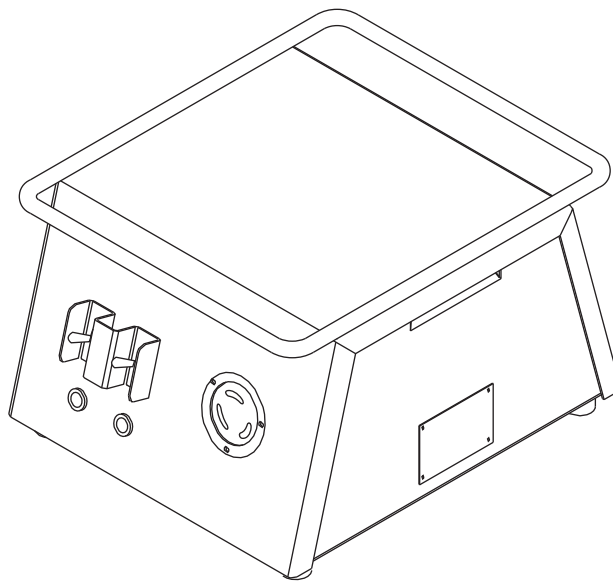


INSTRUCTION MANUAL



03561


Speed Booster


for the Ultra Tugger[®]



Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

Safety Information

	⚠ WARNING
	<p>Electrical Shock Hazard: The Speed Booster is for use with the Greenlee Ultra Tugger Cable Puller only. The Speed Booster produces more than 120 volts; plugging anything other than the Ultra Tugger into the Speed Booster could result in serious injury or death.</p>

	⚠ WARNING
	<p>Read and understand the instructions supplied with the Ultra Tugger. Failure to observe this warning could result in an accident resulting in severe injury or death.</p>

Description

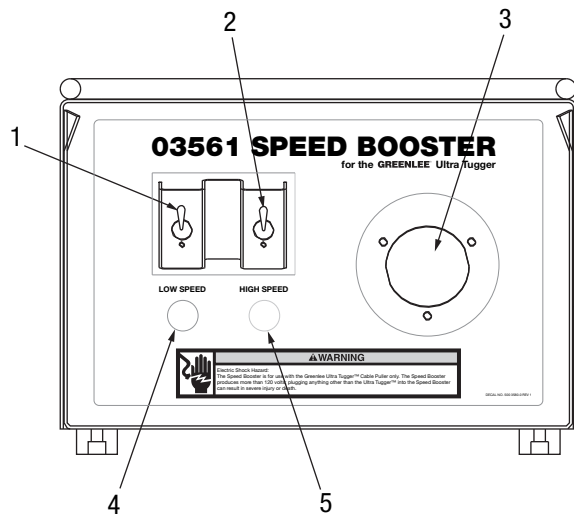
The Speed Booster increases the voltage supplied to the Ultra Tugger® motor. The Speed Booster will allow the Ultra Tugger to pull cable approximately twice as fast as normal when the pulling force is less than 2500 pounds. The Speed Booster shuts off automatically and the Ultra Tugger resumes normal pulling speed when the pulling force exceeds 2500 pounds.

In order to use the Ultra Tugger with the Speed Booster, the plug on the end of the Ultra Tugger power cord must be changed to fit the receptacle of the Speed Booster. An adapter cord is included with the Speed Booster so that the Ultra Tugger can still be used without the Speed Booster.

All specifications are nominal and may change as design improvements occur. Greenlee Textron Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

KEEP THIS MANUAL

Front Panel Identification



The ESCXX Cable Cutter is a hand-held tool intended to cut copper and aluminum cable up to 85 mm (3-1/4").

1. Low Speed toggle switch: Used to reset Speed Booster to low speed mode.
2. High Speed toggle switch: Used to turn Speed Booster to high speed mode.
3. Receptacle for Ultra Tugger only!
4. Amber Light: Indicates that main power is on, and normal voltage is applied to receptacle (low speed).
5. Red Light: Indicates that the Speed Booster is working and high voltage is applied to receptacle (high speed).

Specifications

Height	9.5 in. (24.1 cm)
Width	13 in. (33.0 cm)
Depth	15.5 in. (39.4 cm)
Weight	46 lb. (20.9 kg)
Power Input	115 VAC; 15 A; 1 \emptyset ; 50/60 Hz (125 VAC max.; 80 VAC min.)
Power Output	115/230 VAC; 15/6 A; 1 \emptyset ; 50/60 Hz For use only with Greenlee Ultra Tugger
Operating Temperature Range	- 5 to 120°F (- 20 to 49°C)
Operating Humidity Range	0 - 98%
Protection	20A Circuit Breaker Thermally protected transformer with Class B insulation

Setup

1. Use the instructions provided with the Ultra Tugger to set up the puller.
2. Plug the Speed Booster into a 120 volt, 20 amp receptacle.
3. Plug the puller into the receptacle on the Speed Booster.

Operation

1. Turn on the Speed Booster using the circuit breaker/power switch located in back of Speed Booster.

Note: The amber indicator will illuminate to indicate that the power is ON.

2. Turn the puller on. Tail the rope as described in the instruction manual supplied with the Ultra Tugger.

Note: Allow the puller to run at least 5 seconds before engaging Speed Booster.

3. Press the toggle switch on the right to switch on the high speed mode of the Speed Booster. The red indicator will illuminate.

Note: It may be necessary to hold the switch momentarily.

4. Continue to tail the rope and monitor the force gauge as usual.

Note: If the pulling force exceeds 2500 pounds, the Speed Booster will switch off automatically. If the pulling force drops to less than 2500 pounds, the Speed Booster will not switch back on automatically; it must be switched back on manually.

Note: If it becomes necessary to slow down the puller, press the toggle switch on the left ("Low Speed") to shut off the Speed Booster.

Note: If the Speed Booster is used for extended time in the High Speed mode, the unit may heat up and automatically activate the thermal shutdown. When this happens, the Speed Booster will run the puller at normal speed, but will not boost until it has had time to cool down.

5. Finish the pull as described in the Ultra Tugger instruction manual.
6. Turn off the Speed Booster using the power switch located at the rear. Unplug the Ultra Tugger from the Speed Booster, and unplug the Speed Booster.

Ultra Tugger Plug Modification

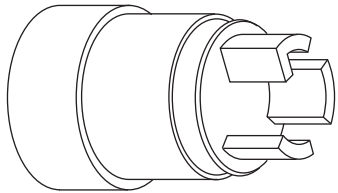
⚠ CAUTION

Modification of the plug should only be done by a Greenlee Authorized Service Center or qualified electrician.

Failure to observe this precaution may result in damage to Speed Booster or puller.

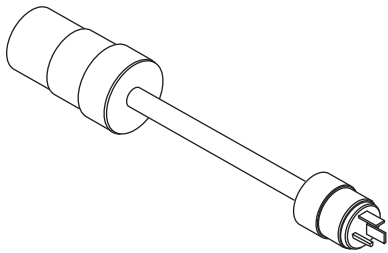
To modify the Ultra Tugger for use with the Speed Booster:

1. Cut off the power plug to the Ultra Tugger.
2. Connect the Speed Booster Adapter Plug (91868637) as follows:
 - W (Green) Green Wire Ground
 - X (Silver) White Wire Neutral
 - Y (Brass) Black Wire Line (Hot)



Speed Booster Adapter Plug 91868637

Once the Ultra Tugger power plug has been changed, use the Ultra Tugger Adapter Cord/Plug Converter (50042874) to use the Ultra Tugger with 115 VAC 20 Amp line service.



Ultra Tugger Adapter Cord/Plug Converter 50042874

⚠ WARNING

Do not use modified Ultra Tugger directly on 230 VAC power. Modified Ultra Tugger should be used with 03561 Speed Booster or 50042874 Adapter Cable only.

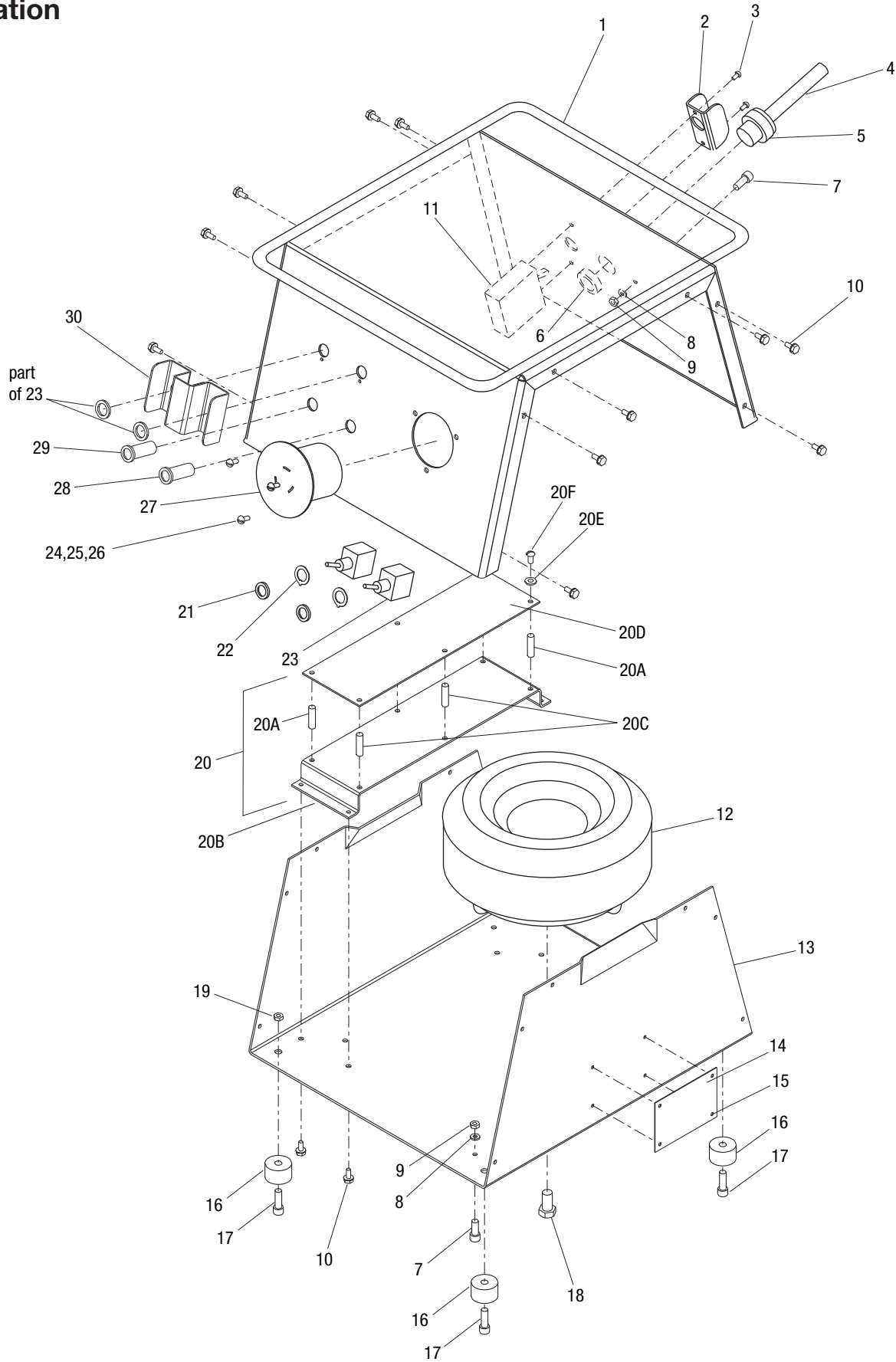
Failure to observe this warning could cause tool malfunction, resulting in severe injury or death.

Maintenance

Use of the Speed Booster accelerates brush wear in the motor of the Ultra Tugger. As the brushes wear, graphite dust will begin to accumulate on the commutator. This buildup of graphite dust will cause electrical arcing and a noticeable popping noise when the Speed Booster is used in high-speed mode. When this happens, service the Ultra Tugger as follows:

1. Refer to the instruction manual supplied with the Ultra Tugger. Disassemble the Control Box, End Cover and Commutator.
2. Use compressed air to clean the parts. Wipe down with a clean, dry lint-free rag.
3. Replace the worn brushes with new brushes (91867053).
4. Reassemble.

Operation



Parts List

Key	Part No.	Description	Qty
1	50035690	Cover.....	1
2	50297082	Guard, circuit breaker	1
3	90522036	Screw, machine, #6 – 32 x .250 round head.....	2
4	50035622	Power cord.....	1
5	90541243	Bushing, strain relief.....	1
6	91862639	Nut, lock , 1/2" conduit.....	1
7	90516451	Screw, cap, #10 – 32 x .500 socket button head	3
8	90507509	Washer, lock, #10, internal tooth.....	3
9	90516583	Nut, hex, #10 – 32	3
10	90516559	Screw, thread-forming, #10 – 16 x .500.....	16
11	91863856	Circuit breaker, 20 amp.....	1
12	50046438	Transformer	1
13	50035738	Box.....	1
14	50035762	Plate, identification.....	1
15	90530012	Rivet, pop, .125.....	4
16	50035754	Foot.....	4
17	90512650	Screw, cap, 1/4 – 20 x .750 socket head.....	4
18	52027081	Screw, cap, 3/8 – 24 x 2.00 hex head.....	1
19	90526805	Nut, hex, 1/4 – 20.....	4
20	50047817	Control assembly (includes the next six items).....	1
20A	90550501	Standoff, threaded, #6 – 32 x .500.....	2
20B	50046942	Subplate.....	1
20C	91866448	Support, circuit board	4
20D	50046390	Circuit board	1
20E	90537246	Washer, lock, #6, internal tooth.....	4
20F	90522036	Screw, machine, #6 – 32 x .250 round head.....	4
21	90550510	Washer, lock, 15/32 internal tooth	2
22	91868904	Ring, locking	2
23	91868890	Switch	2
24	90524349	Nut, hex, #8 – 32.....	3
25	90516494	Washer, lock, #8, internal tooth.....	3
26	90514408	Screw, machine #8 – 32 x .375 round head.....	3
27	91868548	Receptacle, female	1
28	91864747	Lamp, red neon.....	1
29	91868866	Lamp, amber neon.....	1
30	50035746	Guard, switch.....	1

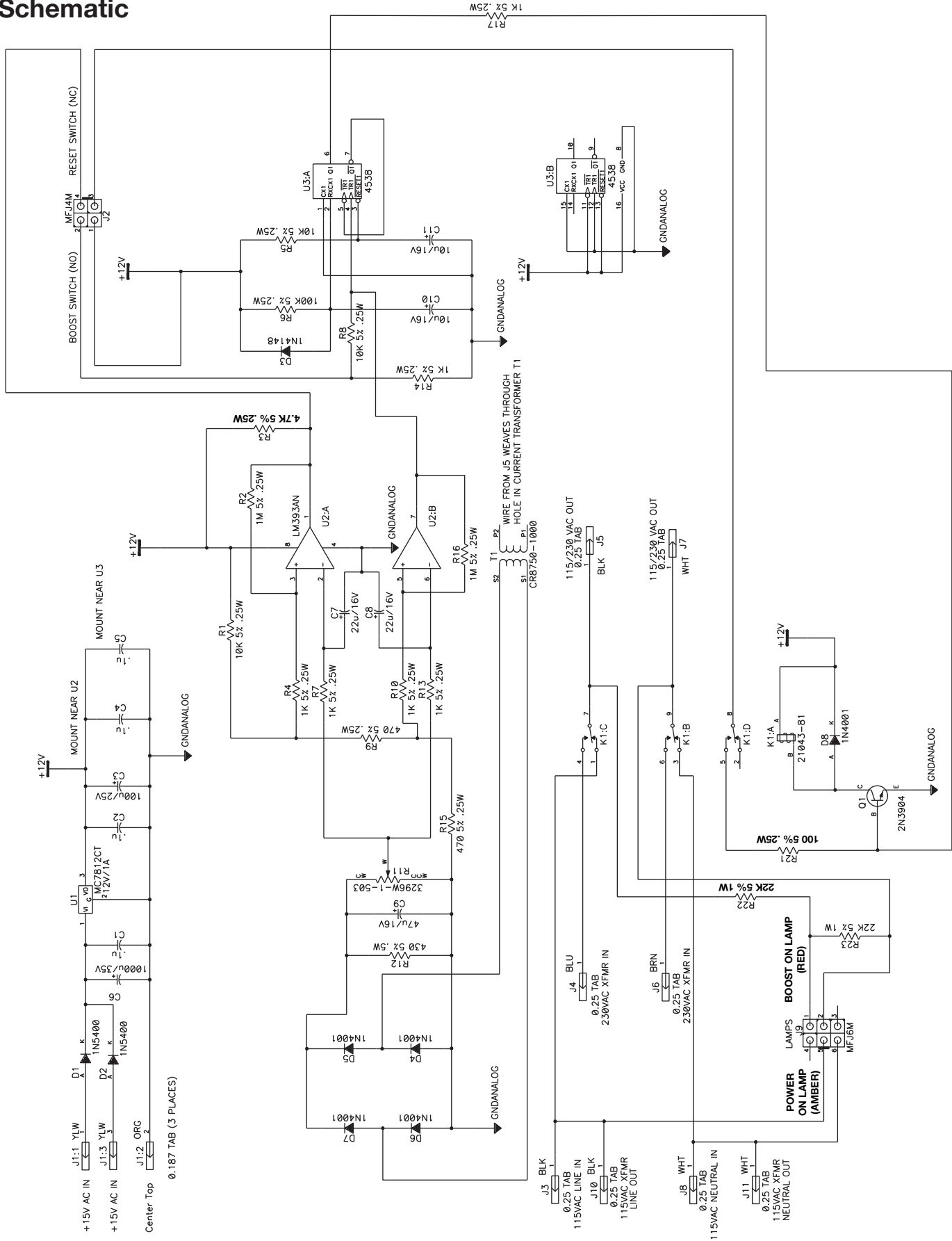
The following items are not illustrated:

31	50046365	Wire unit, receptacle, black.....	1
32	50046373	Wire unit, receptacle, white.....	1
33	50046403	Wire unit, lamps	1
34	50046411	Wire unit, switches.....	1
35	50046420	Wire unit, breaker	1
36	50036190	Wire unit, receptacle, relay.....	1
37	500 49879	Wire unit, ground bond	1
38	50035800	Decal	1
39	50303929	Decal, damp warning	1

Service Kits:

50048848	Adapter cord and plug kit
50062115	Adapter cord kit
50062123	Electric plug kit

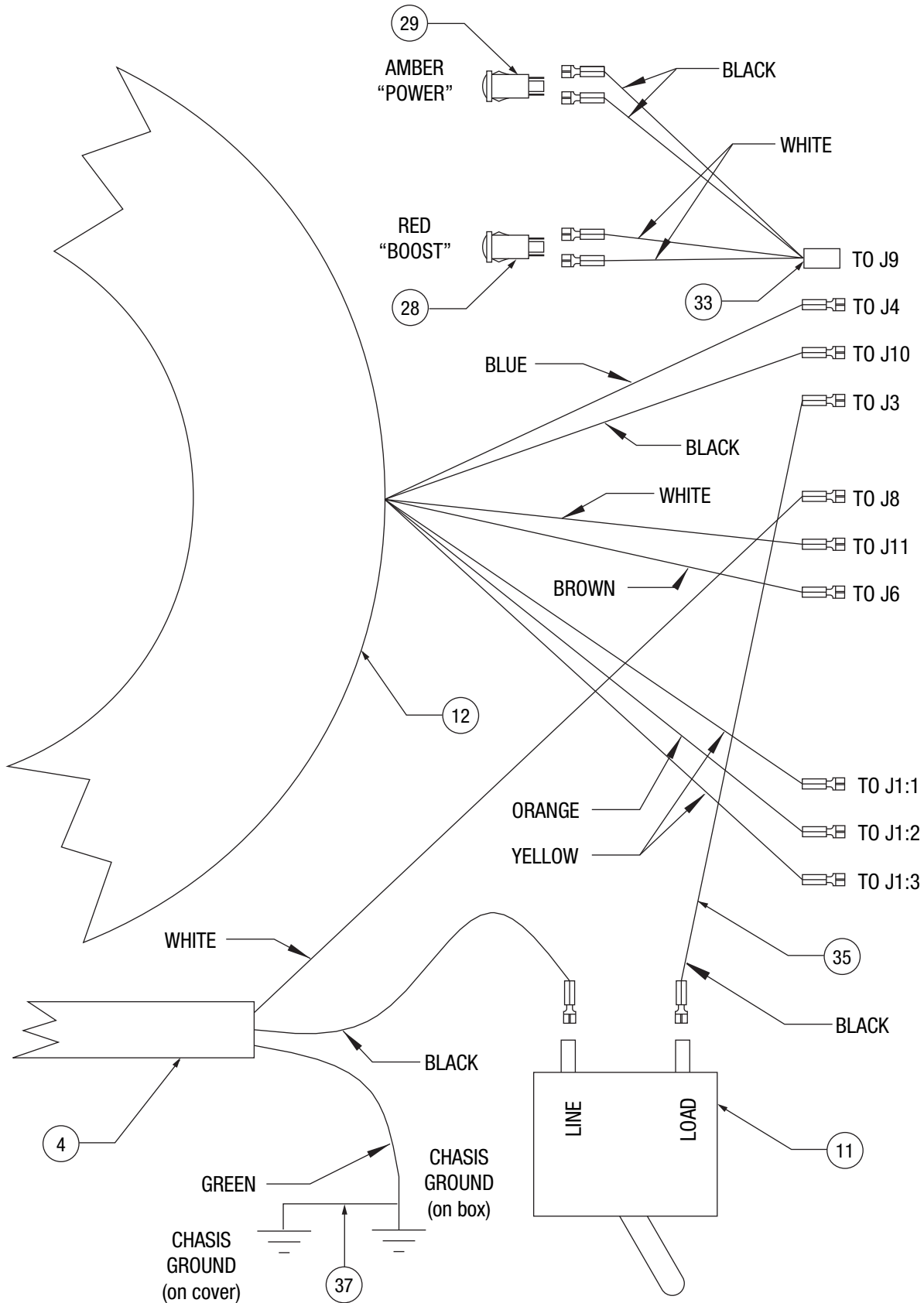
Schematic



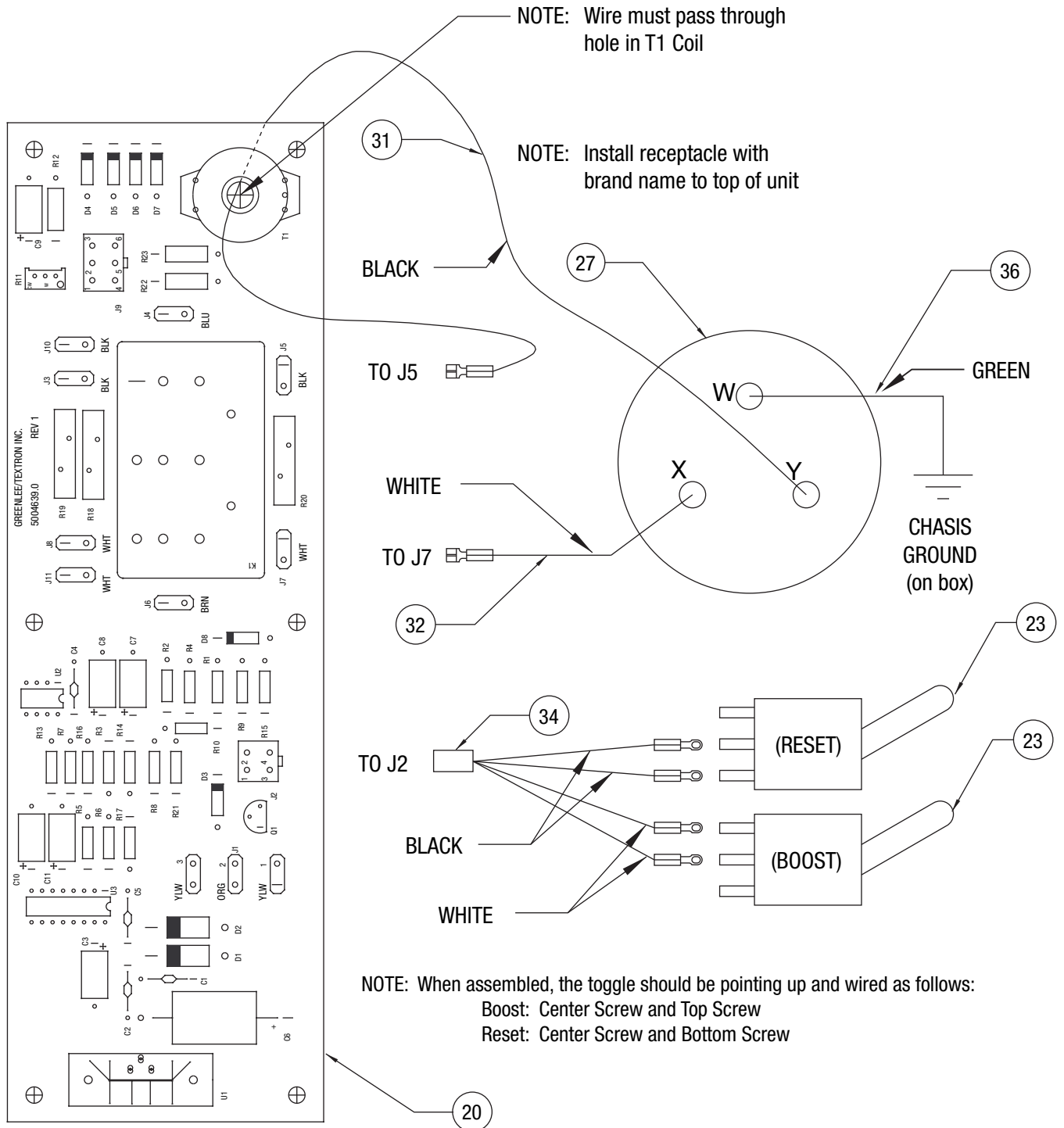
Parts List

Key	Supplier	Model/Part No.	Description	Qty
C1, C2, C4, C5	generic		Capacitor, .1 μ F, 50V	4
C3	generic		Capacitor, 100 μ F, 25V	1
C6	generic		Capacitor, 1000 μ F, 35V	1
C7, C8	generic		Capacitor, 22 μ F, 16V	2
C9	generic		Capacitor, 47 μ F, 16V	1
C10, C11	generic		Capacitor, 10 μ F, 16V	2
D1, D2	generic	1N5400	Diode.....	2
D3	generic	1N4148	Diode.....	1
D4 – D8	generic	1N4001	Diode.....	5
J1:1, J1:2, J1:3	Zierick	895	Terminal tab, .187 x .020.....	3
J2	Molex	39-28-1043	Connector, Minifit Jr., 4-pin.....	1
J3 – J7, J10 – J11	Keystone	1287	Terminal tab, .250 x .032.....	7
J9	Molex	39-28-1063	Connector, Minifit Jr., 6-pin.....	1
K1	Deltrol Controls	21043-81	Relay, three-pole / double throw	1
Q1	generic	2N3904	Transistor, NPN	1
R1, R5, R8	generic		Resistor, carbon film, 10 k Ω , 1/4 watt, 5%	3
R2, R16	generic		Resistor, carbon film, 1 M Ω , 1/4 watt, 5%	2
R3	generic		Resistor, carbon film, 4.7 k Ω , 1/4 watt, 5%	1
R4, R7, R10, R13, R14, R17	generic		Resistor, carbon film, 1 k Ω , 1/4 watt, 5%	6
R6	generic		Resistor, carbon film, 100 k Ω , 1/4 watt, 5%	1
R9, R15	generic		Resistor, carbon film, 470 Ω , 1/4 watt, 5%	2
R11	Bourns	3296W-1-503	Potentiometer	1
R12	generic		Resistor, carbon film, 430 Ω , 1/2 watt, 5%	1
R21	generic		Resistor, carbon film, 100 Ω , 1/4 watt, 5%	1
R22, R23	generic		Resistor, carbon film, 22 k Ω , 1 watt, 5%	2
T1	CR Magnetics	CR8750-1000	Current transformer, 1000:1.....	1
U1	Motorola	MC7812CT	Integrated circuit	1
(not shown)	Wakefield	66725ABPP	Heat sink for U1	1
<i>Note: Attach U1 to heat sink with a suitable thermal compound.</i>				
U2	Motorola	LM393AN	Integrated circuit	1
U3	generic	4538	Integrated circuit	1

Wiring Diagram



Wiring Diagram



- NOTES:**
1. Assemble switches into cover with lever up.
 2. Follow standard ESD procedures for handling control board assembly.
 3. Test slip-on connections by tugging slightly after connection.
 If the connector is loose on the tab, adjust the connector using needlenose pliers or similar tool.
 4. Potentiometer (R11) should be calibrated and sealed from board supplier.



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