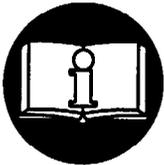


MODELS SLE15B-10-Q, SLE15B-20-Q, SLE26B-3-Q, SLE26B-7-Q, SLE26B-12-Q, STE40B-7-Q, SPE15B-10-Q, SPE15B-20-Q, SPE26B-3-Q, SPE26B-7-Q, SPE26B-12-Q AND SPE40B-7-Q ELECTRIC SCREWDRIVERS



⚠ WARNING

**IMPORTANT SAFETY INFORMATION ENCLOSED.
READ THIS MANUAL BEFORE OPERATING TOOL.**

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

- **Always wear eye protection when operating or performing maintenance on this tool.**
- **Power tools can vibrate in use. Vibration, repetitive motions, or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.**
- **Keep work area clean.** Cluttered areas and benches invite injuries.
- **Consider work area environment.** Don't expose power tools and chargers to water. Keep work area well lighted. Do not use tool in presence of flammable liquids or gases.
- **Keep bystanders away.** Do not permit unauthorized personnel to operate this tool.
- **Store idle tools.** When not in use, tools should be stored in a dry and secured area.
- **Don't force tool.** It will do the job better and more safely at the rate for which it was intended.
- **Use the right tool.** Do not force a small tool or attachment to do the job of a heavy-duty tool.
- **Don't use tool for purpose not intended.**
For example – don't use screwdriver for a drill.
- **Dress properly.** Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
- **Secure work.** Use clamps or a vise to hold work. Operators often need both hands to perform job functions.
- **Don't overreach.** Keep proper footing, balance, and a firm grip on the tool at all times.
- **Maintain tools with care.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean, and free from oil and grease.
- **Remove adjusting keys and wrenches.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
- **Avoid unintentional starting.** Don't carry tool with finger on switch.

(continued on page 2)

NOTICE

The use of other than genuine ARO replacement parts may result in safety hazards, decreased tool performance, and increased maintenance, and may invalidate all warranties.

ARO is not responsible for customer modification of tools for applications on which ARO was not consulted.

Repairs should be made only by authorized trained personnel. Consult your nearest ARO Tool Authorized Servicenter.

It is the responsibility of the employer to place the information in this manual into the hands of the operator.

For parts and service information, contact your local ARO distributor.

ARO Tool & Hoist Products

Ingersoll-Rand Company

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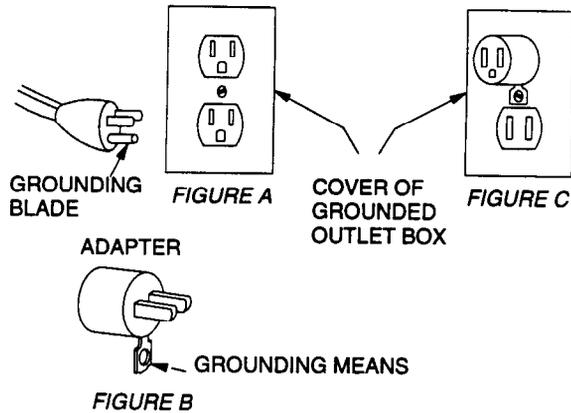
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(Continued from page 1)

- **Stay alert.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
- **Check damaged parts.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this operation manual.
- **Have defective switches replaced by an authorized service center.**
- **Do not use the tool if the switch does not turn it on and off.**



(Dwg. TPD446-1)

Extension Cords

Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

Table shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller gage number, the heavier the cord.

Total Length of Cord in Feet			
0 - 25	25 - 50	51 - 100	101 - 150
AWG			
18	16	16	14

GROUNDING INSTRUCTIONS

The tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with a three-conductor cord and three-prong grounding-type plug to fit the proper grounding-type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150V, it has a plug that looks like that shown in Figure A. An adapter (see Figure B) is available for connecting Figure A-type plugs to 2-prong receptacles. The green colored rigid grounding strap must be connected to a permanent ground such as to a properly grounded outlet box as shown in figure C.

PLACING TOOL IN SERVICE

OPERATIONS CAUTIONS

- Whenever changing a bit, make certain the Forward/Reverse Switch is in the "OFF" position and the tool is unplugged.
 - Do not allow chemicals such as acetone, benzene, thinner, ketone, trichloroethylene or other similar chemicals to come in contact with the screwdriver housing as damage will result.
 - Do not drop or abuse the screwdriver.
 - Do not adjust the torque setting higher than 7 on the Torque Scale.
- Duty cycle: 1200 rpm and 2000 rpm models –
 MAX 0.5 sec. "ON"
 MIN 3.5 SEC. "OFF"

all other models –

MAX. .8 sec. "ON"

MIN 3.5 sec. "OFF"

- Do not tighten more than 900 tapping screws (size: 2 mm, length: 4 mm) per hour.
- Do not use this screwdriver for tightening wood screws.
- Do not operate the Forward/Reverse Switch when the motor is running.
- Whenever a tool is not being used, move the Forward/Reverse Switch to the "OFF" position and unplug the screwdriver.

MAINTENANCE SECTION

TORQUE ADJUSTMENT

To adjust the torque on these screwdrivers, proceed as follows:

1. Determine the torque output of the tool by checking a tightened fastener with a torque wrench.
2. Increase or decrease the torque output by rotating the Spring Adjusting Ring (37 or 39). Rotating the Ring clockwise to a higher number on the Torque Scale increase torque output while rotating the Ring counterclockwise to a lower number decreases the torque output.

NOTICE

The numbers from zero to seven on the Torque Scale are reference numbers only and are not an indication of actual torque output.

3. Check the adjustment with a torque wrench. A number of factors will affect torque output from one job to another. Final torque adjustment should be made at the job through a series of gradual increase.. Always start below the desired torque and work upward.

CAUTION

- Do not drop or abuse the tool.
- Whenever a tool is not being used, position the Power Switch to the "OFF" position and unplug the power cord.

DO NOT ATTEMPT TO REPAIR THIS TOOL.

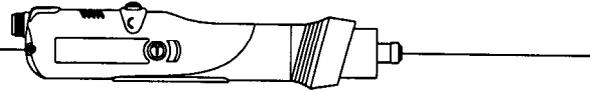
All repairs and maintenance of this tool and its cord must be performed by an authorized service center. Contact your local ARO distributor.

NOTICE

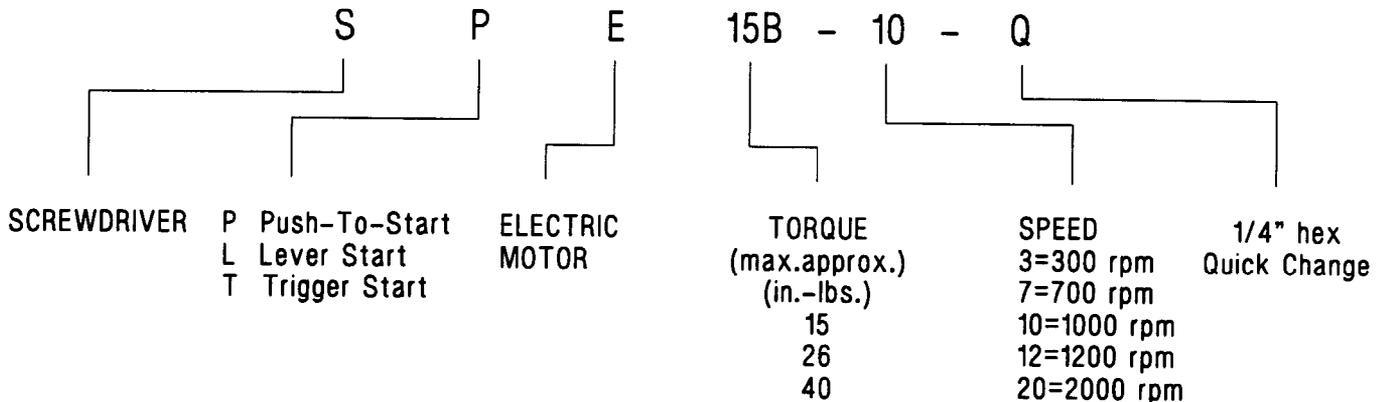
SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

MODEL IDENTIFICATION

High Torque



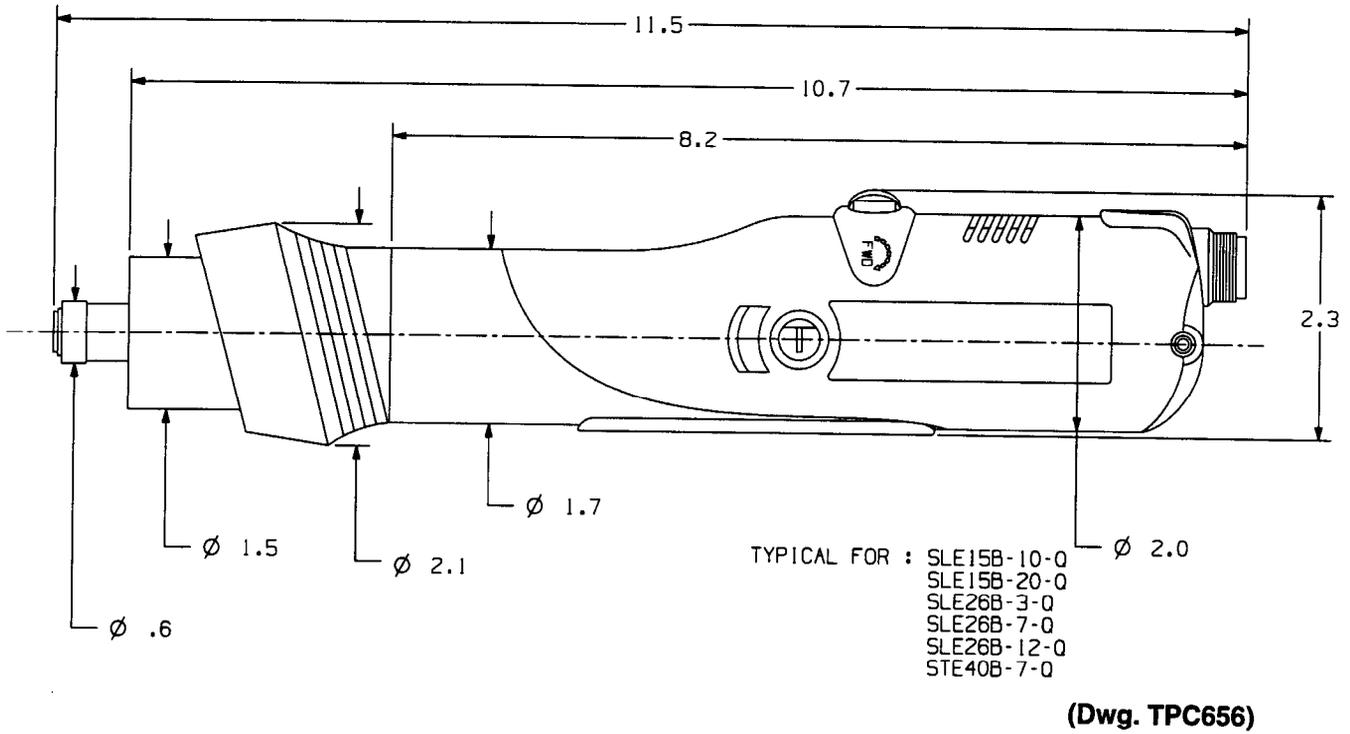
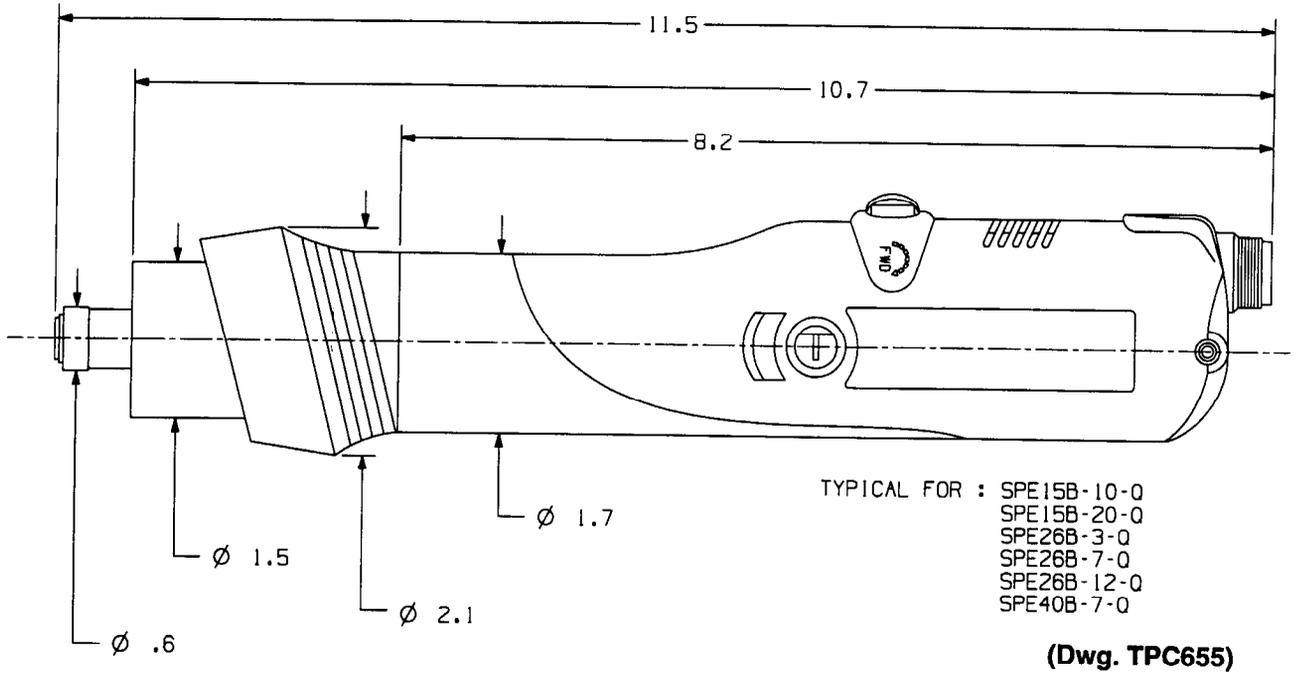
- Power: 115V AC
- Cable Length: 8 ft. Straight
- Sound: 69 dBA
- Reversible: Yes



(Dwg. TPD1860)

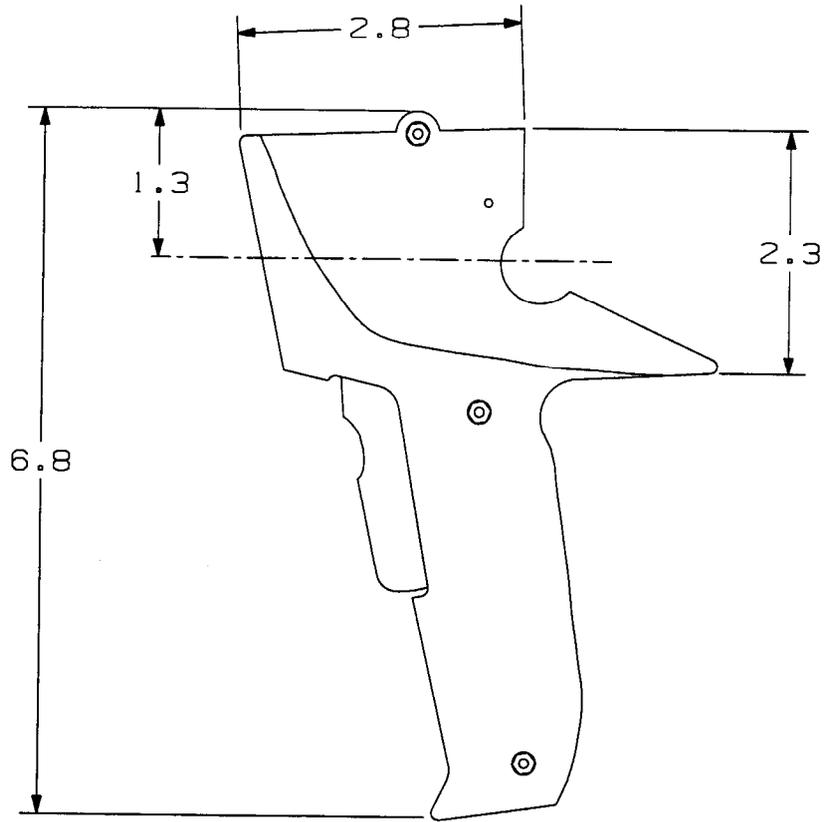
MAINTENANCE SECTION

Dimensions for Series SLE/SPE/STE Electric Screwdrivers

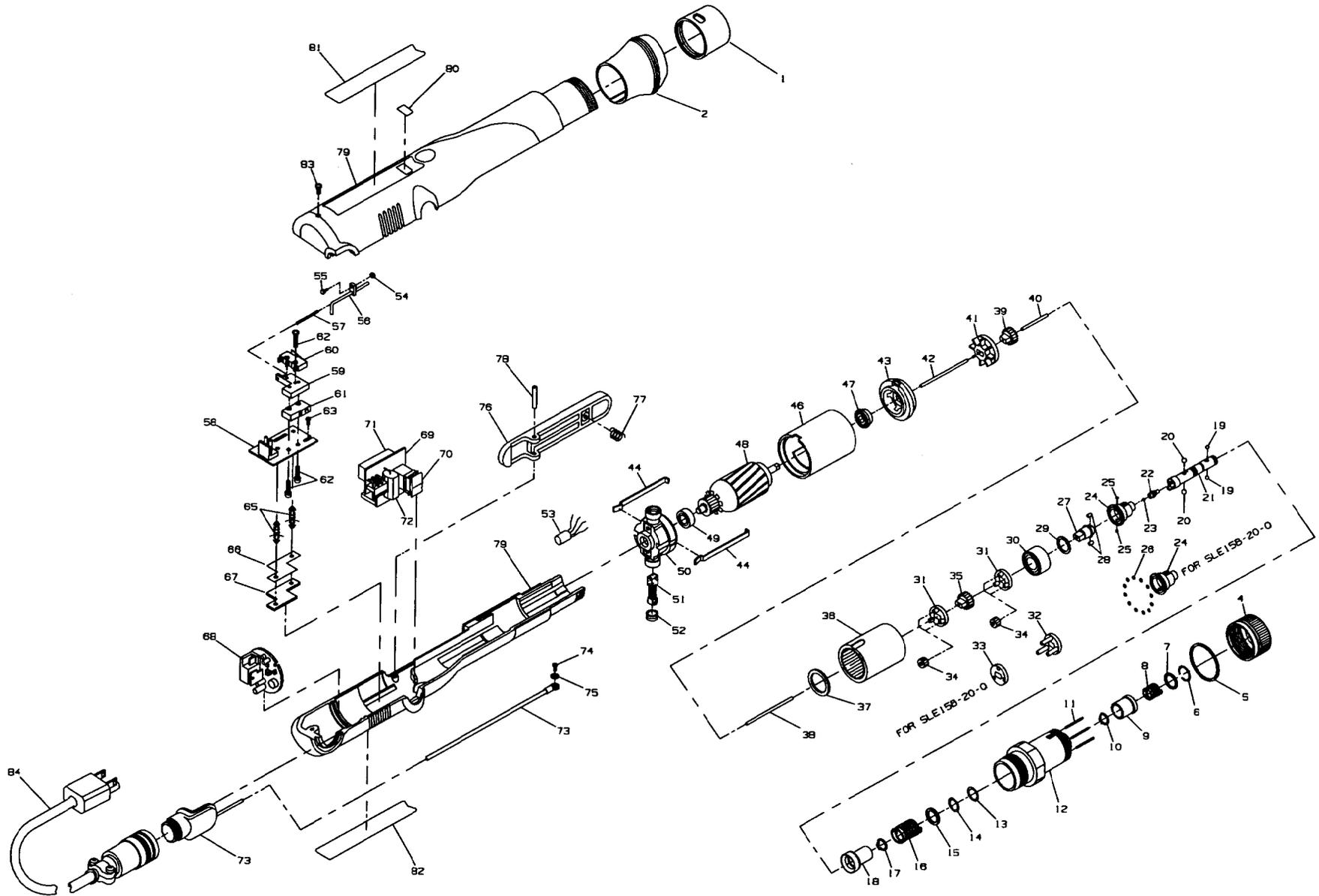


MAINTENANCE SECTION

Handle for Series SLE/SPE/STE Electric Screwdrivers



(Dwg. TPC657)



MAINTENANCE SECTION

(Dwg. TPA1541)

**Models SLE15B-10-Q, SLE15B-20-Q, SLE26B-3-Q, SLE26B-7-Q, SLE26B-12-Q
and STE40B-7-Q Electric Screwdrivers**

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Retainer Coupling	SLE15B-125	27	Cam	
*	Straight Flange (Standard on STE40N-7-Q)	EP4007N-123		for SLE26B-3-Q and STE40B-7-Q	EP4007N-581
2	Slanted Flange (Standard on all others)	EP4007N-124		for all others	EP1510N-581
4	Clutch Adjusting Ring	EP4007N-582	28	Cam Roller (2)	EP4007N-587
5	Indicator Ring	EP4007N-682	29	Spindle Washer	
6	Bit Retainer Retaining Ring (Front)	EP4007N-683		for SLE15B-20-Q	EL1520N-509
7	Bit Retainer Collar	EP4007N-585		for all others	EP4007N-509
8	Bit Retainer Spring	EP4007N-931	30	Spindle Bearing	EP4007N-510
9	Bit Retainer Sleeve	EP4007N-930	31	Spindle/Gear Head (2)	
10	Bit Retainer Retaining Ring	EP4007N-584		for SLE15B-10-Q, SLE26B-3-Q and	
11	Clutch Adjusting Pin (3)	EP4007N-416		SLE26B-7-Q	EP2607N-216
12	Clutch Housing Assembly	EP4007N-580		for SLE26B-12-Q	EP2612N-216
13	Front Shim	EL4007N-623		for STE40B-7-Q	EP4007N-216
14	Rear Shim	EL4007N-624	32	Gear Head (for SLE15B-20-Q)	EP1520N-216
15	Clutch Spring Plate	EP4007N-623	33	Gear Head Spacer (for SLE15B-20-Q)	EP1520N-108
16	Clutch Spring		34	Planet Gear	
	for SLE15B-10-Q	EP1510N-583		for SLE15B-10-Q	EP1510N-10
	for SLE15B-20-Q	EP1520N-583		for SLE15B-20-Q	EP1520N-10
	for SLE26B-3-Q, SLE26B-7-Q and			for SLE26B-3-Q	EP2603N-10
	SLE26B-12-Q	EP2607N-583		for SLE26B-7-Q	EP2607N-10
	for STE40B-7-Q	EP4007N-583		for SLE26B-12-Q	EP2612N-10
17	Taper Ring Retaining Ring	EP4007N-584		for STE40B-7-Q	EP4007N-10
18	Taper Ring Assembly		35	Gear Head Pinion Gear	
	for SLE15B-20-Q	EP1520N-588		for SLE15B-10-Q and SLE15B-20-Q	EP1510N-17
	for SLE15B-10-Q, SLE26B-3-Q,			for SLE26B-3-Q	EP2603N-17
	SLE26B-7-Q and SLE26B-12-Q	EP2607N-588		for SLE26B-7-Q	EP2607N-17
	for STE40B-7-Q	EP4007N-588		for SLE26B-12-Q	EP2612N-17
19	Bit Retaining Ball (.094 dia.) (2)	R000B-263		for STE40B-7-Q	EP4007N-17
20	Pilot Cam Ball (.156 dia.) (4)	2U-696	36	Gear Case	
21	Bit Holder Assembly	EP4007N-586		for SLE15B-10-Q	EP1510-37
22	Pilot	EP4007N-408		for SLE15B-20-Q, SLE26B-3-Q, SLE26B-12-Q	
23	Pilot Ball (.062 dia.)	EP4007N-422		and STE40B-7-Q	EP4007N-37
24	Cam Guide			for SLE26B-7-Q	EP2607N-17
	for SLE15B-20-Q	EP1520N-681	37	Gear Case Shield	EP4007N-207
	for all others	EP4007N-681	38	Clutch Pilot Rod "I" (2.26" long)	EP4007N-435
25	Cam Guide Ball (.156 dia.)	2U-696			
26	Cam Guide Bearing Ball (23) (.078" dia.) (for SLE15B-20-Q)	EL1520N-510			

MAINTENANCE SECTION

* Not illustrated.

**Models SLE15B-10-Q, SLE15B-20-Q, SLE26B-3-Q, SLE26B-7-Q, SLE26B-12-Q
and STE40B-7-Q Electric Screwdrivers (Continued)**

PART NUMBER FOR ORDERING →

PART NUMBER FOR ORDERING →

39	Fan Pinion Gear		56	Pilot Rod "D"	EP4007N-438
	for SLE15B-10-Q	EP1510N-18	57	Pilot Rod Spring	EP4007N-595
	for SLE15B-20-Q and SLE26B-3-Q	EP2603N-18	58	Microswitch Circuit Board	ET4007N-220
	for SLE26B-7-Q	EP2607N-18	59	Switch Plate	ET4007N-221
	for SLE26B-12-Q	EP2612N-18	60	Shut-off Switch	EP4007N-223
	for STE40B	EP4007N-18	61	Start Switch	ET4007N-222
40	Fan Pilot Rod "G" (.385" long)	EP4007N-436	62	Switch Screw (12 mm) (4)	EP4007N-224
41	Fan		63	Switch Base Screw (5 mm) (2)	EP4007N-226
	for SLE15B-20-Q	EL1525K-52	65	Switch Base Spacer (2)	EP4007N-225
	for all other	EP4007N-52	66	Insulating Film	EP4007N-227
42	Motor Pilot Rod "J" (2.71" long)	EP4007N-437	67	Brush Light Circuit Board	EP4007N-228
	Motor Assembly		68	Controller Assembly	EP4007N-424
	for SLE26B-3-Q	EP2603N-A53		Reverse Switch Circuit Board Assembly	EP4007N-A229
	for SLE15B-10-Q and SLE26B-7-Q	EP2607N-A53	69	Reverse Switch Circuit Board	EP4007N-229
	for SLE15B-20-Q	EP1520N-A53	70	Reverse Switch	EP4007N-329
	for SLE26B-12-Q and STE40B-7-Q	EP4007N-A53	*	Reverse Switch Rocker	EP4007N-330
43	Front End Plate	EP4007N-11	71	Capacitor	EP4007N-230
44	Motor Assembly Spring (2)	EP4007N-98	72	Resistor	EP4007N-231
46	Field		73	Receptacle Assembly	EP4007N-44
	for SLE15B-10-Q, SLE26B-3-Q and		74	Ground Screw	EP4007N-42
	SLE268-7-Q	EP2607N-54	75	Ground Screw Washer	EP4007N-43
	for SLE15B-20-Q, SLE26B-12-Q and			Housing Assembly	
	STE40B-7-Q	EP4007N-54		for SLE15B-10-Q	SLE15B-10-A40
47	Front Armature Bearing	EP4007N-24		for SLE15B-20-Q	SLE15B-20-A40
48	Armature			for SLE26B-3-Q	SLE26B-3-A40
	for SLE26B-3-Q	EP2603N-53		for SLE26B-7-Q	SLE26B-7-A40
	for SLE15B-10-Q and SLE26B-7-Q	EP2607N-53		for SLE26B-12-Q	SLE26B-12-A40
	for SLE15B-20-Q	EP1520N-53		for STE40B-7-Q	STE40B-7-A40
	for SLE26B-12-Q and STE40B-7-Q	EP4007N-53	76	Throttle Lever	EL4007N-273
49	Rear Armature Bearing	EP4007N-22	77	Throttle Spring	EL4007N-274
50	Rear End Plate	EP4007N-12	78	Throttle Lever Pin	EL4007N-275
51	Brush Assembly (includes 10 pieces)	EP4007N-BP	79	Housing Package	EP4007N-40
52	Brush Cap (2)	EP4007N-25			
53	Motor Coil	EP4007N-594			
54	Adjusting Screw Nut	EP4007N-593			
55	Pilot Rod Adjusting Screw	EP4007N-592			

* Not illustrated.

MAINTENANCE SECTION

**Models SLE15B-10-Q, SLE15B-20-Q, SLE26B-3-Q, SLE26B-7-Q, SLE26B-12-Q
and STE40B-7-Q Electric Screwdrivers**

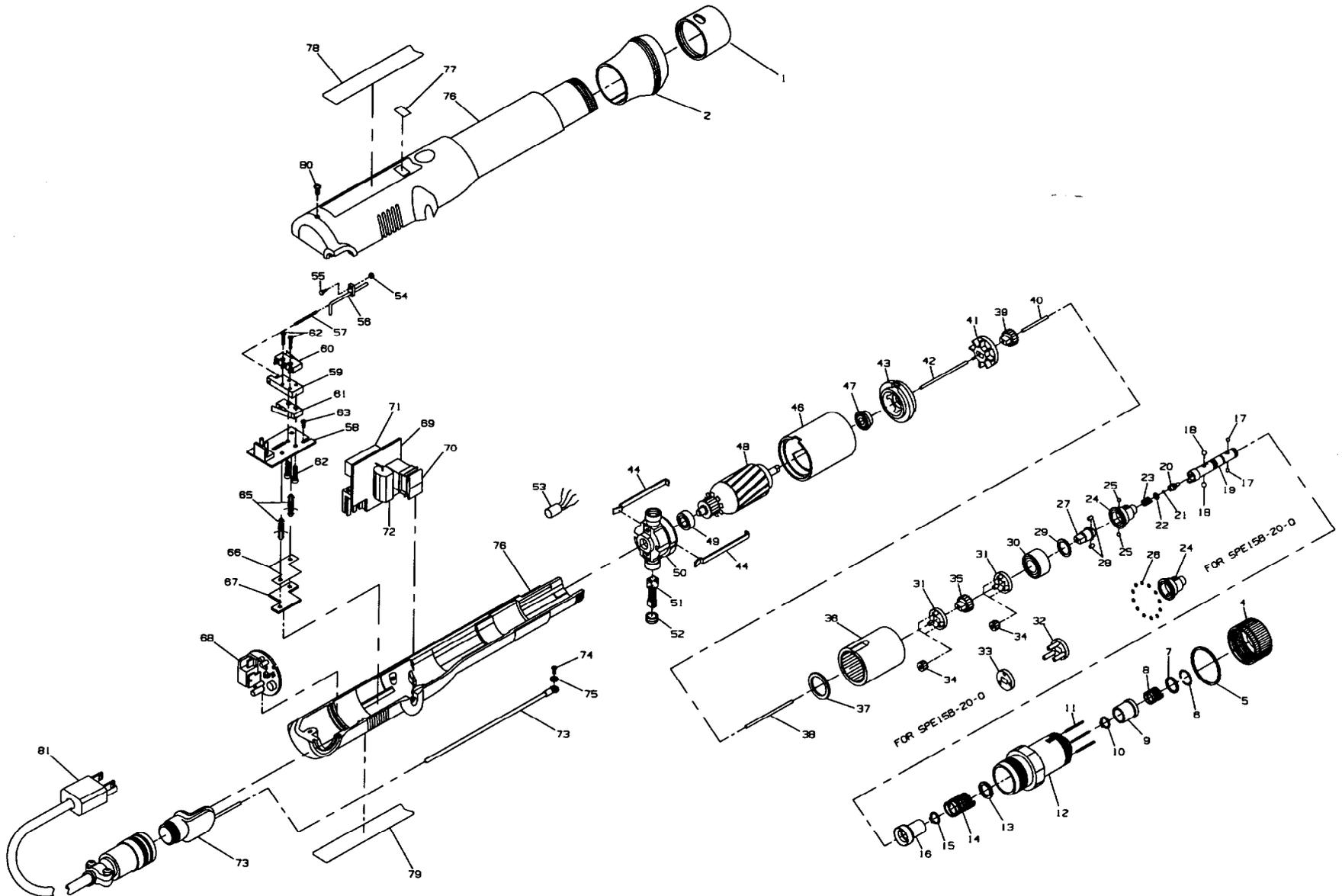
PART NUMBER FOR ORDERING →

← **PART NUMBER FOR ORDERING**

80	Brush Light Cover	EP4007N-45	* Microswitch Adjusting Wrench Package	ES60T-MSW
81	Nameplate		* Pistol Grip Assembly	STE40B-48
	for SLE15B-10-Q	SLE15B-10-301	* Power Cord (12'; straight)	EP4007N-239-12
	for SLE15B-20-Q	SLE15B-20-301	* Power Cord (6'; coiled)	EP4007N-230-C6
	for SLE26B-3-Q	SLE26B-3-301	* Test Brush (115 V)	EP4007N-TB115
	for SLE26B-7-Q	SLE26B-7-301	* Switch Adjustment Gauge (for high torque models)	EP1510N-SG
	for SLE26B-12-Q	SLE26B-12-301	* Gear Case Jig (for high torque models)	EP1510N-J37
	for STE40B-7-Q	STE40B-7-301	* Hardware Package (includes illustrated items 6, 10, 17, 19[2], 44[2], 52[2], 54, 55, 62[4], 63[2], 66, 74, 75, 77, 78 and 83	EI4007N-HP
82	Warning Label	EP4007N-99	* Maintenance Label	
83	Housing Screw (package of 10)	EP4007N-41	English	EP4007N-302
84	Power Cord (8'; straight)	EP4007N-239-8	French	EP4007N-302F
*	Torque Adjusting Wrench	EP4007N-516	German	EP4007N-302G
*	Suspension Bail		Spanish	EP4007N-302S
	for STE40B-7-Q (fits Pistol Grip)	EP4007N-366		
	for all others (fits tool)	EP4007N-365		

* Not illustrated.

Models SPE15B-10-Q, SPE15B-20-Q, SPE26B-3-Q, SPE26B-7-Q, SPE26B-12-Q and SPE40B-7-Q



MAINTENANCE SECTION

Models SPE15B-10-Q, SPE15B-20-Q, SPE26B-3-Q, SPE26B-7-Q, SPE26B-12-Q and SPE40B-7-Q

PART NUMBER FOR ORDERING →

← **PART NUMBER FOR ORDERING**

1	Retainer Coupling	SLE15B-125	27	Cam	
*	Straight Flange (Standard on SPE40B-7-Q)	EP4007N-123			for SPE26B-3-Q and SPE40B-7-Q EP4007N-581
2	Slanted Flange (Standard on all others)	EP4007N-124			for all others EP1510N-581
4	Clutch Adjusting Ring	EP4007N-582	28	Cam Roller (2)	EP4007N-587
5	Indicator Ring	EP4007N-682	29	Spindle Washer	
6	Bit Retainer Retaining Ring (Front)	EP4007N-683		for SPE15B-20-Q	EP1520N-509
7	Bit Retainer Collar	EP4007N-585		for all others	EP4007N-509
8	Bit Retainer Spring	EP4007N-931	30	Spindle Bearing	EP4007N-510
9	Bit Retainer Sleeve	EP4007N-930	31	Spindle/Gear Head (2)	
10	Bit Retainer Retaining Ring	EP4007N-584		for SPE15B-10-Q, SPE26B-3-Q and	
11	Clutch Adjusting Pin (3)	EP4007N-416		SPE26B-7-Q	EP2607N-216
12	Clutch Housing Assembly	EP4007N-580		for SPE26B-12-Q	EP2612N-216
13	Clutch Spring Plate	EP4007N-623		for SP40B-7-Q	EP4007N-216
14	Clutch Spring		32	Gear Head (for SPE15B-20-Q)	EP1520N-216
	for SPE15B-10-Q	EP1510N-583	33	Gear Head Spacer (for SPE15B-20-Q)	EP1520N-108
	for SPE15B-20-Q	EP1520N-583	34	Planet Gear	
	for SPE26B-3-Q, SPE268-7-Q,			for SPE15B-10-Q (6)	EP1510N-10
	and SPE26B-12-Q	EP2607N-583		for SPE15B-20-Q (3)	EP1520N-10
	for SPE40B-7-Q	EP4007N-583		for SPE26B-3-Q (6)	EP2603N-10
15	Taper Ring Retaining Ring	EP4007N-584		for SPE40B-7-Q (6)	EP4007N-10
16	Taper Ring Assembly			for SPE26B-12-Q (6)	EP2612N-10
	for SPE15B-20-Q	EP1520N-588	35	Gear Head Pinion Gear	
	for SPE15B-10-Q, SPE26B-3-Q,			for SPE15B-10-Q and SPE15B-20-Q ..	EP1510N-17
	and SPE26B-12-Q	EP2607N-588		for SPE26B-3-Q	EP2603N-17
	for SPE40B-7-Q	EP4007N-588		for SPE26B-7-Q	EP2607N-17
17	Bit Retaining Ball (.094 dia.) (2)	R000B-263		for SPE26B-12-Q	EP2612N-17
18	Pilot Cam Ball (.156 dia.) (4)	2U-696		for SPE40B-7-Q	EP4007N-17
19	Bit Holder Assembly	EP4007N-586	36	Gear Case	
20	Pilot	EP4007N-408		for SPE15B-10-Q	EP1510N-37
21	Pilot Ball (.062 dia.)	EP4007N-422		for SPE15B-20-Q, SPE26B-3-Q,	
22	Pilot Push Spring Washer	EP4007N-421		SPE26B-12-Q and SPE40B-7-Q	EP4007N-37
23	Pilot Push Spring	EP4007N-420		for SPE26B-7-Q	EP2607N-37
24	Cam Guide		37	Gear Case Shield	EP4007N-207
	for SPE15B-20-Q	EP1520N-681	38	Clutch Pilot Rod "T" (2.26" long)	EP4007N-435
	for all others	EP4007N-681			
25	Cam Guide Ball (.156 dia.)	2U-696			
26	Cam Guide Bearing Ball (23) (for SPE15B-20-Q) .	EP1520N-510			

MAINTENANCE SECTION

* Not illustrated.

Models SPE15B-10-Q, SPE15B-20-Q, SPE26B-3-Q, SPE26B-7-Q, SPE26B-12-Q and SPE40B-7-Q

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

MAINTENANCE SECTION

39	Fan Pinion Gear		56	Switch Pilot Rod "D"	EP4007N-438
	for SPE15B-10-Q	EP1510N-18	57	Pilot Rod Spring	EP4007N-595
	for SPE15B-20-Q and SPE26B-3-Q	EP2603N-18	58	Microswitch Circuit Board	EP4007N-220
	for SPE26B-7-Q	EP2607N-18	59	Switch Plate	EP4007N-221
	for SPE26B-12-Q	EP2612N-18	60	Shut-off Switch	EP4007N-223
	for SPE40B-7-Q	EP4007N-18	61	Start Switch	EP4007N-222
40	Fan Pilot Rod "G" (.385" long)	EP4007N-436	62	Switch Screw (12 mm) (4)	EP4007N-224
41	Fan	EP4007N-52	63	Switch Base Screw (5 mm) (2)	EP4007N-226
	for SPE15B-20-Q	EL1525K-52	65	Switch Base Spacer (2)	EP4007N-225
	for all others	EP4007N-52	66	Insulating Film	EP4007N-227
42	Motor Pilot Rod "J" (2.71" long)	EP4007N-437	67	Brush Light Circuit Board	EP4007N-228
	Motor Assembly		68	Controller Assembly	EP4007N-424
	for SPE26B-3-Q	EP2603N-A53		Reverse Switch Circuit Board Assembly	EP4007N-A229
	for SPE15B-20-Q	EP1520N-A53	69	Reverse Switch Circuit Board	EP4007N-229
	for SPE15B-10-Q and SPE26B-7-Q	EP2607N-A53	70	Reverse Switch	EP4007N-329
	for SPE26B-12-Q and SPE40B-7-Q	EP4007N-A53	*	Reverse Switch Rocker	EP4007N-330
43	Front End Plate	EP4007N-11	71	Capacitor	EP4007N-230
44	Motor Assembly Spring (2)	EP4007N-98	72	Resistor	EP4007N-231
46	Field	EP4007N-11	73	Receptacle Assembly	EP4007N-44
	for SPE15B-10-Q, SPE26B-3-Q and		74	Ground Screw	EP4007N-42
	SPE26B-7-Q	EP2607N-54	75	Ground Screw Washer	EP4007N-43
	for SPE15B-20-Q, SPE26B-12-Q and			Housing Assembly	
	SPE40B-7-Q	EP4007N-54		for SPE15B-10-Q	SPE15B-10-A40
47	Front Armature Bearing	EP4007N-24		for SPE15B-20-Q	SPE15B-20-A40
48	Armature			for SPE15B-3-Q	SPE26B-3-A40
	for SPE26B-3-Q	EP2603N-53		for SPE26B-7-Q	SPE26B-7-A40
	for SPE15B-20-Q	EP1520N-53		for SPE26B-12-Q	SPE26B-12-A40
	for SPE15B-10-Q and SPE26B-7-Q	EP2607N-53		for SPE40B-7-Q	SPE40B-7-A40
	for SPE26B-12-Q and SPE40B-7-Q	EP4007N-53	76	Housing Package	EP4007N-40
49	Rear Armature Bearing	EP4007N-22			
50	Rear End Plate	EP4007N-12			
51	Brush Assembly (includes 10 pieces)	EP4007N-BP			
52	Brush Cap (2)	EP4007N-25			
53	Motor Coil	EP4007N-594			
54	Adjusting Screw Nut	EP4007N-593			
55	Pilot Rod Adjusting Screw	EP4007N-592			

* Not illustrated.

**Models SPE15B-10-Q, SPE15B-20-Q, SPE26B-3-Q, SPE26B-7-Q, SPE26B-12-Q
and SPE40B-7-Q (Continued)**

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

77	Brush Light Cover	EP4007N-45	*	Pistol Grip Assembly	STE40B-48
78	Nameplate		*	Power Cord (12'; straight)	EP4007N-239-12
	for SPE15B-10-Q	SPE15B-10-301	*	Power Cord (6'; coiled)	EP4007N-230-C6
	for SPE15B-20-Q	SPE15B-20-301	*	Test Brush (115 V)	EP4007N-TB115
	for SPE26B-3-Q	SPE26B-3-301	*	Switch Adjustment Gauge (for high torque	
	for SPE26B-7-Q	SPE26B-7-301	*	models)	EP1510N-SG
	for SPE26B-12-Q	SPE26B-12-301	*	Gear Case Jig (for high torque models)	EP1510N-J37
	for SPE40B-7-Q	SPE40B-7-301	*	Hardware Package (includes illustrated items 6,	
79	Warning Label	EP4007N-99		10, 15, 17[2], 44[2], 52[2], 54, 55, 62[4], 63[2],	
80	Housing Screw (package of 10)	EP4007N-41		66, 74, 75 and 80	EP4007N-HP
81	Power Cord (8'; straight)	EP4007N-239-8	*	Maintenance Label	
*	Torque Adjusting Wrench	EP4007N-516		English	EP4007N-302
*	Suspension Bail			French	EP4007N-302F
	for SPE40B-7-Q (fits Pistol Grip) .	EP4007N-366		German	EP4007N-302G
	for all others (fits tool)	EP4007N-365		Spanish	EP4007N-302S
*	Microswitch Adjusting Wrench Package	ES60T-MSW			

* Not illustrated.

MAINTENANCE SECTION

DISASSEMBLY

WARNING

Always wear eye protection when operating or performing maintenance on this tool. Always turn off the electrical supply and disconnect the electrical cord before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

Disassembly of the Housing

1. Unplug the Power Cord (81 or 84) from the wall socket. Unscrew the connection ring and set the cord aside.
2. Unscrew the Retainer Coupling (1) and remove the Flange (2).

NOTICE

This is a left-hand thread.

3. Lay the tool on the workbench with the Brush Light Plate (77 or 80) side down and remove the Housing Screw (80 or 83) using a #1 phillips screwdriver.
4. Insert a thin blade screwdriver into the two notches and carefully pry the two halves of the Housing Package (76) apart.

For Throttle Lever Start Models, remove the Throttle Lever (76), Throttle Spring (77) and Throttle Lever Pin (78).

Disassembly of the Clutch Housing and Gear Case

1. Tilt the Clutch Housing (12), Gear Case (36) and Motor Assembly upward slightly and turn the Gear Case until the Ground Screw (74) shows.

NOTICE

Be sure to hold the Motor Assembly and Gear Case together. Rough handling may damage the Fan Pilot Rod (40) in the Fan (41).

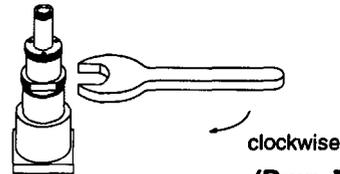
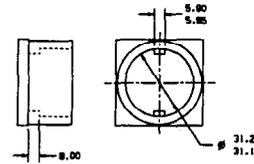
2. Using a phillips screwdriver, remove the Ground Screw and the Ground Screw Washer (75).
3. Remove the Clutch Housing and Gear Case from the Housing. When removing the Gear Case from the Housing, hold the Gear Case Shield (37) so that the Gears do not fall out.
4. Remove the Fan (41) and the Fan Pinion Gear (39). Remove the Fan Pilot Rod (40).

NOTICE

The Fan Pilot Rod is ceramic. Do not mishandle or drop.

5. Remove the Gear Case Shield and drop the two Spindle/Gear Heads (31) from the Gear Case.

6. Separate the Spindle/Gear Heads and remove the Gear Head Pinion Gear (35) and Planet Gears (34).
7. Fit the two notches at the rear of the Gear Case into the Gear Case Jig part no. EP1510N-J37. (Refer to Dwg. TPD1820)



8. Using a thin blade screwdriver, remove the Front Bit Retainer Retaining Ring (6) from the Bit Retainer Sleeve (9). Remove the Bit Retainer Collar (7), the Bit Retainer Spring (8) and the Bit Retainer Sleeve.
9. Remove the two Bit Retaining Balls (17 or 19) from the Bit Holder Assembly (19 or 21) by tapping the Housing on the work surface.
10. Unscrew the Clutch Adjusting Ring (4) and remove the three Clutch Adjusting Pins (11).
11. Using external snap ring pliers, remove the Bit Retainer Retaining Ring (10).
12. Using a 29mm wrench on the flats of the Clutch Housing, unscrew and remove the Clutch Housing from the Gear Case.

NOTICE

This is a left-hand thread.

13. Remove the Clutch Spring Plate (13 or 15) and the Clutch Spring (14 or 16).
14. Remove the Taper Ring Retaining Ring (15 or 17).
15. Remove the Bit Holder Assembly and separate it from the Taper Ring Assembly (16 or 18).
16. Remove the two Pilot Cam Balls (18 or 20), the Pilot Push Spring (23), the Pilot Push Spring Washer (22) and the Pilot (20 or 22) from the Bit Holder Assembly.
17. **For Throttle Lever Start Models**, remove the Front Shim (13) and the Rear Shim (14) first. Then remove the Taper Ring Retaining Ring. Separate the Taper Ring Assembly from the Bit Holder. Remove the two Pilot Cam Balls and the Pilot (22) from the Bit Holder Assembly.
18. Remove the Clutch Pilot Rod (38) and the Cam Guide (24). Remove the two Cam Guide Balls (25) from the Guide.

MAINTENANCE SECTION

19. Lift the Gear Case from the Gear Case Jig and push the Spindle Bearing (30) and Cam (27) from the Case.
20. Lift the Cam from the Spindle Bearing and remove the Cam Rollers (28).
21. Slide the Spindle Washer (29) from the Spindle Bearing.

Cleaning and Inspection of the Tool

1. Clean all of the mechanical parts in an approved safety solution in a well-ventilated area. Inspect for damage or wear.
2. Inspect the Fan. If the four corners of the hole are worn, replace the Fan.
3. Inspect the Fan Pinion Gear and Fan Pilot Rod. If they are damaged or cracked, replace them.
4. If the taper on the Pilot is worn, replace the Pilot and the two Pilot Cam Balls.
5. Inspect the Cam Guide Balls. If they are worn, replace them.
6. Inspect the Cam Guide. If its holes are worn, replace it.
7. Inspect the Taper Ring Assembly. If the internal taper is worn, replace it.
8. Inspect the Cam Rollers. If they are worn, replace them.
9. Inspect the Spindle Washer. If the surface is worn, replace it.
10. Inspect the Spindle Bearing. If it does not rotate smoothly, replace it.
11. Inspect the Gears and the Gear Case. If the teeth are worn, replace them.

Disassembly of the Electrical Components

1. Remove the Reverse Switch Circuit Board (69) from the Housing.

NOTICE

Do not touch any circuit paths if using pliers.

2. Loosen the Receptacle Assembly (73).
3. Using a #0 phillips screwdriver, remove the two Switch Base Screws (63) mounted on the Microswitch Circuit Board (58).

NOTICE

The Switch Base Screws are coated with thread adhesive. Unscrew gradually to prevent damage to the threads.

4. Remove the Motor Assembly and the Controller Assembly (68) from the Housing Package while holding both of them together.

NOTICE

Be careful not to damage the Motor Pilot Rod (42).

5. To remove the Controller Assembly, pull the three-pin connector from the Reverse Switch Circuit Board.
6. Remove the two-pin connector from the Microswitch Circuit Board.
7. Using needle nose pliers, remove the three wires from the Shut-off Switch (60).

NOTICE

Be careful not to damage the Shut-off Switch Terminals.

8. Set the Controller Assembly aside.
9. Grasp the Microswitch Circuit Board using needle nose pliers and squeeze the ends of the two white Switch Base Spacers (65).
10. Using needle nose pliers, squeeze the Switch Base Spacers and remove the Insulating Film (66).
11. Using the pliers, remove the Switch Base Spacers from the Brush Light Circuit Board.
12. Remove the two Shut-off Switch Screws (62).
13. Remove the two Start Switch Screws (62).
14. Remove the Switch Plate (59) and the Switch Pilot Rod (56) from the Switch Plate.
15. Inspect the tip of the Switch Pilot Rod. If it is bent or worn, replace it.
16. Check the Shut-off Switch for continuity. Replace it if defective.
17. Check the Start Switch (61) for continuity. If it is defective, desolder and remove it from the Microswitch Circuit Board.
18. If the Brush Light Circuit Board is defective, desolder and remove the red and blue wires.
19. If the components on the Reverse Switch Circuit Board are damaged or defective, desolder and remove the red and blue wires.
20. If the Reverse Switch (70) is damaged, desolder and replace.
21. Using an Ohm meter, check the Resistor (72) on the Reverse Switch Circuit Board. Readings should be 20 Ohm.
22. If the Capacitor (71) is damaged, desolder and replace it.
23. If the Motor Coil (53) is damaged, desolder the red and blue motor leads and replace the coil.

MAINTENANCE SECTION

Disassembly of the Motor

1. Remove the Brush Caps (52) from the Rear End Plate (50). Using a pick, catch the terminal of the Brush Assembly (51) and pull it out of the Rear End Plate.

NOTICE

Do not damage the copper wires of the Brush Assembly. Reinstall the Brushes as they were removed unless they are replaced.

2. Remove the insulation tape around the Motor.
3. Using a thin blade screwdriver, remove the Motor Assembly Springs (44) by inserting the screwdriver between the Springs and the Rear End Plate and prying upward.
4. Remove the Rear End Plate and the Front End Plate (43) from the Field (46).
5. Pushing the Armature (48) toward the Fan side, remove the Armature from the Field.
6. Do not damage the commutator or the windings of the Armature. Hold the rotor, not the commutator.
7. Remove the Motor Pilot Rod from the Armature and inspect it. If it is worn, replace it.
8. Remove the Front Armature Bearing (47) and the Rear Armature Bearing (49) from the Armature and inspect them. If they do not rotate smoothly, replace them.
9. Inspect the Armature, Field and End Plates. Use a piece of fine cloth to wipe away contamination. For excess build up, spray with contact cleaner and brush if necessary.
10. To clean the commutator on the Armature, spray with contact cleaner and brush if necessary.
11. Using a tester, inspect the commutator. Replace the Armature if necessary.

ASSEMBLY

Assembly of the Motor Housing

1. Install the Front Armature Bearing (47) and the Rear Armature Bearing (49) to the Armature shaft ends.
2. Apply grease to both ends of the Motor Pilot Rod (42) and insert it into the center hole of the Motor Assembly.
3. Insert the Armature through the notched end of the Field (46).

NOTICE

Be careful not to damage the commutator or the windings. Hold the rotor, not the commutator when assembling.

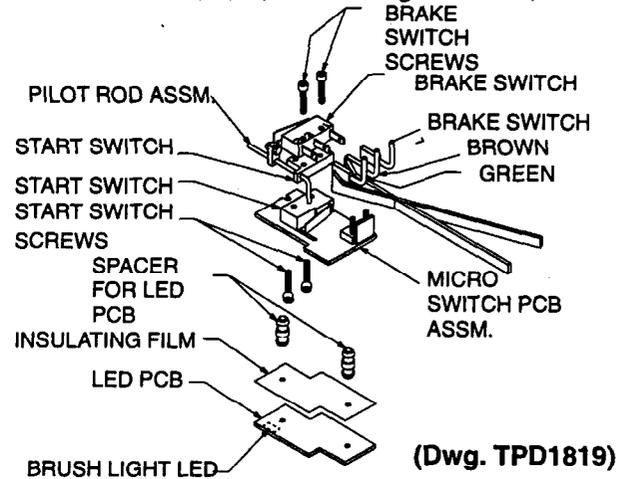
4. Install the Rear End Plate (50) to the notched end and the Front End Plate (43) to the Field.
5. Snap the two Motor Assembly Springs (44) over the

notches of the Rear End Plate and the Front End Plate.

6. Insert the Brush Assemblies (51) into the brush holders of the Rear End Plate. Be sure the tab on the Brush Assembly slides into the notch in the holder.
7. Screw on the Brush Caps (52).
8. Wrap one layer of 3M #56 insulation tape around the Motor Assembly.
9. For Throttle Lever Start Models, put two additional strips of insulation tape, one upon the other, onto the Brush Light Circuit Board (67) side of the Motor Assembly. This insulates the area between the ground wire and the Field.

Assembly of the Electrical Components

1. Solder the red and blue wires to the Brush Light Circuit Board.
2. Solder the Reverse Switch (70) and the Resistor (72). Using shrink tubing 5mm long as spacers, solder the Capacitor (71) into place. Solder the red and blue wires to the Reverse Switch Circuit Board (69).
3. Solder the Start Switch (61) onto the Microswitch Circuit Board (58).
4. Insert the Switch Pilot Rod (56) into the hole in the Switch Plate (59). (Refer to Dwg. TPD1819).



5. Mount the Switch Plate with the Pilot Rod onto the Start Switch by depressing the Start Switch lever with the Pilot Rod. Insert the Pilot Rod into the slot in the Microswitch Circuit Board and align the Switch Plate on top of the Start Switch. Insert the two Switch Base Screws (63) from the bottom of the Microswitch Circuit Board into the Switch Plate. Tighten the Screws to 1.6 KG-cm.
6. Mount the Shut-off Switch (60) onto the Switch Plate with the two Switch Screws (62). Tighten the screws to 1.6 KG-cm.

MAINTENANCE SECTION

7. Position the Insulating Film (66) onto the back of the Brush Light Circuit Board. Insert the two Switch Base Spacers (65) through the Insulating Film and into the holes of the Circuit Board.
8. Install the Brush Light Circuit Board onto the back of the Microswitch Circuit Board by inserting the two Switch Base Spacers into the holes in the Circuit Board.

NOTICE

Be sure that the Brush Light LED is toward the motor side of the circuit board.

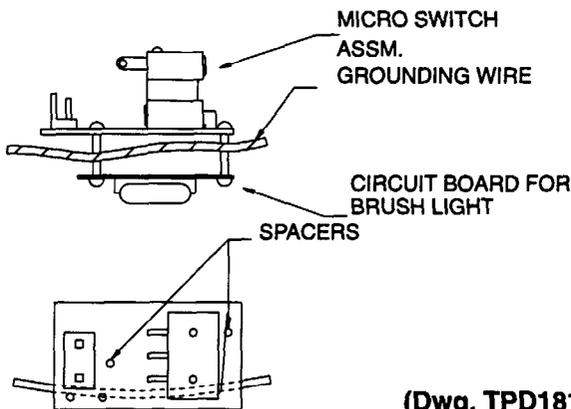
9. Using needle nose pliers, install the three connectors from the Controller Assembly (68) onto the Shut-off Switch.

NOTICE

Make sure to connect the correct color wire to the proper terminal. Refer to the wiring diagram to insure that all wires are installed properly.

10. Install the two-pin connector from the Controller Assembly onto the Microswitch Circuit Board.
11. Install the three-pin connector from the Controller Assembly onto the Reverse Switch Circuit Board.
12. Run the ground wire around the Switch Base Spacers and between the Microswitch Circuit Board and the Brush Light Circuit Board.
(Refer to Dwg. TPD1818).

ROUTE OF GROUNDING WIRE



(Dwg. TPD1818)

13. Bring the Motor Assembly and Microswitch Circuit Board together by inserting the Motor Pilot Rod into the hole in the Motor shaft and then setting both into the Housing Package (76).
For Throttle Lever Start Models, lay the ground wire between the Motor and the Housing Package.
14. Install the two Switch Base Screws and tighten to 1.6 KG-cm.
15. Install the Controller Assembly into its groove in the Housing. Place the ground wire into the notch in the Controller Assembly and align this notch with the tab in the Housing

16. Install the Reverse Switch Circuit Board into the two grooves in the Housing.
17. Install the Receptacle Assembly (73) into the Housing, making sure the ground wire is underneath the HIC. The Receptacle can be installed in either position.
18. Place the black and white Receptacle wires into the notch in the Controller Assembly.
19. Place the ceramic Fan Pilot Rod (40) into the Fan Pinion Gear (39) and then fit the Gear into the Fan (41). Now slide the Fan (41) onto the Motor shaft.

Assembly of the Gear Case and Clutch Housing

1. Apply grease to the Planet Gears (34), the surfaces of the Gear Heads (32) and the teeth of the Gear Head Pinion Gear (35).
2. Assemble the Spindle/Gear Heads, the Gear Head Pinion Gear and the Gear Head.
3. Apply grease to all the Gears.
4. Place the Gear Head onto the Spindle/Gear Heads.
5. Apply grease to the Spindle Washer (29).
6. Place the Spindle Washer, then the Spindle Bearing (30), onto the Cam (27).
7. Apply grease to the inner teeth of the Gear Case (36).
8. Insert the Cam into the Spindle Bearing.
9. Hold the Cam with needle nose pliers and insert the entire unit into the Gear Case while rotating the Cam and the Gear Case.
10. Apply grease to the gear end of the Gear Case and install the Gear Case Shield (37).
11. Apply grease to the notches of the Cam.
12. Place the Cam Rollers (28) into the notches on the Cam.
13. Apply grease to the inner surface, the holes and the grooves of the Cam Guide (24).
14. Insert the Cam Guide Balls (25) into the holes in the Cam Guide.
15. Install the Cam Guide over the Cam. Keep the Cam Balls at a 90 degree angle to the Cam Rollers to prevent the Balls from being pushed out.
16. Apply grease to the inner surface of the Bit Holder Assembly (19 or 21). Using a rod, push the Pilot (20 or 22) into the Bit Holder.
17. **For Push to Start Models**, insert the Pilot Push Spring Washer (22) and the Pilot Push Spring (23) into the Bit Holder.
Throttle Lever Start Models do not use a Push Spring and Washer.
18. Apply grease to the holes of the Bit Holder and insert the two Pilot Cam Balls (18 or 20).
19. Apply grease to the inner diameter and the tapered end of the Taper Ring Assembly (16 or 18). Insert grease between the ball bearing thrust washer and the Taper Ring Assembly, which are attached. Install the Taper Ring Assembly onto the Bit Holder.

MAINTENANCE SECTION

20. Install the Bit Holder Assembly onto the Cam Guide in the Gear Case.
21. The Taper Ring Retaining Ring (15 or 17) has a round edge side and a sharp edge side. Install the Taper Ring Retaining Ring, sharp edge side first, into the groove on the Bit Holder.

NOTICE

There are four grooves on the Bit Holder. The fourth groove from the bit end is for Push to Start Models. The third is for Throttle Lever Start Models.

22. For Throttle Lever Start Models, place the Spindle Washers onto the Bit Holder.
23. Place the Clutch Spring (14 or 16) and the Clutch Spring Plate (13 or 15) over the Bit Holder.
24. Fit the two notches at the rear end of the Gear Case Assembly into the Gear Case Jig part no. EP1510N-J37. Screw the Clutch Housing (12) partially into the Gear Case.

NOTICE

This is a left-hand thread.

At the middle of the Clutch Housing threads, apply Loctite Threadlocker 3 Bond 1406 (R)* to about three threads. Push down and rotate the Bit Holder until it engages the Cam Guide. Hold in place. Screw the Clutch Housing in completely.

25. Using an open end torque wrench on the flats of the Clutch Housing, tighten the Clutch Housing to 28.5 Nm.
26. Apply grease to both ends of the Clutch Pilot Rod (36 or 38) and insert it into the Gear Case.
27. For Throttle Lever Start Models, inspect the clearance of the Bit Holder Assembly. Touch the end of the Clutch Pilot Rod and push on the Bit Holder Assembly. If the Clutch Pilot Rod is moved by the Bit Holder at this time, add additional spacers.
28. Install the Bit Retainer Retaining Ring (10), sharp edge side first, into the second groove from the bit end of the Bit Holder.
29. Apply grease to the holes of the Bit Holder and insert the two Bit Retaining Balls (17 or 19) into the holes.
30. Apply grease to one end of each Clutch Adjusting Pin (11) and insert the three Pins into the Clutch Housing.
31. Apply grease to the other end of each Clutch Adjusting Pin and the threads of the Clutch Housing. Screw the Clutch Adjusting Ring (4) onto the Housing.
32. Install the Bit Retainer Sleeve (9), the Bit Retainer Spring (8) and the Bit Retainer Collar (7) onto the Bit Holder.

33. Using a thin blade screwdriver, install the Front Bit Retainer Retaining Ring (6).
34. Unclamp the Gear Case Jig from the vise and turn it over to remove the Clutch and Gear Case Assembly. Hold the Gear Case Shield to keep the Gears in place.
35. Lift the Motor slightly and slide the Gear Case onto the Motor with the Ground Screw hole adjacent to the ground wire.
36. Attach the ground wire to the Gear Case with the Ground Screw (74) and Washer (75). Tighten to 4 KG-cm.
37. Turn the Gear Case until the notch in the Gear Case matches the tab in the Housing.
38. Completely insert the ground wire into the groove in the Housing.

Adjusting the Brake Timing

1. Insert a .65mm thick gauge or pin gauge between the Pilot Rod Adjusting Screw (55) head and the Shut-off Switch. Push the Bit Holder. **The Shut-off Switch should not click.**
2. Insert a .80mm gauge and push the Bit Holder. **The Shut-off Switch should click.**
3. Adjust the Pilot Rod Adjusting Screw if necessary using the two adjusting spanner wrenches.
4. For Throttle Lever Start Models, there is no need to push the Bit Holder. Slide the gauges between the Pilot Rod Adjusting Screw and the Throttle Lever (76).

Assembly of the Tool

1. For Push to Start Models, make sure the ground wire is inserted in the groove in the Housing.
2. For Throttle Lever Start Models, make sure the Ground Wire is between the Motor Assembly and the Housing.
3. Snap the Housing halves together.
4. For Throttle Lever Start Models, insert the Throttle Lever Pin (78) into the Housing. Insert the Throttle Spring (77) into the Throttle Lever. While compressing the Throttle Spring, install the Throttle Lever onto the Throttle Lever Pin. Snap the Housing halves together.
5. Install the Housing Screws (80 or 83) into the Housing and tighten to 4 KG-cm.
6. Slide the Flange (2) onto the Housing. Screw the Retainer Coupling (1) onto the Housing until it clicks into place.

NOTICE

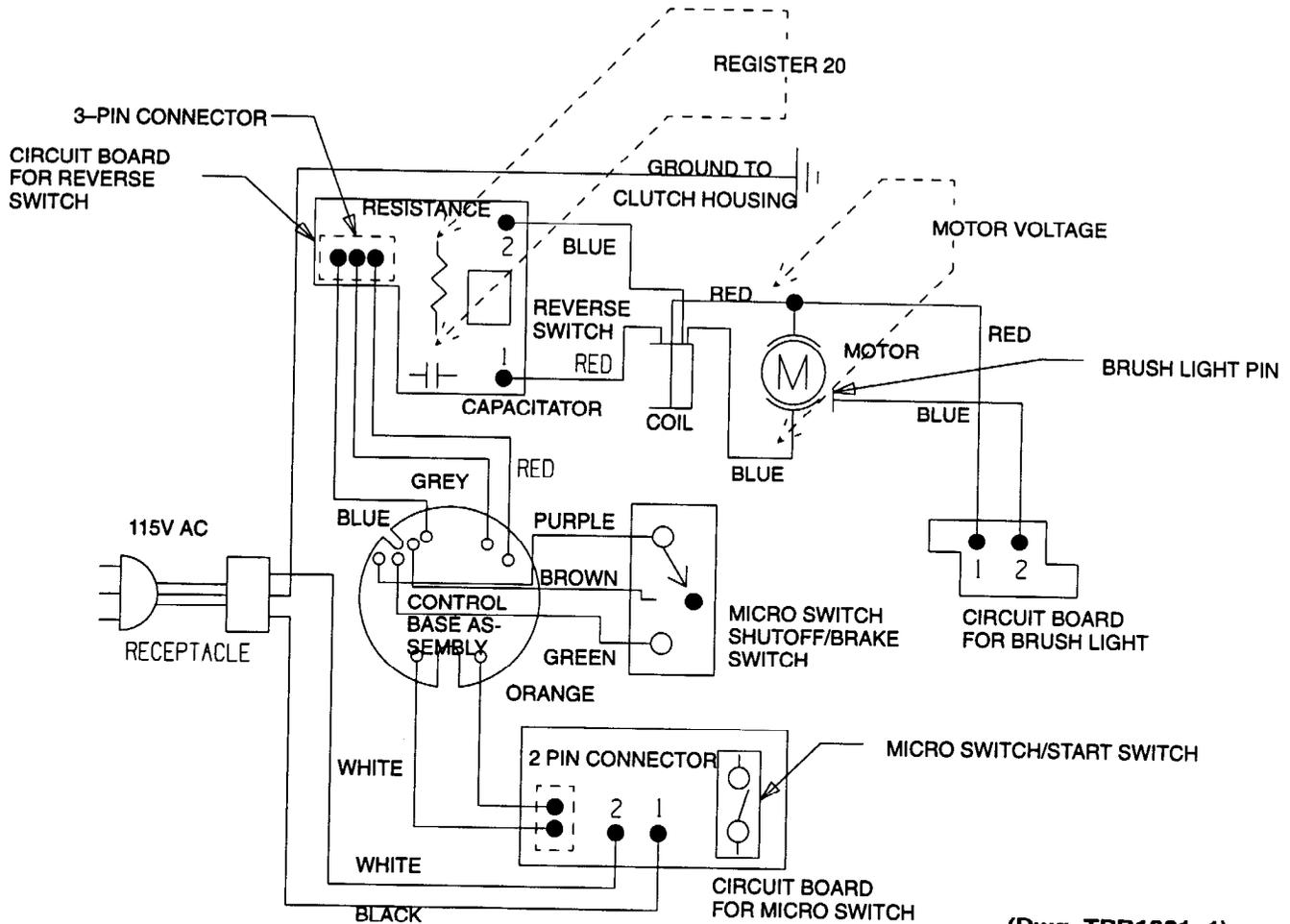
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7. Attach the Power Cord (81 or 84).

MAINTENANCE SECTION

Testing the Tool

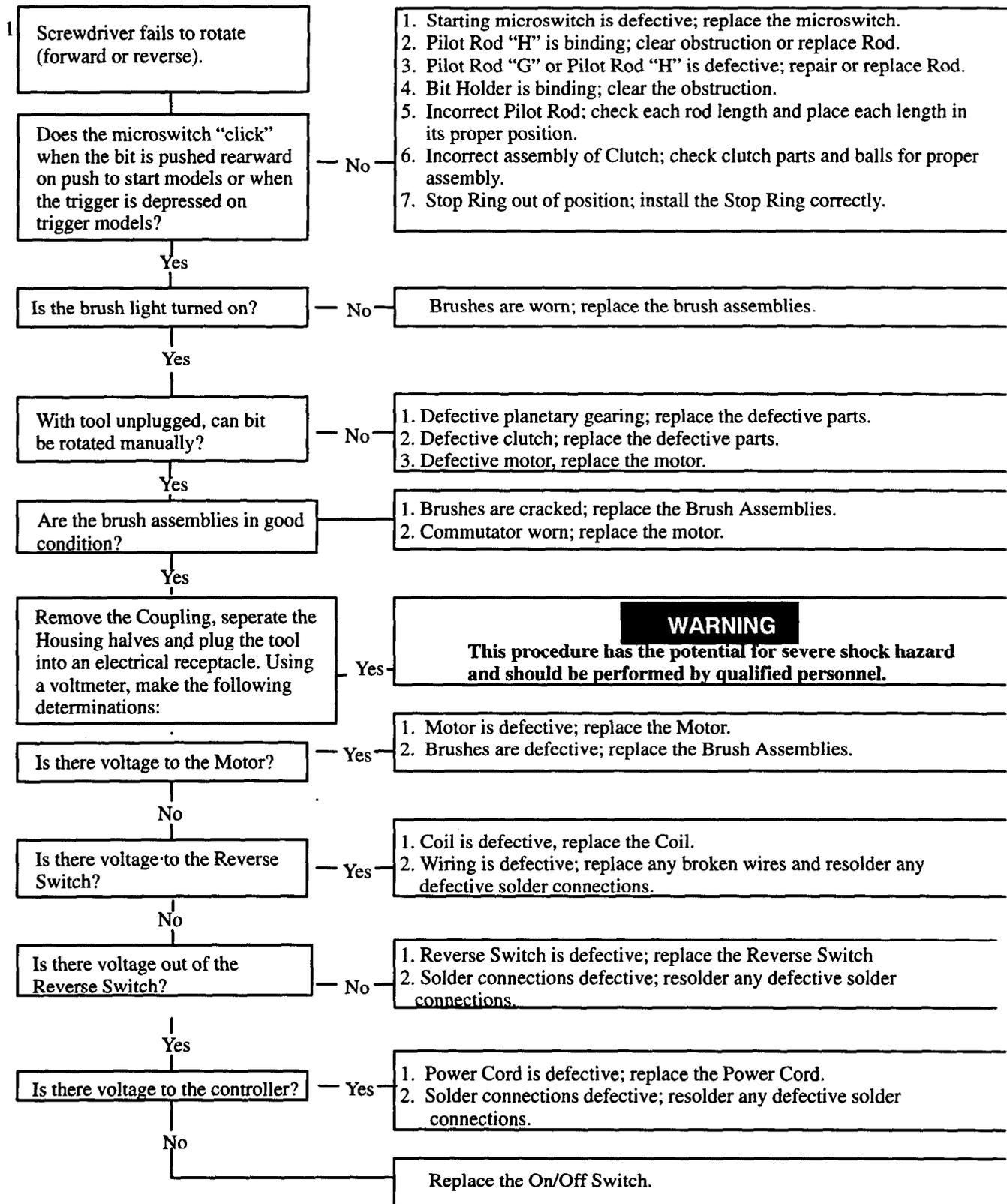
1. Test forward and reverse operation by pressing the Bit Holder against the work surface with the Reverse Switch in each position.
2. Tighten the Clutch Adjusting Ring all the way, reverse it one turn and test for proper shut off operation and maximum torque.
3. Reset the Clutch Adjusting Ring to mid scale and check for torque repeatability by cycling the tool between five to ten times.
4. For repair and troubleshooting of the high torque low voltage Controller, refer to the operation and maintenance manual.



(Dwg. TPD1821-1)

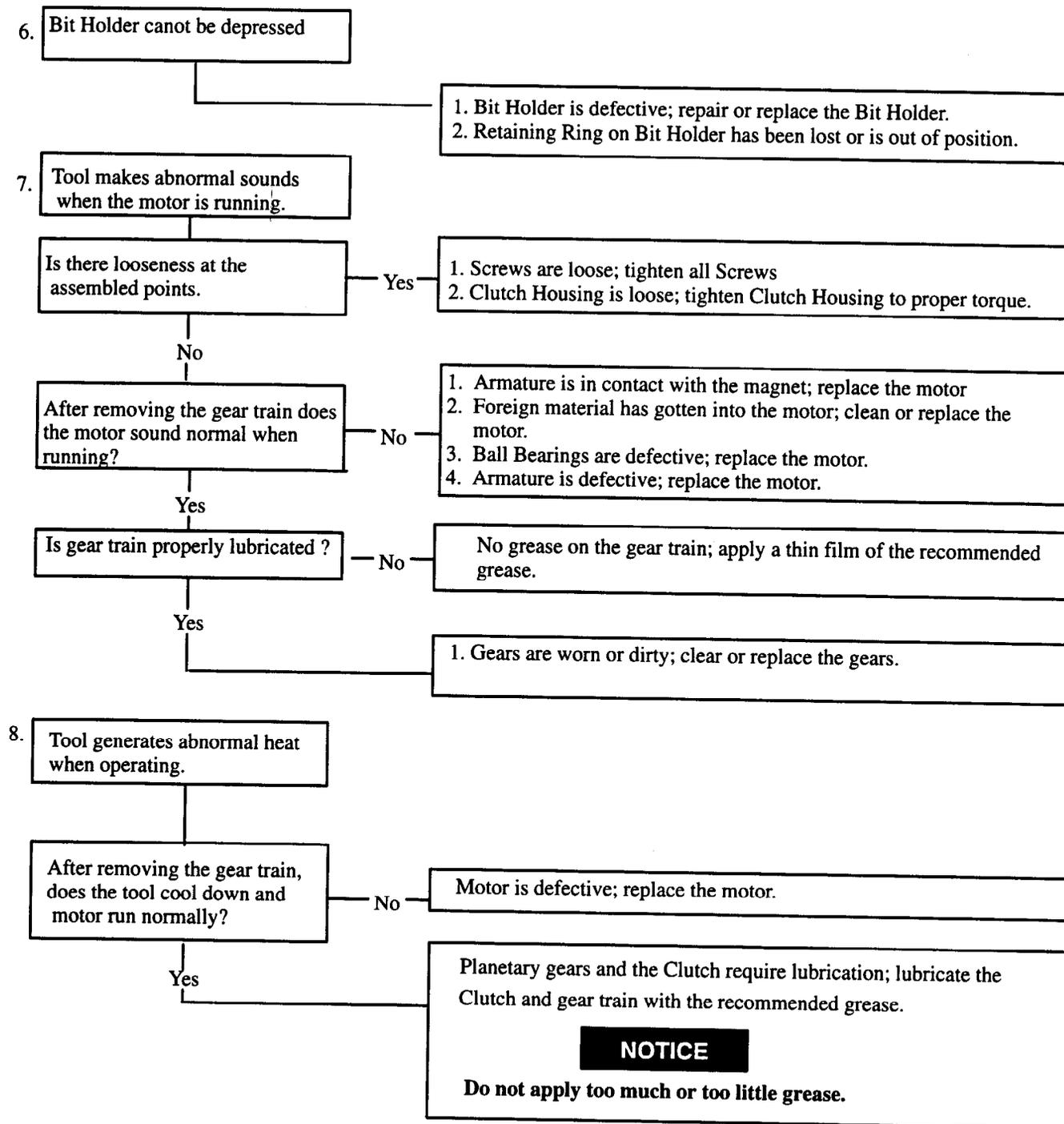
MAINTENANCE SECTION

TROUBLESHOOTING GUIDE



MAINTENANCE SECTION

TROUBLESHOOTING GUIDE (Continued)



MAINTENANCE SECTION

TROUBLESHOOTING GUIDE (Continued)

