

MODEL ESCB40 ELECTRIC SCREWDRIVER CONTROLLER

NOTE

This Controller is designed for dry location use only, with Series ES40T Electric Screwdrivers.

Model ES40T Electric Screwdriver is recommended for assembly operations where precise torque control is required.

⚠ WARNING

IMPORTANT SAFETY INFORMATION ENCLOSED.

READ ALL THESE INSTRUCTIONS BEFORE PLACING TOOL IN SERVICE OR OPERATING THIS TOOL AND SAVE THESE INSTRUCTIONS.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK AND PERSONAL INJURY, INCLUDING THE FOLLOWING.



PLACING TOOL IN SERVICE

- Always operate, inspect and maintain this tool in accordance with all regulations (local, state, federal and country), that may apply to hand held/hand operated electric tools.
- Inspect tool cords periodically and if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace if damaged.
- Do not remove any labels. Replace any damaged label.

USING THE TOOL

- 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.
- **Guard Against Electric Shock.** Prevent body contact with earthed or grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
- **Don't Abuse Cord.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.

- **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 explosive or flammable atmospheres.
- **Keep bystanders and children away.** Do not permit unauthorized personnel to operate this tool, or touch tool or cord.
- **Store idle tools.** When not in use, tools should be stored in a dry, high or locked up place, out of reach of children.
- **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.
- **Do not use a tool for a purpose for which it is not intended.** Example: Do not use a screwdriver as 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.
- **This tool is not designed for working in explosive atmospheres.**
- **This tool is not insulated against electric shock.**

NOTICE

The use of other than genuine Ingersoll-Rand replacement parts may result in personal injury, decreased tool performance and increased maintenance, and may invalidate all warranties.

Have your tool repaired by a qualified person. This electric tool is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

Repairs should be made only by authorized, trained personnel. Consult your nearest Ingersoll-Rand Authorized Servicenter.

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

USING THE TOOL (Continued)

- **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 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.
- **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.**
- **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.**
- **Do not drop or abuse the screwdriver.**
- **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 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.**
- **The use of any accessory or attachment other than recommended in this manual can present a risk of personal injury.**

OPERATION

CAUTION

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

MAINTENANCE

DO NOT ATTEMPT TO REPAIR THIS TOOL.

All repairs and maintenance of the Controller and its cord must be performed by an authorized servicer.

WARNING LABEL IDENTIFICATION



FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

	⚠ WARNING
	Always wear eye protection when operating or performing maintenance on this tool.

	⚠ WARNING
	Always wear hearing protection when operating this tool.

	⚠ WARNING
	Always turn off the electrical supply and disconnect the power cord before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

	⚠ WARNING
	Powered 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.

	⚠ WARNING
	Do not carry the tool by the cord.

	⚠ WARNING
	Do not use damaged, frayed or deteriorated power cords.

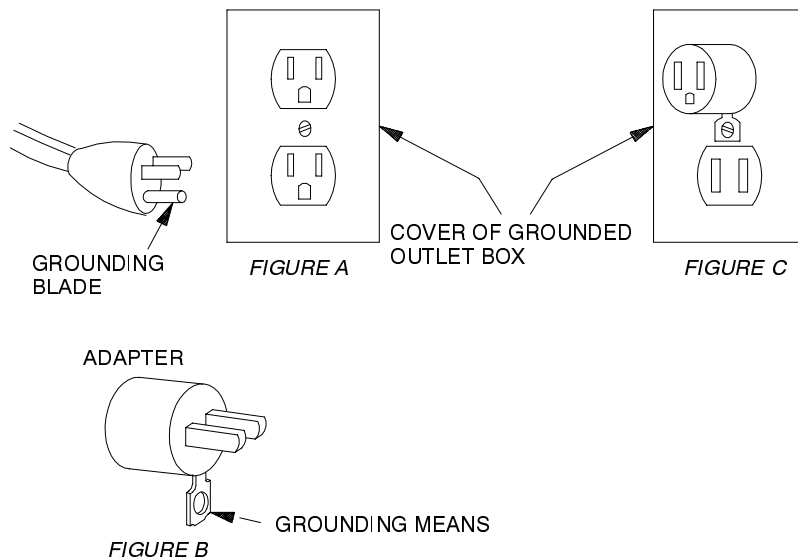
	⚠ WARNING
	Keep body stance balanced and firm. Do not overreach when operating this tool.

	⚠ WARNING
	DRY LOCATION USE ONLY.

GROUNDING INSTRUCTIONS

The Controller should be grounded while in use to protect the operator from electric shock. The controller 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 extending from the adapter must be connected to a permanent ground such as to a properly grounded outlet box.



(Dwg. TPD446-1)

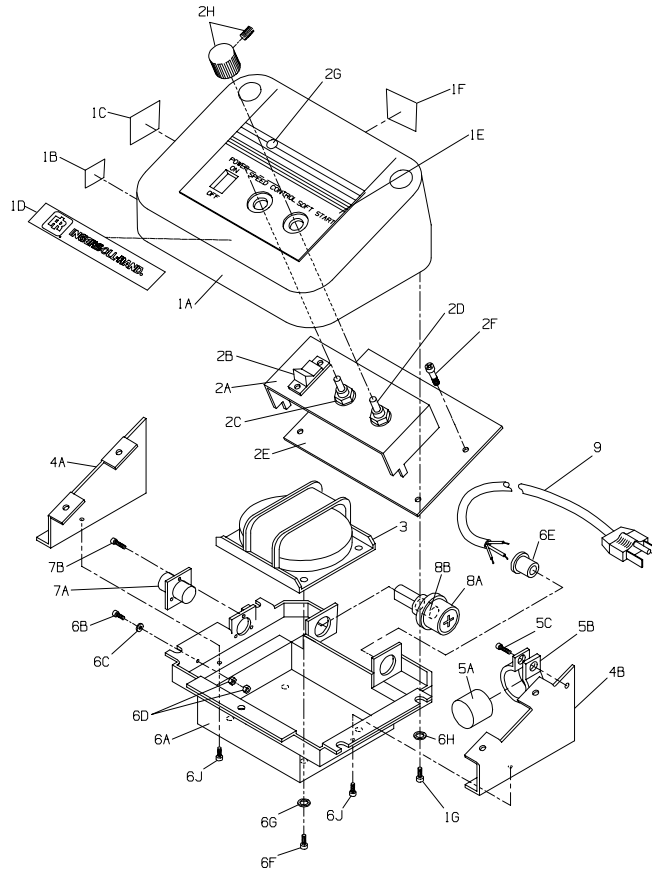


For safe use of adapters, the outlet box must be grounded. If there is any doubt, have a qualified electrician check connections.

Extension Cords

Use only 3-wire extension cords that have 3-prong grounding-type plugs and 3 pole receptacles that accept the controller's plug. Replace or repair damaged cords.

MAINTENANCE SECTION



(Dwg. TPC511)

PART NUMBER FOR ORDERING →

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	Cover Package	ESCB40-40		Chassis Package	ESCB40-703
1A	Cover	-----	6A	Chassis Assembly	-----
1B	Pole Label	-----	6B	Screw	-----
1C	Warning Label	ES40T-99	6C	Lock Washer	-----
1D	I-R Logo Decal	ESCB10-99	6D	Nut	-----
1E	Face Plate	ESCB40-100	6E	Cord Stop	-----
1F	Nameplate	ESCB40-301	6F	Foot Screw	-----
1G	Base Screw	-----	6G	Foot	-----
	Control Base Assembly	ESCB40-700	6H	Plain Washer	-----
2A	Control Base Switch Plate	-----	6I	Base Screw	-----
2B	Power Switch	ESCB40-710	6J	Side Plate Screw	-----
2C	Speed Control	-----		Receptacle Package	ESCB40-704
2D	Soft Start Control	-----	7A	Receptacle	-----
2E	Control Base Mounting Plate	-----	7B	Receptacle Screw	-----
2F	Control Base Screw	-----		Fuse Holder Assembly	ESCB40-A705
2G	Pilot Lamp	-----	8A	Fuse Holder	-----
2H	Knob	-----	8B	Fuse	-----
3	Transformer	ESCB40-701	9	Cord Assembly	ESCB40-239
	Side Plate Package	ESCB40-702			
4A	Side Plate (left)	-----			
4B	Side Plate (right)	-----			
	Condenser Package	ESCB40-707			
5A	Condenser	-----			
5B	Nylon Clamp	-----			
5C	Clamp Screw	-----			

MAINTENANCE SECTION

DISASSEMBLY

WARNING

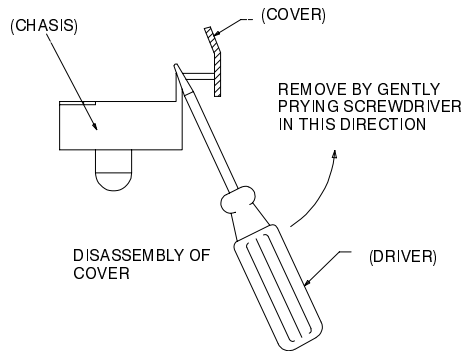
Disconnect electrical power cord from outlet before performing any maintenance or repairs on this controller. Do not attempt to repair this controller unless you are a qualified electrician.

Cover

1. Remove Knobs (2H) by loosening slotted setscrew in the sides of the knobs. Lift knobs from Speed Control (2C) and Soft Start Control (2D).
2. Using a Phillips screwdriver, remove the four Base Screws (1G).
3. Remove Cover (1A) by using thin blade screwdriver to pry back of Cover away from locking tabs on back of Chassis Assembly (6A). See below.
4. Lift Cover from Chassis Assembly, being careful not to damage Pilot Lamp (2G), which is wired to Control Base (2E).

NOTICE

Pilot lamp can be carefully pressed out of cover with 1/8" dowel rod.



(Dwg. TPD1061)

Control Base

1. Using small Phillips screwdriver, remove the four Control Base Screws (2F).
2. Unsolder the eleven wires from Control Base.

NOTICE

Note the location and colors of wires for reassembly purposes.

Power Switch

1. Remove Power Switch by unsoldering pins from bottom of Control Base.
2. Lift Power Switch from Control Base Plate (2A).

Transformer (3)

1. Unsolder black wire at Fuse Holder (8A).
2. Remove heat shrink tubing and unsolder white wire at Power Cord.
3. Unsolder the two red wires leading to Control Base Mounting Plate (2E).

4. Remove Foot Screws (6F).
5. Carefully lift Transformer from Chassis Assembly.

Condenser (5A)

1. Remove heat shrink tubing from both yellow wires at Condenser connection and unsolder wires.
2. Using Phillips screwdriver, loosen Clamp Screw (5C) on Nylon Clamp (5B) and slide out Condenser.

Receptacle (7A)

1. Using small Phillips screwdriver, remove the four Receptacle Screws (7B) from Chassis Assembly and remove Receptacle.
2. Remove heat shrink tubing from the wires connected to the Receptacle and unsolder wires.

NOTICE

Note the location and colors of wires for reassembly purposes.

Fuse Holder (8A)

1. Unsolder black and white wires from Fuse Holder.

NOTICE

Note the location and colors of wires for reassembly purposes.

2. Loosen and remove locknut and remove Fuse Holder from Chassis Assembly.

Cord Assembly (9)

1. Remove Control Base. See **DISASSEMBLY: CONTROL BASE**.
2. Unsolder black wire from Control Base, remove heat shrink tubing and unsolder white wire from Transformer wire, and remove green ground wire.
3. Using a Pincer Insertion Tool, remove Cord Stop (6E) from Chassis Assembly.
4. Pull Cord Assembly through hole in Chassis Assembly.

ASSEMBLY

Cord Assembly

1. Push Cord Assembly through hole in Chassis Assembly.
2. using a Pincer Insertion Tool, insert Cord Stop in hole in Chassis Assembly.
3. Attach green wire to Screw (6B) with Lock Washer (6C) and Nuts (6D).
4. Cut small piece of heat shrink tubing and slide it over white Cord Assemble wire.
5. Solder white Cord Assemble wire to white Transformer wire.
6. Slide heat shrink tubing over soldered connection and shrink the tubing.
7. Solder black wire from Cord Assembly to Control Base Terminal A1. See Wiring Diagram.

Fuse Holder

1. Insert Fuse Holder into hole in Chassis Assembly and tighten locknut.
2. Solder black wire from Transformer to connection at front of Fuse Holder and solder white wire from Control Base to connection at rear of Fuse Holder. See Wiring Diagram.

MAINTENANCE SECTION

Receptacle

1. Push Receptacle leads through hole in Chassis Assembly, allowing enough room outside of Chassis Assembly for soldering wires to Receptacle.
2. Cut five pieces of heat shrink tubing and slide one piece over each wire.
3. Solder each wire to the proper connection on the Receptacle. See Wiring Diagram.
4. Slide heat shrink tubing over each soldered connection and shrink the tubing.
5. Secure Receptacle to hole in Chassis with four Receptacle Screws.

Condenser

1. Slide new Condenser into Nylon Clamp and tighten Clamp Screw to hold Condenser in place.
2. Cut two pieces of heat shrink tubing and slide one piece over each wire.
3. Solder yellow wires to Condenser.

NOTICE

Attach lead from minus (-) side of condenser to terminal B4. See wiring diagram.

4. Slide each piece of heat shrink tubing over soldered connection and shrink the tubing.

Power Switch

1. Insert Power Switch into Control Base Switch Plate making sure that pins on bottom of Power Switch are in holes in Control Base.
2. Solder pins on bottom of Power Switch to bottom of Control Base.

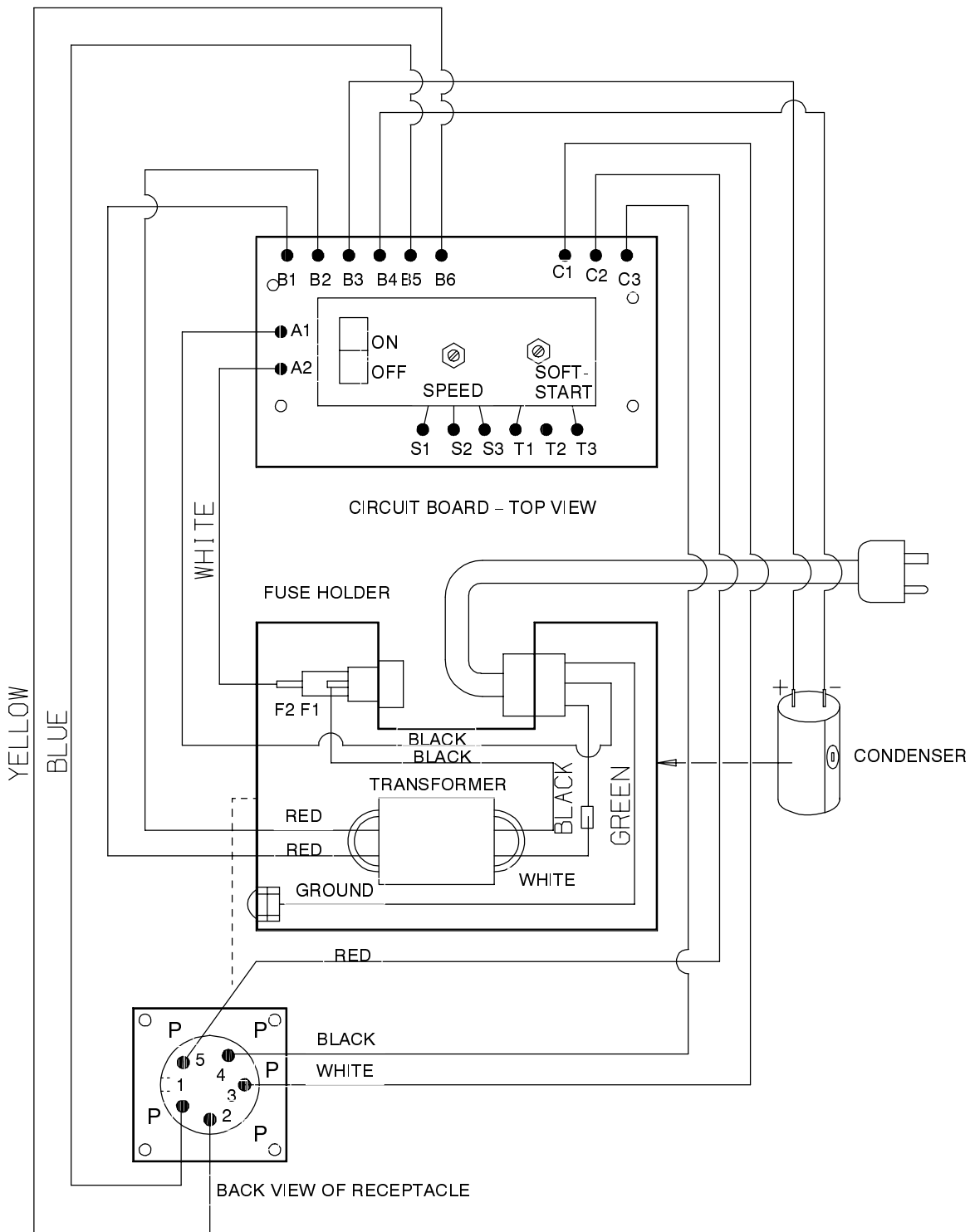
Control Base

1. Solder wires to proper place on Control Base. See Wiring Diagram.
2. Secure Control Base to Left Side Plate (4A) and to Right Side Plate (4B) using four Control Base Screws.

Cover

1. If Pilot Lamp was removed, carefully snap back in place using thin blade screwdriver.
2. Align post in front of cover with hole in front of Chassis Assembly.
3. Use screwdriver to lift and snap cover in place over locking tabs in back of Chassis Assembly.
4. Secure Cover with four Base Screws.
5. Turn both Speed Control and Soft Start Control counterclockwise until they stop.
6. Install Knobs with black dot on Knob slightly below point of left arrow on Face Plate (1E). Tighten slotted setscrews in the sides of the Knobs.

MAINTENANCE SECTION



(Dwg. TPD1063)

WIRING DIAGRAM

TROUBLESHOOTING GUIDE

TROUBLE	PROBABLE CAUSE	SOLUTION
No power output.	Blown Fuse (8B)	Replace Fuse.
	Power Cord (9) defective	Use voltmeter to check at A1 under heat shrink on white lead to transformer. Reading should be 115 volts AC. If not, replace Power Cord.
	Transformer (3) defective	Use voltmeter to check voltage at B1 and B2. Reading should be 24 volts AC 2 volts AC. If reading is 0, replace Transformer.
	Power Switch (2B) defective	Disconnect Controller Power Cord. Use ohmmeter to check A1 and A2. If reading not within standard limits, replace Power Switch.
	Control Base (2E) defective	Use voltmeter to check voltage at P3/P5 and C1/C2. Reading should be 12 volts DC \pm 1 volt DC. If reading is low or 0, replace Control Base.
		Use voltmeter to check voltage at P4/P5 and C2/C3. Reading should be 12 volts DC \pm 1 volt DC, decaying to 0 in twelve seconds. If not, replace Control Base.
Use voltmeter to check voltage at B1 and B2. Reading should be 24 volts DC \pm 2 volts DC. If reading is 0, check Fuse and Cord Assembly (9). If defective, replace.		
Use voltmeter to check voltage at B3 and B4. Reading should be 32 volts DC \pm 2 volts DC. If reading is low or 0, replace Control Base or Condenser (5A).		
	Use voltmeter to check voltage at B5 and B6. Reading should be 31 volts DC \pm 2 volts DC. If reading is low, replace Control Base.	
	Condenser (5A) defective	Disconnect Controller Power Cord. Use ohmmeter set at (RXX100 scale) at B3 and B4 (+ to B3). Short B3 to B4 to discharge Condenser. Reading should be at least 3/4 F. S. and slowly bleed off to 1000 ohms \pm 2000 ohms. If not, replace Condenser.
Faulty auto cycle	Control Base Defective	Replace Control Base.
Speed does not change	Speed Control Knob (24) improperly adjusted	Remove Knob and turn Speed Control (2C) counterclockwise until it stops. Install knob with black dot on Knob slightly below point of arrow on Face Plate (1E). Fine adjustment could be necessary.
	Speed Control defective	Disconnect Controller Power Cord. Using ohmmeter, rotate knob. Reading should be 0 to 1800 ohms + 20 ohms. If not, replace Control Base.
Soft Start (2E) does not operate.	Soft Start Knob improperly adjusted.	Remove Knob and turn Soft Start Control (2D) counterclockwise until it stops. Install Knob with black dot on Knob slightly below point of arrow on Face Plate. Fine adjustment could be necessary.
	Soft Start control defective	Disconnect Controller Power Cord. Use ohmmeter to check T1 and T3. Rotate knob. Reading should be 0 to 3600 ohms. If not, replace Control Base