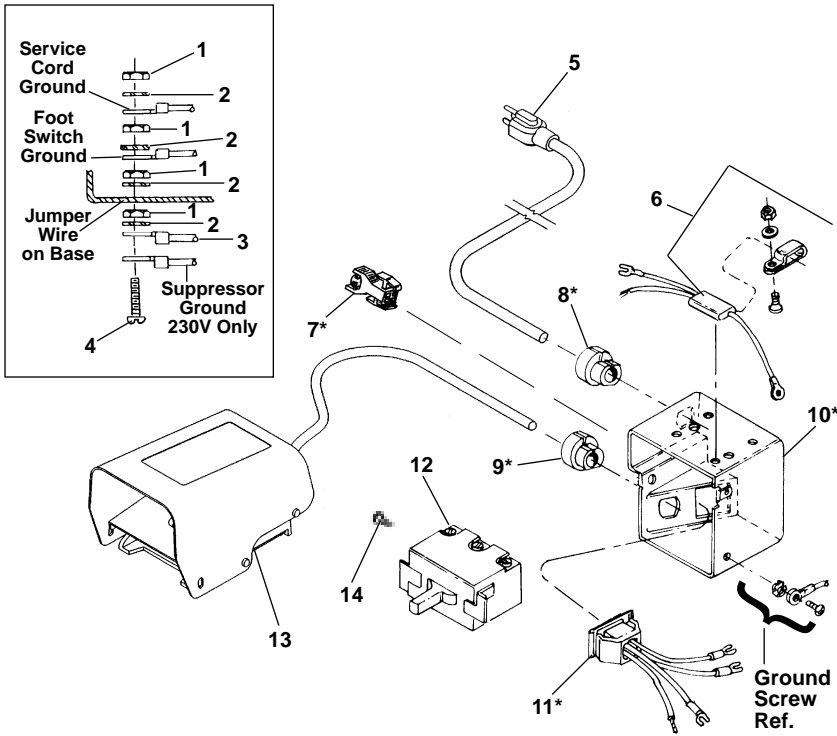


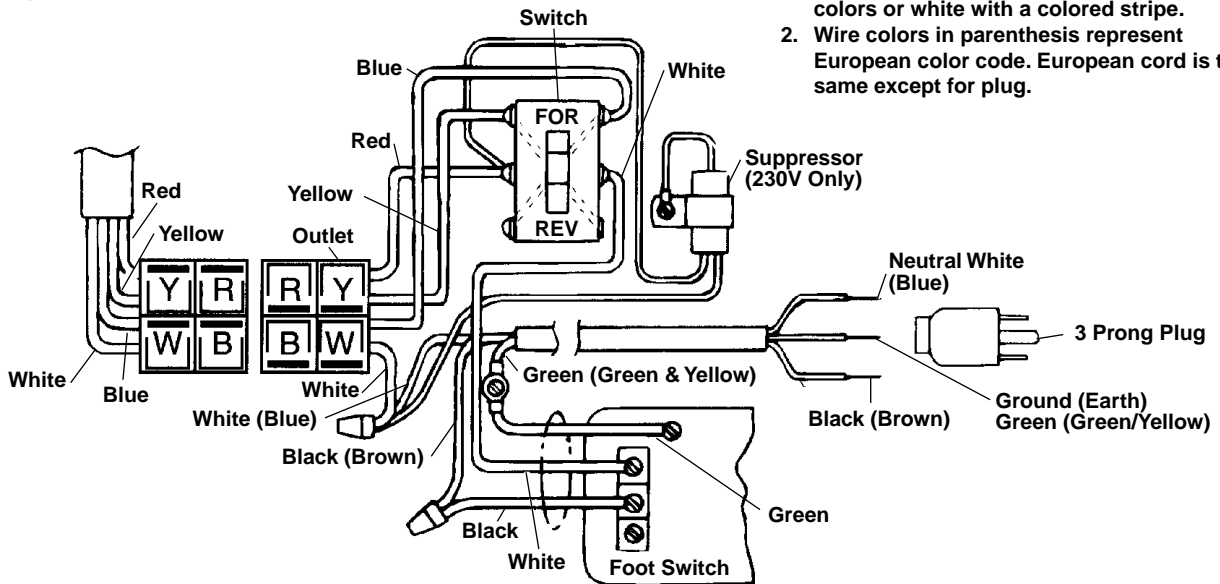
Electrical Components



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 |
| * | 91187 | Switch Box Kit |

Wiring Diagram (115/230V)

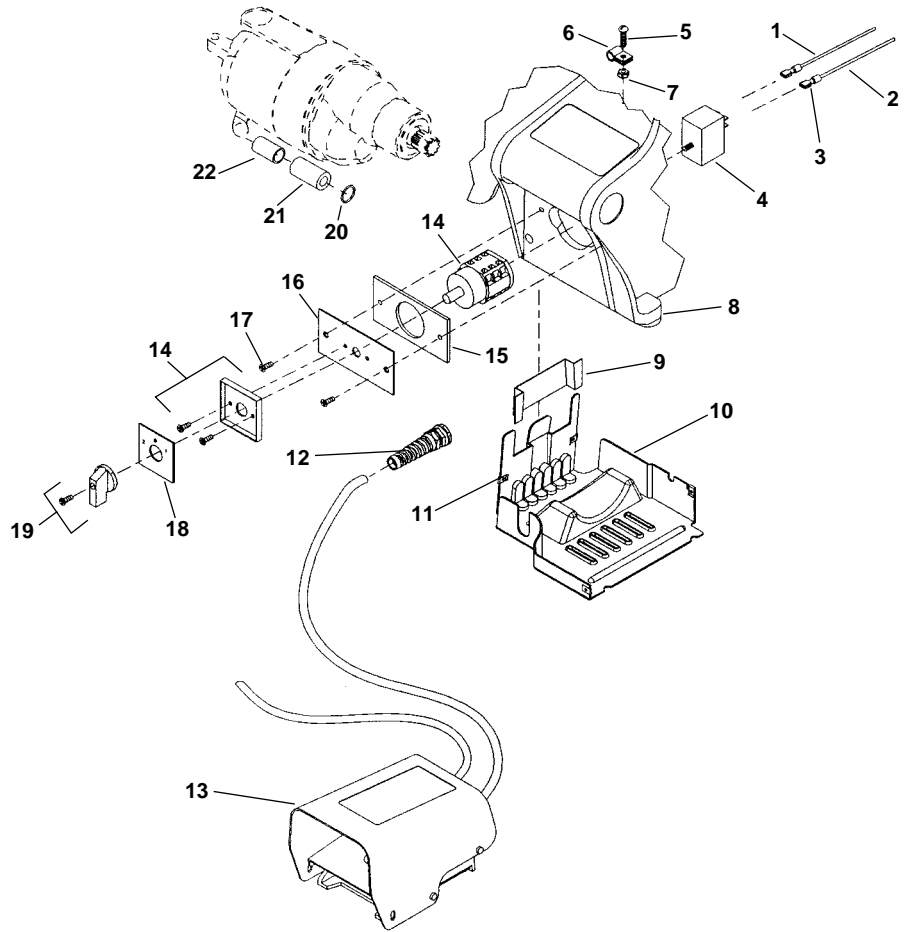


1. Brush and Armature Leads may be solid colors or white with a colored stripe.
2. Wire colors in parenthesis represent European color code. European cord is the same except for plug.

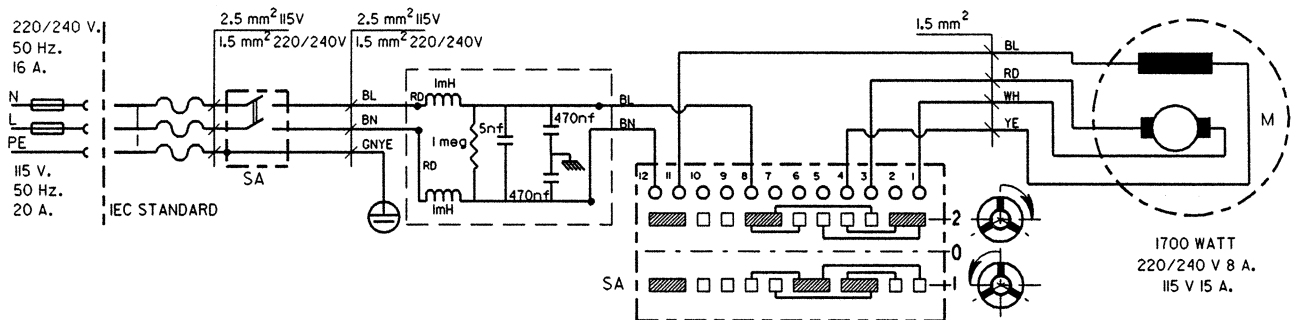
European Electrical Components

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

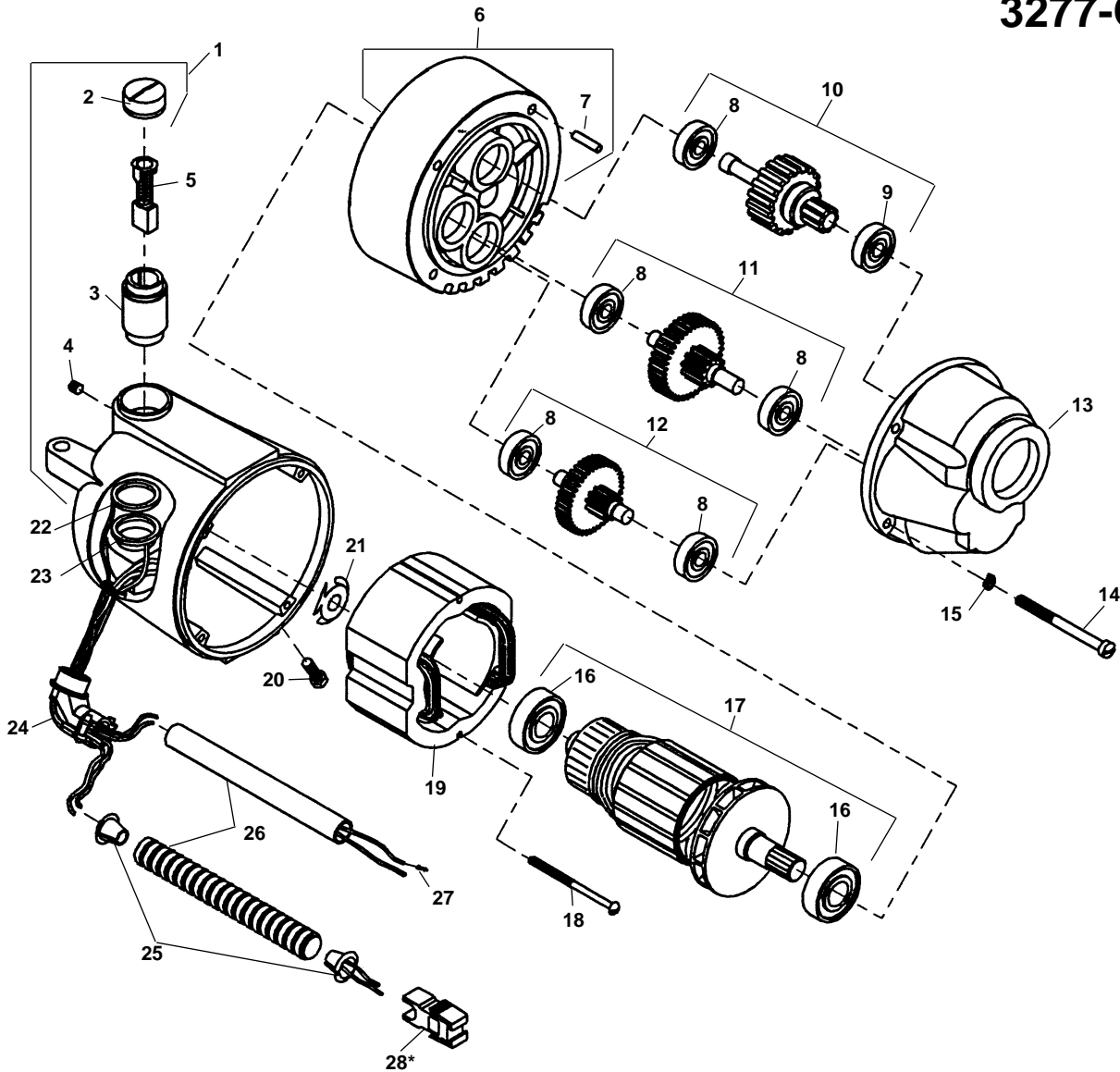
| Ref. No. | Catalog No. | Description |
|----------|-------------|-------------------------------|
| 1 | 63387 | Brown Lead Wire |
| 2 | 63392 | Blue Lead Wire |
| 3 | 62027 | Quick Disconnect Terminal (4) |
| 4 | 63372 | Suppressor |
| 5 | 92455 | 10 - 24 x 3/4" Screw |
| 6 | 54222 | Cord Clamp |
| 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

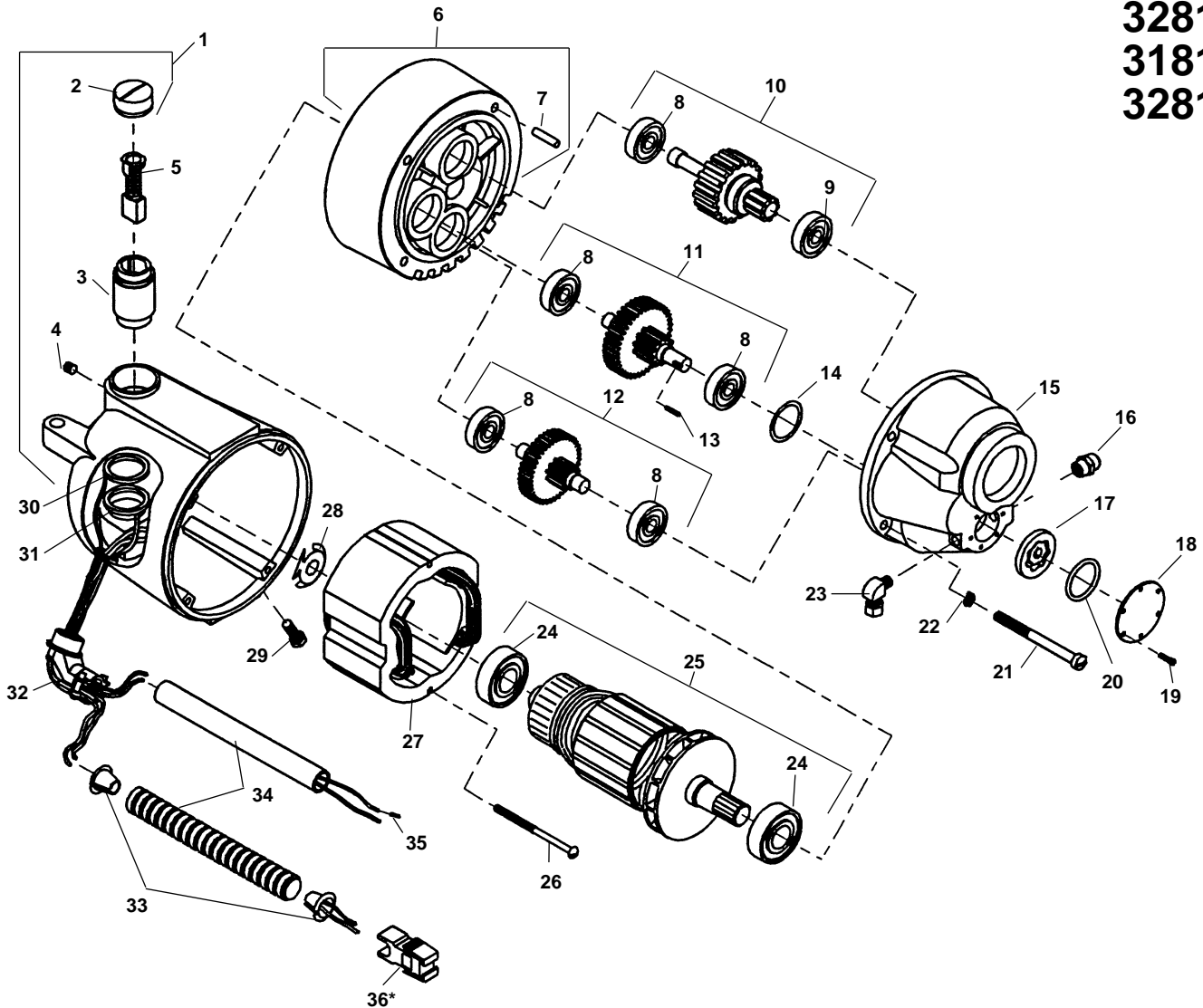


**NOTE: Order parts by Catalog Number only.
 DO NOT order by Reference Number.**

| 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 | 45005 | 2nd Gear Assembly | 21 | 44580 | Loading Spring |
| † | 61202 | 3177-CE Motor 115V | 12 | 44985 | 1st 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 | | 19066 | Gear Housing (Europe) | 24 | 46900 | Connector 90 Degree |
| 2 | 44545 | Brush Cap Set | 14 | 45075 | Screw (4) | 25 | 46890 | E-918 Insulator (2) |
| 3 | 45025 | Brush Holder Set | 15 | 45150 | Lock Washer | 26 | 47407 | Flexible Conduit |
| 4 | 39770 | Set Screw (2) | 16 | 44565 | Armature Bearing (2) | | 46880 | Plastic Tube (CE Only) |
| 5 | 44540 | Brush Assembly Set | 17 | 44010 | Armature (115V) | 27 | 88402 | Wire Terminal (4) (CE Only) |
| 6 | 43165 | Fan Housing Assembly | | 44030 | Armature (230V) | 28* | 50552 | Plug (Included in Switch Box Assy. 91187) |
| 7 | 45165 | Dowel Pin | 18 | 44555 | Mounting Screw (2) | | | |
| 8 | 45060 | Gear Bearings (5) | 19 | 44015 | Field (115V) | | | |
| 9 | 45315 | Front Bearing | | 44038 | Field (230V) | | | |

† Refer to Speed Change Chart for Optional Speeds on Page 8

3181
3281
3181-CE
3281-CE



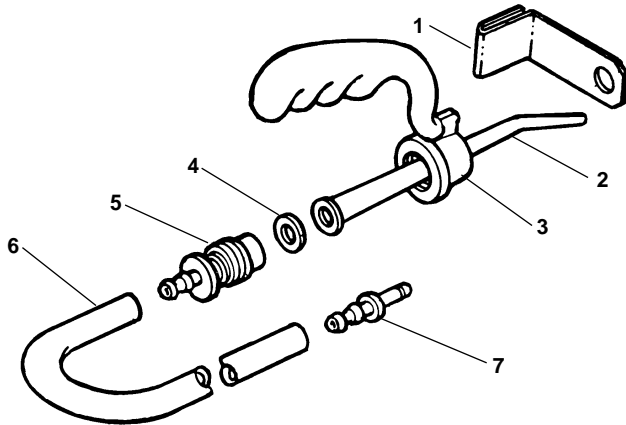
**NOTE: Order parts by Catalog Number only.
 DO NOT order by Reference Number.**

| Ref. No. | Catalog No. | Description | Ref. No. | Catalog No. | Description | Ref. No. | Catalog No. | Description |
|----------|-------------|----------------------|----------|-------------|----------------------|----------|-------------|---|
| † | 96810 | 3181 Motor 115V | 12 | 97000 | 1st Gear Assembly | 26 | 44555 | Mounting Screw (2) |
| † | 96975 | 3281 Motor 230V | 13 | 96885 | Pin | 27 | 44015 | Field (115V) |
| † | 61192 | 3181-CE Motor 115V | 14 | 96880 | Oil Seal | | 44035 | Field (230V) |
| † | 61197 | 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 | 45005 | 2nd Gear Assembly | | 44030 | Armature (230V) | | | |

† Refer to Speed Change Chart for Optional Speeds on Page 8

No. 309 Oil Spout (300A Power Drive)

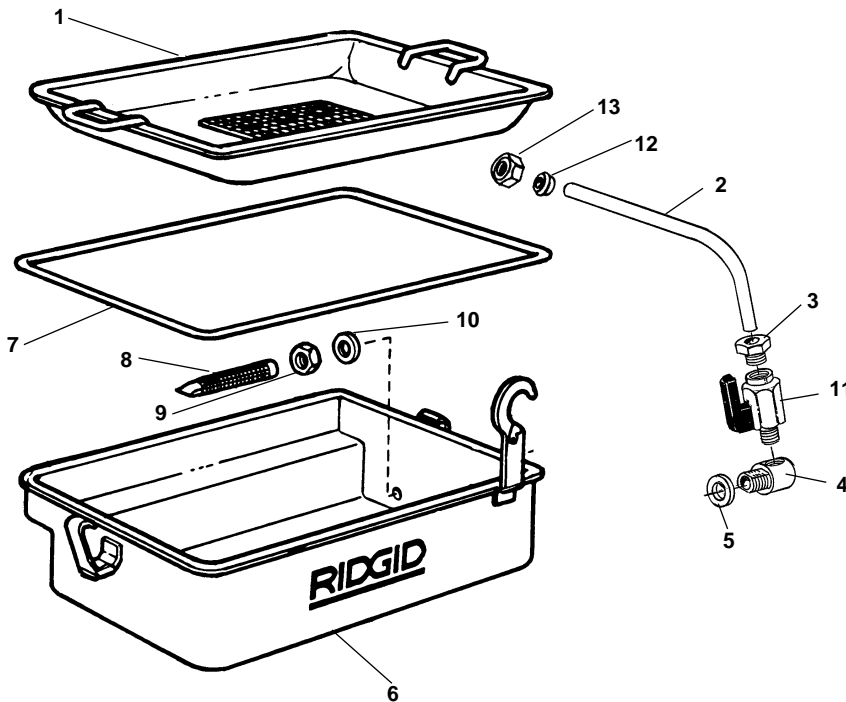
309
330
331



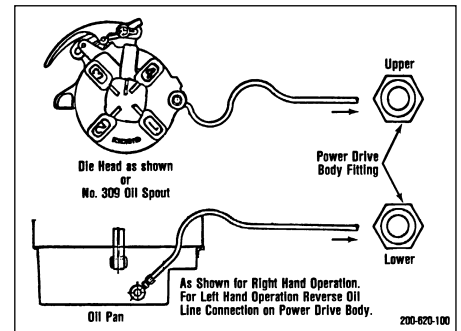
**NOTE: Order parts by Catalog Number only.
DO NOT order by Reference Number.**

| 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 | Hose Adapter |
| 6 | 97195 | Hose |
| 7 | 97105 | Hose Adapter |

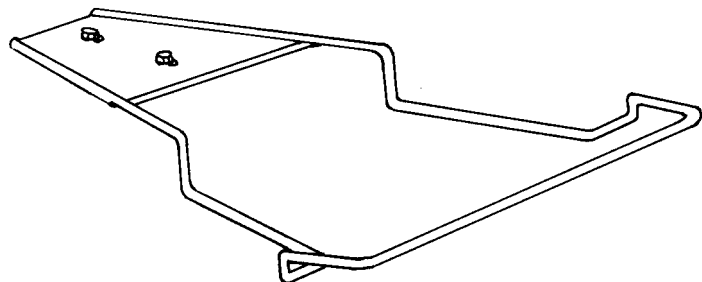
No. 330 Oil Pan (300A Power Drive)



| 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 |



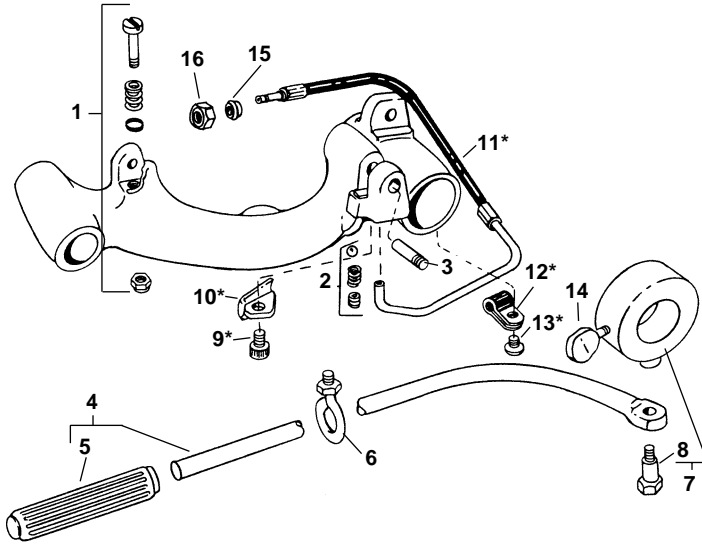
No. 331 Oil Pan Support Tray
Catalog No. 97250
(300A Power Drive)



No. 311 Carriage w/Lever (200, 300 Power Drive)

No. 311A Carriage w/Lever (300A, 304 Retrofit)

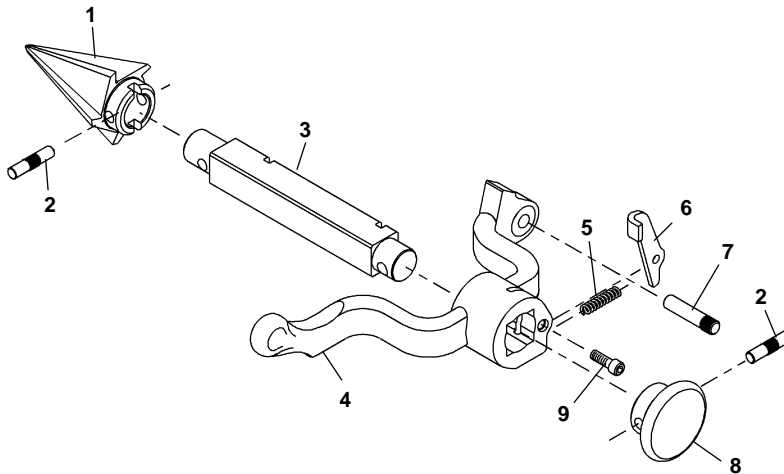
311
311A
341
360



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

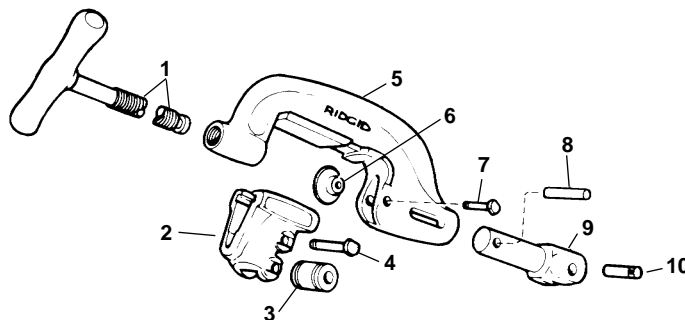
| Ref. No. | Catalog No. | Description |
|----------|-------------|--|
| — | 68815 | 311 Carriage w/Lever |
| — | 96945 | 311A Carriage w/Lever |
| — | 42385 | 312 Lever Kit (incl. Ref. No. 4, 6, 7, 14) |
| 1 | 45515 | Stop Bolt Assembly |
| 2 | 46810 | Detente Assembly |
| 3 | 47065 | Reamer Hinge Pin |
| 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 | F-693 Pin |
| 3 | 43790 | D-387 Reamer Bar |
| 4 | 43230 | C-144 Reamer Arm |
| 5 | 44700 | E-1664 Latch Spring |
| 6 | 46665 | E-865 Reamer Latch |
| 7 | 47065 | F-412 Hinge Pin |
| 8 | 46585 | E-762 Reamer Knob |
| 9 | 46515 | E-650 Screw 1/4" - 20 x 3/4" |

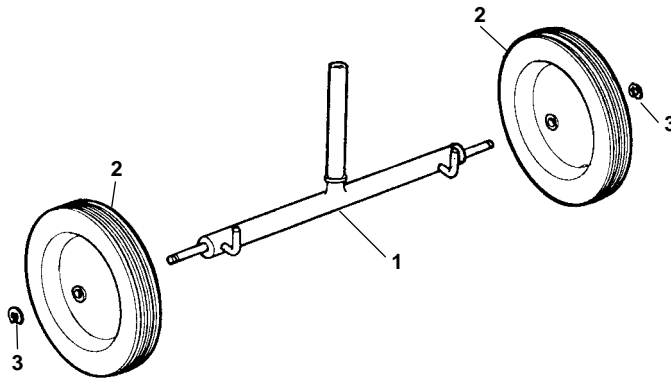
No. 360 Cutter



| 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. 32 Transporter

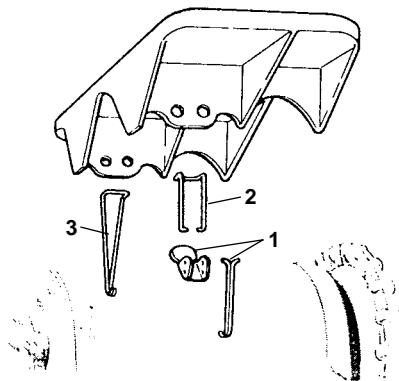
32
1452
1206



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

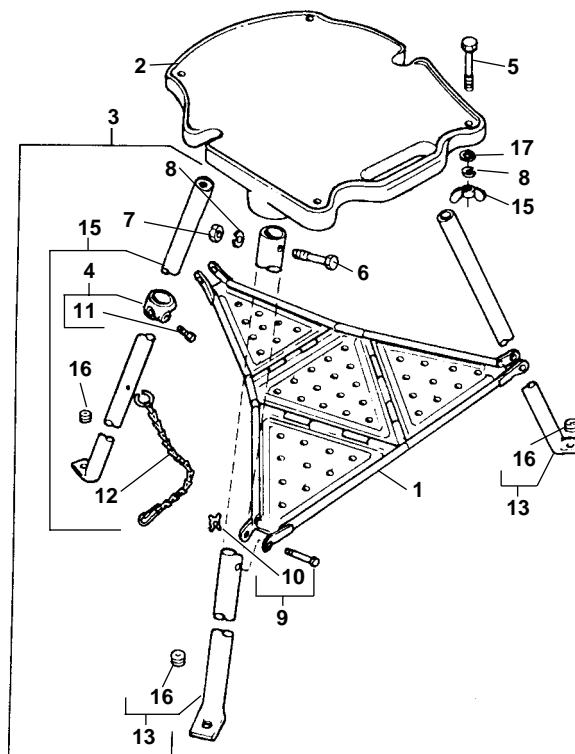
| Ref. No. | Catalog No. | Description |
|----------|-------------|------------------------------|
| — | 42575 | No. 32 Transporter |
| 1 | 42590 | Axle & Support Tube Assembly |
| 2 | 42585 | Wheel (2) |
| 3 | 42580 | Retaining Ring (2) |

No. 1452 Clip-On Tool Tray



| Ref. No. | Catalog No. | Description |
|----------|-------------|-----------------------|
| — | 42380 | No. 1452 Tool Tray |
| 1 | 45535 | Hook & Lever Assembly |
| 2 | 45540 | Top Hook |
| 3 | 45545 | Side Hook |

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 $\frac{3}{8}$ " - 16 x 2" (4) |
| 6 | 46675 | E-868 Bolt $\frac{3}{8}$ " - 16 x 2 $\frac{3}{4}$ " (3) |
| 7 | 44225 | E-1094 Nut $\frac{3}{8}$ " - 16 (3) |
| 8 | 40930 | E-1095 Lock Washer $\frac{3}{8}$ " (7) |
| 9 | 41265 | E-1375-X Pin w/Washer (1 $\frac{7}{8}$ " Long) |
| | 89720 | E-10396-X Pin w/Washer (1 $\frac{5}{8}$ " Long) |
| 10 | 41270 | E-1377 X-Washer (6) |
| 11 | 41245 | E-1380 Set Screw $\frac{3}{8}$ " - 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 $\frac{3}{8}$ " - 16 (4) |
| 16 | 40940 | F-532 Grommet (3) |
| 17 | 44230 | E-1096 Washer $\frac{3}{8}$ " (4) |

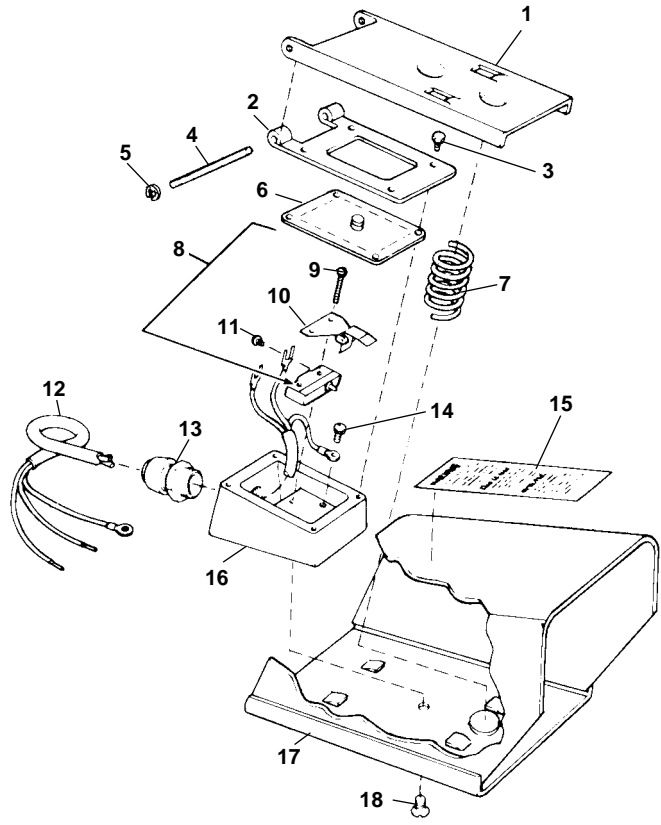
**SPEED CHANGE GEAR CHART
MACHINE MODEL NO. 300 MOTORS**

| 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 |
|----------------------------------|------------------------------------|------------------------------|---------------|-------------------|--|--|---------------------------------------|
| 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. |

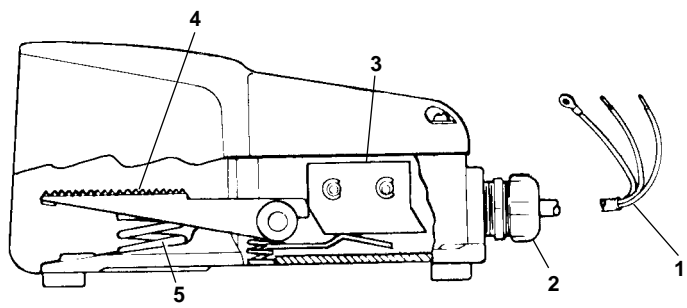
**B-293
B-436**



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

| Ref. No. | Catalog No. | Description |
|----------|-------------|--|
| — | 83550 | B-293 Foot Switch |
| — | 83555 | B-436 Foot Switch |
| 1 | 83565 | C-546 Foot Pedal |
| 2 | 83570 | C-569 Plate |
| 3 | 83625 | E-3084 Screw (4) |
| 4 | 83580 | E-3058 Pin |
| 5 | 78780 | E-3562 Ret. Ring (2) |
| 6 | 83590 | E-3050 Diaphragm w/Gasket |
| 7 | 83615 | E-3051 Spring |
| 8 | 83585 | E-2988X Micro Switch |
| 9 | 83595 | E-3060 Screw (2) |
| 10 | 83575 | E-3031 Actuator Assembly |
| 11 | 46310 | Screw #6 - 32 x 3/16" (2) |
| 12 | 68880 | D-620 Cord (B-293) |
| | 83605 | D-1297 Cord (B-436) |
| 13 | 68885 | E-1511 Cord Connector (B-293) |
| | 36732 | E-2668 Cord Connector (B-436) |
| 14 | 45420 | E-3467 Screw |
| 15 | 85940 | E-2220 Warning Label (B-293) E-3173 Warning Label (B-436) |
| 16 | 85935 | C-532 Housing |
| 17 | 83560 | B-345 Housing Cover |
| 18 | 83610 | E-3095 Screw |

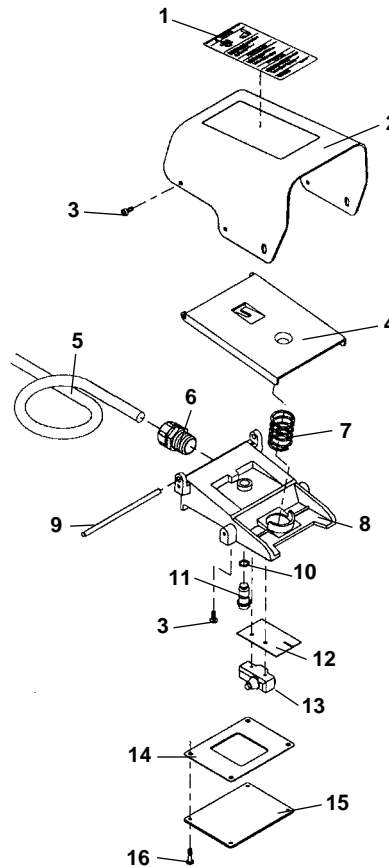
**E-2497
301**



| Ref. No. | Catalog No. | Description |
|----------|-------------|---------------------------|
| — | 76095 | E-2497 Foot Switch |
| — | 68820 | 301 Foot Switch |
| 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 |

**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 |
| — | 75962 | 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) |



| 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) |

