Form P6826
Edition 1

MODEL ESCB10
ELECTRIC SCREWDRIVER CONTROLLER
(DELVO)

PARTS BULLETIN

WARNING

Disconnect the Controller Power Cord from the receptacle before performing any maintenance on this Controller.

Do not attempt to repair this Controller unless you are a qualified electrician.

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:

1. **Keep work area clean.**
   Cluttered areas and benches invite injuries.
2. **Consider work area environment.**
   Don't expose the Controller to water.
   Keep work area well lit.
3. **Guard against electric shock.**
   Prevent body contact with grounded surfaces, such as pipes, metal structures or other electrical products.
4. **Keep bystanders away.**
   Do not permit unauthorized personnel to operate this Controller.
5. **Store idle tools.**
   When not in use, the Controller should be stored in a dry, and secured area.
6. **Don't abuse cord.**
   Never carry a Controller by its cord or yank the cord of the Controller to disconnect it from a receptacle.
   Keep cord from heat, oil, solvent and sharp edges.
7. **Maintain Controller with care.**
   Inspect Controller cord periodically and if damaged, have repaired by authorized service facility.

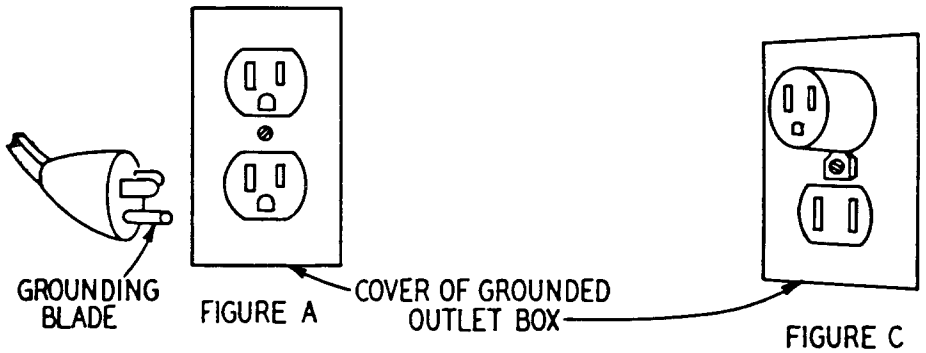
Notice: The use of other than genuine Ingersoll-Rand replacement parts may result in decreased tool performance and increased maintenance, and may invalidate all warranties.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

GROUNDING INSTRUCTIONS

The Controller must be grounded while in use to protect the operator from electric shock. This Controller is equipped with an approved three-conductor cord and three prong grounding-type plug to fit the proper grounding-type receptacle. If a unit is for use on less than 150 volts, it has a plug that looks like figure A.

An adapter, figure B is available for connecting figure A plugs to two-prong receptacle. The green colored rigid grounding strap extending from the adapter must be connected to a permanent ground such as to properly grounded outlet box.



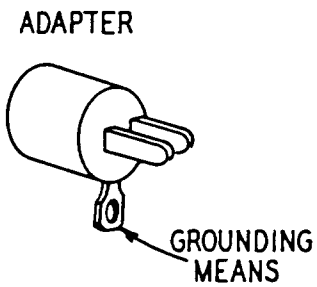


FIGURE B

(Dwg. TPD446-1)

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

OPERATION CAUTIONS

1. Do not drop or abuse the Controller.
2. 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 servicenter. See Form 6647 for the servicenter nearest you.

DISASSEMBLY

Cover (1A)

1. Using a phillips screwdriver, remove the four Cover Screws (1C).
2. Pull the Cover (1A) toward the front of the Controller and upward so that the Cover and the Holder (1B) clear the Holder Switch (4A).

Cord Assembly (9A)

1. Using a thin bladed screwdriver, loosen the two front screws of the Terminal Block (11A). Remove the white and black wires.
2. Unscrew and remove the Ground Screw (2C) on the back of the Controller Base (2A) and remove the green wire.
3. Using a thin bladed screwdriver, pry the Cord Stopper (9B) out the back of the Controller Base. Remove the Cord Assembly.

Transformer (13A)

1. Remove the heat shrink and unsolder the white wires from the yellow and orange leads.
2. Remove the red wire from the Fuse Holder (12A).
3. Using a thin bladed screwdriver, loosen the right rear screw of the Terminal Block (11A). Remove the red wire.
4. Remove the two Transformer Screws (13B), Transformer Washers (13C) and Transformer Nuts (13D). Remove the Transformer.

Circuit Board (14A)

1. Unplug the four Connector Assemblies (15A), (15B) (2) and (15C).
2. Remove the two Bracket Screws (6). Remove the Circuit Board. **Important**: Note the location of the Connector Assemblies for reassembly purposes.

Fuse Holder (12A)

1. Unsolder the yellow and red wires from the Fuse Holder.
2. Using a wrench, unscrew and remove the fuse holder nut. Remove the Fuse Holder.
3. Replacing the Fuse (12B), use a thin bladed screwdriver and insert it into the slots of the fuse holder cap. Turn the cap counterclockwise (see arrow) and remove the cap. Remove and replace the Fuse.

Soft Start Potentiometer (19A)

1. Using a miniature thin bladed screwdriver, unscrew and loosen the setscrew. Remove the Knob (21).
2. Unscrew and remove the nut on the Soft Start Potentiometer.
3. Unsolder the green and yellow wires from the Soft Start Potentiometer. **Important**: Note the location of these wires for reassembly purposes.

Torque Potentiometer (20A)

1. Using a miniature thin bladed screwdriver, unscrew and loosen the setscrew. Remove the Knob (21).
2. Unscrew and remove the nut on the Torque Potentiometer.
3. Disconnect the brown, red and orange wires from the Torque Potentiometer. **Important**: Note the location of these wires for reassembly purposes.

Power Switch (16A)

1. Using pliers, unscrew and remove the Power Switch Nut (16B).
2. Unsolder the two yellow wires from the Power Switch.

Reverse Switch (17A)

1. Using pliers, unscrew and remove the Reverse Switch Nut (17B).
2. Unsolder the yellow, brown, grey and red wires from the Reverse Switch. **Important**: Note the location of these wires for reassembly purposes.

Pilot Lamps (18)

1. Loosen and remove the nut and washer of the Pilot Lamps located on the back of the front panel of the Controller.
2. Unsolder the wires on the Pilot Lamps. **Important**: Note the location and colors of these wires for reassembly purposes.

Jack (10A)

1. Using a small phillips screwdriver, unscrew and remove the two Jack Screws (10C).
2. Remove the Jack Insulating Plate (10B) and Jack Joint Nut (10D).
3. Unsolder the yellow and orange wires from the Jack. **Important**: Note the location of these wires for reassembly purposes.

Holder Switch (4A)

1. Using a small phillips screwdriver, unscrew and remove the two Switch Screws (4C). Note the Switch Stopper (4B) location.
2. Unsolder the red and brown wires from the Holder Switch. **Important**: Note the location of these wires for reassembly purposes.

ASSEMBLY

Holder Switch (4A)

1. Solder the red and brown wires in the same location on the Holder Switch as when disassembled.
2. Secure the Holder Switch to the Holder Switch Bracket (5) using the two Switch Screws (4C). **Note**: Carefully position and install the Switch Stopper (4B). Switch must be able to click "ON" and "OFF".

Jack (10A)

1. Solder the yellow and orange wires in the same location on the Jack as when disassembled.
2. Install the Jack Joint Nut (10D) and Jack Insulating Plate (10B).
3. Using a small phillips screwdriver, install the two Jack Screws (10C).

Pilot Lamps (18)

1. Solder the wires in the same location on the Lamps as when disassembled.
2. Install the lamp posts through the lamp post holes in the front panel and secure the Lamps to the front panel with the washer and nut.

Reverse Switch (17A)

1. Solder the yellow, brown, green and red wires to the Reverse Switch in the same location on the Switch as when disassembled.
2. Install the Reverse Switch and secure the Switch with the Reverse Switch Nut (17B).

Power Switch (16A)

1. Solder the two yellow wires to the Power Switch in the same location as when disassembled.
2. Install the Power Switch and secure the Switch with the Power Switch Nut (16B).

Torque Potentiometer (20A)

1. Solder the brown, red and orange wires to the Torque Potentiometer in the same location as when disassembled.
2. Install the locking washer and Washer (20B) onto the Torque Potentiometer post and insert the potentiometer into the torque potentiometer hole in the front panel. Secure the Torque Potentiometer with the nut.
3. Install the Torque Potentiometer Knob (21) and using a miniature thin bladed screwdriver, tighten the knob setscrew to secure the knob to the potentiometer post.

Soft Start Potentiometer (19A)

1. Solder the green and yellow wires to the Soft Start Potentiometer in the same location as when disassembled.
2. Install the locking washer and Washer (19B) onto the soft start potentiometer post and insert the potentiometer into the soft start potentiometer hole in the front panel. Secure the Soft Start Potentiometer with the nut.
3. Install the Soft Start Potentiometer Knob (21) and using a miniature thin bladed screwdriver, tighten the knob setscrew to secure the knob to the potentiometer post.

Fuse Holder (12A)

1. Solder the yellow and red wires to the Fuse Holder in the same location as when disassembled.
2. Install the Fuse Holder into the holder hole in the back panel. Install the washer and nut to secure the Fuse Holder to the back panel. **Note**: Make sure the wire connection nearest the nut faces upward. Tighten the nut securely.

Circuit Board (14A)

1. Plug the Connector Assemblies (15A), (15B) (2) and (15C) into the Circuit Board in the same location as when disassembled.
2. Install the two Bracket Screws (6).

Transformer (13A)

1. With the two white wires of the Transformer facing toward the front of the Controller, install the Transformer onto the Base (2A) aligning the two holes of Transformer with two holes in the Base. Insert the two Transformer Screws (13B) from bottom of the Base up through the holes in the Base and Transformer. Install a Transformer Washer (13C) and Transformer Nut (13D) onto each Transformer Screw and tighten the nuts securely.

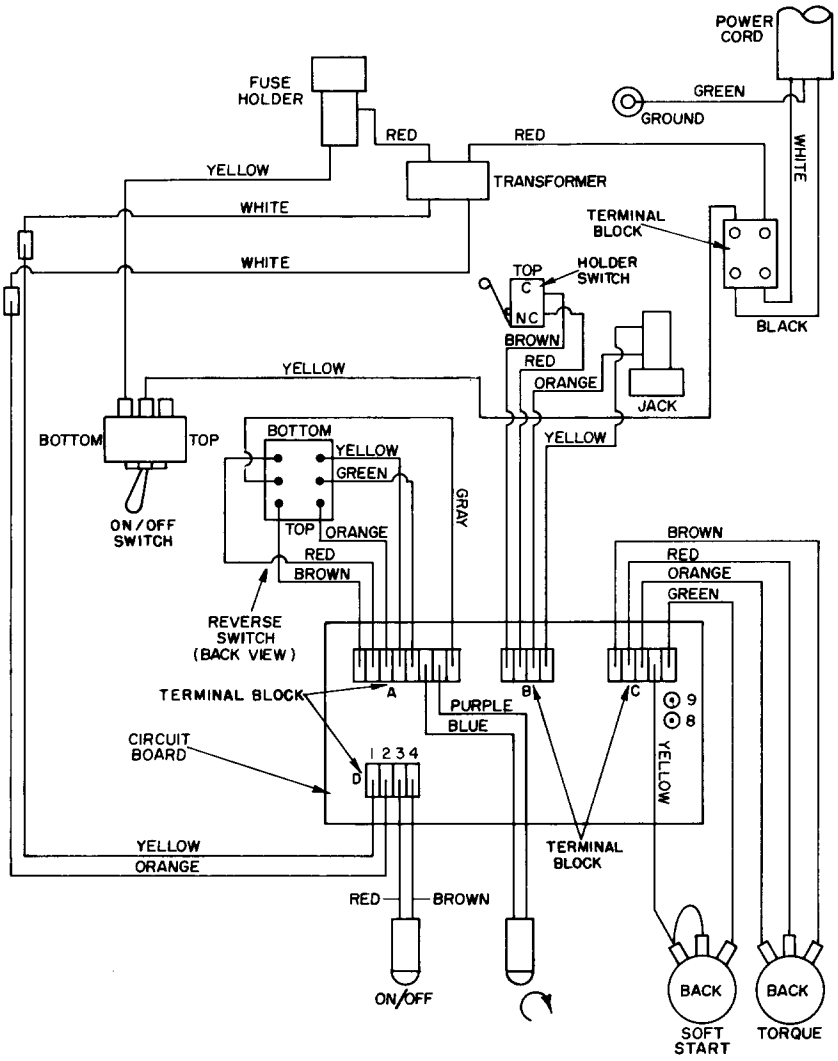
2. Slip a small piece of heat shrink tubing (obtain from nearest Radio Shack) onto each white wire of the Transformer. Solder the right white wire, when facing the front of the Controller, to the exact same orange wire of the Circuit Board (14A) when disassembled. Slide the heat shrink tubing over the solder connection and heat shrink the tubing.
3. Solder the left white wire, when facing the front of the Controller, to the exact same yellow wire of the Circuit Board when disassembled. Slide the heat shrink tubing over the solder connection and heat shrink the tubing.
4. Install the right red wire of the Transformer, when facing the front of the Transformer, into the right rear connection of the Terminal Block (11A). Using a thin bladed screwdriver, tighten the setscrew in the Terminal Block securely.
5. Solder the left red wire of the Transformer, when facing the front of the Controller, to the fuse holder connection nearest the fuse holder nut.
6. Connect the same yellow wire from the Power Switch (16A) to the Fuse Holder as when disassembled.

Cord Assembly (9A)

1. Install the Cord Assembly and Cord Stopper (9B) into the rear panel of the Controller.
2. Install the green wire of the Cord Assembly onto the Ground Screw (2C). Install the Screw Nut (2E) onto the Ground Screw and tighten securely.
3. Install the white wire of the Cord Assembly, when facing the front of the Controller, into the right front connection of the Terminal Block (11A). Using a thin bladed screwdriver, tighten the setscrew in the Terminal Block securely.
4. Install the black wire of the Cord Assembly, when facing the front of the Controller, into the left front connection of the Terminal Block. Using a thin bladed screwdriver, tighten the setscrew in the Terminal Block securely.

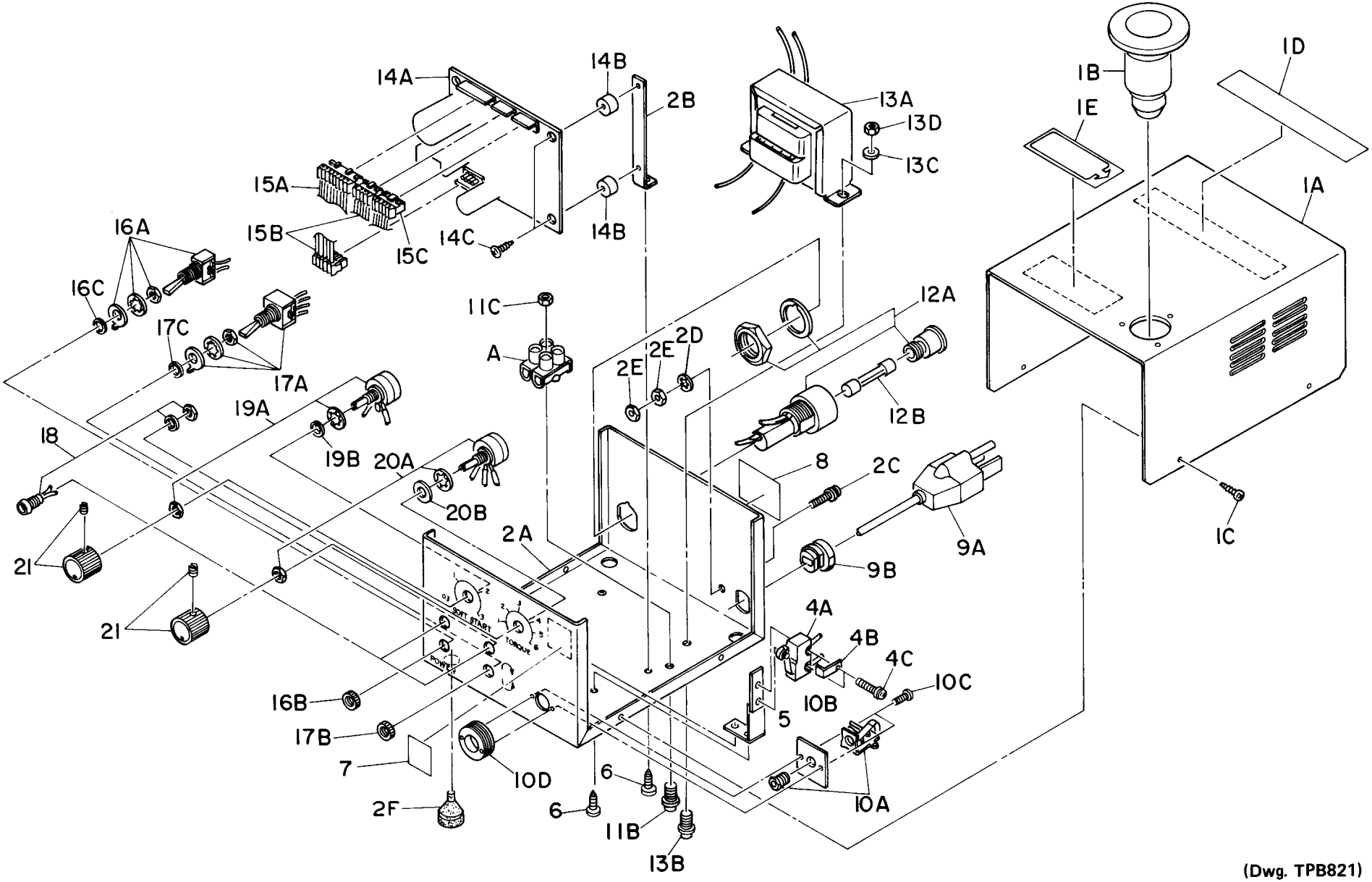
Cover (1A)

1. Install the Cover over the top of the controller base, making sure the Holder Switch (4A) enters the slot in the Holder (1B).
2. Install the Cover Screws (1C) and tighten securely.



(Dwg. TPD1066)

Wiring Diagram


1A
1B
1C
1D
1E
2A
2B
2C
2D
2E
2F
4A
4B
4C
5
6
7
8
9A
9B
10A
10B
10C
10D
11B
11C
12A
12B
13A
13B
13C
13D
14A
14B
14C
15A
15B
15C
16A
16B
16C
17A
17B
17C
18
19A
19B
20A
20B
21
A
SOFT START
TORQUE
POWER

(Dwg. TPB821)

		PART NUMBER FOR ORDERING
	Cover Package	ESCB10-P716
	Cover Assembly	– – –
1A	Cover	– – –
1B	Holder	– – –
1C	Cover Screw (4)	– – –
1D	Label (Ingersoll-Rand)	ESCB10-99
1E	Label (Tool Holder)	ESCB10-100
	Base Package	ESCB10-P712
2A	Base	– – –
2B	Circuit Board Mounting Bracket (2)	– – –
2C	Ground Screw	– – –
2D	Screw Lock Washer	– – –
2E	Screw Nut (2)	– – –
2F	Rubber Foot (4)	– – –
	Holder Switch Package	ESCB10-P714
4A	Holder Switch	– – –
4B	Switch Stopper	– – –
4C	Switch Screw (2)	– – –
5	Holder Switch Bracket	– – –
6	Bracket Screw (4)	– – –
7	Warning Label	– – –
8	Nameplate	– – –
	Cord Package	ESCB10-P711
9A	Cord Assembly	– – –
9B	Cord Stopper	– – –
	Jack Package	ESCB10-P715
10A	Jack	– – –
10B	Jack Insulating Plate	– – –
10C	Jack Screw (2)	– – –
10D	Jack Joint Nut	– – –
	Terminal Block Package	ESCB10-P709
11A	Terminal Block	– – –
11B	Block Nut	– – –
11C	Block Nut Screw	– – –
	Fuse Holder Package	ESCB10-P710
12A	Fuse Holder	– – –
12B	Fuse	– – –

		PART NUMBER FOR ORDERING
	Transformer Package	ESCB10-P713
13A	Transformer	– – –
13B	Transformer Screw (2)	– – –
13C	Transformer Washer (2)	– – –
13D	Transformer Nut (2)	– – –
	Circuit Board Package	ESCB10-P701
14A	Circuit Board	– – –
14B	Board Spacer (4)	– – –
14C	Board Screw (4)	– – –
	Connector Package	ESCB10-P702
15A	Connector Assembly (8)	– – –
15B	Connector Assembly (consists of two sets) (4)	– – –
15C	Connector Assembly (5)	– – –
	Power Switch Package	ESCB10-P703
16A	Power Switch (includes hardware)	– – –
16B	Power Switch Nut	– – –
16C	Power Switch Spacer	– – –
	Reverse Switch Package	ESCB10-P704
17A	Reverse Switch (includes hardware)	– – –
17B	Reverse Switch Nut	– – –
17C	Reverse Switch Spacer	– – –
18	Pilot Lamp (2)	ESCB10-705
	Soft Start Potentiometer Package	ESCB10-P706
19A	Soft Start Potentiometer	– – –
19B	Washer	– – –
	Torque Potentiometer Package	ESCB10-P707
20A	Torque Potentiometer	– – –
20B	Washer	– – –
21	Potentiometer Knob (2) (includes setscrews)	ESCB10-708

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
No power output	Blown Fuse	Check out and replace.
	Power Cord	Check white/black leads to Termianl Block 115 VAC.
	Power Transformer	Check orange/yellow leads to Connector "D"–should read 15 ± 3 VAC.
	Power Switch	Unplug cord. Check yellow leads with Ohmmeter at Switch. Reading should be 0 to full scale.
	Control Base	**Connector "A"** Green/Grey = ± 12 VDC. 0 reading could be Power Switch or Circuit Board. Brown/Red = ± 12 VDC. 0 reading = bad Circuit Board. Orange/Yellow = ± 12 VDC. 0 reading = bad Circuit Board. Blue/Violet, Switch should be in forward direction 1.6 VDC. 0 reading indicates bad Reverse Switch or Circuit Board. **Connector "B"** Brown/Yellow = ± 10 VDC. 0 reading indicates bad Reverse Switch or Circuit Board. Red/Yellow = ± 10 VDC. 0 reading indicates bad Holder Switch or Circuit Board. Orange/Yellow = ± 10 VDC. 0 reading indicates bad Holder Switch or Circuit Board. **Connector "C"** Set Torque Control to 6 and Soft Start to 0.3. Green/Brown = 7.5 ± .5 VDC. Green/Red = 7.2 ± .5 VDC. Green/Orange - 8.2 ± .5 VDC. If 0 reading, indicates bad Circuit Board or Potentiometers. Set Torque Control at 1 and Soft Start at 3. Green/Brown 3.1 ± .5 VDC. Green/Red 3.3 ± .5 VDC. Green/Orange 3.3 ± .5 VDC. 0 reading indicates bad Circuit Board or Potentiometers. **Note**: The Soft Start Potentiometer can be checked while checking the above readings by rotating the soft start knob and observing the voltage changing from 3 to 7 ± 2 VDC.
Defective Forward/ Reverse Switch	Reverse Switch	Using an Ohmmeter on the RX1 scale with power cord disconnected, remove Connector "A", take resistance readings from the connector and make the following checks: Grey/Brown, Forward Position 0, Reverse Position full scale. Grey/Red Forward Position to full scale, Reverse Position 0. Green/Orange, Forward Position 0, Reverse Position full scale. Green/Yellow Forward Position full scale, Reverse Position 0. Failure to obtain above readings indicates defective wiring or a bad switch.
Soft Start does not operate	Soft Start Potentiometer	Using an Ohmmeter on the RX1 scale with power cord disconnected, remove Connector "C", take resistance readings from the connector and make the following checks: Yellow/Green, Observe Ohmmeter. Turn Soft Start Knob from .3 to 3. Reading should be 0 to 285 kilohms.
Torque Control does not work.	Torque Control Potentiometer	Using an Ohmmeter on the RX1 scale with the power cord disconnected, remove Connector "C", take resistance readings from the Connector and make the following checks: Red/Brown, Turn Torque Control Knob from 1 to 6. Reading should be 530 to 0 ohms.