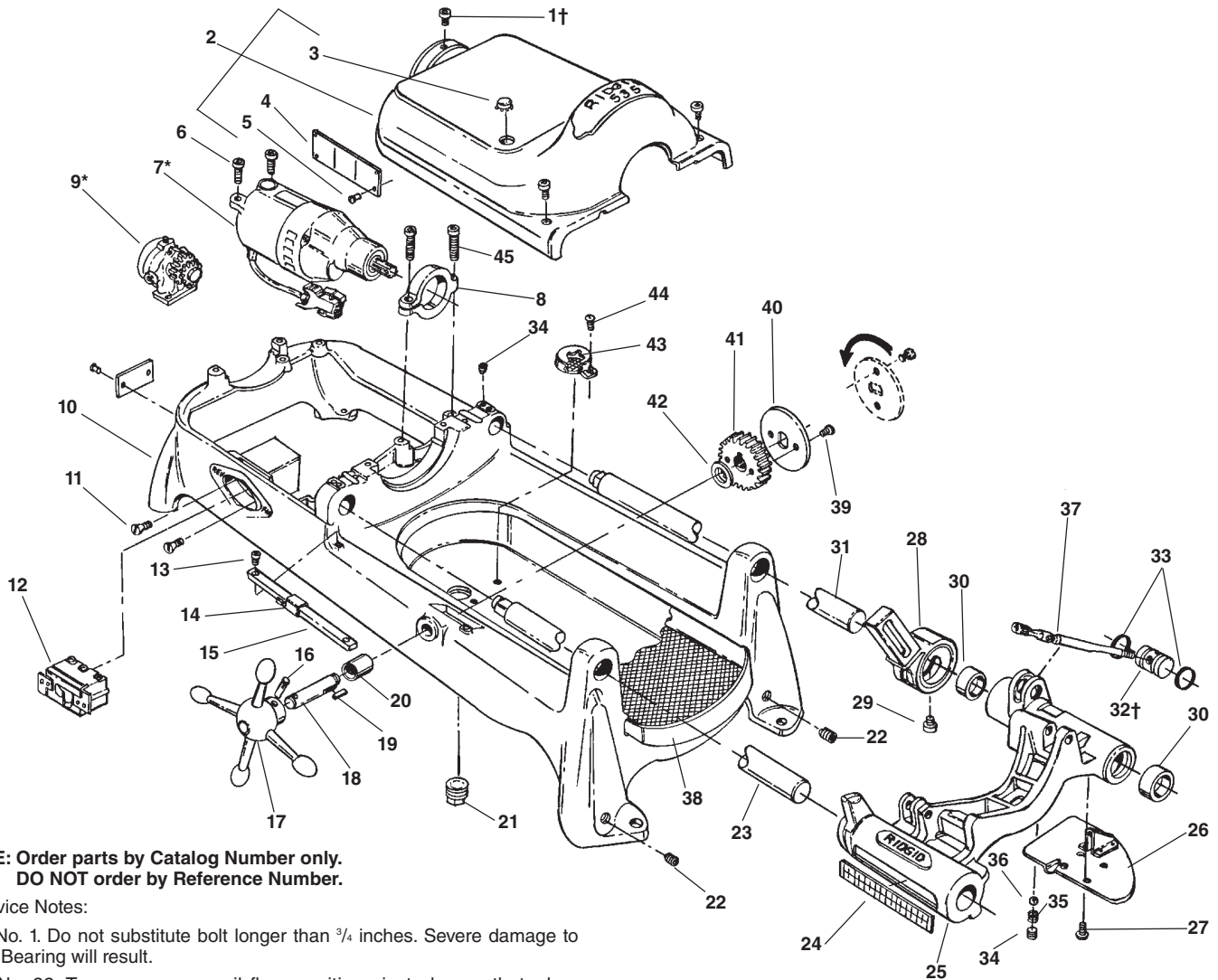


Main Components – Early Style



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

†Service Notes:

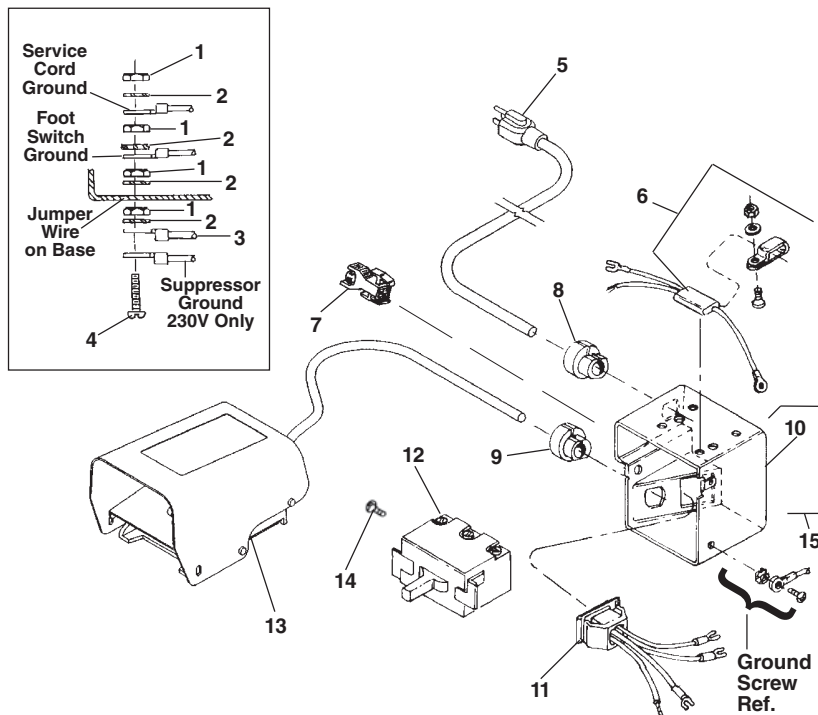
Ref. No. 1. Do not substitute bolt longer than $\frac{3}{4}$ inches. Severe damage to Rear Bearing will result.

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, $\frac{5}{16}$ " 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

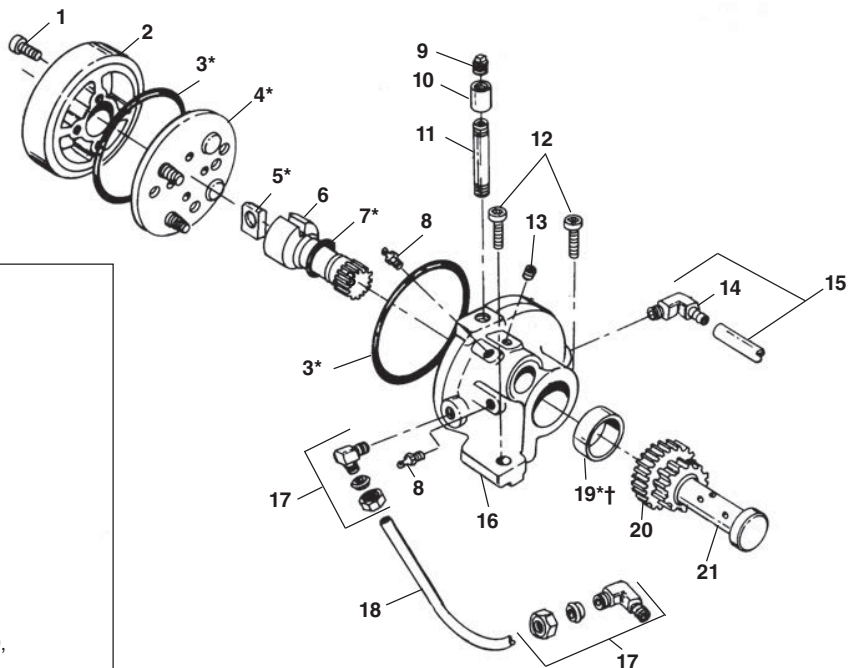
Electrical Components



**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

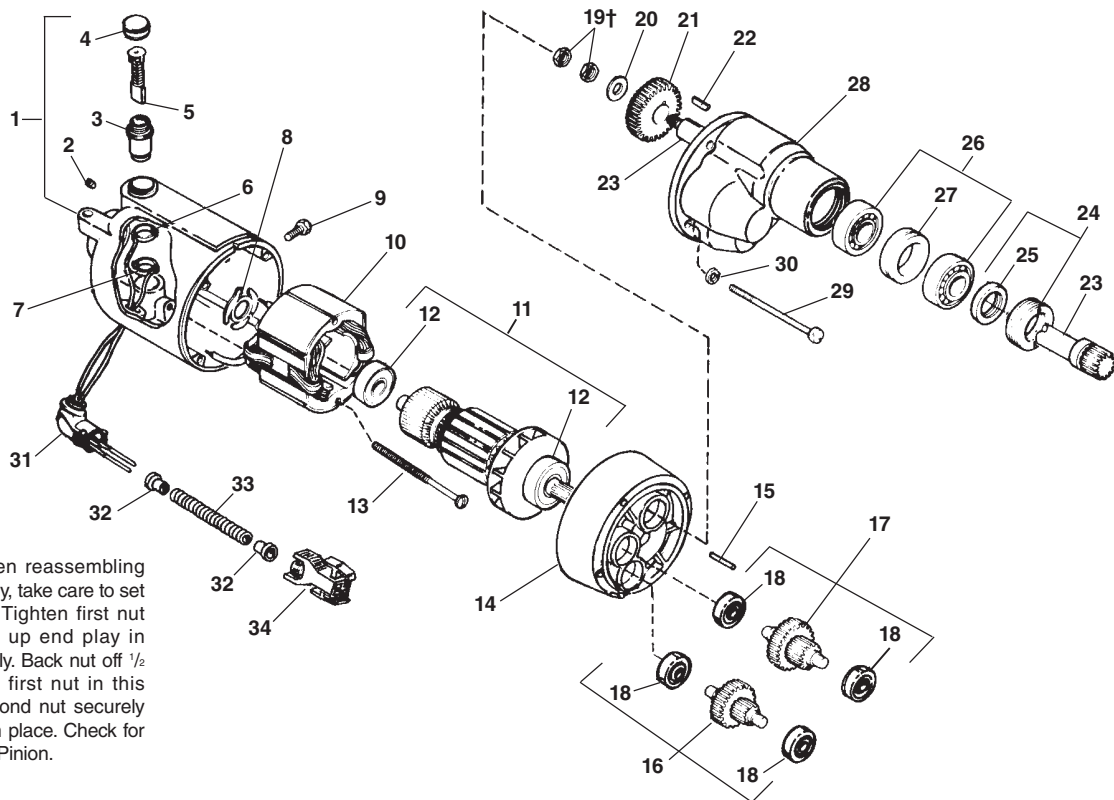


Ref. No.	Catalog No.	Description
1	46770	Screw #10-32 x 1" SHCS (4)
2	46350	Cover
3*	44650	O-Ring (2)
4*	46645	Valve Assembly
5*	47100	Rotor Blade
6	46355	Pinion Shaft
7*	44645	O-Ring
8	46860	Grease Fitting
9	46815	Pipe Plug
10	89725	Coupling
11	89730	Nipple
12	46750	Screw 3/8"-16 x 1" SHCS (2)
13	44455	Set Screw 3/16" 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.**

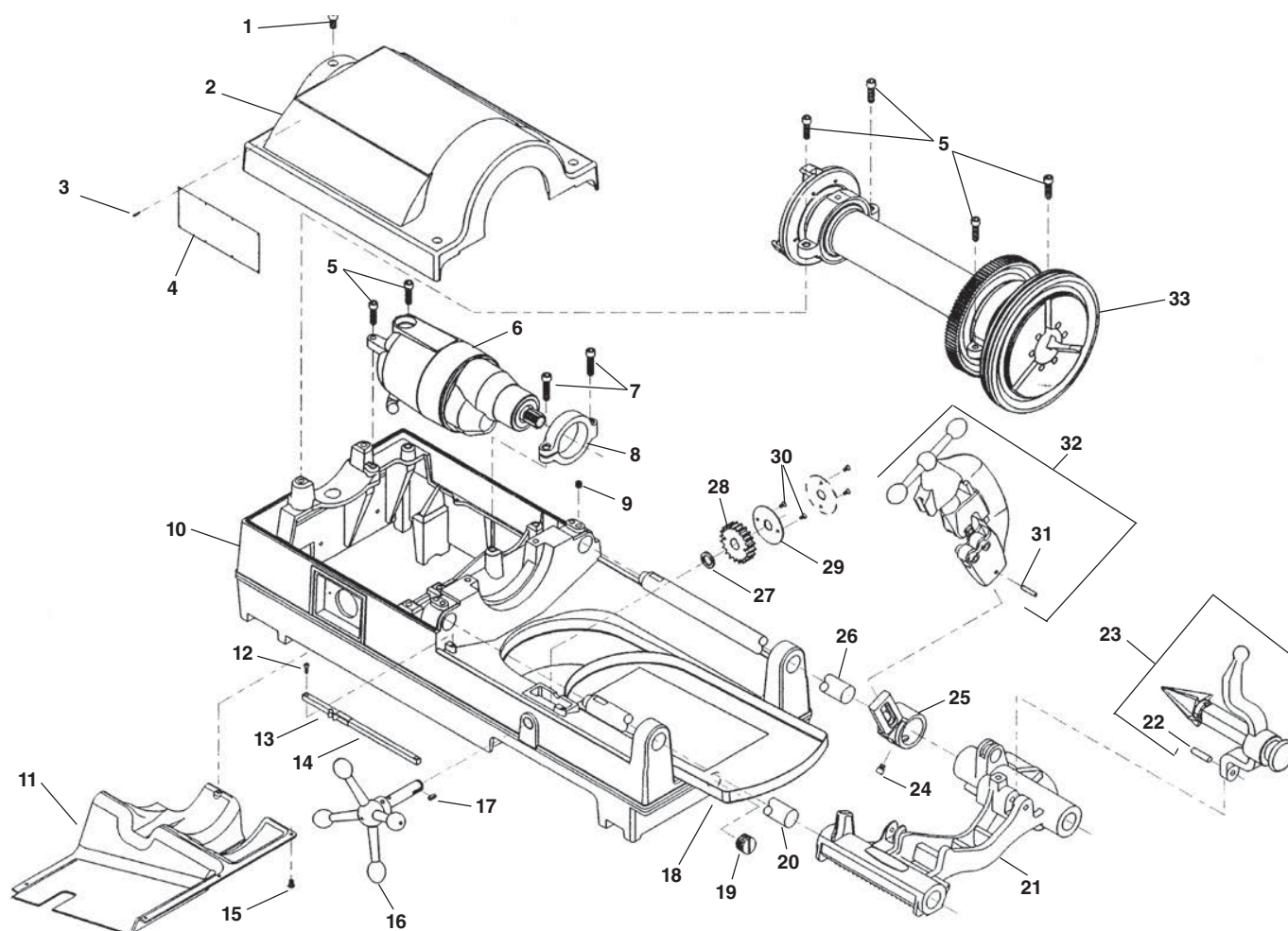
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	43160	Housing	18	45060	Gear Bearing (4)
2	39770	Set Screw 1/4" - 20 x 1/4" (2)	19†	40350	Lock Nut 3/8" - 24 (2)
3	45025	Brush Holder Set	20	45035	Washer
4	44545	Brush Cap Set	21	See Chart	Main Drive Gear
5	44540	Brush Set	22	45015	Key 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

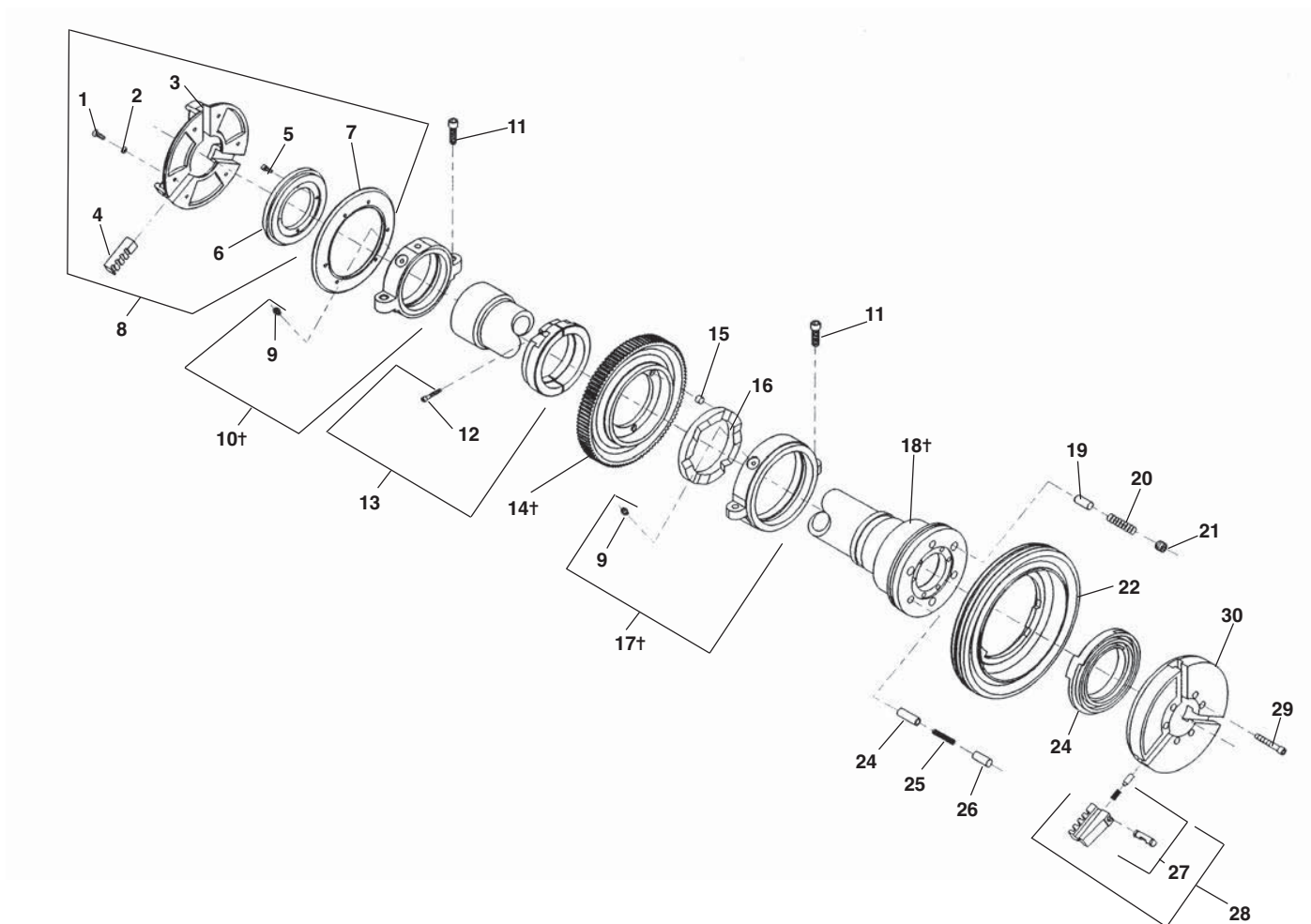
Main Components



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

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46760	Screw (3)	17	46930	Key $\frac{3}{16}$ " Sq. x $\frac{1}{2}$ "
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 $\frac{3}{8}$ " (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

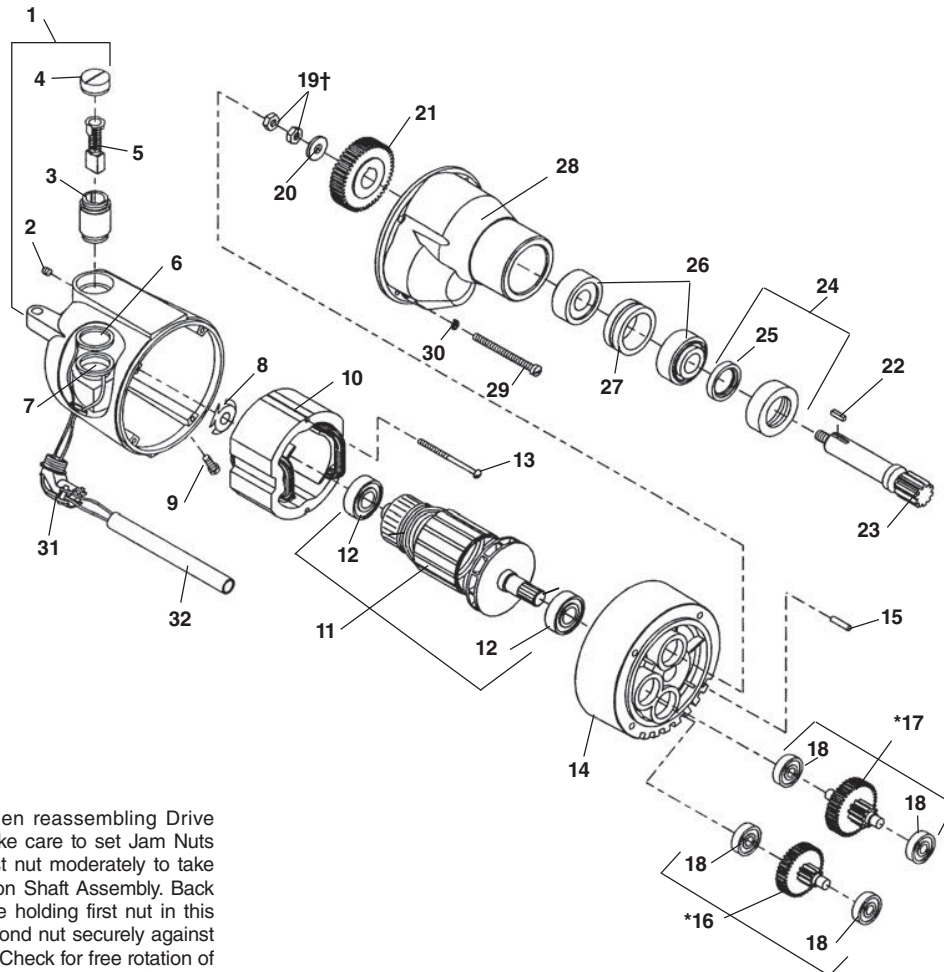


**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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
4	19346	Centering Head (Europe)	19	44320	Pressure Plunger (3)
5	46500	Centering Jaw Set	20	44325	Pressure Spring (3)
6	46765	Screw 10 – 32 x 1/2"	21	44330	Pressure Set Screw (3)
7	43750	Scroll	22	43420	Handwheel
8	43740	Back Plate	23	43450	Scroll
9	19356	Back Plate (Europe)	24	44315	Drive Wedge
10†	47570	Centering Head Assembly	25	44310	Drive Spring
11	46860	Grease Fitting	26	44305	Drive Cap
12	41338	Rear Bearing Assembly	27	44715	Jaw Insert Set
13	46745	Screw 3/8" – 16 x 1 1/4" (4)	28	97365	Jaw Insert Set f/Plas. Coated Pipe
14†	90255	Screw 10 – 32 x 1 1/4"	29	43900	Chuck Jaw Set
	83525	Split Ring Assembly	30	45160	Screw 5/16" – 18 x 2" (6)
	43460	Drive Gear		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.

Motor
**1194
1194A
2394**


†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.**

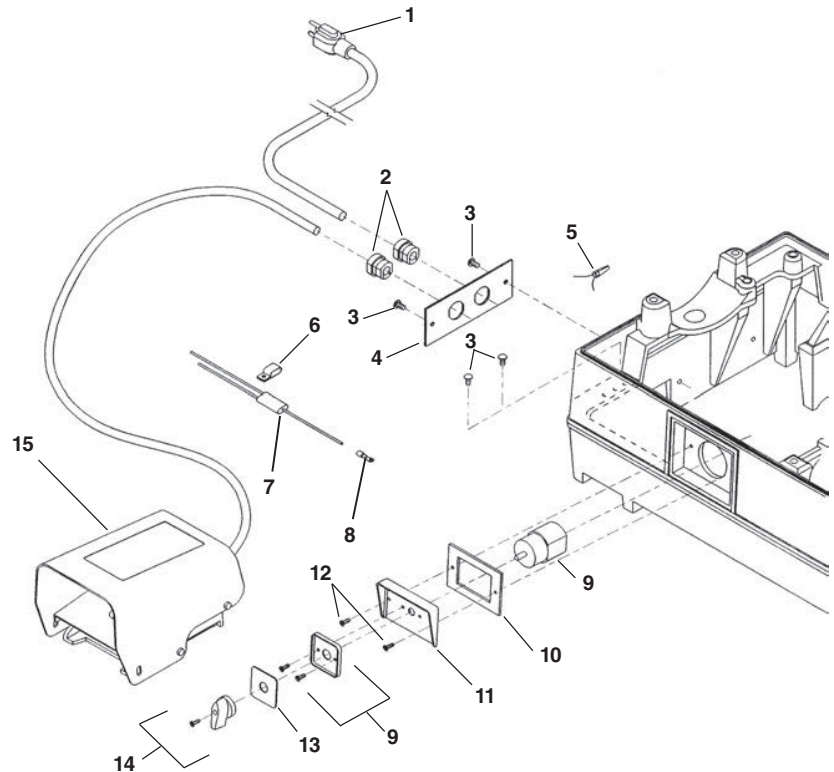
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
—	64447	1194 Motor, 115V, 36RPM	16*	62022	1st. Int. Gear Assy.— 36RPM
—	64452	1194A Motor, 115V, 54RPM	—	44985	1st. Int. Gear Assy.— 54RPM
—	64457	2394 Motor, 230V, 36RPM	17*	52527	2nd. Int. Gear Assy.— 36RPM
1	43160	Field Housing	—	44990	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 3/32" 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	54157	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

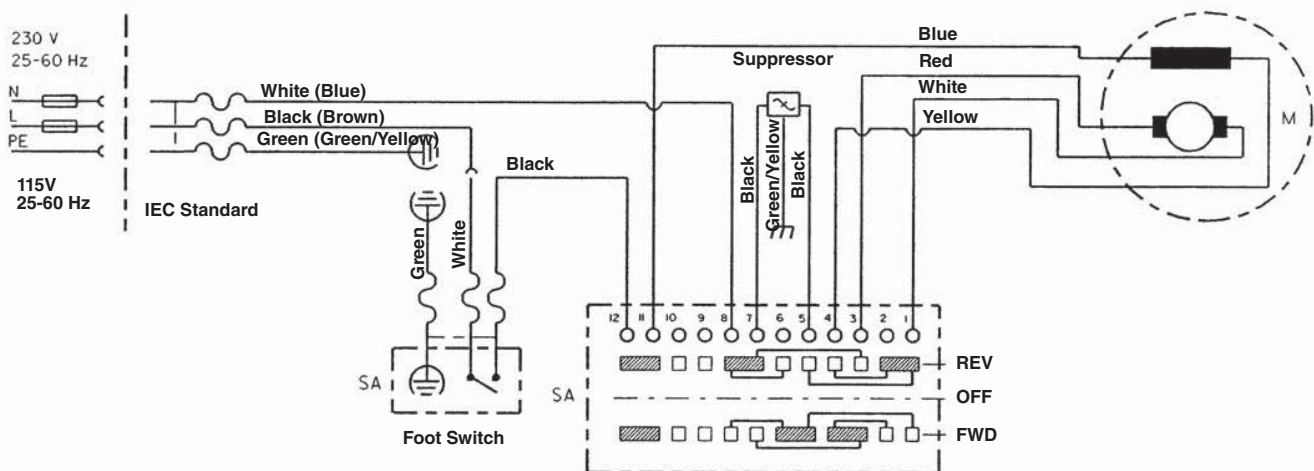


Wiring Diagram

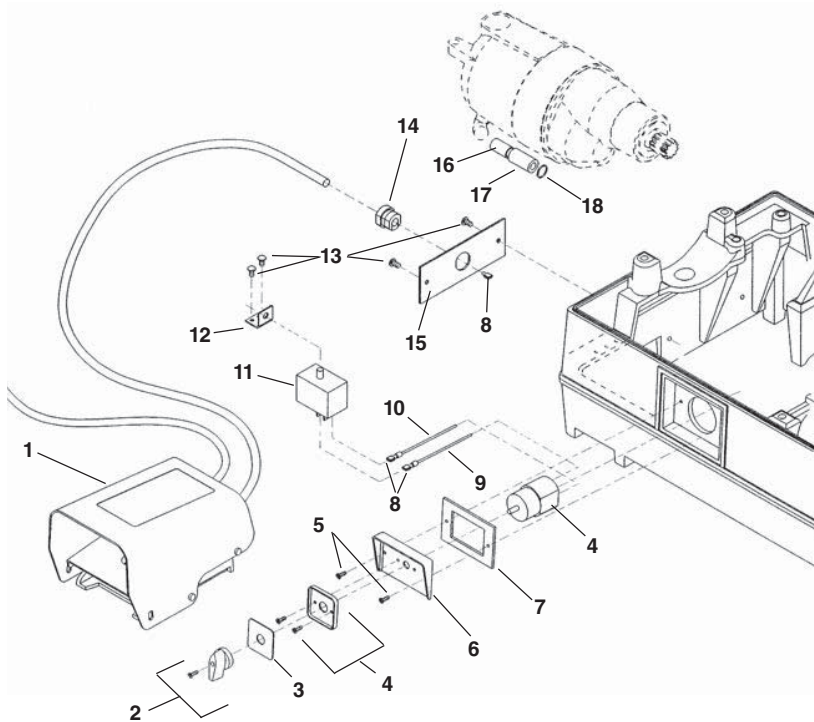
1194 Motor (115V)

2394 Motor (230V)

1194A Motor (115V)



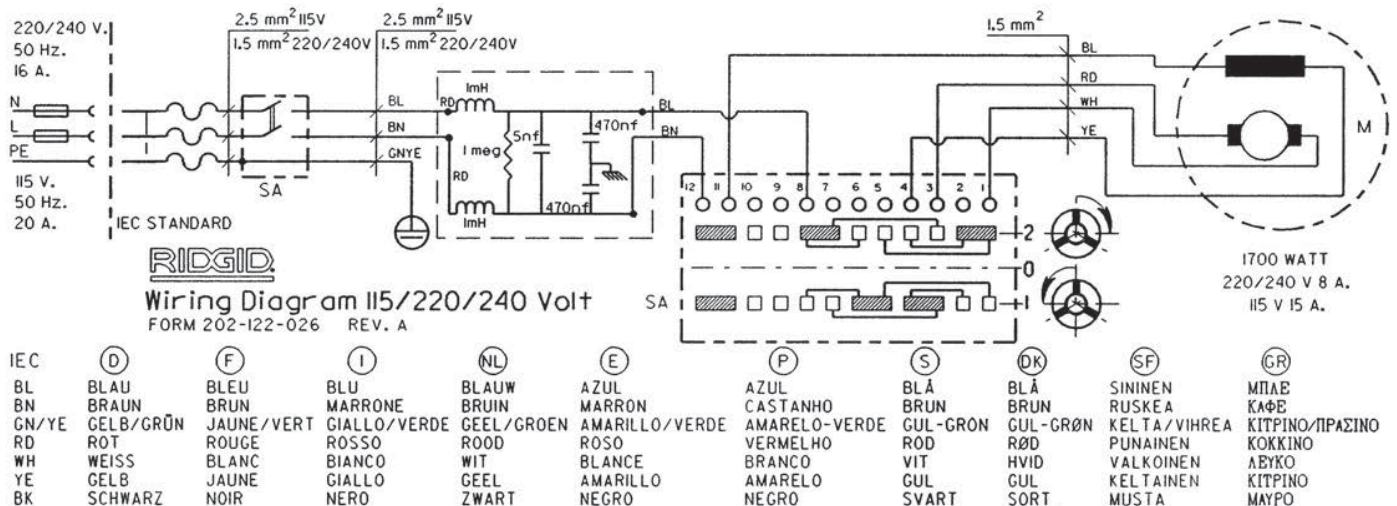
European Electrical Components



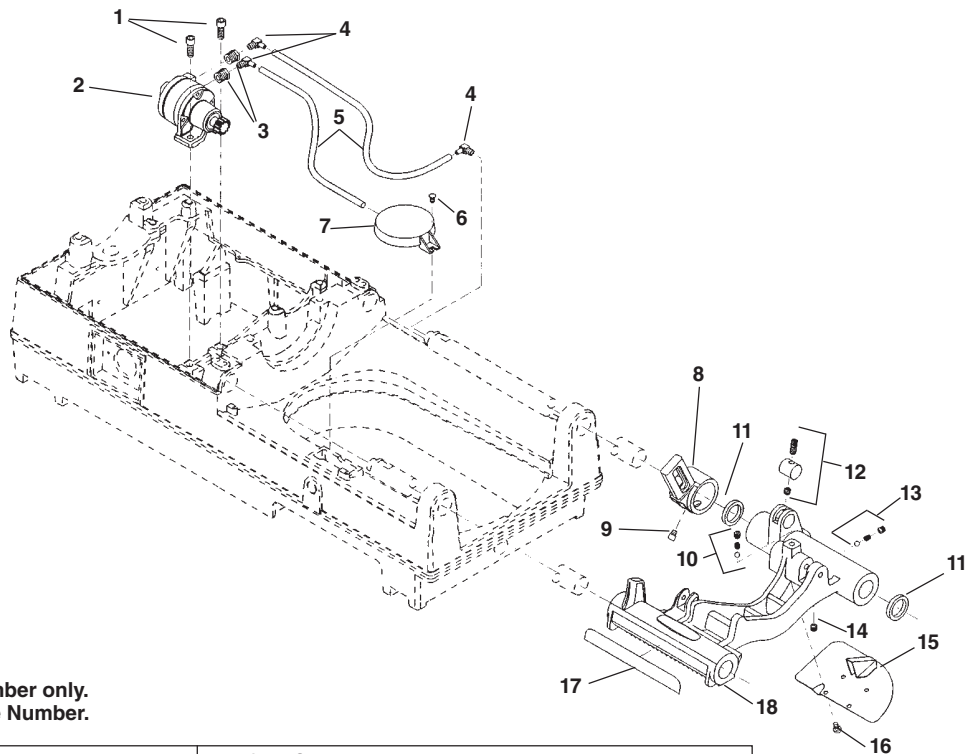
**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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



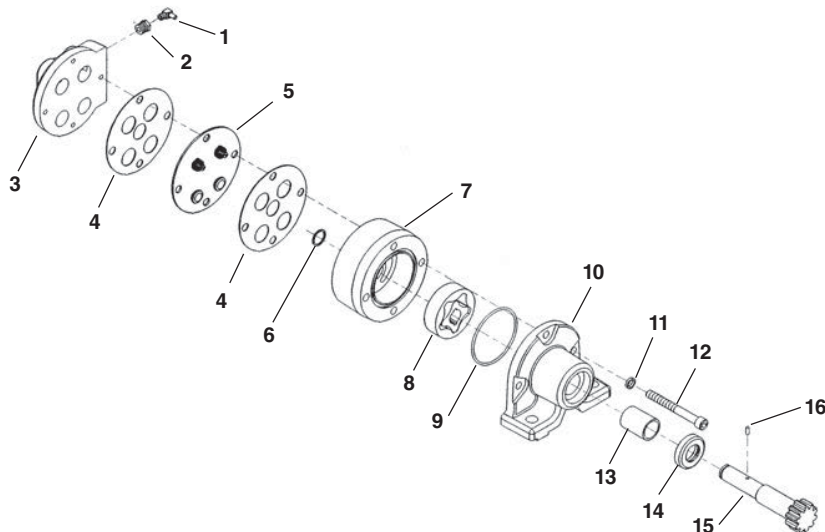
Carriage and Oiling System



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

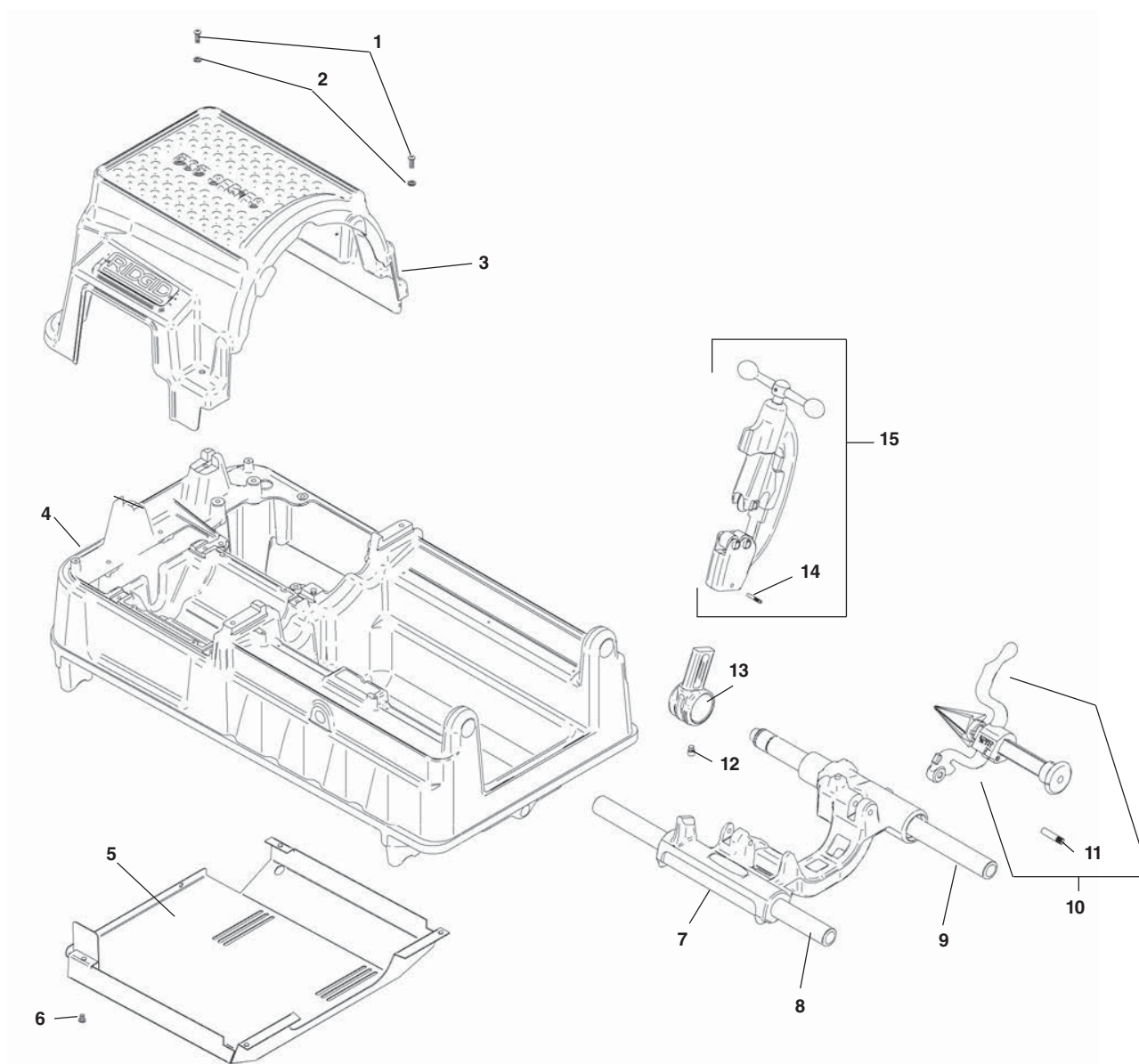
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	46750	Screw (2)	10	46810	Detente Assembly
2	62052	Model MJ Oil Pump	11	46720	Oil Seal (2)
3	62047	Reducing Bushing (2)	12	61957	Plug Assembly
4	87945	Right Angle Fitting (3)	13	35307	Pressure Relief Assembly
5	87950	Oil Line (2)	14	46815	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	33452	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)

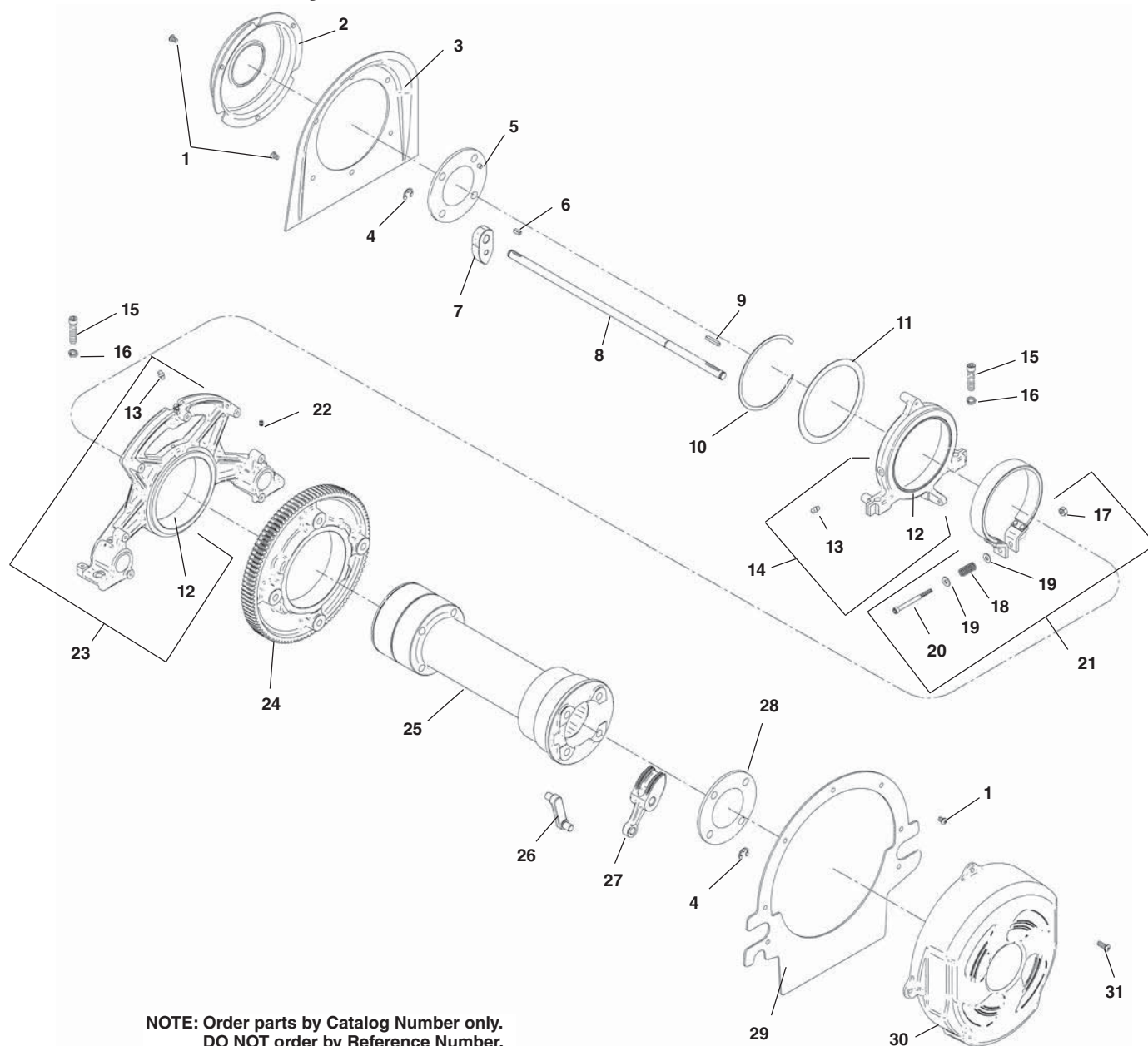
Main Components



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

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
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			

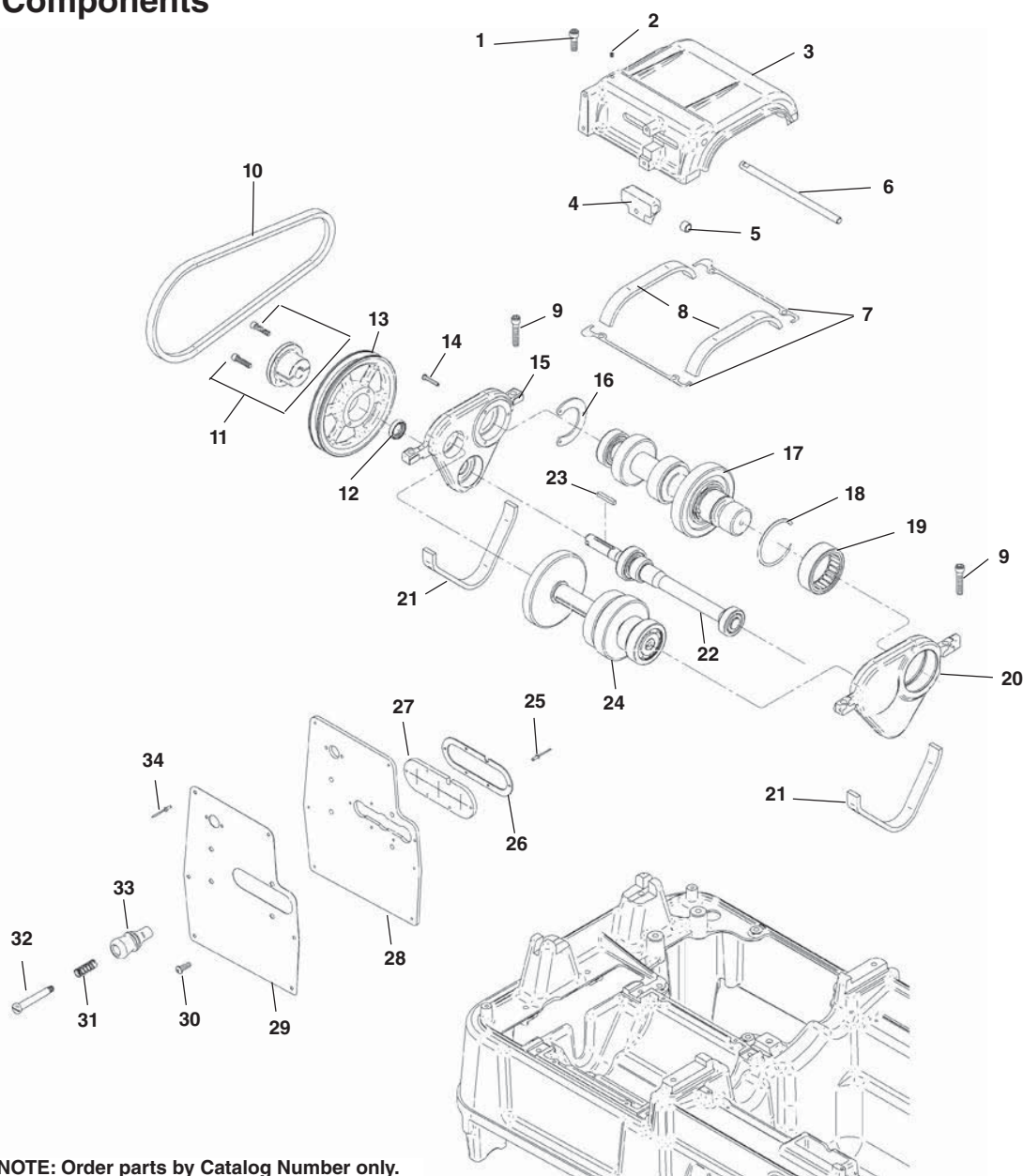
Drive Shaft Assembly



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)			

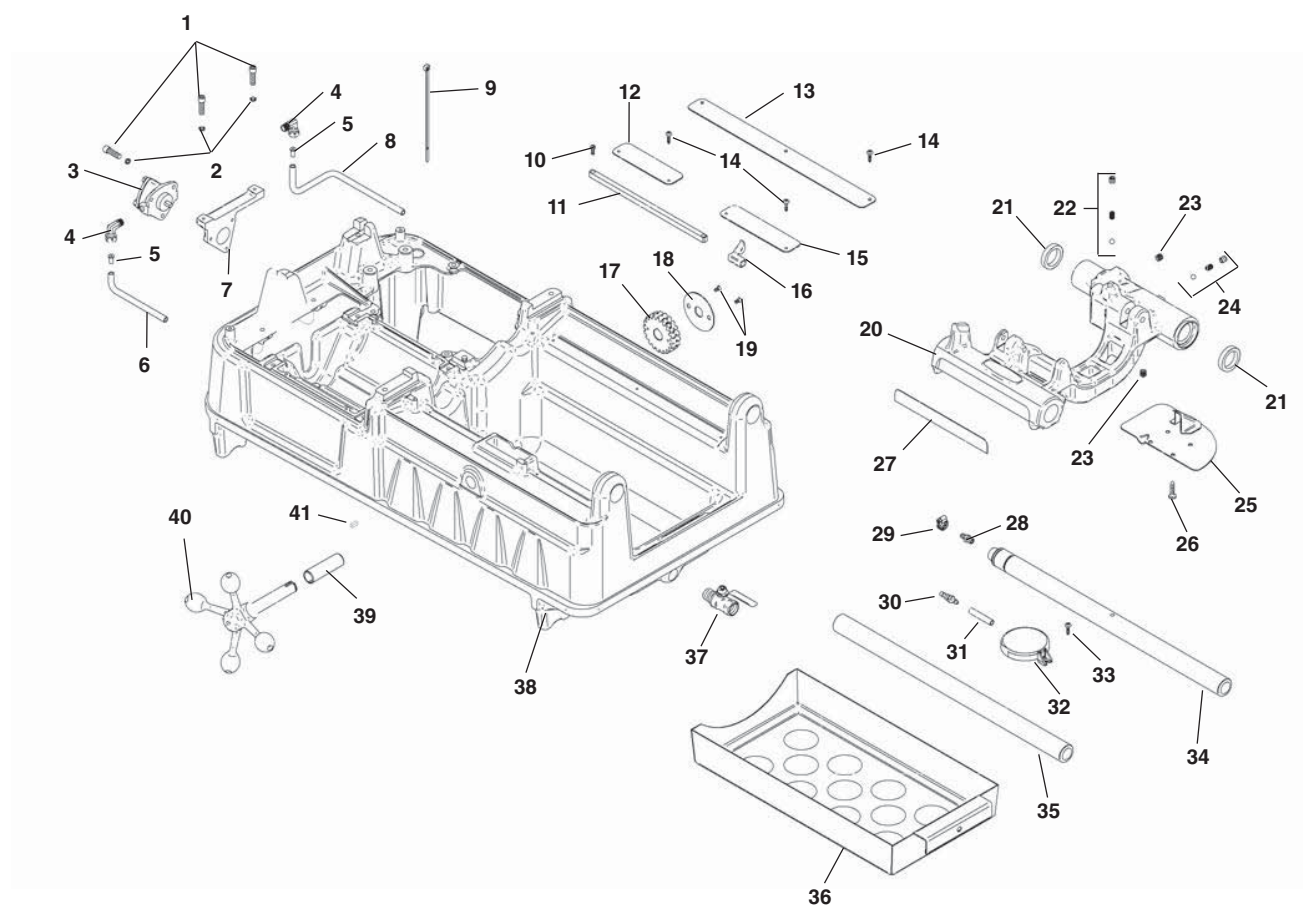
Gearbox Components



**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)

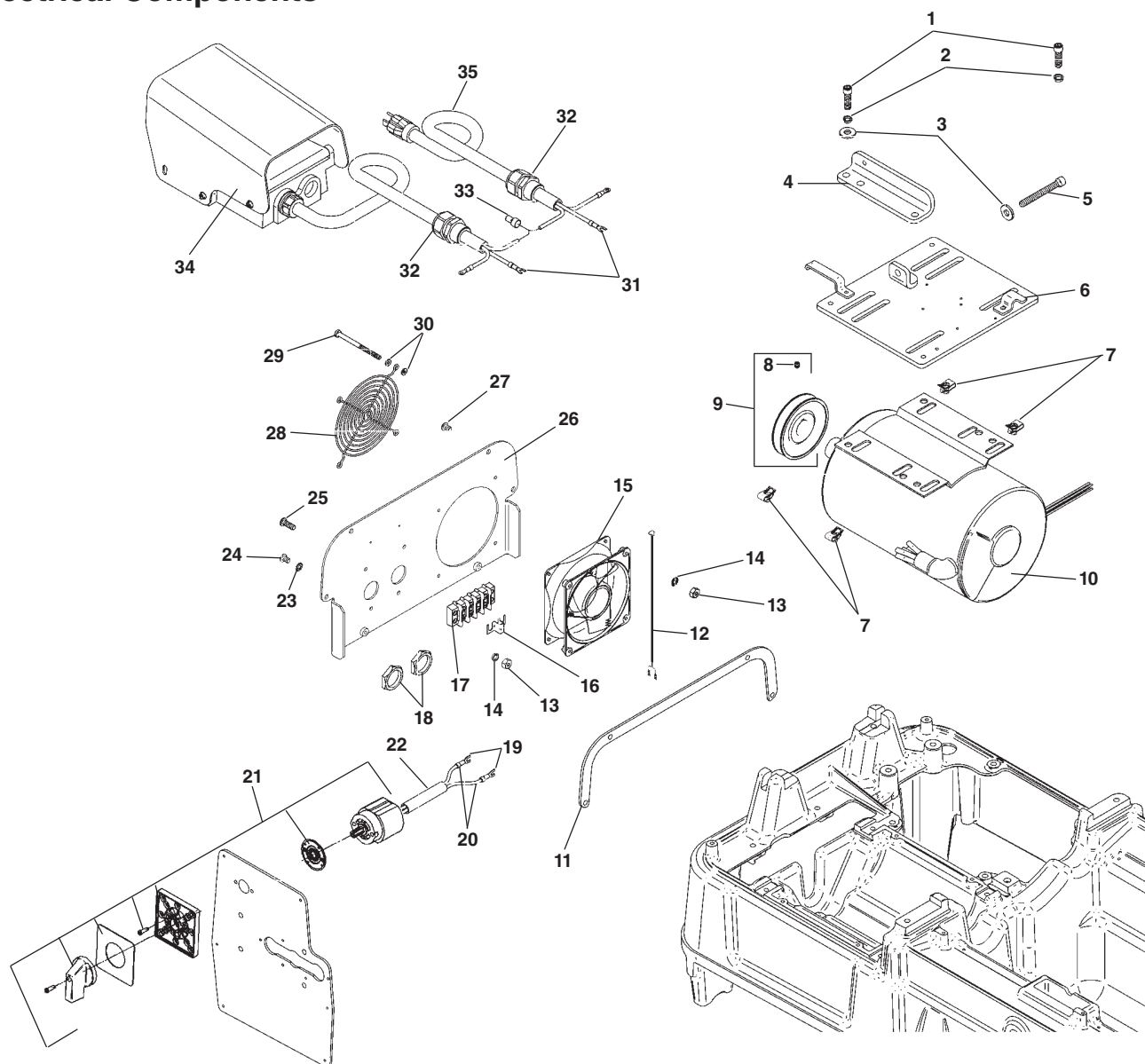
Carriage and Oiling Components



**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



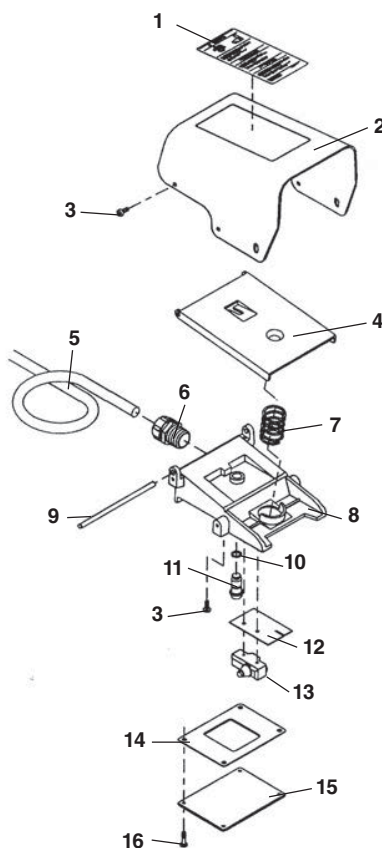
**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	40367	Screw, Socket Head $\frac{5}{16}$ " - 18 x $1\frac{1}{4}$ " (8)	19	46875	Spade Terminal (2)
2	40770	Washer, Split Lock $\frac{5}{16}$ " (12)	20	93947	Wire Set
3	96740	Washer, Flat $\frac{5}{16}$ " (5)	21	94257	Switch Assembly
4	94162	Adjuster Bracket	22	59342	Insulator Sleeve
5	94402	Screw, Socket Head $\frac{5}{16}$ " - 18 x $\frac{3}{4}$ "	23	46985	Washer, Lock Ext. Tooth #10 (2)
6	94192	Motor Table	24	47147	Screw, Button Head #10 - 32 x $\frac{3}{8}$ " (2)
7	96367	Tinnerman Nut (4)	25	34667	Screw, Button Head #10 - 32 x $\frac{3}{4}$ " (2)
8	77905	Set Screw $\frac{5}{16}$ " - 18 x $\frac{1}{4}$ "	26	94152	Back Cover
9	94237	Pulley	27	94337	Screw, Button Head $\frac{1}{4}$ " - 20 x $\frac{3}{8}$ " (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)			

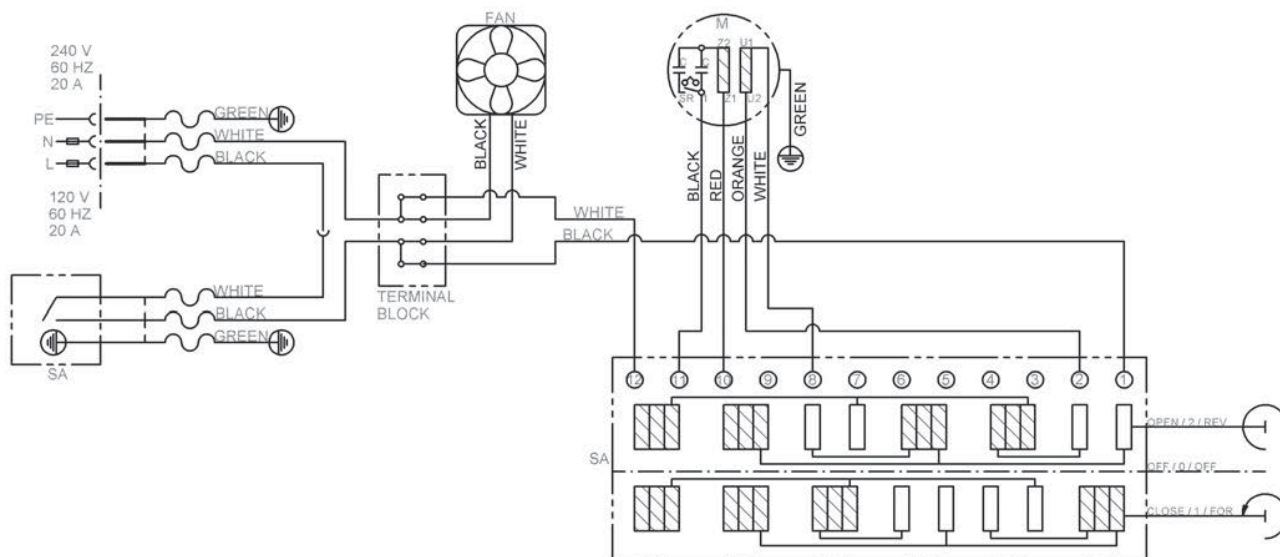
B-294 HD Foot Switch

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

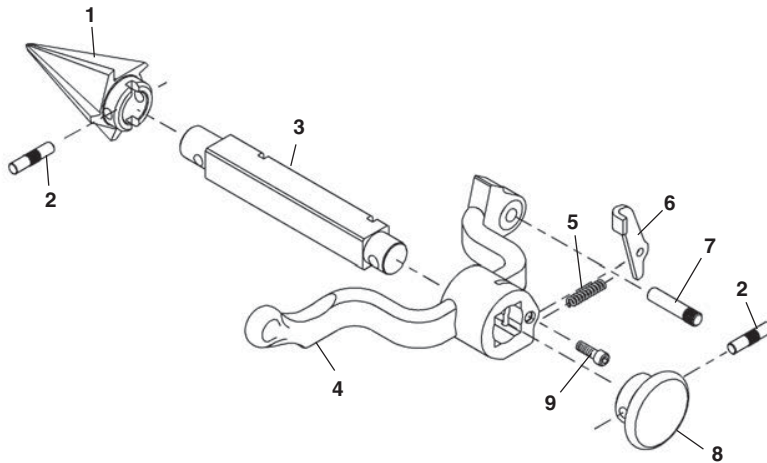
Ref.	Catalog	Description
No.	No.	
—	36642	B-294 Foot Switch
—	36647	B-295 Foot Switch
—	36662	301-A Foot Switch
—	74272	B-294 HD Foot Switch
1	36667	Warning Label (B-294)
	36672	Warning Label (B-295)
	36687	Warning Label (301-A)
	76352	Warning Label (B-294 HD)
2	36692	Cover
3	36787	Screw #10 Self-tapping (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)



Wiring Diagram



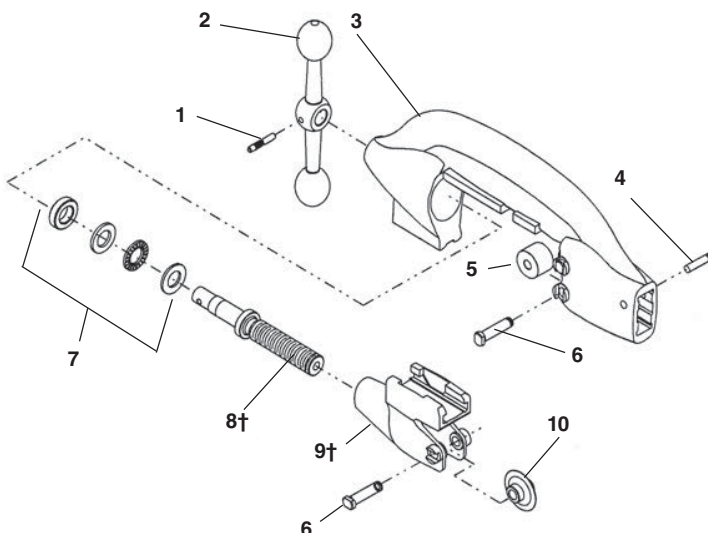
No. 341 Reamer



**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"

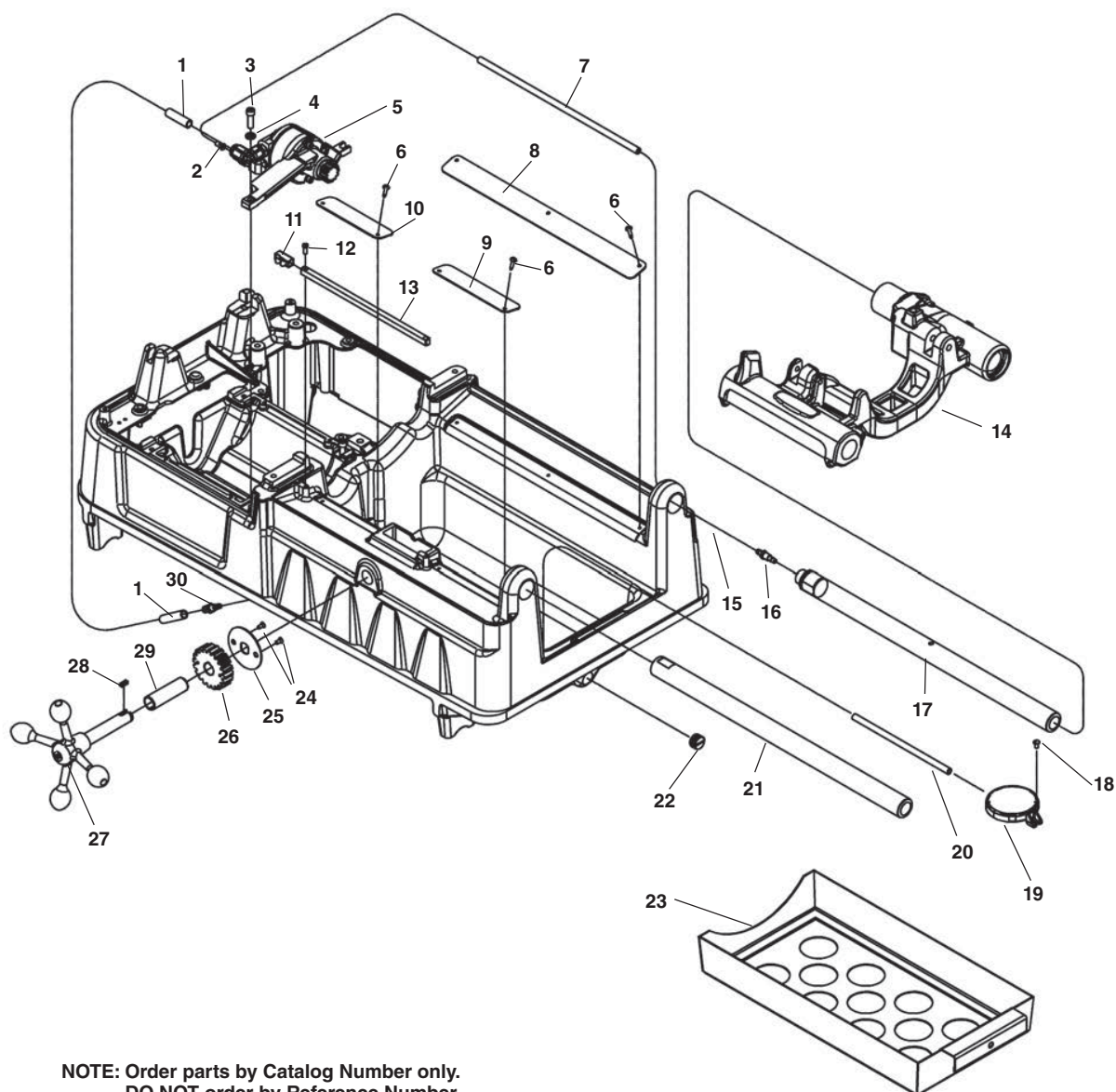
No. 820 Cutter



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

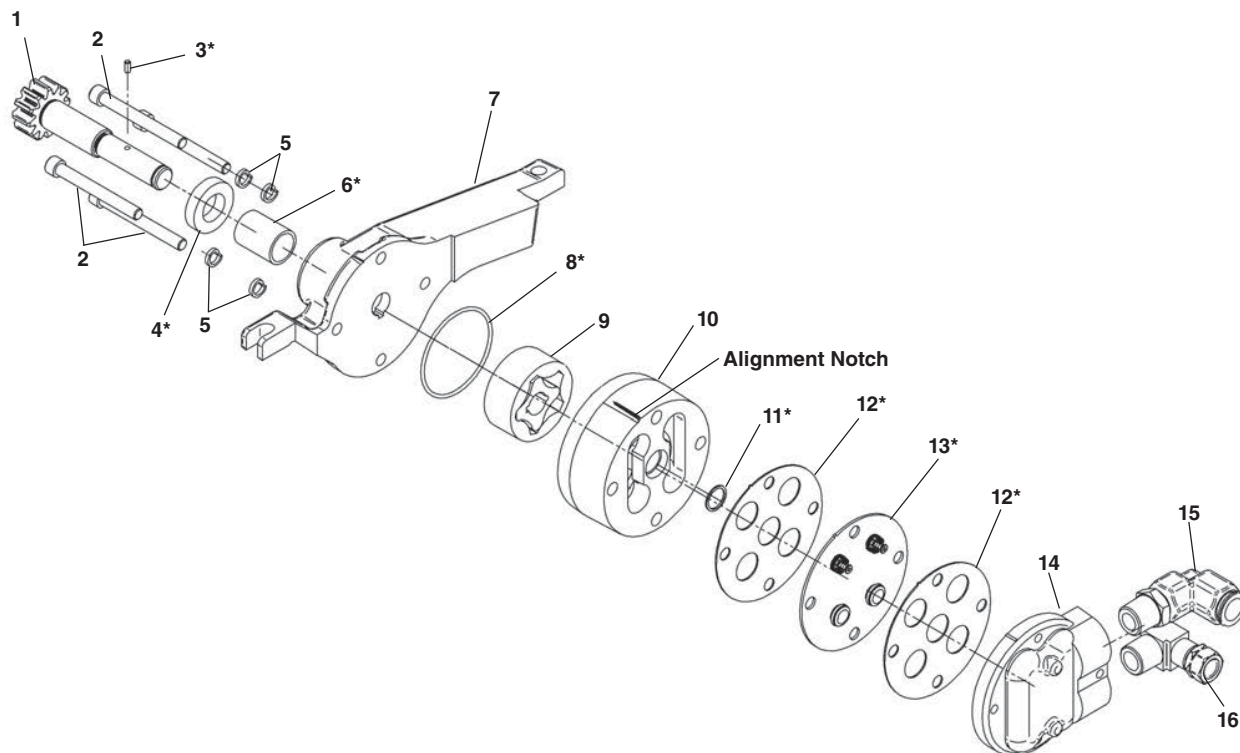
† Service Note: When replacing parts on early style (fine thread) cutters, both feed screw and wheel housing must be replaced.

Carriage and Oiling Components – Universal Motor Machines



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

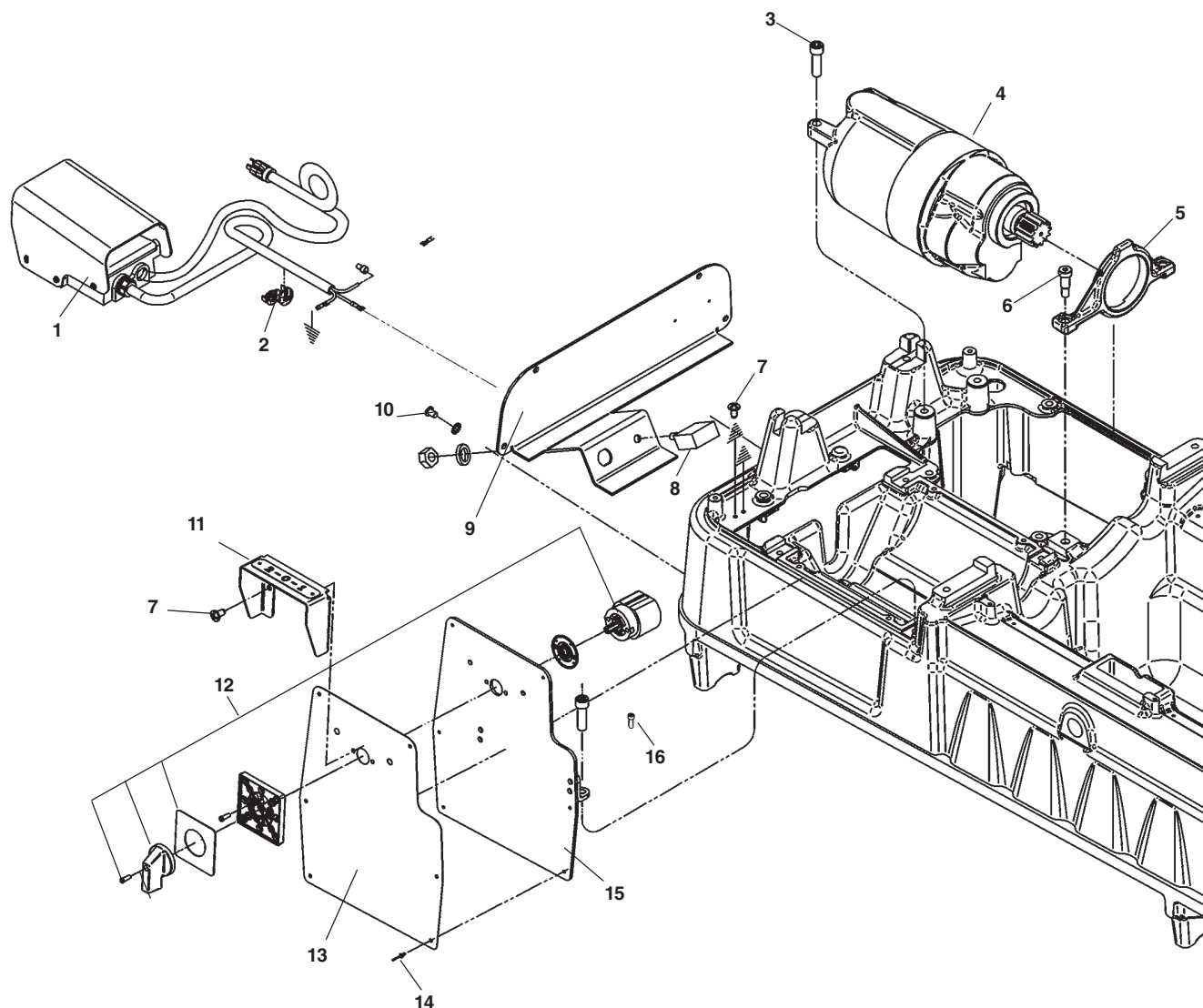
Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	26822	Oil Hose, Input 21"	16	69157	Barbed Fitting
2	35117	Tube Insert	17	45220	Support Bar, Rear
3	44590	Screw, $\frac{5}{16}$ " - 18 x 1" S.H.C.S.	18	45420	Screw, #10 - 32 x $\frac{3}{8}$ "
4	40770	$\frac{5}{16}$ " Lock Washer	19	58467	Filter Screen Assembly
5	96517	Oil Pump	20	87950	Oil Hose, Filter
6	43367	Screw, #8 x $\frac{3}{4}$ "	21	45440	Support Bar, Front
7	94362	Oil Hose, Output	22	96447	Drain Plug $\frac{1}{2}$ " NPT
8	94127	Drip Edge	23	94112	Chip Tray
9	94117	Drip Edge	24	46785	Screw, Flat Head #10 - 32 x $\frac{3}{8}$ " (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 $\frac{1}{2}$ " (2)	27	94012	Handwheel
13	47105	Length Indicator Bar	28	94267	Key, $\frac{3}{16}$ " Square x $\frac{1}{2}$ "
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)

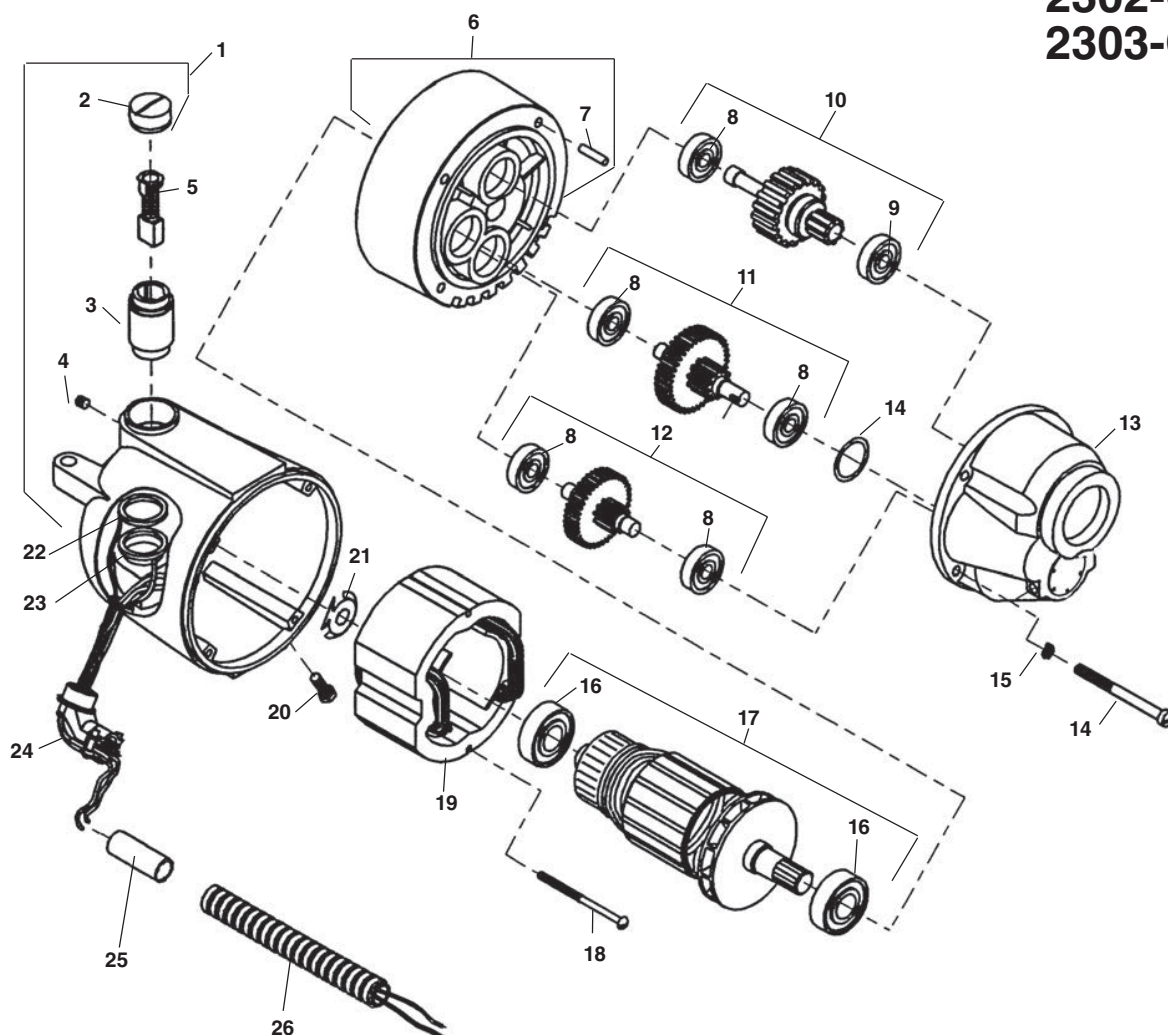
Electrical Components – Universal Motor Machine



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			

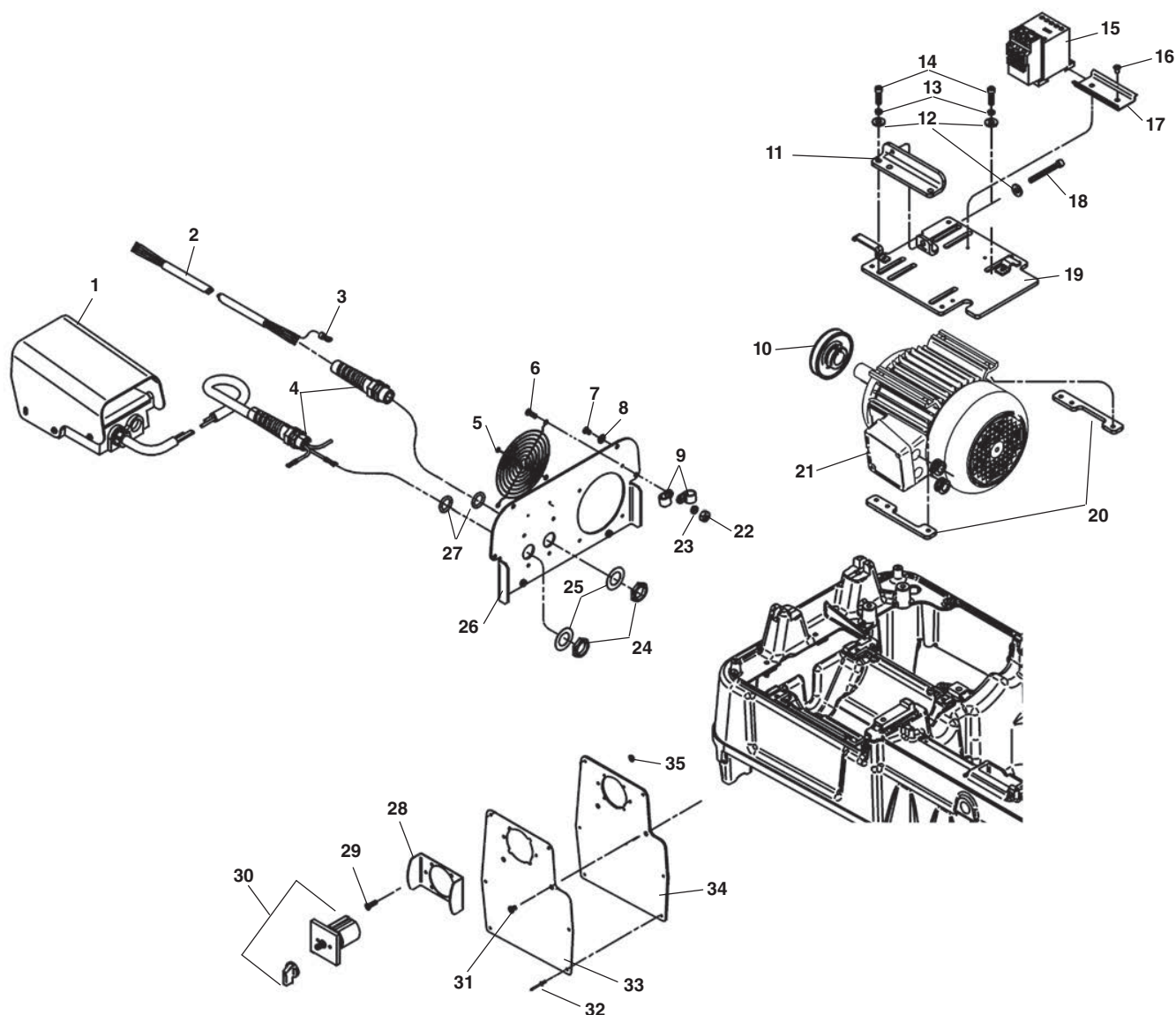
1102-CE
1103-CE
2302-CE
2303-CE



**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			1103-CE and 2303-CE	19	44015	Field (115V)
	54552	Fan Housing Assembly		52527	2nd Gear Assembly		44035	Field (230V)
		1103-CE and 2303-CE			1102-CE and 23032	20	83500	Locking Screw (2)
7	45165	Dowel Pin	13	42875	Gear Housing	21	44580	Loading Spring
8	45060	Gear Bearings (5)	14	45075	Screw (4)	22	86680	White Upper Lead
9	45315	Front Bearing	15	45150	Lock Washer	23	86685	Red Lower lead
10	45370	Drive Gear	16	44565	Armature Bearing (2)	24	46900	Connector 90 Degree
						25	63377	Ferrite Bead
						26	95690	Flexible Conduit

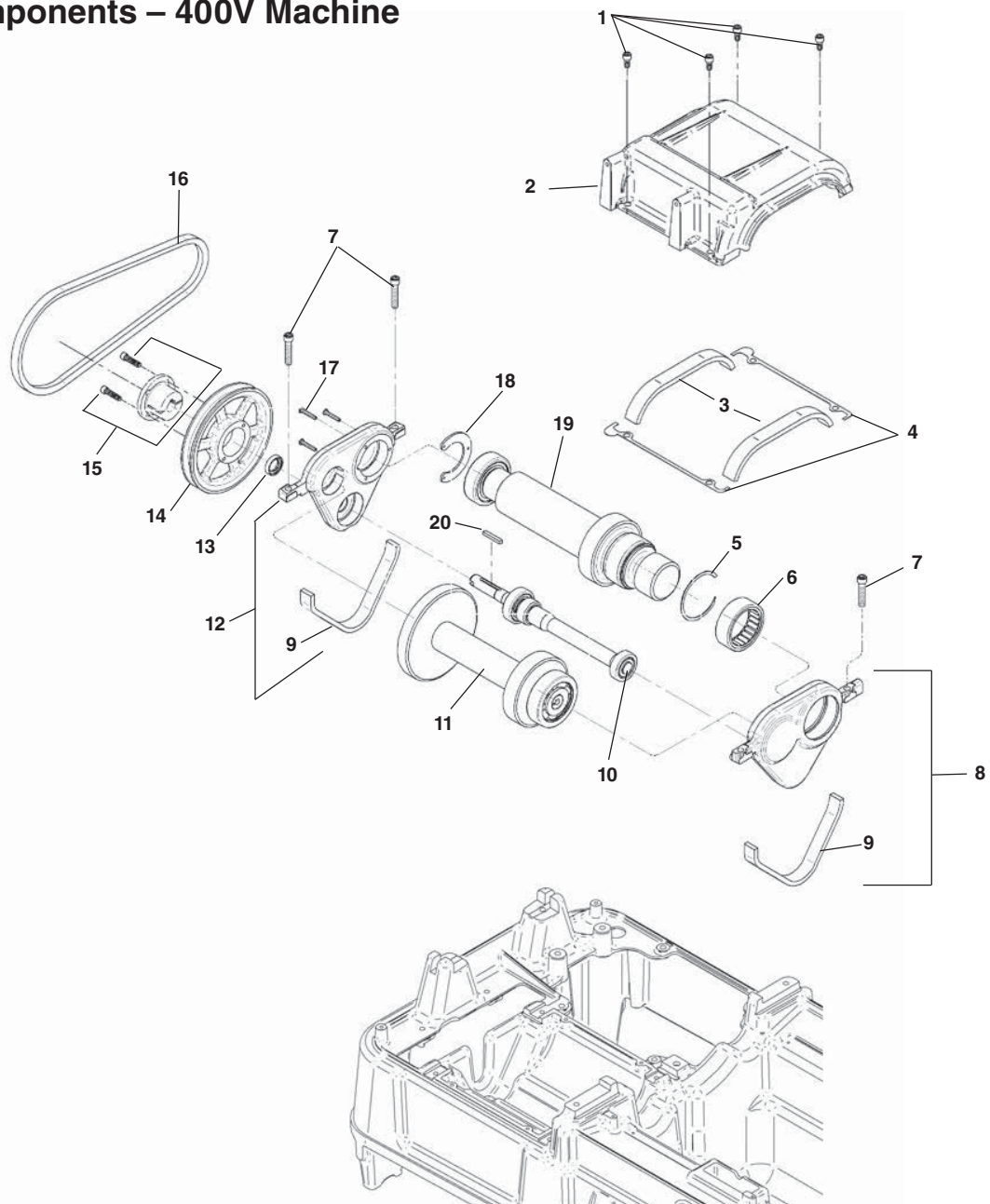
400V Electrical



**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 1/4" - 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	Contactor	33	27083	Control Panel Label
16	94332	Screw, Button Head 1/4" - 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



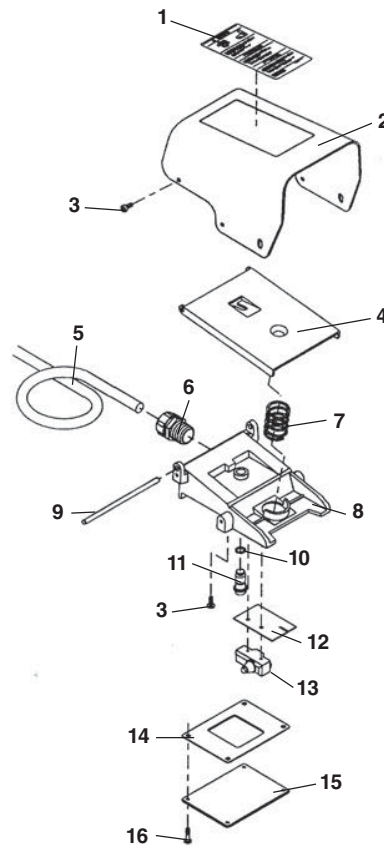
**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
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			

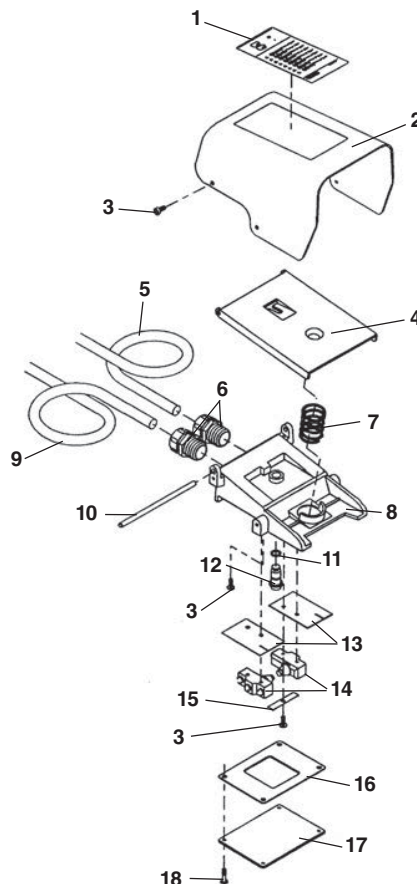
400V Machine

**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)

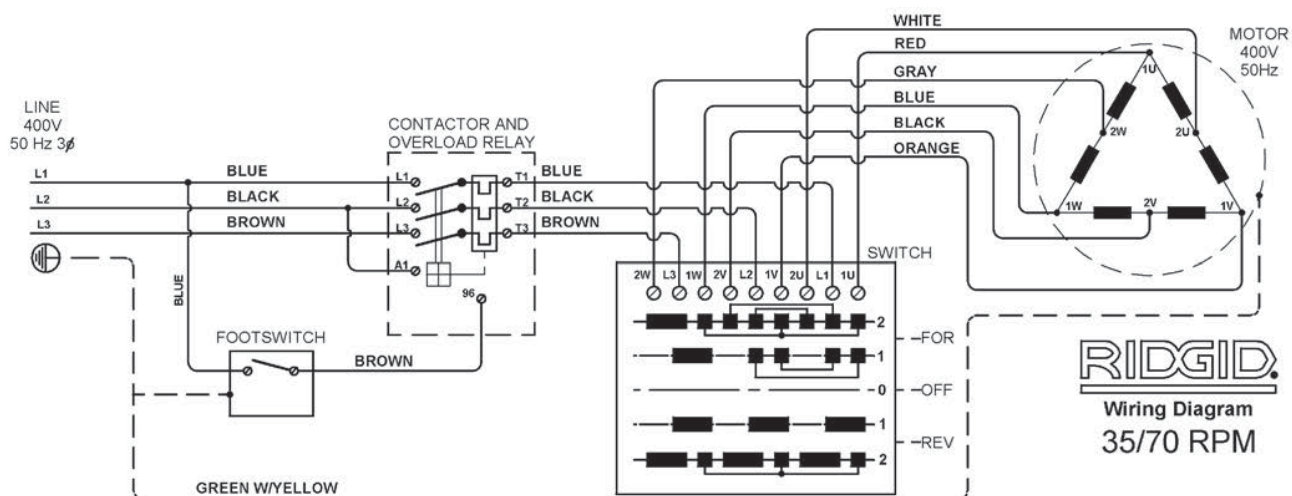


B-296 B-297 B-298 B-299

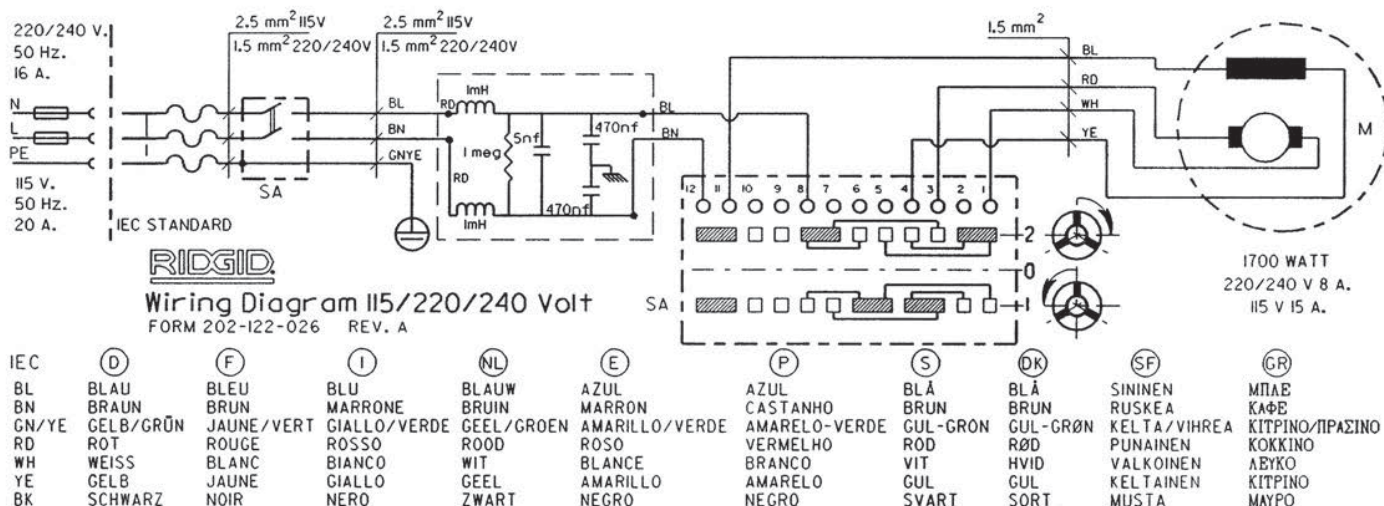


Ref. No.	Catalog No.	Description
—	36652	B-296 Foot Switch
—	36657	B-297 Foot Switch
—	40017	B-298 Foot Switch (U.K.)
—	40022	B-299 Foot Switch (Australia)
1	36677	Warning Label (B-296)
	36682	Warning Label (B-297)
	54392	Warning Label (B-298)
	45017	Warning Label (B-299)
2	54382	Cover
3	36787	Screw #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)

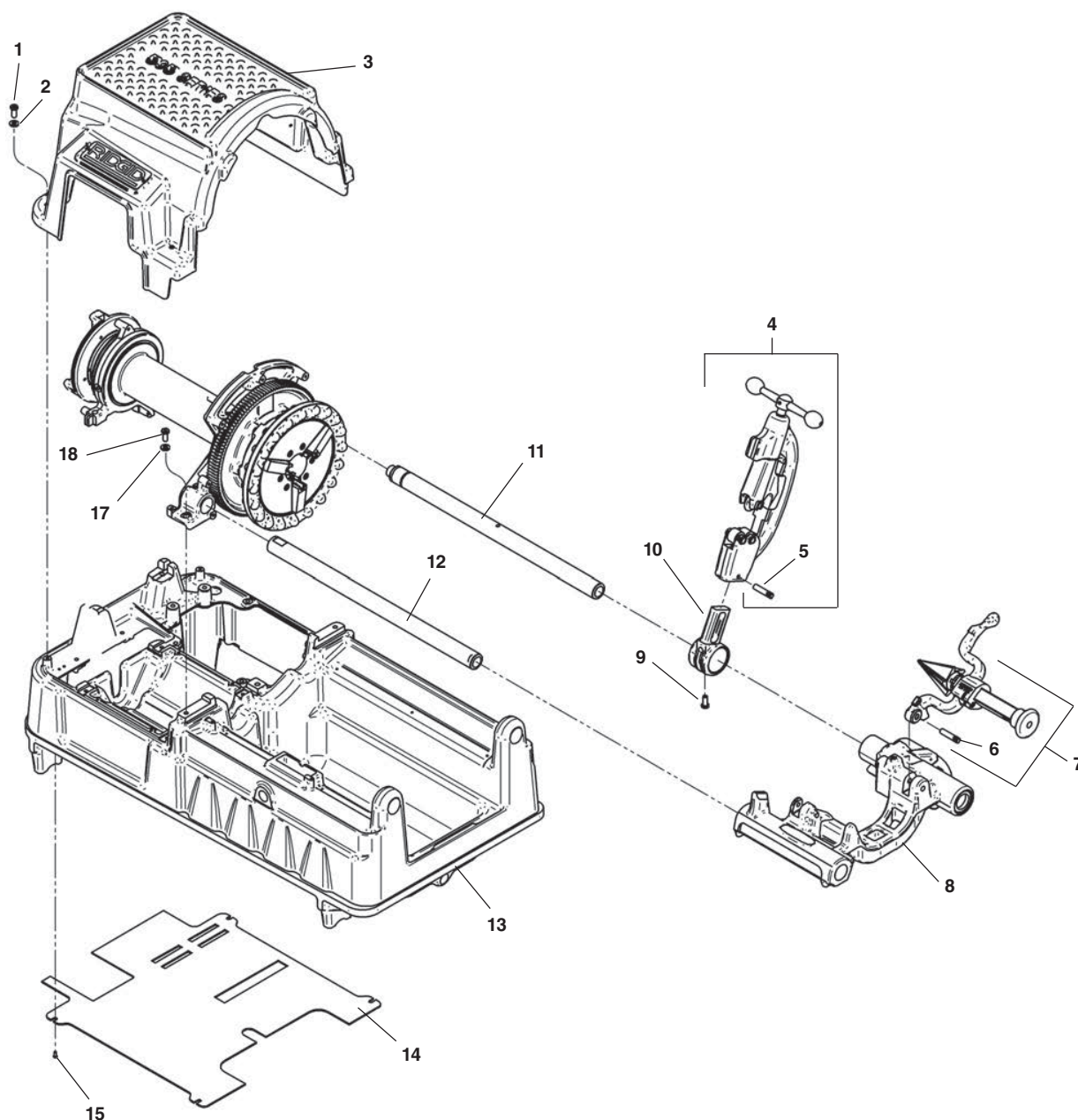
400V Wiring



European Wiring Diagram - Universal Machines



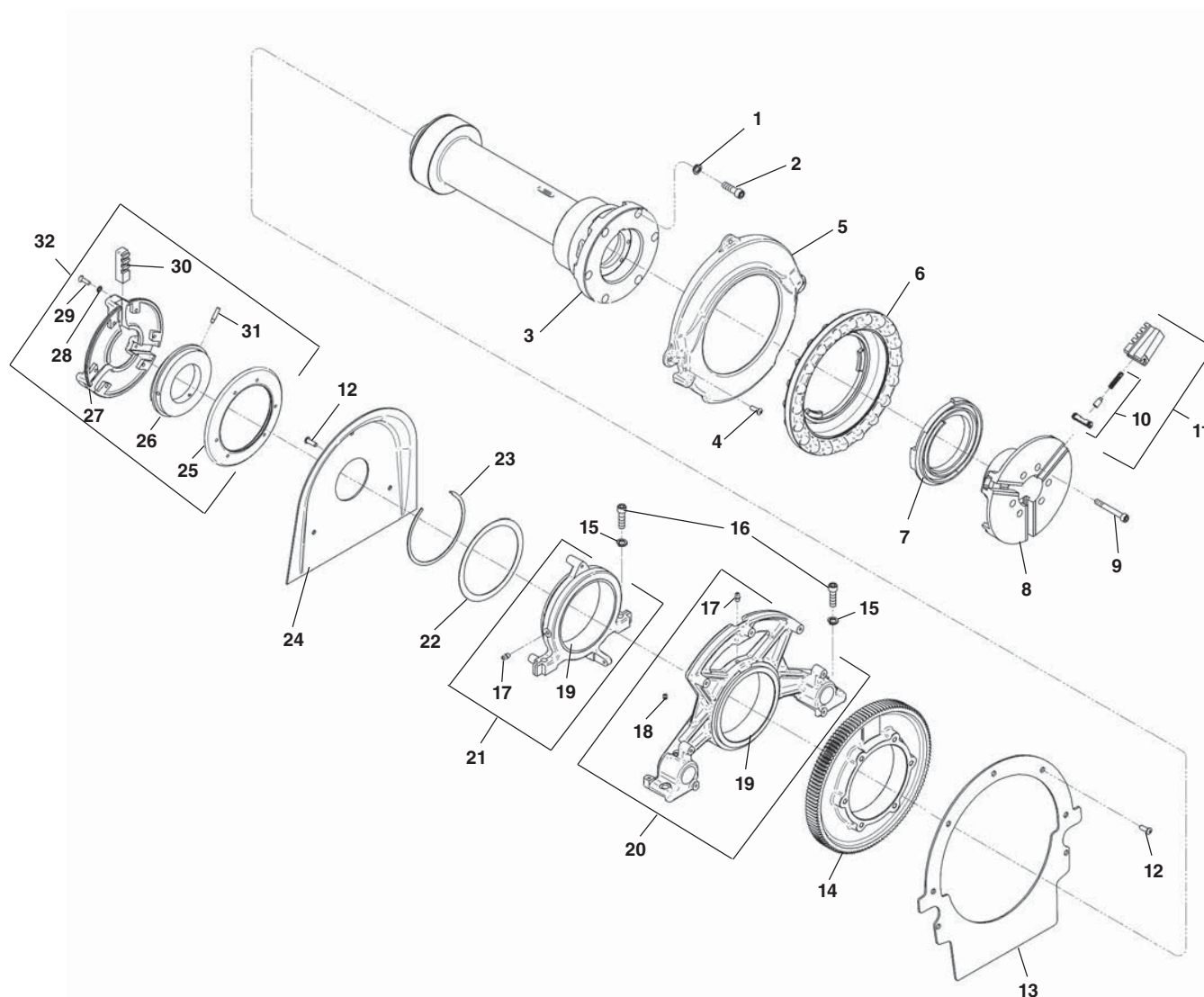
Main Components



**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

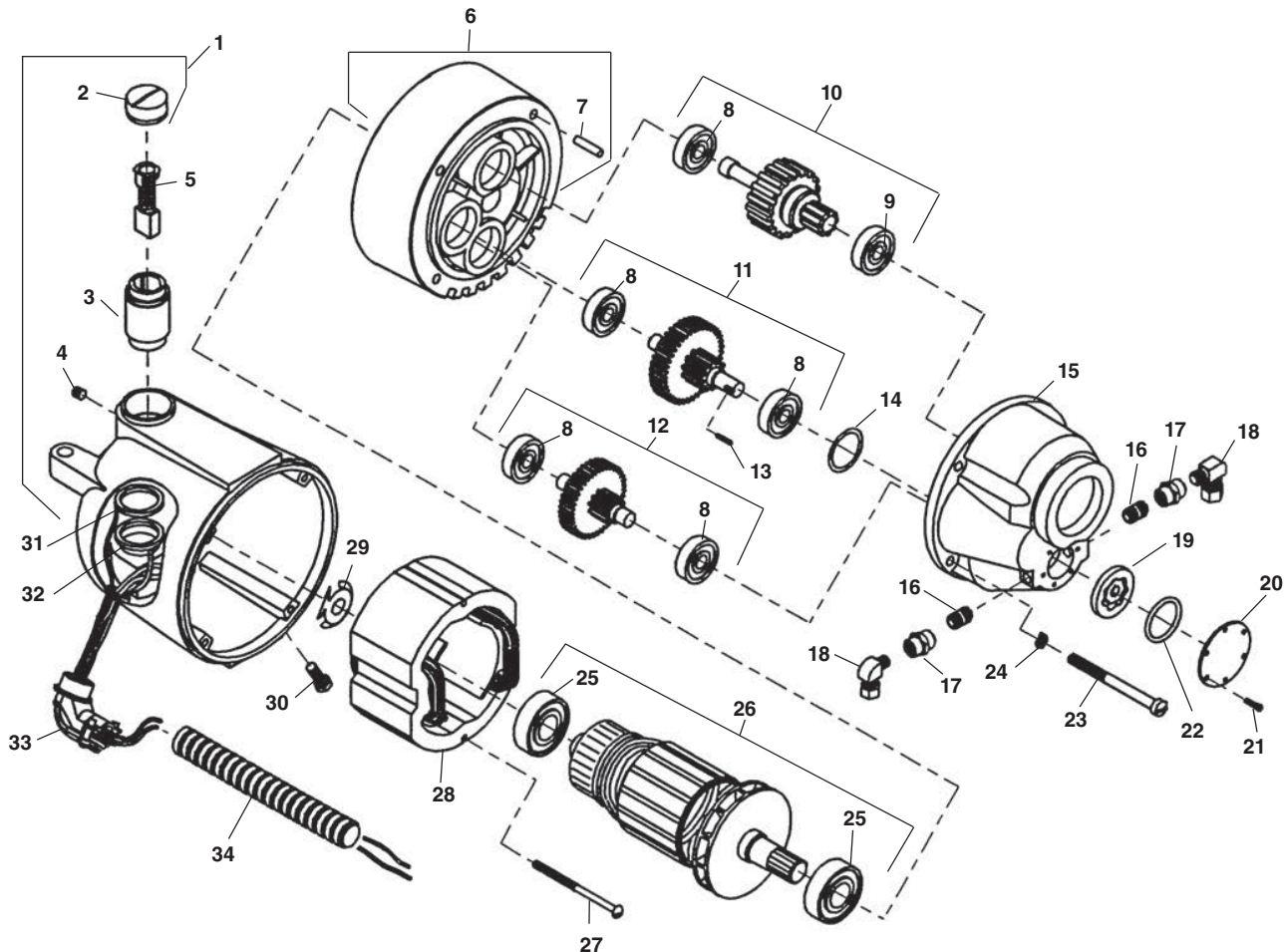


**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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, $\frac{5}{16}$ " - 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

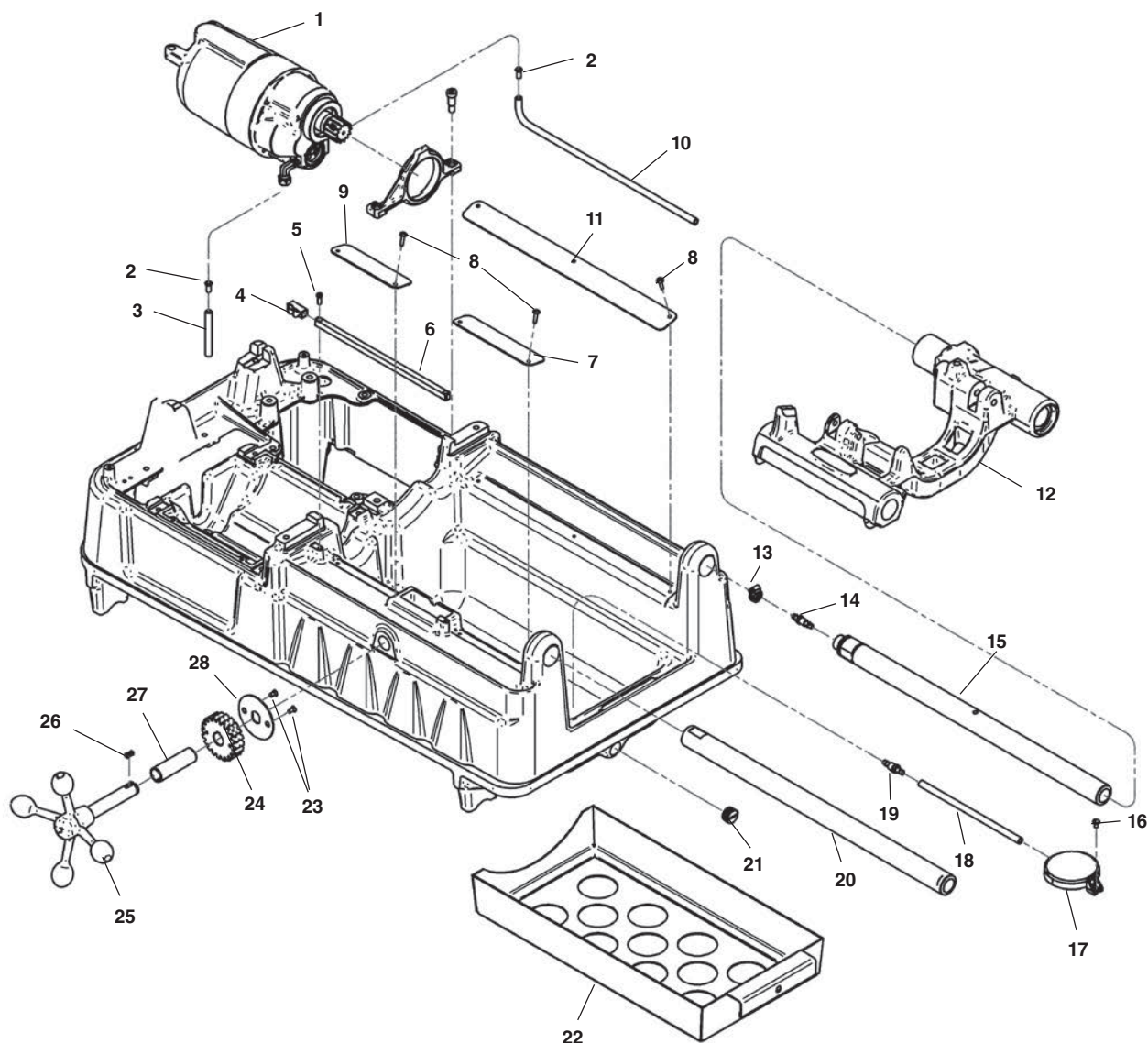
Motor



**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	27	44555	Armature (230V)
2	44545	Brush Cap Set	15	96830	Gear Housing	28	44015	Field (115V)
3	45025	Brush Holder Set	16	52507	Pipe Nipple 1/8" NPT (2)	29	44035	Field (230V)
4	39770	Set Screw (2)	17	52512	Coupling 1/8" NPT (2)	30	83500	Loading Spring
5	44540	Brush Assembly Set	18	52517	90° Elbow Fitting (2)	31	96942	White Upper Lead
6	54552	Fan Housing Assembly	19	96870	Gerotor Set	32	96492	Red Lower Lead
7	45165	Dowel Pin	20	96840	Cover Plate	33	46900	Connector 90
8	45060	Gear Bearings (5)	21	46130	Screw (6)	34	96482	Flexible Conduit
9	45315	Front Bearing	22	96875	O Ring			
10	96437	Drive Gear	23	45075	Screw (4)			

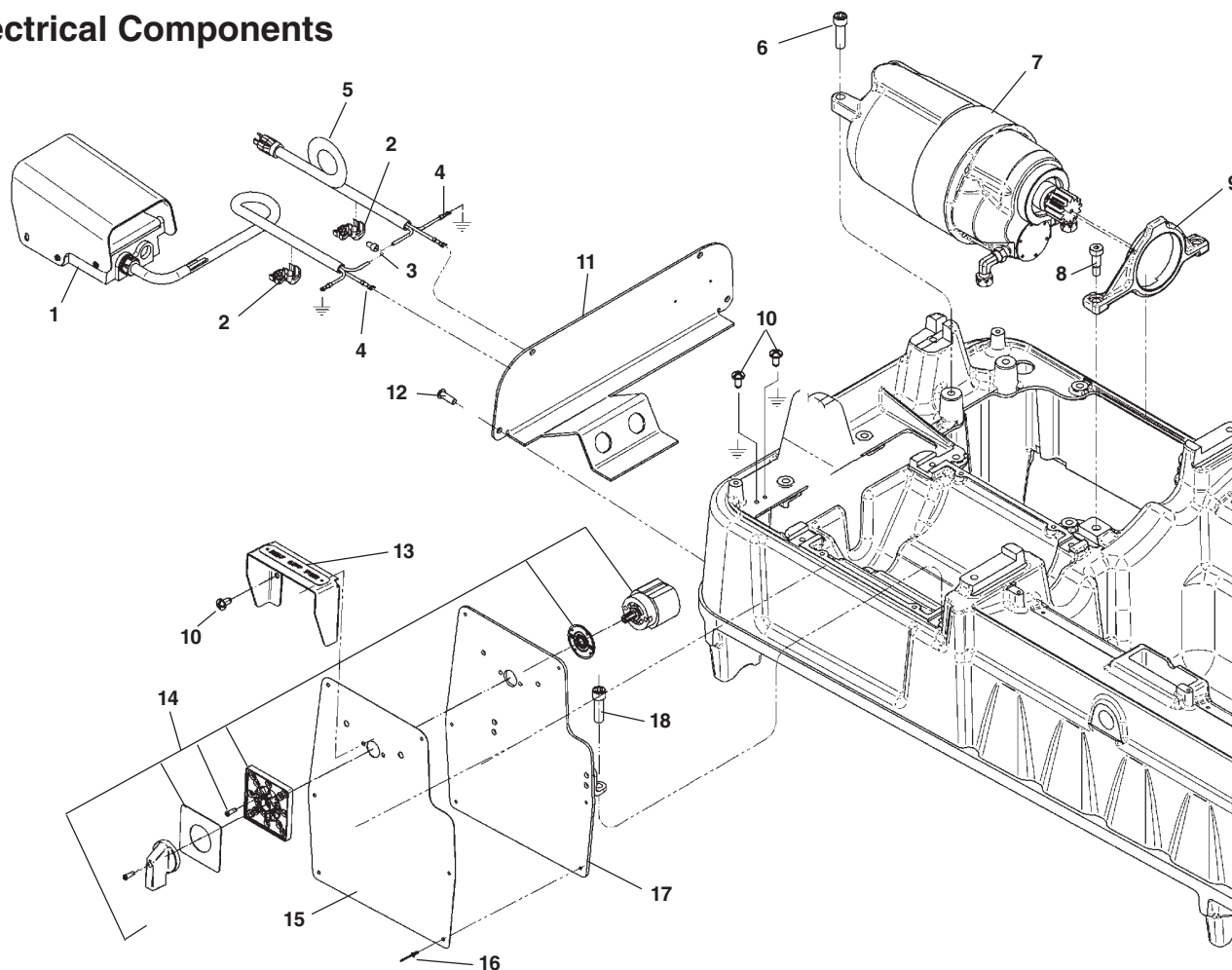
Oiling Components



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

Ref. No.	Catalog No.	Description	Ref. No.	Catalog No.	Description
1	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			

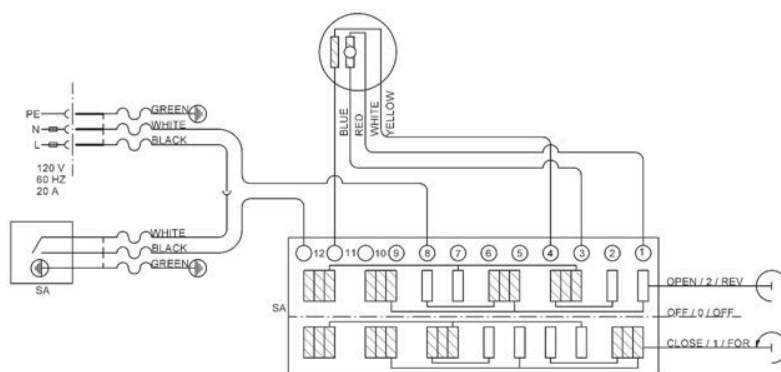
Electrical Components



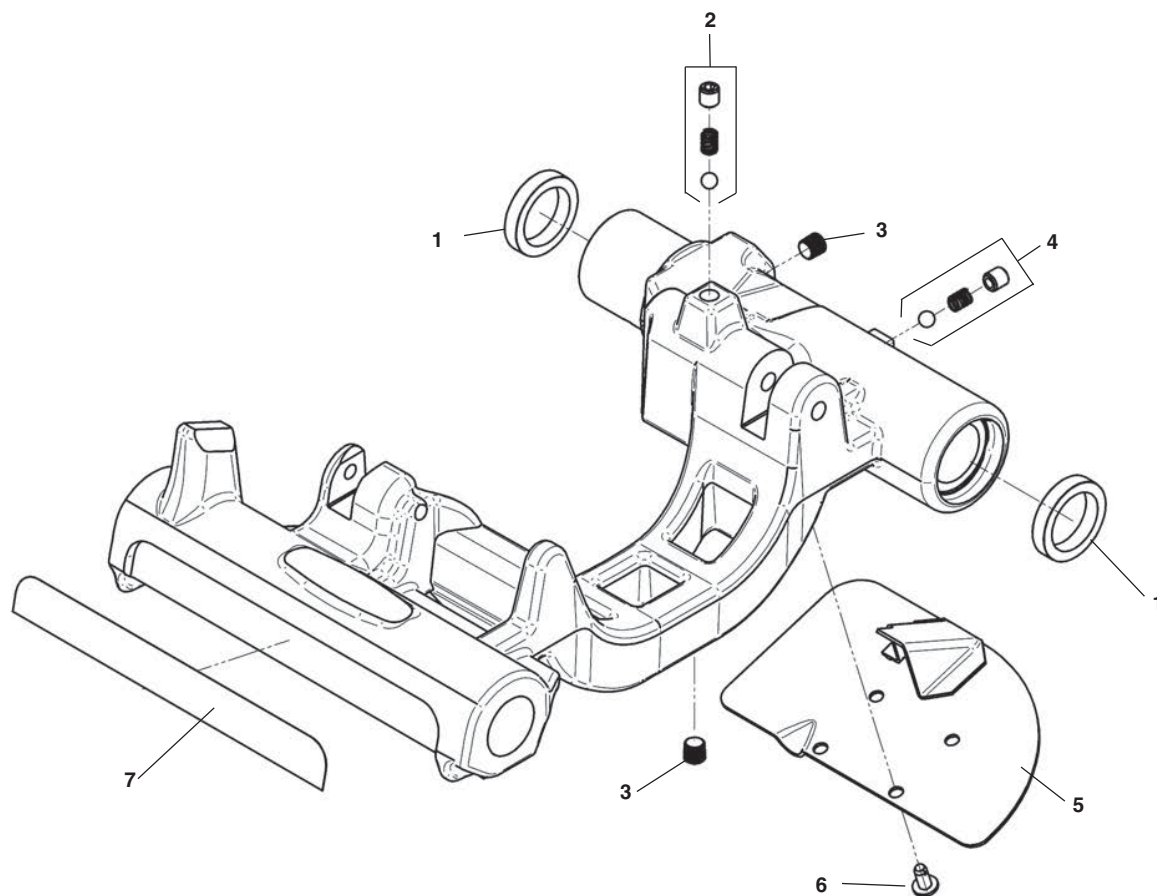
**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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



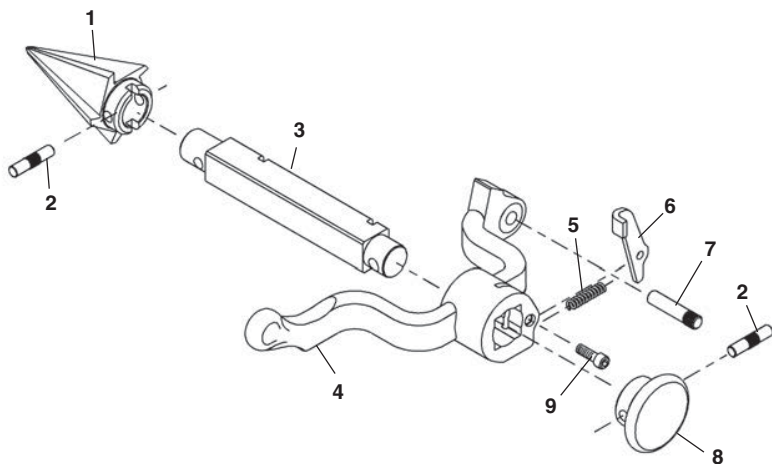
Carriage



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Ref. No.	Catalog No.	Description
—	94357	Carriage Assembly
1	46720	Oil Seal
2	46810	Die Head Dètente
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

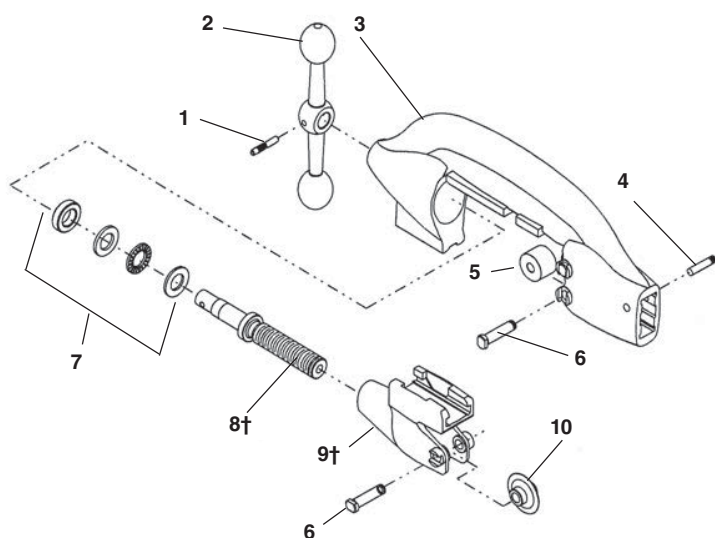
No. 341 Reamer



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.