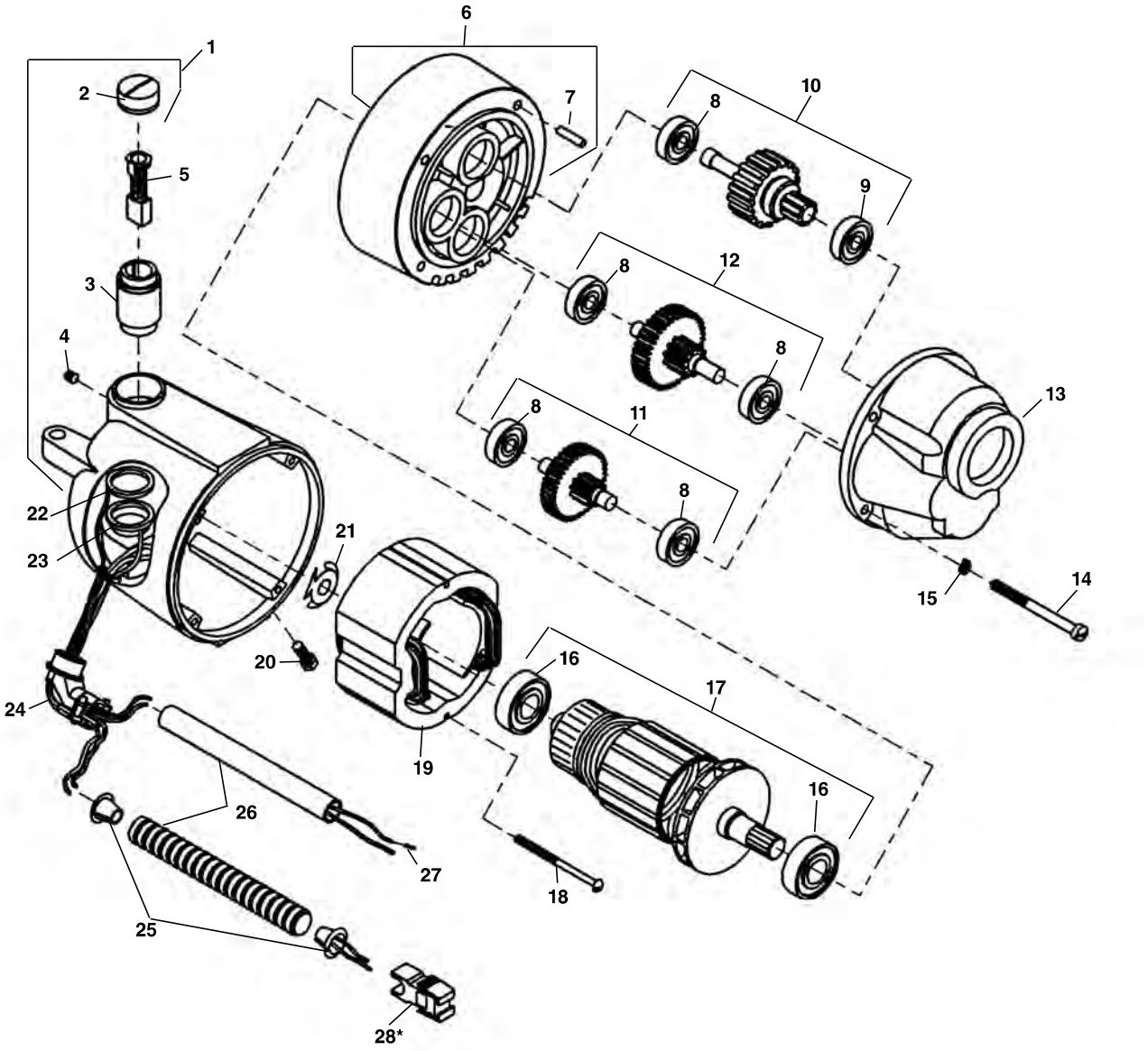
3177
3277
3177-CE
3277-CE

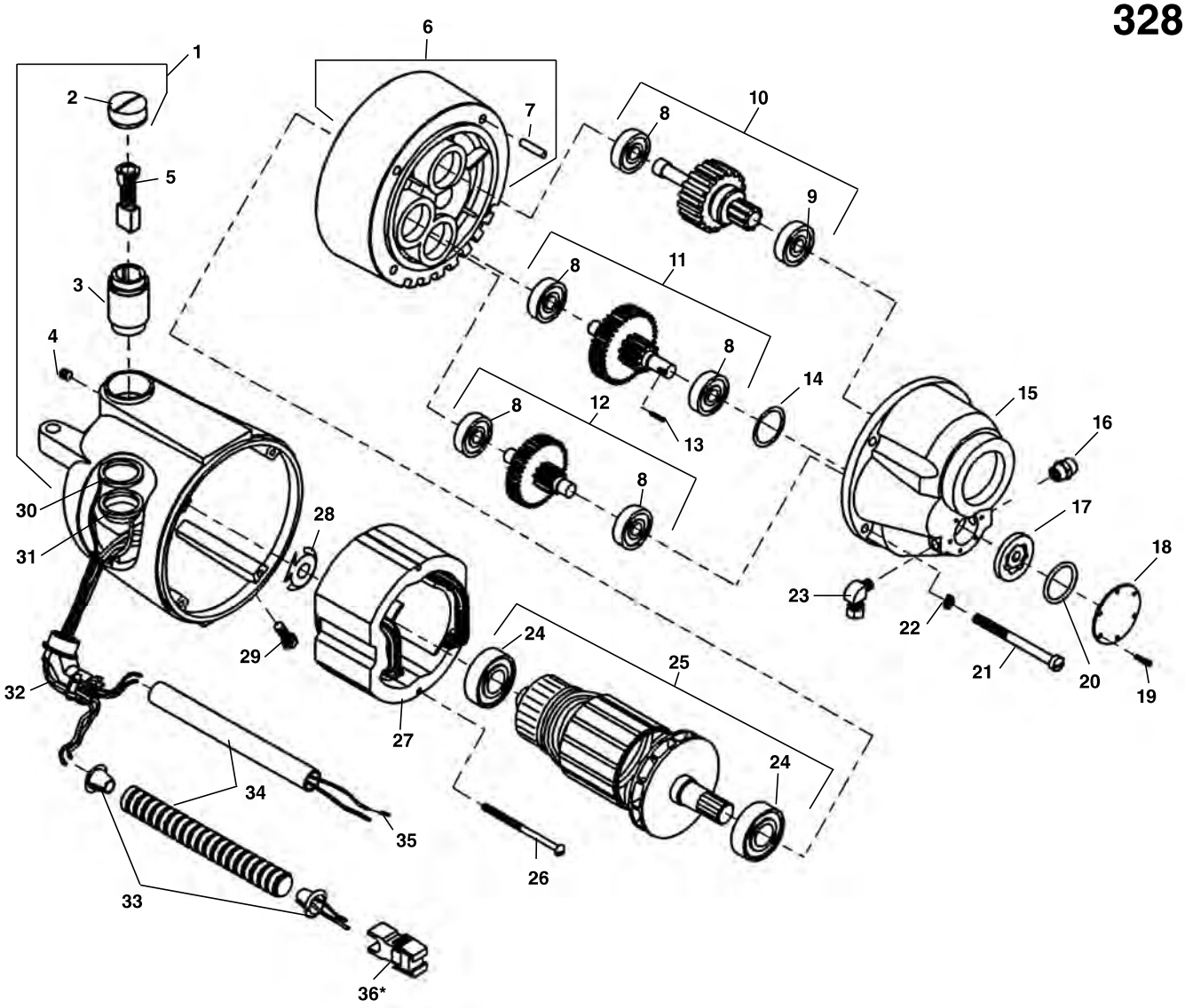


NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.

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

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

3181
3281
3181-CE
3281-CE



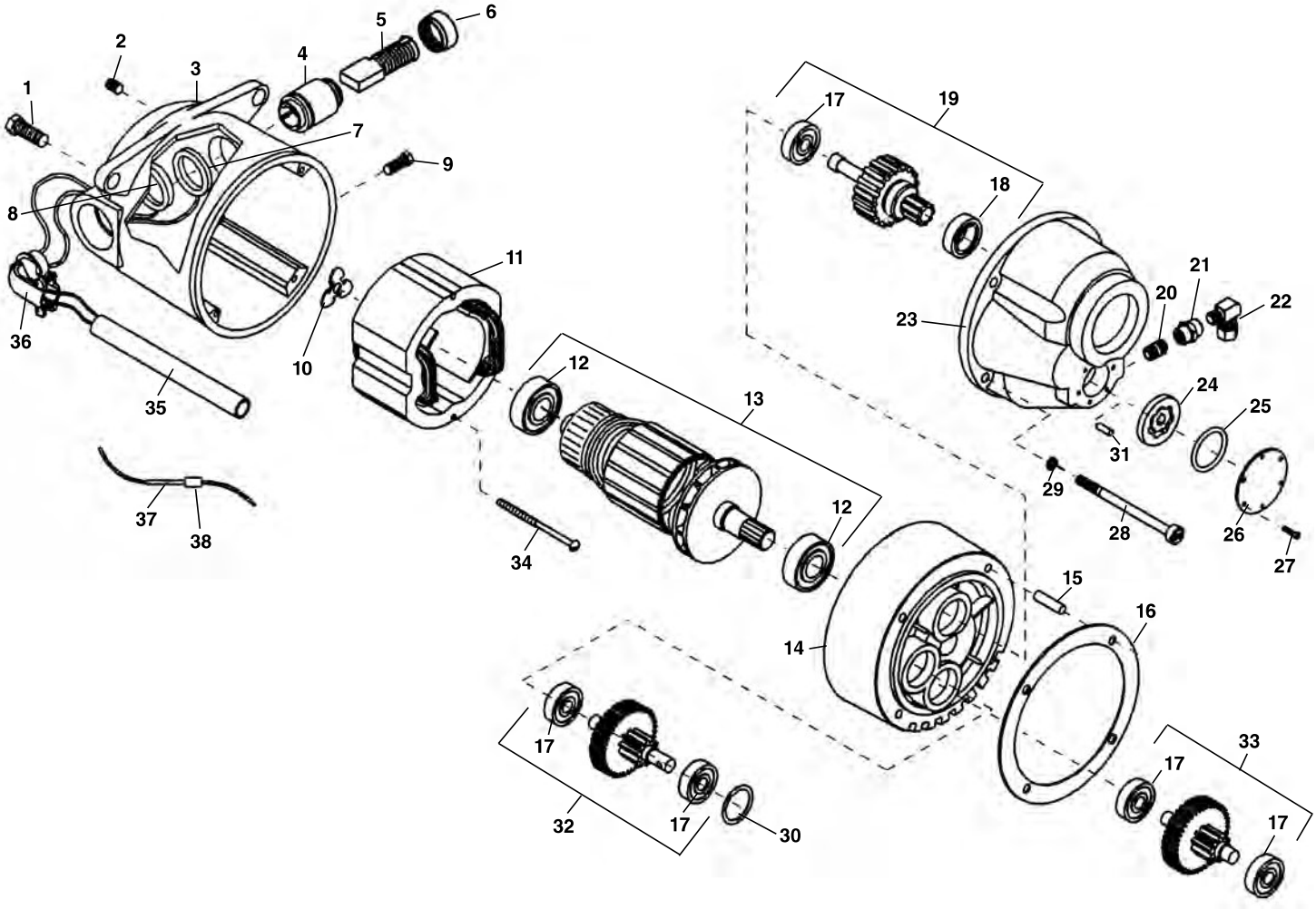
NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.

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

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

2192
2292
2192R
2292R

Motor



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

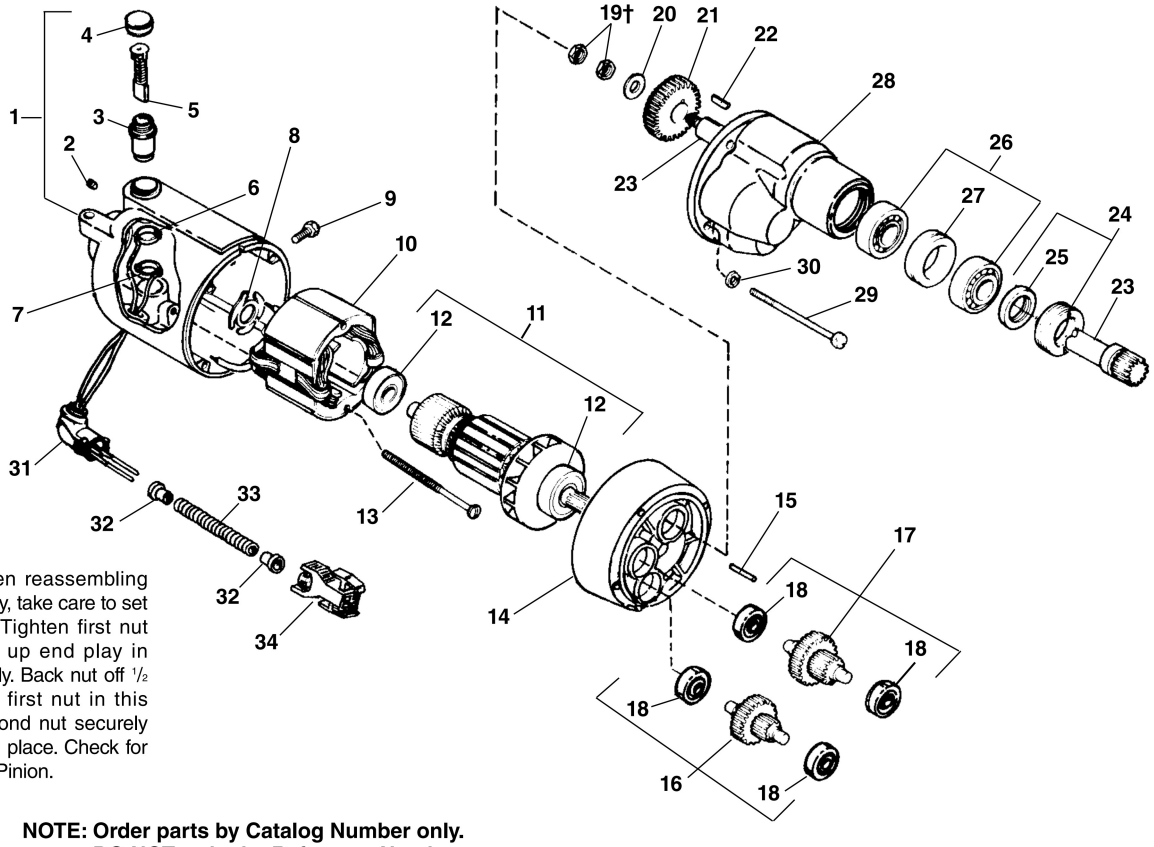
Ref. No.	Catalog No.	Description
—	72127	Motor Model 2292, 230V
—	54797	Motor Model 2192R, 115V
—	54802	Motor Model 2292R, 230V
1	85915	Motor Mounting Bolt (2)
2	39770	Set Screw 1/4" - 20 x 1/4" (2)
3	52482	Motor Housing
4	45025	Brush Holder Set (2)
5	44540	Brush Assembly Set (2)
6	44545	Brush Cap Set (2)
7	86685	Red Brush Lead
8	86680	White Brush Lead
9	83500	Field Locking Screw
10	44580	Loading Spring
11	44015	Field 100/115V
	44035	Field 230V

Ref. No.	Catalog No.	Description
12	44565	Armature Bearing (2)
13	52497	115V Armature
	54542	230V Armature
14	54552	Fan Housing Assembly
15	45165	Dowel Pin
16	52502	Gasket
17	44760	Gear Bearing
18	45315	Front Bearing
19	54537	Main Drive Gear Assembly
20	52507	1/8" NPT Close Nipple (2)
21	52512	1/8" Coupling (2)
22	52517	Elbow Compression Fitting (2)
23	96830	Gear Case
24	96870	Gerotor Set
25	96875	"O" Ring

Ref. No.	Catalog No.	Description
26	96840	Cover Plate
27	96890	Screw #4 x 3/8" (6)
28	45075	Screw 1/4" - 20
29	45150	Lock Washer 1/4"
30	96880	Oil Seal
31	96885	Pin
32	52522	1st Gear Assembly
33	54547	2nd Gear Assembly
34	44555	Screw 10 - 24 x 3"
35	63382	Plastic Tube
36	46900	90 Connector
—	47412	Male Wire Connector
—	52537	Female Wire Connector
37	16946	Male Connector
38	16956	Female Connector

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
1	43160	Housing
2	39770	Set Screw 1/4" - 20 x 1/4" (2)
3	45025	Brush Holder Set
4	44545	Brush Cap Set
5	44540	Brush Set
6	87865	White Upper Lead
7	87870	Red Lower Lead
8	44580	Loading Spring
9	83500	Screw 1/4" - 20 x 3/4"
10	44015	Field - 115V
	44035	Field - 230V
11	44010	Armature - 115V
	44030	Armature - 230V
12	44565	Armature Bearing (2)
13	44555	Mounting Screw (2)
14	43165	Fan Housing Assembly
15	45165	Dowel Pin
16	See Chart	1st Gear Assembly
17	See Chart	2nd Gear Assembly

Ref. No.	Catalog No.	Description
18	45060	Gear Bearing (4)
19†	40350	Lock Nut 3/8" - 24 (2)
20	45035	Washer
21	See Chart	Main Drive Gear
22	45015	Key 5/32" Sq.
23	44960	Drive Pinion
24	45010	Lock Nut w/Seal
25	45085	Seal
26	45040	Bearing Set w/Spacer
27	45045	Spacer
28	43170	Housing
29	45075	Screw 1/4" - 20 x 3"
30	45150	Lock Washer (4)
31	46900	Connector 90°
	46905	Connector 45°
32	46890	Insulator (2)
33	47412	Flexible Conduit
34	50552	Plug

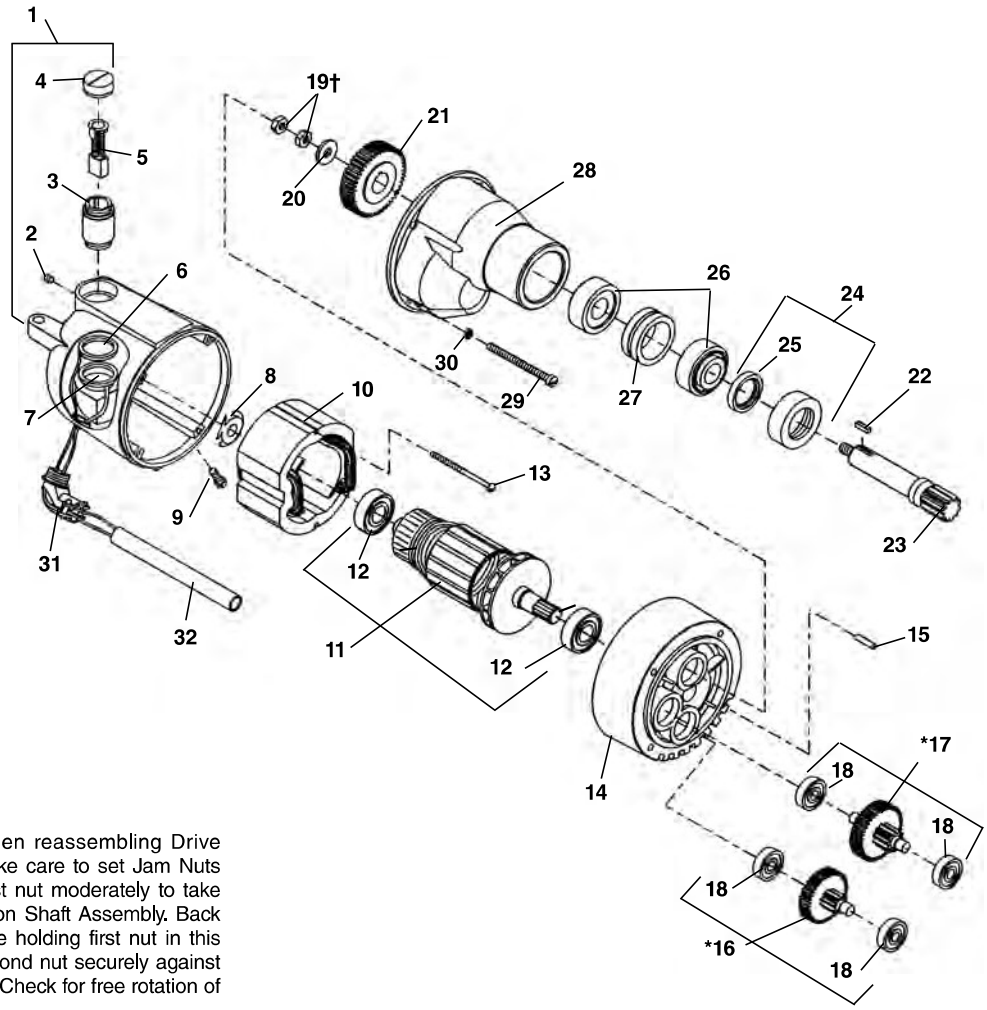
SPEED CHANGE GEAR CHART MACHINE MODEL NO. 400A - 535 - 802

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

1194
1194A
2394

Motor



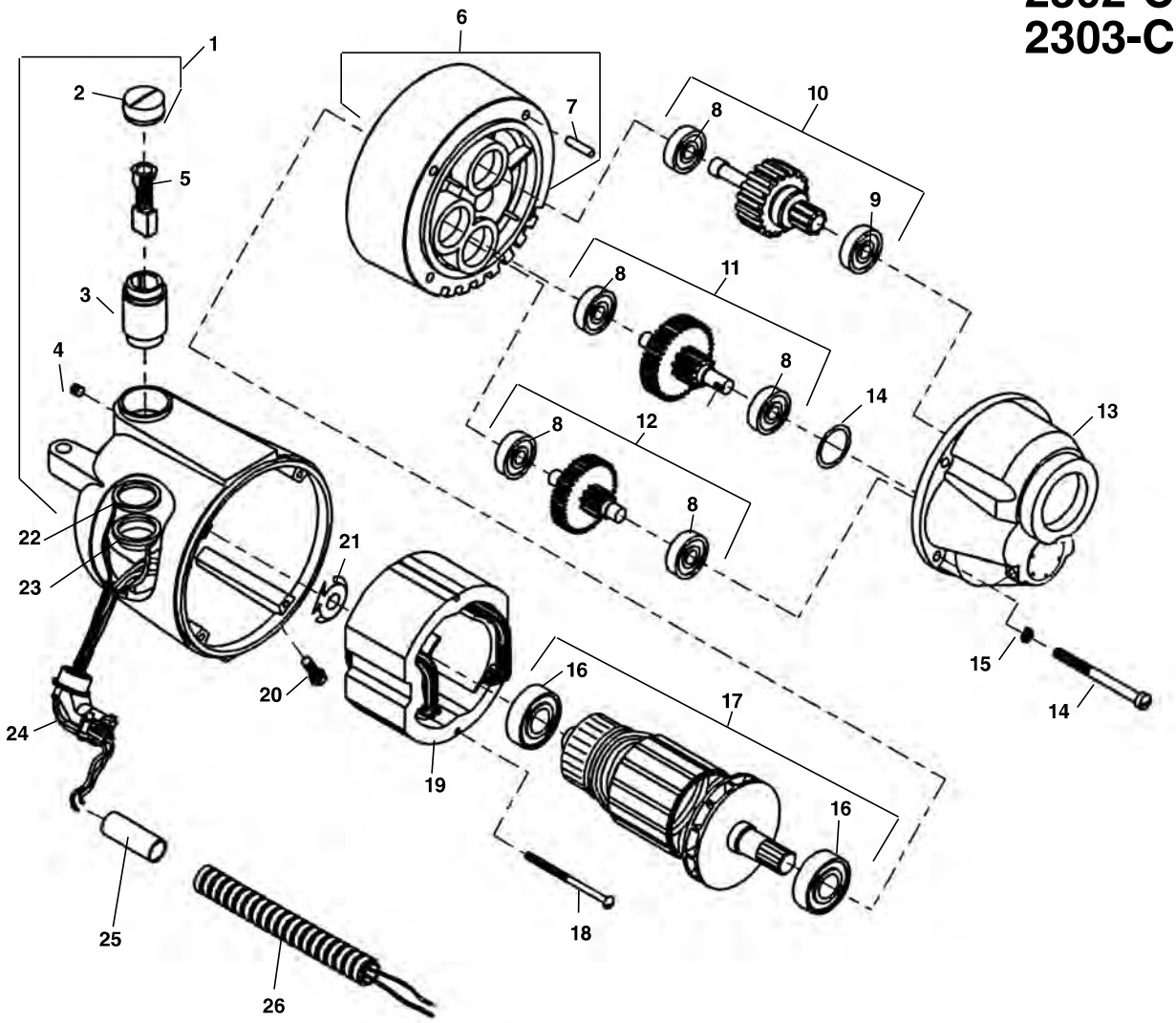
†Service Note: When reassembling Drive Pinion Assembly, take care to set Jam Nuts properly. Tighten first nut moderately to take up end play in Pinion Shaft Assembly. Back nut off ½ turn. While holding first nut in this position, tighten second nut securely against first to lock in place. Check for free rotation of Drive Pinion.

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

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

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

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

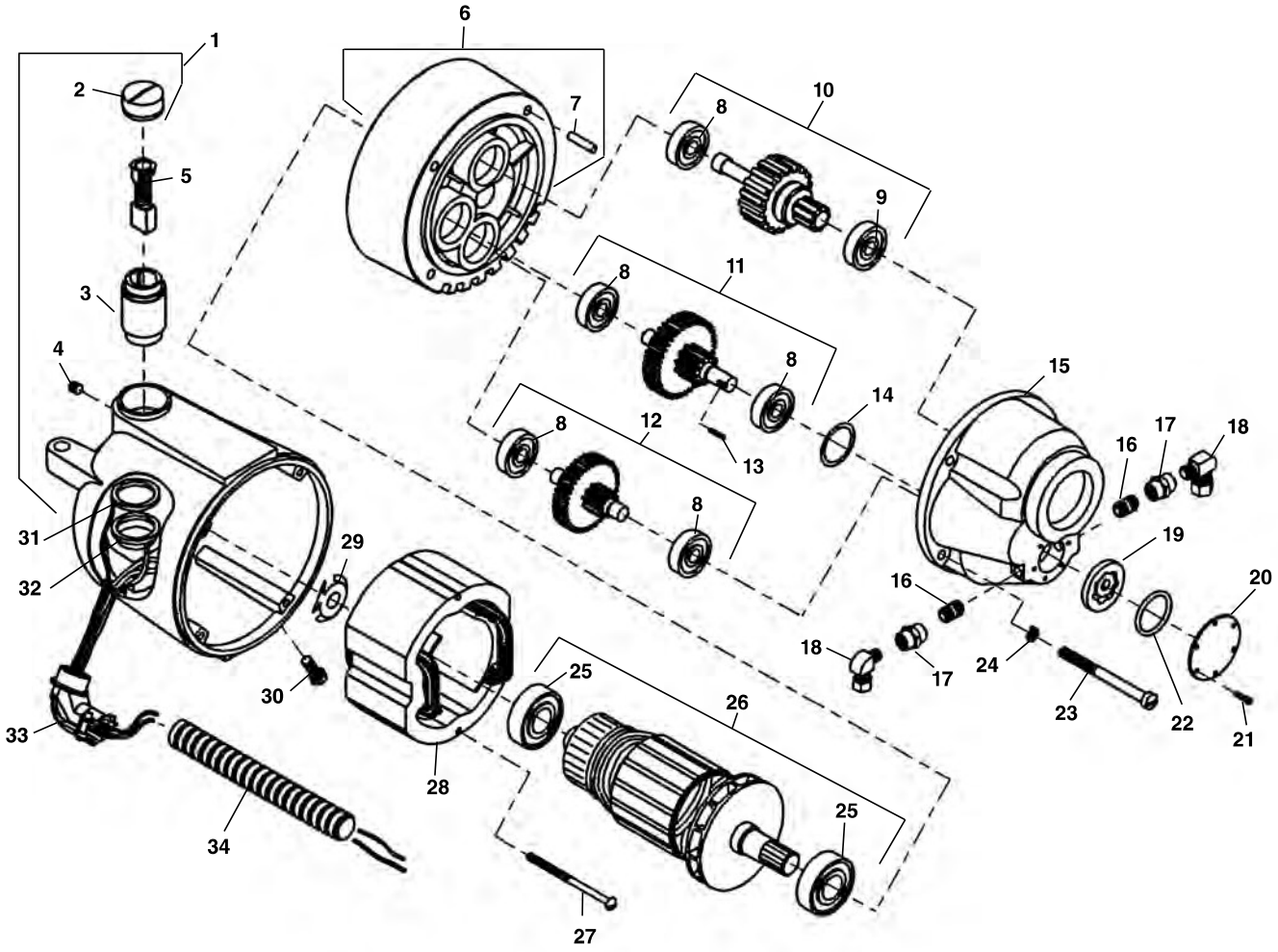


NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.

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

1101
2301

Motor

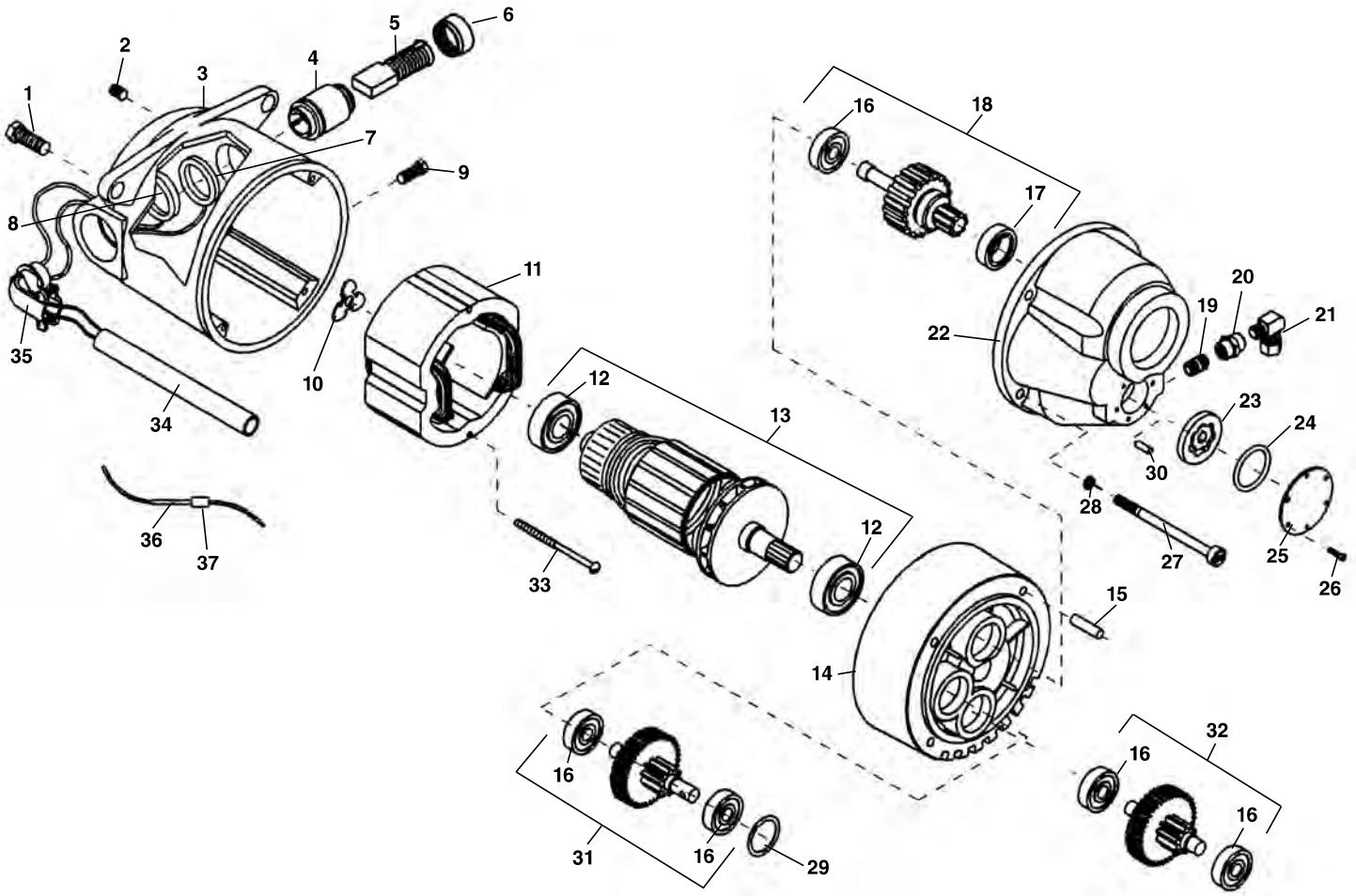


NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.

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

Motor

3092
3192
3292
3192R
3292R



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

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