 20 x 3/8"	25	36247	Hole Adapter
8	40270	Lock Washer, 1/4" External Tooth	26	94152	Back Cover
9	61912	1/2" Clamp	27	47147	Screw, Button Head #10 - 32 x 3/8" (2)
10	27073	Pulley	28	27103	Switch Guard
11	94162	Adjuster Bracket	29	45405	Screw, Slotted Round Hd. #8 - 32 x 7/16"
12	96740	Washer, Flat 5/16" (5)	30	27108	Switch Assembly
13	40770	Washer, Split Lock 5/16" (12)	31	94332	Screw, Socket Head 5/16" - 18 x 3/4"
14	36652	Screw, Socket Head 5/16" - 18 x 1 1/4" (8)	32	94427	Pop Rivet (6)
15	27093	Contact	33	27083	Control Panel Label
16	94332	Screw, Button Head 1/2" - 20 x 3/4"	34	27088	Control Panel
17	90517	in Rail	35	76190	Hex Nut, #8-32
18	27113	Screw, Socket Head 5/16" - 18 x 3 1/2"			

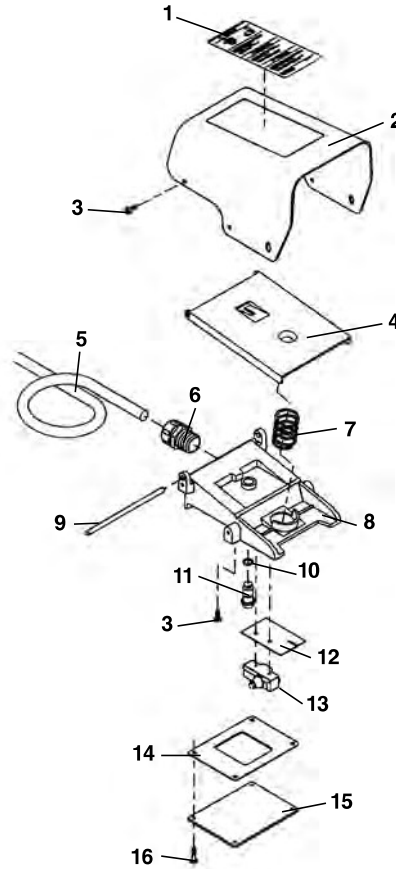
**Gearbox Components – 400V Machine**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>	<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	36652	Screw, Socket Head 1/4" - 20 x 3/4" (4)	12	94172	Rear Transmission Bracket
2	26968	Transmission Cover	13	94202	Seal
3	94252	Gasket (2)	14	26948	Input Pulley
4	94242	Gasket (2)	15	94217	Bushing f/Input Pulley
5	94062	Retaining Ring	16	94262	V Belt
6	94052	Bearing	17	94317	Screw, Pan Head #8 - 32 x 1" (3)
7	40367	Screw, Socket Head 5/16" - 18 x 1 1/4" (4)	18	94177	Bearing Retainer
8	94167	Front Transmission	19	26958	Output Shaft Assembly
9	94247	Gasket (2)	20	94277	Key, 3/16" Square
10	26963	Input Shaft Assembly			
11	26953	Intermediate Shaft			

## 400V Machine

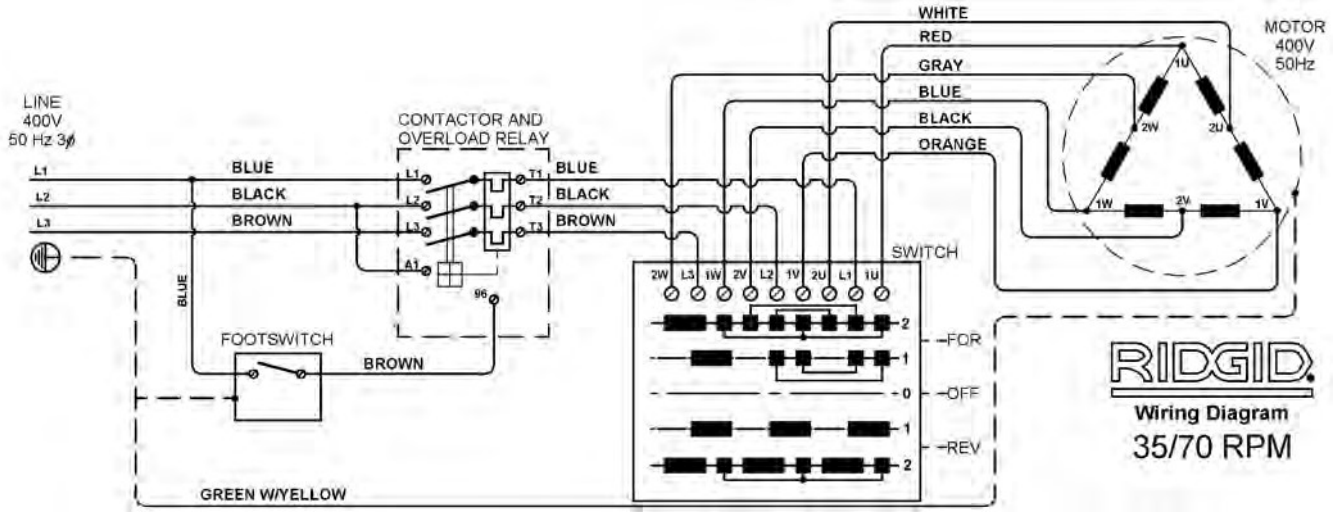


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

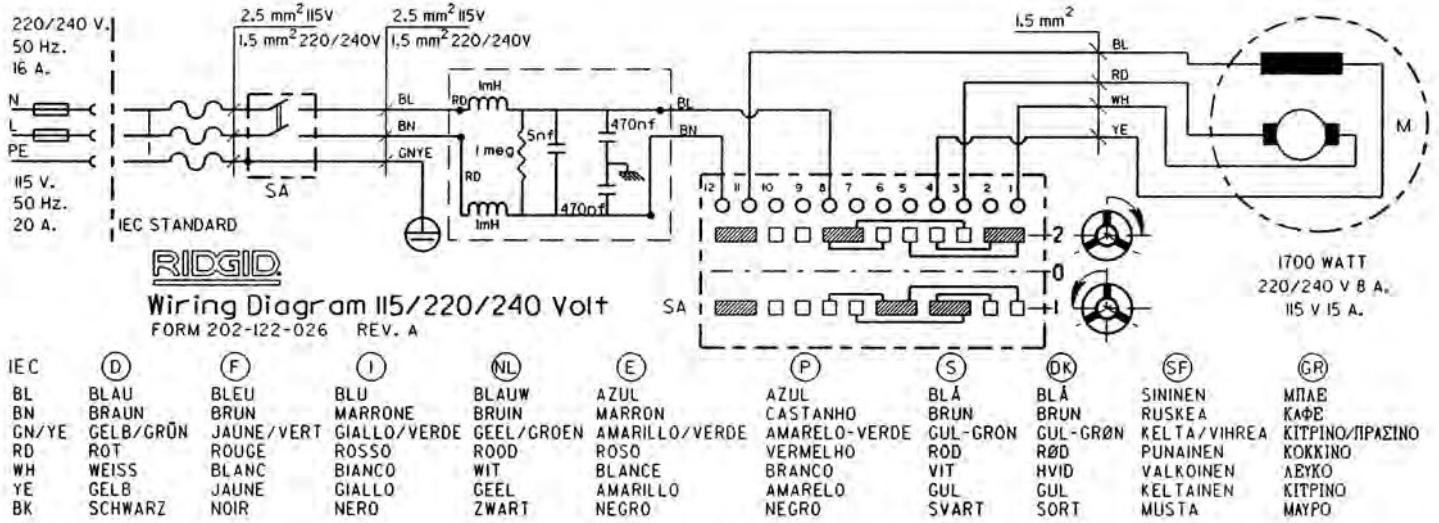
Ref. No.	Catalog No.	Description
1	26938	Warning Label
2	36692	Cover
3	36787	Screw #10 Self-tapping (5)
4	36697	Foot Pedal
5	36717	Cord
6	36732	Cord Connector
7	36702	Spring
8	54347	Base
9	36747	Pivot Pin
10	36767	O-Ring
11	36772	Poppet
12	54367	Insulator
13	26943	Micro Switch
14	54372	Seal
15	54362	Bottom Cover
16	54357	Bottom Cover Screw (4)



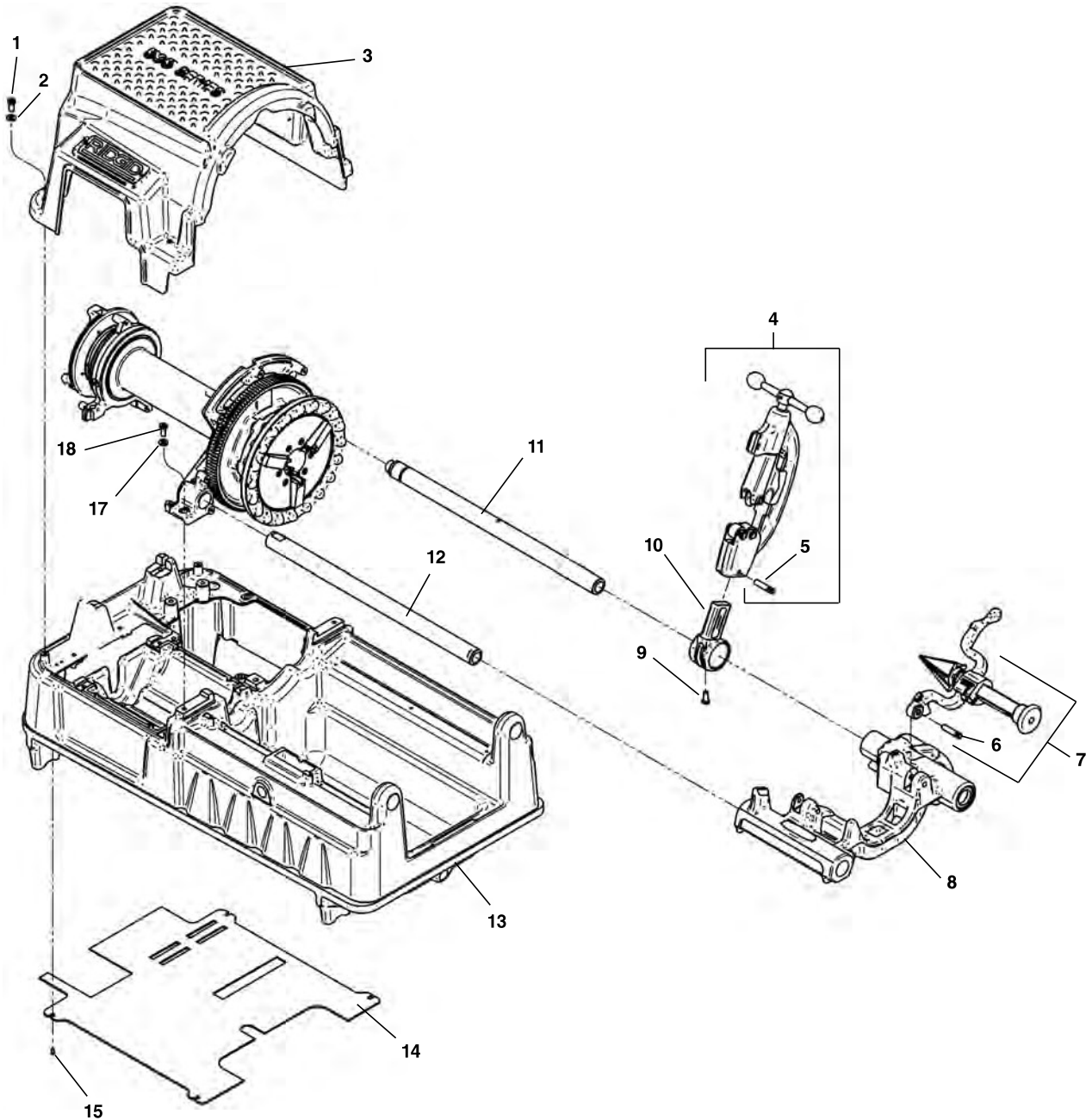
**400V Wiring**



**European Wiring Diagram - Universal Machines**



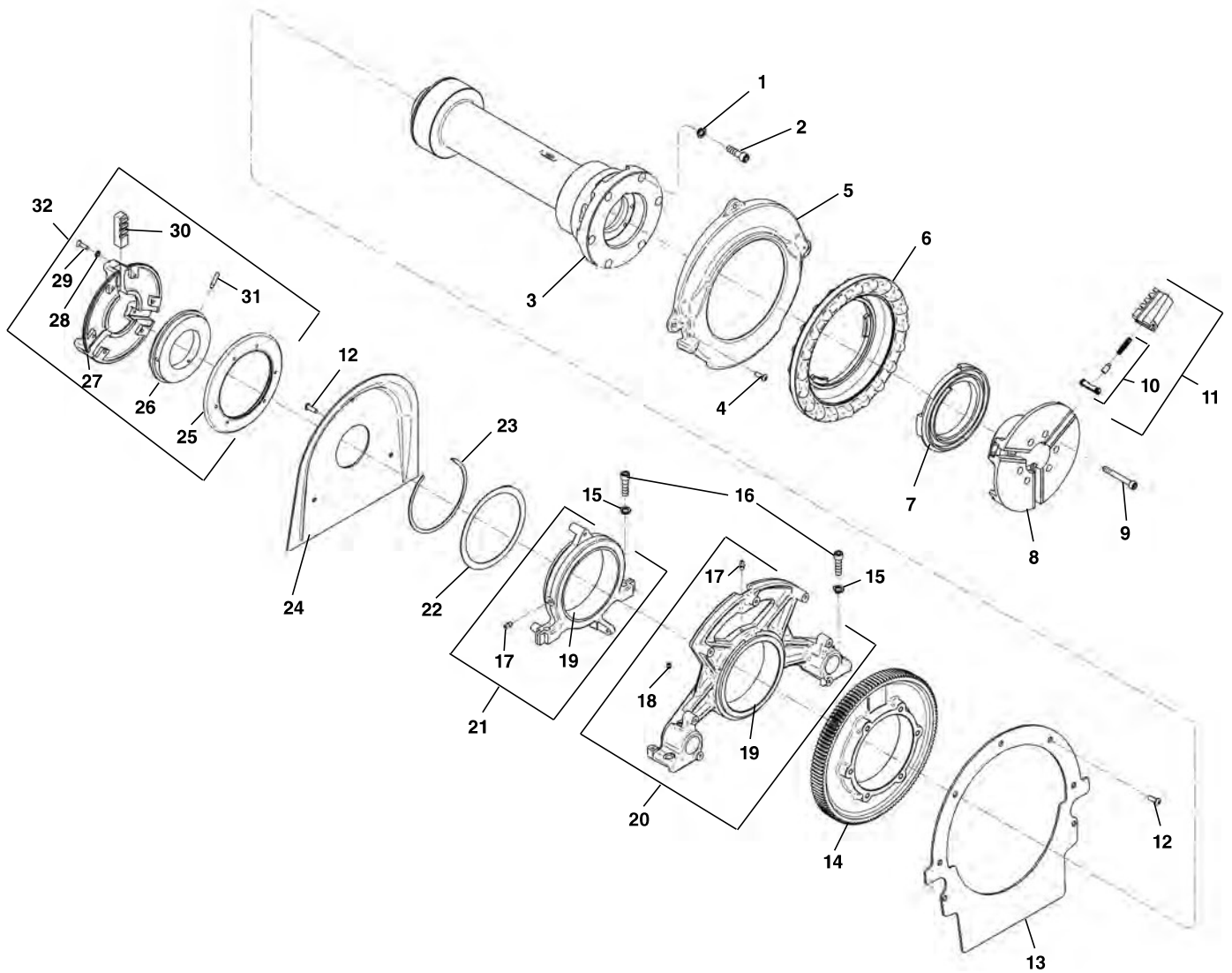
Main Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	94332	Screw, Button Head 1/4" - 20 x 3/4" (4)	9	44930	Stop Screw
2	94322	Washer, Flat 1/4" (4)"	10	43690	Cutter Arm
3	94432	Top Cover	11	45220	Rear Support Bar
4	42390	820 Cutter Assembly	12	45440	Front Support Bar
5	47135	Stop Pin	13	94042	Base
6	47065	Pin	14	96432	Bottom Cover
7	42365	341 Reamer Assembly	15	94312	Screw, Pan Head #6 - 32 x 2" (4)
8	94357	Carriage Assembly			

**Drive Shaft Assembly**

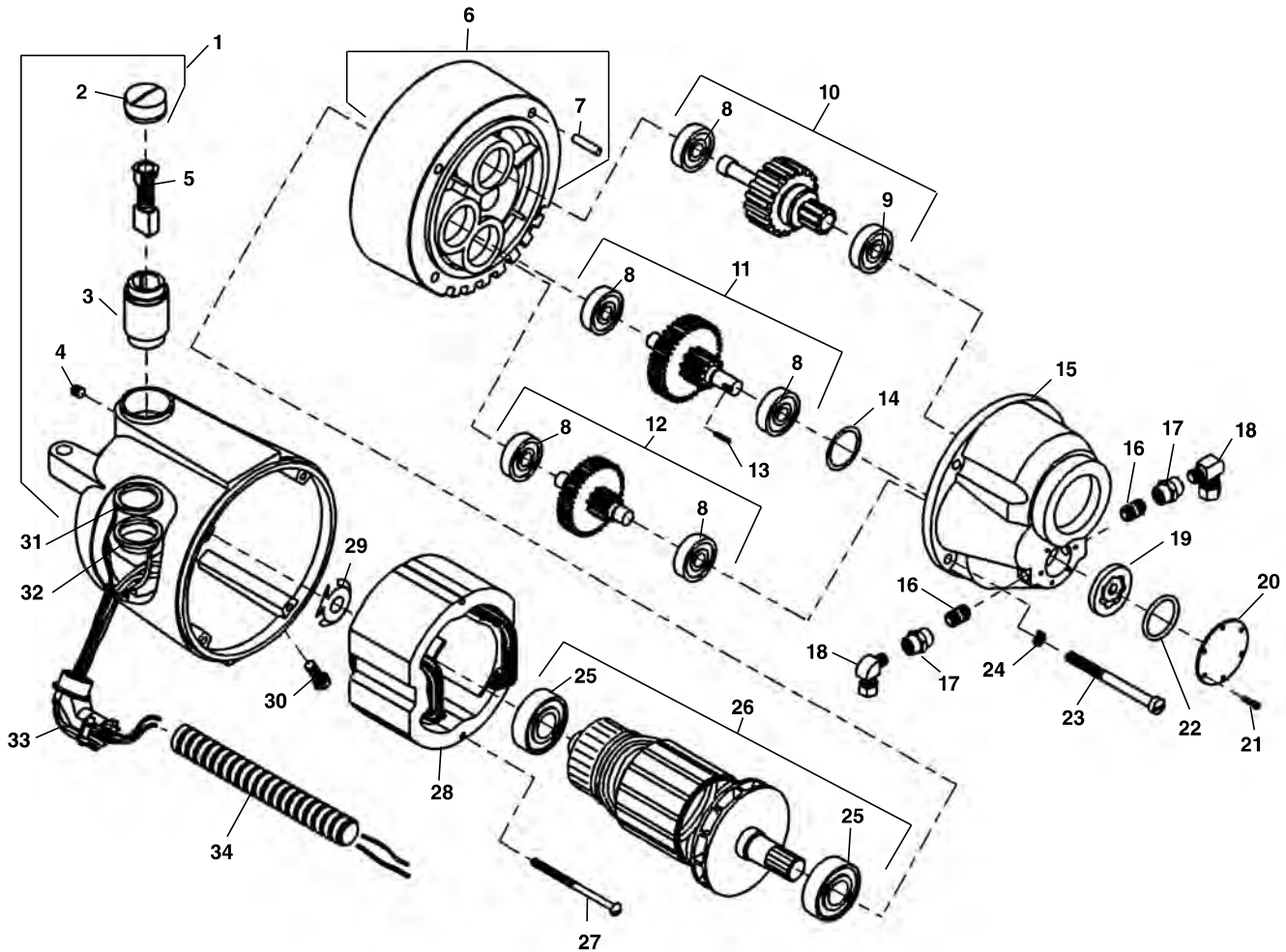


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	40930	Washer, Lock $\frac{3}{8}$ "	18	40910	Set Screw $\frac{1}{4}$ " - 20 x $\frac{3}{4}$ " (4)
2	46745	Screw, Soc. Hd. $\frac{3}{8}$ " - 16 x $1\frac{1}{4}$ "	19	93957	Spindle Bearing (2)
3	96427	Drive Shaft	20	94027	Front Bracket Assembly
4	94332	Screw, Button Head $\frac{1}{4}$ " - 20 x $\frac{3}{4}$ " (9)	21	94037	Rear Bracket Assembly
5	96407	Front Cover	22	94392	Thrust Washer
6	96422	Handwheel	23	94397	Retaining Ring
7	43540	Scroll	24	96487	Rear Cover
8	43525	Chuck Cap	25	43740	Back Plate
9	45295	Screw, $\frac{3}{16}$ " - 18 x $2\frac{3}{4}$ " (6)		19356	Back Plate - Europe
10	44715	Insert Set	26	44095	Scroll
11	44090	Front Jaw (3)	27	43735	Centering Head
12	94337	Screw, Button Head $\frac{1}{4}$ " - 20 x $\frac{3}{8}$ " (7)		19346	Centering Head - Europe
13	94072	Front Plate	28	40270	Lock Washer (6)
14	96417	Drive Gear	29	46790	Screw, #12-24 x $\frac{3}{4}$ " (6)
15	40930	Washer, Lock $\frac{3}{8}$ " (4)	30	46500	Centering Jaw (3)
16	46745	Screw, $\frac{3}{8}$ " - 16 x $1\frac{1}{4}$ " (4)	31	45260	Step Pin (3)
17	46860	Grease Fitting (2)	32	44165	Centering Head Assembly

## 1101 2301

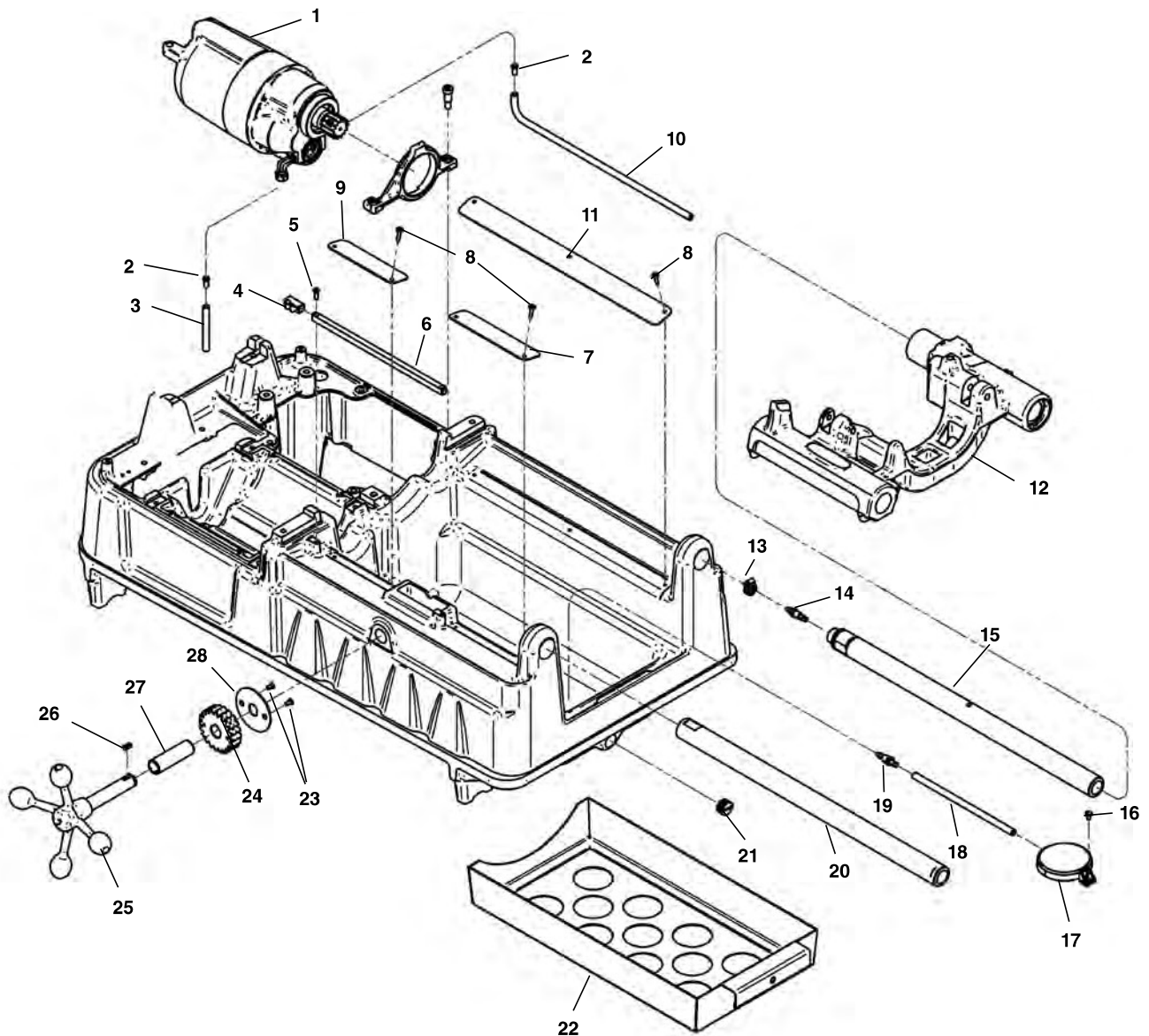
### Motor



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	96442	1101 Motor 115V	11	52522	1st Gear Assembly	24	45150	Lock Washer
—	21208	2301 Motor 230V	12	52527	2nd Gear Assembly	25	44565	Armature Bearing (2)
—	25353	1101A Motor 115V 54 RPM	13	96885	Pin	26	52497	Armature (115V)
1	43160	Housing Assembly	14	96880	Oil Seal	26	52492	Armature (230V)
2	44545	Brush Cap Set	15	96830	Gear Housing	27	44555	Mounting Screw (2)
3	45025	Brush Holder Set	16	52507	Pipe Nipple 1/8" NPT (2)	28	44015	Field (115V)
4	39770	Set Screw (2)	17	52512	Coupling 1/8" NPT (2)	28	44035	Field (230V)
5	44540	Brush Assembly Set	18	52517	90° Elbow Fitting (2)	29	44580	Loading Spring
6	54552	Fan Housing Assembly	19	96870	Gerotor Set	30	83500	Locking Screw (2)
7	45165	Dowel Pin	20	96840	Cover Plate	31	96942	White Upper Lead
8	45060	Gear Bearings (5)	21	46130	Screw (6)	32	96492	Red Lower lead
9	45315	Front Bearing	22	96875	O Ring	33	46900	Connector 90
10	96437	Drive Gear	23	45075	Screw (4)	34	96482	Flexible Conduit

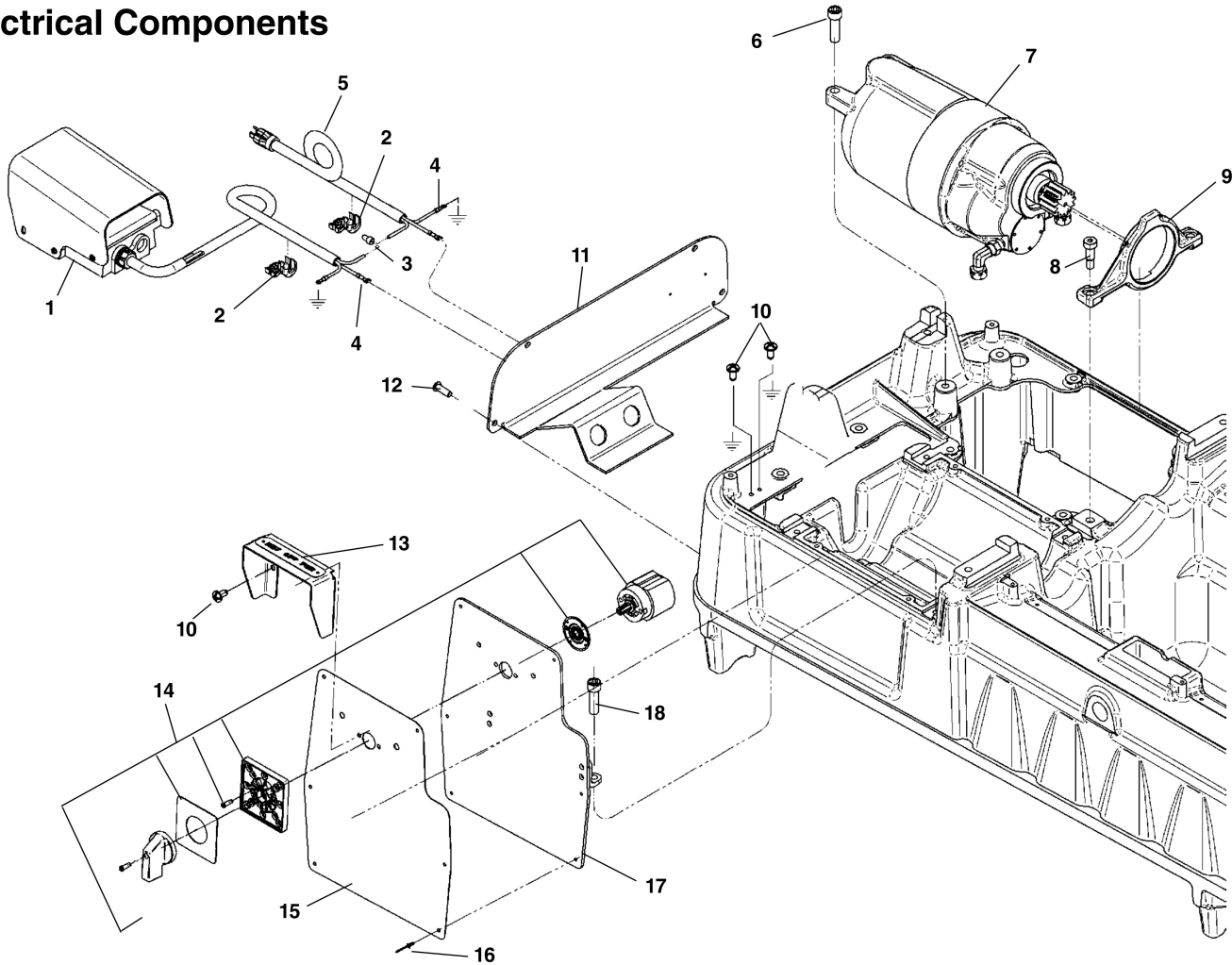
### Oiling Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>	<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	96442	1101 Motor Assembly 115V	15	45220	Support Bar, Rear
	21208	2301 Motor Assembly 230V	16	45420	Screw, #10 - 32 x 3/8"
2	35117	Tube Insert	17	58467	Filter Screen Assembly
3	97950	Oil Hose, Input 13"	18	87950	Oil Hose, Filter
4	47110	Indicator Slide	19	54142	Bulkhead Fitting
5	45615	Screw, Flat Head #10 - 32 x 1/2" (2)	20	45440	Support Bar, Front
6	47105	Length Indicator Bar	21	96447	Drain Plug 1/2" NPT
7	94117	Drip Edge	22	94112	Chip Tray
8	43367	Screw, #8 x 3/4"	23	46785	Screw, Flat Head #10 - 32 x 3/8" (2)
9	94122	Drip Edge	24	45430	Pinion
10	58482	Oil Hose, Input 25"	25	94012	Handwheel
11	94127	Drip Edge	26	94267	Key, 3/16" Square x 1/2"
12	94357	Carriage Assembly	27	94222	Bushing
13	35142	Hose Clamp	28	47120	Pinion Lock Ring
14	69157	Barbed Fitting			

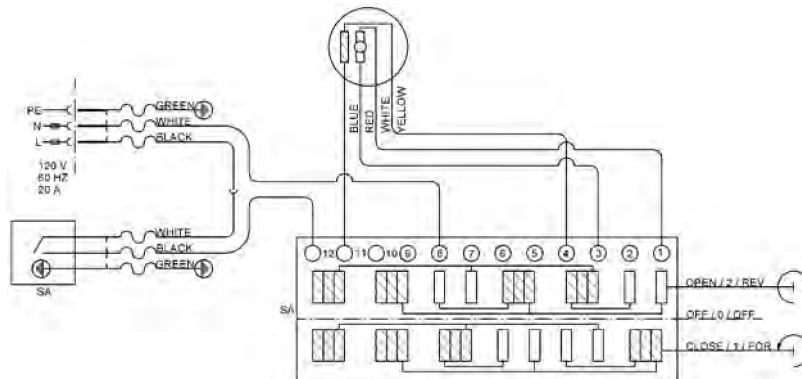
Electrical Components



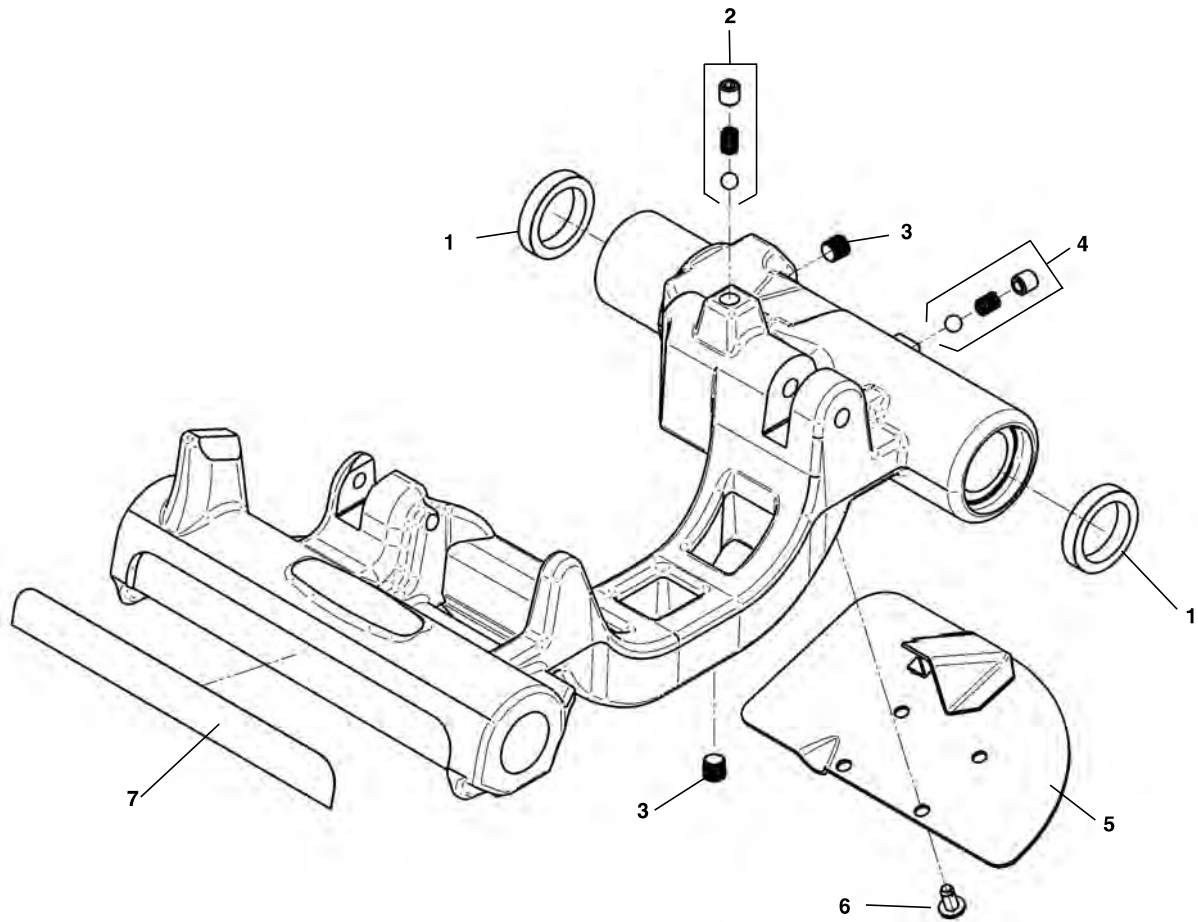
NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	36642	Foot Switch, B-294	11	51973	Back Cover
2	75952	Strain Relief (2)	12	94337	Screw, Button Head 1/4" x 20 x 3/8" B.H.C.S. (4)
3	44635	End Splice	13	96452	Switch Cover
4	46875	Spade Terminal (2)	14	20123	Switch Assembly
5	46740	Power Cord 115V	15	96472	Warning Label
6	46745	Screw (2)	16	94427	Pop Rivet (6)
7	96442	Motor	17	96457	Control Panel
8	36262	Shoulder Bolt (2)	18	40910	Screw
9	96402	Motor Bracket			
10	45420	Screw (4)			

Wiring Diagram



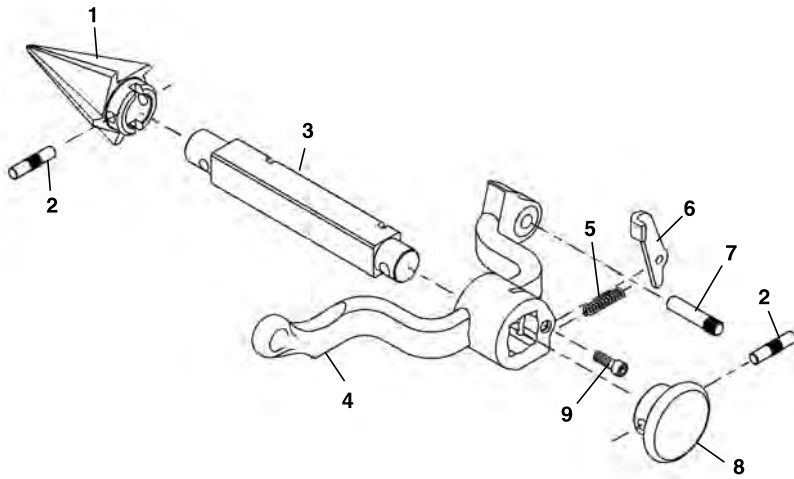
**Carriage**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
—	94357	Carriage Assembly
1	46720	Oil Seal
2	46810	Die Head Détente
3	46815	Pipe Plug, 1/8" NPT (2)
4	35307	Pressure Relief Set
5	45195	Drip Tray
6	46270	Screw, 1/4" - 20 x 1/2" (4)
7	46370	Length Gauge

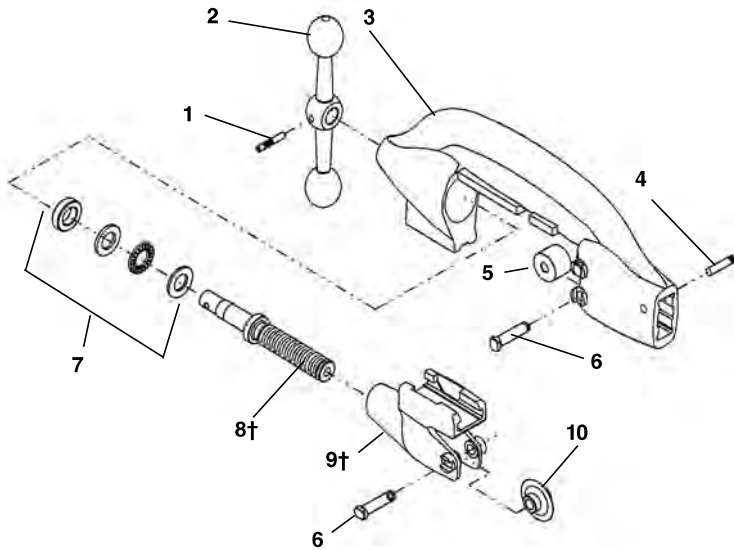
No. 341 Reamer



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	42365	341 Reamer Complete
1	36277	Cone (R.H.)
	46660	Cone (L.H. & R.H.)
2	47155	Pin
3	43790	Reamer Bar
4	43230	Reamer Arm
5	44700	Latch Spring
6	46665	Reamer Latch
7	47065	Hinge Pin
8	46585	Reamer Knob
9	46515	Screw 1/4" - 20 x 3/4"

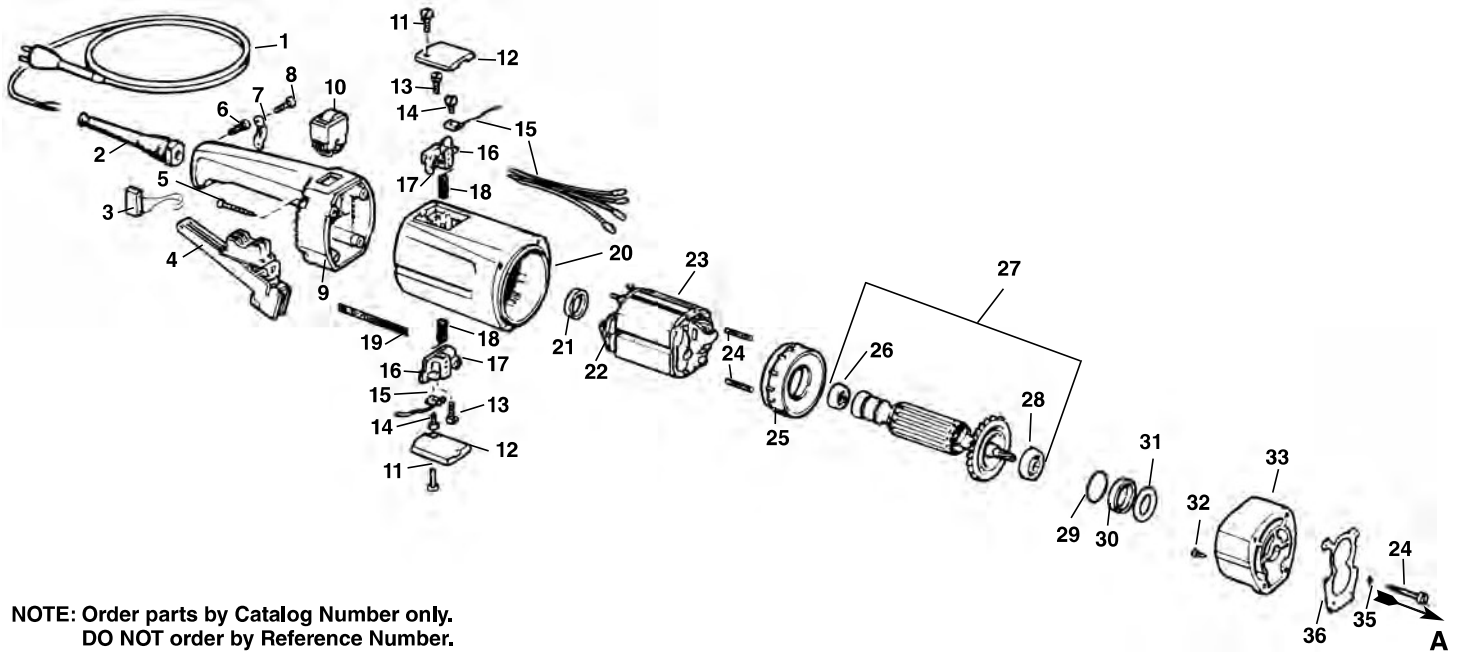
No. 820 Cutter



Ref. No.	Catalog No.	Description
—	42390	820 Cutter Complete
1	47160	Crank Pin
2	45765	Feed Screw Crank
3	43040	Cutter Frame
4	47135	Stop Pin
5	34775	Cutter Roll (2)
6	34780	Cutter & Roll Pin (3)
7	46725	Thrust Bearing Assembly
8†	45780	Feed Screw
9†	43245	Wheel Housing
10	44185	Cutter Wheel
	44190	Cutter Wheel f/Stainless

† Service Note: When replacing parts on early style (fine thread) cutters, both feed screw and wheel housing must be replaced.

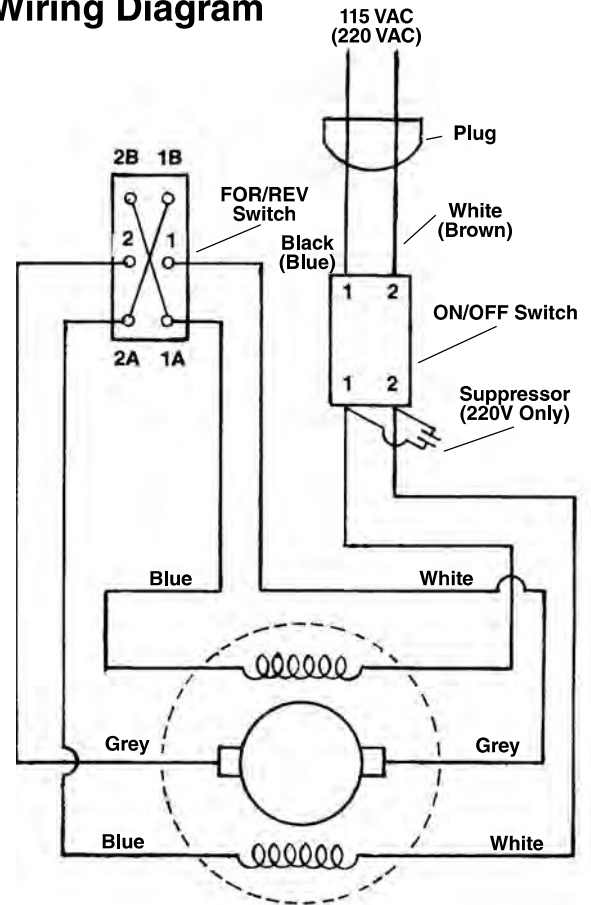


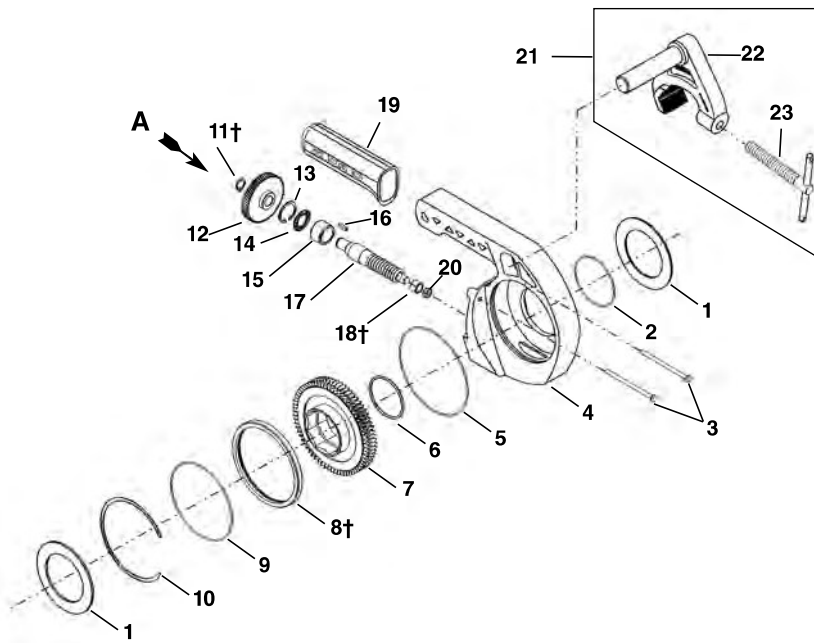


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	20746	Cord w/Plug (115V)
	20276	Cord w/Plug (230V - Europe)
2	20286	Sleeve
3	20326	Suppressor
4	20266	ON/OFF Switch
5	20586	Screw (4)
6	20576	Screw (3)
7	20296	Cable Clamp
8	20566	Screw (2)
9	20526	Handle
10	21796	Switch (115V)
	20516	Switch (230V)
11	20546	Screw (2)
12	20496	Cap (2)
13	20556	Screw (2)
14	20406	Screw (2)
15	20396	P.V.C. Wire (2)
16	20356	Brush Holder (2)
17	20316	Coil Spring (2)
18	20306	Set of 2 Brushes
19	34382	Name Plate
20	20236	Motor Housing
21	20506	Spacer
22	20386	Lead Wire Plate
23	21716	Field (115V)
	20246	Field (230V)
24	20486	Pressure Spring (2)
25	20476	Fan Housing
26	20336	Bearing
27	21736	Armature (115V)
	20256	Armature (230V)
28	47477	Bearing
29	20466	Spring Ring
30	20456	Spacer
31	20446	Washer
32	34387	Screw (2)
33	34392	Fan Housing
34	34397	Screw (2)
35	34517	Brass Washer (2)
36	34512	Gasket

**Wiring Diagram**





**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

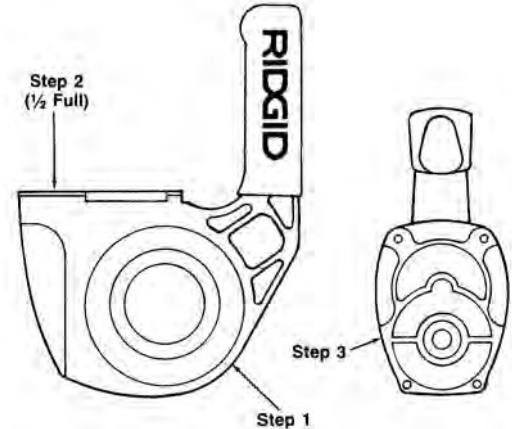
Ref. No.	Catalog No.	Description
1	34402	Cap (2)
2	34437	O-Ring, 2 <sup>1</sup> / <sub>2</sub> " x 2 <sup>5</sup> / <sub>8</sub> " x 1 <sup>1</sup> / <sub>16</sub> " Buna N
3	34412	Screw (2)
4	34417	Gear Housing
5	34422	O-Ring, 4 <sup>1</sup> / <sub>2</sub> " x 4 <sup>5</sup> / <sub>8</sub> " x 1 <sup>1</sup> / <sub>16</sub> " Buna N
6	38830	Spring Ring
7	34427	Worm Gear
8†	34432	Ring Bearing
9	34407	O-Ring, 4" x 4 <sup>1</sup> / <sub>8</sub> " x 1 <sup>1</sup> / <sub>16</sub> " Buna N
10	34442	Spiral Ring
11†	34447	Retaining Ring
12	34452	Helical Gear
13	34457	Retaining Ring
14	34462	Thrust Bearing
15	34467	Needle Bearing
16	34472	Key
17	34477	Worm
18†	34482	Needle Bearing
19	34487	Hand Grip
20	77710	Hex Nut
21	34497	Support Arm Assembly
22	34502	Arm
23	34507	Screw Assembly
	34522	Worm Gear Lubricant (2 oz.)
	20826	Carrying Case w/Insert
	34527	Insert (only)

## Service Notes

### Gear Head Assembly

#### Proper Oil Fill Procedure: Capacity 2 ozs.

- Step 1: Wipe Gear Cavity with oil and assemble Gear Head.  
 Step 2: Fill Worm Cavity 1/2 full of oil - install Worm.  
 Step 3: Pour remaining oil in Helical Gear Cavity - install Helical Gear.  
 Step 4: Install new Gasket and attach motor Assembly with Gear Head upright.



#### †Ref. No. 18

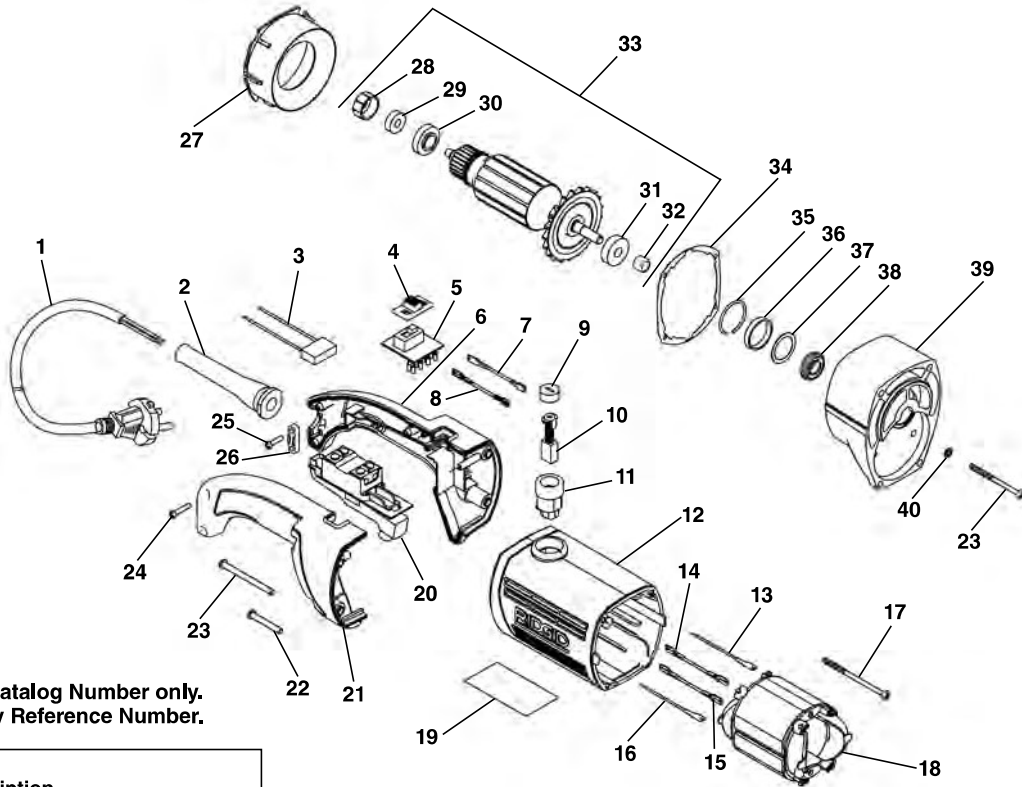
Hex Nut has been inserted behind Needle Bearing (Ref. No. 18) in the Gear Housing Assembly (Ref. No. 4). To replace Needle Bearing, thread 6 mm or 1/4 - 20 rod into nut and pull Bearing.

#### †Ref. No. 8

Chamfered edge of Ring Bearing must be installed (down) into Worm Gear.

#### †Ref. No. 11

Chamfered edge of Retaining Ring must be installed facing Gear.

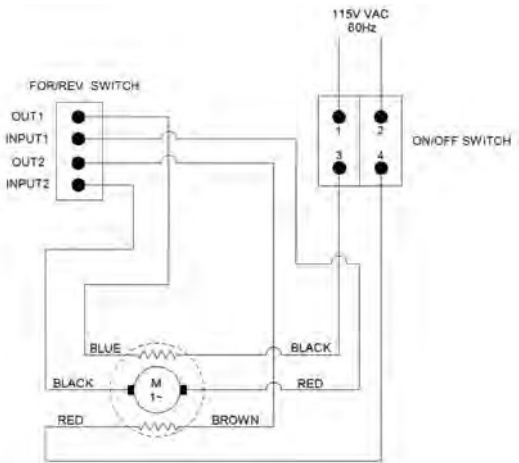


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

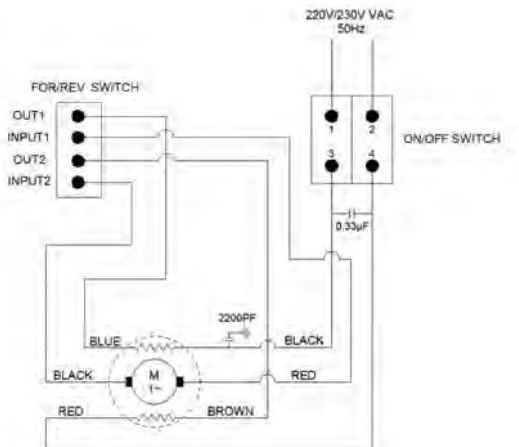
Ref. No.	Catalog No.	Description
1	45663	Linecord 115V CE
	45668	Linecord 115V CSA
	45673	Linecord 220V CN
	45678	Linecord 230V CE
	45683	Linecord Swiss
2	45658	Strain Relief
3	45618	Capacitor (220V/230V/115V EU)
4	45613	Slide Switch
5	45608	FOR/REV Switch
6	45633	Right Handle
7	45778	Red Brush Lead
8	45783	Black Brush Lead
9	45598	Brush Cap (2)
10	45593	Brush Assembly 115V (2)
	45588	Brush Assembly 230V (2)
11	45583	Brush Holder (2)
12	45578	Motor housing
13	45758	Red Field Lead
14	45763	Blue Field Lead
15	45768	Brown Field Lead
16	45773	Black Field Lead
17	45573	Field Mounting Screw (2)
18	45563	Field 115V
	45568	Field 220V/230V
19	47108	Warning Decal
20	45623	ON/OFF Trigger
21	45603	Left Handle
22	45628	Screw (2)
23	45498	Screw (6)
24	45638	Screw (3)
25	45653	Screw (2)
26	45648	Cord Clamp
27	45558	Fan Shroud
28	45553	Bearing Sleeve
29	45548	Armature Bearing
30	45543	Dust Shroud
31	45528	Armature Pinion Bearing
32	48588	Armature Sleeve
33	45533	Armature Asm. 115V
	45538	Armature Asm. 230V
34	47798	Gasket
35	45523	Spring Ring
36	45518	Spacer Bearing
37	45513	Bearing Washer
38	48593	Lip Seal
39	34392	Fan Housing
40	45508	Washer (4)

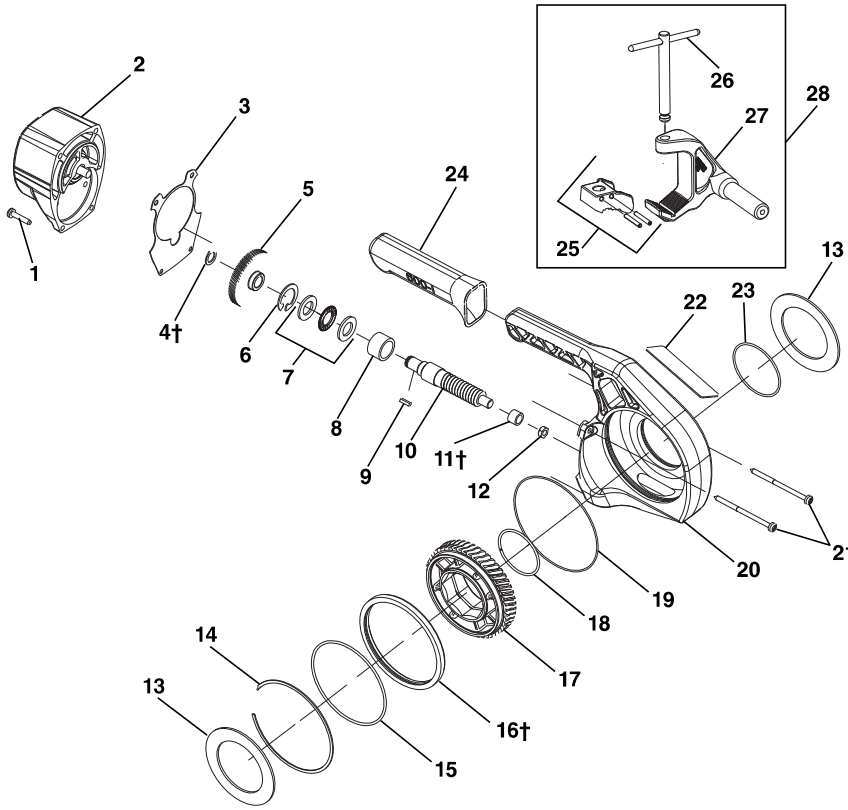
## Wiring Diagrams

### 115V



### 220/230V





**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

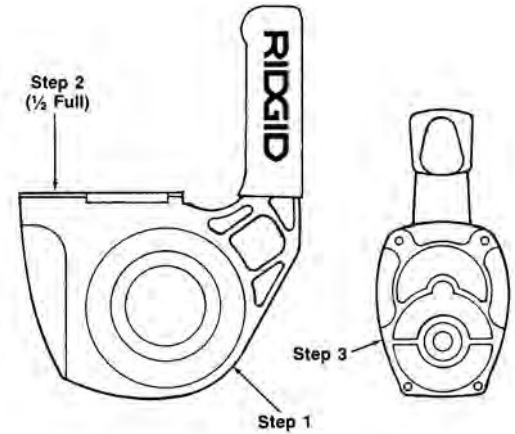
Ref. No.	Catalog No.	Description
1	34387	Screw (2) (5.8 x 25mm)
2	34392	Fan Housing
3	34512	Gasket
4†	34447	Retaining Ring
5	34452	Helical Gear
6	34457	Retaining Ring
7	34462	Thrust Bearing
8	34467	Needle Bearing
9	34472	Key
10	34477	Worm
11†	34482	Needle Bearing
12	77710	Hex Nut
13	34402	Cap (2)
14	34442	Spiral Ring
15	34407	O-Ring, 4" X 4 1/8" X 1/16" Buna N
16†	34432	Ring Bearing
17	34427	Worm Gear
18	38830	Spring Ring
19	34422	O-Ring, 4 1/2" X 4 5/8" X 1/16" Buna N
20	34417	Gear Housing
21	34412	Screw (2) (4.8 x 80mm)
22	47103	Icon Warning Decal
23	34437	O-Ring, 2 1/2" X 2 5/8" X 1/16" Buna N
24	47083	Hand Grip
25	47743	602 Bottom Jaw Assembly
26	47563	602 Screw Assembly
27	47558	Arm
28	45923	602 support Arm Assembly
	34522	Worm Gear Lubricant (2 oz.) Not Shown

**Service Notes**

**Gear Head Assembly**

**Proper Oil Fill Procedure: Capacity 2 ozs.**

- Step 1: Wipe Gear Cavity with oil and assemble Gear Head.
- Step 2: Fill Worm Cavity 1/2 full of oil - install Worm.
- Step 3: Pour remaining oil in Helical Gear Cavity - install Helical Gear.
- Step 4: Install new Gasket and attach motor Assembly with Gear Head upright.



**†Ref. No. 11**

Hex Nut has been inserted behind Needle Bearing (Ref. No. 11) in the Gear Housing Assembly (Ref. No. 20). To replace Needle Bearing, thread 6 mm or 1/4 - 20 rod into nut and pull Bearing.

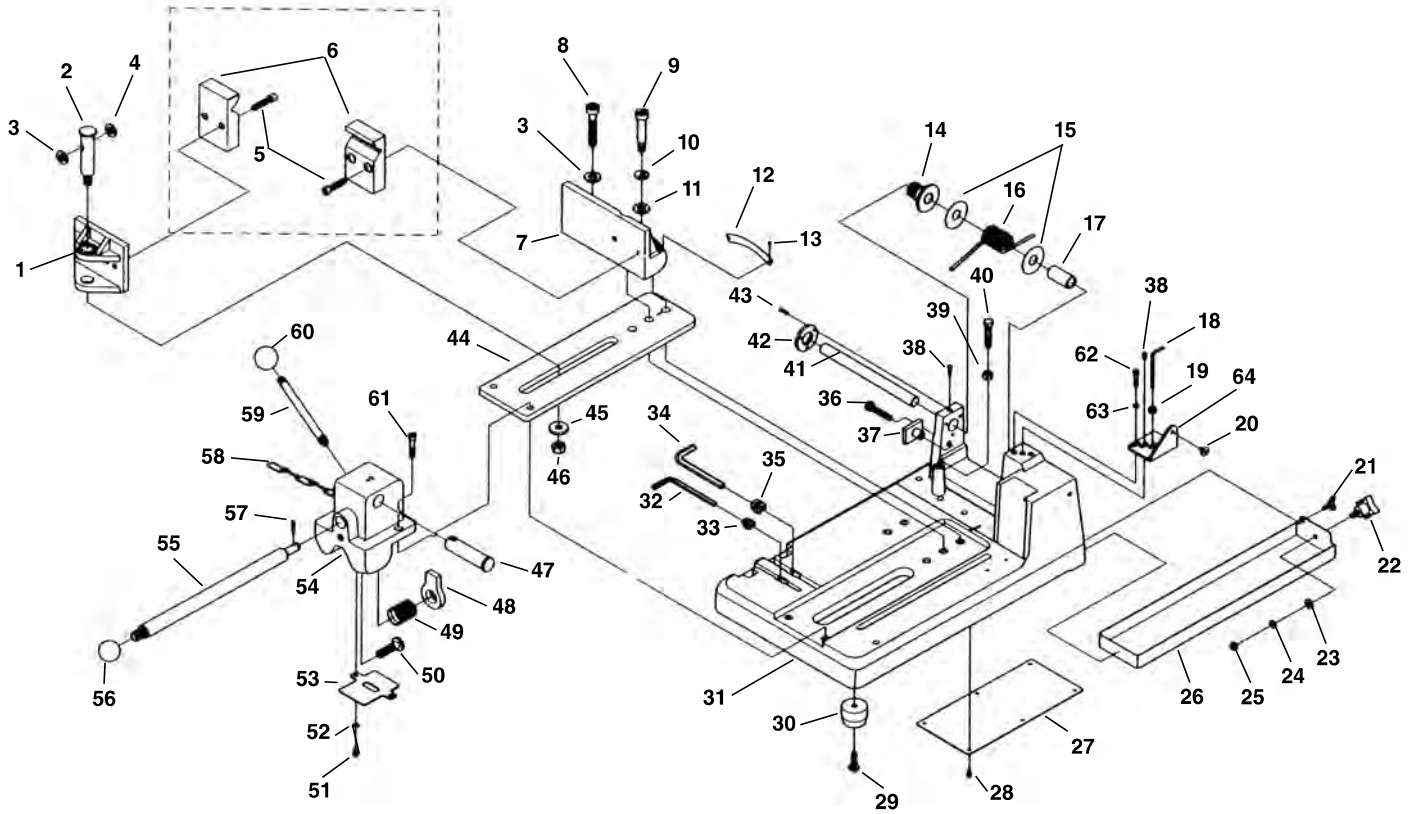
**†Ref. No. 16**

Chamfered edge of Ring Bearing must be installed (down) into Worm Gear.

**†Ref. No. 4**

Chamfered edge of Retaining Ring must be installed facing Gear.

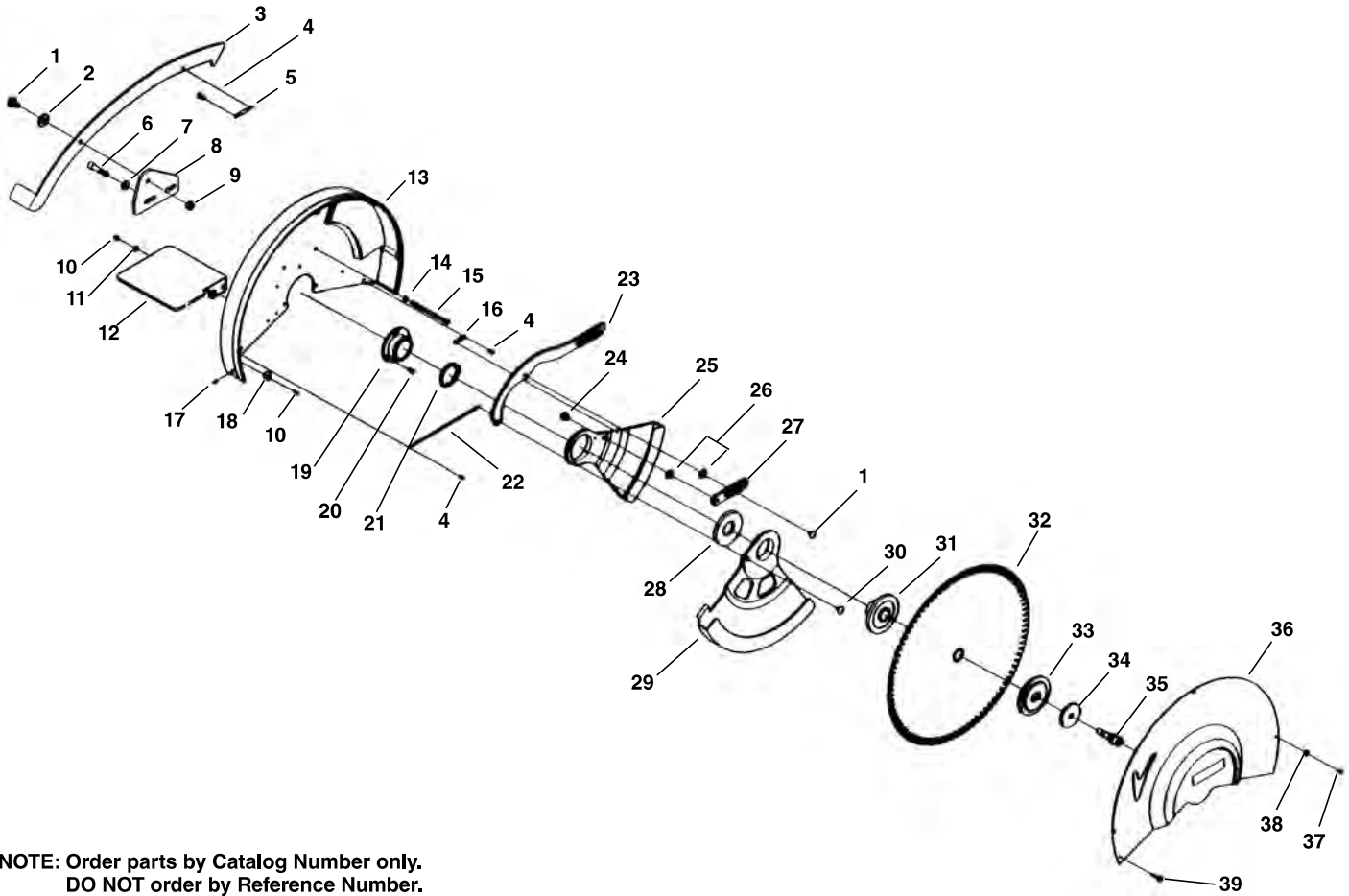
**Base Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

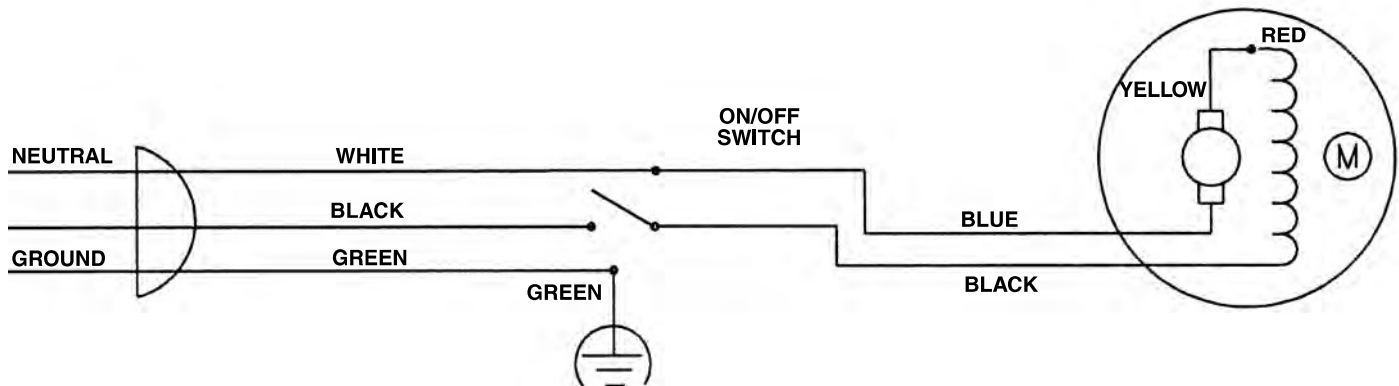
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	75142	Vise Jaw	23	41592	1/4" Flat Washer	45	75237	Washer
2	75137	Pin	24	74952	1/4" Lock Washer	46	75242	M10 Hex Nut
3	75132	M10 Flat Washer	25	74797	1/4" x 20 UNC Hex Nut	47	75497	Pivot Pin
4	75147	M10 Flat Washer	26	75377	Chip Box	48	75502	Locking Ring
5	75447	Pan Head Screw M4 x 8MM	27	75372	Support Plate	49	75507	Spring
6	75452	Positioning Plate	28	74767	M4 x 12MM Pan Hd. Screw	50	75512	Locating Screw
7	75187	Vise Back Plate	29	75357	M6 x 20MM Pan Hd. Screw	51	75517	#10 x 24 Pan Hd. Screw
8	75207	M10 x 45MM Hex Screw	30	75352	Pad	52	75772	M5 Ext. Tooth Washer
9	75202	Bolt	31	75362	Base	53	75522	Cover Plate
10	75197	M12 Lock Washer	32	75342	Hex Wrench 6MM	54	75162	Vise Grip Housing
11	75192	M12 Flat Washer	33	75347	Wrench Holder	55	75152	Push Rod
12	75227	Scale	34	75332	Hex Wrench 8MM	56	75527	Handle Knob, Push
13	75232	Rivet	35	75337	Wrench Holder	57	75157	Pin
14	75247	Adjusting Bushing	36	75327	MB x 45MM Hex Hd. Screw	58	75167	Chain
15	75252	Flat Washer	37	75322	Special Nut	59	75492	Pivot Arm
16	75257	Spring	38	75297	Hex Soc Sat Screw	60	75487	Handle Knob, Pivot
17	75262	Axle Sleeve	39	75302	MB Hex Nut	61	75172	M8 x 40MM Hex Screw
18	75097	2.5MM Hex Wrench	40	75327	MB x 45MM Hex Hd. Screw	62	75267	M5 x 16MM Hex Screw
19	75107	Wrench Holder	41	75317	Swinging Shaft	63	75272	M5 Flat Washer
20	75422	Shoulder Bolt	42	75312	Setting Nut	64	75282	Brace Bracket
21	75382	M5 x 10MM Wing Screw	43	74767	M4 x 12MM Pan Hd. Screw			
22	75042	Tilt Lock Washer	44	75177	Setting Up Piece			

### Blade and Guard Components

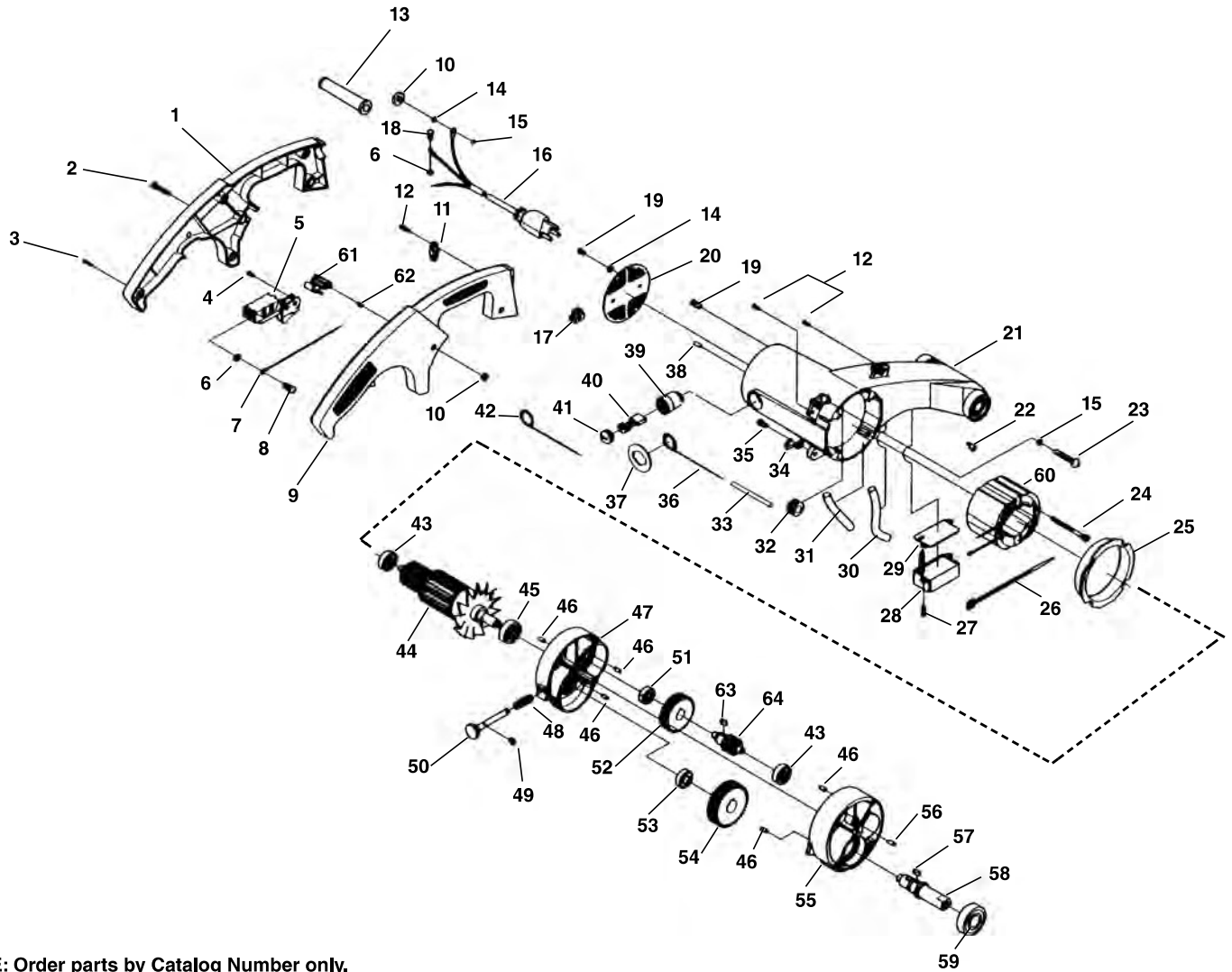


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	75417	Shoulder Screw (230V Only)	13	74712	Safety Cover	26	74762	Spacer
2	75732	M8 Flat Washer (230V Only)	14	74717	M5 Tooth Washer	27	74757	Lever
3	75727	Lever (230V Only)	15	74722	M5 x 85MM Flat Head Screw	28	74807	Spacer
4	74732	M4 x 8MM Shoulder Screw (230V Only)	16	74727	Spring	29	74802	Big Blade Guard
5	75697	Spring (230V Only)	17	75477	M4 x 4MM Set Screw (115V Only)	30	75427	Shoulder Screw
6	75267	M5 x 16MM Hex Screw (230V Only)	18	74857	Stop	31	74812	Flange
7	75717	M5 Flat Washer (230V Only)	19	74777	Bearing Cover	32	71692	Blade
8	75712	Brace Bracket (230V Only)	20	74782	M4 x 10MM Flat Hd. Screw	33	74822	Flange
9	75707	M5 Hex Nut (230V Only)	21	74787	Retaining Ring	34	74832	M10 Flat Washer
10	74767	M4 x 12MM Pan Hd Screw	22	74792	Spring	35	74827	M10 x 25MM Hex Screw
11	75472	M4 Flat Washer	23	74737	Lever	36	74837	Cover
12	74772	Protection Plate	24	74747	Shoulder Screw	37	74842	M4 x 12MM Button Screw
			25	74752	Small Blade Guard	38	75687	M4 Lock Washer
						39	75692	Lock Pin (115V Only)

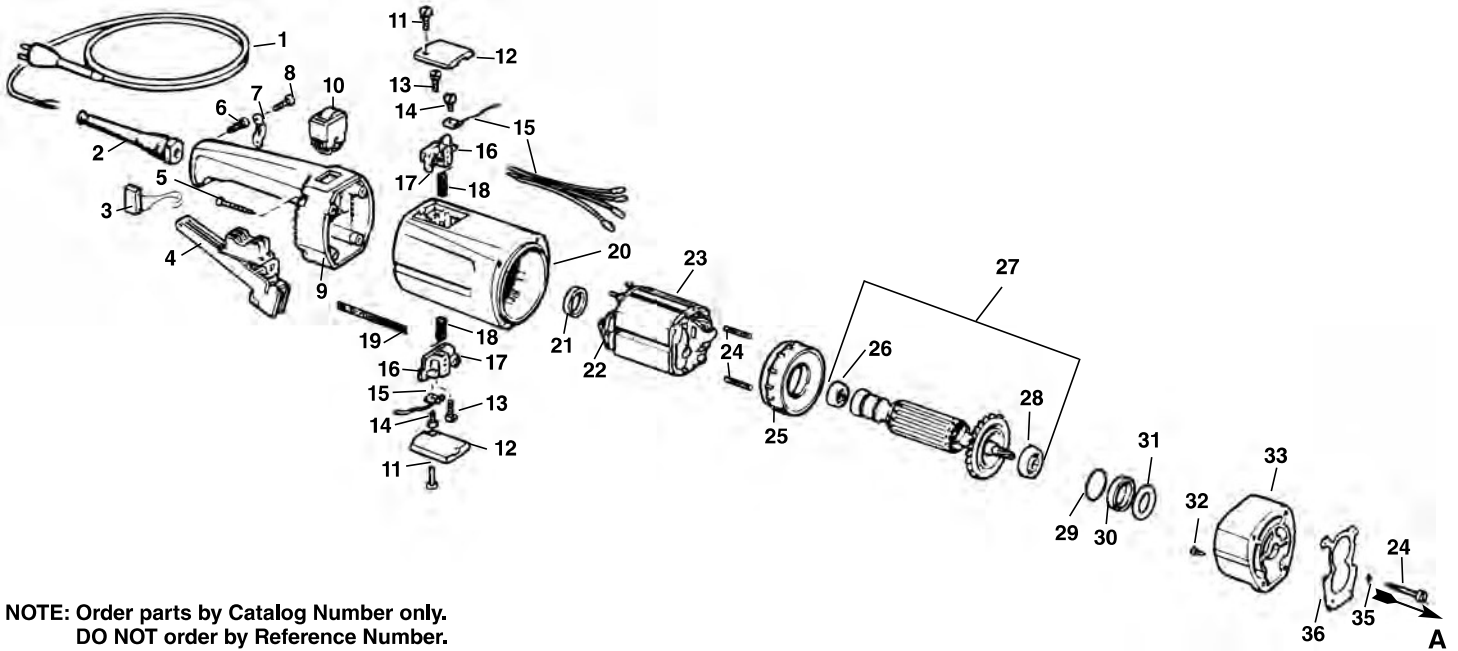


**Electrical Components**



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

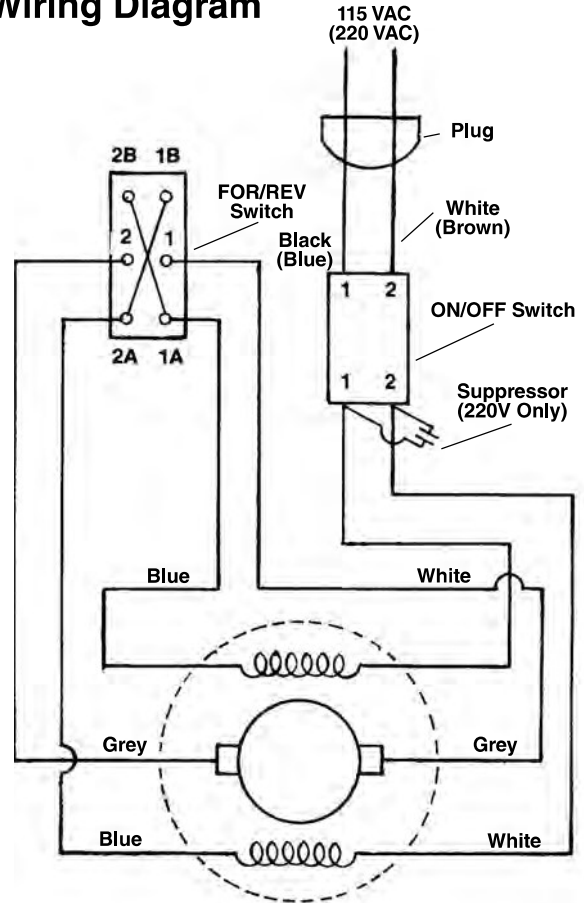
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	74892	Handle Left Hand	24	75007	M5 x 70MM Pan Hd. Screw	46	75032	Rubber Pin
2	74882	M5 x 27MM Pan Hd Screw	25	75012	Baffle	47	75037	Gear Housing - Inward
3	74887	1/8" x 5/8" Self Tap Screw	26	75442	Locking Cable Ties	48	75052	Spring
4	74897	4M4 x 10MM Self Tap Screw	27	75412	M5 x 12MM Pan Hd. Screw	49	75062	Retaining Ring
5	74902	Switch	28	46320	Filter	50	75057	Lock Pin
6	74852	M 3.5 Ext. Tooth Washer	29	75402	Cover	51	75047	Ball Bearing
7	74987	Jumper Wire	30	75437	Sleeving	52	75072	Gear
8	74847	#6 x 6.8MM Pan Hd. Screw	31	75432	Sleeving	53	75087	Ball Bearing
9	74917	Handle Right Hand	32	75767	Sleeve	54	75092	Gear
10	74922	M5 Hex Nut	33	75392	Sleeving	55	75112	Gear Housing-Inner
11	74912	Clamp	34	74992	Chain Hook	56	75117	Pin
12	74907	M4 x 16MM Self Tap Screw	35	74997	1/4" x 5/8" Shoulder Screw	57	75077	Square Key
13	74867	Cord Guard	36	74987	Jumper Wire	58	75127	Spindle
14	74932	M5 Lock Washer	37	75212	Fiberplate	59	75217	Ball Bearing
15	74877	M5 Ext. Tooth Washer	38	26848	Rubber Pin	60	75002	Field 115V
16	75542	Power Cord	39	74967	Brush Holder		75577	Field 230V
17	75387	Terminal block	40	74972	Brush	61	75532	Lock Button
18	74847	#6 x 6.8MM Pan Hd. Screw	41	74977	Brush Cap	62	75537	Spring
19	75412	M5 x 12MM Pan Hd. Screw	42	75182	Jumper Wire	63	75077	Square Key
20	74937	End Cover	43	75017	Ball Bearing	64	75082	Gear Shaft
21	74957	Motor Housing	44	75022	Armature 115V			
22	75287	Wire Nut		75582	Armature 230V			
23	75762	M5 x 20MM Pan Hd. Screw	45	75027	Ball Bearing			



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

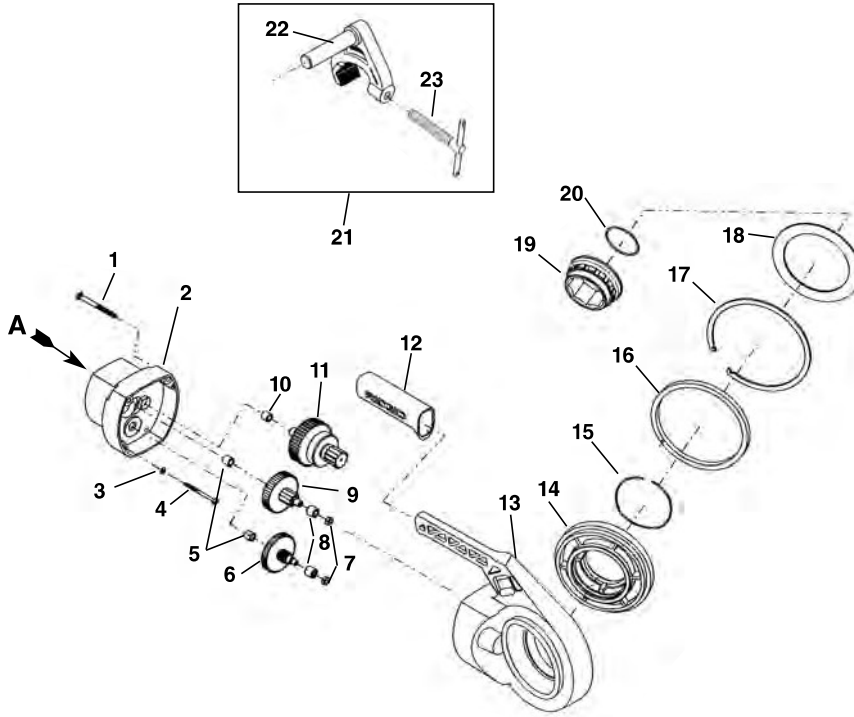
Ref. No.	Catalog No.	Description
1	20746	Cord w/Plug (115V)
	20276	Cord w/Plug (230V - Europe)
2	20286	Sleeve
3	20326	Suppressor
4	20266	ON/OFF Switch
5	20586	Screw (4)
6	20576	Screw (3)
7	20296	Cable Clamp
8	20566	Screw (2)
9	20526	Handle
10	21796	Switch (115V)
	20516	Switch (230V)
11	20546	Screw (2)
12	20496	Cap (2)
13	20556	Screw (2)
14	20406	Screw (2)
15	20396	P.V.C. Wire (2)
16	20356	Brush Holder (2)
17	20316	Coil Spring (2)
18	20306	Set of 2 Brushes
19	34382	Name Plate
20	20236	Motor Housing
21	20506	Spacer
22	20386	Lead Wire Plate
23	21716	Field (115V)
	20246	Field (230V)
24	20486	Pressure Spring (2)
25	20476	Fan Housing
26	20336	Bearing
27	21736	Armature (115V)
	20256	Armature (230V)
28	47477	Bearing
29	20466	Spring Ring
30	20456	Spacer
31	20446	Washer
32	34387	Screw (2)
33	43232	Fan Housing
34	34397	Screw (2)
35	34517	Brass Washer (2)
36	34512	Gasket

### Wiring Diagram





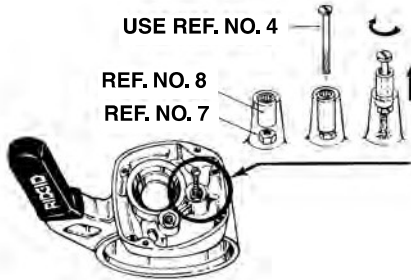
NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.



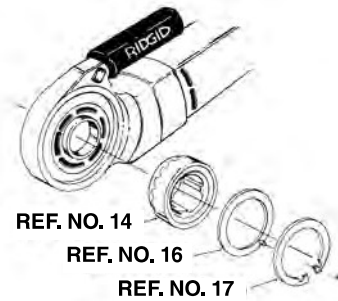
Ref. No.	Catalog No.	Description
1	43227	1/4" - 20 x 2 1/2" Screw (4)
2	43232	Fan Housing
3	34517	Brass Washer (4)
4	34397	4.8 x 65mm Screw (4)
5	43247	Needle Bearing (2)
6	43237	1st Intermediate Gear
7	77710	1/4" - 20 Hex Nut
8	43242	Needle Bearing (2)
9	43252	2nd Intermediate Gear
10	43257	Needle Bearing
11	43262	Main Drive Pinion
12	34487	Hand Grip
13	43267	Gear Housing
14	43272	Face Gear w/Cap
15	39172	Spring Ring
16	43277	Ring Bearing w/Pin
17	43282	Retaining Ring
18	43287	Cap
19	39187	Ratchet Ring Adapter
20	38830	Ratchet Ring Spring
21	43292	Support Arm Assembly
22	43297	Arm
23	43302	Screw Assembly

Service Notes

REF. NO. 8 BEARING REMOVAL

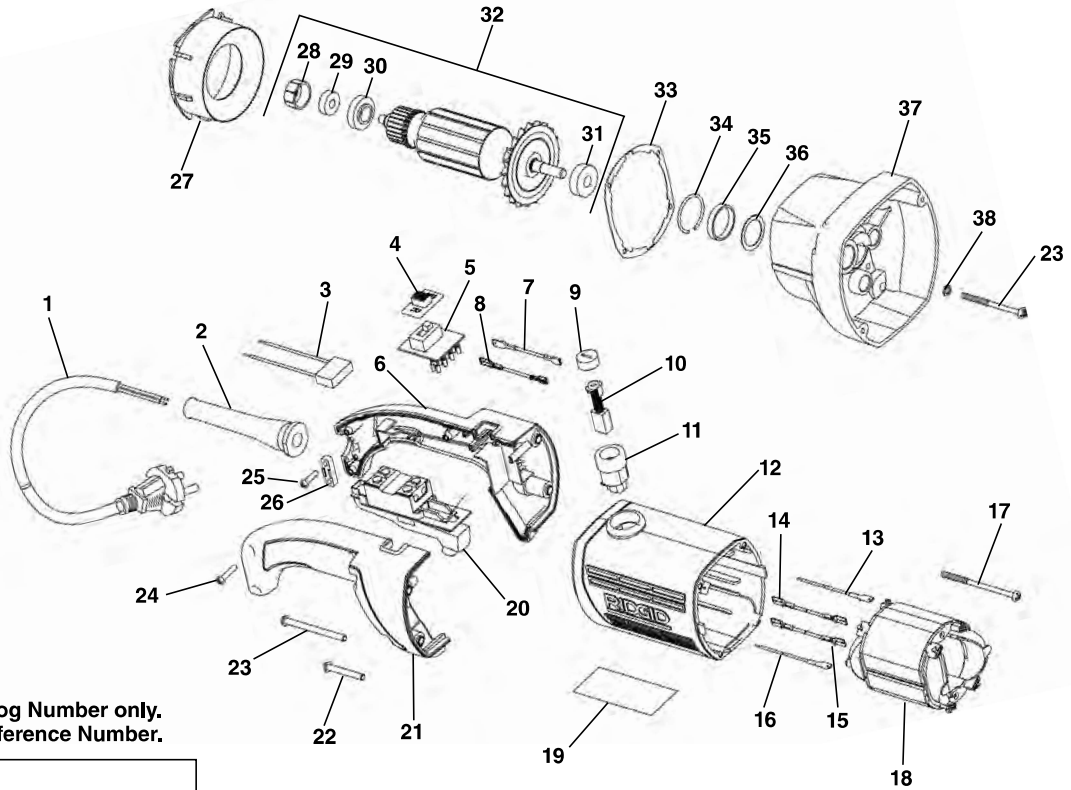


REF. NO. 16 RING BEARING (PIN) ORIENTATION



REF. NO. 17 RETAINING RING REMOVAL



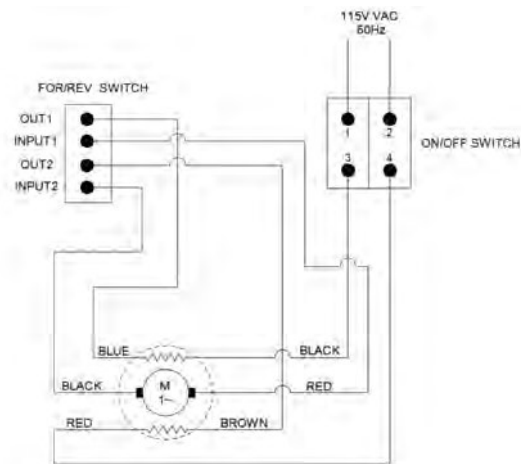


**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

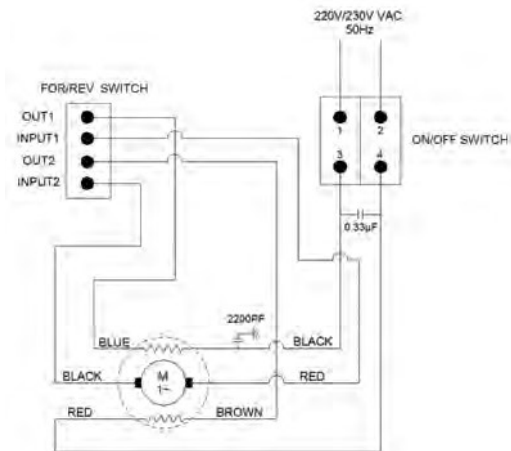
Ref. No.	Catalog No.	Description
1	45663	Linecord 115V CE
	45668	Linecord 115V CSA
	45673	Linecord 220V CN
	45678	Linecord 230V CE
	45683	Linecord Swiss
2	45658	Strain Relief
3	45618	Capacitor 220V/230V/115V EU
4	45613	Slide Switch
5	45608	FOR/REV Switch
6	45633	Right Handle
7	45778	Red Brush Lead
8	45783	Black Brush Lead
9	45598	Brush Cap (2)
10	45593	Brush Assembly 115V (2)
	45588	Brush Assembly 230V (2)
11	45583	Brush Holder (2)
12	45578	Motor Housing
13	45758	Red Field Lead
14	45763	Blue Field Lead
15	45768	Brown Field Lead
16	45773	Black Field Lead
17	45573	Field Mounting Screw (2)
18	45563	Field 115V
	45568	Field 220V/230V
19	47108	Warning Decal
20	45623	ON/OFF Trigger
21	45603	Left Handle
22	45628	Screw (2)
23	45498	Screw (6)
24	45638	Screw (3)
25	45653	Screw (2)
26	45648	Cord Clamp
27	45558	Fan Shroud
28	45553	Bearing Sleeve
29	45548	Armature Bearing
30	45543	Dust Shroud
31	45528	Armature Pinion Bearing
32	45533	Armature Asm. 115V
	45538	Armature Asm. 230V
33	47798	Gasket
34	45523	Spring Ring
35	45518	Spacer Bearing
36	45513	Bearing Washer
37	43232	Fan Housing
38	45508	Washer (4)

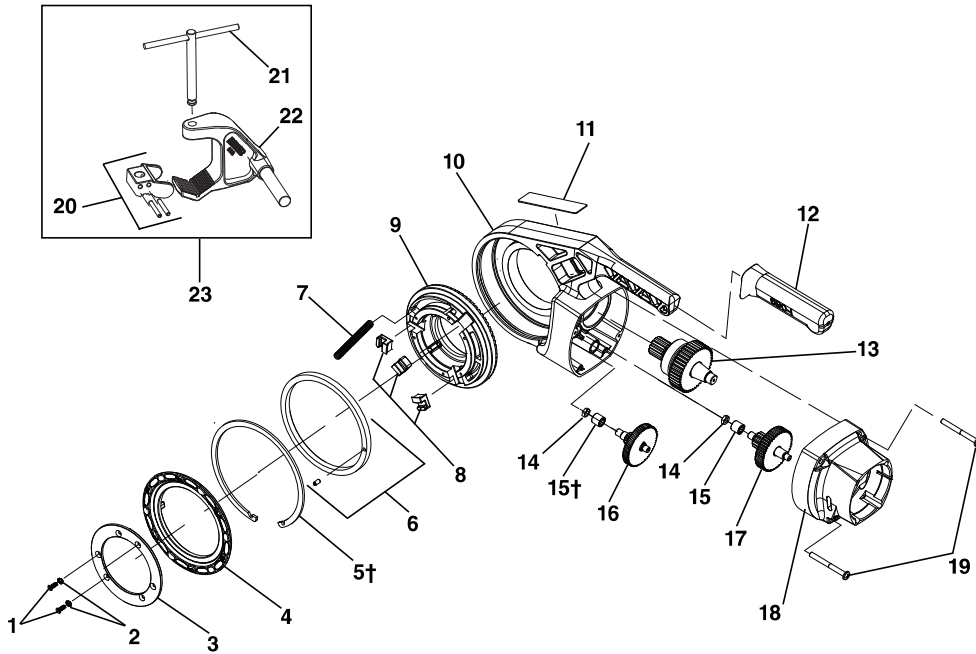
## Wiring Diagrams

### 115V



### 220/230V





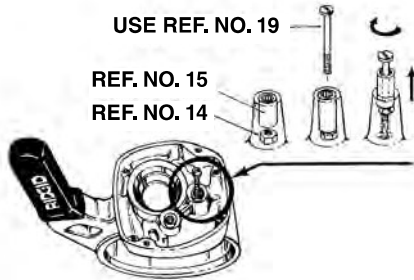
**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	47068	Screw (6)
2	47073	Lock Washer (6)
3	47063	Lock Plate
4	47058	Drive Ring
5†	43282	Retaining Ring
6	43277	Bearing Retainer
7	47053	Compression Spring
8	47048	Lock Inserts (3)
9	47043	Face Gear
10	43267	Gear Housing
11	47103	Icon Warning Decal
12	47078	Hand Grip
13	43262	3rd Gear Asm.
14	77710	Jam Nut
15†	43242	Needle Bearing
16	43237	1st Gear Asm.
17	43252	2nd Gear Asm.
18	43232	Fan Housing
19	43227	Screw (4)
20	47748	692 Bottom Jaw Asm.
21	47573	692 Screw Asm.
22	47568	692 Support Arm
23	45928	692 Support Arm Asm.

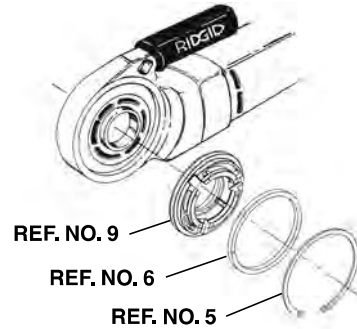
† Service Note

**Service Notes**

**REF. NO. 15 BEARING REMOVAL**



**REF. NO. 16 RING BEARING (PIN) ORIENTATION**



**REF. NO. 5 RETAINING RING REMOVAL**

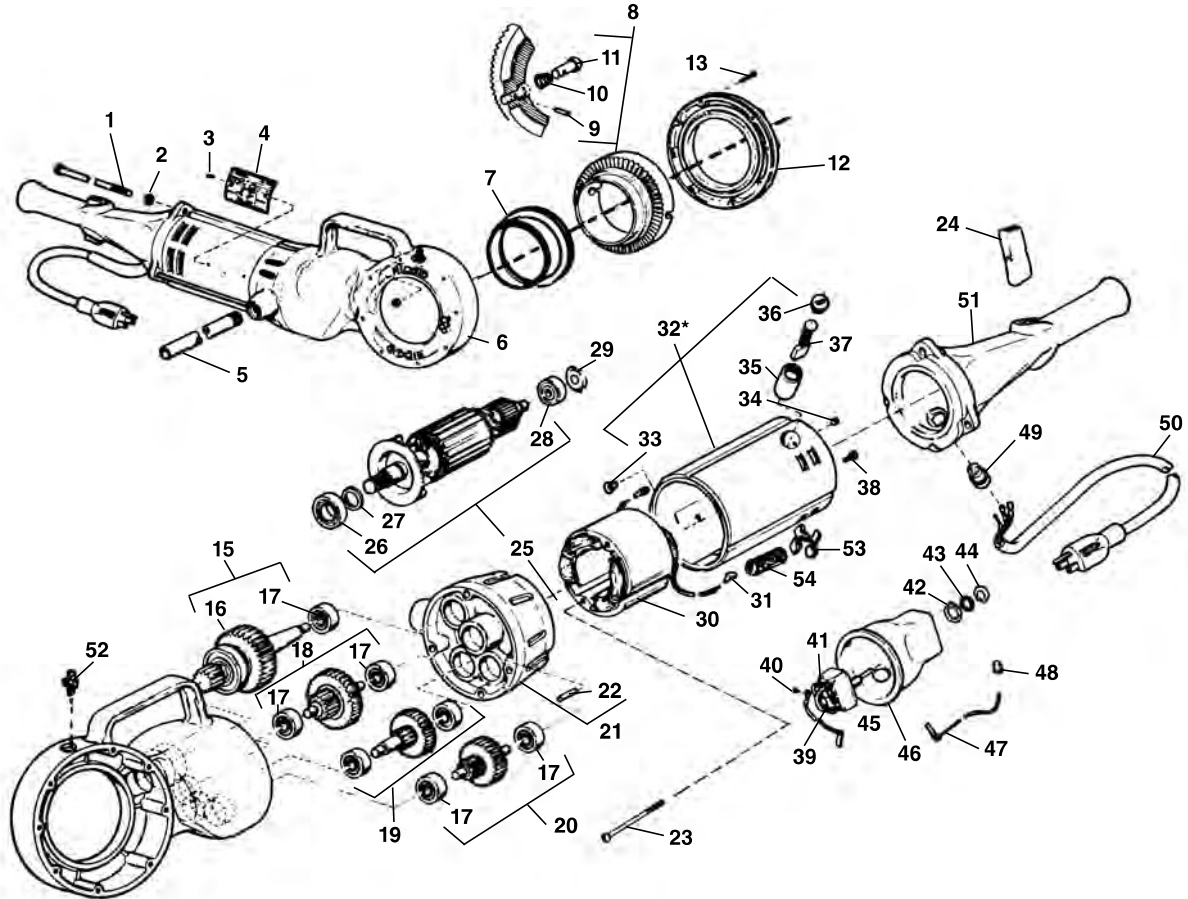


STEP 1

STEP 2

STEP 3

Type 1

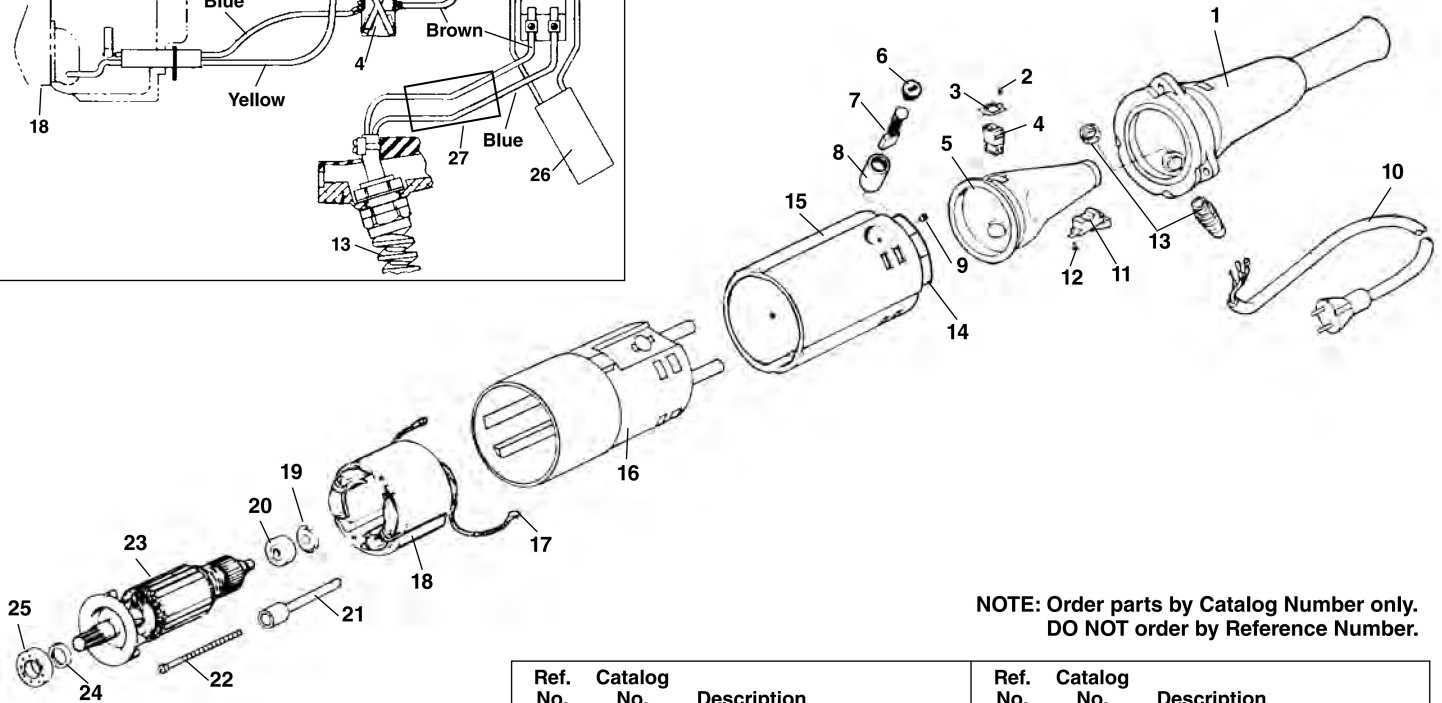
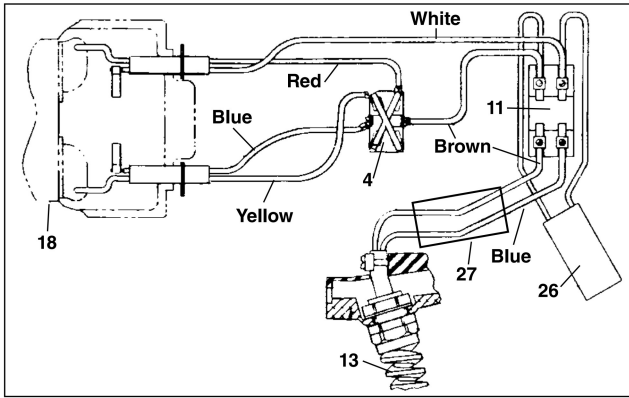


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	44785	Tie Bolt (4)	28	44760	Bearing
2	40770	Lock Washer (4)	29	44790	Load Spring
3	85920	Pop Rivet (2)	30	44070	Field (115V) (Incl. Ref. No. 31)
4		Name Plate (115V) Name Plate (230V)		28922	Field (230V) (Incl. Ref. No. 31)
5	46615	Torque Arm	31	83895	Ring Tongue Terminal (2)
6	42970	Gear Case Assembly (Includes Ref. 7, 13, 14, 52)	32*		Motor Housing Assembly
7	44060	Bearing	33	44765	Lock Screw
8	43395	Face Gear Assembly	34	39770	Set Screw (2)
9	32475	Spring Pin (2)	35	44795	Brush Holder (2)
10	44915	Spring (2)	36	45660	Brush Cap (2)
11	44910	Adapter Pawl (2)	37	44815	Brush Assembly (2)
12	43345	Cover	38	45420	Ground Screw
13	46775	Screw (8)	39	44905	Switch
14	83890	Lock Nut (8)	40	46310	Screw (5)
15	44900	4th Gear Assembly	41	44890	Jumper (2)
16	76562	Bearing	42	75700	Lock Ring
17	45060	Bearing (7)	43	75695	Lock Washer (Internal Tooth)
18	44830	3rd Gear Assembly	44	46590	Lock Nut
19	44820	1st Gear Assembly	45	44880	Brush Lead (Blue)
20	44825	2nd Gear Assembly	46	43390	Switch Insulator
21	43335	Fan Housing Assembly	47	44885	Brush Lead (White)
22	45165	Dowel Pin	48	44635	Wire Nut
23	44555	Field Mtg. Screw (2)	49	46730	Cord Retainer
24	97260	Switch Button	50	89155	Service Cord (115V)
25	44055	Armature & Fan Assy. (115V)		44045	Service Cord (230V)
	44075	Armature & Fan Assy. (230V)	51	97255	Handle
26	44565	Bearing	52	46860	Grease Fitting
27	44430	Retaining Ring	53	41270	"X" Washer
			54	44755	Insulator Tube
			55	41620	Grease

Note: \*Replace Type 1 Motor Housing with Type 2 components: 18676 Motor Housing, 27418 Warning Decal, 18486 Field Screws, 58542 Lock Washers, 18566 Sleeve, and Type 2 Field (27408 - 115V or 27413 - 230V). Does not include 44815 Motor Brushes.

### No. 700 Power Drive-w/Dual Switch (Europe Only) – Type 1



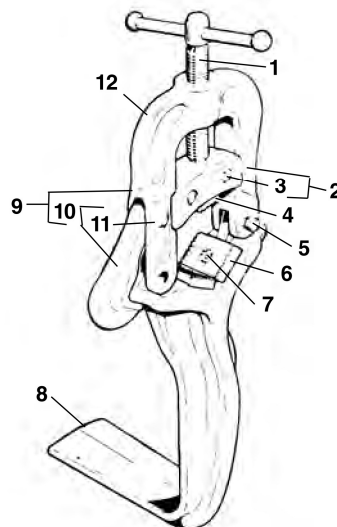
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

**Service Note:**

For service parts used in early style machines, refer to the model 700 with a single control switch.

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	32116	Handle	15	18676	Motor Housing
2	32176	Screw	16	18506	Sleeve f/Field
3	32166	Clip	17	12456	Terminal (2)
4	32126	Reversing Switch	18	18606	Field
5	32106	Switch Liner	19	44790	Load Spring
6	30906	Brush Cap	20	44760	Bearing
7	44815	Brush Assembly	21	18566	Sleeve f/Screw
8	30916	Brush Holder	22	18486	Field Mounting Screw (2)
9	39770	Set Screw (2)	23	18596	Armature and Fan Assembly (Eur. Di.)
10	18666	Line Cord (Eur. Di.)	24	44430	Retaining Ring
11	32136	ON/OFF Switch	25	44565	Bearing
12	32156	Screw	26	18406	Suppressor
13	32246	Strain Relief w/Cable Sleeve	27	63377	Ferrite Bead
14	32096	Insulating Cap			

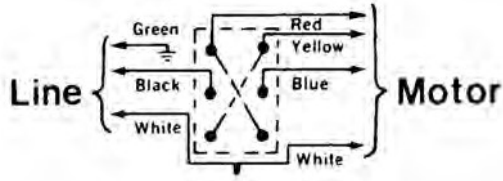
### No. 775 Support Arm



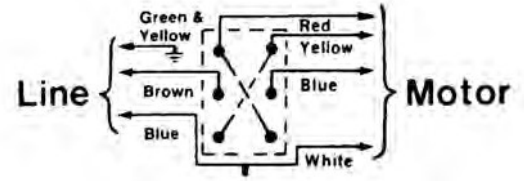
Ref. No.	Catalog No.	Description
1	40355	Feed Screw
2	40360	Jaw Clamp (Incl. Ref. No. 3)
3	40345	Screw and Washer (2)
4	40335	Upper Jaw
5	40325	Hinge Bolt, Washer and Nut
6	32100	Lower Jaws (1 set) (2 per set)
7	32205	Lower Jaw Screw (2)
8	42945	Base
9	40310	Yoke and Hook Assembly (Incl. Ref. No. 10)
10	40320	Hook (Incl. Ref. No. 11)
11	40340	Hinge Pin
12	40315	Yoke Assembly Complete (Incl. Ref. Nos. 1, 2, 4, 5 & 9)

### Wiring Diagram (115/230V)

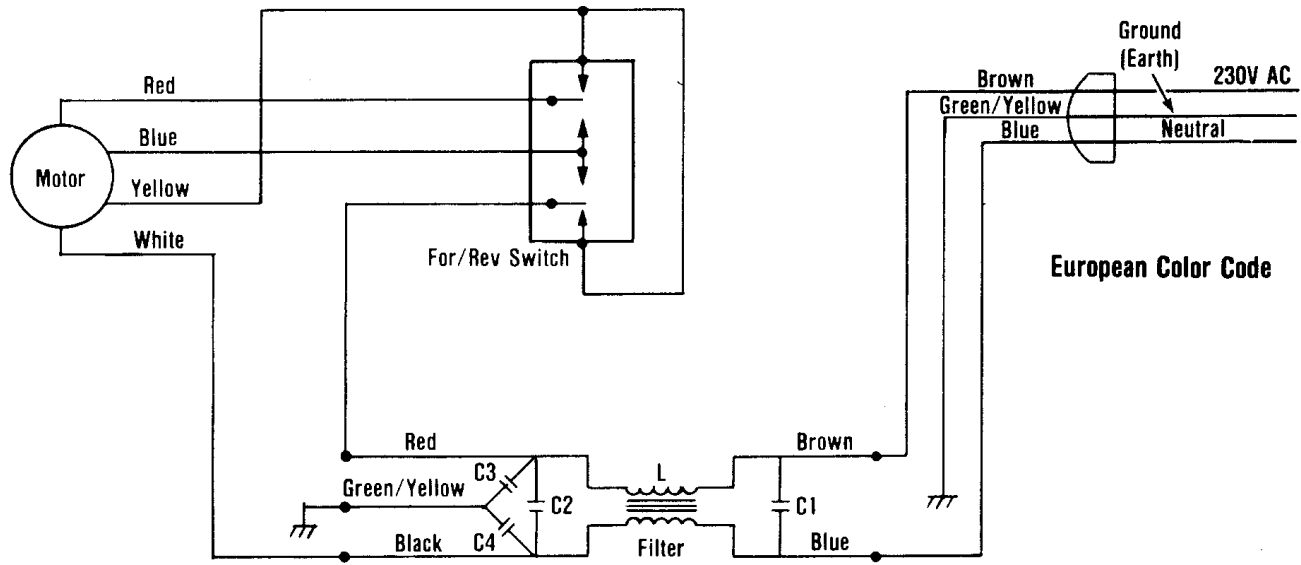
Standard Color Code



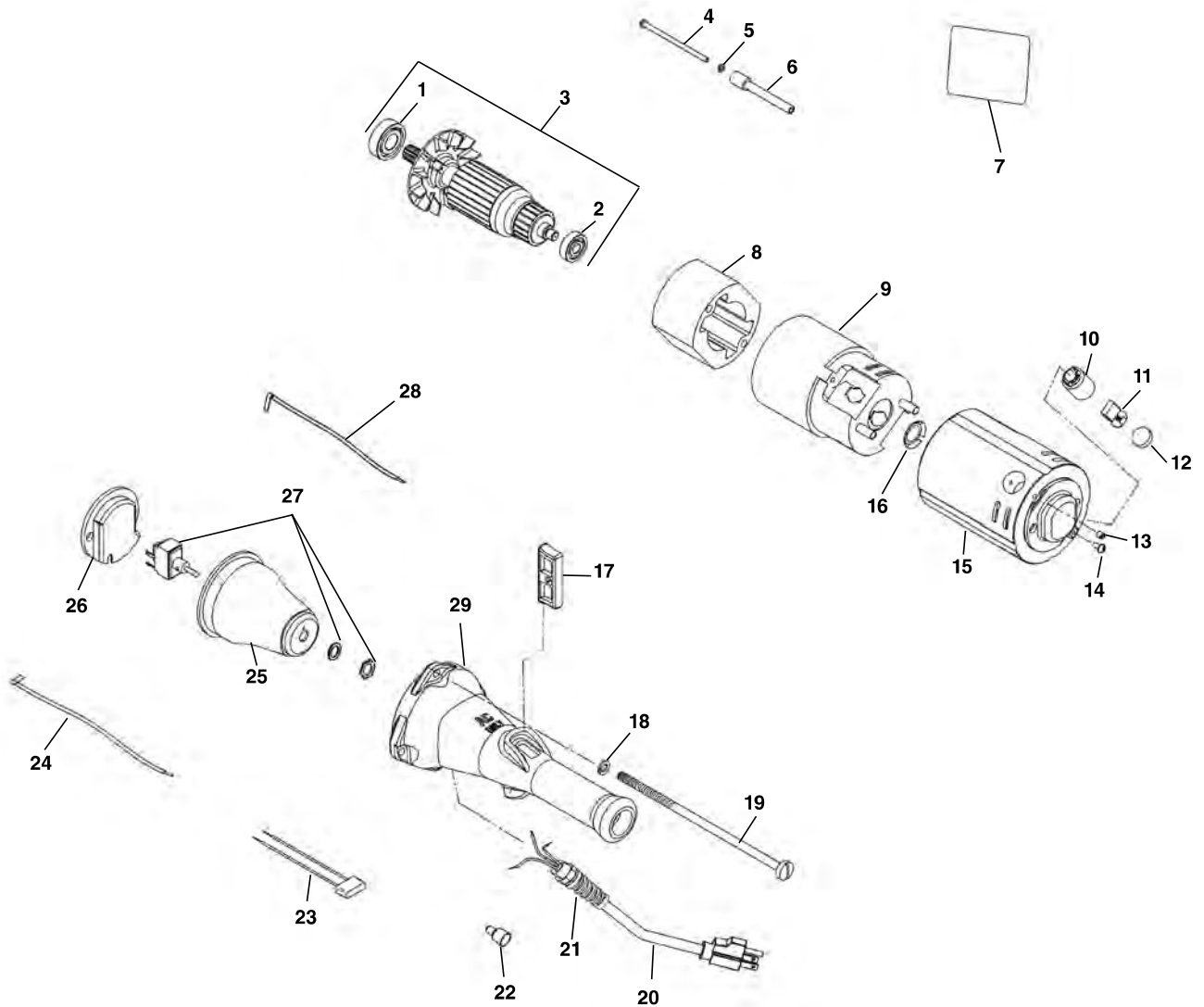
European Color Code



### Wiring Schematic (230V) - with Line Filter



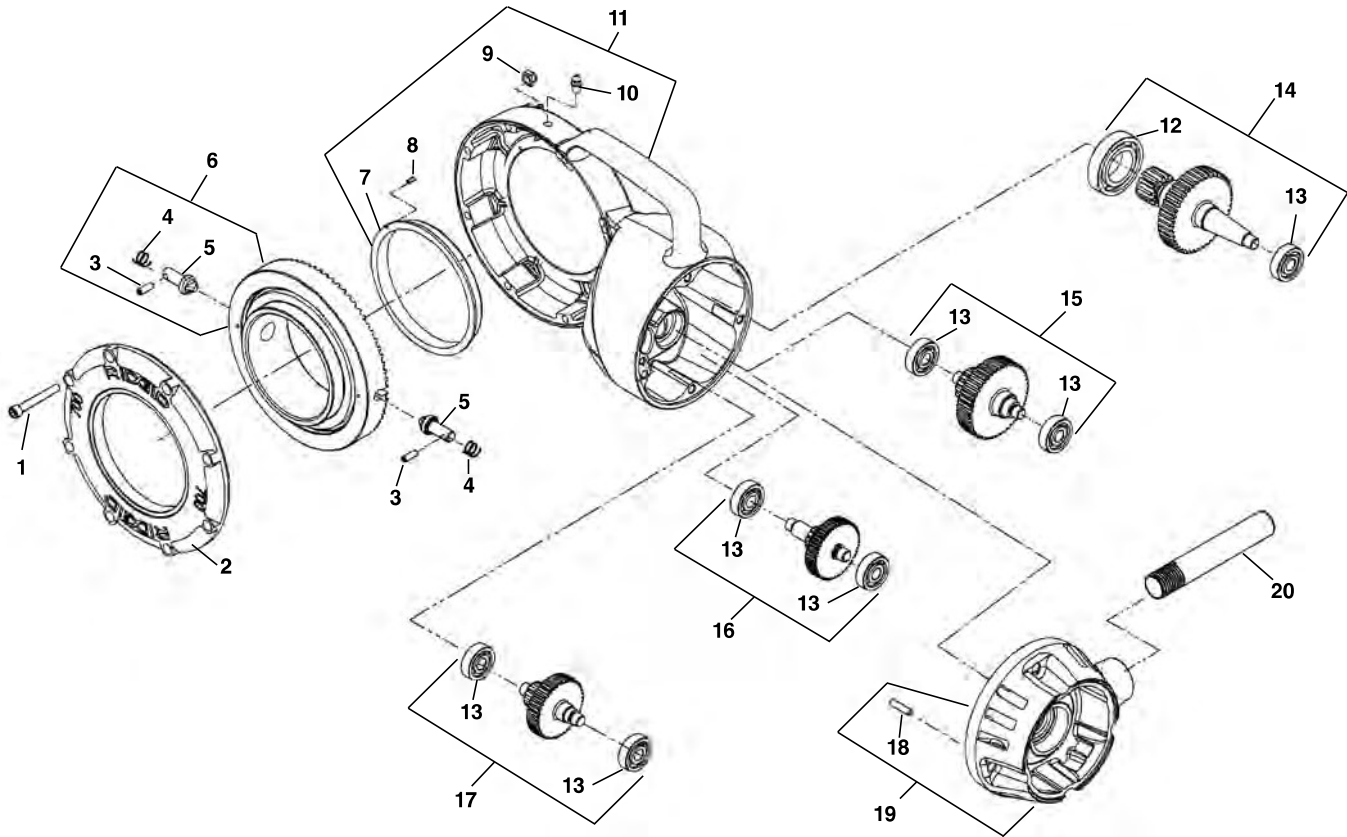
## Electrical Components – Type 2



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	44565	Bearing	18	40770	Lock Washer (4)
2	44760	Bearing	19	44785	Tie Bolt (4)
3	44055	Armature Assembly 115V	20	31938	Power Cord 115V w/Molded Strain Relief
4	18596	Armature Assembly 230V	31943	Power Cord 230V w/Molded Strain Relief	
5	18486	Field Mounting Screw (2)	18666	Power Cord 230V (Europe Export)	
6	58542	Lock Washer (2)	45022	Power Cord 115V (U.K. Export)	
7	18566	Field Screw Sleeve (2)	15692	Power Cord 230V (Australia Export)	
8	27418	Warning Decal	21	29788	Strain Relief (Export Models)
9	27408	Field 115V Type 2	22	44635	Wire Nut
10	27413	Field 230V Type 2	23	18406	Suppressor (230V Europe)
11	18506	Field Insulator Sleeve	24	44880	Brush Lead - Blue
12	44795	Brush Holder (2)	25	43390	Switch Insulator
13	44815	Brush Assembly (2)	26	27403	Motor Housing Insulator
14	45660	Brush Cap (2)	27	44905	Switch
15	39770	Set Screw (2)	28	44885	Brush Lead - White
16	45420	Ground Screw	29	27398	Handle Type 2
17	18676	Motor Housing Assy. (Includes Ref. Nos. 9, 10, 12 and 13)			
18	44790	Load Spring			
19	97260	Switch Button			

### Gearhead Components

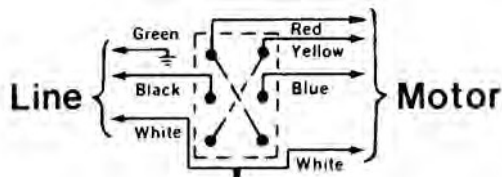


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

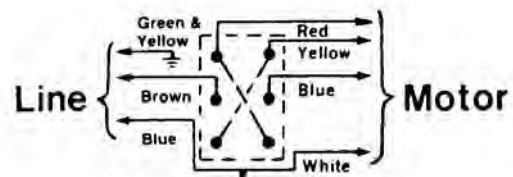
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46775	Screw (8)	12	76562	Bearing
2	43345	Cover	13	45060	Bearing (7)
3	32475	Spring Pin (2)	14	44900	4th Gear Assembly
4	44915	Spring (2)	15	44830	3rd Gear Assembly
5	44910	Adapter Pawl (2)	16	44820	1st Gear Assembly
6	43395	Face Gear Assembly	17	44825	2nd Gear Assembly
7	44060	Bearing	18	45165	Dowel Pin
8	89085	Roll Pin 1/8" x 1/4"	19	43335	Fan Housing Assembly
9	83890	Lock Nut (8)	20	46615	Torque Arm
10	46860	Grease Fitting			
11	42970	Gear Case Assembly (Includes Ref. No. 1)			

### Wiring Diagram (115/230V)

#### Standard Color Code

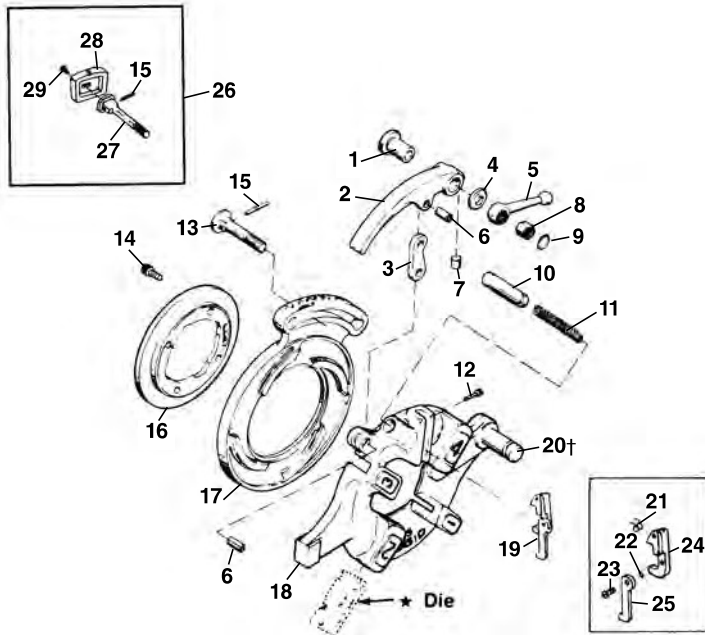


#### European Color Code





### Nos. 711 & 911 Self-Opening Die Heads

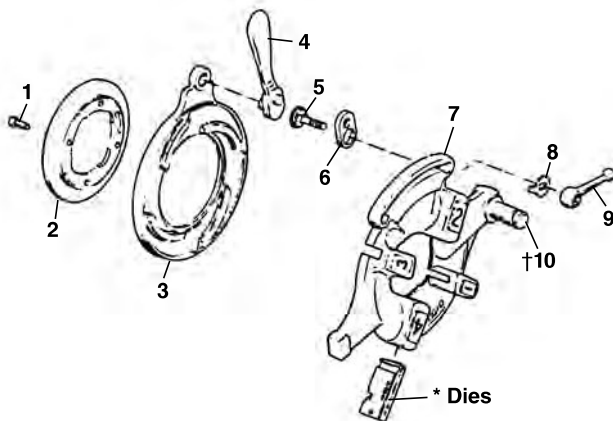


**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	26132	711 Self-Opening Die Head (NPT)
—	26137	911 Self-Opening Die Head (BSPT)
—	41382	911 Self-Opening Die Head f/Japan (BSPT)
—	46862	911 Self-Opening Die Head f/Europe
1	44240	Bushing
2	43830	Throw-out Lever
3	44265	Throw-out Link
4	44245	Thrust Washer
5	44260	Clamp Lever
6	44270	Spiral Pin
7	45055	Insert
8	44250	Nut
9	44255	Retaining Ring
10	44275	Throw-out Plunger
11	11565	Spring
12	44290	Trigger Screw
13	44235	Lock Screw
14	32205	Screw 1/4" - 20 x 5/8"
15	45050	Pin
16	97020	Retaining Ring
17	40942	Cam Plate (NPT)
17	97040	Cam Plate (BSPT)
18	26717	Head w/Post
19	44285	Trigger Assy.
	32982	Adjustable Trigger Assy. (Europe)
	44687	Stepped Trigger Assy. (Japan)
†20	59827	Post
21	39982	Spring
22	44460	O-Ring
23	39967	Screw (Left Hand)
24	39977	Trigger Pivot
25	39972	Adjustable Trigger (Europe)
	44672	Stepped Trigger (Japan)
	45327	Stepped Trigger (Europe)
26	45332	Adj. Gage Plate Assy.
27	46722	Adj. Lock Screw
28	46717	Adj. Gage Plate
29	47147	Button Head Screw

† - See Service Notes

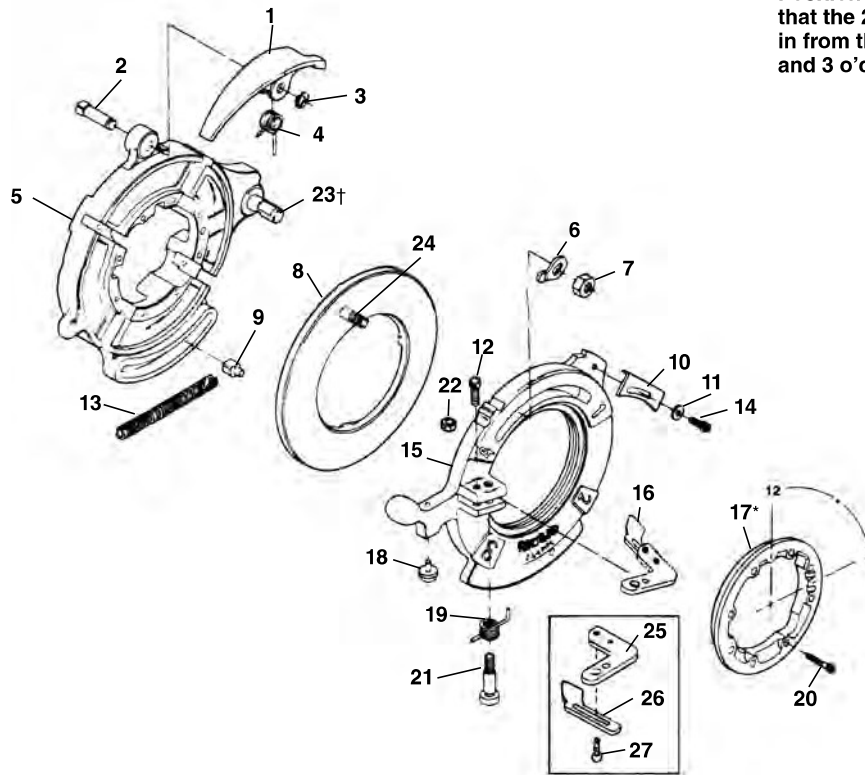
### Nos. 541, 542, 713 & 913 Quick-Opening Die Heads



Ref. No.	Catalog No.	Description
—	26162	541 Quick-Opening Bolt Die Head 1/4" - 1"
—	26167	542 Quick-Opening Bolt Die Head 1 1/8" - 2"
—	26142	713 Quick-Opening Die Head (NPT) 1/4" - 2"
—	26147	913 Quick-Opening Die Head (BSPT) 1/4" - 2"
1	32205	Screw 1/4" - 20 x 5/8" (4)
2	23292	Retaining Ring L.H. (713, 913)
	46620	Retaining Ring (541)
	46625	Retaining Ring (542)
3	43360	Cam Plate L.H. (713, 913)
	43405	Cam Plate (541)
	43410	Cam Plate (542)
4	46520	Throw-out Lever (713, 913)
	46555	Throw-out Lever (541, 542)
5	39860	Lock Screw (713, 913)
	39955	Lock Screw (541, 542)
6	39950	Link
7	26897	Head w/Post & Latch Assembly (913)
	26982	Head w/Post (541)
	26987	Head w/Post (542)
	27267	Head w/Post & Latch Assembly (713)
8	39460	Lever Washer
9	39970	Clamp Lever
†10	59827	Post

† - See Service Notes

## Nos. 714 & 914 Self-Opening Receding Die Heads



\*Position Retaining Ring so that the 2 blind holes coming in from the rear are in the 12 and 3 o'clock positions.

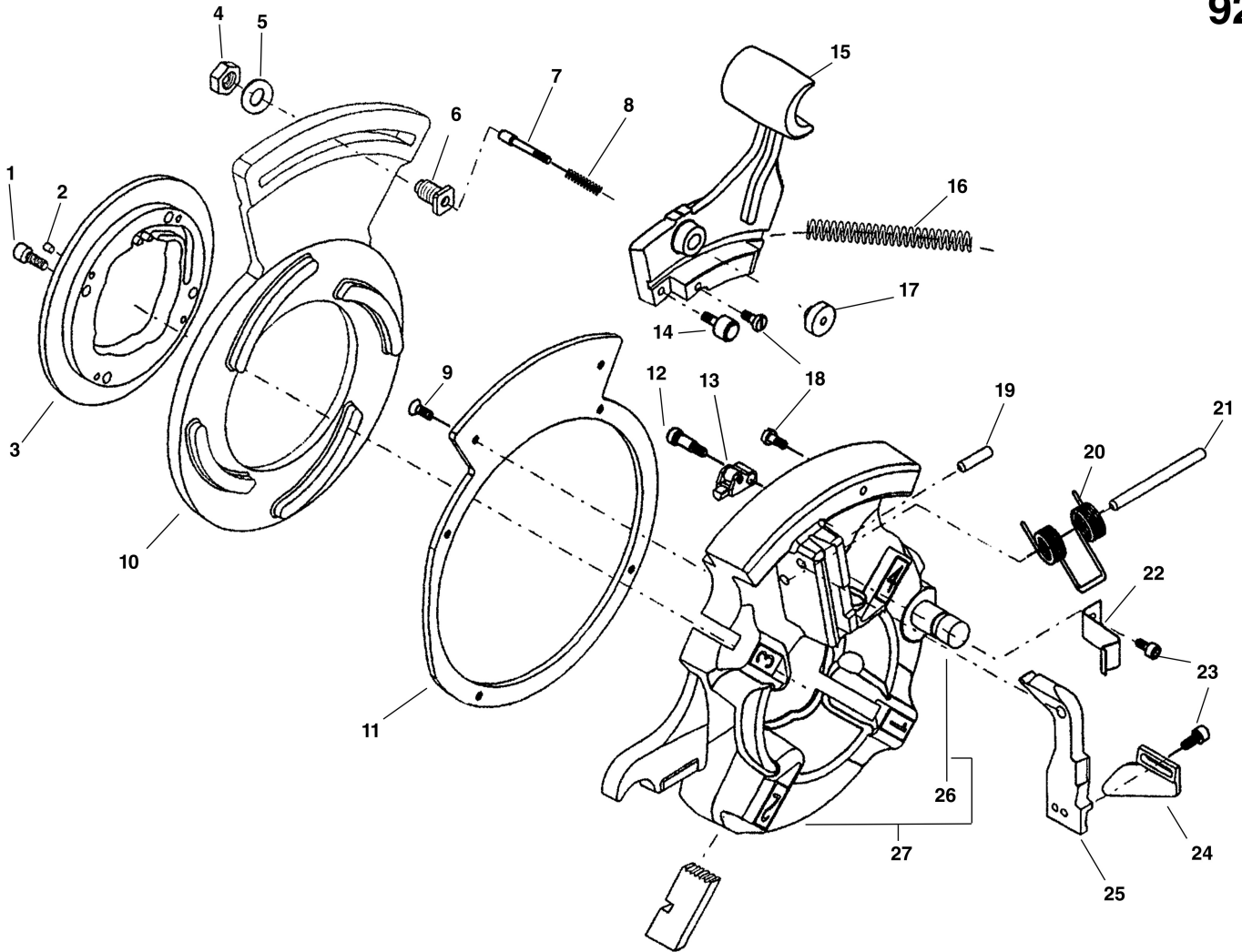
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	26152	714 Self-Opening Receding Die Head (NPT)	12	27357	Screw 1/4" - 20 x 7/8"
—	26157	914 Self-Opening Receding Die Head (BSPT)	13	26612	Drive Block Spring
—	41387	914 Self-Opening Receding Die Head (BSPT) w/Adjustable Trigger	14	32145	Screw 1/4" - 20 x 1/2"
1	26877	Release Lever	15	26882	Cam Locking Plate
2	26932	Groove Pin	16	26617	Release Foot (NPT)
3	26937	Retaining Ring		32507	Release Foot (BSPT)
4	26872	Spring		32977	Adjustable Release Foot
5	26712	Die Head w/Post	*17	26637	Retaining Ring
6	26957	Lever Washer	18	26962	Sine Bar Ball
7	26887	Hex Nut 7/16" - 20	19	26622	Torsion Spring
8	26952	Cam Assy. (NPT)	20	26642	Screw #10 - 32 x 1 3/8" (8)
	27277	Cam Assy. (BSPT)	21	26627	Shoulder Bolt
9	26632	Drive Block	22	77710	Hex Nut 1/4" - 20
10	26867	Lockout Plate	†23	59827	Post
11	27097	Washer 9/32"	24	33227	Cam Bolt
			25	39992	Release Foot Pivot
			26	39987	Release Foot (BSPT)
			27	32205	Screw
			28	10673	Ball Detente Assy. (4) (Not Shown)

† - See Service Notes

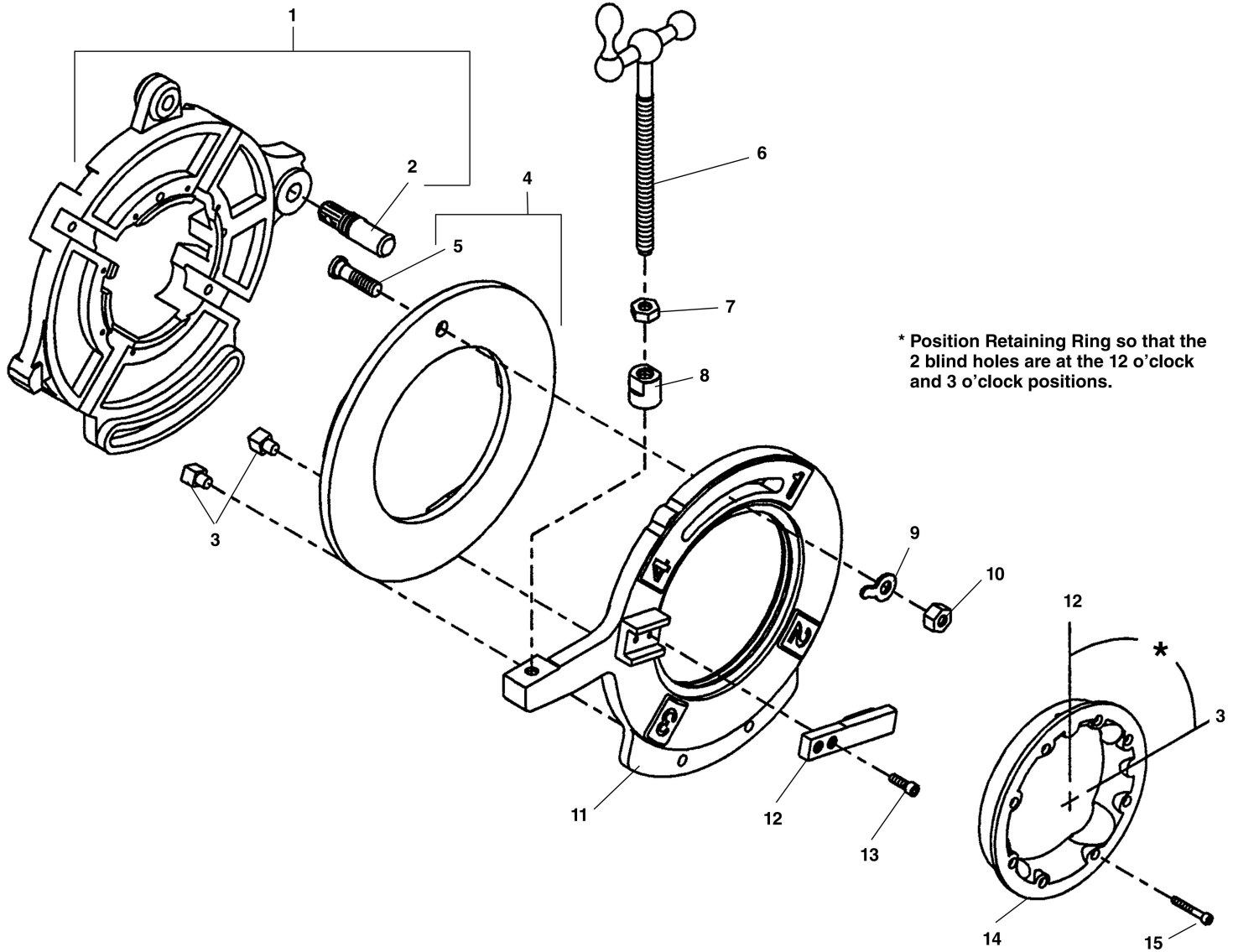
**No. 724 NPT & 924 BSPT 1/2" - 3/4" Die Heads**  
**No. 726 NPT & 926 BSPT 1" - 2" Die Heads**

**724**  
**924**  
**726**  
**926**



**NOTE: Order parts by Catalog Number only.  
 DO NOT order by Reference Number.**

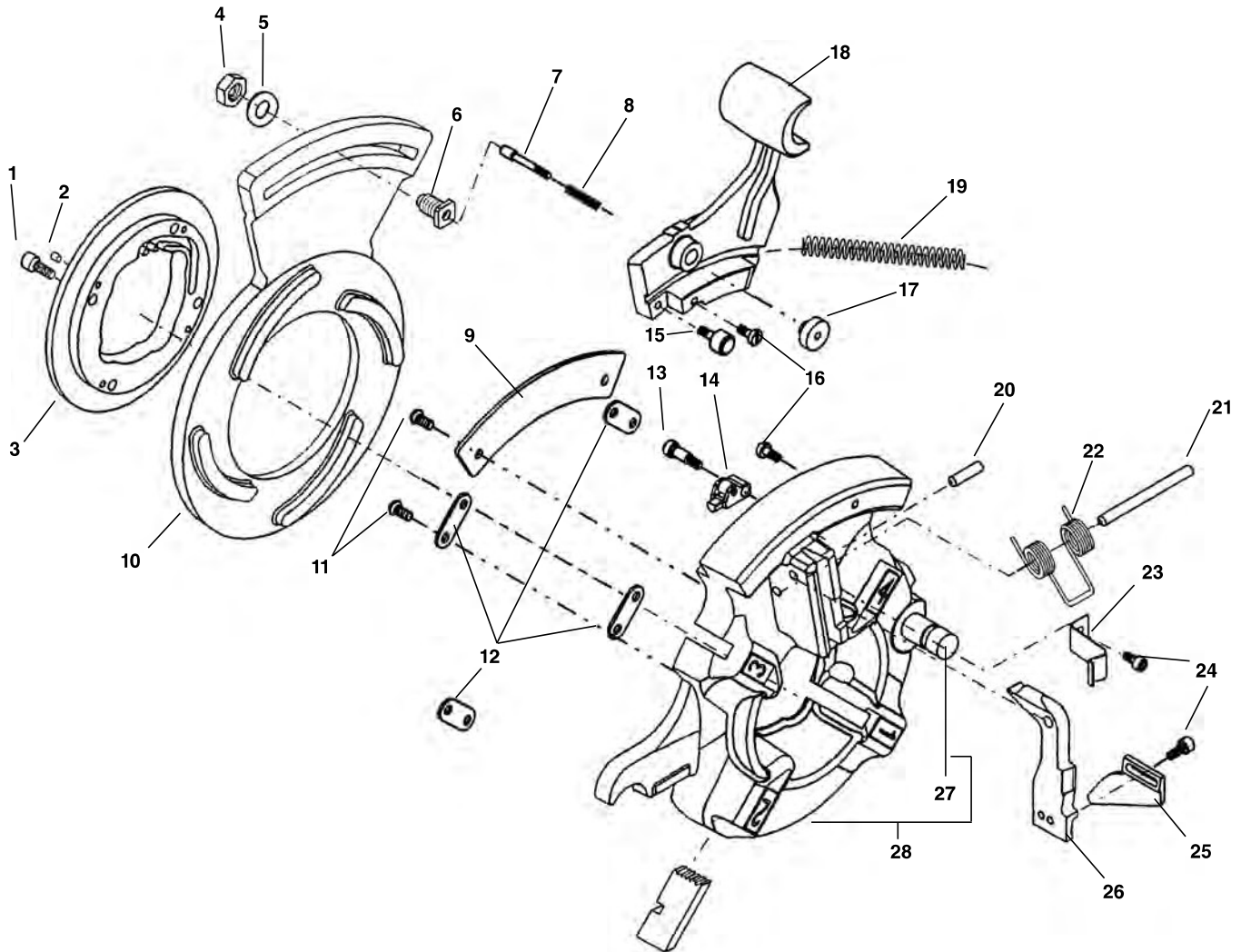
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	50317	924 1/2" - 3/4" BSPT Die Head	11	52442	Support Ring
—	50322	926 1" - 2" BSPT Die Head	12	34877	Soc. Hd. Shoulder Bolt 1/4" x 1/2"
—	54447	724 1/2" - 3/4" NPT Die Head	13	61617	Rocker Release Assembly
—	54442	726 1" - 2" NPT Die Head	14	52377	Slide Roller Bearing (2)
1	32205	Screw 1/4" - 20 x 7/8" SHCS (4)	15	58667	Adjuster Slide
2	60097	Detente Plunger (4)	16	61612	Release Spring
3	52292	Retaining Ring 1/2" - 3/4", 1" - 2"	17	61597	Adjuster Knob
4	61587	Jam Nut 3/8"	18	52372	Spring Retainer (2)
5	61592	Flat Washer 3/8"	19	87940	Roll Pin 1/4" x 7/8"
6	61607	Adjuster Bolt	20	52387	Trigger Spring
7	61602	Adjuster Plunger	21	52397	Spring Mounting Pin
8	52342	Adjuster Spring	22	60092	Trigger Spring
9	52447	Screw #10-24 x 1/2" FHCS (6)	23	45750	Screw #10-24 x 3/8" SHCS (2)
10	52312	Cam Plate BSPT 924, 1/2" - 3/4"	24	52417	Adjustable Trigger
	52317	Cam Plate BSPT 926, 1" - 2"	25	52422	Trigger Pivot
	56067	Cam Plate NPT 724, 1/2" - 3/4"	26	59832	Die Head Post
	56072	Cam Plate NPT 726, 1" - 2"	27	52432	Die Head w/Post



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	55447	725 Grooving Die Head
1	58687	Die Head With Post
2	59827	Die Head post
3	26632	Drive Block
4	26952	Cam Assembly
5	33227	Cam Bolt
6	58692	Feed Screw Assembly
7	44745	Jam Nut
8	58697	Adjusting Nut
9	26957	Lever Washer
10	26887	Hex Nut $\frac{7}{16}$ " - 20
11	58702	Cam Locking Plate
12	58707	Stop
13	40910	Screw $\frac{1}{2}$ - 20 x $\frac{3}{4}$ " (2)
14	26637	Retaining Ring
15	26642	Screw #10 - 32 x $1\frac{3}{8}$ " (8)

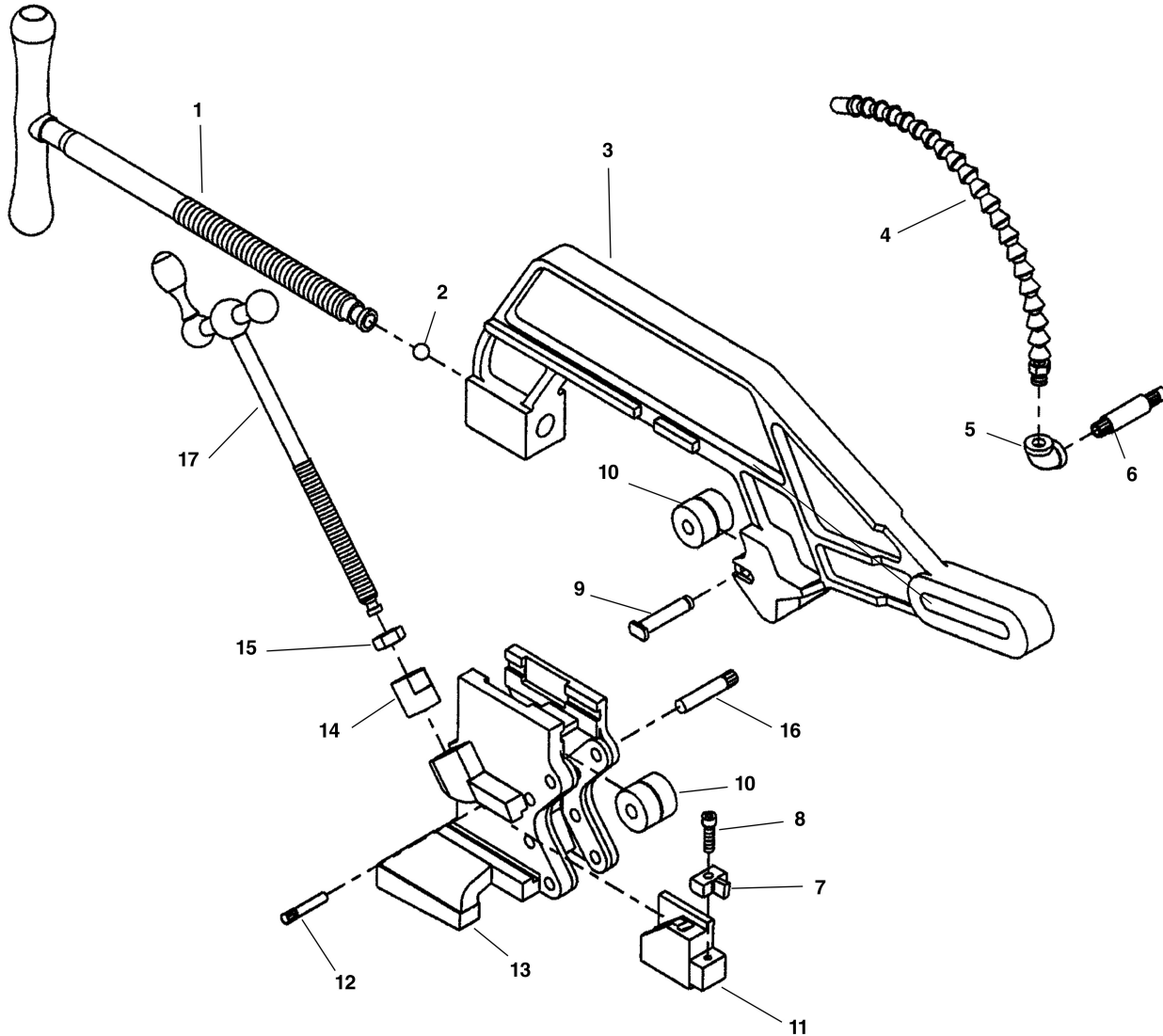
**No. 728 NPT & 928 BSPT 2 1/2" - 3" Die Heads**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	54437	728 2 1/2" - 3" NPT Die Head	13	34877	Soc. Hd. Shoulder Bolt 1/4" x 1/2"
—	50327	928 2 1/2" - 3" BSPT Die Head	14	61617	Rocker Release Assembly
—	59522	928 2 1/2" - 3" BSPT Die Head - Taiwan	15	52377	Slide Roller Bearing (2)
1	32205	Screw 1/4" - 20 x 5/8" SHCS (4)	16	52372	Spring Retainer (2)
2	60097	Detente Plunger (4)	17	61597	Adjuster Knob
3	52287	Retaining Ring	18	58667	Adjuster Slide
4	61587	Jam Nut 3/8" - 16 (2)	19	61612	Release Spring
5	61592	Flat Washer 3/8"	20	87940	Roll Pin 1/4" x 7/8"
6	61607	Adjuster Bolt	21	52397	Spring Mounting Pin
	59527	Adjuster Bolt - Taiwan	22	52387	Trigger Spring
7	61602	Adjuster Plunger	23	60092	Trigger Spring
8	52342	Adjuster Spring	24	45750	Screw #10-24 x 3/8" SHCS (2)
9	75802	Rocker Cover	25	52412	Adjustable Trigger
10	56077	Cam Plate NPT - 728 Die head	26	52422	Trigger Pivot
	52307	Cam Plate BSPT - 928 Die head	27	59832	Die Head Post
11	39542	Screw #10-24 x 1/2" BHCS (10)	28	72272	Die Head w/Post
12	75797	Retaining Plate (4)			

## No. 766 Saran Cut-Off Tool

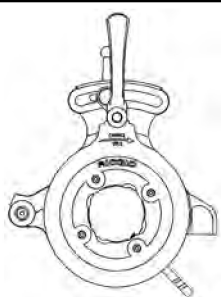


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

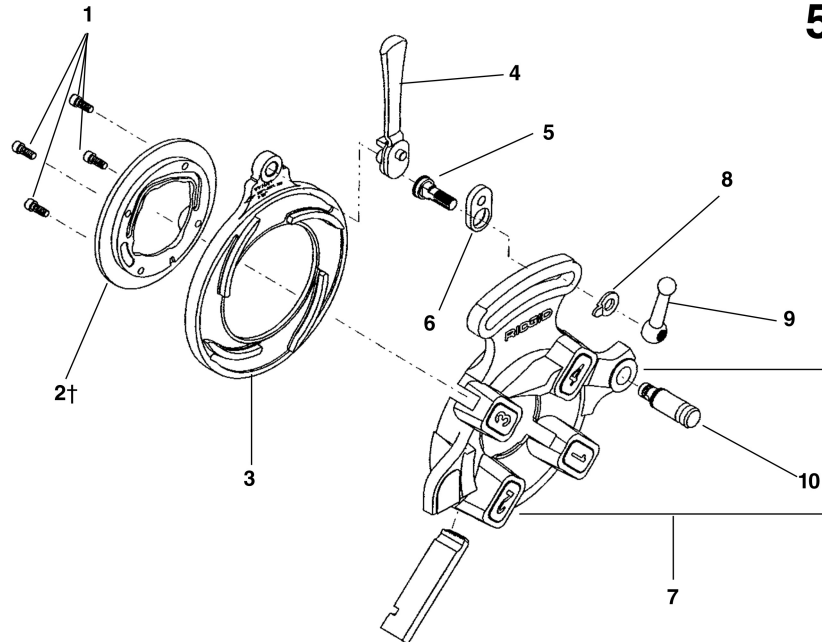
Ref. No.	Catalog No.	Description
—	55452	766 Saran Cut-Off Tool
1	26752	Feed Screw Handle
2	41730	Steel Ball
3	26742	Cutter Frame
4	39845	Coolant Nozzle
5	39855	90° Elbow
6	57522	Carriage Bypass Pin
7	58712	Tool Bit
8	27357	Screw 1/4" - 20 x 7/8"
9	56932	Pin
10	34785	Rolls (5)
11	58717	Tool Holder Slide
12	26757	Groove Pin
13	58722	Roll Housing
14	58697	Adjustment Nut
15	44745	Jam Nut
16	26762	Groove Pin (4)
17	40027	Feed Screw Assembly
—	46190	1/4" Hex Key
—	49737	Lockout Plate F/Die Head

**811A  
842  
555  
531B  
532B  
500A MONO**

**Service Note**



†2 Retaining Ring must be oriented as shown for proper oil flow.



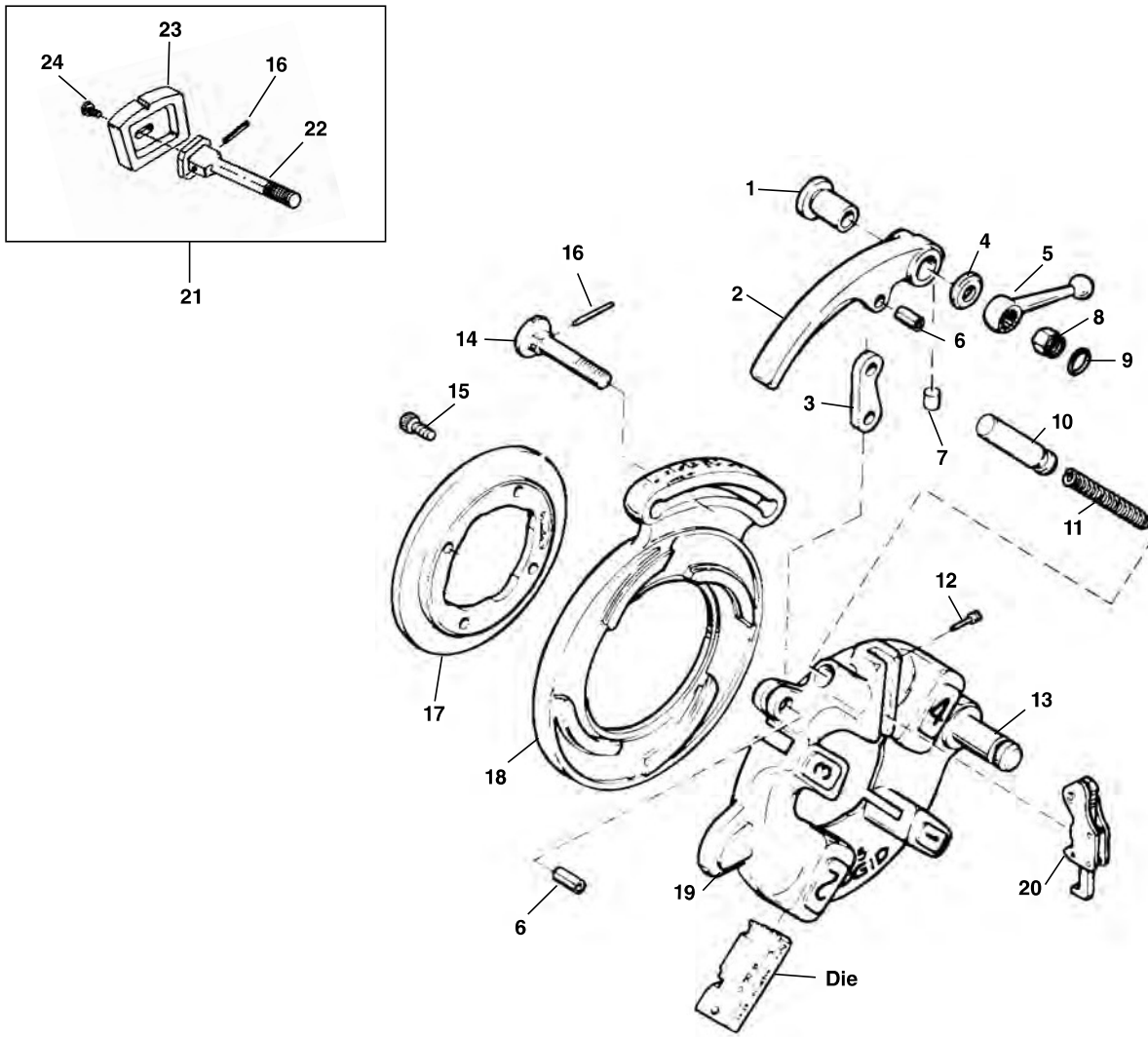
**QUICK OPENING DIE HEADS**

**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	1	2†	3	4	5	6	7	8	9	10
Die Head & Catalog No.	Screw	Retaining Ring	Cam Plate	Throw-Out Lever	Lock Screw	Link	Head/w Post	Lever Washer	Clamp Lever	Post
811A (97065) 1/8"-2" RH NPT	32205	97020	43360	46520	39860	39950	40922	26957	39970	59832
842 (23282) 1/8"-2" LH NPT	32205	23292	43360	46520	39860	39950	23287	26957	39970	59832
555 (10491) 1/8"-3/4"	32205	24256	43365	46555	39860	39950	24006	26957	39970	59832
531B (97045) 1/4"-1" RH/LH	32205	46620	43405	46555	39955	39950	97055	26957	39970	59832
532B (97050) 1 1/8"-2" RH/LH	32205	46625	43410	46555	39955	39950	97060	26957	39970	59832
811A (97070) 1/8"-2" BSPT	32205	97020	43360	46520	39860	39950	40957	26957	39970	59832
842 (23297) 1/8"-2" LH (BSPT)	32205	23292	43360	46520	39860	39950	23202	26957	39970	59832
500A Mono (1/8"-3/8") RH 1/8" (41032) 1/4" (41037) 3/8" (41042)	32205	1/8"-41862 1/4"-41867 3/8"-41872	43305	46555	47140	39950	41907	26957	46820*	59832
500A Mono (1/2"-3/4") RH 1/2" (41047) 3/4" (41062)	32205	1/2"-41877 3/4"-41882	43300	46555	47140	39950	41912	26957	46820*	59832
500A Mono (1"-1 1/4") RH 1" (41057) 1 1/4" (41062)	32205	1"-41887 1 1/4"-41892	43295	46555	47140	39950	41917	26957	46820*	59832
500A Mono (1 1/2"-2") RH 1 1/2" (41067) 2" (41072)	32205	1 1/2"-41897 2"-41902	43290	46555	47140	39950	41922	26957	46820*	59832

\*Hex Nut For Mono Die Heads

## 815A Self-Opening Through-Head Oiling Die Head

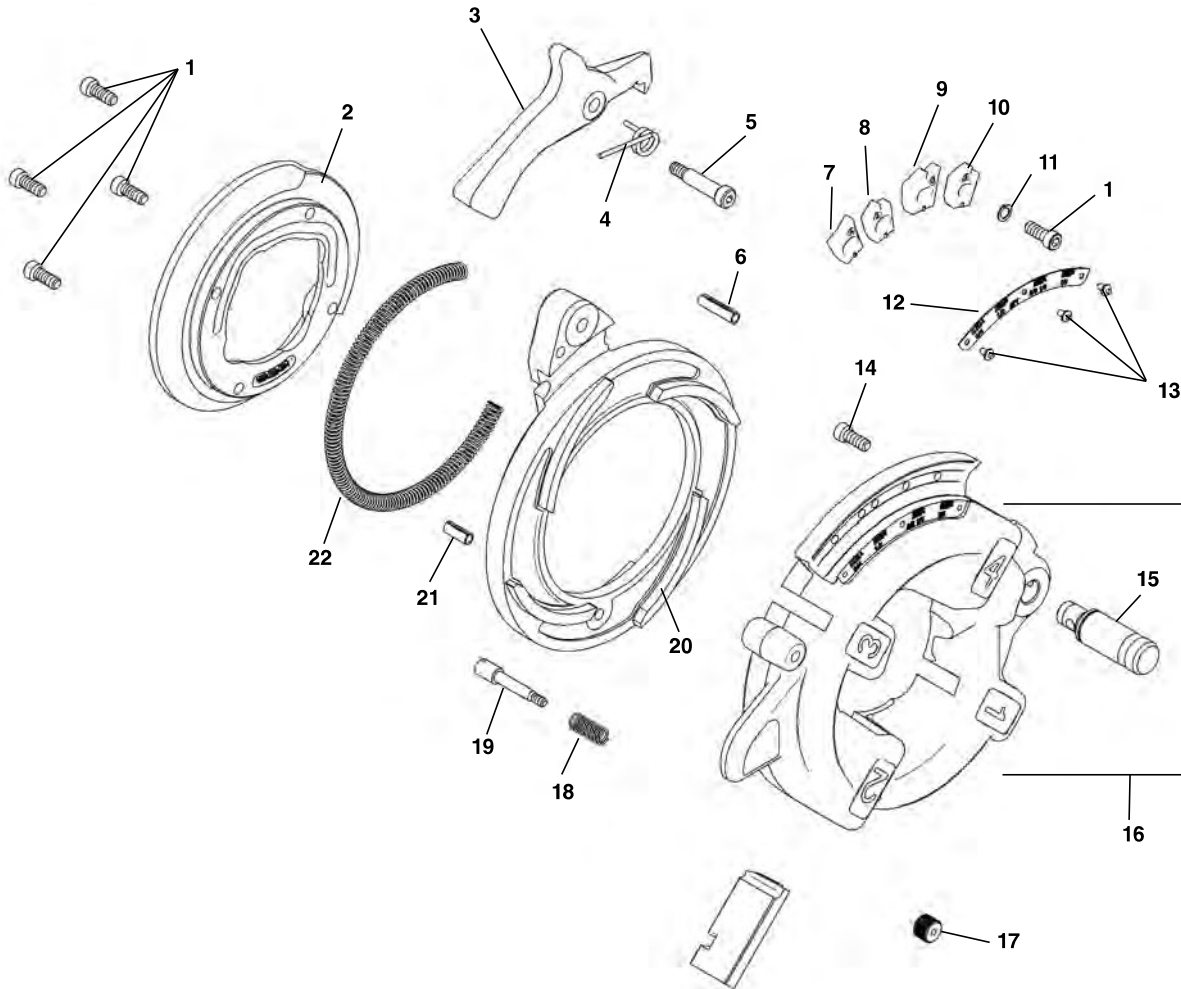


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	97075	815A Self-Opening (Through-Head-Oiling) Die Head (NPT)	13	59832	Post
	97080	815A Self-Opening (Through-Head-Oiling) Die Head (BSPT)	14	44235	Lock Screw
1	44240	Bushing	15	32205	Screw (4)
2	43830	Throw-Out Lever	16	45050	Pin
3	44265	Throw-Out Link	17	97020	Retaining Ring
4	44245	Washer	18	40942	Cam Plate (815A NPT)
5	44260	Clamp Lever		97040	Cam Plate (815A BSPT)
6	44270	Roll Pin (2)	19	40932	Head w/Post
7	45055	Insert	20	44285	Trigger Assembly
8	44250	Nut		32982	Adj. Trigger Assy. (Europe)
9	44255	Retaining Ring		45327	Trigger Assy. (Europe)
10	44275	Throw-Out Plunger	21	45332	Gauge Plate Assy.
11	11565	Spring	22	46722	Adj. Lock Screw
12	44290	Trigger Screw	23	46717	Gauge Plate
			24	47147	Buttonhead Screw

NOTE: Early Style 815/845 parts interchangeable with 815A NPT  
Early Style 855 parts interchangeable with 815A BSPT





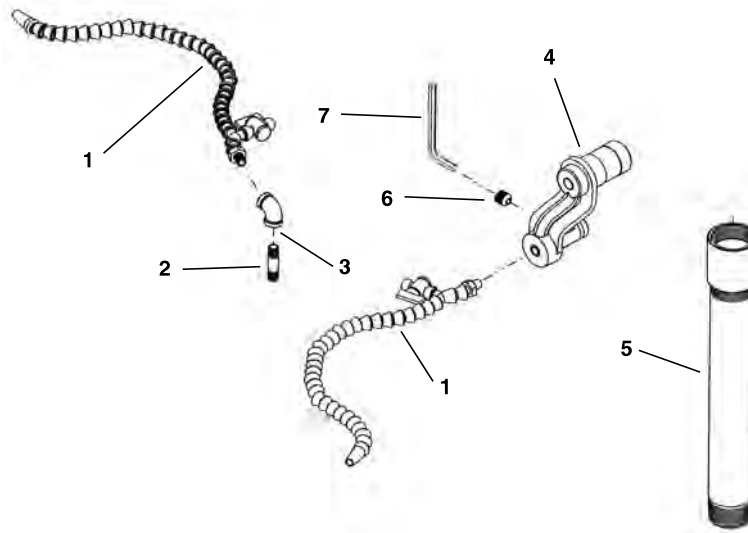
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	84537	816 Die Head 1/8" - 3/4"	11	44740	Split Lock Washer, 1/4" (4)
—	84532	817 Die Head 1" - 2"	12	92772	Size Plate 816 1/8" - 3/4"
1	40910	Screw, 1/4" - 20 x 3/4" S.H.C.S. (8)		92777	Size Plate 817 1" - 2"
2	92767	Retaining Ring	13	85920	Pop Rivet 3/32" (3)
3	92822	Handle	14	32145	Screw, 1/4" - 20 x 1/2" S.H.C.S.
4	92817	Spring	15	59832	Die Head Post
5	92812	Shoulder Bolt	16	92757	Die Head Body w/Post
6	92832	Roll Pin 1/4" x 5/8"	17	92802	Plunger Knob
7	92782	Adjusting Block 816/817 3/4", 2" Type A	18	92807	Plunger Spring
8	92787	Adjusting Block 816 1/2" Type B	19	92797	Plunger Shaft
	92782	Adjusting Block 817 1 1/2" Type A	20	92762	Cam Plate
9	92792	Adjusting Block 816 1/4", 3/8" Type C	21	58090	Roll Pin 1/4" x 1"
	92787	Adjusting Block 817 1 1/4" Type B	22	92827	Spring
10	92787	Adjusting Block 816/817 1/8", 1" Type B			

### No. 768 Drive Link Assembly

**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	42415	768 Drive Link Assy.
1	39845	Coolant Nozzle
2	39850	Nipple
3	39855	Elbow
4	36182	Drive Link Assembly
5	39515	Pipe Extension Assembly
6	39755	Set Screw
7	46190	1/4" Hex Wrench



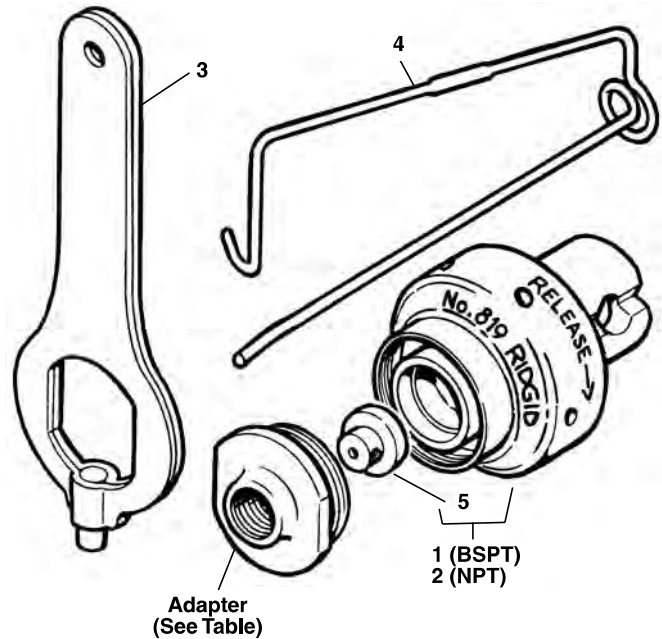
### No. 819 Nipple Chuck and Adapters

Standard Pipe (NPT) Capacity: 1/8" – 2"

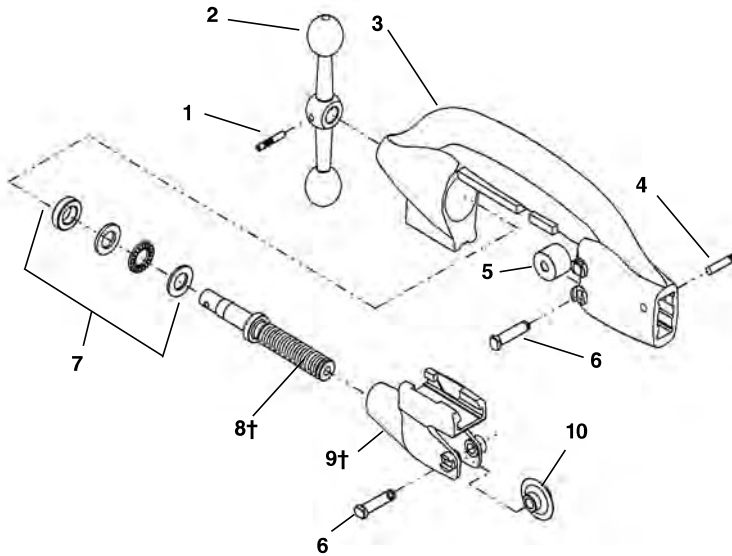
Ref. No.	Catalog No.	Description
1	68285	Nipple Chuck Body with Insert (BSPT)
2	51025	Nipple Chuck with Insert (NPT)
3	51020	Nipple Chuck Wrench
4	51010	Carrier
5	51035	Insert

#### Pipe Adapters

Size (in.)	NPT Standard		BSPT Standard		Weight	
	Catalog No.	Model No.	Catalog No.	Model No.	lb.	kg.
1/8	51040	E-729	68190	E-729-B	1/2	0,23
1/4	51045	E-730	68195	E-730-B	1/2	0,23
3/8	51050	E-731	68200	E-731-B	1/2	0,23
1/2	51055	E-732	68165	E-732-B	1/2	0,23
3/4	51060	E-733	68170	E-733-B	1/2	0,23
1	51065	E-734	68175	E-734-B	1/2	0,23
1 1/4	51070	E-735	68180	E-735-B	1/2	0,23



**No. 820 Cutter**

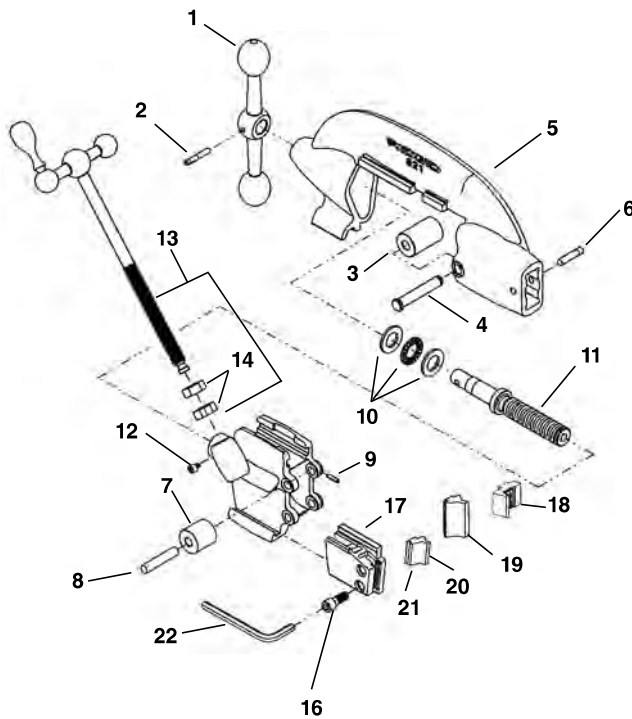


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	42390	820 Cutter Complete
1	47160	Crank Pin
2	45765	Feed Screw Crank
3	43040	Cutter Frame
4	47135	Stop Pin
5	34775	Cutter Roll (2)
6	34780	Cutter & Roll Pin (3)
7	46725	Thrust Bearing Assembly
8†	45780	Feed Screw
9†	43245	Wheel Housing
10	44185	Cutter Wheel
	44190	Cutter Wheel f/Stainless

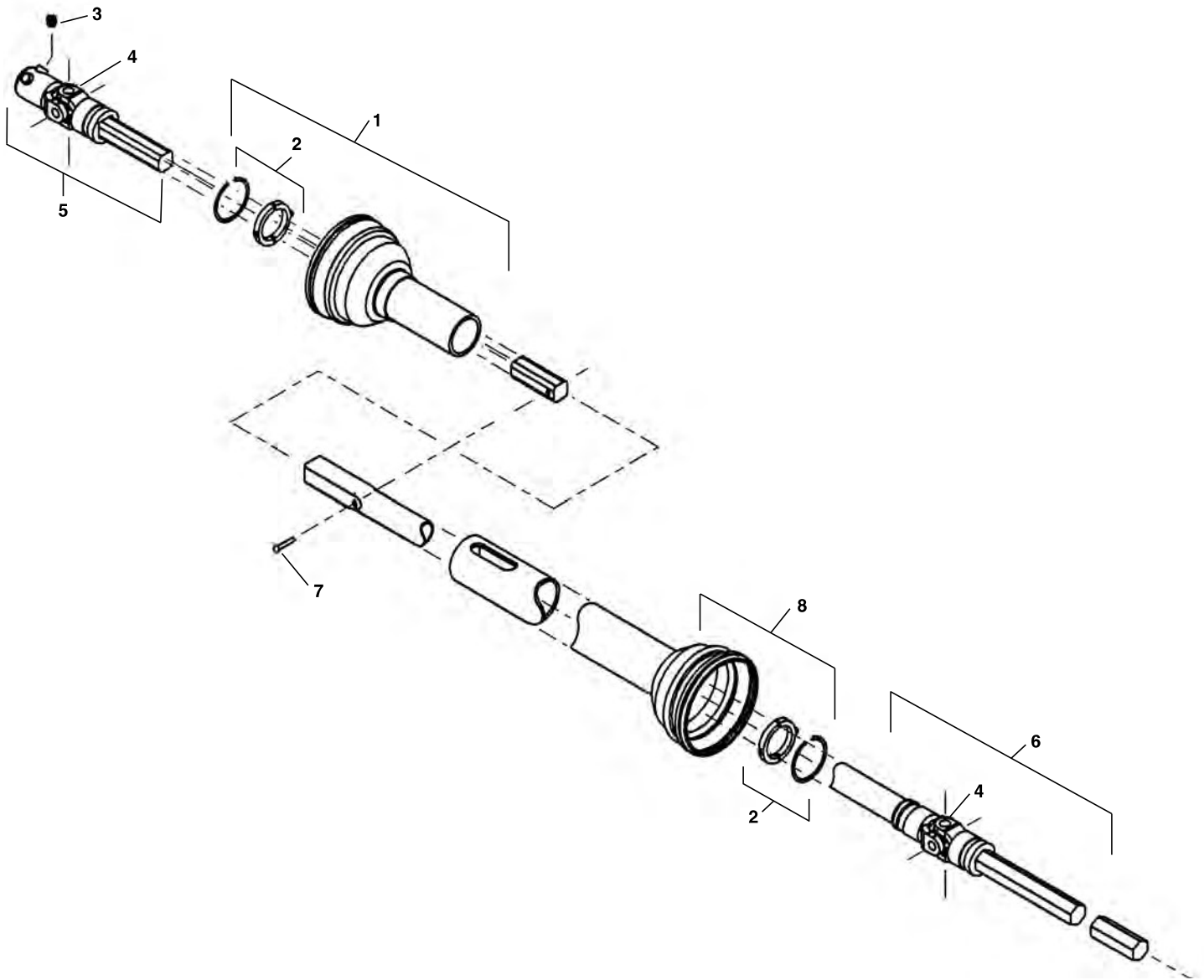
†Service Note: When replacing parts on early style (fine thread) cutters, both feed screw and wheel housing must be replaced.

**No. 821 Blade - Type Cutter**



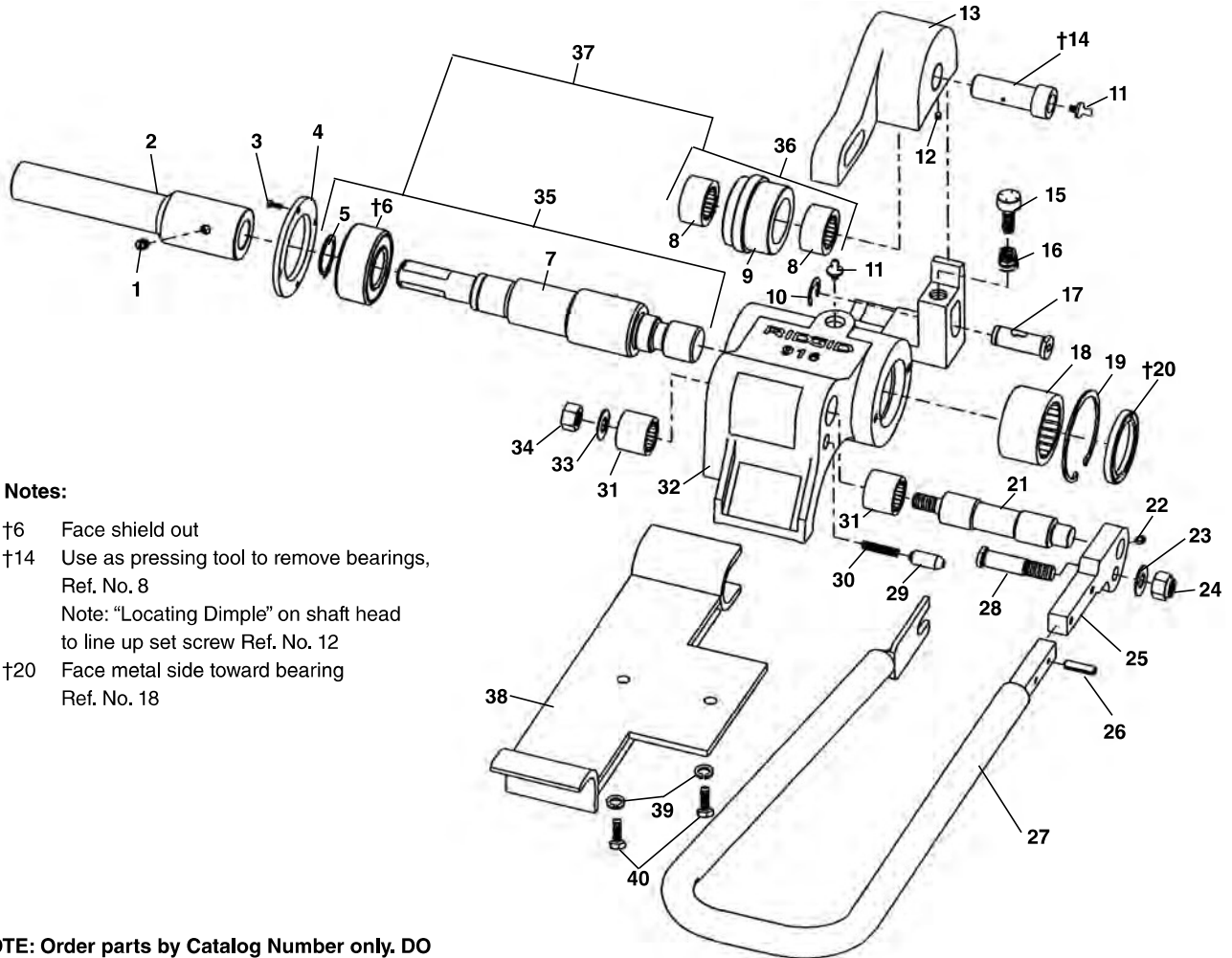
Ref. No.	Catalog No.	Description
1	45765	Feed Screw Crank
2	47160	Crank Pin
3	46965	Wide Roll
4	34310	Wide Roll Pin
5	42910	Cutter Frame
6	47135	Stop Pin
7	46960	Narrow Roll (2)
8	46970	Narrow Roll Pin (2)
9	39820	Spring Pin (2)
10	44920	Bearing Assembly
11†	45780	Feed Screw
12	46920	Screw #10 - 24 x 1/4"
13	43825	Cutter Screw Assembly
14	44745	Stop Nut (2)
15†	42915	Roll Housing
16	32270	Screw 5/16" - 18 x 3/4" (2)
17	43820	Tool Holder Slide
18	34217	Grooving Tool
19	44200	Saran Tool
20	43890	Cut-Off Tool, 45° Bevel
21	34212	Cut-Off Tool, 37 1/2° Bevel
22	46190	Hex Wrench, 1/4"

†Service Note: When replacing parts on early style (fine thread) cutters, both feed screw and roll housing must be replaced.



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	62332	Outer Bell
2	62327	Nylon Bearing w/Retainer
3	42037	Screw (2)
4	62342	Cross w/Pins (2)
5	62317	Sliding Shank Assy.
6	62312	Chuck Shank & Shaft Assy.
7	62322	Roll Pin
8	62337	Inner Bell

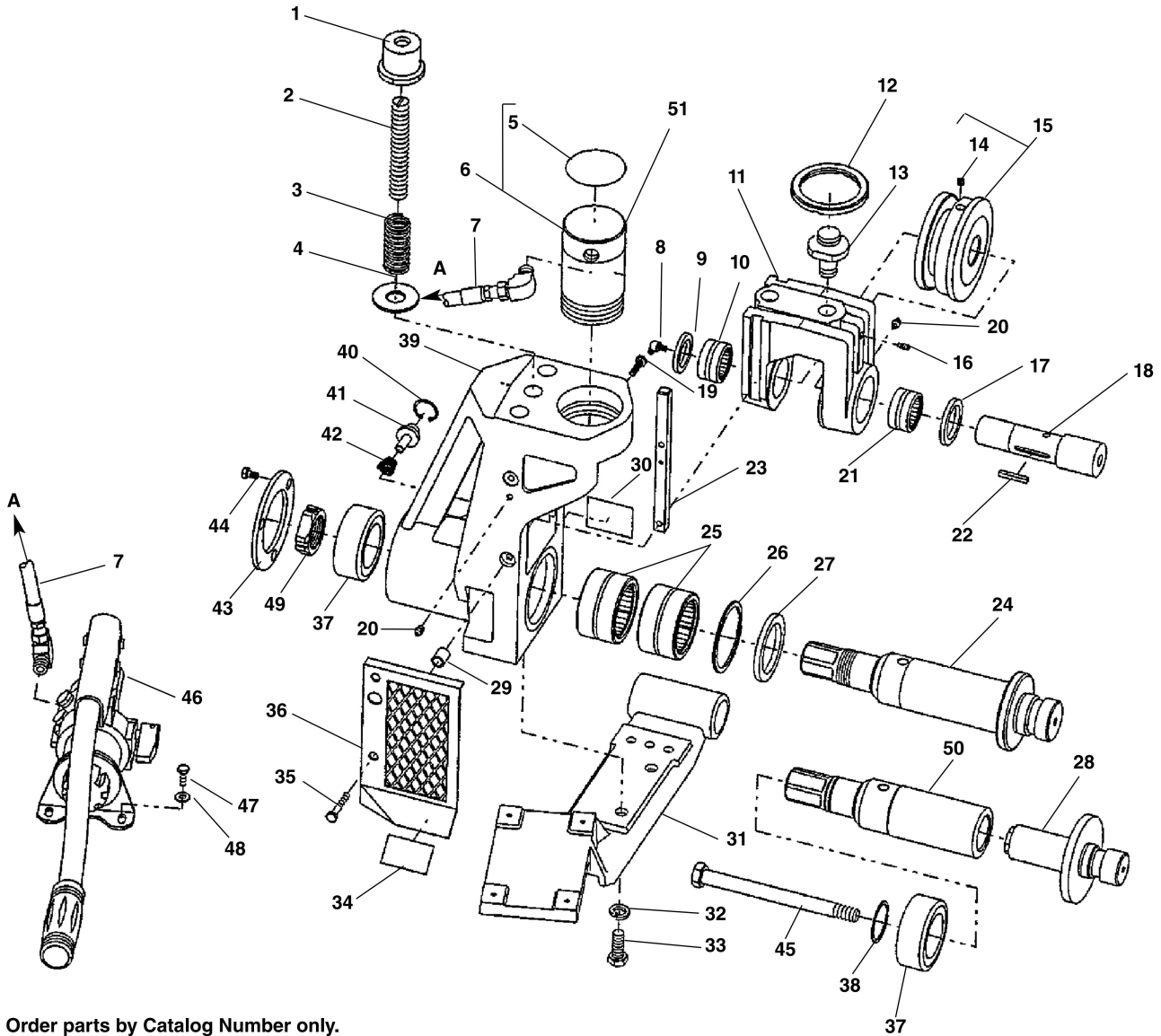


**Service Notes:**

- Ref. No. †6 Face shield out
- Ref. No. †14 Use as pressing tool to remove bearings,  
Ref. No. 8  
Note: "Locating Dimple" on shaft head  
to line up set screw Ref. No. 12
- Ref. No. †20 Face metal side toward bearing  
Ref. No. 18

**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

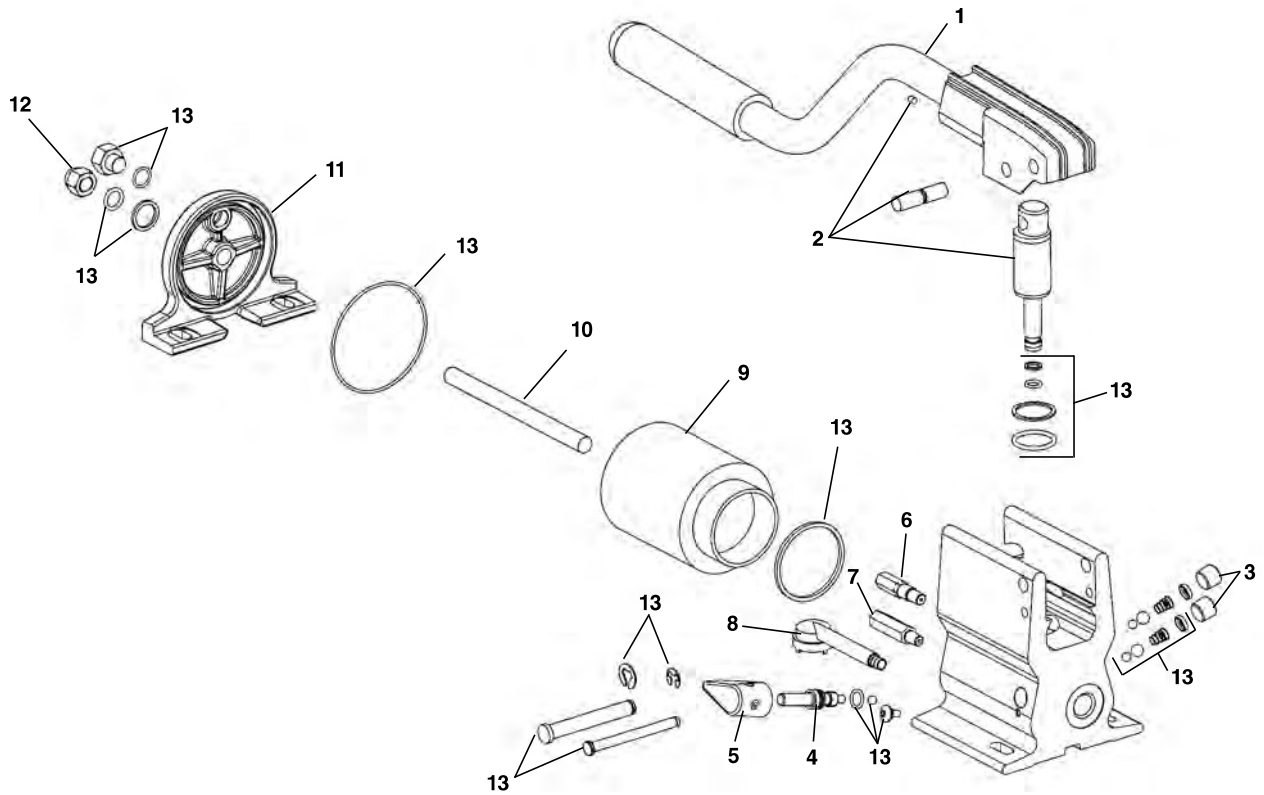
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	48497	Screw 3/16" - 16 x 1/2" (2)	24	78005	Hex Stop Nut 1/2" - 13 (2)
2	48442	Coupling - Short	25	47037	Drive Link
	66547	Coupling - Long	26	87940	Roll Pin (2)
3	45207	Hex Hd Screw 10 - 32 x 1/2" (4)	27	45137	Handle
4	45202	Retaining Plate	28	45182	Drive Pin
5	45152	Retaining Ring	29	47027	Detente Pin
†6	45147	Double Roll Ball Bearing	30	47032	Detente Spring
7	45122	Drive Shaft 1 1/4" - 6"	31	45172	Drive Link Bearing (2)
	45652	Drive Shaft f/Copper Tubing	32	48437	Lower Roll Housing f/1822 Includes Ref. No. 11
	45662	Drive Shaft f/1" Pipe		48507	Lower Roll Housing f/300 Includes Ref. No. 11
	69647	Drive Shaft 1 1/4" to 1 1/2" (AWWA)		61252	Lower Roll Housing f/535 Includes Ref. No. 11
	69672	Drive Shaft 2" to 6" (AWWA)	33	83420	Flat Washer
8	45167	Hd Caged Roller Bearing (2)	34	78005	Hex Stop Nut 1/2" - 13 (2)
9	45127	Grooving Roll	35	45397	Drive Shaft Assembly
	45657	Grooving Roll f/Copper Tubing		45557	Drive Shaft Assembly f/Copper Tubing
	45667	Grooving Roll f/1" Pipe		45572	Drive Shaft Assembly f/1" Pipe
	69652	Grooving Roll 1 1/4" to 1 1/2" (AWWA)		69657	Drive Shaft Assembly 1 1/4" to 1 1/2" (AWWA)
	69677	Grooving Roll 2" to 6" (AWWA)		69682	Drive Shaft Assembly 2" to 6" (AWWA)
10	42580	Retaining Ring	36	45587	Grooving Roll Assembly w/Bearing
11	46860	Grease Fitting		45562	Grooving Roll Assembly w/Bearing f/Copper Tubing
12	45187	Cone Pt. Screw 10 - 32 x 1/4"		45577	Grooving Roll Assembly w/Bearing f/1" Pipe
13	45112	Upper Roll Housing		69662	Grooving Roll Assembly 1 1/4" to 1 1/2" (AWWA)
†14	45132	Groove Roll Shaft includes Ref. No. 11		69687	Grooving Roll Assembly 2" to 6" (AWWA)
15	48447	Adjusting Screw	37	45352	Roll Set f/Copper Tubing incl. Ref. No. 35 & 36
16	45402	Adjusting Screw Spring		45347	Roll Set f/1" incl. Ref. No. 35 & 36
17	48452	Pivot Pin		69667	Roll Set 1 1/4" to 1 1/2" (AWWA)
18	45142	Caged Roller Bearing		69692	Roll Set 2" to 6" (AWWA)
19	45162	Retaining Ring		47492	Warning & Depth Adjusting Label
†20	45157	Front Seal	38	61242	Base - 535
21	45117	Drive Link Shaft	39	40930	3/8" Locker Washer
22	45192	Cone Pt. Screw 1/4" - 20 x 1/2"	40	46675	3/8" x 3/4" Bolt
23	77720	Washer			



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	
1	49117	Depth Adjustment Nut	22	27002	Key, 3/16 Sq. x 1 1/16	36	49197	Guard (Incls. Ref. 29)	
2	49112	Depth Rod	23	49107	Set of 2 Slide Keys	37	49127	Bearing	
3	49122	Spring	24	51427	Drive Shaft, 2-6" Sch. 10 & 40	38	49192	Spiral Retaining Ring	
4	60995	Flat Washer, 3/4"		51432	Drive Shaft Assy. - same as above and includes Ref. 37, 49	39	49057	Lower Roll Housing (Incls. Ref. 20)	
5	49262	Label, Depth Adjustment			51817	Drive Shaft, 8-12" Sch 10, 8" Sch 40	40	49177	Retaining Ring
6	49147	Hydraulic Cylinder			51812	Drive Shaft Assy. - same as above and includes Ref. 37, 49	41	49172	Lock Pin
7	49142	Hydraulic Hose	25	87600	Roller Bearing (2)	42	44915	Spring	
8	46915	Grease Fitting - 65 Deg.	26	49187	Spiral Retaining Ring	43	49132	Retaining Plate	
9	87695	Seal	27	91000	Seal	44	60265	Hex Screw, 1/4" - 20 x 1/2" (3)	
10	87710	Roller Bearing	28	49157	Drive Roll, 1"	45	49667	Hex Bolt 5/8" - 11 x 7"	
11	49062	Upper Roll Housing (Incls. Ref. 9, 10, 16, 17, 20, 21)	29	49202	Set of 2 Spacers	46	61132	Hydraulic Pump	
12	49152	Lock Ring	30	49207	Label, Warning	47	60005	Hex Screw, 1/4" - 20 x 3/4" (4)	
13	49082	Piston Rod Coupling	31	48292	Mounting Base Kit - 300	48	27402	Flat Washer (4)	
14	45192	Set Screw, 1/4" - 20 x 3/8"		48392	Mounting Base Kit - 1822	49	49607	Bearing Retaining Nut	
15	49162	Groove Roll, 1"		48397	Mounting Base Kit - 1224	50	49067	Drive Shaft - for 1", 1 1/4", 1 1/2" rolls and copper roll 2" - 6"	
	49097	Groove Roll, 1 1/4" - 1 1/2"		48402	Mounting Base Kit - 535		49627	Drive Shaft Assy. - same as above and includes Ref. 37, 38, 45	
	49217	Groove Roll 2" - 6" SC 10/40		60212	Mounting Base Kit - 1233/300 Compact	51	35943	Repair Kit	
	51822	Groove Roll, 8" - 12" Sch. 10, 8" Sch. 40				<b>Following Items Not Shown:</b>			
	50127	Groove Roll, Copper 2" - 6"	33	45500	Hex Screw, 1/2" x 1 1/4" (2)		49087	T-Handle Hex Key, 1/8"	
16	51723	Set Screw, 1/4" - 20 x 1/2"	32	86445	Lock Washer, 1/2" (2)		49167	Coupling - 535/1822/1224	
17	87690	Seal	34	49257	Label, Warning		53987	Roll Storage Case	
18	49102	Upper Roll Shaft (Incls. Ref. 8, 22)	35	49212	Hex Screw, 1/4" - 20 x 1 3/4" (2)		54317	Box Wrench	
19	49252	Hex Screw, 1/4" - 20 x 1" (2)							
20	46860	Grease Fitting (4)							
21	87610	Roller Bearing							

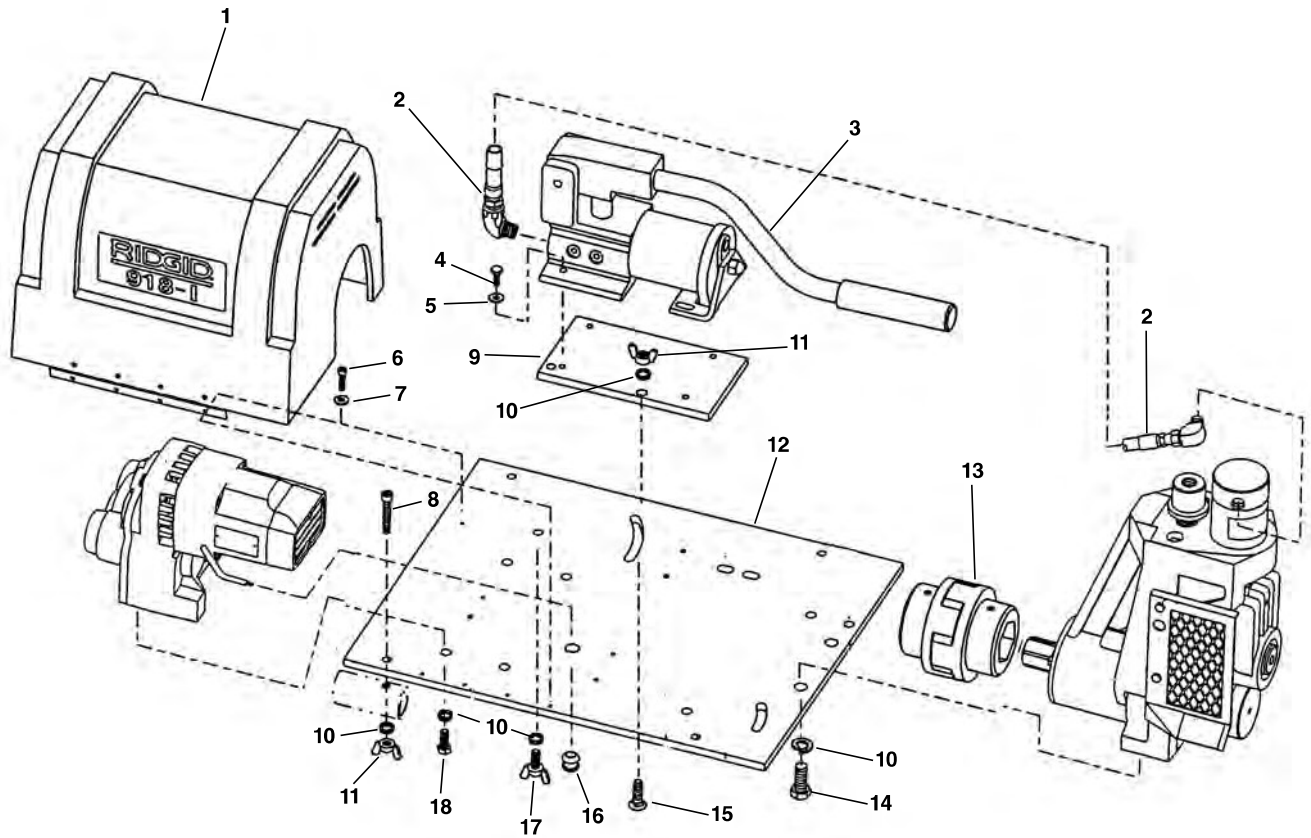
**Hydraulic Pump, P392U001**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
1	64427	Handle Assembly
2	97757	Plunger Assembly
3	63742	Pipe Plug (2)
4	97762	Valve Stem
5	64437	Release Knob
6	63752	Low Pressure Bypass
7	63757	High Pressure Relief
8	97782	Oil Filter
9	64412	Reservoir
10	64417	Tie Rod
11	97767	End Cap
12	63707	Acorn Nut
13	97772	Repair Kit

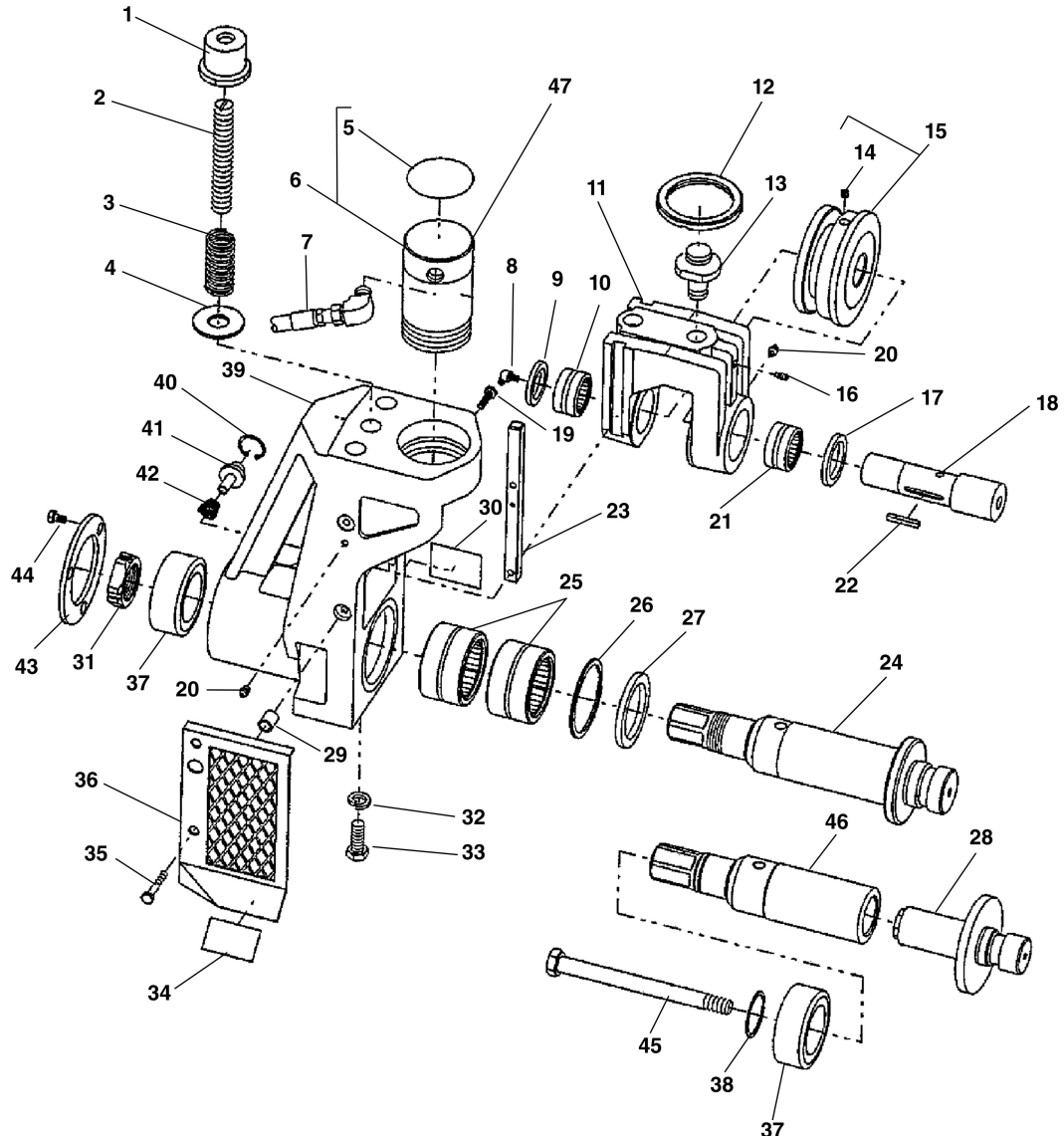
Base Assembly



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	65557	Motor Shroud
2	49142	Hydraulic Hose Assembly – 115V, 230V
	61372	Hydraulic Hose Assembly – 100V
3	61132	Hydraulic Pump Complete
4	60005	Hex Screw, 1/4" - 20 x 3/4" (4)
5	44740	Lock Washer 1/4" (4)
6	40260	Screws #10 - 24 x 1/2" S.H.C.S. (5)
7	45365	Flat Washer, #10 (5)
8	58052	Hex Screw, 3/8" - 16 x 2 1/2" (4)
9	87527	Pump Mount Plate, 115V, 230V
	65552	Pump Mount Plate, 100V
10	40930	Lock Washer 3/8"
11	45385	Wing Nut, 3/8" - 16" (5)
12	65577	Base Plate
13	65567	Drive Coupling
14	45500	Hex Screw, 1/2" - 13 x 1 1/4" (2)
15	61367	Plow Bolt
16	65112	Rubber Grommet
17	61362	Wing Screw, 3/8" - 16 x 3/4"
18	45470	Hex Screw 3/8" - 16 x 1"



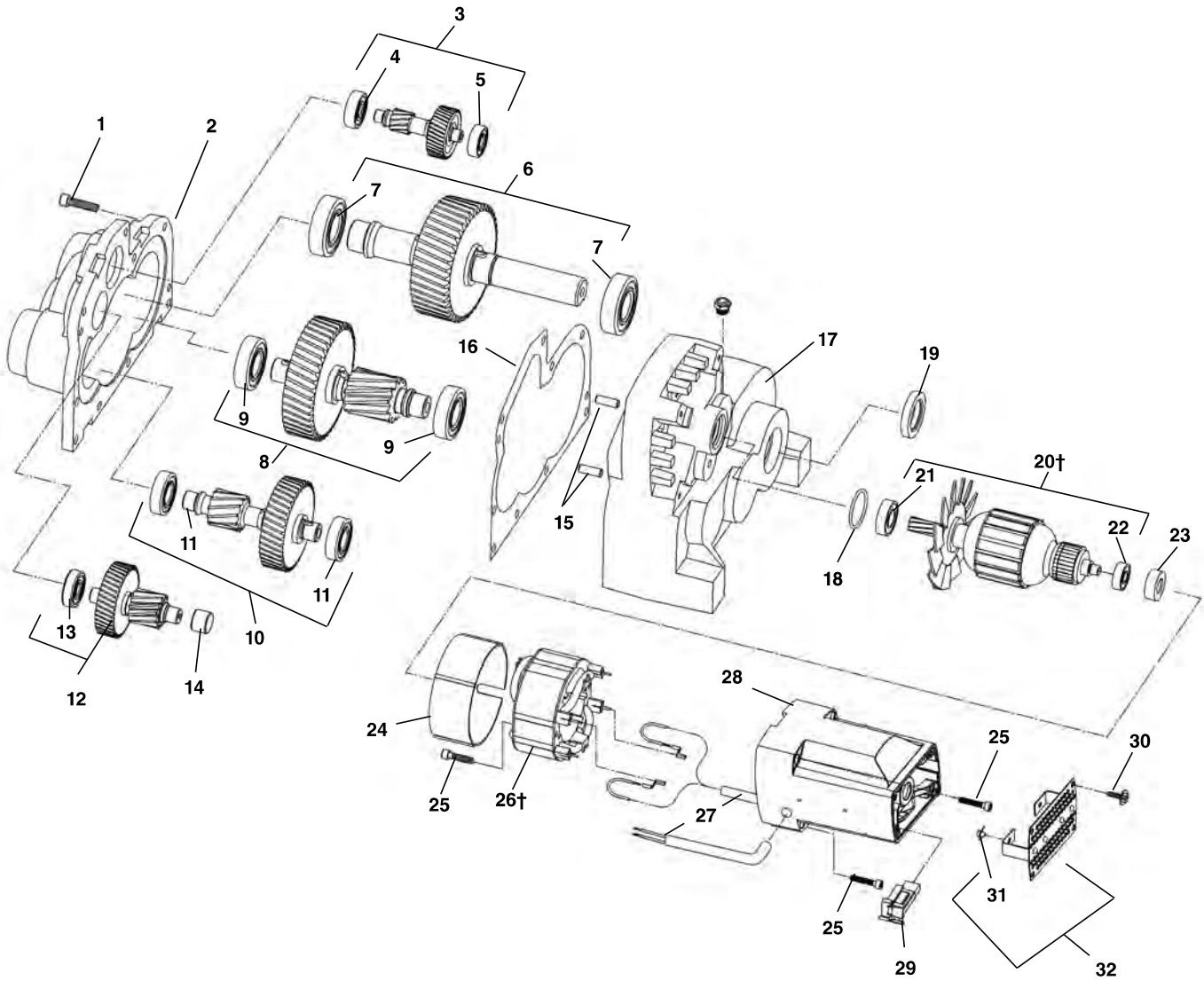


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	49117	Depth Adjustment Nut	18	49102	Upper Roll Shaft (Incls. Ref. 8, 22)	34	49257	Label, Warning
2	49112	Depth Rod	19	49252	Hex Screw, 1/4" - 20 x 1" (2)	35	49212	Hex Screw, 1/4" - 20 x 1 3/4" (2)
3	49122	Spring	20	46860	Grease Fitting (4)	36	49197	Guard (Incls. Ref. 29)
4	60995	Flat Washer, 3/4"	21	87610	Roller Bearing	37	49127	Bearing
5	49262	Label, Depth Adjustment	22	27002	Key, 3/16" Sq. x 1 5/16"	38	49192	Spiral Retaining Ring
6	49147	Hydraulic Cylinder	23	49107	Set of 2 Slide Keys	39	49057	Lower Roll Housing (Incls. Ref. 20)
7	49142	Hydraulic Hose Assembly - 115V/230V	24	51427	Drive Shaft, 2" - 6" Sch 10 & 40	40	49177	Retaining Ring
8	46915	Grease Fitting - 65 Deg.	25	51432	Drive Shaft Assy. - same as above and includes Ref. 31, 37	41	49172	Lock Pin
9	87695	Seal	26	51817	Drive Shaft, 8" - 12" Sch. 10, 8" Sch 40	42	44915	Spring
10	87710	Roller Bearing	27	51812	Drive Shaft Assy. - same as above and includes Ref. 31, 37	43	49132	Retaining Plate
11	49062	Upper Roll Housing (Incls. Ref. 9, 10, 16, 17, 20, 21)	28	49157	Drive Roll, 1"	44	60265	Hex Screw, 1/4" - 20 x 1/2" (3)
12	49152	Lock Ring	29	87600	Roller Bearing (2)	45	49667	Hex Bolt 5/8" - 11 x 7"
13	49082	Piston Rod Coupling	30	49187	Spiral Retaining Ring	46	49067	Drive Shaft - for 1", 1 1/4", 1 1/2" Rolls and Copper Roll 2" - 6"
14	45192	Cone Pt. Screw, 1/4" - 20 x 3/8"	31	49072	Drive Roll, 1 1/4" - 1 1/2"		49627	Drive Shaft Assy. - same as above and includes Ref. 37, 38, 45
15	49162	Groove Roll, 1"	32	51732	Drive Roll, Copper 2" - 6"			
	49097	Groove Roll, 1 1/4" - 1 1/2"	33	49202	Set of 2 Spacers			
	49217	Groove Roll 2" - 6" SC 10/40	34	49207	Label, Warning			
	51822	Groove Roll, 8" - 12" Sch. 10, 8" Sch 40	35	49607	Bearing Retaining Nut			
	50127	Groove Roll, Copper 2" - 6"	36	84150	Lock Washer, 1/2" (2)			
16	45265	Set Screw, 1/4" - 20 x 1/2"	37	45500	Hex Screw, 1/2" x 1 1/4" (2)			
17	87690	Seal						

**Following Items Not Shown:**  
 49087 T-Handle Hex Key, 1/8"  
 53987 Roll Storage Case  
 54317 Box Wrench  
 67192 Spanner Wrench  
 67197 Hex Key 3/8"

### Motor Transmission Type 2 – Early Style

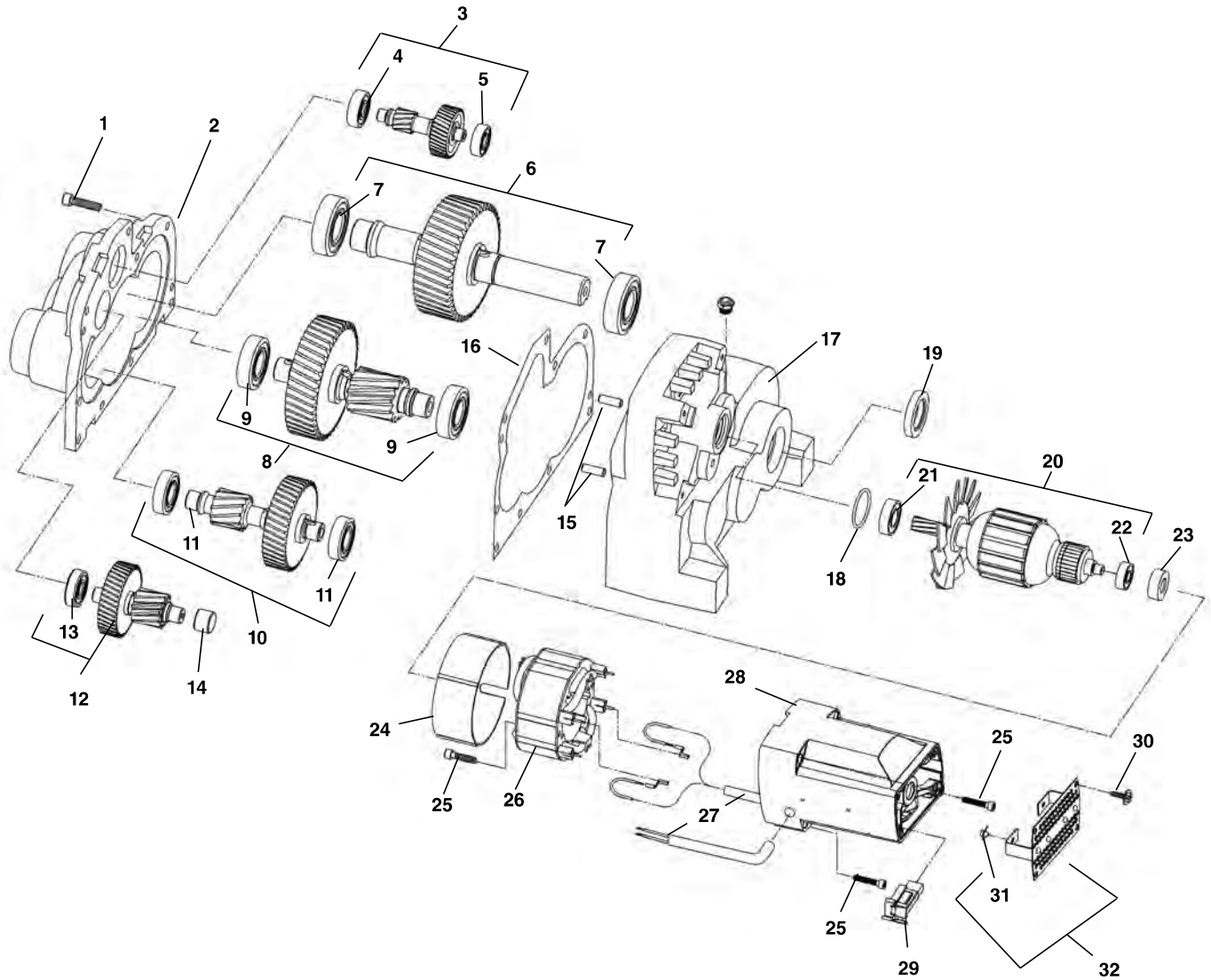


**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	83685	Screws	14	65492	Needle Bearing	24	35328	Fan Shroud
2	65452	Transmission Housing Cover	15	44640	Dowel Pin (2)	25	10923	Screw #10-24 x 2" (6)
3	65457	1st Intermediate Gear Assembly	16	65502	Gasket	†26	58572	Field Assembly – 100V
4	44760	Ball Bearing	17	65507	Transmission Housing		45897	Field Assembly – 115V
5	59147	Ball Bearing	18	60227	O-Ring Seal		58567	Field Assembly – 230V
6	65462	Output Shaft Assembly	19	65512	Grease Seal	27	58562	Wiring Harness
7	45315	Ball Bearing (2)	†20	58557	Armature Assembly – 100V	28	22043	Motor Housing
8	65467	4th Intermediate Gear Assembly		45907	Armature Assembly – 115V	29	34078	Brush/Holder Set – 100V, 115V
9	44565	Ball Bearing (2)		58552	Armature Assembly – 230V		34083	Brush/Holder Set – 230V
10	65472	3rd Intermediate Gear Assembly	21	45912	Ball Bearing	30	10908	Screw (4)
11	65477	Ball Bearing (2)	22	43017	Ball Bearing	31	10918	Bumper (2)
12	65482	2nd Intermediate Gear Assembly	23	42777	Bearing Mount	32	10913	Motor Housing Cover
13	65487	Ball Bearing						

† Service Note: When replacing early style 115V or 230V armature# or field# you must replace with both new style armature#, field# and brushes#.

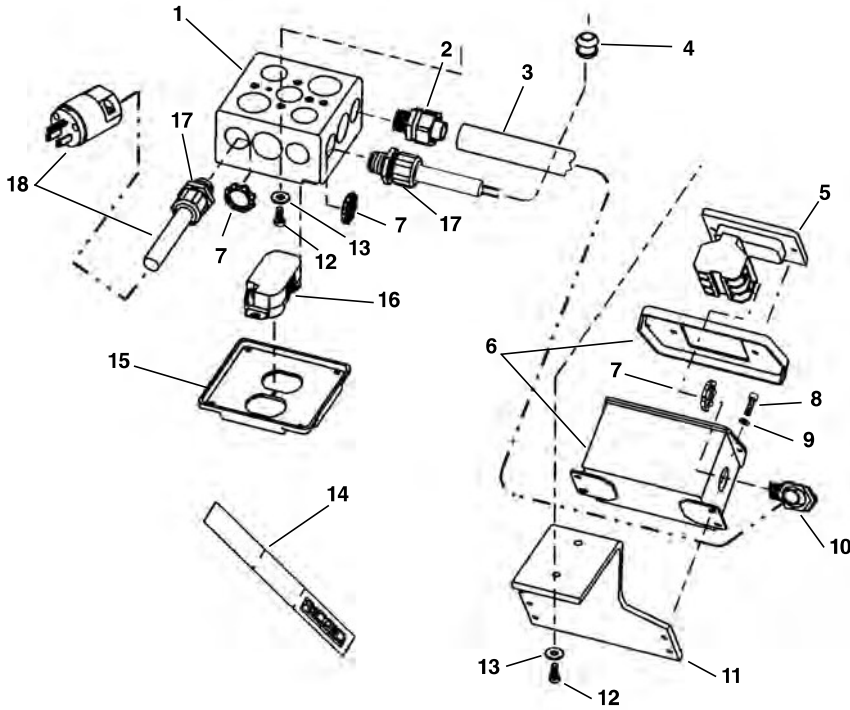
**Motor Transmission Type 2 – Motors built after Serial Number EAH XXXX 1109**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	83685	Screws	14	65492	Needle Bearing	24	35328	Fan Shroud
2	65452	Transmission Housing Cover	15	44640	Dowel Pin (2)	25	10923	Screw #10-24 x 2" (6)
3	65457	1st Intermediate Gear Assembly	16	65502	Gasket	26	38848	Field Assembly - 115V
4	44760	Ball Bearing	17	65507	Transmission Housing		38853	Field Assembly - 230V
5	59147	Ball Bearing	18	60227	O-Ring Seal		38858	Field Assembly - 100V
6	65462	Output Shaft Assembly	19	65512	Grease Seal	27	58562	Wiring Harness
7	45315	Ball Bearing(2)	20	40943	Armature Assembly -115V	28	22043	Motor Housing
8	65467	4th Intermediate Gear Assembly		40948	Armature Assembly - 230V	29	34078	Brush Holder Assembly -100V, 115V
9	44565	Ball Bearing (2)		40953	Armature Assembly - 100V		34083	Brush Holder Assembly - 230V
10	65472	3rd Intermediate Gear Assembly	21	45912	Ball Bearing	30	10908	Screw (4)
11	65477	Ball Bearing (2)	22	43017	Ball Bearing	31	10918	Bumper (2)
12	65482	2nd Intermediate Gear Assembly	23	42777	Bearing Mount	32	10913	Motor Housing Cover
13	65487	Ball Bearing						

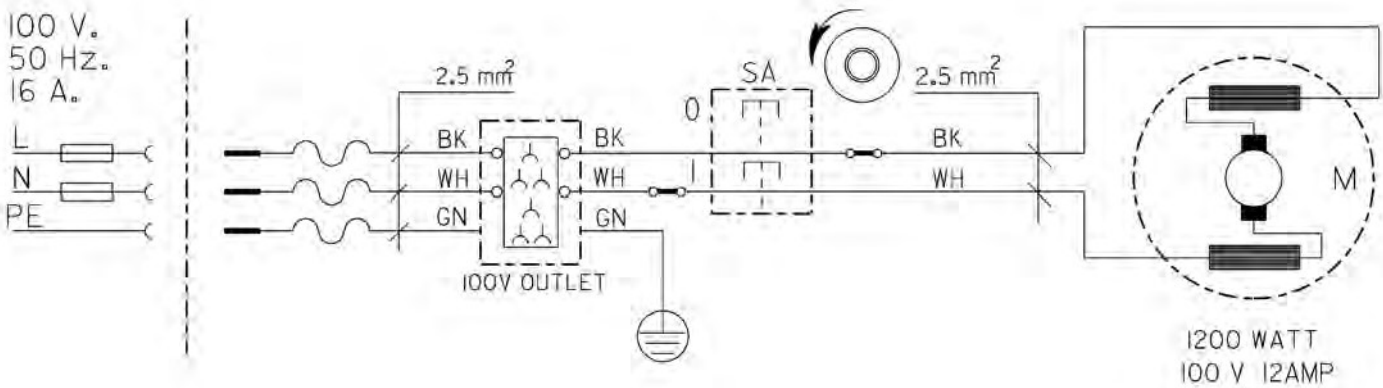
Electrical, 100V



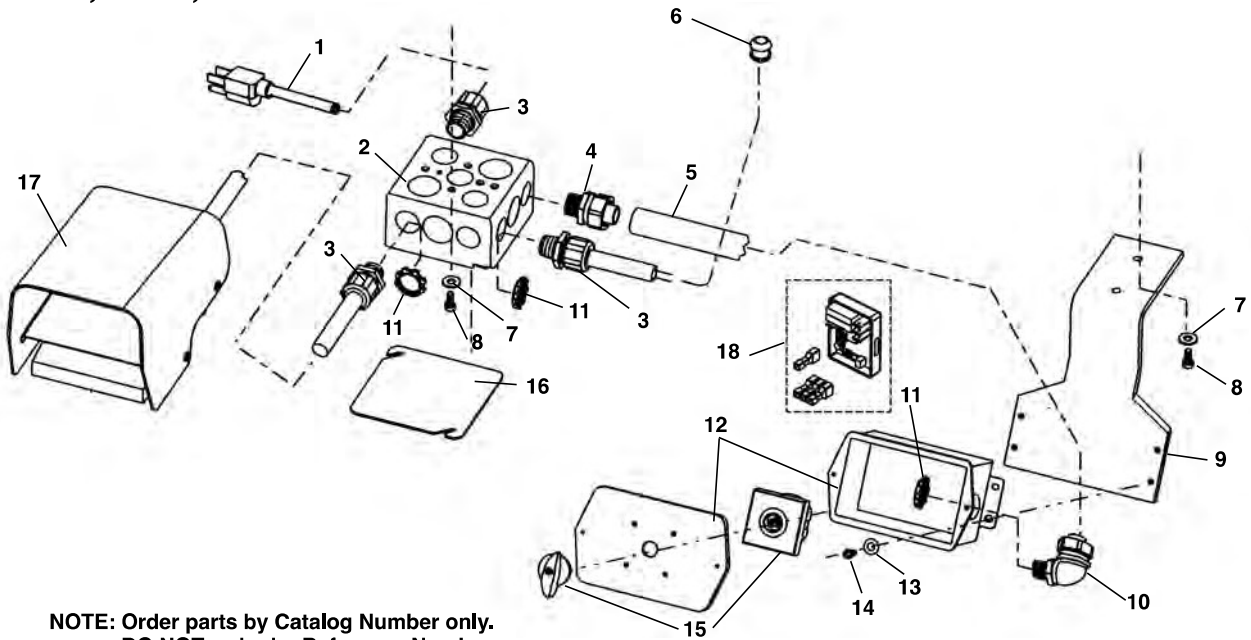
NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

Ref. No.	Catalog No.	Description
1	65587	Junction Box
2	65607	Conduit Fitting, 1/2" Straight
3	65612	Flexible Conduit, 1/2"
4	65112	Rubber Grommet
5	54227	Switch, Push Button
6	65637	Switch Box w/Cover
7	65642	Locknut, 1/2" NPT (4)
8	45750	Screw #10 - 24 x 3/8" S.H.C.S (4)
9	45365	Flat Washer, #10 (2)
10	65647	Fitting, 90 Deg, 1/2"
11	61337	Switch Bracket
12	60005	Hex Screw, 1/4" - 20 x 3/4" (2)
13	44740	Lock Washer 1/4" (2)
14	65582	Lanyard
15	65597	Junction Box Cover
16	65592	Outlet
17	65602	Strain Relief (2)
18	46740	Power Cord w/Plug

Wiring Diagram



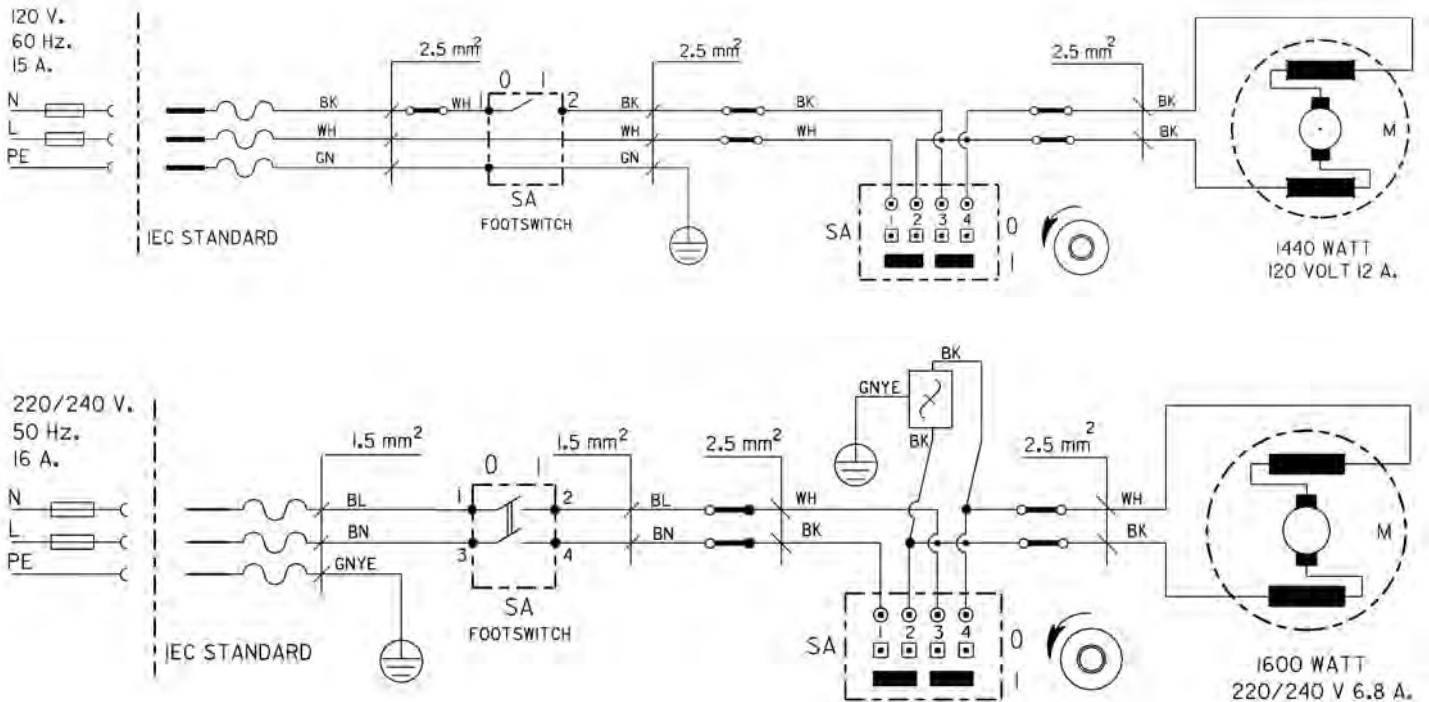
**Electrical, 115V, 230V**



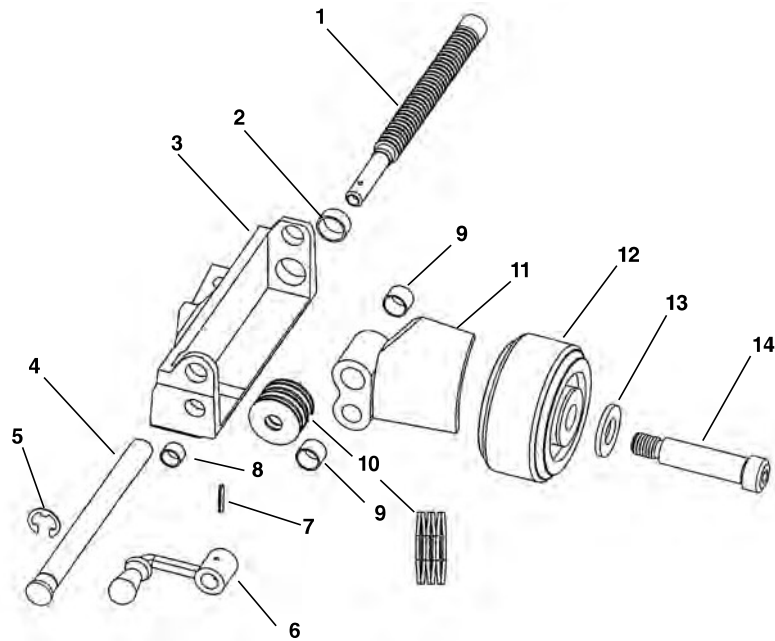
**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46740	Power Cord w/Plug	11	65642	Locknut, 1/2" NPT (5)
2	65587	Junction Box	12	65962	Switch Box w/Cover
3	65602	Strain Relief (3)	13	45365	Flat Washer, #10 (4)
4	65607	Conduit Fitting, 1/2" Straight	14	45750	Screw #10 - 24 x 3/8" S.H.C.S. (4)
5	65612	Flexible Conduit, 1/2"	15	20108	Switch w/Knob
6	65112	Rubber Grommet	16	65977	Junction Box Cover
7	44740	Lock Washer 1/4" (4)	17	36642	Foot Switch, B-294, 115V Model
8	60005	Hex Screw, 1/4" - 20 x 3/4" (4)	18	40017	Foot Switch, B-298, 230V Model
9	61337	Switch Bracket		39318	Soft Start Assembly (230V)
10	65647	Fitting, 90 Deg. 1/2"			

**Wiring Diagram**



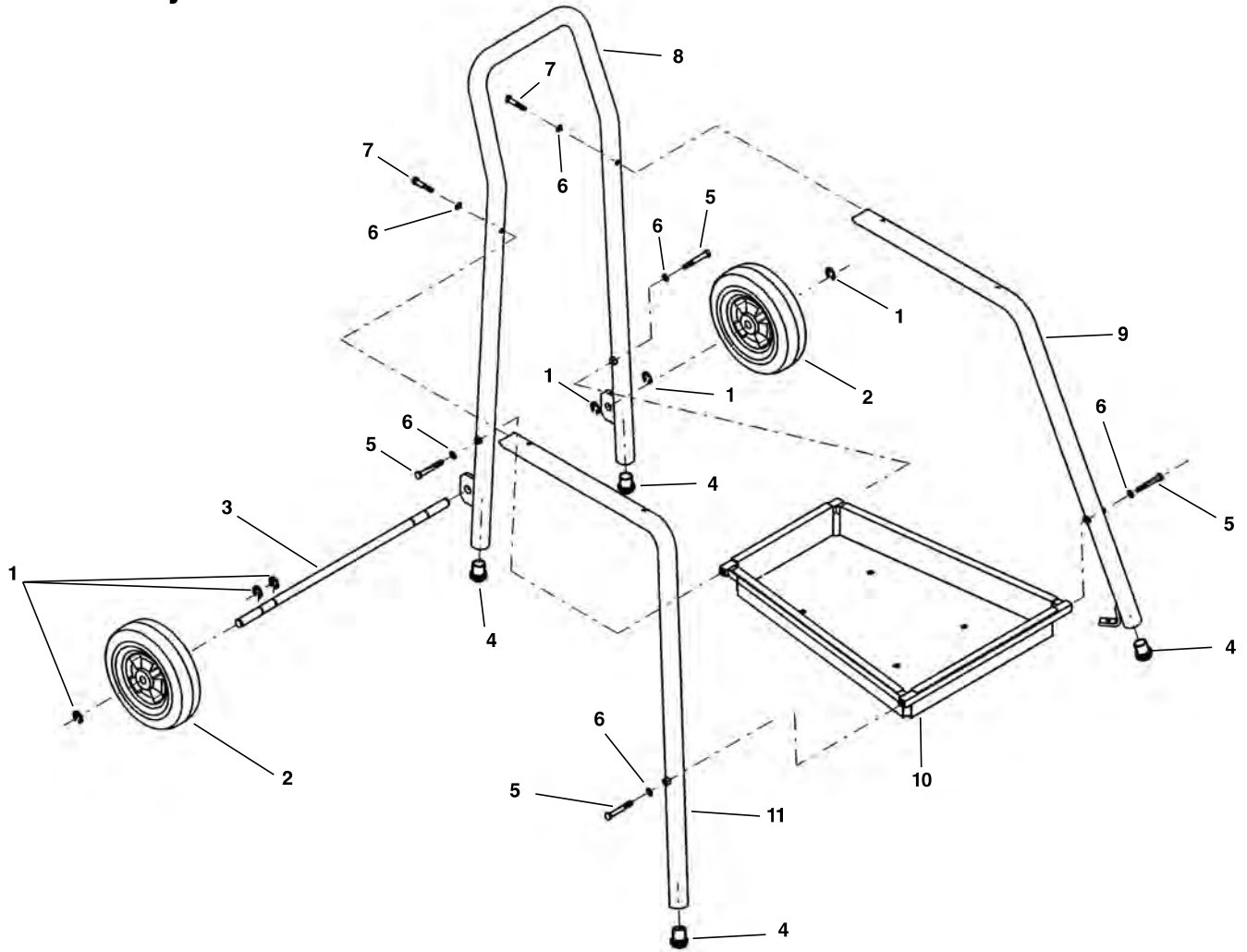
## Stabilizer



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
—	59992	Stabilizer Kit, Non-Operator Side
—	59997	Stabilizer Kit, Operator Side
1	61802	Feed Screw
2	61817	Bearing, $\frac{3}{4}$ " x $\frac{3}{8}$ "
3	61797	Slide Box, Operator Side
	61792	Slide Box, Non-Operator Side
4	61832	Guide Shaft
5	42580	E-Ring
6	53087	Crank Handle
7	55222	Pin
8	53072	Bearing, $\frac{1}{2}$ " x $\frac{3}{8}$ "
9	61822	Set of 2 Bearing, $\frac{5}{8}$ " x $\frac{1}{2}$ "
10	61827	Set of 6 Bellville Washers
11	61812	Slide, Operator Side
	61807	Slide, Non-Operator Side
12	53052	Wheel
13	60995	Washer
14	53097	Shoulder Bolt

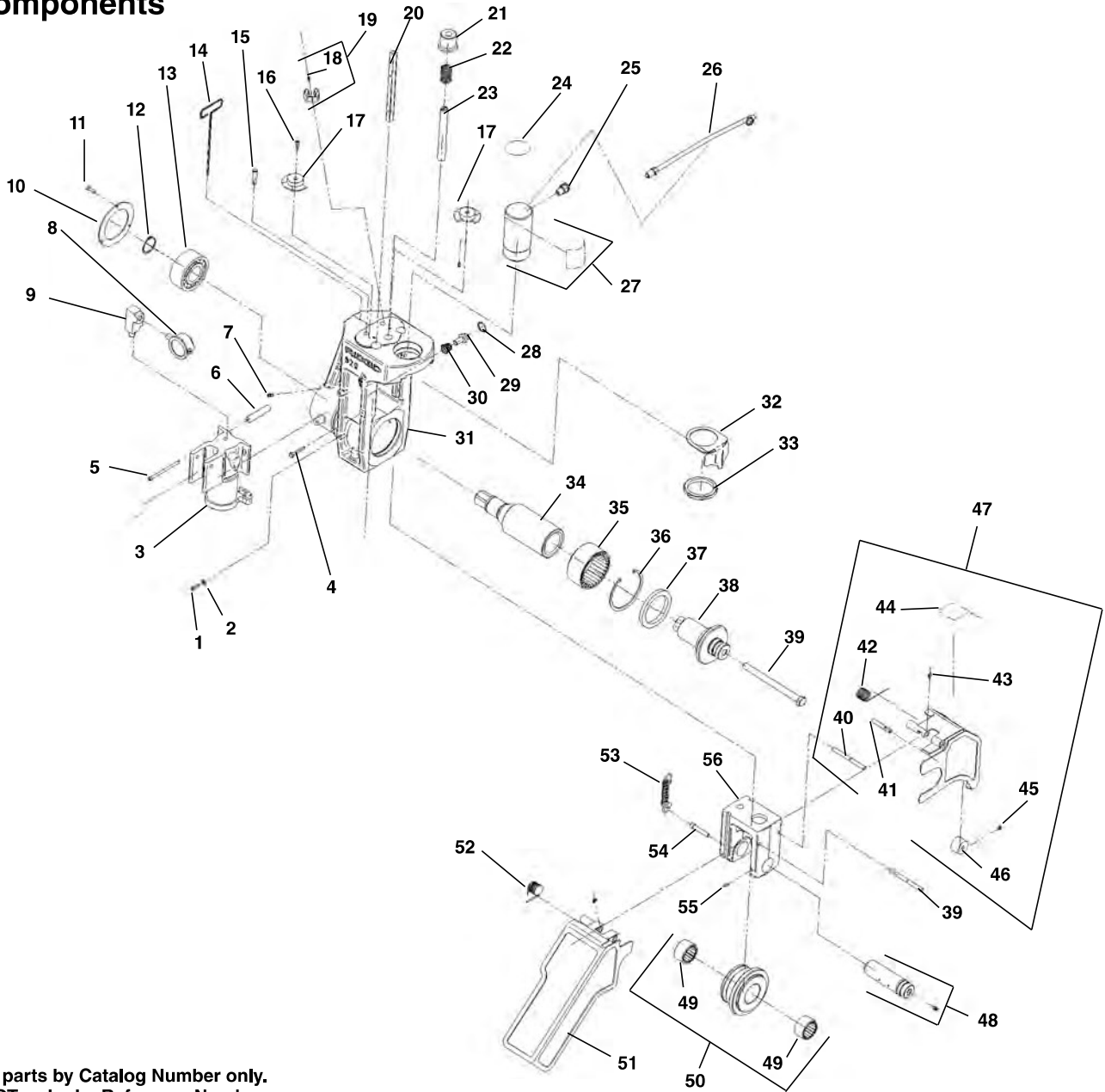
**Cart Assembly**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

<b>Ref. No.</b>	<b>Catalog No.</b>	<b>Description</b>
	64192	Stand Complete
1	58850	Retaining Ring (6)
2	23602	Wheel, 10" Dia. (2)
3	65522	Wheel Axle
4	61470	Rubber Foot (4)
5	46675	Hex Screw $\frac{3}{8}$ " - 16 x $2\frac{3}{4}$ " (4)
6	40930	Lock Washer $\frac{3}{8}$ " (6)
7	58052	Hex Screw, $\frac{3}{8}$ " -16 x $2\frac{1}{8}$ " (2)
8	65527	Rear Leg Support/Handle - U.S.
	61342	Rear Leg Support/Handle - Export
9	65537	Leg, Right Front - U.S.
	61347	Leg, Right Front - Export
10	65542	Tool Tray Assembly
	65547	Leg, Left Front - U.S.
	61352	Leg, Left Front - Export

Main Components

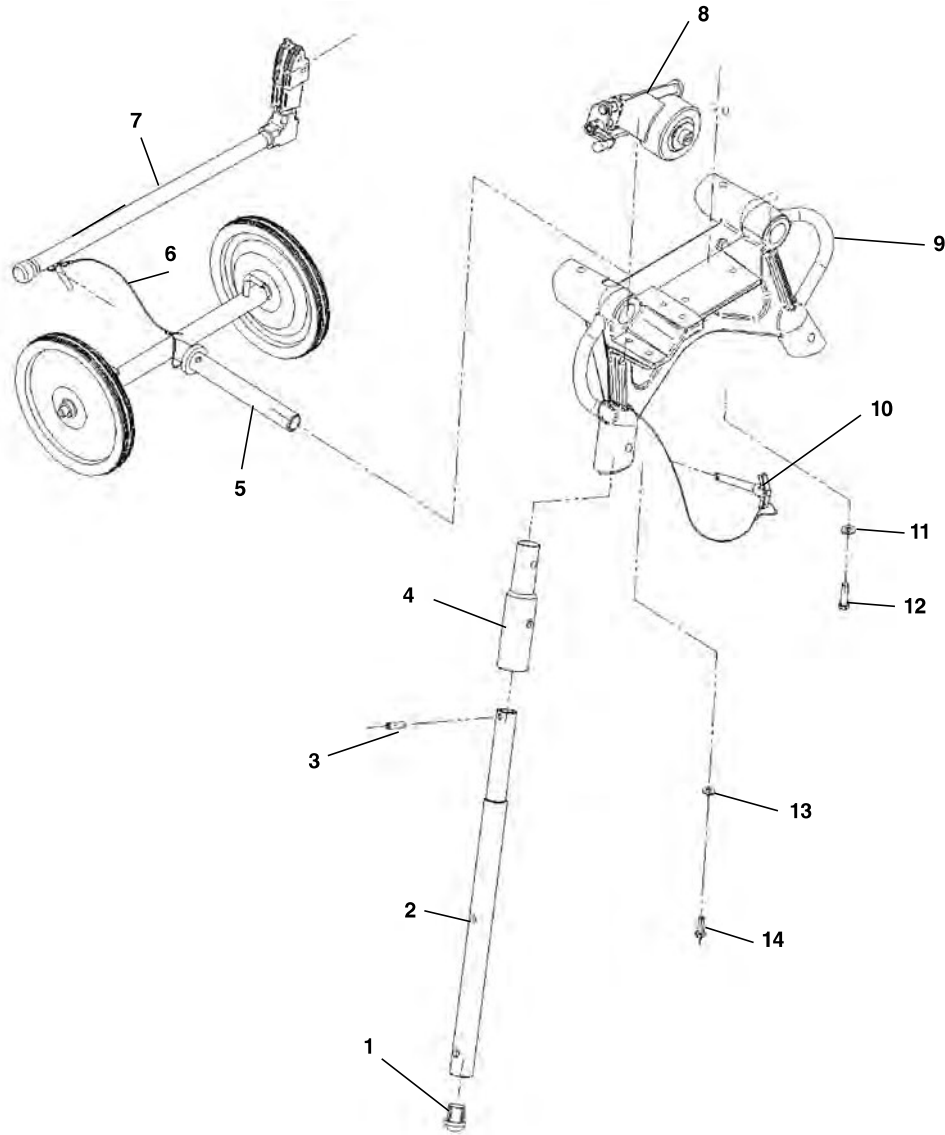


**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	40910	1/4" - 20 x 3/4" Cap Screw (3)	21	49117	Depth Adj. Nut	40	11158	Pivot Shaft (2)
2	27402	1/4" Flat Washer (4)	22	49122	Compression Spring	41	11223	Shaft Roller
3	11173	Hand Pump	23	11123	Depth Adj. Rod	42	11153	Torsion Spring RH
4	64877	1/4" - 20 x 1 3/4" Screw (4)	24	49262	Depth Setting Decal	43	61042	Ret. Ring (3)
5	11203	1/4" - 20 x 5 1/2" Screw	25	11213	3/8" Swivel Connector	44	13198	Warning Decal Guard
6	11198	Pump Standoff	26	11208	Hydraulic Hose	45	61042	Ret. Ring (3)
7	46860	Grease Fitting (4)	27	11818	Cylinder (Inc. Decals)	46	11218	Cylinder (Inc. Decals)
8	11058	Pressure Gauge	28	49177	Retaining Ring	47	11143	Right Guard
9	11093	Hydraulic Tee	29	11118	Stop Pin	48	11078	Roller Shaft
10	11128	Bearing Retaining Plate	30	11168	Stop Pin Spring	49	11108	Needle Bearing (6)
11	60265	1/4" - 20 x 1/2" Screw (3)	31	11003	920 Main Housing	50	11018	2" - 6" Upper Groove Roll
12	11088	Retaining Ring	32	11248	Actuator	11028	11028	8" - 12" Upper Groove Roll
13	11163	Angular Contact Bearing	33	49152	Lock Ring	11038	11038	14" - 16" Upper Groove Roll
14	49087	1/8" Tee Handle Hex Wrench	34	11073	Drive Shaft	51	11138	Left Guard
15	11233	Clevis Pin	35	11063	Roller Bearing (2)	52	11148	Torsion Spring LH
16	87947	Shoulder Screw	36	11083	Internal Ret. Ring	53	11238	Return Spring
17	11048	Depth Adj. Gauge LT	37	11133	Grease Seal	54	46745	3/8" - 16 x 1 1/4" Screw (2)
18	54307	Drive Screw	38	11013	2" - 6" Drive Roll	55	34892	Set Screw 1/4" - 20
19	11263	Spring Clip (Inc. Ref. 18)	11023	11023	8" - 12" Drive Roll	56	11008	Upper Roll Housing
20	11068	Key Slide (2)	11033	11033	14" - 16" Drive Roll			
			39	11113	5/8" - 11 x 7 3/4" HX HD Bolt			

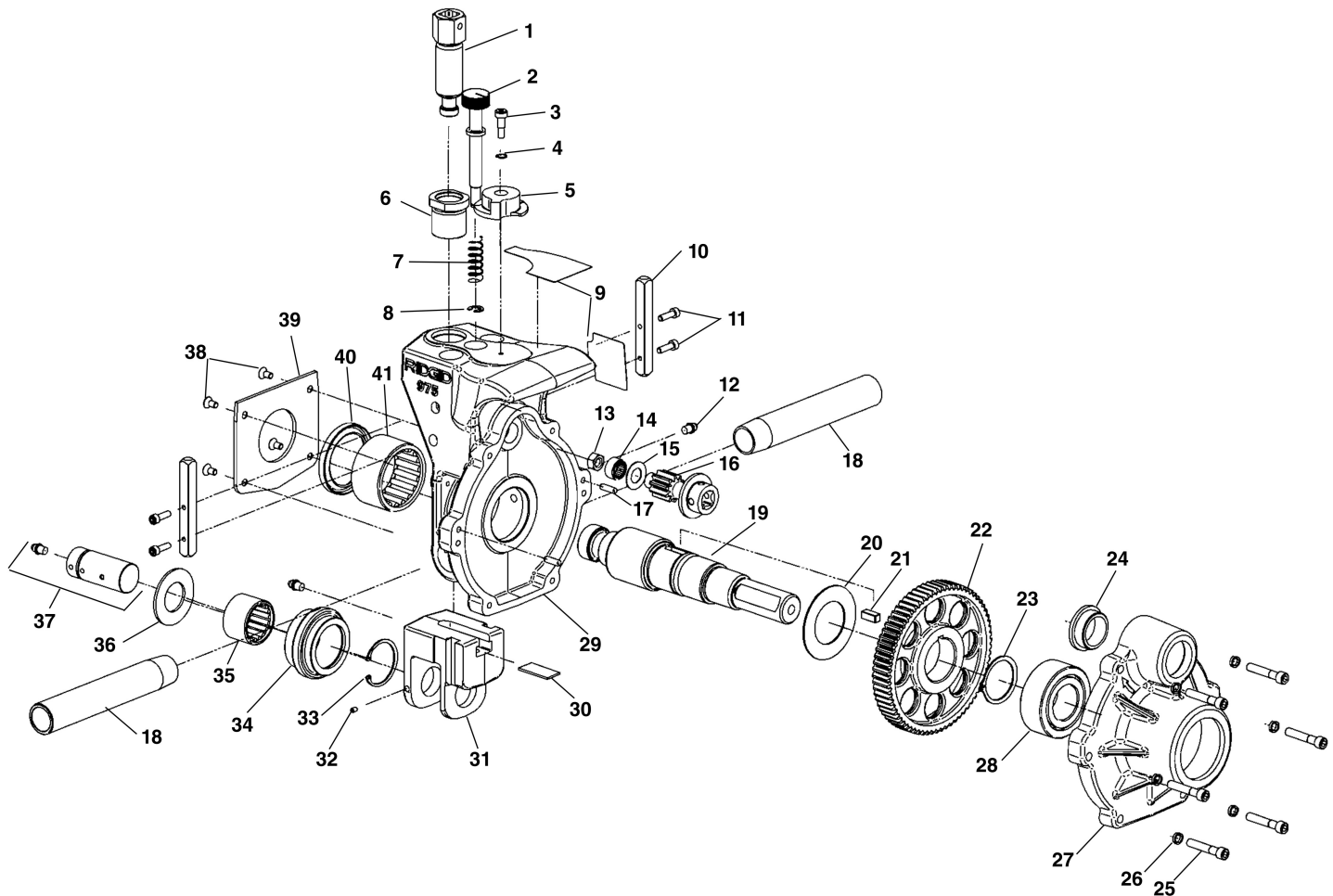


**Base**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	61470	Rubber Button
2	11183	Lower Leg
3	50307	Spiral Pin
4	11178	Upper Leg
5	42575	#32 Transport Cart
6	11328	Hitch Pin, Transporter
7	11243	Pump Handle Assembly
8	59997	Stabilizer
9	11228	Base
10	11193	Hitch Pin
11	41735	Flat Washer 7/16"
12	11188	7/16" - 14 x 1" HX HD Bolt
13	11293	3/8" Flat Washer
14	82915	3/8" - 16 x 3/4" HX HD Screw

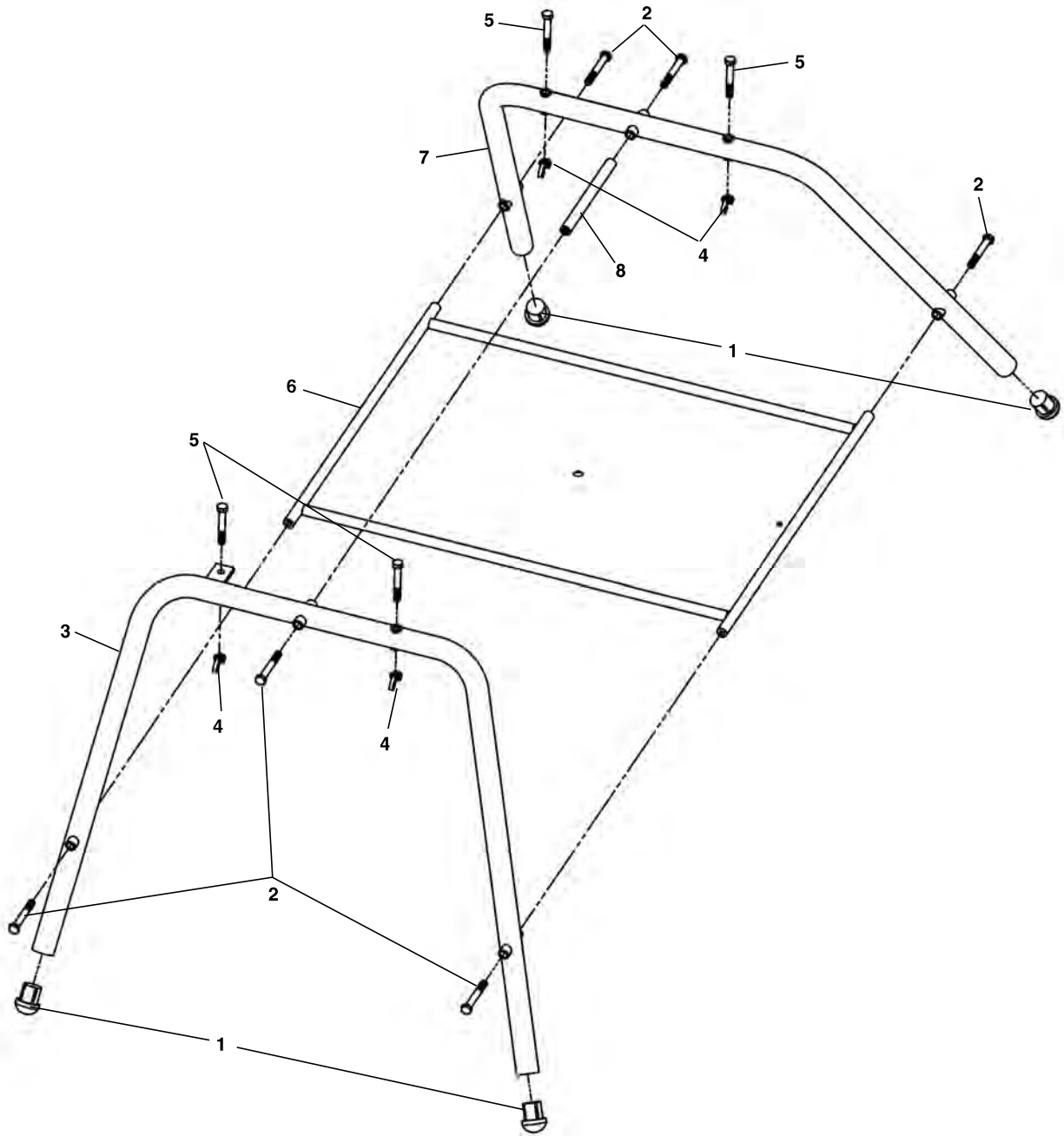


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1†	30948	Feed Screw	16	30878	Input Pinion	30	87977	Wear Plate
2	87687	Adjustment Screw	17	40287	Dowel Pin (2)	31	30923	Slide Block
3	87947	Shoulder Screw	18	87682	Support Bar (2)	32	87640	Set Screw
4	87972	Wave Spring	19	30883	Large Drive Shaft	33†	33695	Retaining Ring
5	87932	Groove Setting Gauge		32838	Drive Shaft f/Copper	34	30933	Groove Roll
6†	93327	Feed Screw Bushing	20	30888	Thrust Washer	35†	32843	Groove Roll f/Copper
7	87912	Spring	21	30893	Key .25 x .62		87922	Bearing
8	87937	Retaining Ring	22	30898	Large Drive Gear	36	30938	Thrust Washer
9	30873	Labels	23	30903	Retaining Ring	37	30943	Groove Roll Shaft
10	93307	Slide Key (2)	24	93812	Bearing Flange	38	93282	#10-24 Screw (4)
11	93302	10-24 x 1/2" Soc Head (4)	25	30908	Screw 1/4-20 x 1-38 SHC	39	93312	Cover Plate
12	46860	Grease Fitting (3)	26	45150	Washer (6)	40	45157	Front Seal
13	96730	Hex Nut	27	30913	Rear Cover Assembly	41	45142	Needle Bearing
14	93777	Needle Bearing	28	30918	Bearing		30708	1/2" Ratchet Extension
15	93782	Thrust Washer	29	30928	Main Housing Assembly		30703	1/2" Drive Ratchet

† Service Notes: Ref. No. 1 – Coat with EP grease.  
 Ref. No. 6 – Apply Loctite #271 to external threads prior to assembly.  
 Ref. No. 33 – Install Retaining Ring burr side away from bearing.  
 Ref. No. 35 – Apply Loctite #271 to outside of bearing prior to assembly.

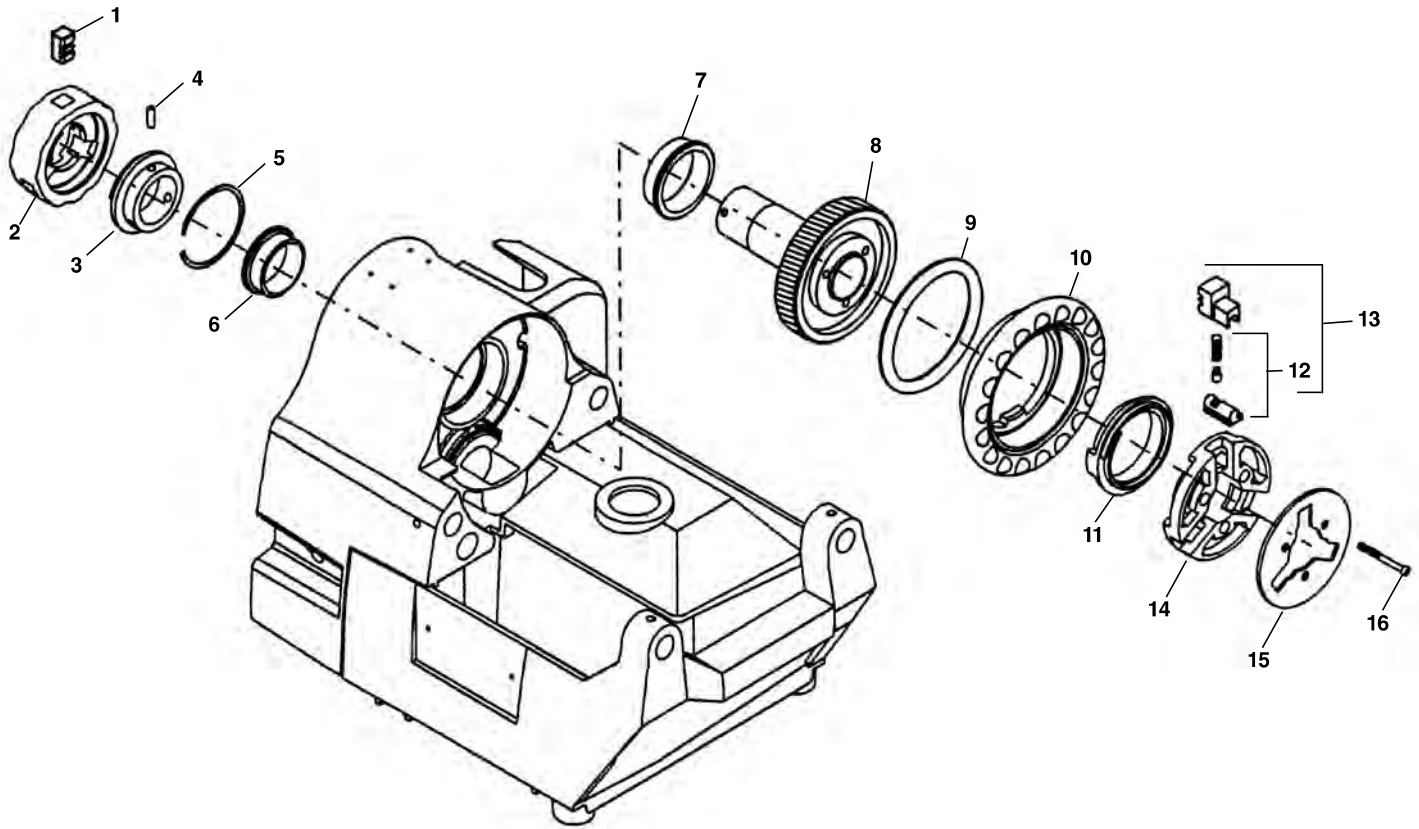
† Service Note: – Grease components monthly, more often during heavy usage.



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	52002	1205 Stand F/300 Pd	5	58052	Screw, 3/8" - 16 X 2 1/2" Hex Head (4)
1	61470	Button, Rubber (4)	6	96917	Tray
2	46675	Bolt, 3/8" x 2 3/4" Hex Head (6)	7	96912	Leg, Right
3	96907	Leg, Left	8	96922	Brace
4	45385	Nut, Wing 3/8" - 16 (4)			

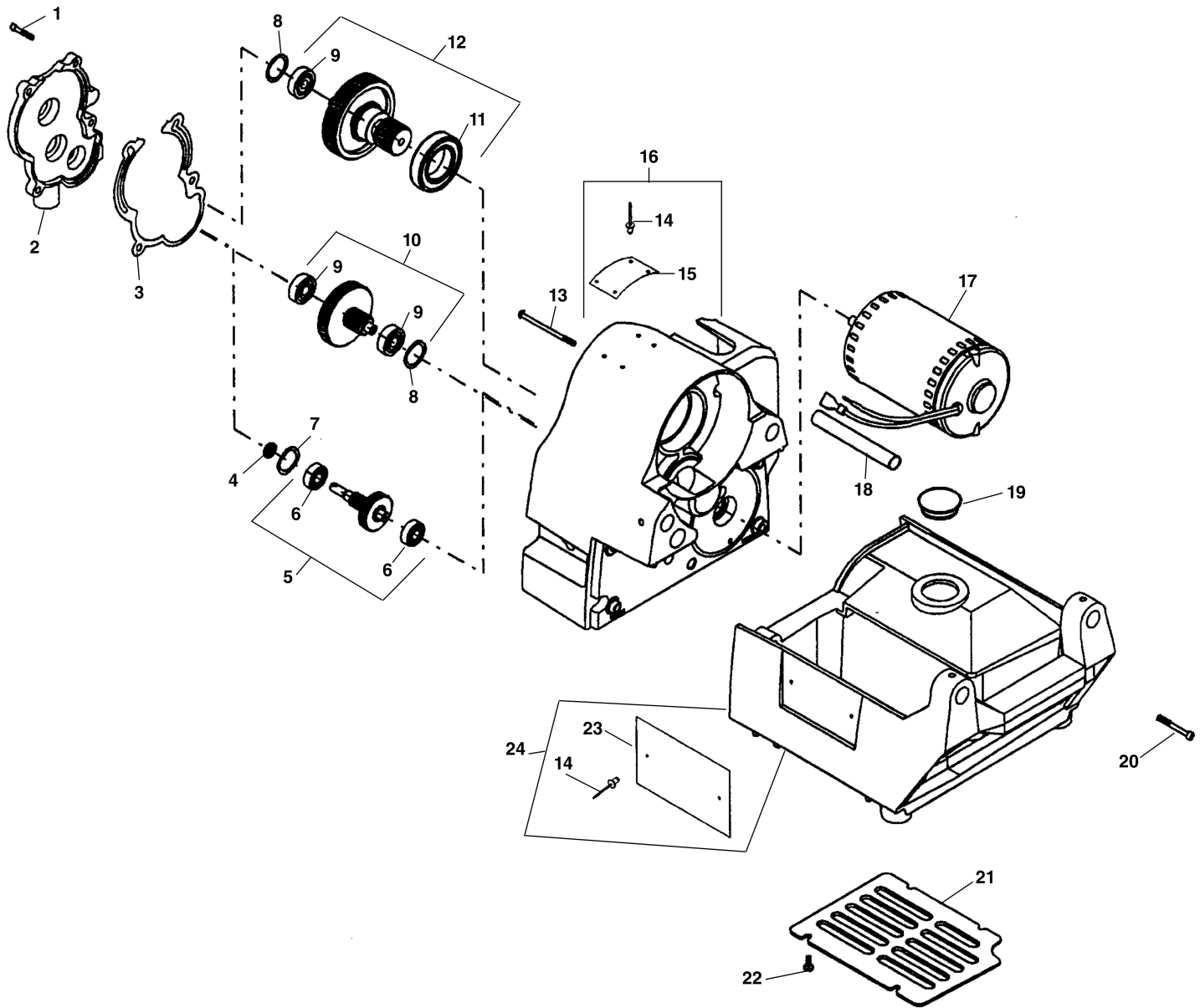
Spindle Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	69447	Centering Jaw Set	9	69297	Spacer Ring
2	69307	Centering Head	10	69202	Hand Wheel
3	69312	Centering Scroll	11	69197	Scroll
4	54007	Roll Pin 1/4" x 3/8" (3)	12	69412	Jaw Insert Set
5	69317	Retaining Ring	13	69237	Chuck Jaw Set
6	10968	Rear Spindle Bearing	14	69262	Chuck Cap
7	10963	Front Spindle Bearing	15	69267	Chip Plate
8	69272	Drive Shaft	16	46035	Screw 5/16" - 18 x 1 3/4" Soc. Hd. (3)

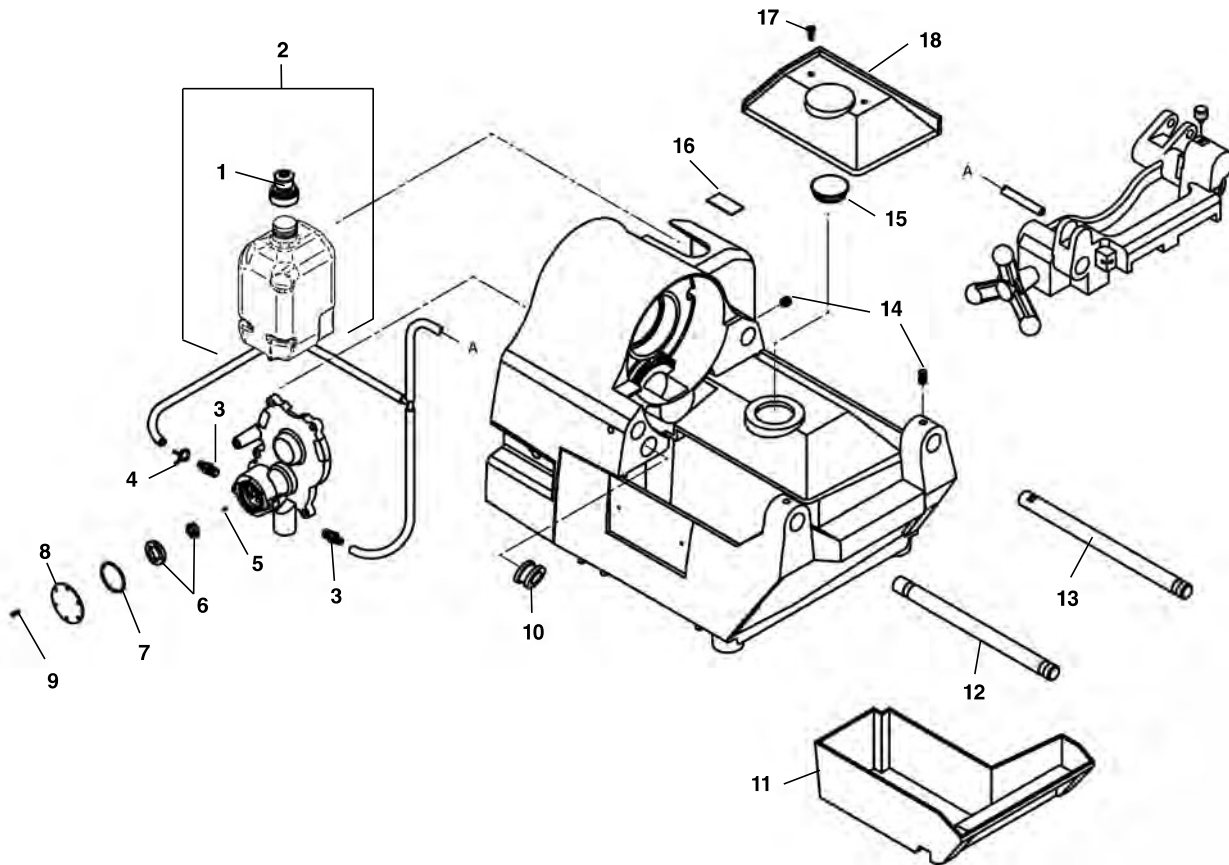
**Drive Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	40910	Screw 1/4" - 20 x 1/2" Soc. Hd. (4)	14	85920	Pop Rivet 3/32" (6)
2	69362	Gear Case Cover	15	69347	Warning Plate
3	69332	Gear Case Gasket	16	69227	Spindle Housing w/Spindle Bearings
4	96880	Seal	17	69222	Motor 115V
5	69207	1st Intermediate Gear Assembly	72362	Motor 230V	
6	59147	Ball Bearing (2)	72402	Motor 100V	
7	35365	Wave Spring	18	59342	Insulator Sleeve
8	68037	Wave Spring	19	69367	Brush Cover Plastic Plug
9	44760	Ball Bearing (3)	20	40657	Screw 1/4" - 20 x 1 1/2" Soc. Hd. (4)
10	69212	2nd Intermediate Gear Assembly	21	69252	Motor Cover
11	69277	Ball Bearing	22	79965	Screw #10 - 32 x 1/2" Pan Head (4)
12	69217	Main Drive Gear Assembly	23	69387	Name Plate
13	69402	Screw #10 - 32 x 4" Pan Head (2)	24	69242	Base

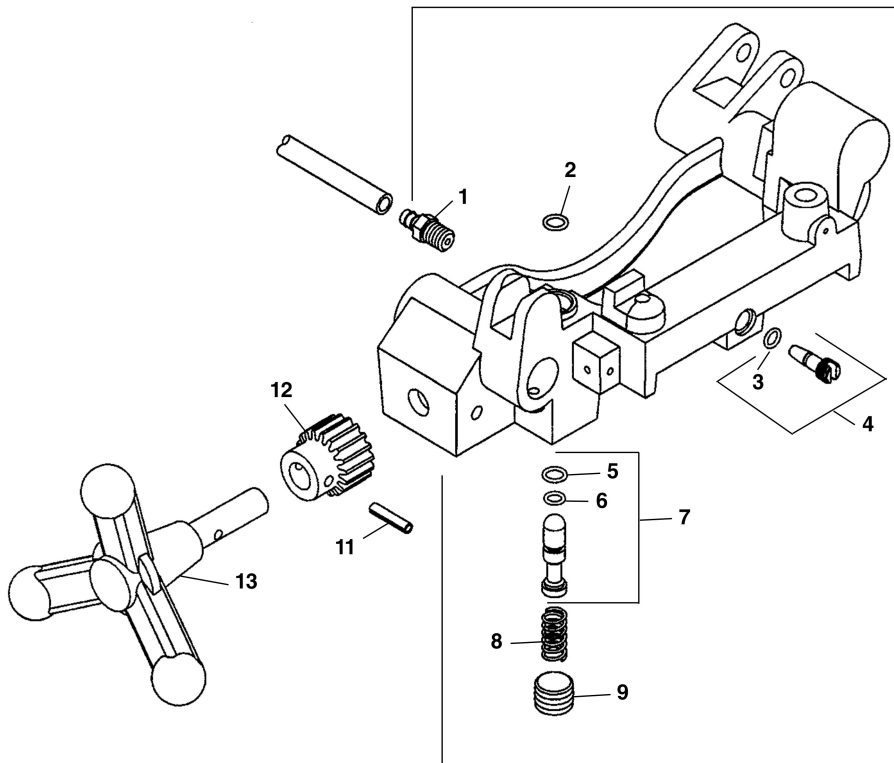
### Coolant System Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	69452	Reservoir Cap	11	69257	Chip Tray
2	94707	Coolant Reservoir Assy. w/Hoses	12	69322	Front Rail
3	69157	Hose Fitting 1/8" NPT x 1/4" Barb (2)	13	69247	Rear Rail
4	72457	Hose Clamp	14	69397	Set Screw 1/4" - 20 x 5/16" (4)
5	96885	Gerotor Pin	15	69367	Brush Cover Plastic Plug
6	96870	Gerotor Set	16	72387	Vent Cap Decal
7	96875	O-Ring		72392	Vent Cap Decal (Europe, Japan)
8	96840	Cover Plate	17	79965	Screw #10 - 32 x 1/2" (2)
9	46130	Screw #4-28 Self Forming (6)	18	72027	Drip Cover
10	47080	Grommet			

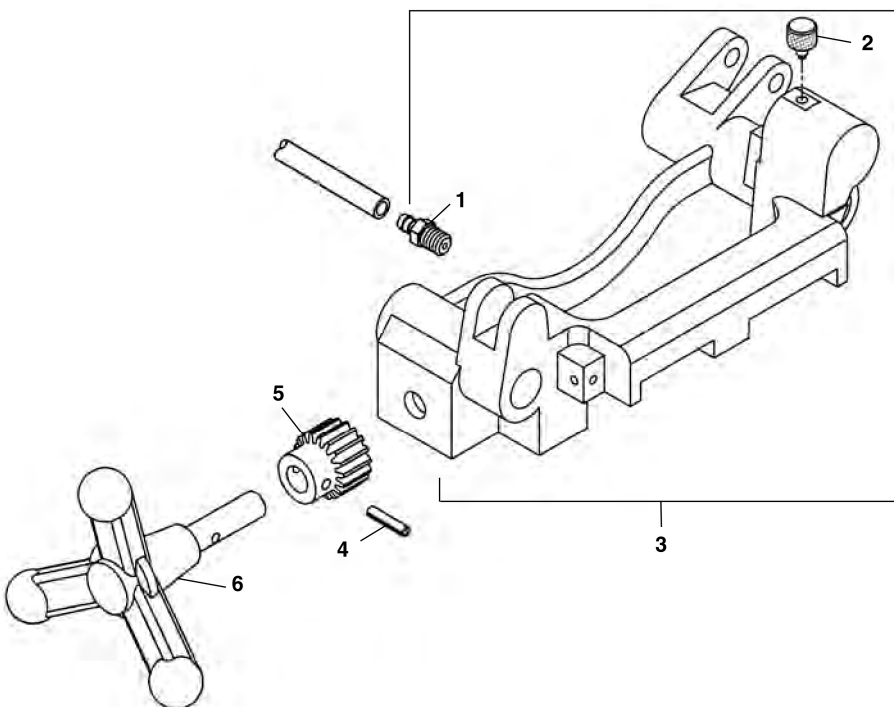
**Carriage Components**



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	69157	Hose Fitting 1/8" NPT x 1/4" Barb
2	36767	O-Ring
3	69182	O-Ring
4	69177	Needle Pin
5	69167	O-Ring
6	69162	O-Ring
7	69152	Poppet Valve
8	69172	Spring
9	69187	Pipe Plug 3/8" NPT
10	69142	Carriage Assembly
11	34342	Roll Pin 3/16" x 15/16"
12	59092	Pinion
13	69147	Hand Wheel

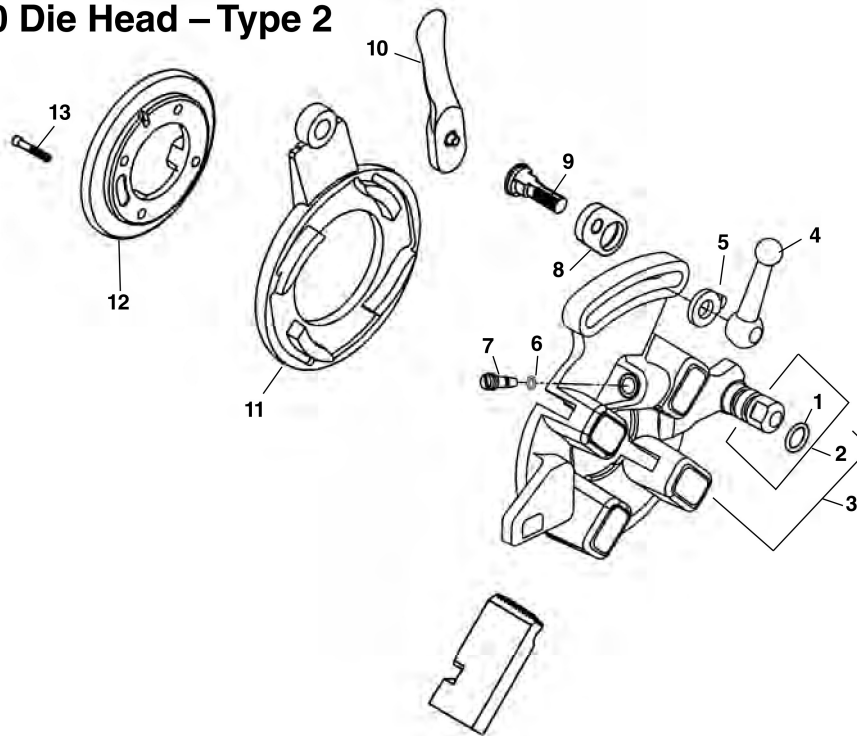
**Carriage Components – Type 2**



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	69157	Hose Fitting 1/8" NPT x 1/4" Barb
2	30763	Retainer, Die Head
3	69142	Carriage Assembly
4	34342	Roll Pin 3/16" x 15/16"
5	59092	Pinion
6	69147	Hand Wheel

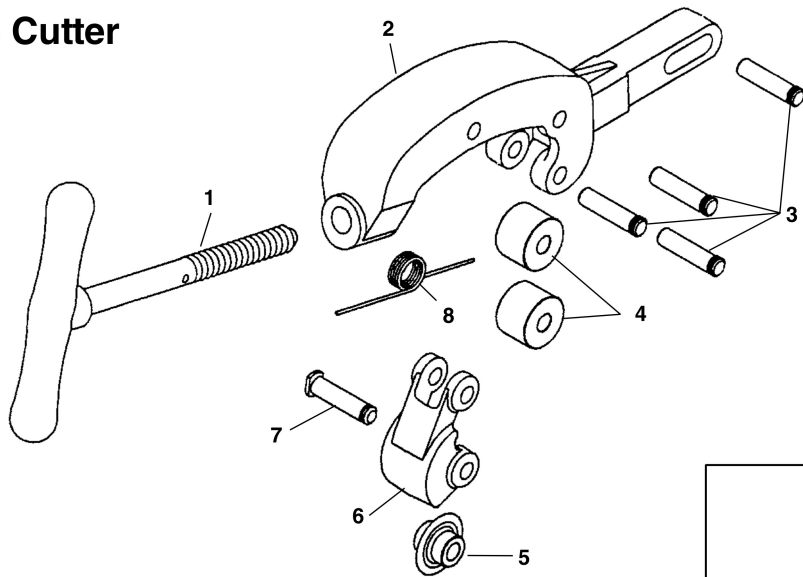
610 Die Head – Type 2



NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.

Ref. No.	Catalog No.	Description
—	67817	610 Die Head
1	69392	O-Ring
2	69292	Post
3	69302	Die Head Body w/Post & O-Ring
4	39970	Clamp Lever
5	26957	Washer
6	69182	O-Ring
7	69177	Needle Pin
8	39950	Throwout Link
9	39860	Lock Screw
10	46555	Throwout Lever
11	69442	Cam Plate
12	69352	Retaining Ring
13	32205	Screw 1/4" - 20 x 5/8" Socket Head (4)

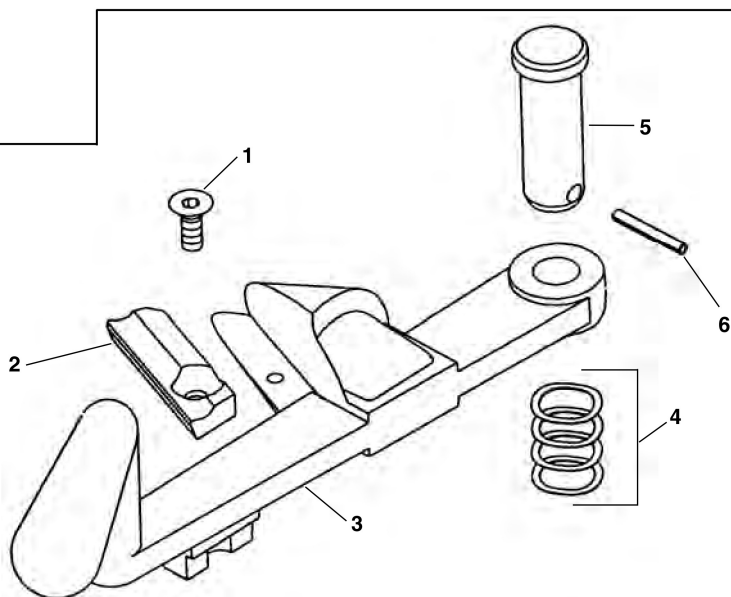
354 Cutter



Ref. No.	Catalog No.	Description
—	68877	354 Cutter Assembly
1	69007	Feedscrew & Handle
2	69017	Cutter Frame
3	46662	Roller Pin (4)
4	34775	Roll (2)
5	33105	F3 Cutter Wheel
6	69012	Wheel Housing
7	34780	Pin & Clip
8	58617	Torsion Spring

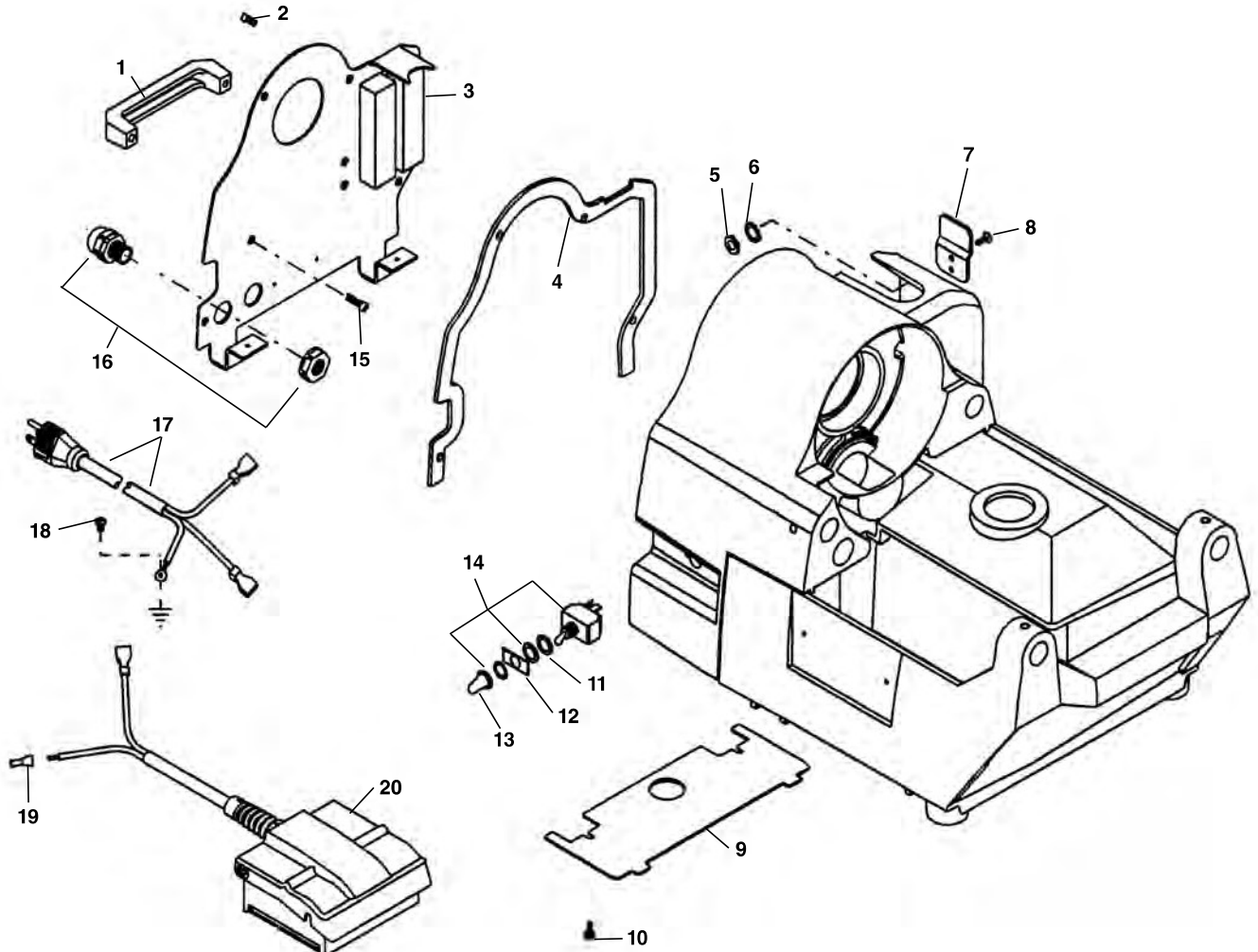
334 Reamer

Ref. No.	Catalog No.	Description
—	68872	334 Reamer Assembly
1	68997	Screw #8-32 x 7/16" Flat Head
2	68977	Reamer Blade
3	68992	Reamer Arm w/Cone
4	39885	Wave Washer
5	68987	Clevis Pin
6	69002	3/32" x 3/4" Roll Pin





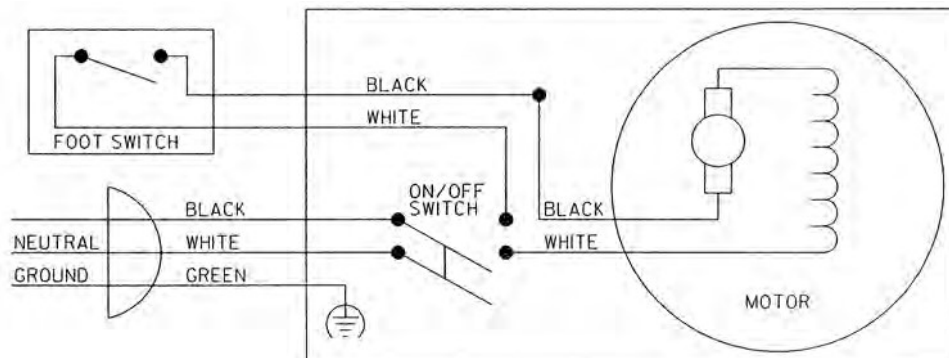
**Electrical Components - 120V 60Hz**



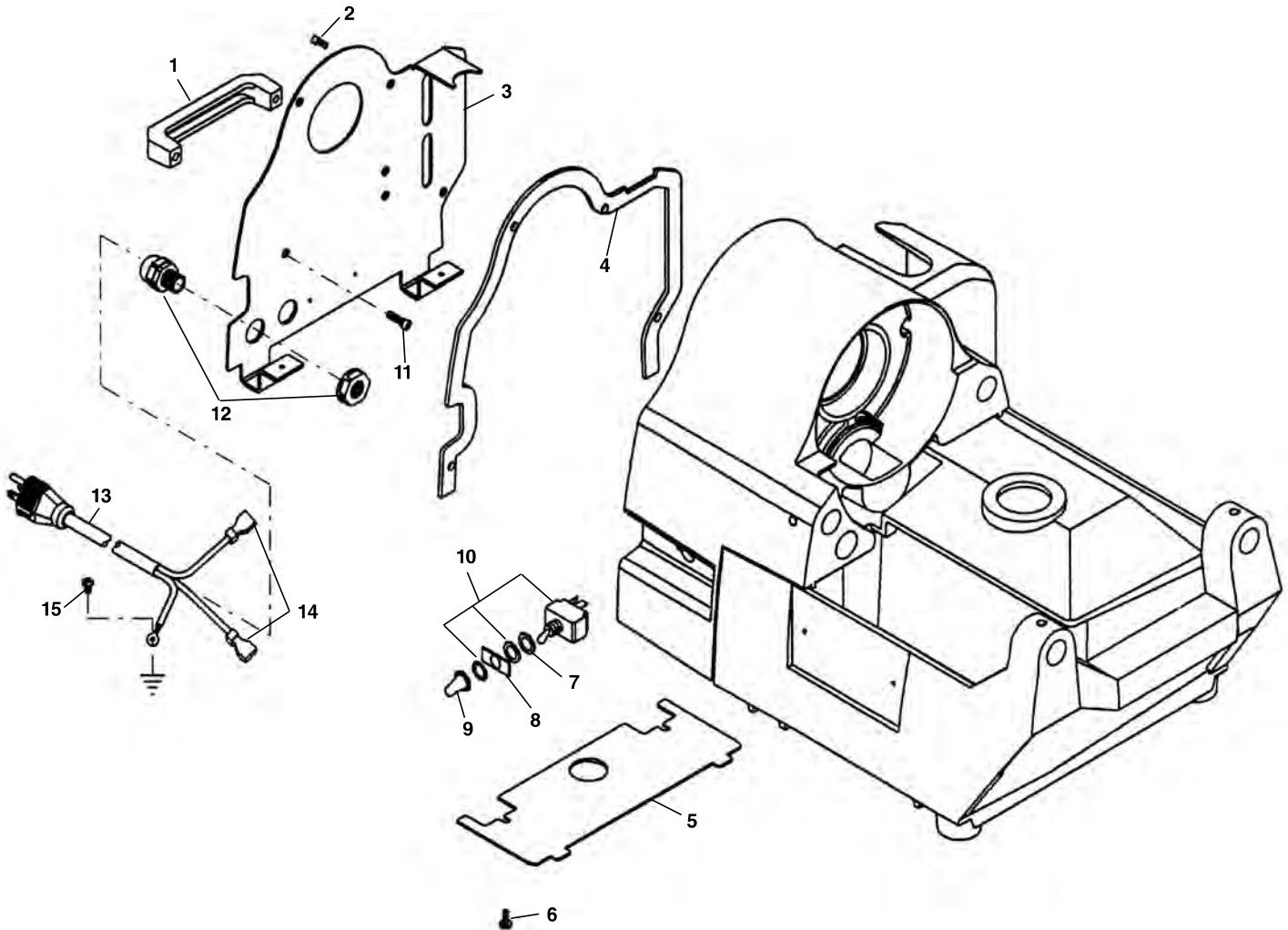
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	69342	Handle	11	23512	Rubber Washer
2	69192	Screw 1/4" - 20 x 1/2" Button Head (5)	12	69457	Switch Plate
3	69357	Rear Cover	13	23507	Switch Boot
4	69372	Rear Cover Gasket	14	69382	Switch
5	34722	Lock Nut #10-32 (2)	15	32145	Screw 1/4" - 20 x 1 1/2" Soc. Head (2)
6	58542	Lock Washer #10 (2)	16	69107	Strain Relief (2)
7	69377	Foot Switch Hook	17	69327	Power Cord 115V
8	35217	Screw #10-32 x 1/2" Button Head (2)	18	45420	Ground Screw
9	69287	Bottom Cover	19	44635	Wire Nut
10	45420	Screw #10-24 x 3/8" Pan Head (2)	20	69087	B-292 Foot Switch Assembly

**120V 60 Hz**



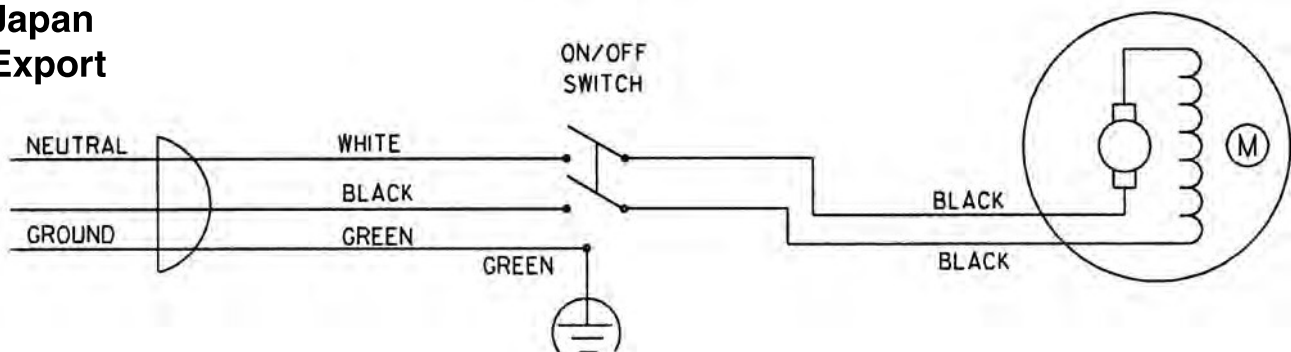
**Electrical Components - 100V 50/60 Hz Japan  
220V 50 Hz Export**



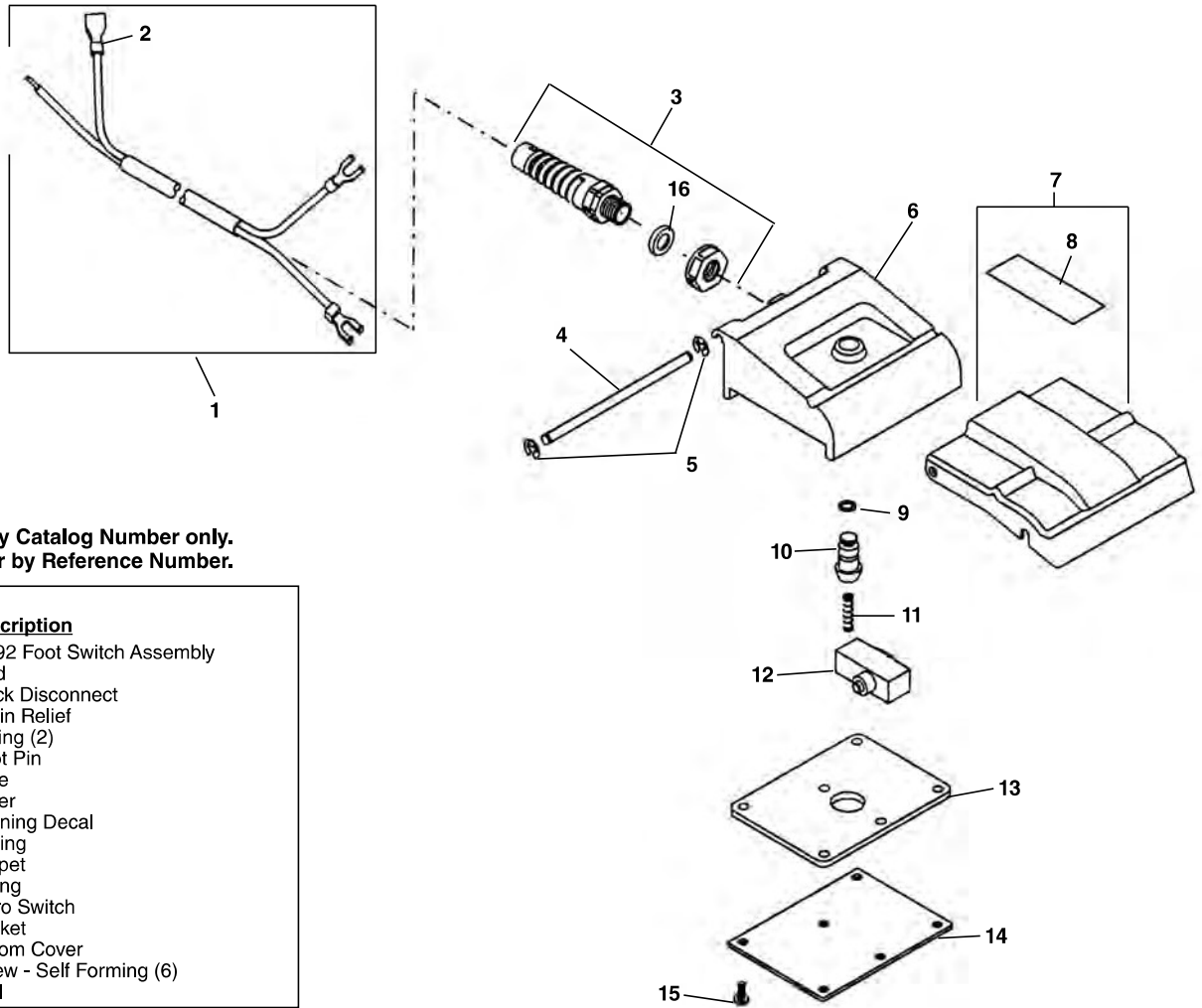
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	69342	Handle	9	23507	Switch Boot
2	69192	Screw 1/4" - 20 x 1/2" Button Head (5)	10	69382	Switch
3	69357	Rear Cover	11	32145	Screw 1/4" - 20 x 1 1/2" Soc. Head (2)
4	69372	Rear Cover Gasket	12	69107	Strain Relief (2)
5	69287	Bottom Cover	13	69327	Power Cord 115V
6	79965	Screw #10-32 x 1/2" Pan Head (2)	14	89190	Quick Disconnect (2)
7	23512	Rubber Washer	15	45420	Ground Screw
8	69457	Switch Plate			

**100V Japan  
230V Export**



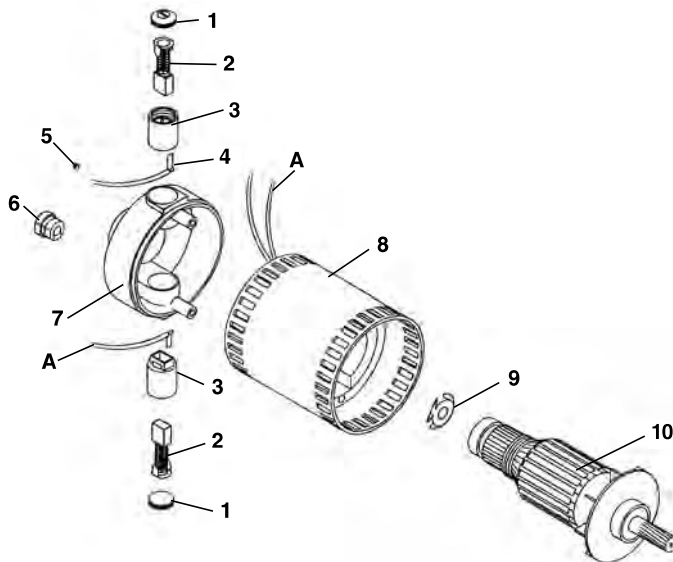
**B-292 Foot Switch**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

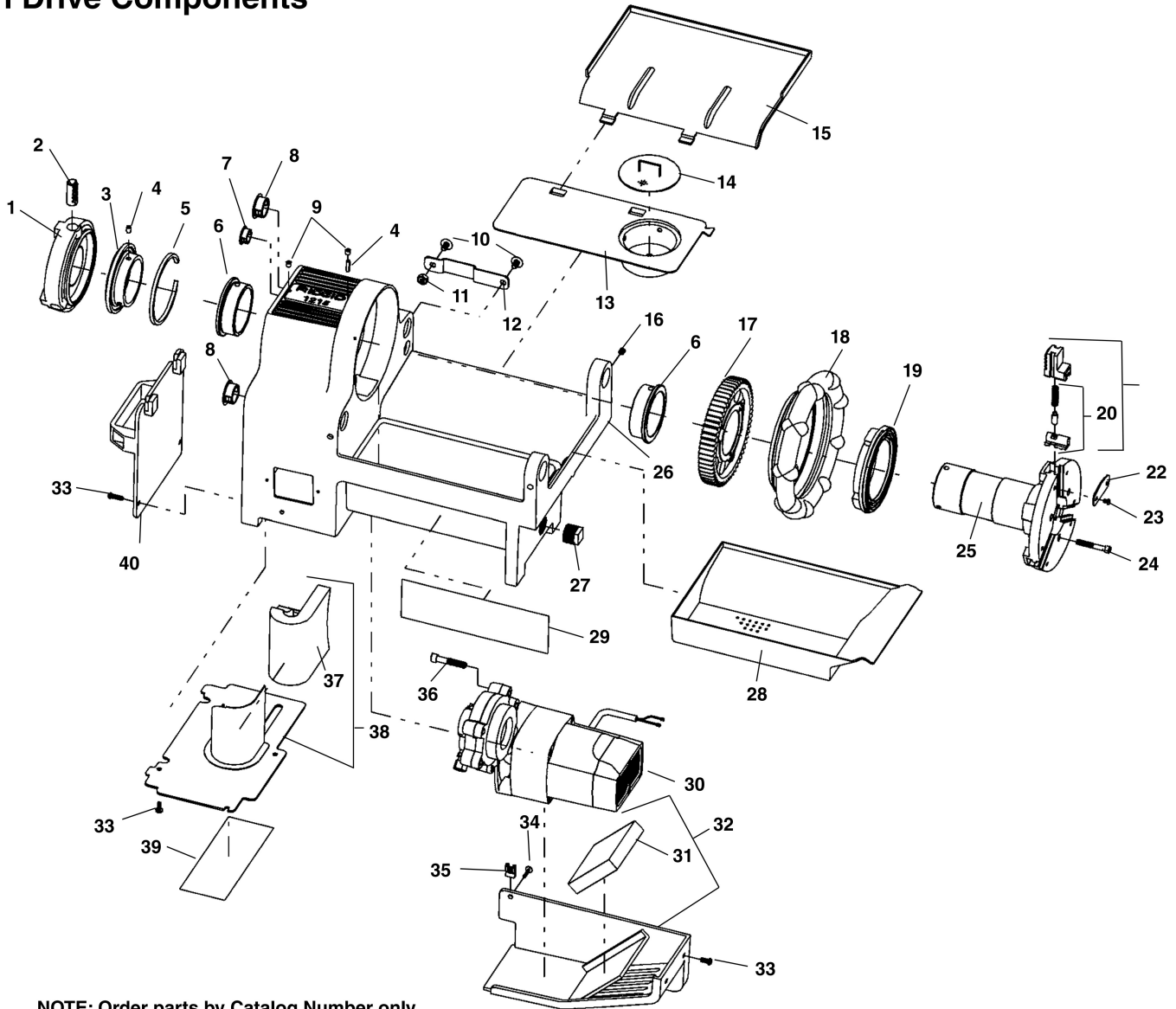
Ref. No.	Catalog No.	Description
—	69087	B-292 Foot Switch Assembly
1	69112	Cord
2	89190	Quick Disconnect
3	90402	Strain Relief
4	78780	E-Ring (2)
5	69117	Pivot Pin
6	69092	Base
7	69097	Cover
8	72432	Warning Decal
9	36767	O-Ring
10	69102	Poppet
11	69127	Spring
12	36762	Micro Switch
13	69137	Gasket
14	69122	Bottom Cover
15	69132	Screw - Self Forming (6)
16	90397	Seal

**Motor**



Ref. No.	Catalog No.	Description
—	69222	Motor 115V
—	72362	Motor 230V
—	72402	Motor 100V
1	60467	Brush Cap (2)
2	60472	Brush (2)
3	60482	Brush Holder (2)
4	69462	Brush Lead - Black
5	60492	Set Screw
6	69467	Cord Retainer
7	60522	End Bell
8	69467	Brush Lead - Red
9	69472	Field Assembly 115V
	72447	Field Assembly 230V
	72452	Field Assembly 100V
10	60512	Load Spring
11	69477	Armature 115V
	72437	Armature 230V
	72442	Armature 100V

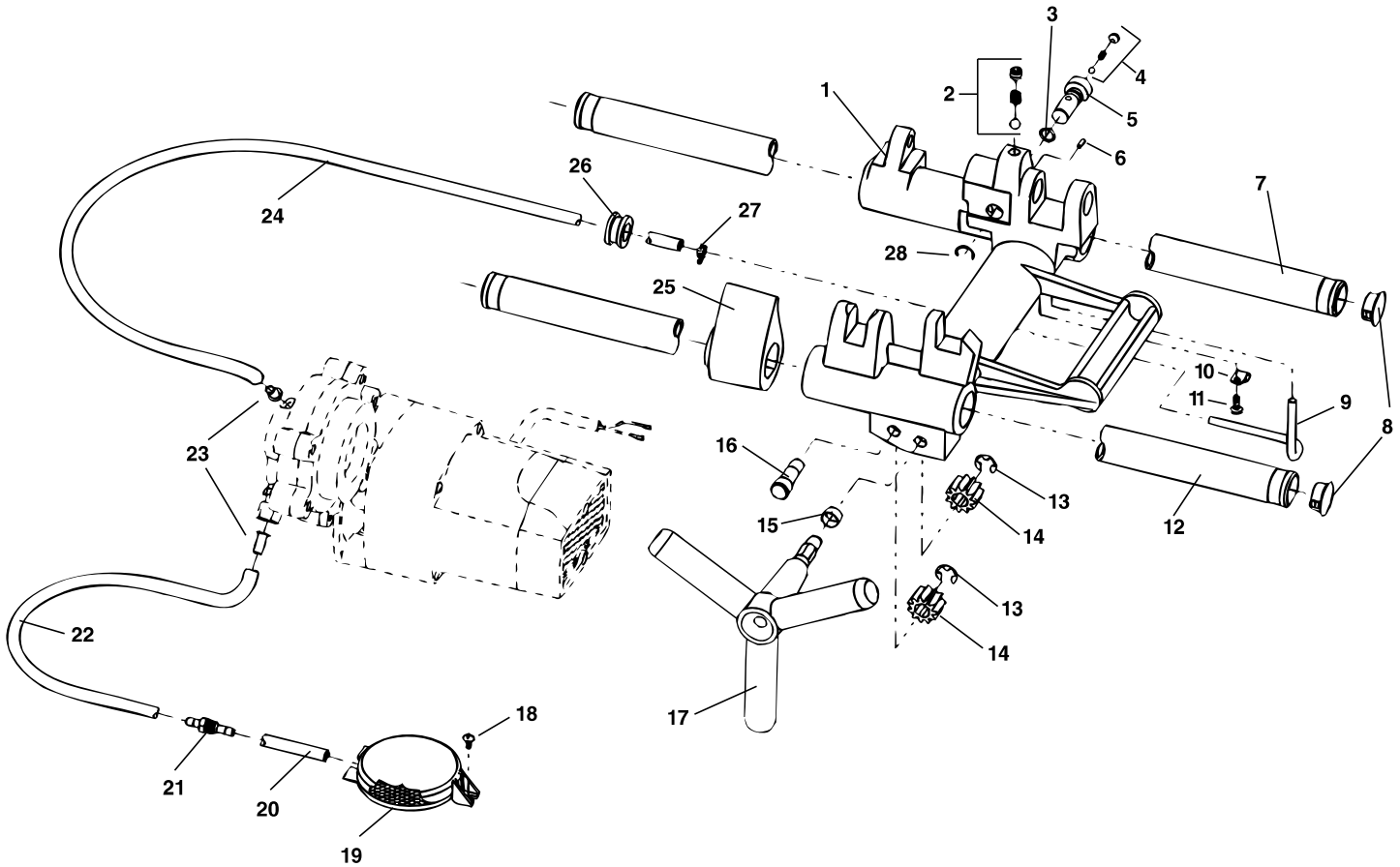
Main Drive Components



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	58232	Centering Head	21	58312	Chuck Jaw Set
2	58237	Centering Jaw Set	22	58317	Chip Guard
3	58242	Centering Scroll	23	58322	Screw #6-32 Button HD C.S. (6)
4	54007	Roll Pin (4)	24	46775	Screw 1/4" - 20 S.H.C.S. (6)
5	58247	Internal Spiral Ring	25	58327	Chuck Cap and Spindle Assembly
6	58252	Spindle Bearing (2)	26	58332	Base Assembly (includes Ref. #6, 9 & 10)
7	58257	Plug 13/16"	27	54302	Pipe Plug
8	58262	Plug 13/16" (2)	28	58337	Chip Tray
9	54022	Ball Valve Oiler (2)	29	58342	Warning Plate
10	54137	Screw 5/16" - 18	30	58352	4194 Motor Assembly - 115V
11	96730	Hex Nut 5/16" - 18	31	58362	Motor Cover Foam
12	62767	Foot Switch Bracket	32	58367	Motor Cover
13	58272	Oil Pan Liner	33	79965	Pan Head Screw #10 - 32 x 1/2" (6)
14	58277	Baffle Screen Assembly	34	43367	Self Tapping Screw
15	58282	Drip Tray	35	43362	J-Clip
16	45420	Set Screw 5/16" - 18 x 1/4" (3)	36	46035	Screw 5/16" x 1 3/4" S.H.C.S. (4)
17	58287	Drive Gear	37	58372	Foam Baffle
18	58292	Hand Wheel	38	58377	Bottom Cover
19	58297	Chuck Scroll	39	58382	Wiring Diagram
20	58307	Jaw Insert Set		58387	Wiring Diagram (Europe)
	58302	Jaw Insert Set (Optional for Stainless Steel and Plastic Coated Pipe)	40	58392	Rear Cover

**Carriage and Oil System**

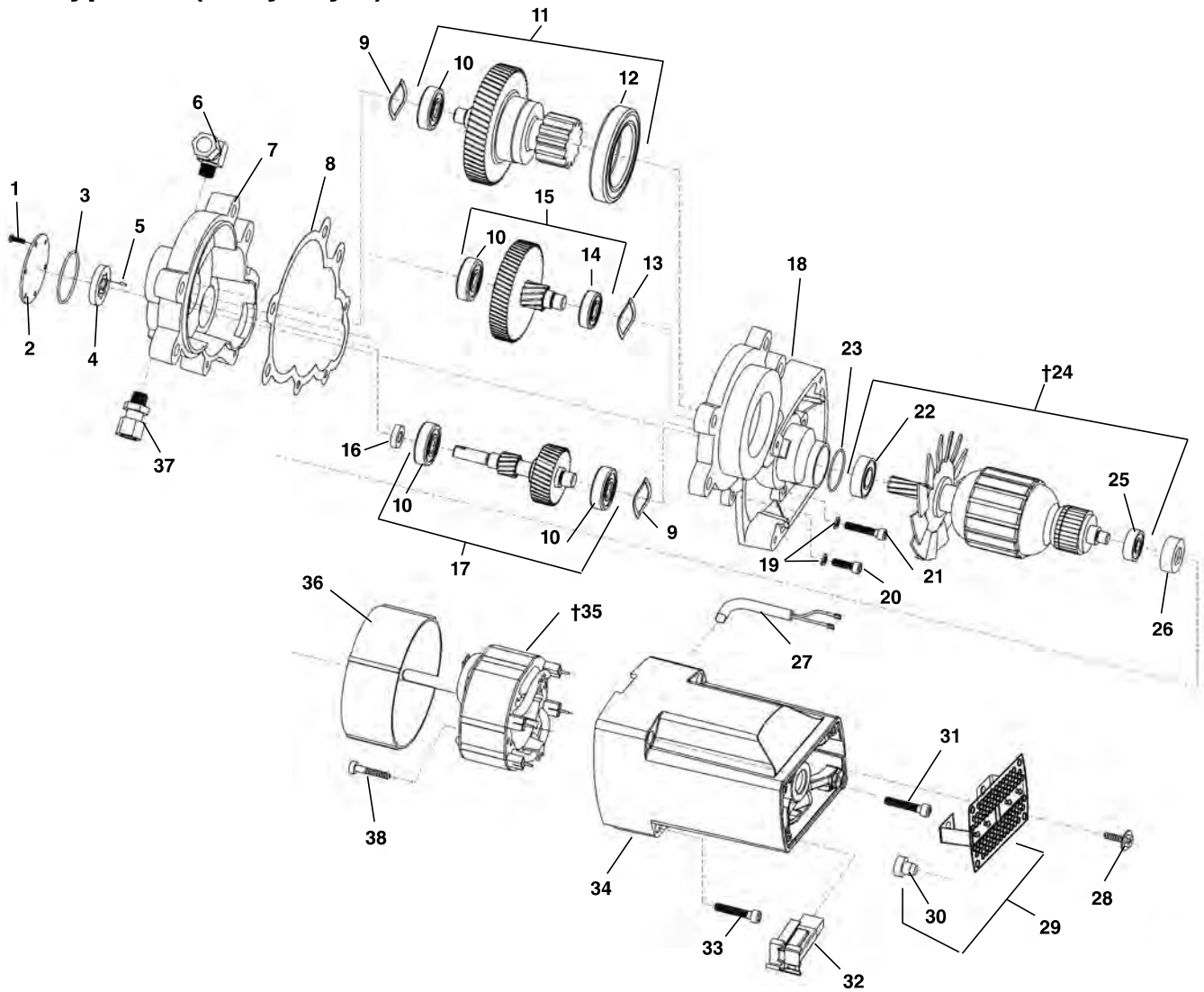


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	58407	Carriage (Includes Ref. #2)	16	58457	Idler Shaft
2	46810	Die Head Detente	17	58427	Plastic Plug (Not Shown)
3	54102	O-Ring	18	58462	Handwheel
4	35307	Oil Pressure Relief	19	45420	Screw
5	54097	Bypass Valve	20	58467	Filter Screen Assembly
6	58417	Roll Pin	21	61897	Oil Tube
7	58422	Rear Rail	22	54142	Bulkhead Fitting
8	58257	Plug (2)	23	58477	Intake Oil Line - 11"
9	58432	Oil Line	24	35117	Tube Insert
10	35062	Clamp	25	58482	Output Oil Line - 25"
11	79965	Screw 10-32 x 1/2"	26	58487	Carriage Stop
12	58437	Front Rail	27	47080	Grommet
13	58442	Retaining Ring	28	35142	Hose Clamp
14	58447	Carriage Pinion Gear		54107	Retaining Ring
15	58452	Bushing			

4194

Motor Type 2 – (Early Style)

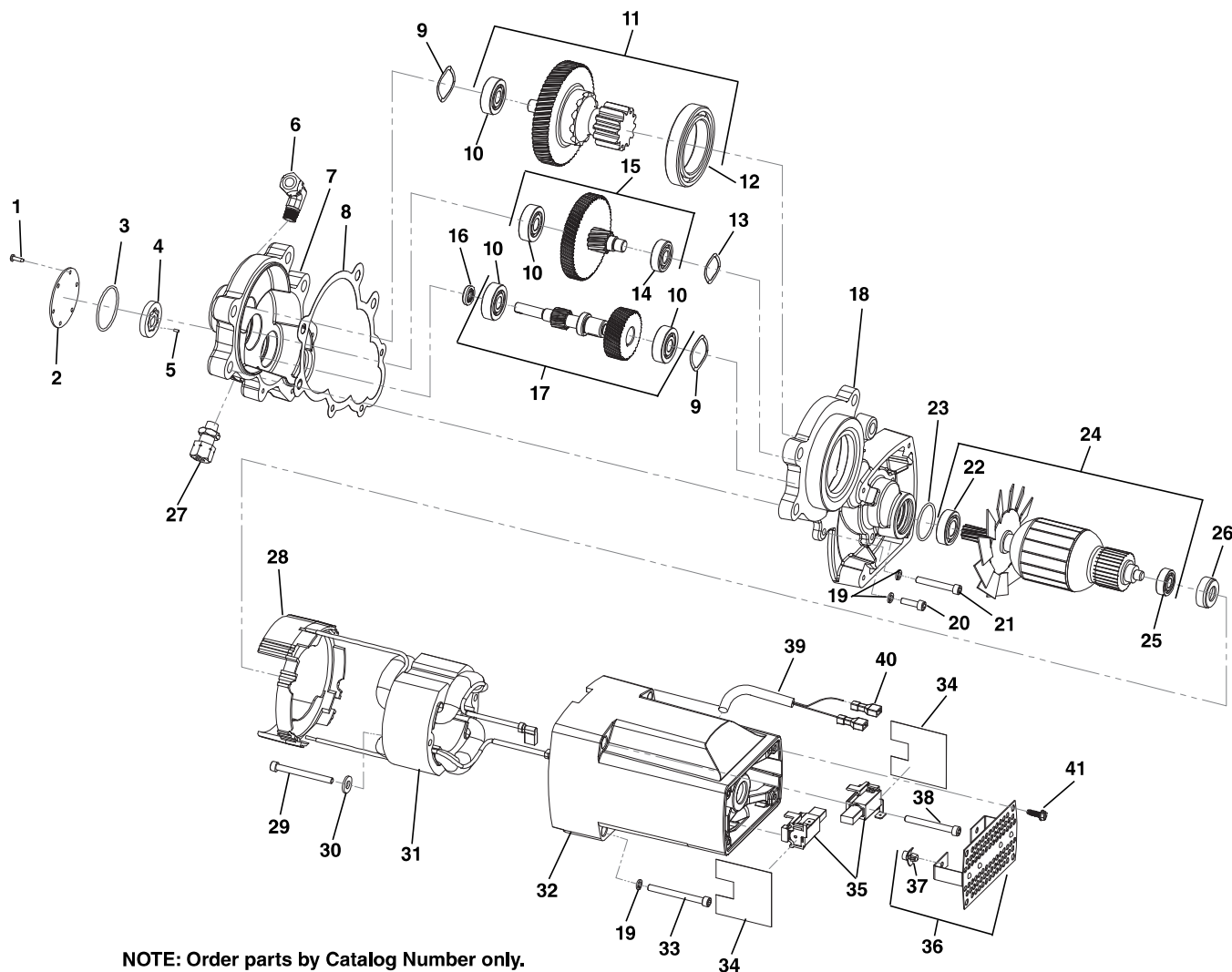


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	58352	4194 Motor Assembly - 115V	20	58547	Screw 10-32 x 3/4" S.H.C.S.
1	96890	Screw 4-40 x 3/8" (6)	21	26642	Screw 10-32 x 1 3/4" S.H.C.S.
2	96840	Geroter Cover	22	60227	O-Ring
3	96875	O-Ring	23	45912	Bearing
4	96870	Geroter Set	†24	45907	Armature Assembly - 115V
5	96885	Geroter Pin	25	43017	Bearing
6	52517	90 degree fitting	26	42777	Rubber Bearing Mount
7	58492	Rear Gear Case	27	58562	Wiring Harness
8	58497	Gasket	28	10908	Screw Self Tapping (4)
9	58502	Wave Spring (2)	29	10913	End Cover
10	44760	Bearing (4)	30	10918	Bumper
11	58507	Drive Gear Assembly	31	10933	Screw #10-32 x 1 5/8" S.H.C.S.
12	58512	Bearing	32	34078	Brush Holder Assembly (2) 115V
13	35365	Wave Spring	33	10938	Screw #10-32 x 2" S.H.C.S. (5)
14	58522	Bearing	34	22048	Motor Housing
15	58527	2nd Gear Assembly	†35	45897	Field Assembly 115V
16	96880	Oil Seal	36	35328	Fan Shroud
17	58532	1st Gear Assembly	37	58582	Straight Fitting
18	58537	Front Gear Case	38	10923	Screw #10-24 x 2" S.H.C.S. (2)
19	58542	#10 Lock Washer (3)			

† Service Note: When replacing early style 100V, 115V or 230V armature# or field# you must replace with both new style armature#, field# and brushes#.

**Motor Type 2 – Motors built after Serial Number EAH XXXX 1109**



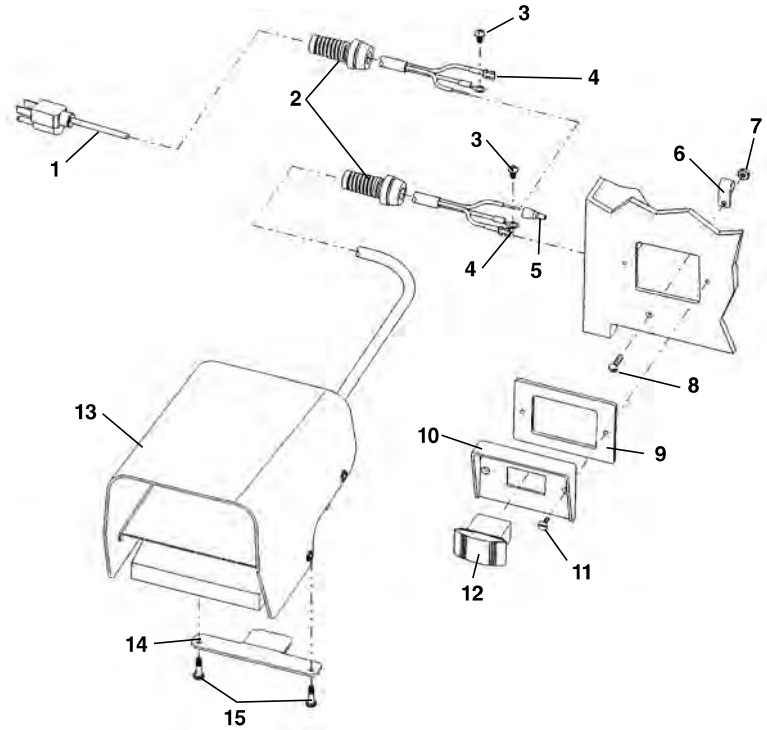
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	58352	4194 Motor Assembly - 115V	22	45912	Bearing
—	58347	Motor Assembly EU -230V	23	60227	O-Ring
1	96890	Screw 4-40 x 3/8" (6)	24	40943	Armature Assembly - 115V
2	96840	Gerotor Cover	25	40948	Armature Assembly - 230V
3	96875	O-Ring	26	43017	Bearing
4	96870	Gerotor Set	27	42777	Rubber Bearing Mount
5	96885	Gerotor Pin	28	58582	Straight Fitting
6	52517	90 Degree Fitting	29	35328	Fan Shroud
7	58492	Rear Gear Case	30	10923	Screw #10-24 x 2" S.H.C.S (2)
8	58497	Gasket	31	41592	#12 Flat Washer
9	58502	Wave Spring (2)	32	38848	Field Assembly 115V
10	44760	Bearing (4)	33	38853	Field Assembly 230V
11	58507	Drive Gear Assembly	34	22048	Motor Housing
12	58512	Bearing	35	10938	Screw #10-32 x 2" S.H.C.S (5)
13	35365	Wave Spring	36	39003	Shield (2)
14	58522	Bearing	37	34078	Brush Assembly 115V
15	58527	2nd Gear Assembly	38	34083	Brush Assembly 230V
16	96880	Oil Seal	39	10913	End Cover
17	58532	1st Gear Assembly	40	10918	Bumper (2)
18	58537	Front Gear Case	41	10933	Screw #10-32 x 1 3/4" S.H.C.S (5)
19	58542	#10 Lock washer (3)	39	58562	Wiring Harness
20	58547	Screw 10-32 x 3/4" S.H.C.S.	40	59007	Female Disconnect (2)
21	26642	Screw 10-32 x 1 3/4" S.H.C.S.	41	10908	Self Tapping Screw (4)

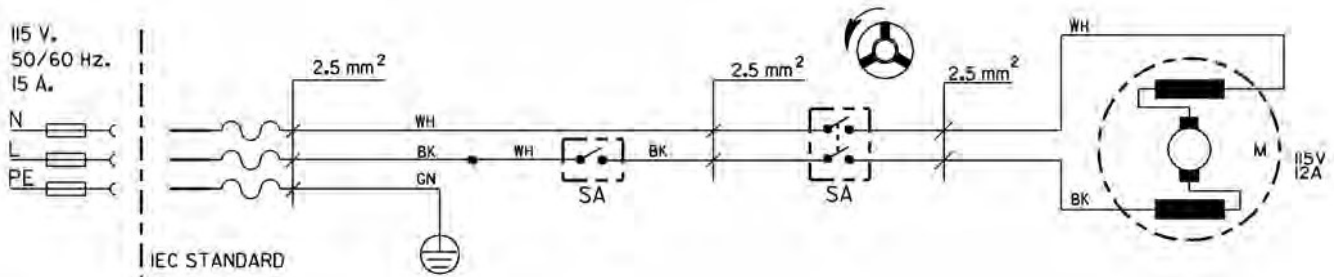
### Electrical Components – 115V/60Hz

**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	46740	Power Cord
2	29788	Strain Relief (2)
3	45420	Ground Screw (2)
4	58587	Quick Disconnect (2)
5	44635	Wire Nut
6	54222	Cable Clamp (2)
7	44695	Hex Nut #10-24
8	92455	Screw #10-24 x 3/4" Round Head
9	54172	Switch Gasket
10	74412	Switch Plate
11	54162	Screw 6-32 x 2" Flat Head (2)
12	58597	Switch
13	36642	B-294 Foot Switch
14	58602	Foot Switch Hanger Bracket
15	54357	Screw



### Wiring Diagram – 115V

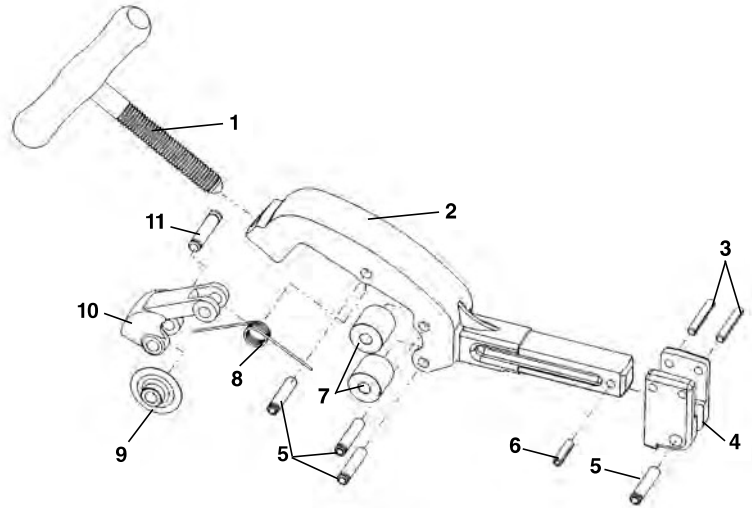




### No. 732 Pipe Cutter

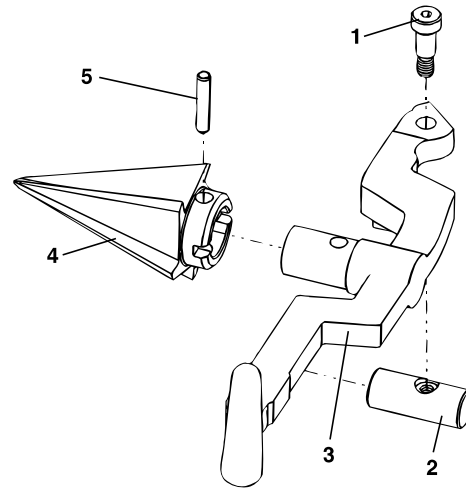
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	58657	732 Cutter Assembly
1	58607	Handle Assembly
2	58612	Cutter Frame
3	54300	Roll Pin 1/4" x 1 1/2" (2)
4	58627	Support Arm Bracket
5	46662	Roller Pin (4)
6	58090	Roll Pin 1/4" x 1"
7	46960	Roll (2)
8	58617	Torsion Spring
9	44185	Cutter Wheel
10	58622	Wheel Housing
11	34780	Wheel Pin



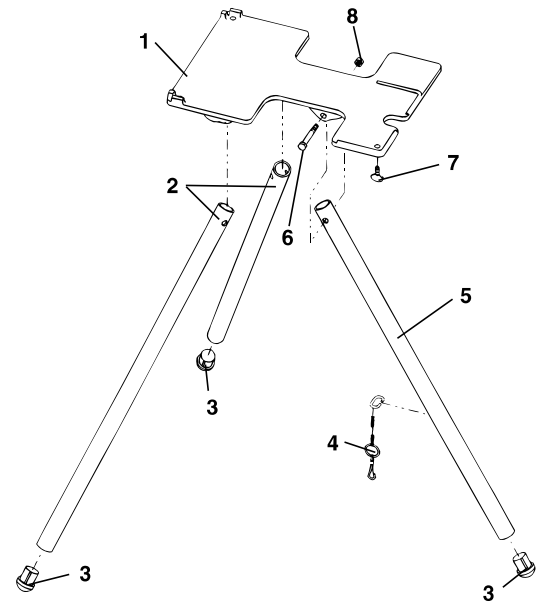
### No. 344 Reamer

Ref. No.	Catalog No.	Description
—	34612	344 Reamer Complete
1	36262	Shoulder Screw
2	36267	Pivot Pin
3	36272	Reamer Arm
4	36277	Reamer Cone (R.H.)
5	46660	Reamer Cone (L.H. & R.H.)
5	35355	Split Roll Pin

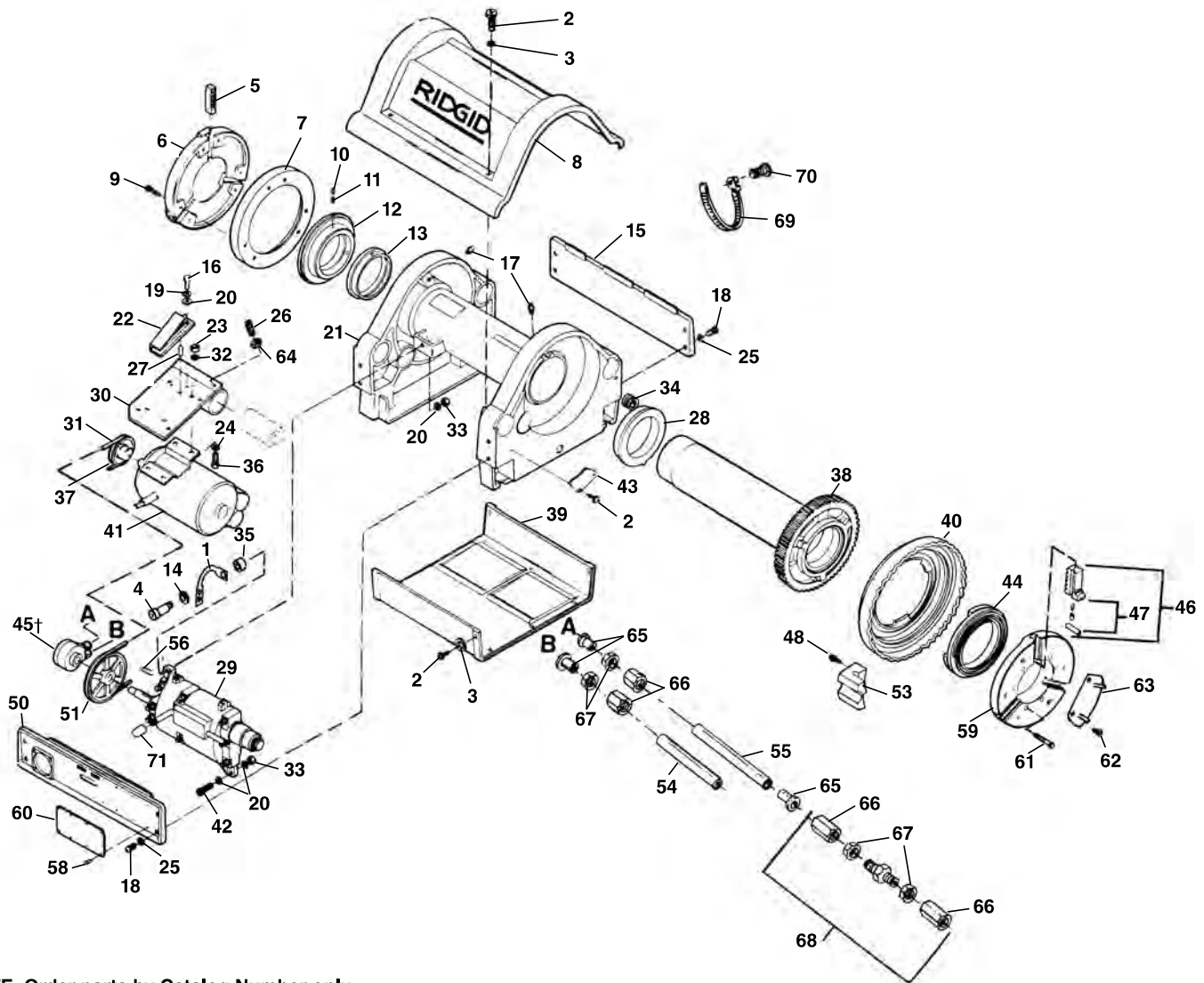


### No. 1203 Stand

Ref. No.	Catalog No.	Description
—	61187	1203 Stand
1	61182	Base
2	58637	Front Leg (2)
3	61470	Leg Rest (3)
4	40945	Chain Assembly
5	58412	Rear Leg
6	80045	Screw 3/8" - 16 x 3 1/4" (3)
7	46220	Thumb Screw (3)
8	79985	Lock Nut 3/8" - 16 (3)



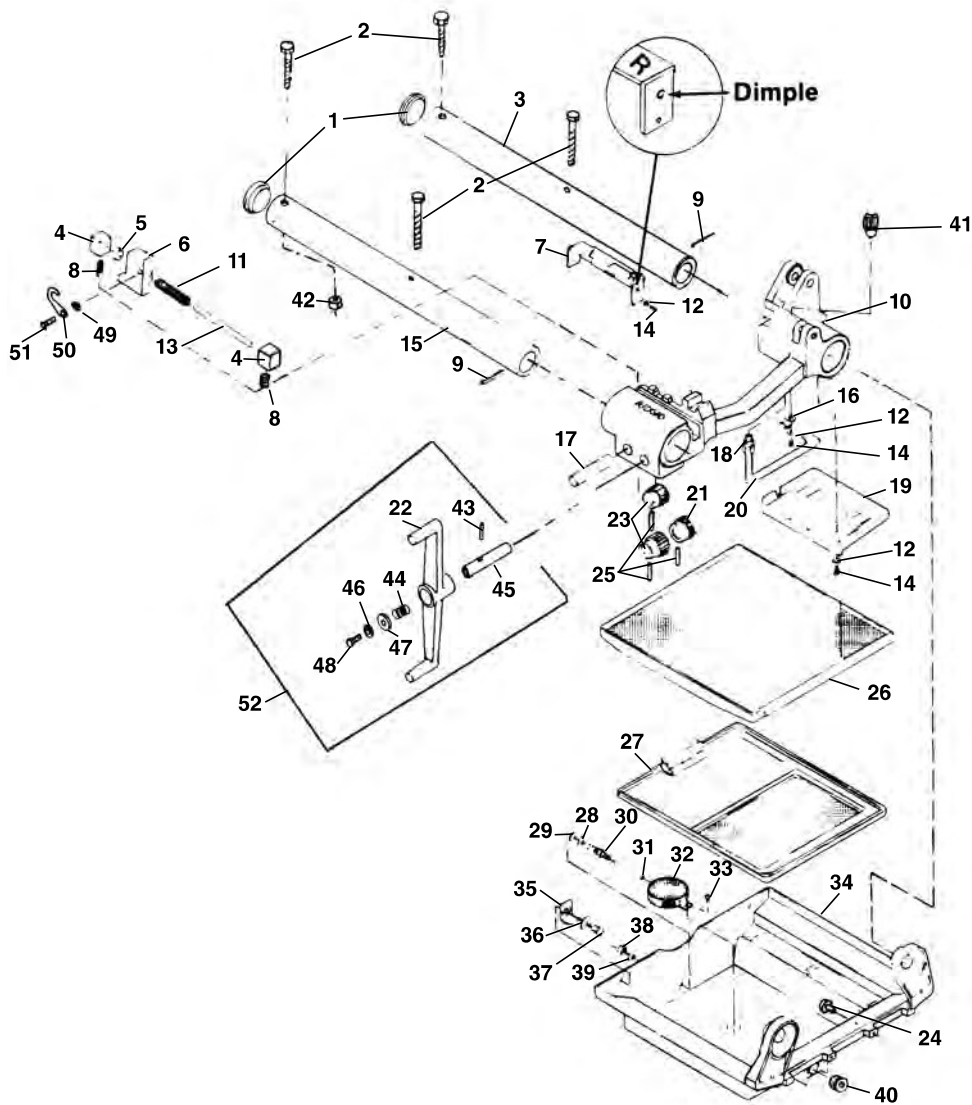
Main Drive Components



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	33622	Pump Bracket	25	40930	Lock Washer 3/8" (8)	46	40087	Chuck Jaw Set
2	41597	Screw (12)	26	88265	Set Screw 3/8" - 16 x 1"	47	47517	Chuck Jaw Set Pl. Ctd. Pipe
3	41592	Washer (10)	27	88230	Roll Pin 1/4" x 3/16"	47	54212	Jaw Insert Set
4	33627	Screw	28	26767	Front Bearing	26247	26247	Jaw Insert Set F/Coated Pipe
5	32412	Centering Jaw Set	29	26362	Gear Box Assy.	27067	27067	Self-Tapping Screw (2 Req. f/G.S.)
6	26537	Centering Head	30	27062	Motor Bracket	50	59722	Front Side Plate
7	26542	Back Plate	31	26832	V-Belt	51	26852	Gear Box Pulley
8	26477	Top Cover	32	40770	Lock Washer 5/16" (4)	53	26507	Pinch Point Boss (2 Req. f/G.S.)
	46867	Die Head Decal (Not Shown)	33	27517	Lock Nut 5/16" - 18	54	27007	Inlet Hose
9	40910	Screw 1/4" - 20 x 3/4" (6)	34	47080	Grommet	55	26822	Output Hose
10	45300	Set Screw 3/16" - 24 x 1/4" (3)	35	33617	Spacer	56	27002	Key
11	45265	Set Screw 3/16" - 24 x 1/2" (3)	36	85910	Bolt 5/16" - 18 x 1 1/4"	58	85920	Rivets (8)
12	32407	Scroll	37	26857	Motor Pulley (60 Hz)	59	26332	Chuck Cap
13	26352	Rear Bearing		27082	Motor Pulley (50 Hz)	60	88690	Safety Plate
14	26307	Washer	38	26347	Drive Gear/Spindle Assy.	61	26522	Screw 5/16" - 24 x 2 1/4" (6)
15	26487	Rear Side Plate	39	26482	Bottom Cover	62	27242	Screw 10 - 32 (6)
16	32145	Screw 1/4" - 20 x 1/2"	40	26337	Handwheel	63	33612	Set of 3 Cover Plates
17	46860	Grease Fitting (2)	41	26237	Motor w/Capacitor 120V, 60 Hz	64	83545	Jam Nut 3/8" - 16
18	26997	Screw 3/8" - 16 x 3/4" (8)		27287	Motor w/Capacitor 110V, 50 Hz	65	35117	Tube Insert (3)
19	44740	Lock Washer 1/4"		26232	Motor w/Capacitor 240V, 60 Hz	66	40602	Compression Nut
20	96740	Washer 5/16"		27282	Motor w/Capacitor 220/240V, 50 Hz	67	40607	Ferrule
21	26357	Base	42	27037	Shoulder Bolt	68	26972	Union
22	26492	Belt Tensioner	43	27012	Pinion Guard	69	43552	Tie Down Strap
23	96730	Nut 5/16" - 18 (4)	44	26517	Scroll	70	45275	Screw 10 - 24 x 1/2"
24	27402	Washer 5/16" (4)	45†	27307	Oil Pump	71	27032	Shifter Knob

### Carriage and Chip Pan



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

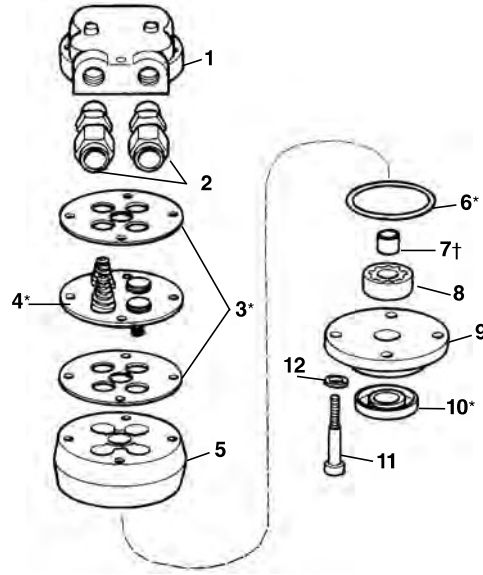
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	49992	Carriage Assembly (Includes Ref. #4-8, 10-14, 17, 21, 23, 25, 41, 49-52)	17	26777	Sine Bar/Pinion Shaft (2)	36	40930	Lock Washer 3/8" (2)
1	26502	Rail Plug (2)	18	26562	Supply Line Fitting	37	26997	Screw 3/8" - 16 x 3/4" (2)
2	40167	Bolt 3/16" - 18 x 3 1/2" (4)	19	26772	Drip Plate	38	83545	Hex Nut 3/8" - 16
3	49982	Rear Rail	20	26812	Die Lubrication Tube	39	26307	Washer
4	26787	Guide Block (2)	21	26587	Sine Bar Pinion	40	48337	Drain Plug
5	26792	Sine Bar Spacer	22	40147	Carriage Handwheel	41	28462	Ball Detente
6	40242	Sine Bar	23	26572	Carriage Pinion (2)	42	27517	Lock Nut 3/16" - 18 (4)
7	26912	Sine Bar Cover Assembly	24	26837	Stud (2)	43	74965	Pin
8	26582	Guide Block Spring (2)	25	74965	Roll Pin 1/4" x 1 1/4" (3)	44	89530	Spring
9	27052	Roll Pin (2)	26	26802	Draw Tray Assembly	45	40157	Handwheel Shaft
10	49987	Carriage (Includes Ref. #41)	27	26807	Insert Assembly	46	41582	Lock Washer
11	26592	Sine Bar Return Spring	28	27252	Washer	47	40152	Washer
12	41592	Washer #10 (2)	29	41715	Seal Washer	48	26997	Screw
13	26577	Guide Bar	30	26697	Bulk Head Fitting	49	40227	Spring Washer
14	79965	Screw #10 - 32 x 1/2" (5)	31	26927	Tubing	50	40237	Latch
15	49977	Front Rail	32	27262	Screen Assembly	51	49472	Spiral Pin
16	26652	Oil Supply Clamp	33	26797	Screw #10 - 32 x 3/16"	52	42027	Handwheel Kit
			34	26847	Chip Pan Hanger Assembly			
			35	26817	Chip Pan Bracket (2)			

†See Service Notes

### “ML” Oil Pump

**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

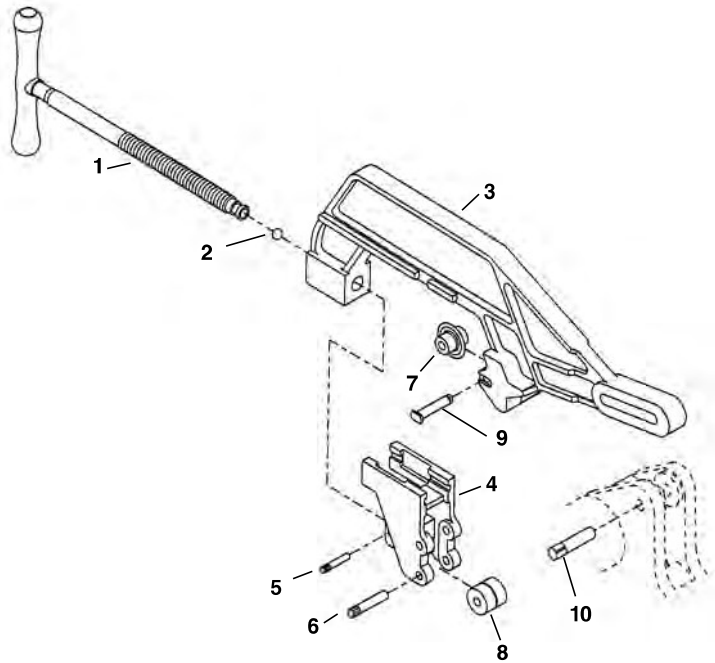
Ref. No.	Catalog No.	Description
—†	27307	“ML” Oil Pump
1	33442	Pump Valve Body
2	33432	Compression Fitting (2)
3*	33457	Gasket (Set of 2)
4*	33452	Valve Retainer Assy.
5	33482	Gerotor Housing w/Bearing
6*	33477	O-Ring
7†	33462	Sleeve Bearing
8	33467	Gerotor Set
9	33447	Pump Cap w/Seal
10*	33472	Oil Seal
11	44510	Soc. Hd. Cap Screw 1/4" - 20 x 2"
12	45150	Lock Washer 1/4"
*	33422	“ML” Service Kit



Note: Ref. 7 Sleeve Bearing used on older Gerotor Housings, not required on new pumps.  
\* Indicates Part is Included in Service Kit.  
† See Service Note

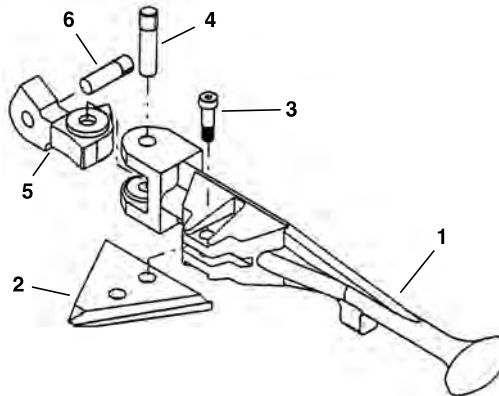
### No. 764 Pipe Cutter

Ref. No.	Catalog No.	Description
—	26212	764 Pipe Cutter
1	26752	Screw Handle
2	41730	Ball Bearing
3	26742	Cutter Frame
4	26747	Roll Housing
5	26757	Groove Pin
6	26762	Groove Pin (2)
7	33125	Cutter Wheel
8	34785	Roll (2)
9	26252	Roll F/Coated Pipe (2 per set)
10	34790	Wheel Pin
11	27072	Groove Pin



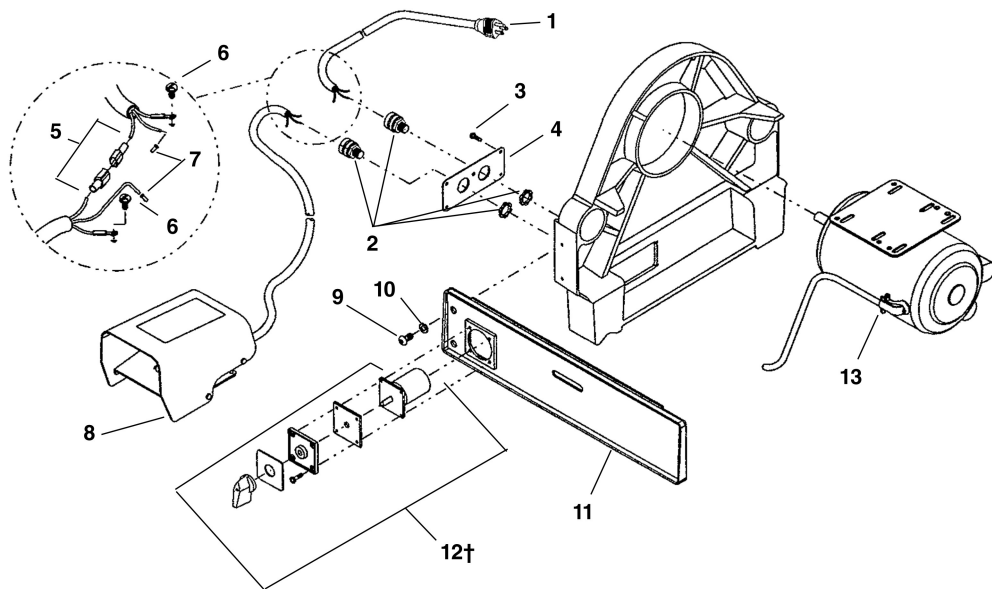
### No. 744 Reamer Assembly

Ref. No.	Catalog No.	Description
—	26217	744 Reamer Assembly
1	26602	Reamer Arm
2	34577	Reamer Blade 1/4" - 4"
3	27037	Shoulder Bolt
4	27072	Groove Pin
5	26607	Pivot Block
6	26727	Groove Pin (2)



### 60 Hz Electrical Components

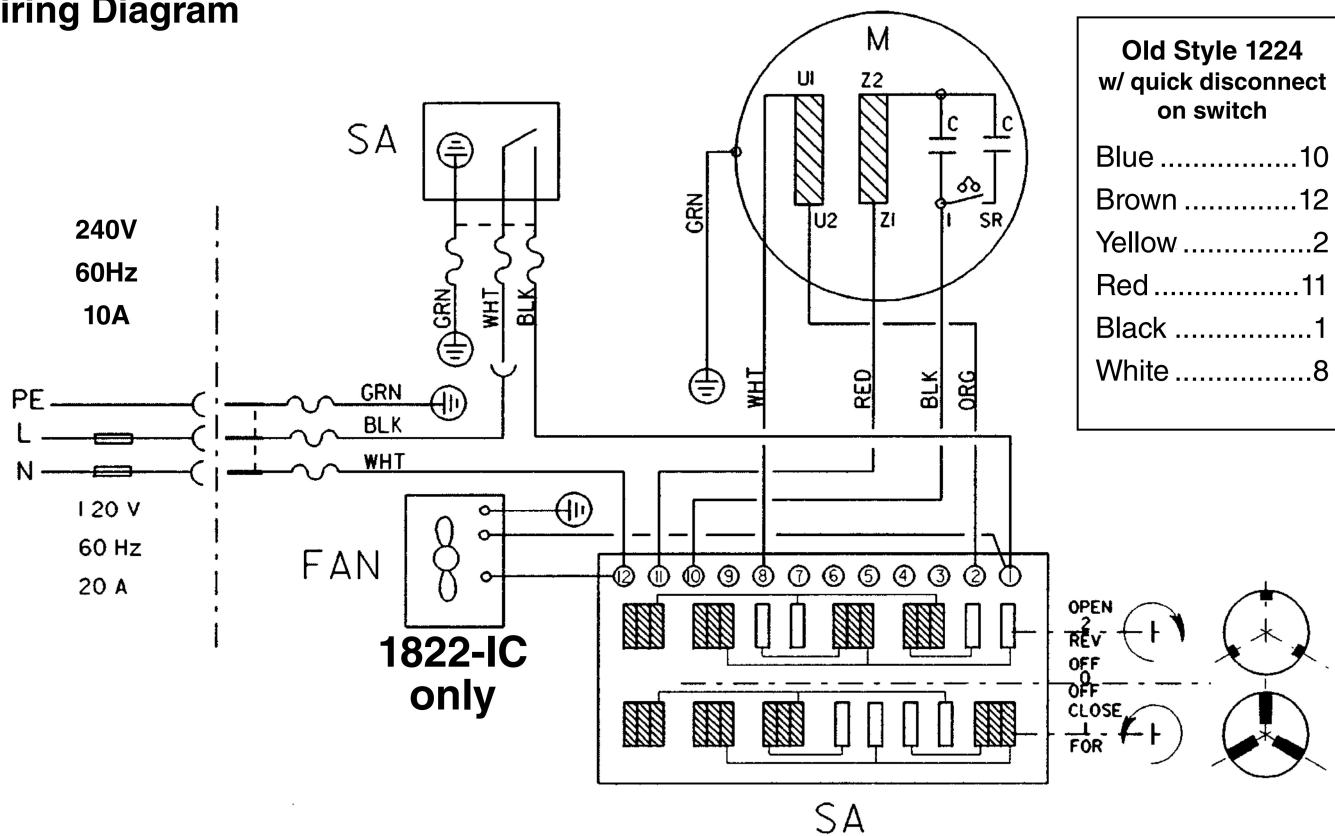
**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**



Ref. No.	Catalog No.	Description
1	46740	Power Cord
	46410	Power Cord
2	75977	Strain Relief (2)
3	41597	Self Tapping Screw (4)
4	27162	Strain Relief Bracket
5	56407	Quick Disconnect Set
6	45420	Ground Screw
7	36222	Wire Terminal
8	36642	B-294 Foot Switch
9	26997	Screw 3/8" - 16 x 3/4" (8)
10	40930	Lock Washer 3/8" (8)
11	59722	Front Side Plate
12†	20113	Switch Assembly
13	26237	Motor 120V 60 Hz
	26232	Motor 240V 60 Hz

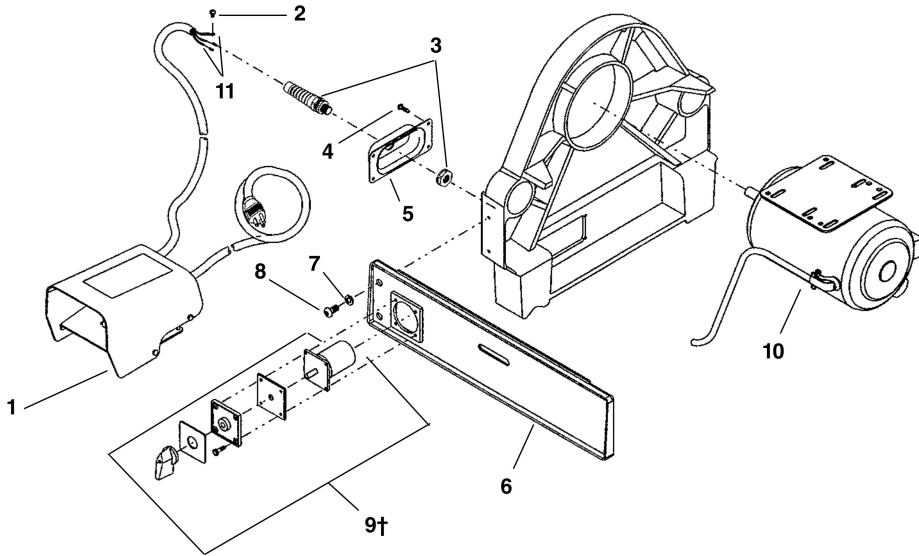
† Ref. No. 12 – When replacing early style switches, which have a black body, order Catalog No. 59742 Switch Adapter Plate

### 1224 & 1822-I Replacement Switch Wiring Diagram



50 Hz Electrical Components

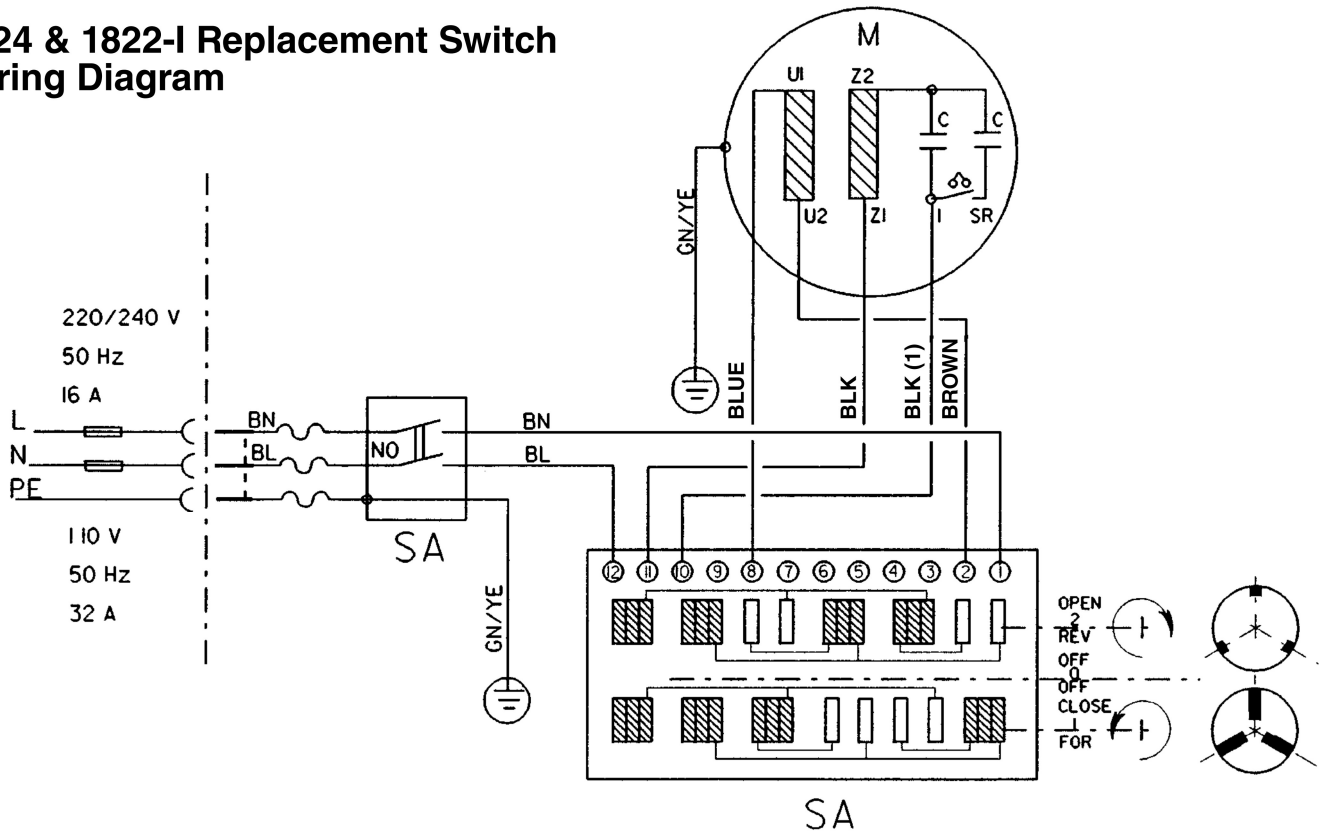
NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.



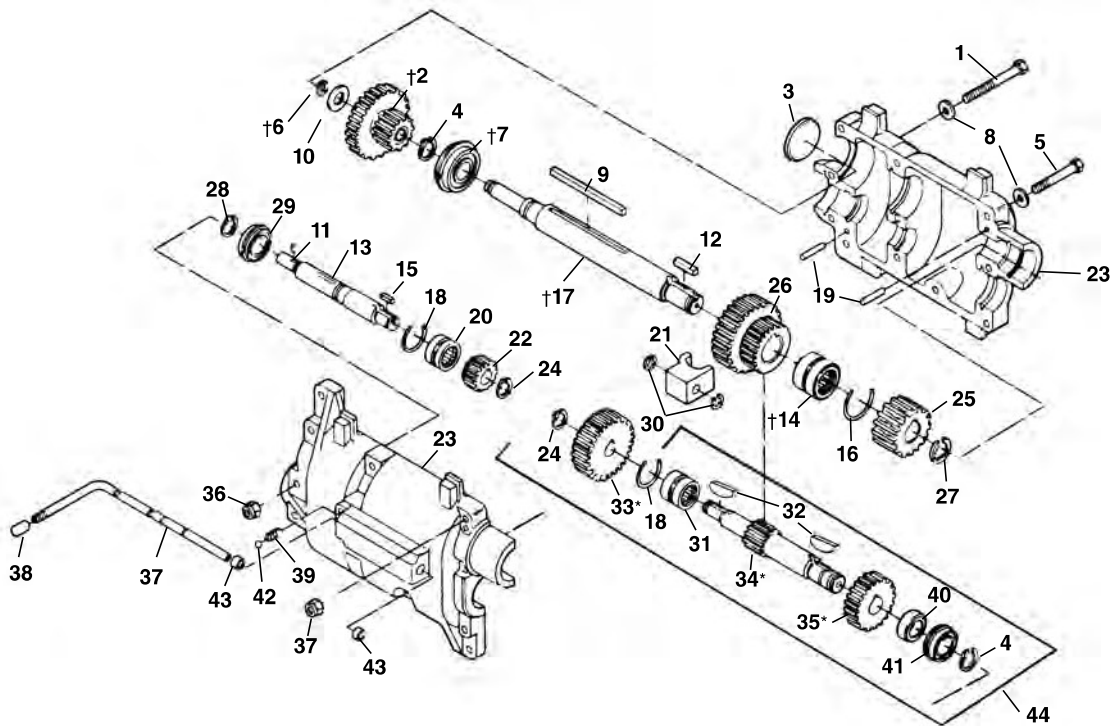
Ref. No.	Catalog No.	Description
1	36652	B-296 Foot Switch
	36657	B-297 Foot Switch
2	45420	Ground Screw
3	27187	Strain Relief
4	41597	Self Tapping Screw (4)
5	27197	Strain Relief Bracket
6	59722	Front Side Plate
7	40930	Lock Washer 3/8" (8)
8	26997	Screw 3/8" - 16 x 3/4" (8)
9†	20113	Switch Assembly
10	27282	Motor 220/240V 50 Hz
	27287	Motor 110V 50 Hz
11	36222	Wire Terminal

† Ref. No. 12 – When replacing early style switches, which have a black body, order Catalog No. 59742 Switch Adapter Plate

1224 & 1822-I Replacement Switch Wiring Diagram



**Gear Box**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

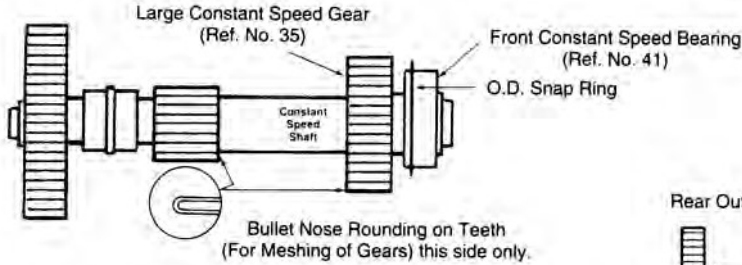
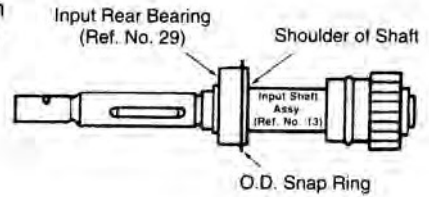
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	26362	Gear Box Assembly	16	26922	Wire Ring	32	33982	Woodruff Key (2)
1	27102	Screw 5/16" - 18 x 3/4" (2)	†17	26382	Output Shaft	33*	33992	1st Gear Constant Speed
†2	26702	Fixed Gear Cluster Assembly	18	26917	Wire Ring (2)	34*	33987	Constant Speed Shaft
3	26667	Freeze Plug	19	26662	Dowel Pin (2)	†35*	33997	Large Constant Speed Gear
4	26412	Snap Ring (2)	20	26367	Front Input Bearing	36	75110	Stop Nut 5/16" - 18 (11)
5	27107	Screw 5/16" - 18 x 2 1/2" (9)	21	26437	Shifting Fork	37	26442	Shift Slide
†6	27117	Snap Ring	22	26377	1st Input Gear	38	27032	Shifter Knob
†7	26417	Rear Output Bearing	23	26647	Gear Box	39	26692	Shifter Detente Spring
8	96740	Washer 5/16" (11)	24	26677	Snap Ring	40	26452	Spacer
9	26552	Shift Cluster Key	†25	26432	Output Pinion Gear	41	26407	Front Constant Speed Bearing
10	26672	Thrust Washer	26	26422	Cluster Shift Gear	42	46925	Steel Ball
11	26907	Spiral Pin	27	26557	Snap Ring	43	26447	Shift Slide Sleeve Bearing
12	26457	Output Pinion Key	28	44430	Retaining Ring		26707	Grease (1 lb. can)
13	26902	Input Shaft Assembly	†29	26372	Input Rear Bearing	44	28047	Constant Speed Assembly
†14	26427	Front Output Bearing	30	34245	Rings Set of 5			
15	26657	Input Pinion Key	31	26397	Rear Bearing			

†See Service Notes

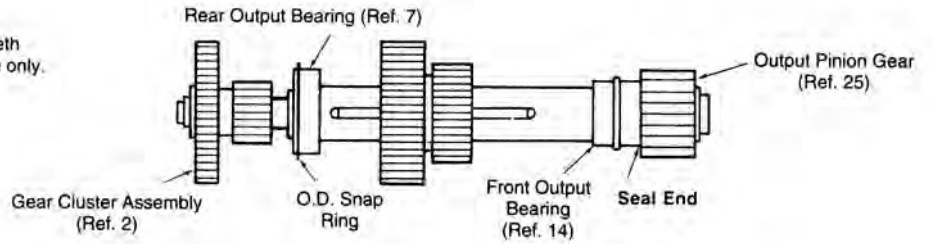
\*When replacing early style parts, using square keys, a complete shaft assembly (Ref. No. 44) should be used.

### Service Notes Transmission

Position Bearing (Ref. No. 29) with O.D. Snap Ring towards shoulder of Input Shaft.



Position Large Constant Speed Gear Ref. No. 35 so that bullet nose side of gear teeth are facing toward center of shaft.  
Position O.D. Snap Ring towards Large Constant Speed Gear.



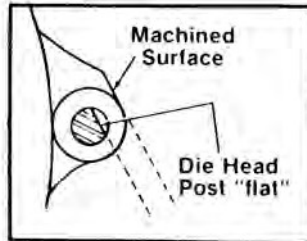
Position Bearing (Ref. No. 7) with O.D. Snap Ring towards Gear Cluster (Ref. No. 2)

Position Seal End of Front Output Bearing (Ref. No. 14) towards Output Pinion Gear (Ref. No. 25)

### Replacement Instructions for Die Head Post All 1224 Die Heads— 541, 542, 711, 713, 714, 911, 913, 914

**—IMPORTANT—**

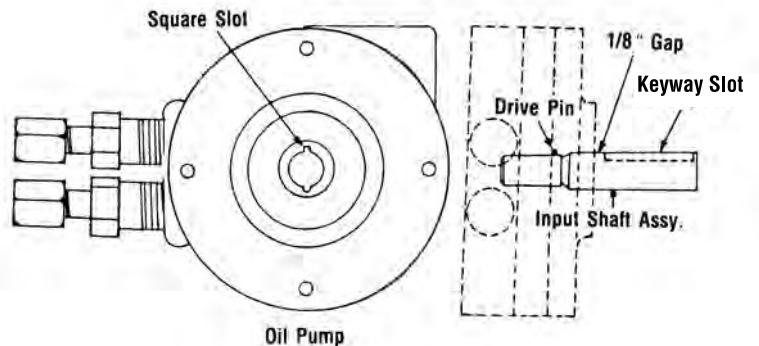
Post must be properly oriented to insure oil flow through head. Insert illustrates proper relationship (parallel) of "flat" on die head post to flat "machined surface" of die head casting.



### Oil Pump

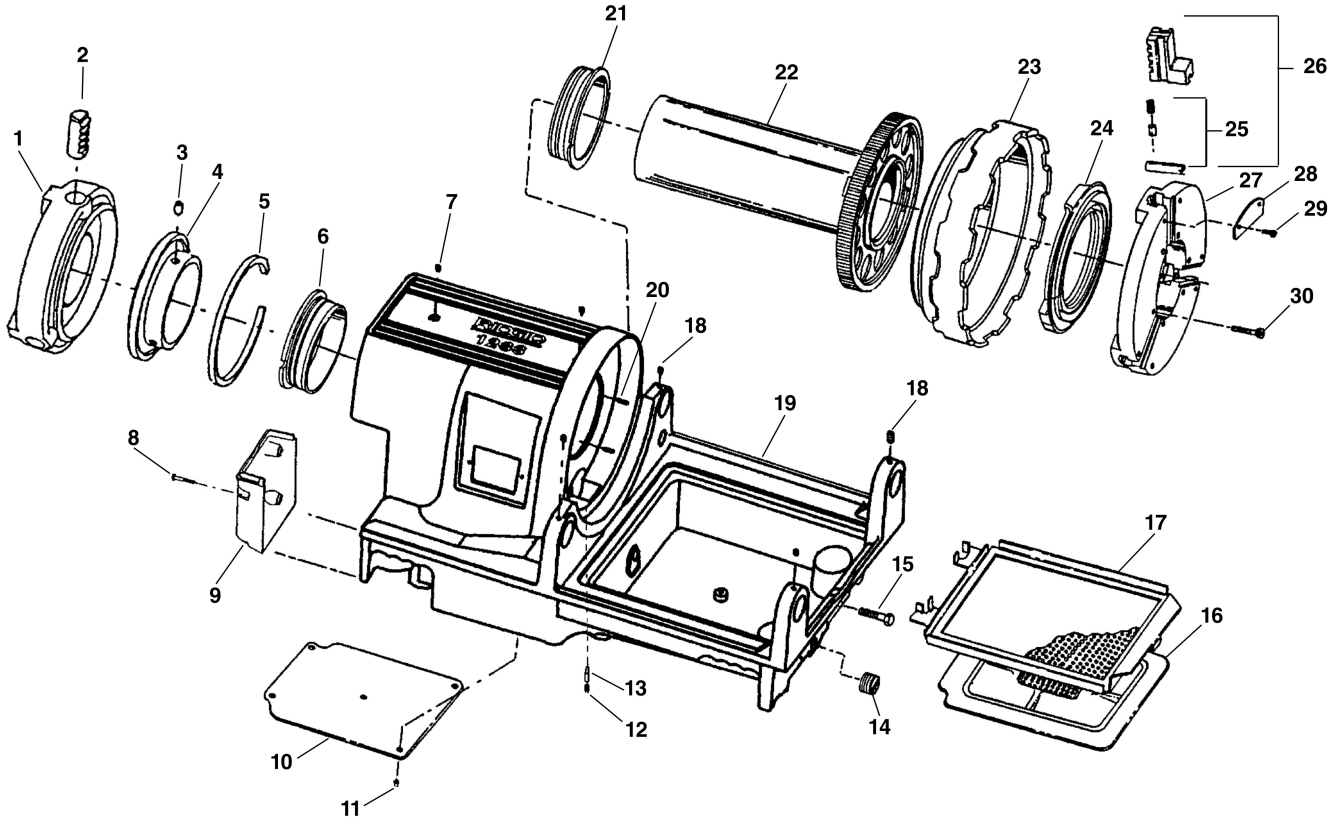
#### Installing Oil Pump Onto Input Shaft Assembly

1. Align Square Slot (behind seal) in the No. 27307 Oil Pump with the Drive Pin in the No. 26902 Gear Box Input Shaft Assembly.
2. Slide Oil Pump onto Input Shaft Assembly.
3. When Pump is properly engaged onto Shaft, the distance between Pump body and Keyway Slot should not exceed 1/8 inch.





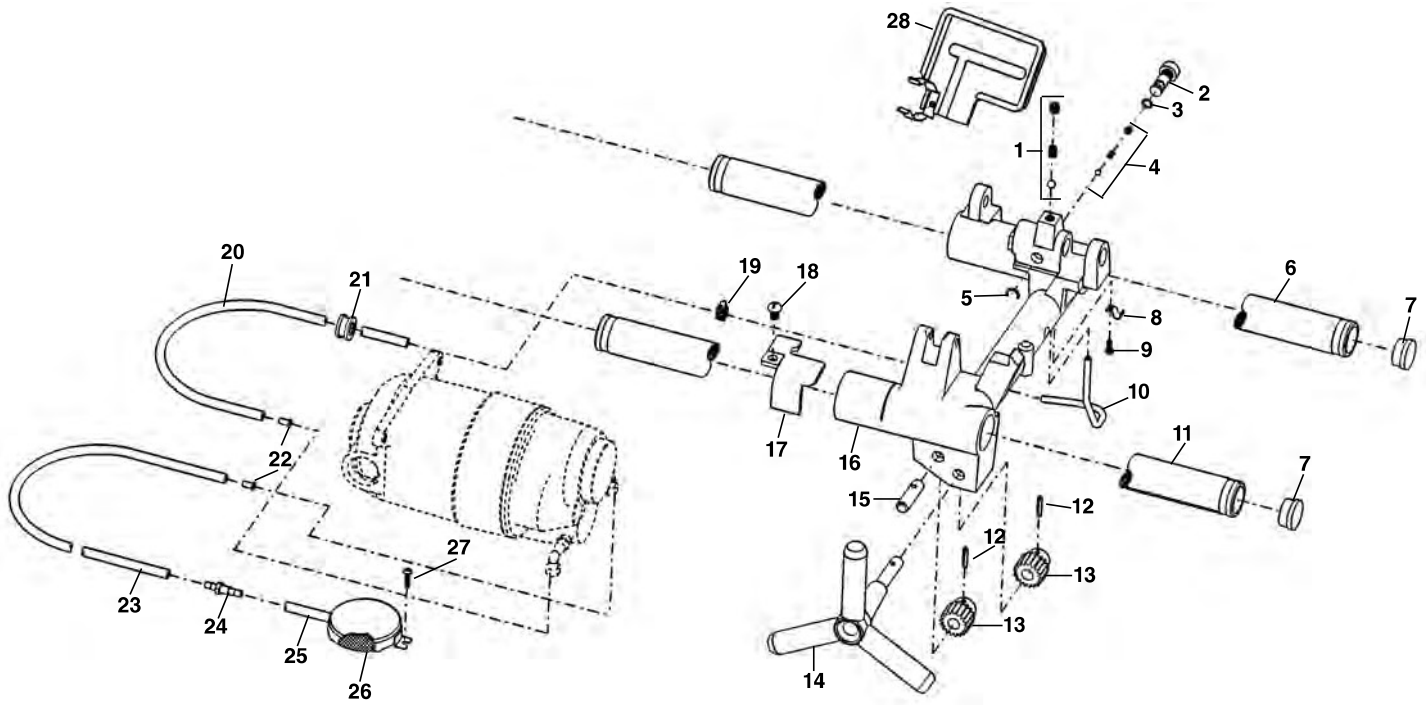
**Main Drive Components**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	61882	Rear Centering Head	17	54047	Chip Tray
2	61922	Centering Jaw Set	18	60025	5/16" - 18 Set Screw (4)
3	61247	Spiral Pins (3)	19	61887	Base (Incl. Ref. 9,10,11)
4	54002	Centering Scroll	20	45475	Bearing Retaining Pins (4)
5	61927	Retaining Ring	21	54017	Front Bearing
6	54017	Rear Bearing	22	54067	Spindle Assembly
7	54022	Oil Ball Valve (2)	23	54072	Hammer Wheel
8	92455	#10 - 24 x 3/4" Screw	24	54077	Chuck Scroll
9	61932	Motor Cover	25	54212	Jaw Insert Set
10	61937	Bottom Cover	—	54217	Jaw Insert f/Coated Pipe
11	87730	1/4" x 3/8" Screw (4)	—	59612	Jaw Insert f/SS Pipe
12	77905	5/16" x 1/4" Screw	26	54087	Chuck Jaw Set
13	54037	Motor Wedge	27	54082	Chuck Cap
14	54302	Drain Plug	28	54092	Chip Guard
15	54042	M-10 1.5 Hex Screw	29	58322	Screws 6 - 32 x 1/2" Pkg. of 6
16	54052	Oil Pan Liner	30	46775	1/4" x 1 3/4" Soc. Head Screw (6)

Carriage and Oil System

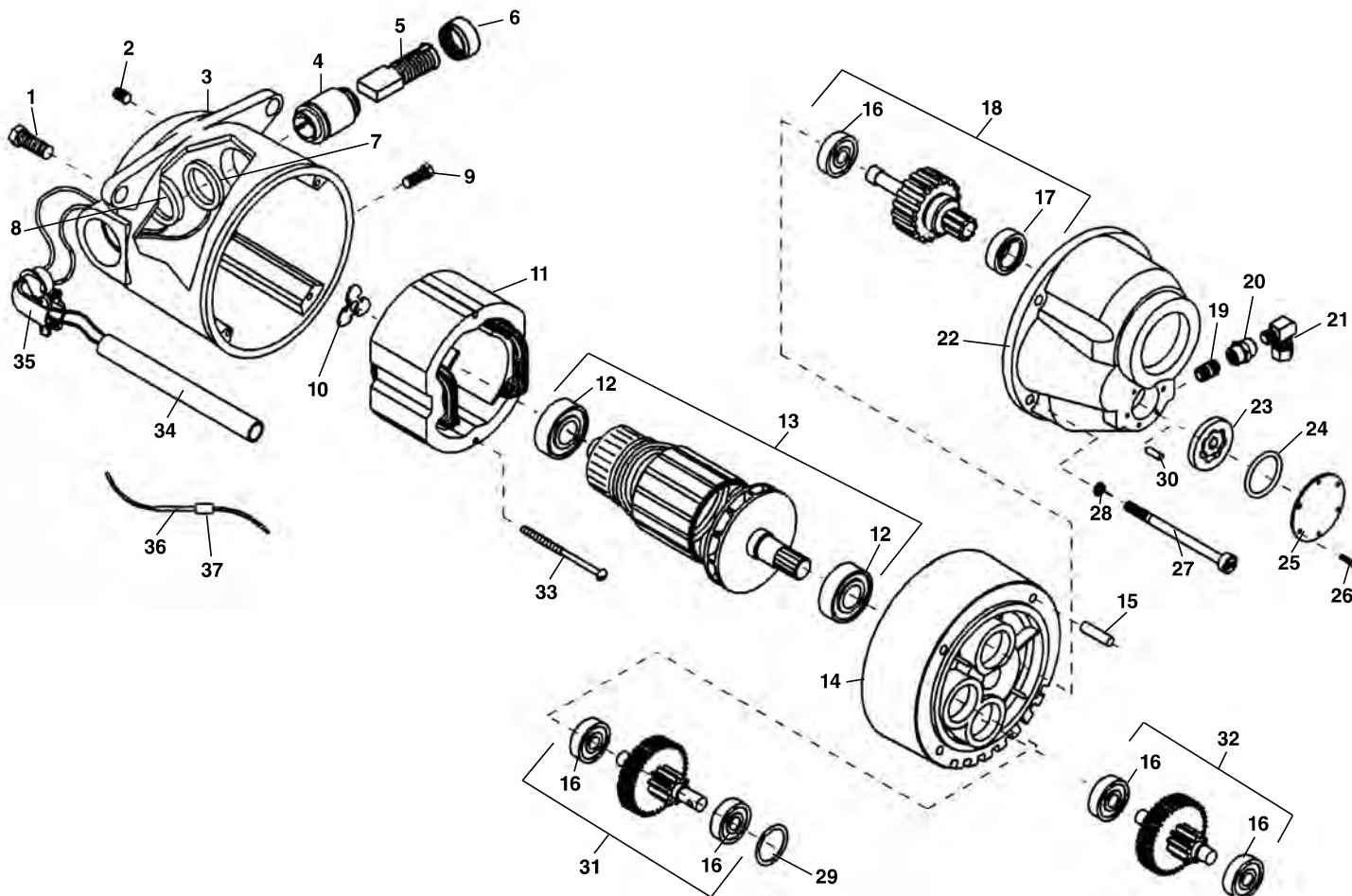


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	46810	Detente Assembly
2	54097	Spool Valve
3	54102	O-Ring
4	35307	Oil Pressure Relief Set
5	54107	Crescent Ring
6	54112	Rear Rail
7	35162	Rail Plug (4)
8	35062	Oil Line Clamp
9	79965	10-32 x 1/2" Screw
10	35067	Oil Tube
11	54117	Front Rail
12	34342	Roll Pin
13	57097	Pinion
14	35182	Hand Wheel
15	35187	Pinion Idler Shaft
	54122	Cap Plug (not shown)
16	54127	Carriage
17	54132	Carriage Stop
18	54137	5/16" - 18 x 1/2" Screw
19	35142	Hose Clamp
20	61282	Carriage Oil Line
21	47080	Oil Line Grommet
22	35117	Oil Line Insert
23	54152	Oil Intake Line
24	54142	Bulkhead Fitting
25	61897	Oil Filter Tube
26	58467	Filter Screen Assembly
27	45420	10-24 x 3/8" Screw
28	54517	Drip Pan

**Motor**

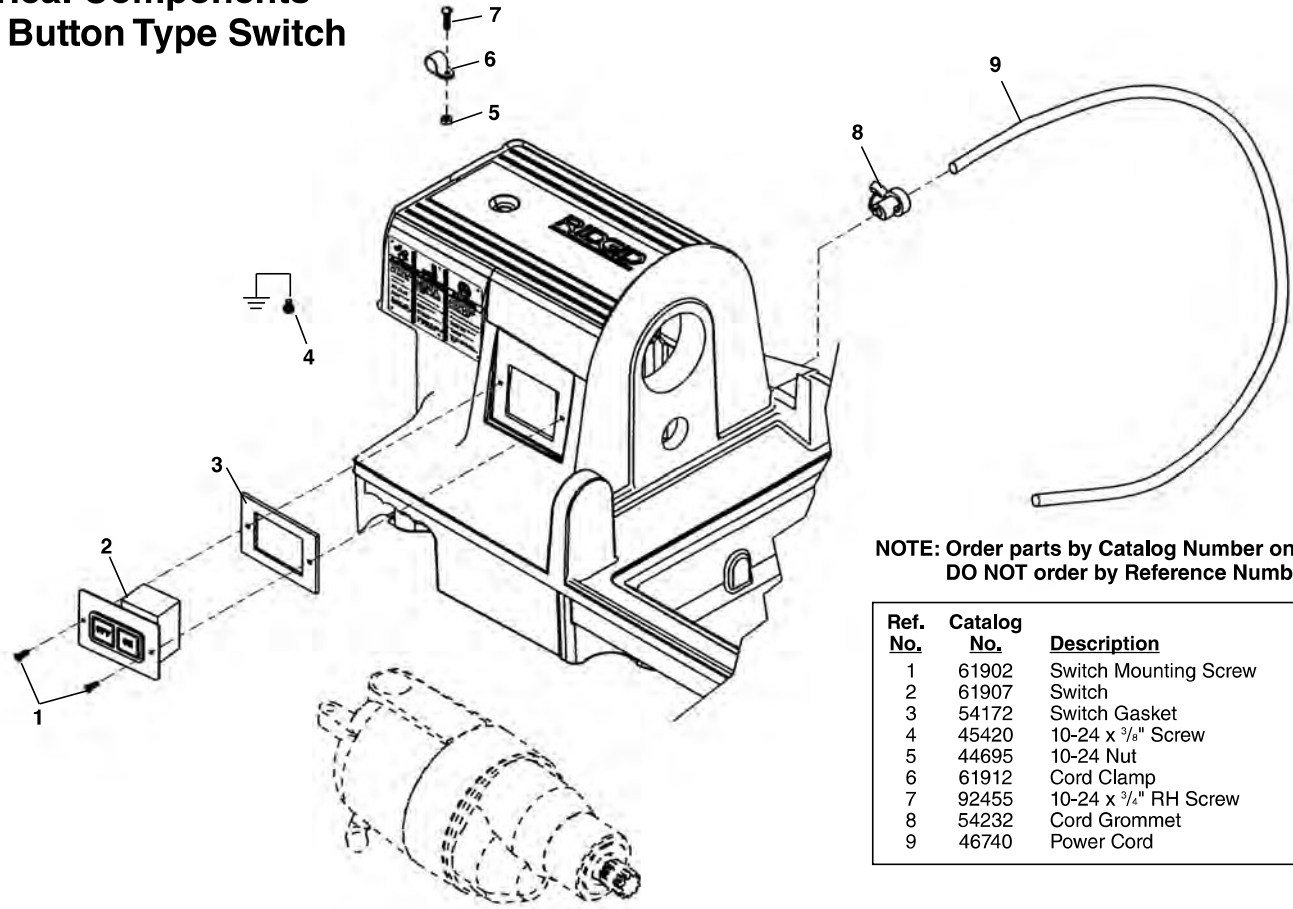
**3092  
3192  
3292  
3192R  
3292R**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	52457	Motor Model 3092, 100V	11	44015	Field 100/115V	23	96870	Gerotor Set
—	52462	Motor Model 3192, 115V	—	44035	Field 230V	24	96875	O-Ring
—	52467	Motor Model 3292, 230V	12	44565	Armature Bearing (2)	25	96840	Cover Plate
—	52472	Motor Model 3192R, 115V Rev.	13	52487	100V Armature	26	96890	Screw #4 x 3/8" (6)
—	52477	Motor Model 3292R, 230V Rev.	—	52497	115V Armature	27	45075	Screw 1/4" - 20
1	85915	Motor Mounting Bolt (2)	—	52492	230V Armature	28	45150	Lockwasher 1/4"
2	39770	Set Screw 1/4" - 20 x 1/4" (2)	14	54552	Fan Housing Assembly	29	96880	Oil Seal
3	52482	Motor Housing	15	45165	Dowel Pin	30	96885	Pin
4	45025	Brush Holder Set (2)	16	44760	Gear Bearing	31	52522	1st Gear Assembly
5	44540	Brush Assembly Set (2)	17	45315	Front Bearing	32	52527	2nd Gear Assembly
6	44545	Brush Cap Set (2)	18	45370	Main Drive Gear Assembly	33	44555	Screw 10-24 x 3"
7	86685	Red Brush Lead	19	52507	1/8" NPT Close Nipple (2)	34	63382	Plastic Tube
8	86680	White Brush Lead	20	52512	1/8" Coupling (2)	35	46900	90 Connector
9	83500	Field Locking Screw	21	52517	Elbow Compression Fitting (2)	36	16946	Male Wire Connector
10	44580	Loading Spring	22	96830	Gear Case	37	16956	Female Wire Connector

### Electrical Components Push Button Type Switch

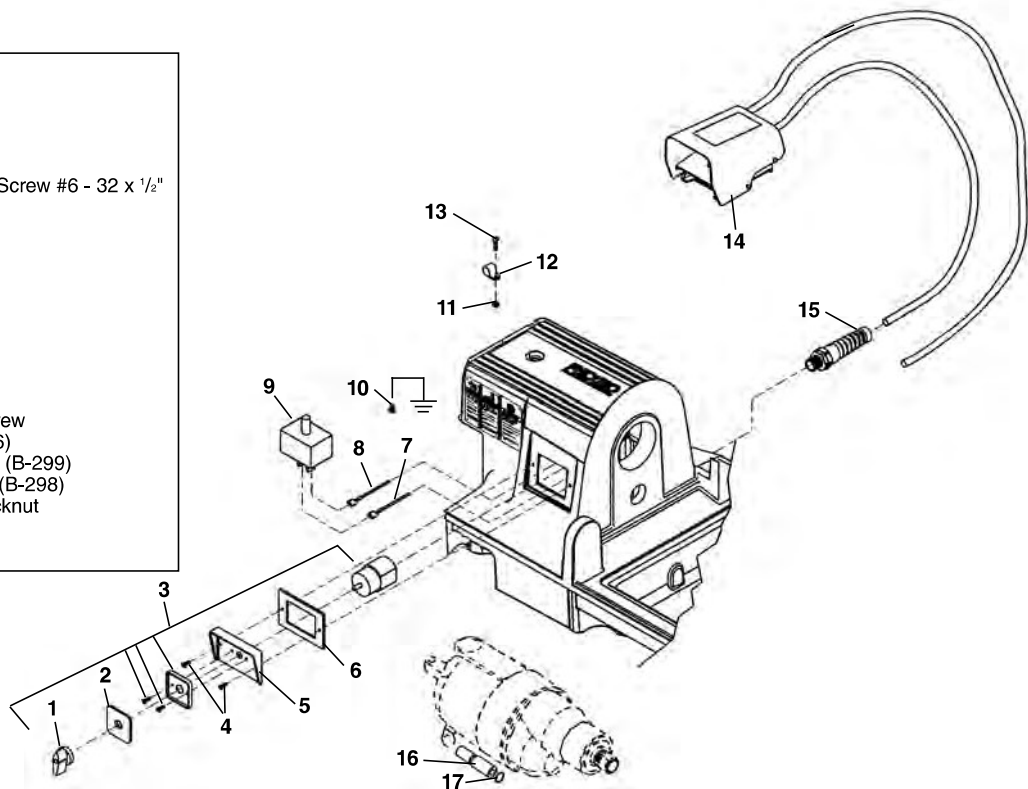


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
1	61902	Switch Mounting Screw
2	61907	Switch
3	54172	Switch Gasket
4	45420	10-24 x 3/8" Screw
5	44695	10-24 Nut
6	61912	Cord Clamp
7	92455	10-24 x 3/4" RH Screw
8	54232	Cord Grommet
9	46740	Power Cord

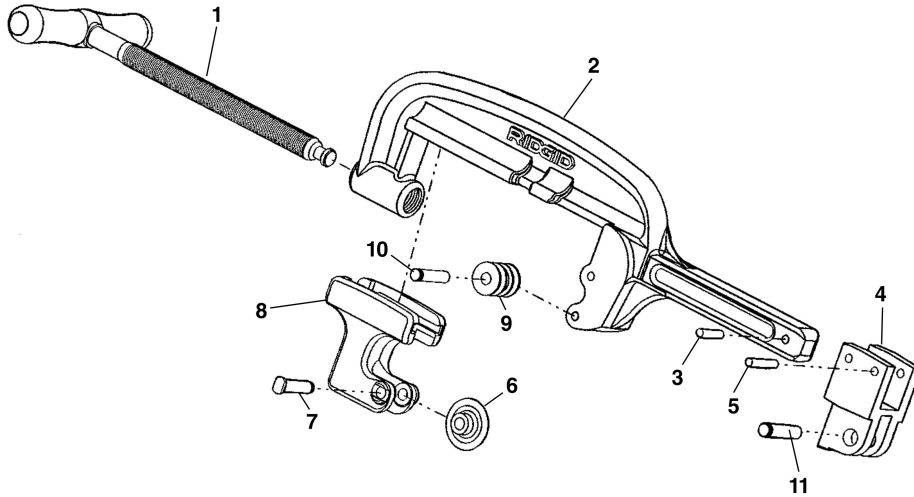
### Lever Type Switch

Ref. No.	Catalog No.	Description
1	61397	Switch Knob
2	61967	Switch Face Plate
3	54157	Switch & Screws
4	61902	Slotted Pan Head Screw #6 - 32 x 1/2"
5	61917	Switch Plate
6	54172	Switch Gasket
7	63387	Brown Wire
8	63392	Blue Wire
9	63372	Suppressor
—	63387	Brown Lead Wire
—	63392	Blue Lead Wire
10	45420	10-24 x 3/8" Screw
11	44695	10-24 Nut
12	61912	Cord Clamp
13	92455	10-24 x 3/4" RH Screw
14	36652	Foot Switch (B-296)
	40022	Foot Switch f/Aust. (B-299)
	40017	Foot Switch f/U.K. (B-298)
15	54177	Strain Relief w/Locknut
16	63377	Ferrite Bead
17	43552	Cable Tie



**No. 763 Pipe Cutter**

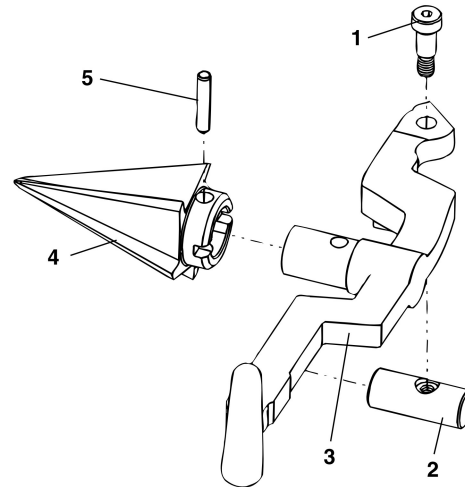
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**



Ref. No.	Catalog No.	Description
—	52452	763 Cutter Complete
1	54197	Feed Screw Handle
2	61872	Cutter Frame
3	58090	1/4" x 1" Roll Pin
4	61877	Bracket
5	54300	Roll Pin
6	44185	E1032 Cutter Wheel
7	34780	Pin & Clip
8	52247	Wheel Housing
9	46960	Rolls f/Steel Pipe (2)
—	43682	Rolls f/Coated Pipe (2)
10	46662	Roll Pin (2)
11	45520	Hinge Pin

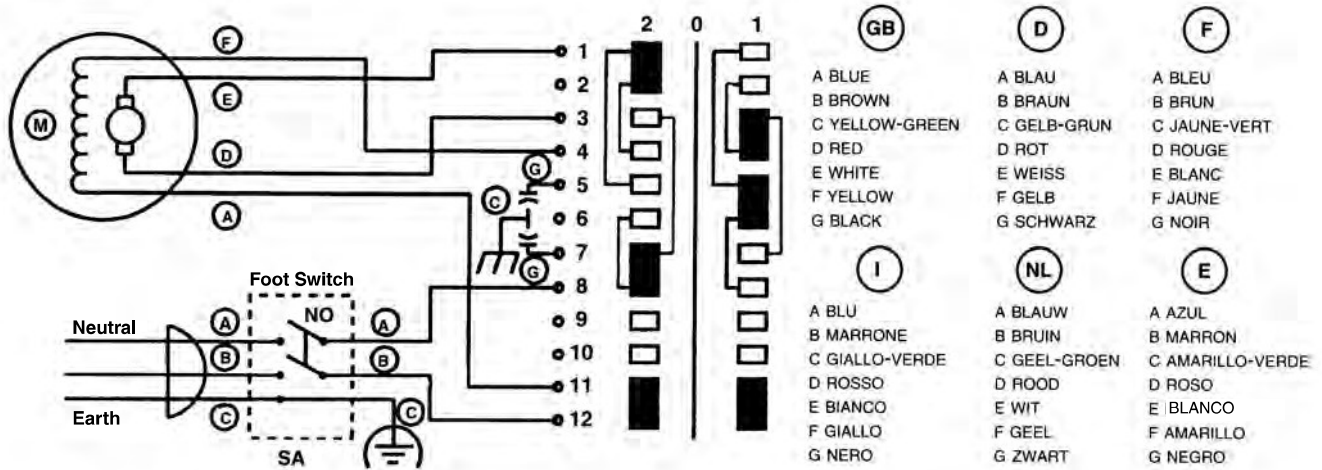
**No. 743 Reamer**

Ref. No.	Catalog No.	Description
—	52272	743 Reamer Complete
1	36262	Shoulder Screw
2	36267	Pivot Pin
3	36272	Reamer Arm
4	52277	Reamer Cone
5	35355	Split Roll Pin

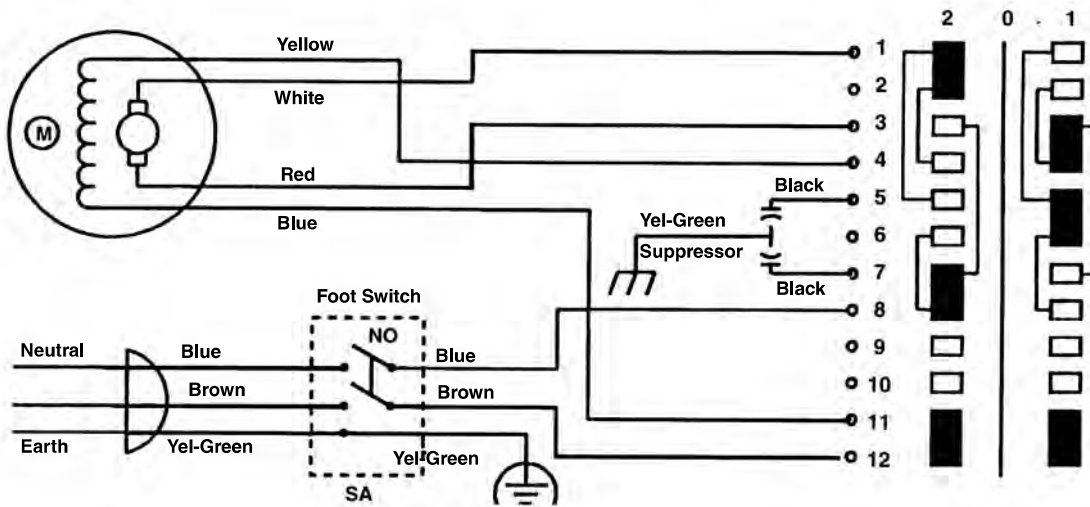


Wiring Diagram

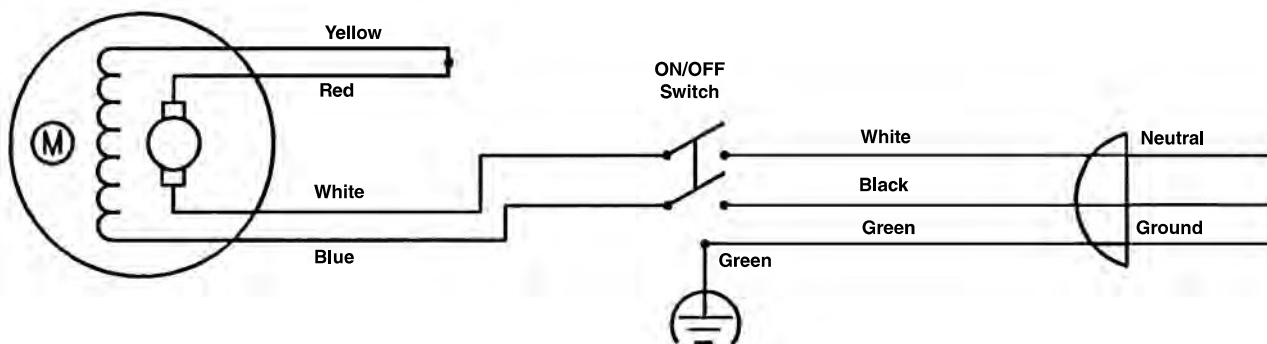
100V-115V-230V, 26-60 Hz



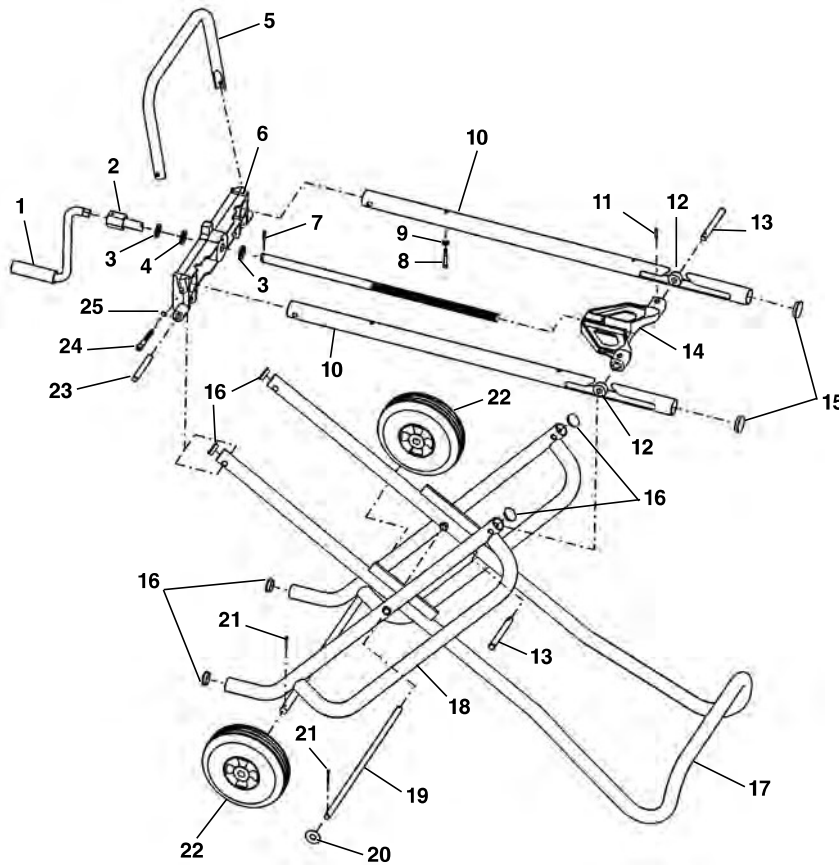
Wiring Diagram 115V (European Model)



Wiring Diagram 230V (European Model)

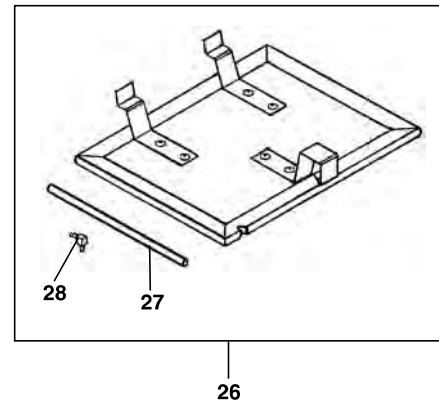


**1406 Folding Wheel Stand**

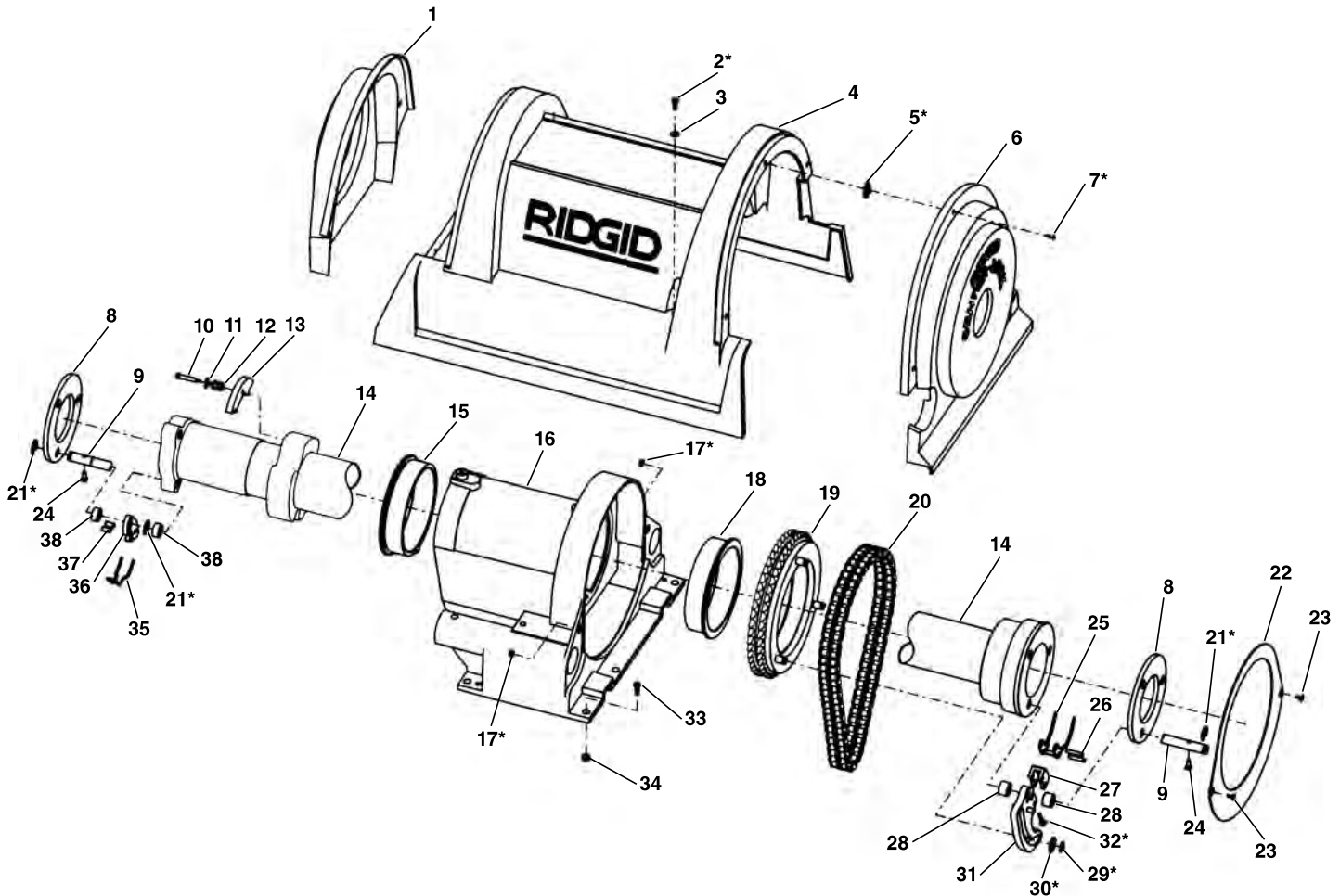


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	20105	1406 Folding Wheel Stand
1	51777	Crank Handle
2	51782	Screw Shaft
3	54312	Flat Washer (2)
4	36347	Nylon Bearing
5	36352	Rear Handle
6	45337	Brace
7	54300	Roll Pin 1/4" x 1 1/2"
8	46775	Screw 1/4" - 20 x 1 3/4" (4)
9	26947	Flat Washer 1/4" (4)
10	36367	Mounting Rail (2)
11	83325	Roll Pin 3/16" x 1 3/8" (2)
12	36377	Roller (2)
13	36382	Yoke Pin (2)
14	51787	Traverse Yoke
15	36312	Mounting Rail Cap (2)
16	36417	Pivot Assembly Cap (4)
17	51792	Leg Handle
18	51797	Pivot Assembly
19	36412	Pivot Shaft
20	83420	Flat Washer 1/2" (2)
21	47030	Cotter Pin 1/8" x 1" (4)
22	93325	Wheel (2)
23	45342	Groove Pin (2)
24	80045	Hex Bolt 3/8" - 16 x 3 1/4" (2)
25	41582	Washer-Int, Tooth (2)
26	35882	1460 Oil Pan Cover
27	36447	Tubing
28	36442	Elbow Fitting



**Spindle Assembly**



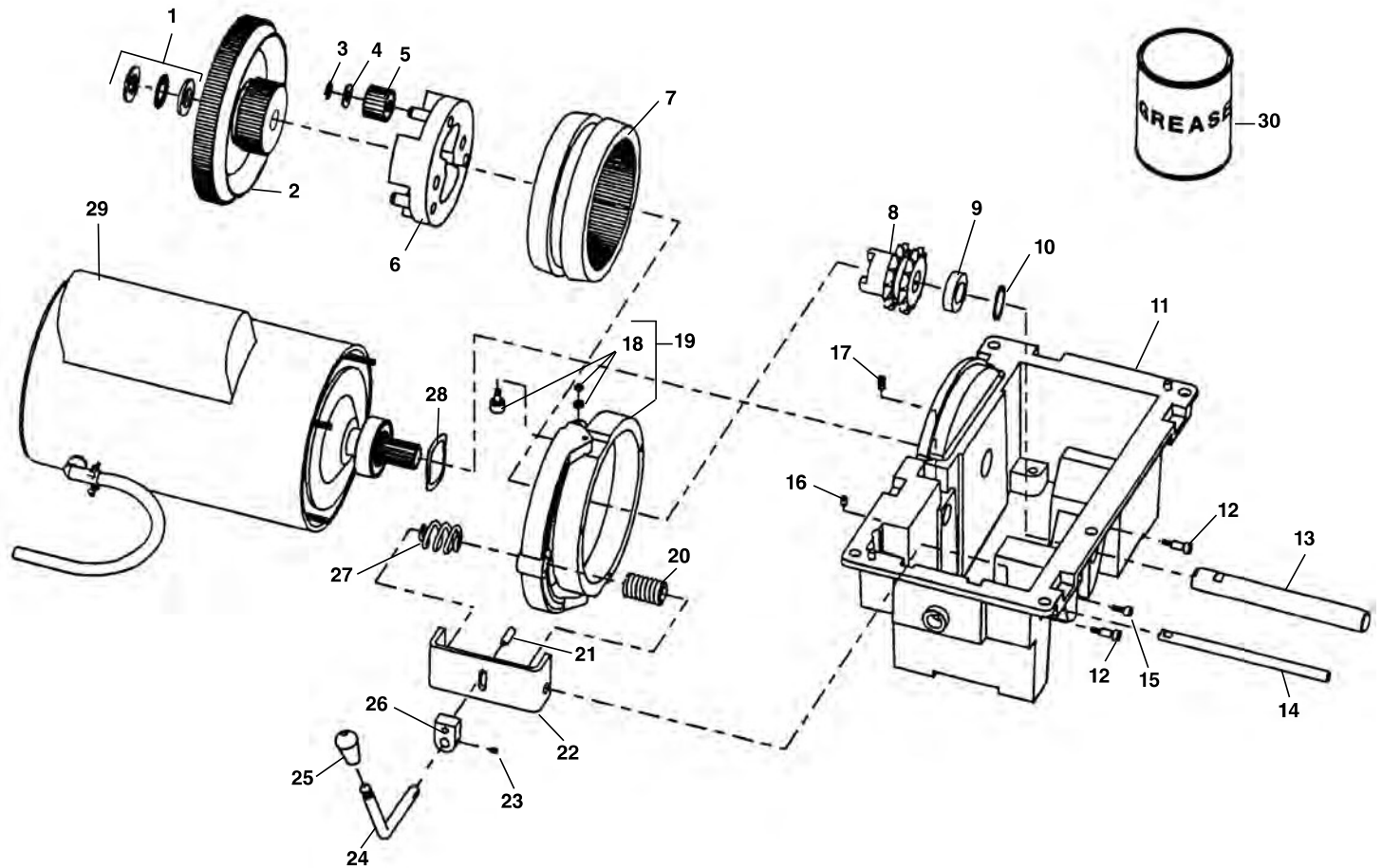
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	34652	Rear Cover	21*	26937	Retaining Ring (9)
2*	43352	Screw (3)	22	34757	Splash Guard
3*	43357	Washer (3)	23*	46785	Screw 10-32 x 3/8" (2)
4	34657	Top Cover w/Clips (Includes 4, 5, 7)	24	34762	Pivot Rod Pin (6)
5*	43362	"J" Clip (6)	25	34772	Front Pick-up Springs (3)
6	34662	Front Cover	26	34777	Roll Pin (6)
7*	43367	Screw (6)	27	34782	Jaw Insert (3) (Includes Ref.# 25, 26)
8	47497	Pivot Rod Support (2)	28	34787	Front Jaw Spacer (6)
9	34767	Pivot Rod (3)	29*	34245	Retaining Ring (3)
10	39567	Shoulder Screw 1/4" -20 x 1 1/2" (3)	30*	34792	Washer (3)
11	54290	Flat Washer (3)	31	40847	Front Jaw (Includes Ref.# 25, 26, 27, 32)
12	35362	Spring (3)	32*	44557	Jaw Insert Screw (3)
13	34702	Brake Shoe (3)	33	45470	Bolt 3/8" - 16 x 1" (5)
14	44552	Spindle Tube	34	44225	Nut 3/8" - 16 (5)
15	34712	Rear Bearing	35	34807	Rear Pick-up Spring (3)
16	34717	Spindle Housing	36	41347	Rear Jaw Set (Includes Ref.# 35, 37)
17*	34722	Nut #10 (2)	37	34817	Pick-up Spring Pin (6)
18	34727	Front Bearing	38	34802	Rear Jaw Spacer (6)
19	34732	Drive Sprocket w/Pins	—	46727	Hardware package (Includes items marked with *)
20	34742	Drive Chain w/Master Link			
	34747	Master Link			

†See Service Notes



**Transmission and Motor – Induction**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

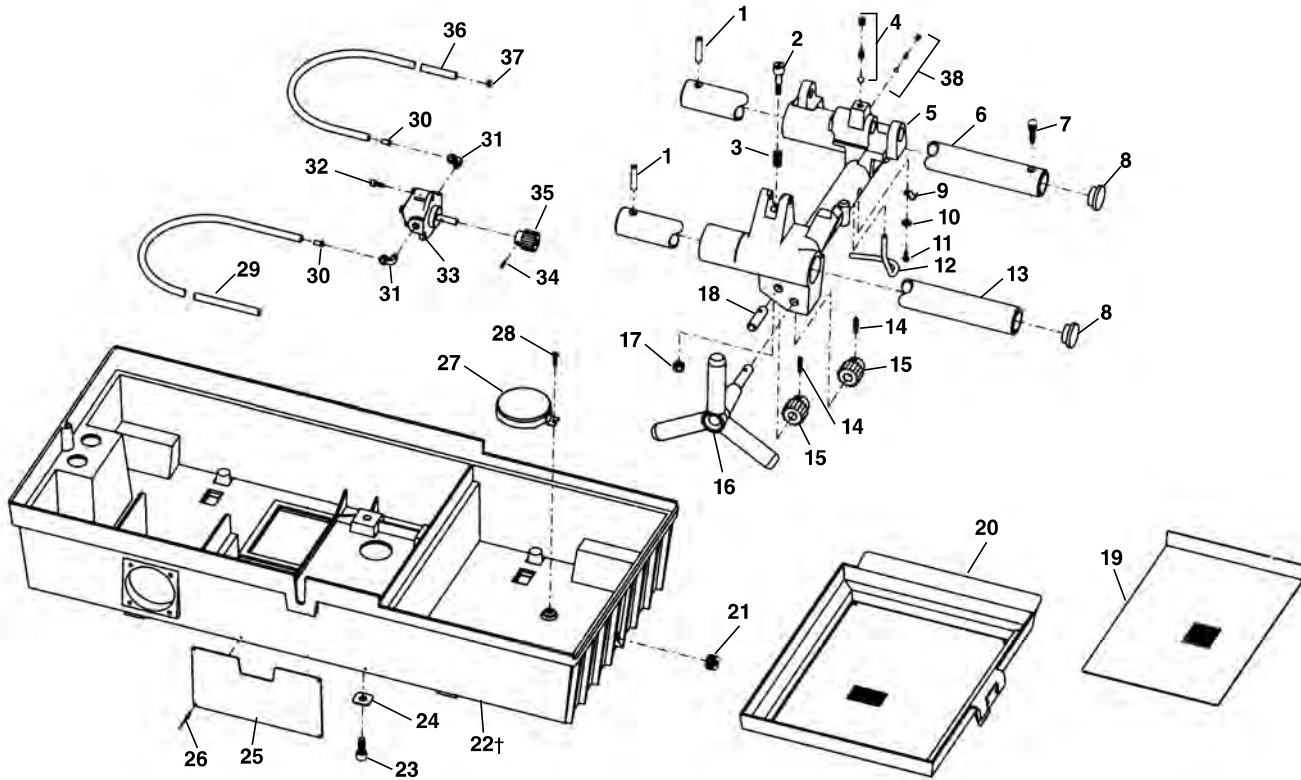
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	41425	Thrust Bearing w/Washer	11	34872	Transmission Housing	21	44640	Dowel Pin
2	44537	Input Gear 60 Hz	12	34877	Shoulder Screw 1/4" - 20 x 1/2" (2)	22	34912	Yoke Slide
3	34245	Retaining Ring (3)	13	34882	Transmission Shaft	23	34917	Set Screw 10 - 32 x 1/4"
4	34792	Washer (3)	14	34887	Shifter Shaft	24	34927	Shifter Lever
5	34837	Planet Gear (3)	15	40260	Screw 10 - 24 x 1/2"	25	34932	Knob
6	56822	Planet Gear Spider w/Pins	16	34897	Set Screw 10 - 32 x 1/4"	26	34922	Pivot Block
7	44527	Internal Ring Gear	17	34892	Set Screw 1/4" - 20 x 1/2"	27	35362	Barrel Spring
8	34862	Output Sprocket	18	44547	3/8" Cam Roller (2)	28	34942	Wave Washer
9	34867	Thrust Spacer	19	44542	Stationary Cup Assembly	29	34947	Motor 120V 60 Hz
10	68037	Wave Washer	20	34907	Large Spring	30	26707	Transmission Grease 1 lb. (2)

**1822-I Motor Parts**

Description	120V 60Hz
Dual Contact Start Switch	46772
Start Capacitor	46782
Run Capacitor	46802
Motor Bolts	46812

See 1822 Service Notes

Carriage and Oil System - Induction

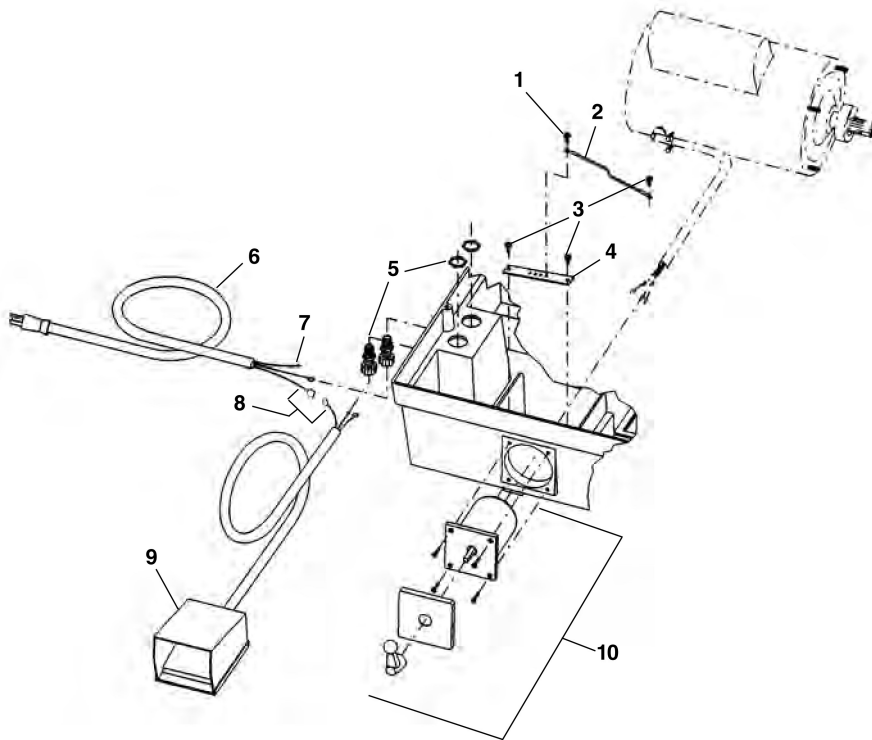


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	34375	Rail Pin (2)	21	48337	Drain Plug 3/4" NPT
2	35042	Stop Bolt	26842	Drain Plug (Rubber-Early Style)	
3	35047	Stop Bolt Spring	22†	59747	Base
4	46810	Detente Assembly	59752	Base (1822-IC)	
5	35147	Carriage (Includes 2, 3, 4, 5, 38)	23	46755	Bolt 3/8" -16 x 7/8" (4)
6	35057	Rear Rail	24	35107	Square Washer (4)
7	34425	Screw 5/16" -18 x 3/8"	25	36612	Warning Plate 60Hz
8	35162	Rail Plug (2)	26	35222	Pop Rivet (2)
9	35062	Oil Line Clamp	27	58467	Oil Screen Assembly
10	45365	Washer #10	28	26797	Oil Screen Screw 10-32 x 5/16"
11	79965	Screw 10-32 x 1/2"	29	35112	Oil Intake Line 30"
12	35067	Oil Tube	30	35117	Oil Line Insert (2)
13	35167	Front Rail	31	35122	90 Degree Fitting (2)
14	34342	Roll Pin 3/16" x 15/16" (2)	32	32145	Bolt 1/4" - 20 x 1/2" (3)
15	59092	Carriage Pinion (2)	33	39162	Oil Pump
16	35182	Handwheel	34	39820	Pin
17	75110	Stop Nut 5/16" -18	35	35197	24 T Pump Gear - 60 Hz
18	35187	Pinion Idler Shaft	36	35137	Oil Supply Line 40"
19	35192	Lower Screen	37	35142	Hose Clamp
20	35097	Draw Tray Assembly	38	35307	Oil Pressure Relief

† 20133 Switch required if changing from older style base. New base has smaller 2 1/2" diameter opening for switch.

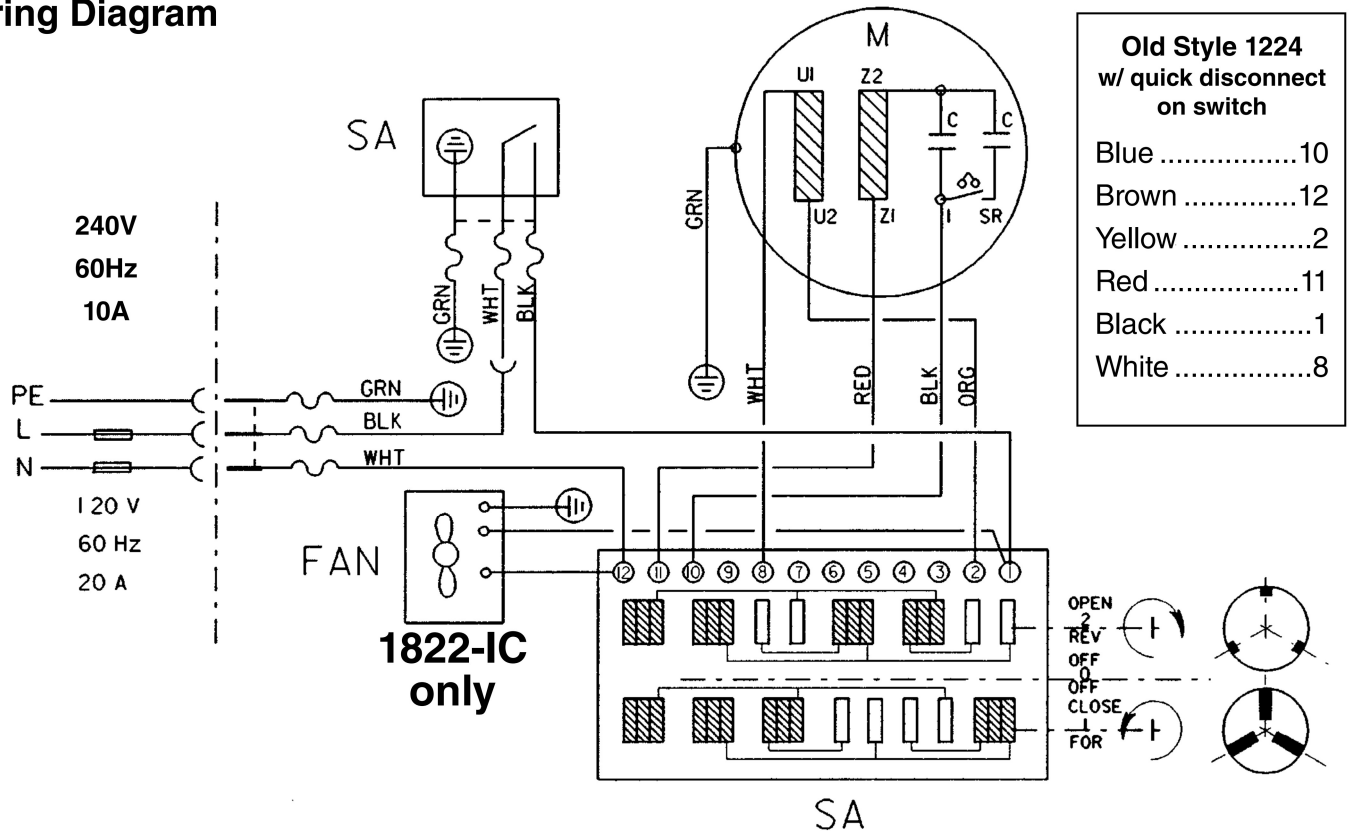
**60 Hz Electrical Components**



**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**

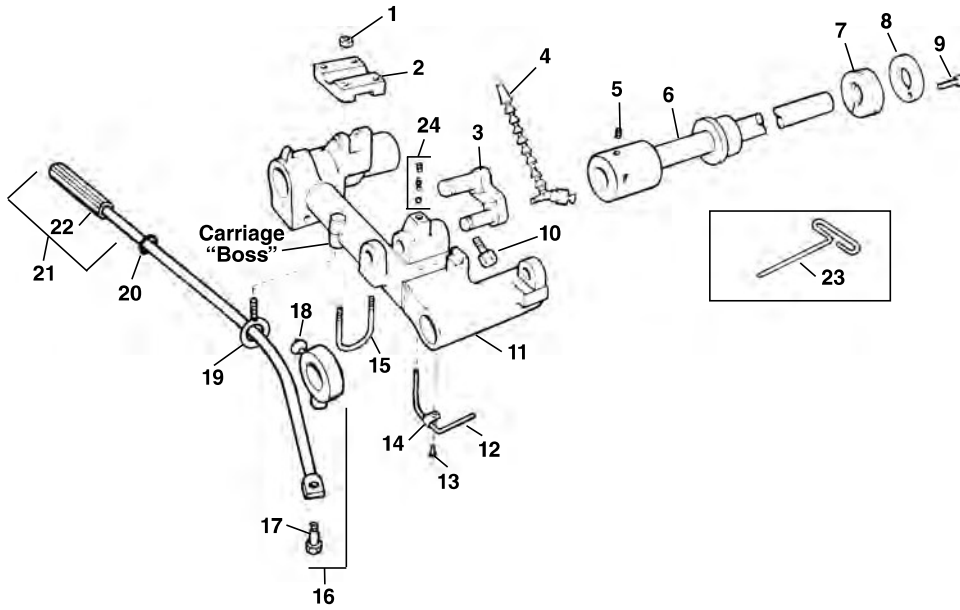
Ref. No.	Catalog No.	Description
1	34715	Screw 10-32 x 3/8" (3)
2	33607	Ground Wire
3	45420	Screw 10-24 (4)
4	59732	Ground Strap
5	68885	Strain Relief (2)
6	46740	Power Cord 120V
	46410	Power Cord 240V
7	36222	Wire Terminal
8	56407	Quick Disconnect Set
9	36642	B-294 Foot Switch
10	20133	Switch Assembly

**1224 & 1822-I Replacement Switch Wiring Diagram**



**No. 241 Carriage Mount Kit Parts**

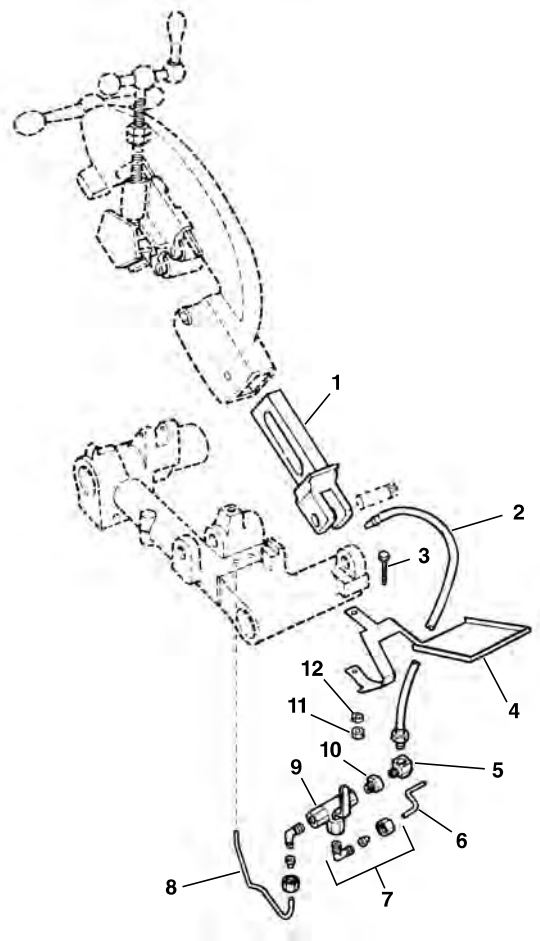
**NOTE: Order parts by Catalog Number only. DO NOT order by Reference Number.**



Ref. No.	Catalog No.	Description
—	35877	241 Carriage Mount Kit
1	96730	Hex Nut, 5/16" - 18
2	36177	Saddle
3	36182	Connecting Link
4	35277	Coolant Nozzle
5	39775	Set Screw, 5/8" - 11
6	36187	Drive Bar
7	36192	Spring
8	36197	End Cap
9	27357	Cap Screw, 1/4" - 20 x 3/4"
10	35202	Sq. Hd. Set Screw, 1/2" - 13
11	35052	Carriage
12	35067	Oil Supply Line
13	79965	Screw, 10-32 x 1/2"
14	35062	Oil Line Clamp
15	35207	U-Bolt
16	35282	Collar Assembly
17	46210	Shoulder Bolt
18	46220	Thumb Screw
19	35082	Eye Bolt
20	35092	O-Ring
21	43400	Lever Arm Assembly
22	46235	Hand Grip
23	35212	Hex Wrench
24	46810	Detente Assembly

**No. 822 Blade Cutter Adapter Kit Parts**  
**307 Oil Spout Assembly**

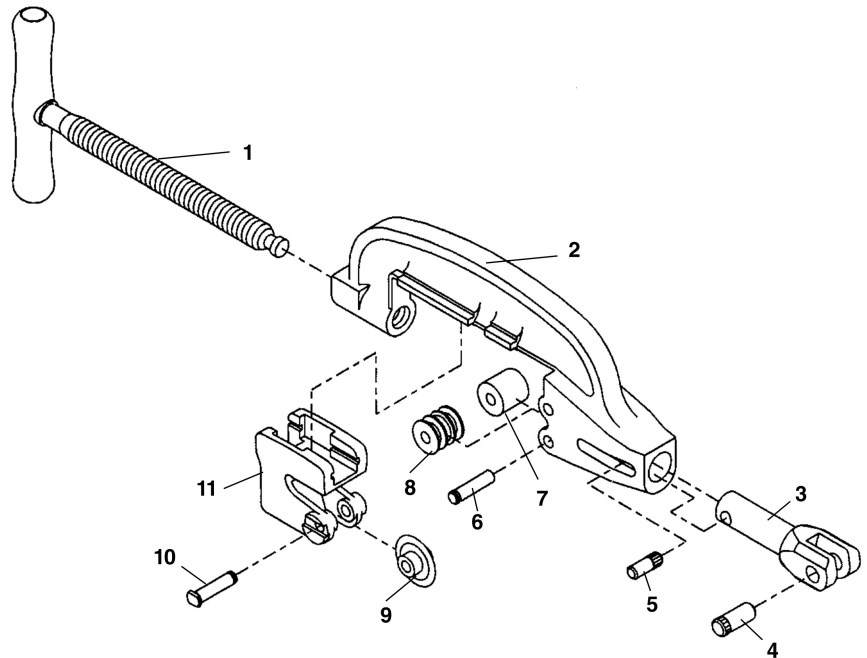
Ref. No.	Catalog No.	Description
—	35872	822 Adapter Kit
—	36602	307 Manifold Kit
1	36137	Cutter Arm (822 Kit Only) (1)
2	39845	Coolant Nozzle (1)
3	44510	Cap Screw 1/4" - 20 x 2" (1)
4	36142	Drip Guard (1)
5	36147	90° Street Elbow (1)
6	36152	Oil Line (3.3 in.) (1)
7	36157	90° Comp. Fitting (2)
8	36162	Oil Line (7.4 in.) (1)
9	36167	3-Way Valve (1)
10	36172	Reducer Bushing (1)
11	83890	Hex Nut, 1/4" - 20 (1)
12	27097	Flat Washer, 1/4" (1)



### No. 364 Cutter

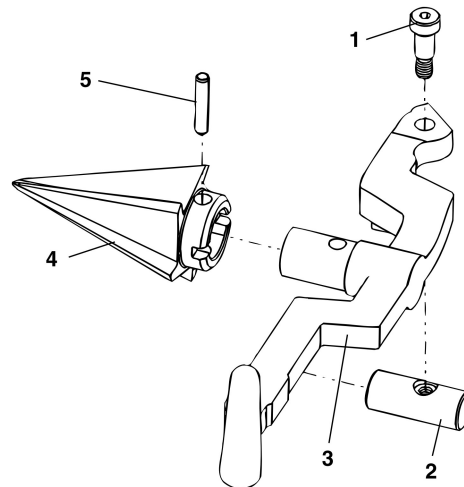
**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description
—	34617	364 Cutter Complete
1	36287	Feed Screw Handle
2	36292	Cutter Frame
3	45505	Support Arm
4	45520	Hinge Pin
5	35317	Retaining Pin
6	46662	Roll Pin (2)
7	46960	Roll (Steel) (2)
8	43682	Roll Pl. Coated Pipe (2)
9	44185	Cutter Wheel E-1032
10	34780	Wheel Pin
11	36282	Wheel Housing



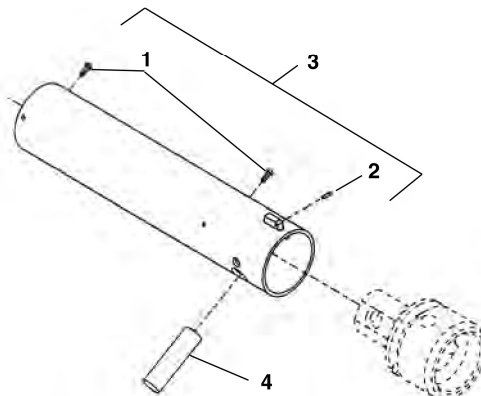
### No. 344 Reamer

Ref. No.	Catalog No.	Description
—	34612	344 Reamer Complete
1	36262	Shoulder Screw
2	36267	Pivot Pin
3	36272	Reamer Arm
4	36277	Reamer Cone (R.H.)
	46660	Reamer Cone (L.H. & R.H.)
5	35355	Split Roll Pin

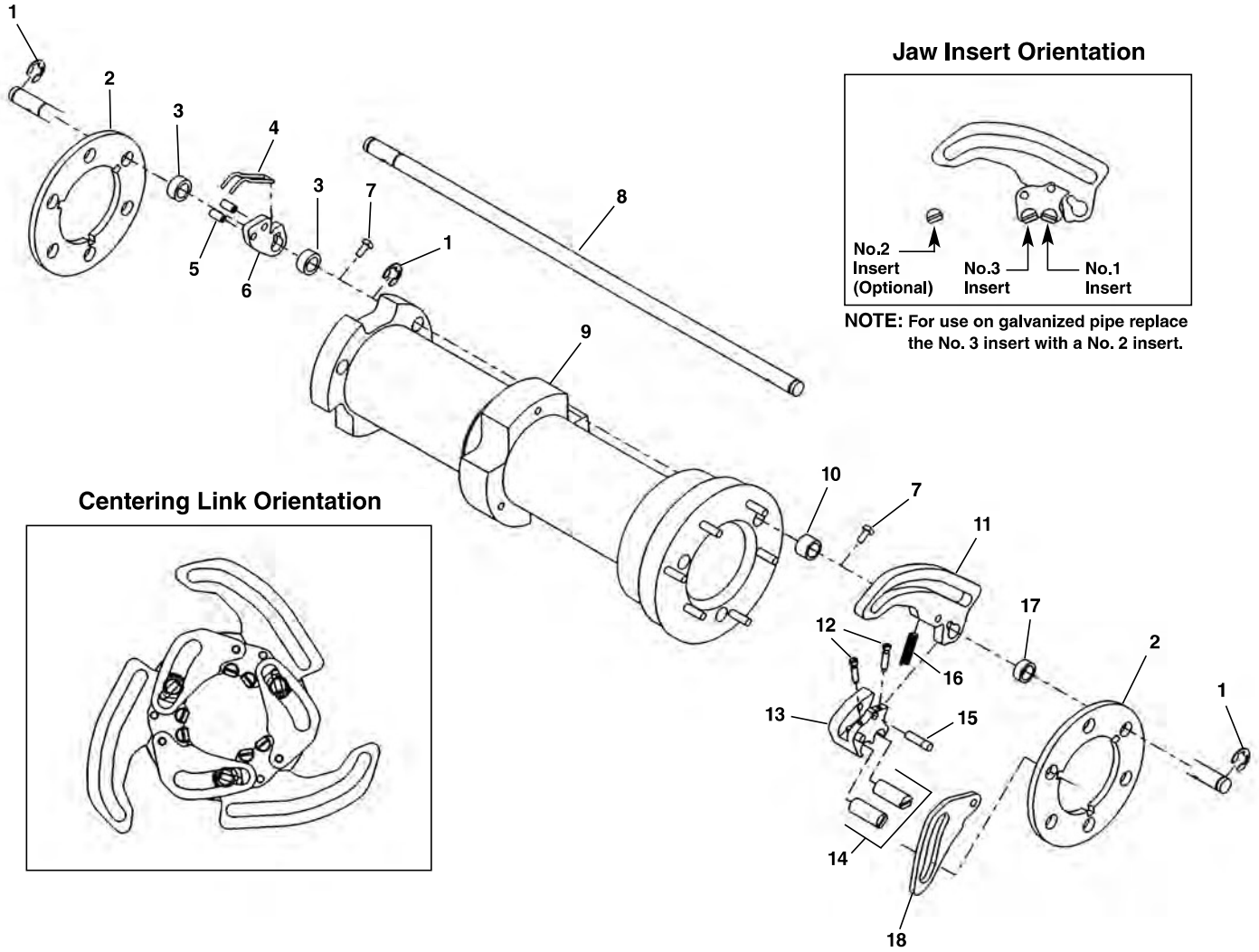


### No. 839 Nipple Chuck

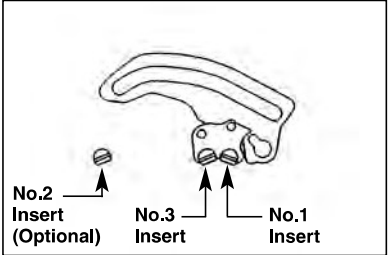
Ref. No.	Catalog No.	Description
—	35867	No. 839 Adapter Kit
1	54307	Drive Screw (6)
2	47502	Roll Pin
3	47507	Tube Assembly
4	47512	Pin, 3/4" x 2 3/4"



### Spindle Assembly For Plastic Coated Pipe

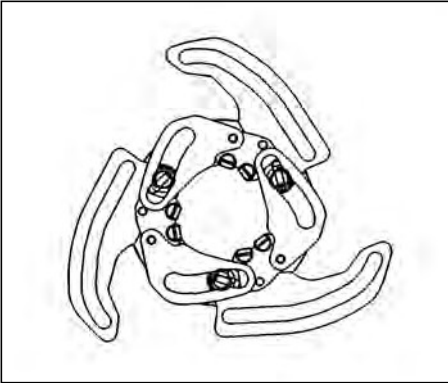


**Jaw Insert Orientation**



**NOTE:** For use on galvanized pipe replace the No. 3 insert with a No. 2 insert.

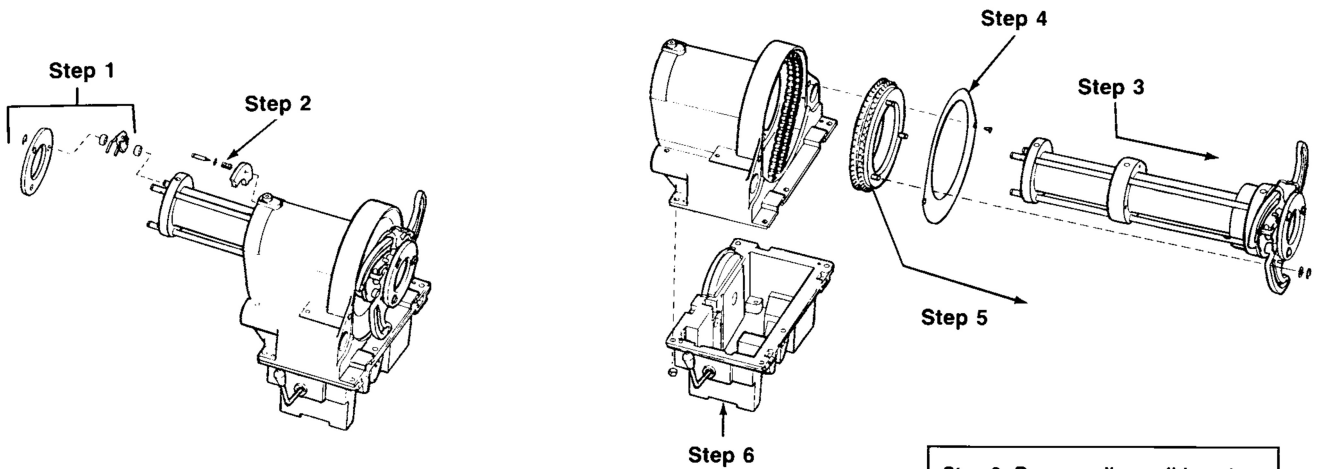
**Centering Link Orientation**



**NOTE:** Order parts by Catalog Number only.  
DO NOT order by Reference Number.

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	50107	Plastic Coated Pipe Spindle Assembly	10	34787	Large Front Spacer
1	26937	Retaining Clip (9)	11	52977	Jaw (3) (Includes Ref. No.12-16)
2	47497	Pivot Rod Support (2)	12	46642	Jaw Insert Screw (6)
3	34802	Rear Spacer (6)	13	52982	Insert Holder (3)
4	43407	Rear Pick-up Spring (3)	14	43377	Jaw Insert Set (Includes 3 each No.1 & 3 Inserts)
5	34817	Rear Pick-up Spring Pin (6)	15	46647	Jaw Insert Set (No. 2 - Optional f/Galv. Pipe)
6	43412	Rear Jaw (3) (Includes Ref. No. 4 & 5)	16	43402	Insert Holder Pin (3)
7	34762	Pivot Rod Pin (6)	17	52987	Insert Holder Spring (3)
8	34767	Pivot Rod (3)	18	43392	Small Front Spacer (3)
9	61127	Spindle Tube f/P.C.P.	18	43387	Centering Link (3)

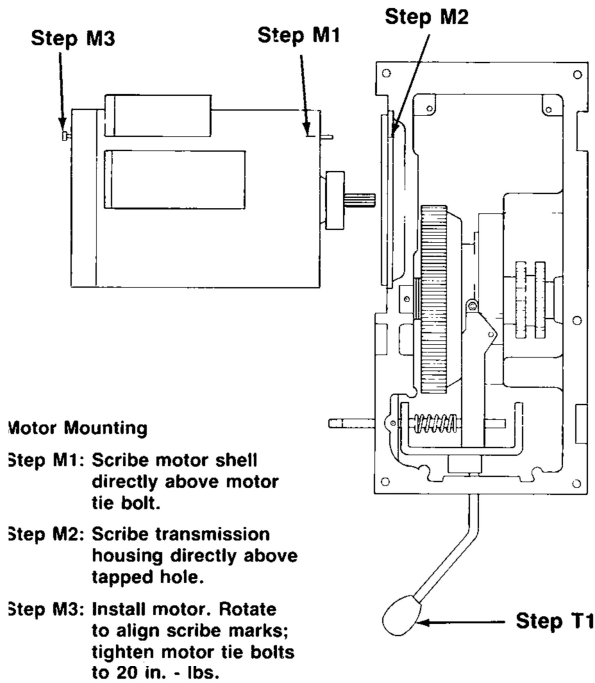
### Power Assembly/Drive Assembly Separation Procedure



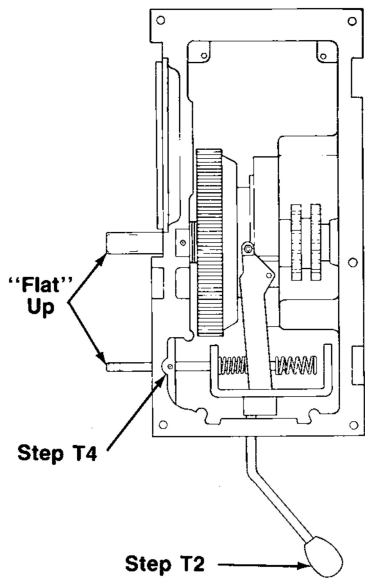
**Step 1: Remove Rear Centering Device.**  
**Step 2: Remove Brake Shoes (3).**

**Step 3: Remove clips - slide out Spindle Assembly.**  
**Step 4/5: Remove Splash Guard and Sprocket.**  
**Step 6: Separate housings.**

### Motor Mounting and Transmission Shifter Assembly (Induction Only)



**Motor Mounting**  
**Step M1:** Scribe motor shell directly above motor tie bolt.  
**Step M2:** Scribe transmission housing directly above tapped hole.  
**Step M3:** Install motor. Rotate to align scribe marks; tighten motor tie bolts to 20 in. - lbs.

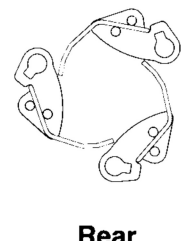
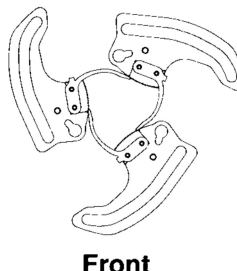
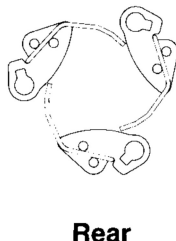
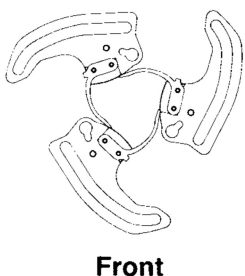


**Transmission Shifter Assembly**  
**Step T1:** Rotate shift lever to left and install small (short) spring over shifting shaft.  
**Step T2:** Rotate shift lever to right and install large (long) spring.  
**Step T3:** (Not shown) Rotate shift lever to center (upright) position and finish installing shaft.  
**Step T4:** Tighten set screw.  
**Note:** Install "flat" on shafts UP.

**Right Hand**

**Jaw Orientation**

**Left Hand**

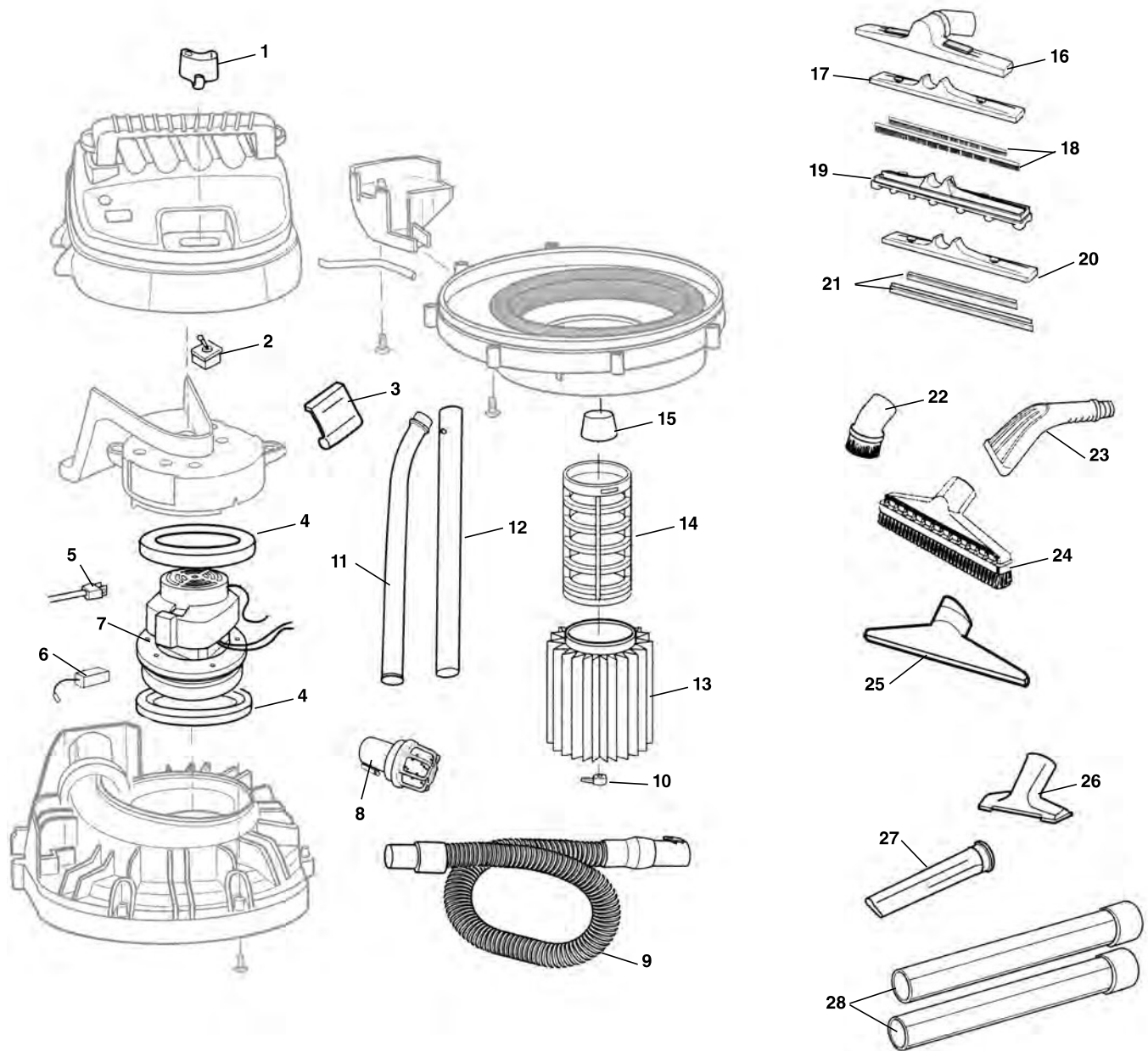


**Front**

**Rear**

**Front**

**Rear**

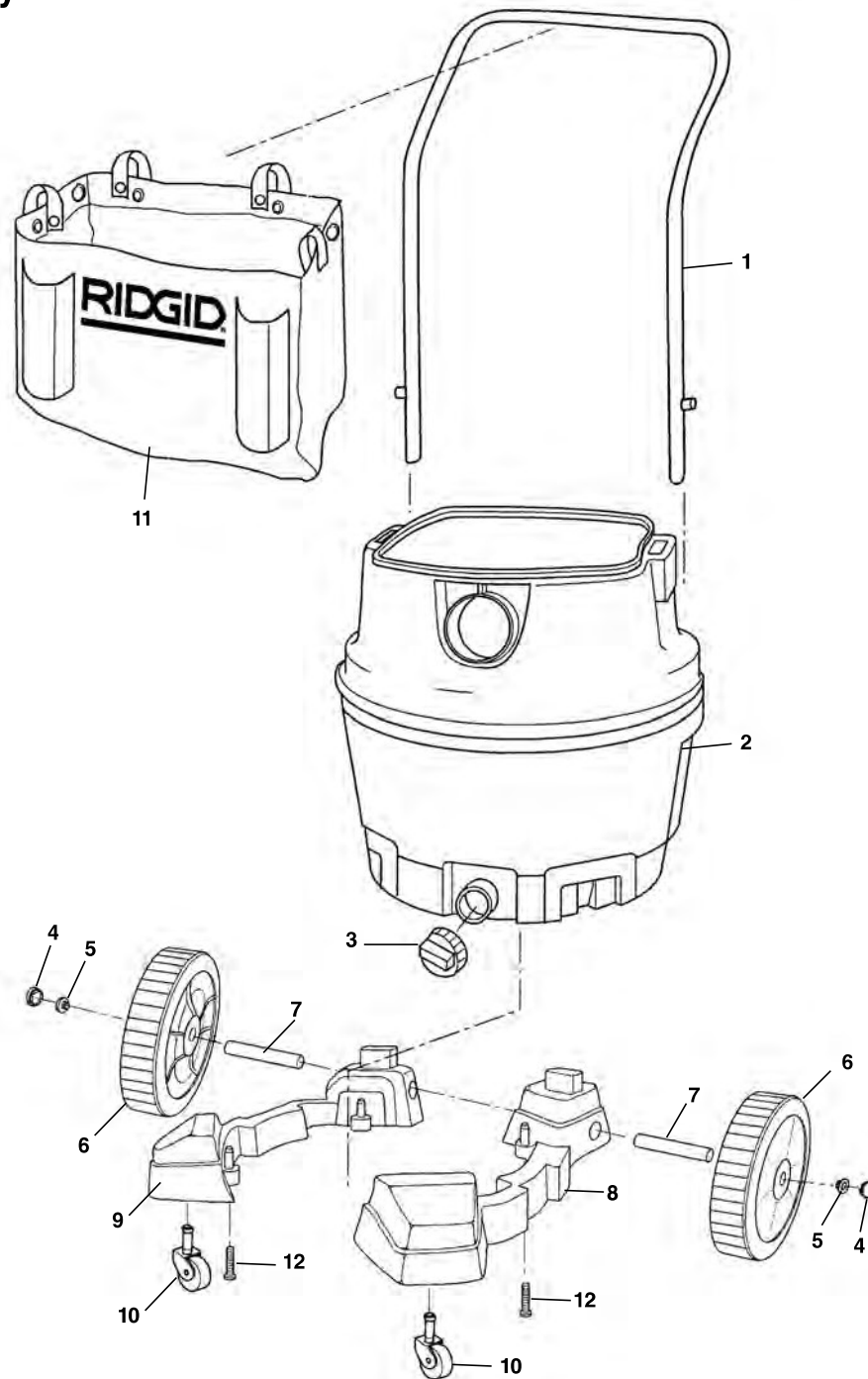


**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	19818	Actuator Switch	11	31103	Extension Wand Upper (Metal)	21	30528	Replacement Squeegee Inserts – RV2600B
2	12313	Toggle Switch	12	31108	Extension Wand Lower (Metal)	22	23783	Dusting Brush – RV2600B
3	83747	Drum Latch	13	72952	Filter	23	26578	Claw Nozzle w/adapters – RV2600B
4	30453	Motor Gasket (2)	14	73637	Filter Cage	24	72922	Floor Brush – RV2400A
5	30448	Cord Assembly	15	19883	Float	25	72912	Wet Nozzle – RV2400A
6	30438	Motor Brush	16	31073	Multi-Nozzle Body – RV2600B	26	72907	Utility Nozzle – RV2400A
7	30443	Motor Assembly	17	31078	Floor Brush Insert – RV2600B	27	72932	Crevice Tool – RV2400A
8	72927	Muffle/Diffuser	18	30523	Replacement Floor Brush Inserts – RV2600B	28	72902	Extension Wands – RV2400A
9	30458	Tug-A-Long Hose – RV2400A	19	31083	Carpet Insert – RV2600B			
	31098	Tug-A-Long Hose – RV2600B	20	31088	Squeegee Insert – RV2600B			
10	83872	Filter Nut						



**Cart Assembly**



**NOTE: Order parts by Catalog Number only.  
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	19893	Handle Metal	7	30468	Shaft
2	19898	Drum Assembly (RV2600B)	8	19928	Caddy Right
	20058	Drum Assembly (RV2400A)	9	19933	Caddy Left
3	73737	Drain Cap	10	30473	Caster
4	19903	Button Cap	11	30483	Holder Accessory
5	19908	Nut Washer Cap 1/2"	12	12338	Screw PN Serr TY AB 10 x 1 3/4"
6	19913	Wheel Assembly (RV2400A)			
	30478	Wheel Assembly (RV2600B)			

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1140 5th Ave. N., **35203**  
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- Ⓢ **BIRMINGHAM**, Electronic Repair Co.  
8518 First Ave. N., **35206**  
(205) 836-0454
- Ⓢ **SPANISH FORT**, Mobile Service Elec. Rep.  
11617 US HWY 31, **36527**  
(251) 327-8355

## ALASKA

- WASSILLA**, Mat-Su Tool Repair  
522 McKinley St., **99654**  
(907) 357-0647

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(602) 957-9710
- † **PHOENIX**, Glenn's Tool Service  
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(602) 264-6203
- PHOENIX**, Unicoa Industrial  
2224 N. 23rd Ave., **85009**  
(602) 254-4666
- PHOENIX**, Western Drain Supply  
6007 South 40th St. #5, **85042**  
(602) 861-5973
- TEMPE**, Fisher Tool  
1990 East 3rd St., **85281**  
(480) 968-0123
- TUCSON**, Precision Tool & Construction  
4857 East 29th St., **85711**  
(520) 745-1100
- TUCSON**, Western Tool, Inc.  
702 S. Campbell Ave., **85719**  
(520) 884-0504

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- LITTLE ROCK**, Clark Hydraulic Service  
2901 Confederate Blvd., **72206**  
(501) 375-1252 (800) 264-1252
- LITTLE ROCK**, Partners Airless  
4360 Rixey Rd., **72117**  
(501) 833-3306

## CALIFORNIA

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- ANAHEIM**, Westside Building Material  
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(714) 385-1644
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7904 Sunrise Blvd., **95610**  
(916) 722-3110
- † **CORONA**, We-do Equipment Repair  
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(951) 808-9167
- † **HAYWARD**, California Service Tool  
• 3875 Bay Center Place, **94545**  
(510) 782-1000
- † **(LOS ANGELES) HAWTHORNE**,  
Drain Cleaner Service, J. M. McKinney Co.  
12710 Yukon Ave., **90250**  
(800) 821-7275
- † **(LOS ANGELES) N. HOLLYWOOD**,  
• Bucknall Power Tool Service  
11910 Yose St., **91605**  
(818) 765-0228
- MONTEBELLO**, Logan Supply  
7515 Telegraph Rd., **90640**  
(323) 724-4330
- † **PANORAMA CITY**, Drain Cleaner Service,  
J.M. McKinney Co.  
14624 Titus St., **91402**  
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3855 Ruffin Rd., **92123**  
(858) 244-3300
- SAN DIEGO**, South Coast Tool Repair  
9660 Chesapeake Dr., **92123**  
(858) 569-0929
- SIGNAL HILL**, Tool Works  
1431 East 28th St., **90755**  
(562) 988-9150

- † **SO. SAN FRANCISCO**, C. H. Bull Company  
229 Utah Ave., **94080**  
(650) 871-8440

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- † **DENVER**, AIS Industrial  
• 8103 E. 39th Ave., **80207**  
(303) 355-2391
- † **DENVER**, Runge Tool Company  
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- † **ORANGE**, Colony Hardware Supply  
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(203) 466-5252
- SOUTH WINDSOR**, Utility Electric Service  
255 Chapel Rd., **06074**  
(860) 246-7271

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- † **CLEARWATER**, Atlas Constr. Equip. Services  
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2487 County Rd. 220, **32068**  
(904) 282-3707
- † **ORLANDO**, Contractors Tool Service  
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(407) 292-2808
- PENSACOLA**,  
Escambia Electric Motor Service  
1101 W. Main, **32501**  
(850) 432-1577
- WEST PARK**, National Tool Supply  
5799 S.W. 28th, **33023**  
(800) 432-5078 (954) 985-8100

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• 1420 Collier Rd. NW, **30318-2814**  
(404) 605-0101
- Ⓢ **BLACKSHEAR**, P & H Supply  
3307 Katie Dr., **31516**  
(912) 222-4593
- VALDOSTA**, Whitehead Hardware  
104 S. Lee Street, **31601**  
(229) 242-3910

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841 Pohukaina Street, B-1, **96813**  
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- BOISE**, K.C. Supply Company  
5103 Irving St., **83706**  
(208) 375-1313 (800) 446-9004

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• 6642 W. 26th St., **60402**  
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- EAST CHICAGO**,  
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2120 E. Columbus Dr., **46312**  
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5105 Industrial Rd., **46825**  
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- FORT WAYNE**,  
Wagner Electric of Fort Wayne, Inc.  
3610 N. Clinton St., **46805**  
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- DES MOINES**, Tool Hospital  
1631 Second Ave., **50314**  
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- DES MOINES**, Total Tool/Tool House  
622 SE 5th Street, **50309**  
(515) 244-1516

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815 Kansas Ave., **66105**  
(913) 321-6385
- KANSAS CITY**, KC Winfastener  
1232 Southwest Blvd., **66103**  
(913) 831-2300
- † **KANSAS CITY**, Total Tool  
275 Southwest Blvd., **66103**  
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1856 Wooddale Ct, **70806**  
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- Ⓢ **BATON ROUGE**,  
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(225) 924-9672
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704 North 7th Street, **71291**  
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8517 I St., **68127-1615**  
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† (**HARRISBURG**) **MECHANICSBURG,**  
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**PHILADELPHIA, Diamond Tool**  
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† **PITTSBURGH, H K McJunkin Inc.**  
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(**Koilmann Only**)

**PITTSBURGH, Scott Electric Co.**  
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(**PITTSBURGH**) **NEVILLE ISLAND,**  
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(412) 269-9109

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† **SAN JUAN, MacClimber Rental**  
Carretera 1 KM 25.5  
(787) 749-8110

**RHODE ISLAND**  
† (**PROVIDENCE**) **WARWICK,**  
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**SOUTH CAROLINA**  
**ANDERSON, Carson's Nut-Bolt & Tool**  
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Ⓢ (**NASHVILLE**) **LEBANON,**  
Tracer Electronics, LLC  
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(615) 285-3952

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† **AUSTIN, Austin Tool, Inc.**  
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(361) 883-1117

**CORPUS CHRISTI, Bush Hydraulics**  
2012 N. Lexington Blvd., **78409**  
(361) 289-0441 (800) 580-2874

† **DALLAS, Big D Tool Center, Inc.**  
• 8740 West John Carpenter Freeway, **75247**  
(214) 631-3731

**HOUSTON, Hydraulic Equipment Service Co.**  
1021 N. San Jacinto St., **77002**  
(713) 228-9601

† **MISSOURI CITY, Tool Mart, Inc.**  
13721 S. Gessner #200, **77489**  
(713) 222-8665

**LUBBOCK, Lubbock Electric Company, Inc.**  
1108 34th St., **79411**  
(806) 744-2336

**ODESSA, Ace Specialties Inc.**  
302 Industrial, **79763**  
(432) 332-0691

**ODESSA, Engine Service & Supply Co.**  
1902 N. Andrews Highway, **79761**  
(432) 337-2386 (800) 441-0636

**PASADENA, Hurricane Tool & Supply**  
2330 Pasadena Blvd., **77502**  
(281) 476-5530

**PHARR, American Ind. Supply & Tool Repair**  
1101-A West Business 83, **78577**  
(956) 702-4410

Ⓢ **ROCKWALL, Utility Equ. Tech. Inc.**  
382 Stevens Road, **75032**  
(972) 771-8958

**SAN ANTONIO, Electric Motor Service & Sales**  
1514 E. Commerce, **78205**  
(210) 226-3462

† **SAN ANTONIO, Tool Mart Inc.**  
10568 Sentinel Street, **78217**  
(210) 655-6116

**UTAH**  
† **MIDVALE, A1 Industrial Tool and Service**  
7036 South High Tech Dr., **84070**  
(801) 561-4455, Ext. 211

**SALT LAKE CITY, Diamond Electric Motor Repair**  
1465 South 300 West, **84115**  
(801) 484-4325 (888) 485-4325

**VERMONT**  
**SOUTH BARRE, Reynolds & Sons Inc.**  
47 Bridge Street, **05670**  
(802) 479-0101

**VIRGINIA**  
**NORFOLK, Bryan Electric Company, Inc.**  
424 W. 25th St., **23517**  
(757) 625-2525

† **RICHMOND, Hajoca Corporation.**  
3000 Cofer Rd., **23234**  
(804) 231-5790

**RICHMOND, Roy's Electric Motor Service**  
3201 Norfolk St., **23230**  
(804) 355-5713

**SINGERS GLEN, Kauffman Family Tool Repair**  
10706 Morning View Rd., **22850**  
(540) 820-4879

Ⓢ **VIRGINIA BEACH, Tidewater Valve & Fitting, Inc.**  
1373 London Bridge Rd., **23453**  
(757) 340-3181

**WASHINGTON**  
† **AUBURN, Delta Electric Motors Inc.**  
• 2141 West Valley Hwy. N., **98001**  
(253) 833-1572

† **SEATTLE, Ballard Hardware & Supply**  
4760 Ballard Ave., NW, **98127**  
(206) 783-6626

† **SPOKANE, Edge Construction Repair**  
1507 E. Riverside, **99220**  
(509) 535-9841 (800) 348-4808

**TACOMA, Center Electric Co.**  
1212 S. 30th St., **98409**  
(253) 383-4416

**WEST VIRGINIA**  
(**CHARLESTON**) **POCA, Ohio Tool Systems, Inc.**  
165 Jacobson Drive, **25159**  
(304) 755-5030

**HUNTINGTON, Lawter Electric Motor Co.**  
202 Adams Ave., **25701**  
(304) 522-8297

**WISCONSIN**  
**GREEN BAY, Power Tool Service**  
1180 Ashwaubenon St., **54304**  
(920) 983-4480

† **PEWAUKEE, Jensen Equipment Co., Inc.**  
• N.27 W23015 Roundy Dr., **53072**  
(262) 547-5548 (800) 875-8875

**CANADA**

**ALBERTA**  
• **CALGARY, Power Tool Clinic LTD.**  
#11 -2219, 35th Ave. N.E., **T2E 6W3**  
(403) 276-4633

Ⓢ **CALGARY, Industrial Power Tool Maintenance, LTD**  
4115 - 64th Ave SE., Suite 8, **T2C 2C8**  
(403) 261-0780

**EDMONTON, Century Vallen**  
4810 - 92 Ave., **T6B 2X4**  
(780) 468-3366

† **EDMONTON, Celtic Industrial Tools Ltd.**  
5736 - 103A St., **T6H 2J5**  
(780) 431-0970

Ⓢ **EDMONTON, Jacal Technologies**  
7427-67th St. NW, **T6B 2J3**  
(780) 940-1502

**BRITISH COLUMBIA**  
† **BURNABY, West Coast Tool**  
4008 Myrtle St., **V5C 4G2**  
(604) 873-5394

**DELTA, Rapid Tool Repair**  
28-7621 Vantage Way, **V4G 1A6**  
(604) 940-8603

† **LANGLEY, Raider Hansen**  
• 5736 Production Way **V3A 4N4**  
(604) 530-0224

Ⓢ **VICTORIA, Pangco Electronic Services**  
101-3296 Tennyson Ave, **V8Z 3P3**  
(250) 475-0001

**MANITOBA**  
† **WINNIPEG, Itech Tools**  
Unit B, 171 Cole Ave., **R2L 2C5**  
(204) 777-7372

**NEWFOUNDLAND AND LABRADOR**  
† **ST. JOHN'S, Rideout Tool & Machine Inc.**  
222 Kenmount Road, **A1B 3R2**  
(709) 754-2240

**NOVIA SCOTIA**  
† **DARTMOUTH, Deiters Tool & Saw Service, LTD**  
109 Hsley Ave. Unit 10, **B3B 1S8**  
(902) 468-4888

**ONTARIO**  
† **LONDON, Pryde Industrial Inc.**  
187 Exeter Rd, **N6L 1A4**  
(519) 690-1111

† **OTTAWA, Mytek Power Tools**  
1541 Star Top Rd., **K1B 3W5**  
(613) 749-7294

† (**HAMILTON**) **STONE CREEK,**  
• Charles Jones Industrial Ltd.,  
237 Arvin Ave., **L8E 5S6**  
(905) 664-8448

**SARNIA, Serv-A-Tool & Repairs**  
504 McGregor Rd., **N7T 7H5**  
(519) 344-8837

† (**TORONTO**) **WESTON, Pipe Tools Repair & Service Centre Ltd.**  
114 Rivalda Rd., **M9M 2M8**  
(416) 749-5830

**SASKATCHEWAN**  
† **SASKATOON, Sask Tool Repair LTD**  
311A - 47th Street, East, **57K 5H2**  
(306) 244-9981

**QUEBEC**  
Ⓢ **QUEBEC CITY, DNR Electronique**  
57 Marie Del'Incarnation, **G1N 3E9**  
(418) 681-5055

† **MONTREAL, Leger Hoist Equipment, Inc.**  
7995 17th Ave., **H1Z 3R2**  
(514) 376-3050

† (**MONTREAL**) **LAVAL, Centre de Reparations Hydrauliques Uptown Ltee**  
1213 Rue Tellier, **H7C 2H1**  
(450) 664-1111 or 1-800-363-7956

† **ST. MICHEL, Wolseley**  
7711 17E Avenue, **H2A 254**  
(514) 723-4696

**SHERBROOKE, Do-Mar Electric Inc.**  
1136 Rue King Est, **J1G 1E4**  
(819) 563-2234

Ⓢ SeeSnake ONLY    † Authorized SeeSnake Repair Center    • Authorized Pressing Repair Center

**What is covered**

RIDGID® tools are warranted to be free of defects in workmanship and material.

**How long coverage lasts**

This warranty lasts for the lifetime of the RIDGID® tool. Warranty coverage ends when the product becomes unusable for reasons other than defects in workmanship or material.

**How you can get service**

To obtain the benefit of this warranty, deliver via prepaid transportation the complete product to RIDGE TOOL COMPANY, Elyria, Ohio, or any authorized RIDGID® INDEPENDENT SERVICE CENTER. Pipe wrenches and other hand tools should be returned to the place of purchase.

**What we will do to correct problems**

Warranted products will be repaired or replaced, at RIDGE TOOL'S option, and returned at no charge; or, if after three attempts to repair or replace during the warranty period the product is still defective, you can elect to receive a full refund of your purchase price.

**What is not covered**

Failures due to misuse, abuse or normal wear and tear are not covered by this warranty. RIDGE TOOL shall not be responsible for any incidental or consequential damages.

**How local law relates to the warranty**

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights, and you may also have other rights, which vary, from state to state, province to province, or country to country.

**No other express warranty applies**

This FULL LIFETIME WARRANTY is the sole and exclusive warranty for RIDGID® products. No employee, agent, dealer, or other person is authorized to alter this warranty or make any other warranty on behalf of the RIDGE TOOL COMPANY.



FULL LIFETIME WARRANTY (garantie légale étendue à la durée de vie du produit, voir conditions de garantie / legal warranty extended to the product lifecycle, see warranty conditions)

**Parts are available online at [Store.RIDGID.com](http://Store.RIDGID.com)**

**Technical Service: 800-519-3456**  
(Product Application Assistance)

**Visit our web sites: [RIDGID.com](http://RIDGID.com)**  
**and [Store.RIDGID.com](http://Store.RIDGID.com)**

**Ridge Tool Company**  
400 Clark Street  
Elyria, Ohio 44035-6001  
U.S.A.

**Ce qui est couvert**

Les outils RIDGID® sont garantis contre tous vices de matériaux et de main d'oeuvre.

**Durée de couverture**

Cette garantie est applicable durant la vie entière de l'outil RIDGID®. La couverture cesse dès lors que le produit devient inutilisable pour raisons autres que des vices de matériaux ou de main d'oeuvre.

**Pour invoquer la garantie**

Pour toutes réparations au titre de la garantie, il convient d'expédier le produit complet en port payé à la RIDGE TOOL COMPANY, Elyria, Ohio, ou bien le remettre à un réparateur RIDGID® agréé. Les clés à pipe et autres outils à main doivent être ramenés au lieu d'achat.

**Ce que nous ferons pour résoudre le problème**

Les produits sous garantie seront à la discrétion de RIDGE TOOL, soit réparés ou remplacés, puis réexpédiés gratuitement ; ou si, après trois tentatives de réparation ou de remplacement durant la période de validité de la garantie le produit s'avère toujours défectueux, vous aurez l'option de demander le remboursement intégral de son prix d'achat.

**Ce qui n'est pas couvert**

Les défaillances dues au mauvais emploi, à l'abus ou à l'usure normale ne sont pas couvertes par cette garantie. RIDGE TOOL ne sera tenue responsable d'aucuns dommages directs ou indirects.

**L'influence de la législation locale sur la garantie**

Puisque certaines législations locales interdisent l'exclusion des dommages directs ou indirects, il se peut que la limitation ou exclusion ci-dessus ne vous soit pas applicable. Cette garantie vous donne des droits spécifiques qui peuvent être éventuellement complétés par d'autres droits prévus par votre législation locale.

**Il n'existe aucune autre garantie expresse**

Cette GARANTIE PERPETUELLE INTEGRALE est la seule et unique garantie couvrant les produits RIDGID®. Aucun employé, agent, distributeur ou tiers n'est autorisé à modifier cette garantie ou à offrir une garantie supplémentaire au nom de la RIDGE TOOL COMPANY.

**Qué cubre**

Las herramientas RIDGID® están garantizadas contra defectos de la mano de obra y de los materiales empleados en su fabricación.

**Duración de la cobertura**

Esta garantía cubre a la herramienta RIDGID® durante toda su vida útil. La cobertura de la garantía caduca cuando el producto se torna inservible por razones distintas a las de defectos en la mano de obra o en los materiales.

**Cómo obtener servicio**

Para obtener los beneficios de esta garantía, envíe mediante porte pagado, la totalidad del producto a RIDGE TOOL COMPANY, en Elyria, Ohio, o a cualquier Servicentro Independiente RIDGID®. Las llaves para tubos y demás herramientas de mano deben devolverse a la tienda donde se adquirieron.

**Lo que hacemos para corregir el problema**

El producto bajo garantía será reparado o reemplazado por otro, a discreción de RIDGE TOOL, y devuelto sin costo; o, si aún resulta defectuoso después de haber sido reparado o sustituido tres veces durante el período de su garantía, Ud. puede optar por recibir un reembolso por el valor total de su compra.

**Lo que no está cubierto**

Esta garantía no cubre fallas debido al mal uso, abuso o desgaste normal. RIDGE TOOL no se hace responsable de daño incidental o consiguiente alguno.

**Relación entre la garantía y las leyes locales**

Algunos estados de los EE.UU. no permiten la exclusión o restricción referente a daños incidentales o consiguientes. Por lo tanto, puede que la limitación o restricción mencionada anteriormente no rija para Ud. Esta garantía le otorga derechos específicos, y puede que, además, Ud tenga otros derechos, los cuales varían de estado a estado, provincia a provincia o país a país.

**No rige ninguna otra garantía expresa**

Esta GARANTIA VITALICIA es la única y exclusiva garantía para los productos RIDGID®. Ningún empleado, agente, distribuidor u otra persona está autorizado para modificar esta garantía u ofrecer cualquier otra garantía en nombre de RIDGE TOOL COMPANY.

**All sales subject to Ridge Tool Company Terms and Conditions of Sales.**

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**RIDGID**

**EMERSON**