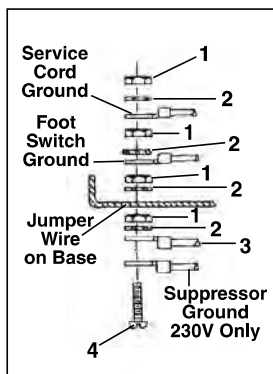
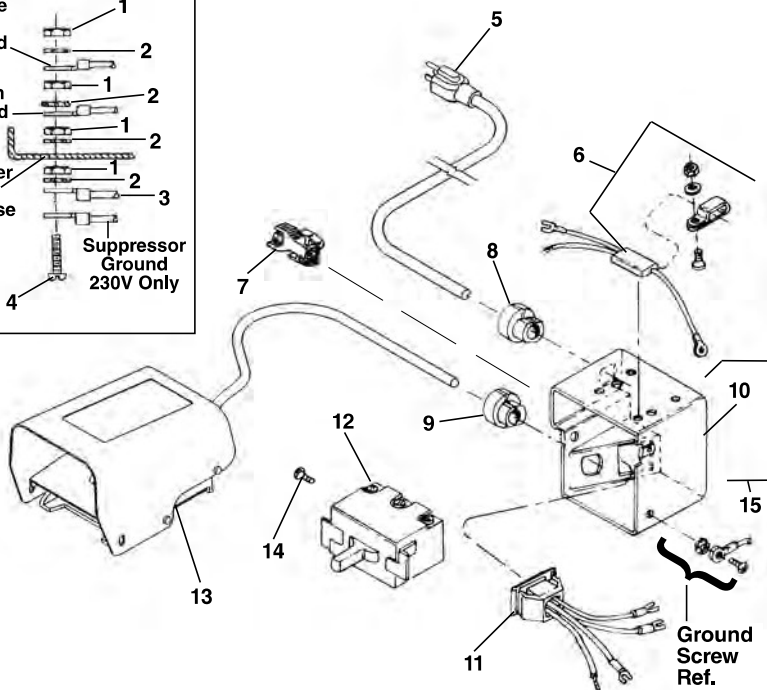


Electrical Components

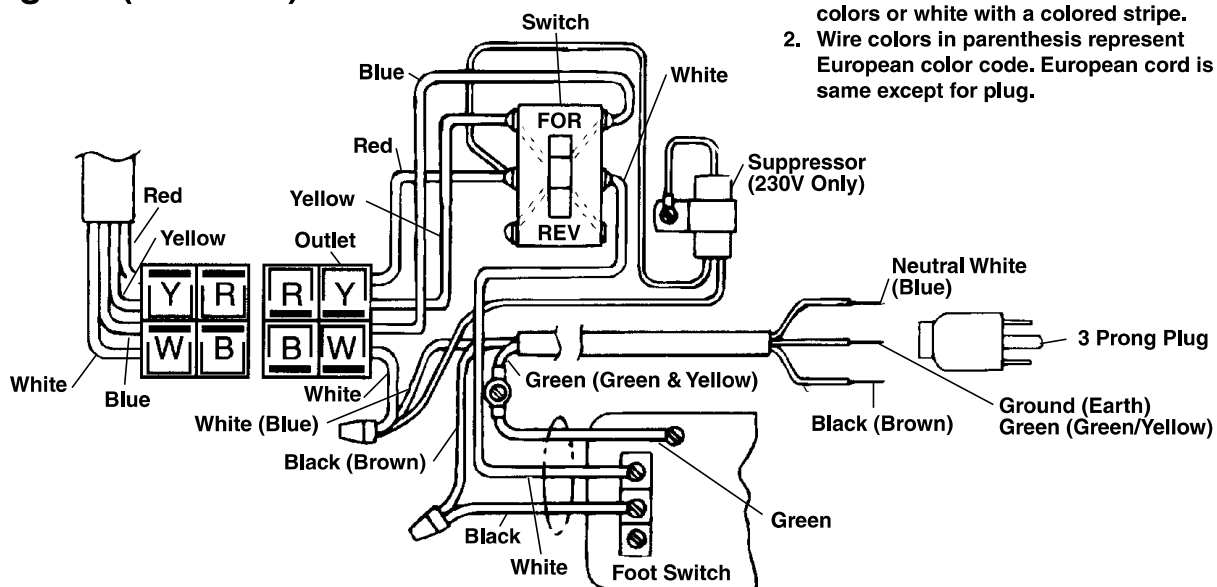


**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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)

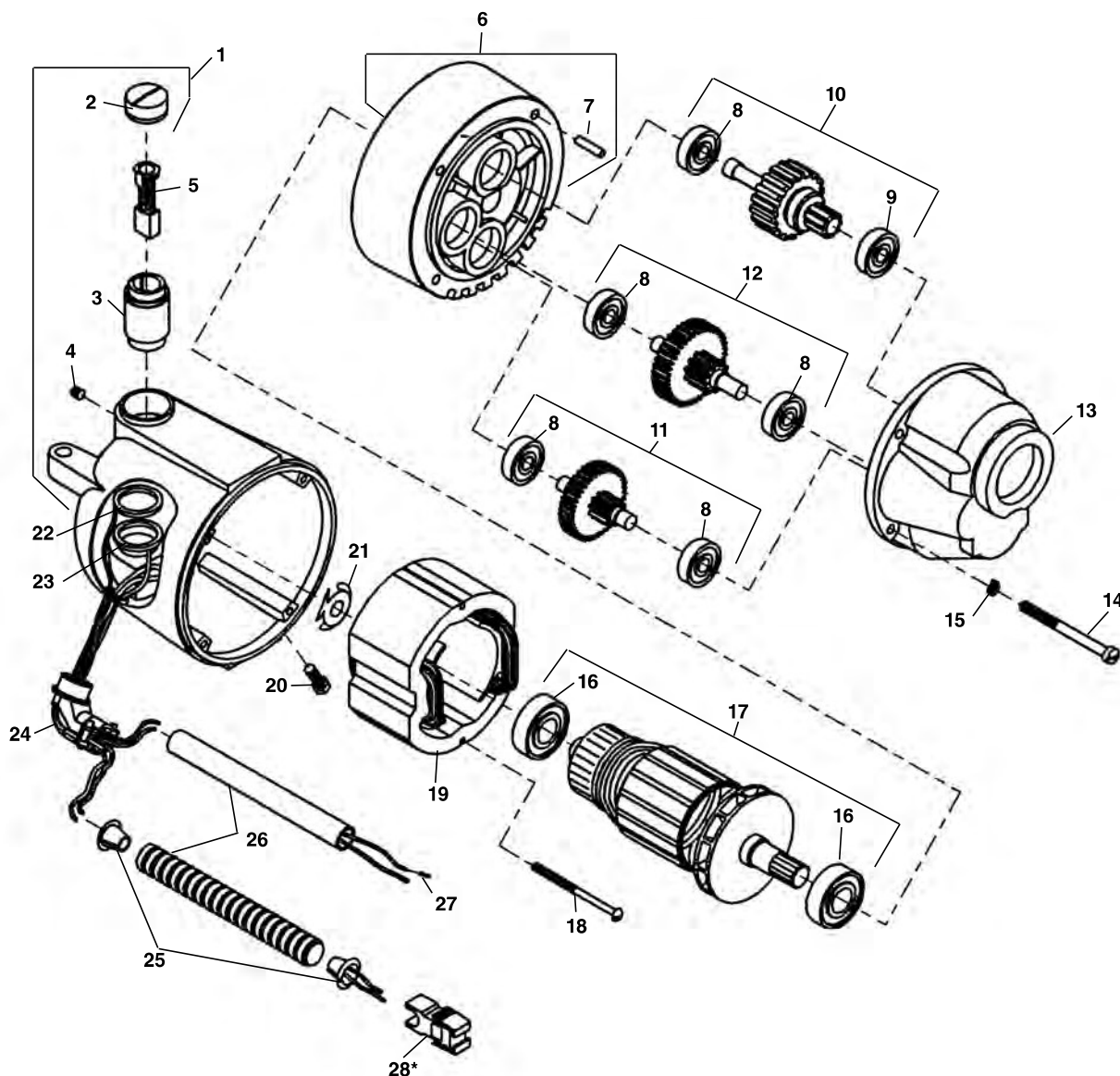


Wiring Diagram (115/230V)



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.

3177
3277
3177-CE
3277-CE

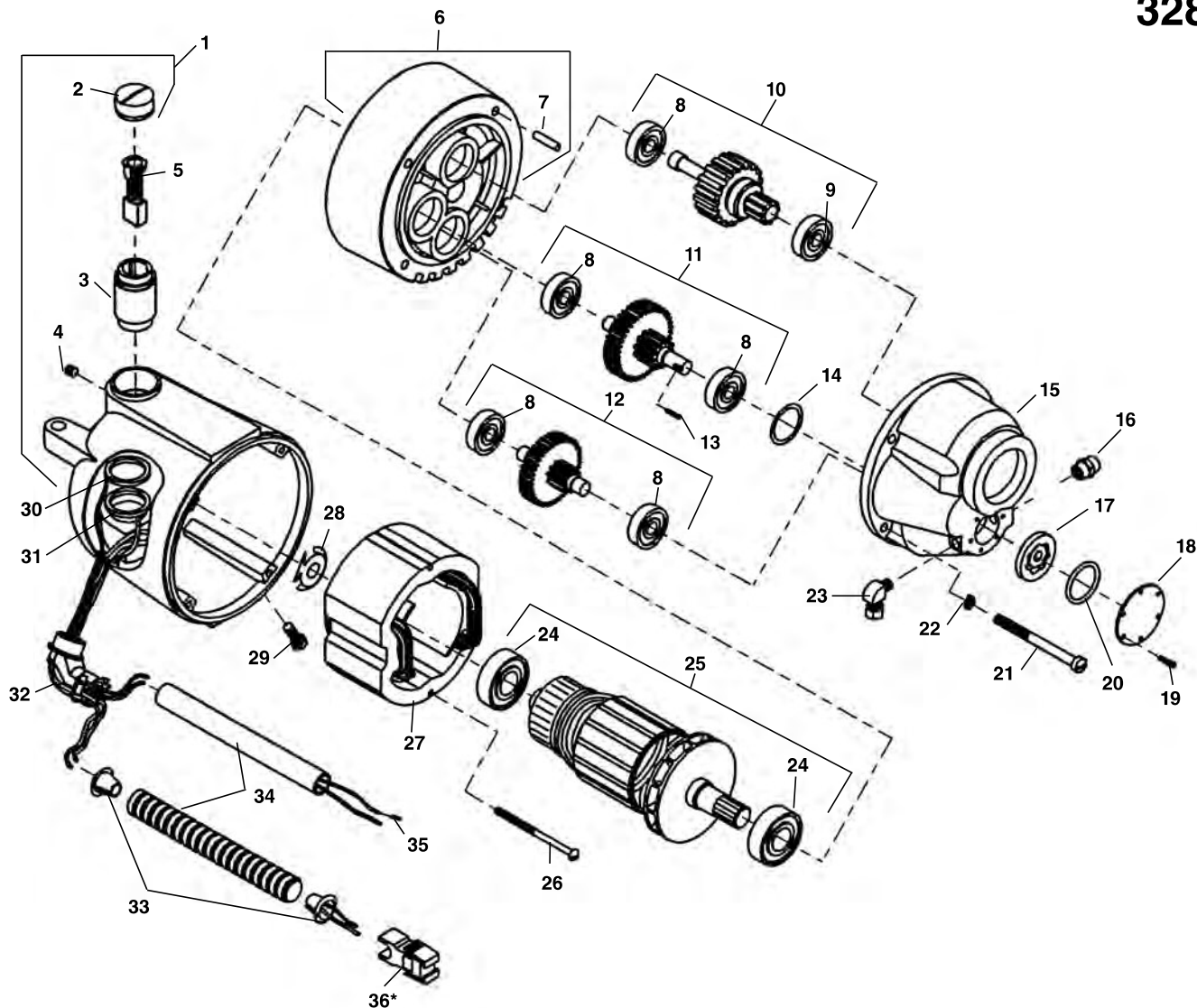


**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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)	27	46880	Plastic Tube (CE Only)
5	44540	Brush Assembly Set	18	44030	Armature (230V)	28*	88402	Wire Terminal (4) (CE Only)
6	43165	Fan Housing Assembly	19	44555	Field (115V)		50552	Plug (Included in Switch Box Assy. 91187)
7	45165	Dowel Pin		44035	Field (230V)			
8	45060	Gear Bearings (5)						
9	45315	Front Bearing						

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

3181
3281
3181-CE
3281-CE

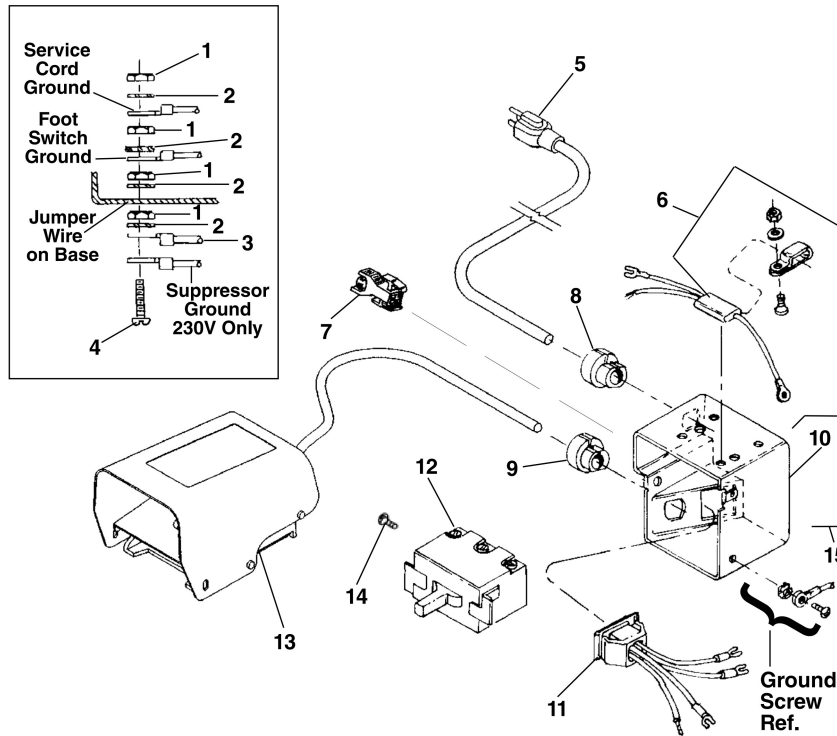


**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

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

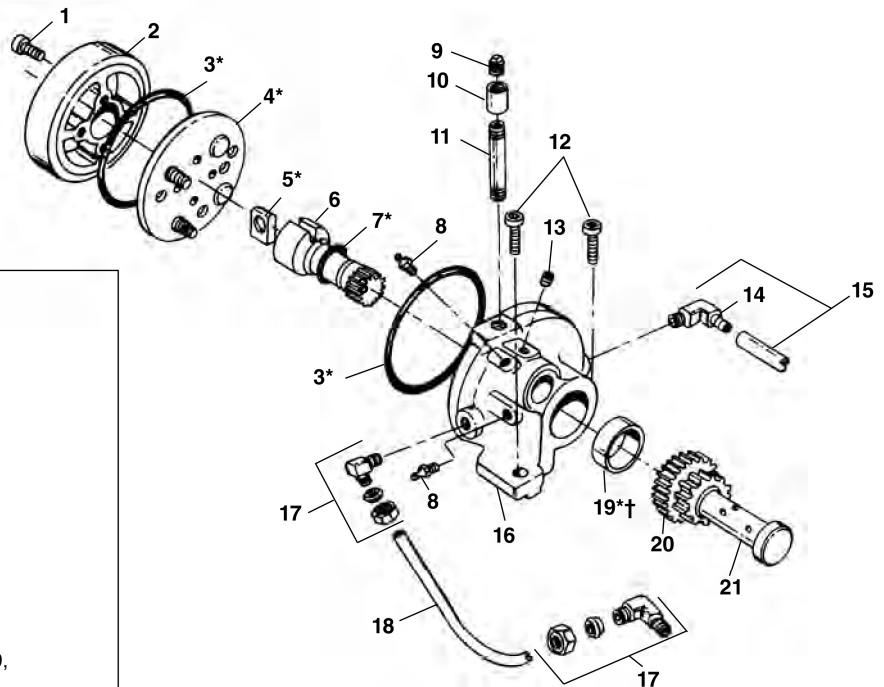
Electrical Components



**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

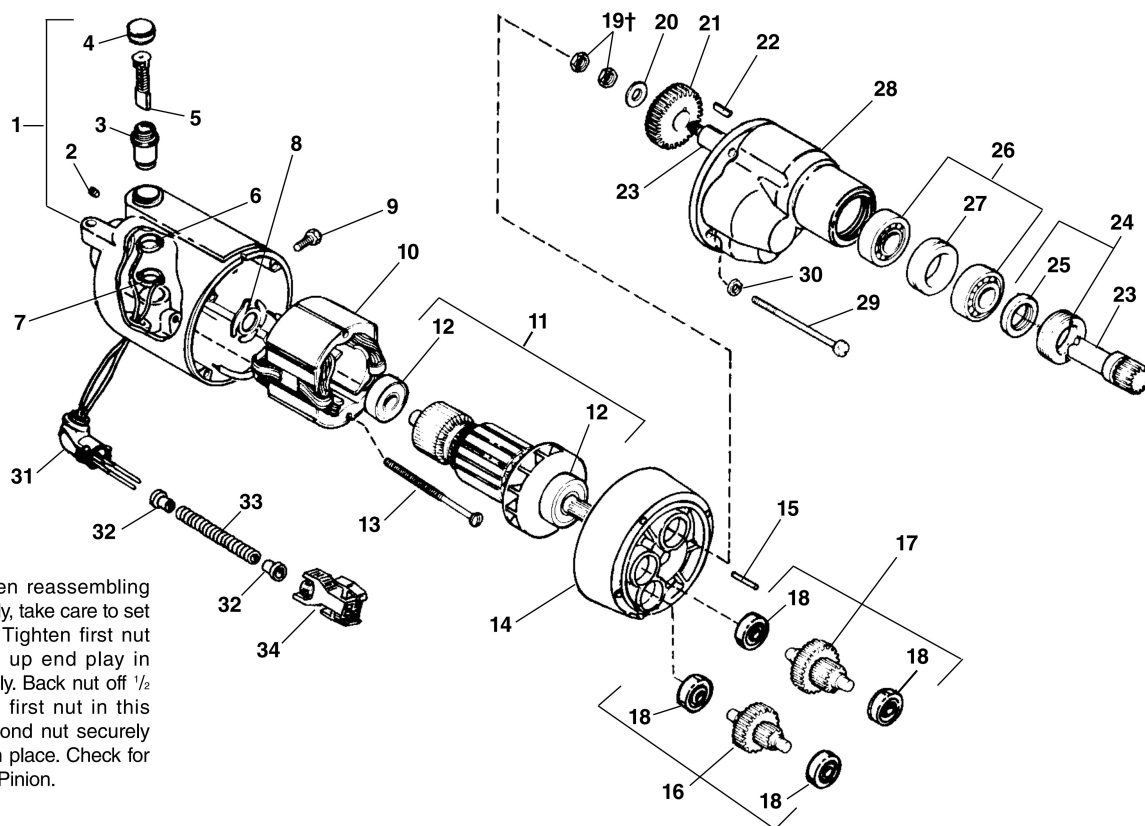


Ref. No.	Catalog No.	Description
1	46770	Screw #10-32 x 1" SHCS (4)
2	46350	Cover
3*	44650	O-Ring (2)
4*	46645	Valve Assembly
5*	47100	Rotor Blade
6	46355	Pinion Shaft
7*	44645	O-Ring
8	46860	Grease Fitting
9	46815	Pipe Plug
10	89725	Coupling
11	89730	Nipple
12	46750	Screw 3/8"-16 x 1" SHCS (2)
13	44455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