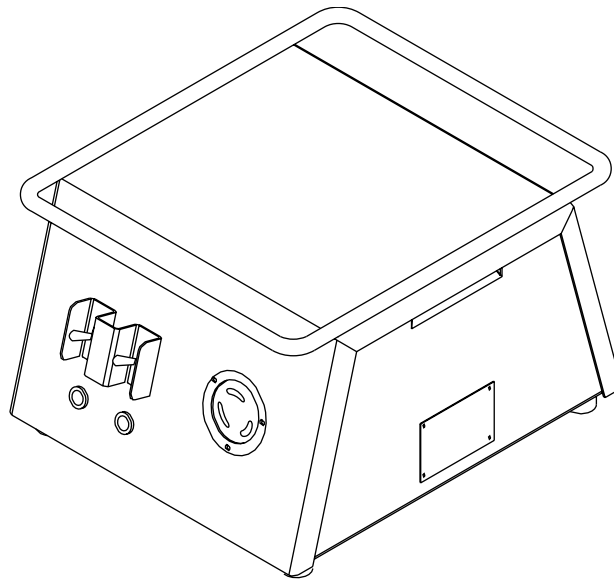


INSTRUCTION MANUAL




NRTL/C
LR 91904-8


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:</p> <p>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 can result in serious injury or death.</p>

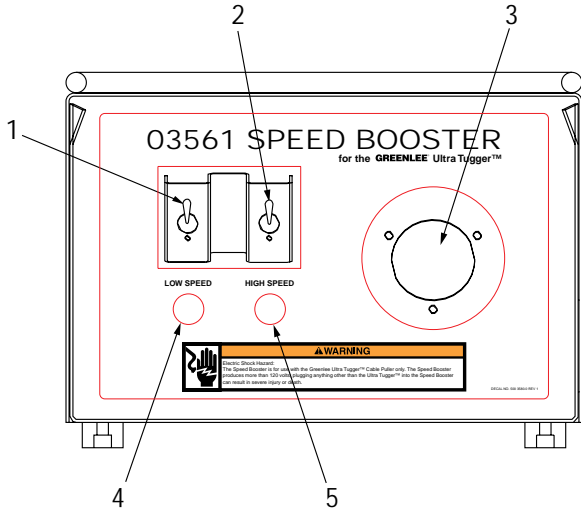
	⚠ WARNING
	<p>Read and understand the instructions supplied with the Ultra Tugger™. Failure to observe this warning can result in an accident resulting in severe injury or death.</p>

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.

Front Panel Identification



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 lbs. (20.9 kg)
Power Input	115 VAC; 15 A; 1Ø; 50/60 Hz (125 VAC max.; 80 VAC min.)
Power Output	115/230 VAC; 15/6 A; 1Ø; 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

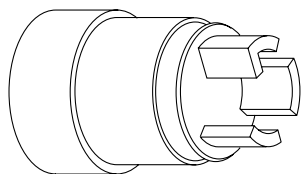
Modification of the plug should only be done by a Greenlee authorized service center or qualified electrician.

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

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

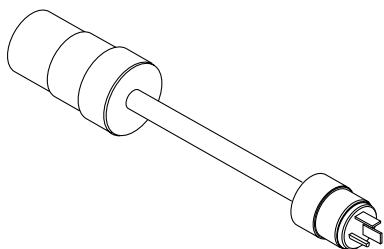
1. Cut off the power plug to the Ultra Tugger™.
2. Connect the Speed Booster Adapter Plug (918 6863.7) as follows:

- W (Green) Green Wire Ground
- X (Silver) White Wire Neutral
- Y (Brass) Black Wire Line (Hot)



Speed Booster Adapter Plug 918 6863.8

Once the Ultra Tugger™ power plug has been changed, use the Ultra Tugger™ Adapter Cord/Plug Converter (500 4287.4) to use the Ultra Tugger™ with 115 VAC 20 Amp line service.



Ultra Tugger™ Adapter Cord/Plug Converter 500 4287.4

⚠ WARNING

Do not use modified Ultra Tugger™ directly on 230 VAC power. Modified Ultra Tugger™ should be used with 03561 Speed Booster or 500 4287.4 Adapter Cable only.

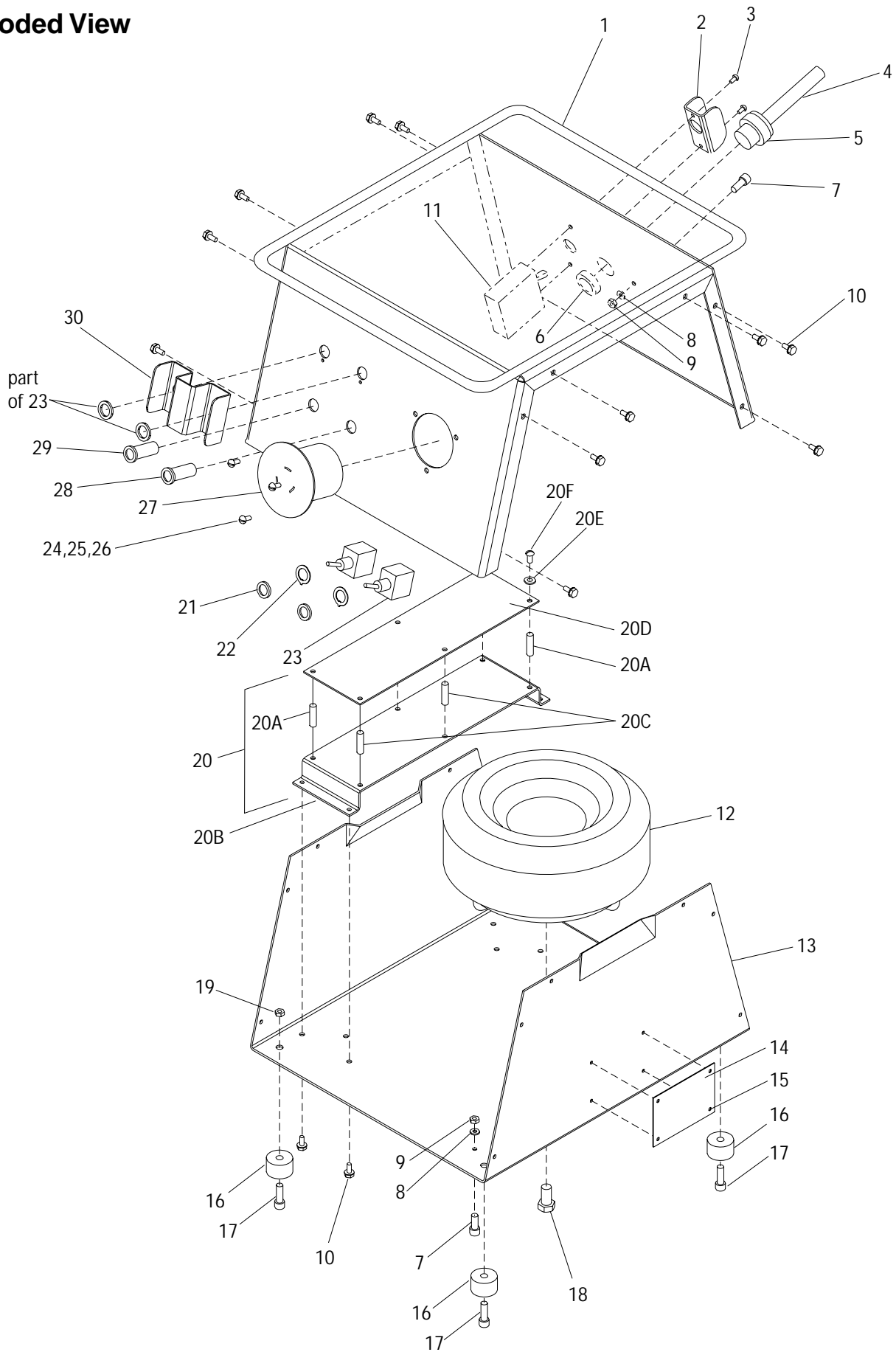
Failure to observe this warning can cause tool malfunction, resulting in severe injury or death.

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 (918 6705.3).
4. Reassemble.

Exploded View





Parts List

Key	Part No.	Description	Qty
1	500 3569.0	Cover	1
2	502 9708.2	Guard, Circuit Breaker	1
3	905 2203.6	Screw, Machine, #6 – 32 x .250 round head	2
4	500 3562.2	Power Cord	1
5	905 4124.3	Bushing, Strain Relief	1
6	918 6263.9	Nut, Lock , 1/2" Conduit.....	1
7	905 1645.1	Screw, Cap, #10 – 32 x .500 socket button head	3
8	905 0750.9	Washer, Lock, #10, internal tooth	3
9	905 1658.3	Nut, Hex, #10 – 32	3
10	905 1655.9	Screw, Thread-Forming, #10 – 16 x .500	16
11	918 6385.6	Circuit Breaker, 20 Amp	1
12	500 4643.8	Transformer	1
13	500 3573.8	Box	1
14	500 3576.2	Plate, Identification	1
15	905 3001.2	Rivet, Pop, .125	4
16	500 3575.4	Foot	4
17	905 1265.0	Screw, Cap, 1/4 – 20 x .750 socket head	4
18	905 5043.9	Screw, Cap, 3/8 – 24 x 2.50 hex head	1
19	905 2680.5	Nut, Hex, 1/4 – 20	4
20	500 4781.7	Control Assembly (includes the next six items)	1
20A	905 5050.1	Standoff, Threaded, #6 – 32 x .500	2
20B	500 4694.2	Subplate	1
20C	918 6644.8	Support, Circuit Board	4
20D	500 4639.0	Circuit Board	1
20E	905 3724.6	Washer, Lock, #6, internal tooth	4
20F	905 2203.6	Screw, Machine, #6 – 32 x .250 round head	4
21	905 5051.0	Washer, Lock, 15/32 internal tooth	2
22	918 6890.4	Ring, Locking	2
23	918 6889.0	Switch	2
24	905 2434.9	Nut, Hex, #8 – 32	3
25	905 1649.4	Washer, Lock, #8, internal tooth	3
26	905 1440.8	Screw, Machine #8 – 32 x .375 round head	3
27	918 6854.8	Receptacle, Female	1
28	918 6474.7	Lamp, Red Neon	1
29	918 6886.6	Lamp, Amber Neon	1
30	500 3574.6	Guard, Switch	1

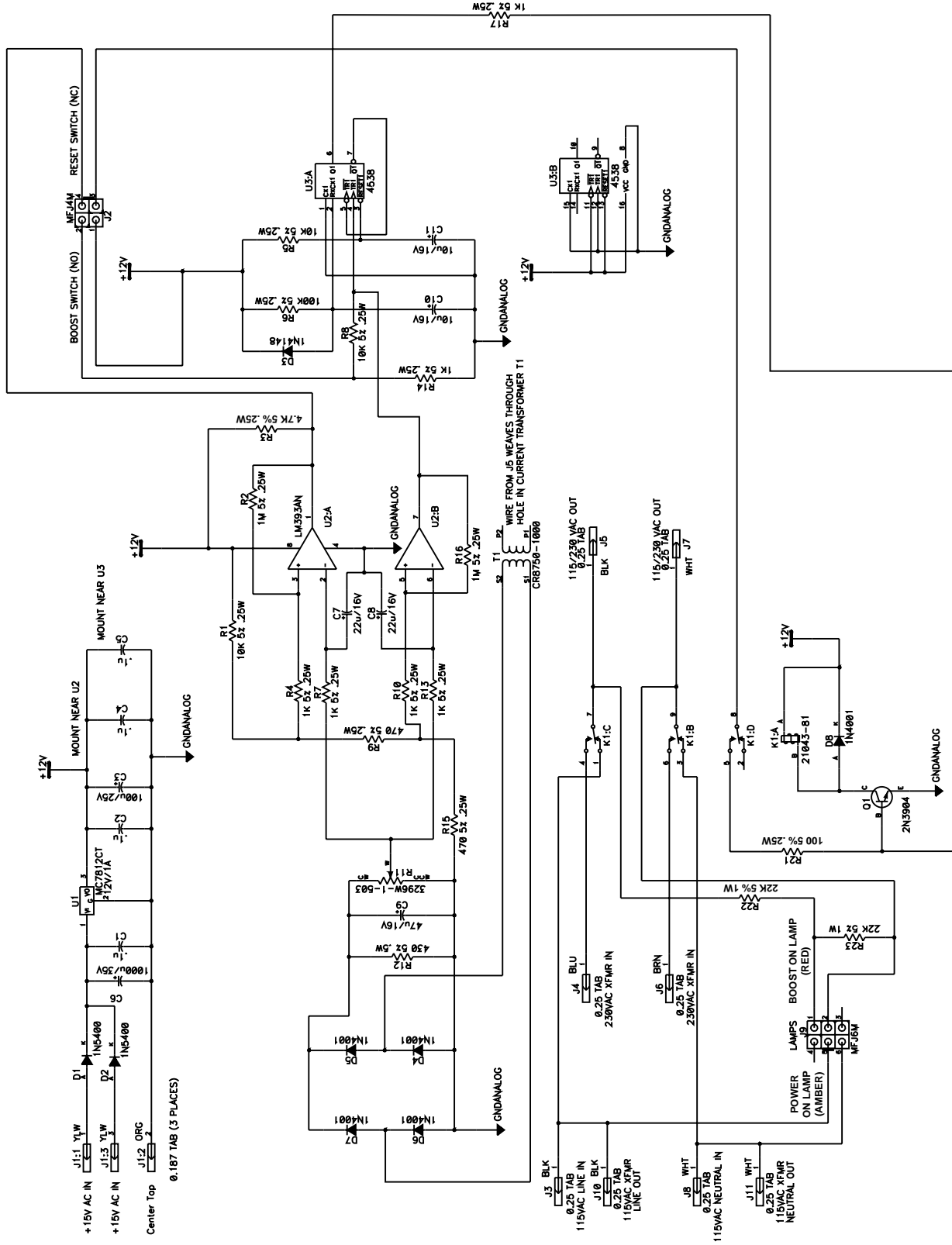
The following items are not illustrated:

31	500 4636.5	Wire Unit, Receptacle, Black	1
32	500 4637.3	Wire Unit, Receptacle, White	1
33	500 4640.3	Wire Unit, Lamps	1
34	500 4641.1	Wire Unit, Switches	1
35	500 4642.0	Wire Unit, Breaker	1
36	500 3619.0	Wire Unit, Receptacle, Relay	1
37	500 4987.9	Wire Unit, Ground Bond	1
38	500 3580.0	Decal	1
39	503 0392.9	Decal, Damp Warning	1

Service Kits:

500 4884.8	Adapter Cord and Plug Kit
500 6211.5	Adapter Cord Kit
500 6212.3	Electric Plug Kit

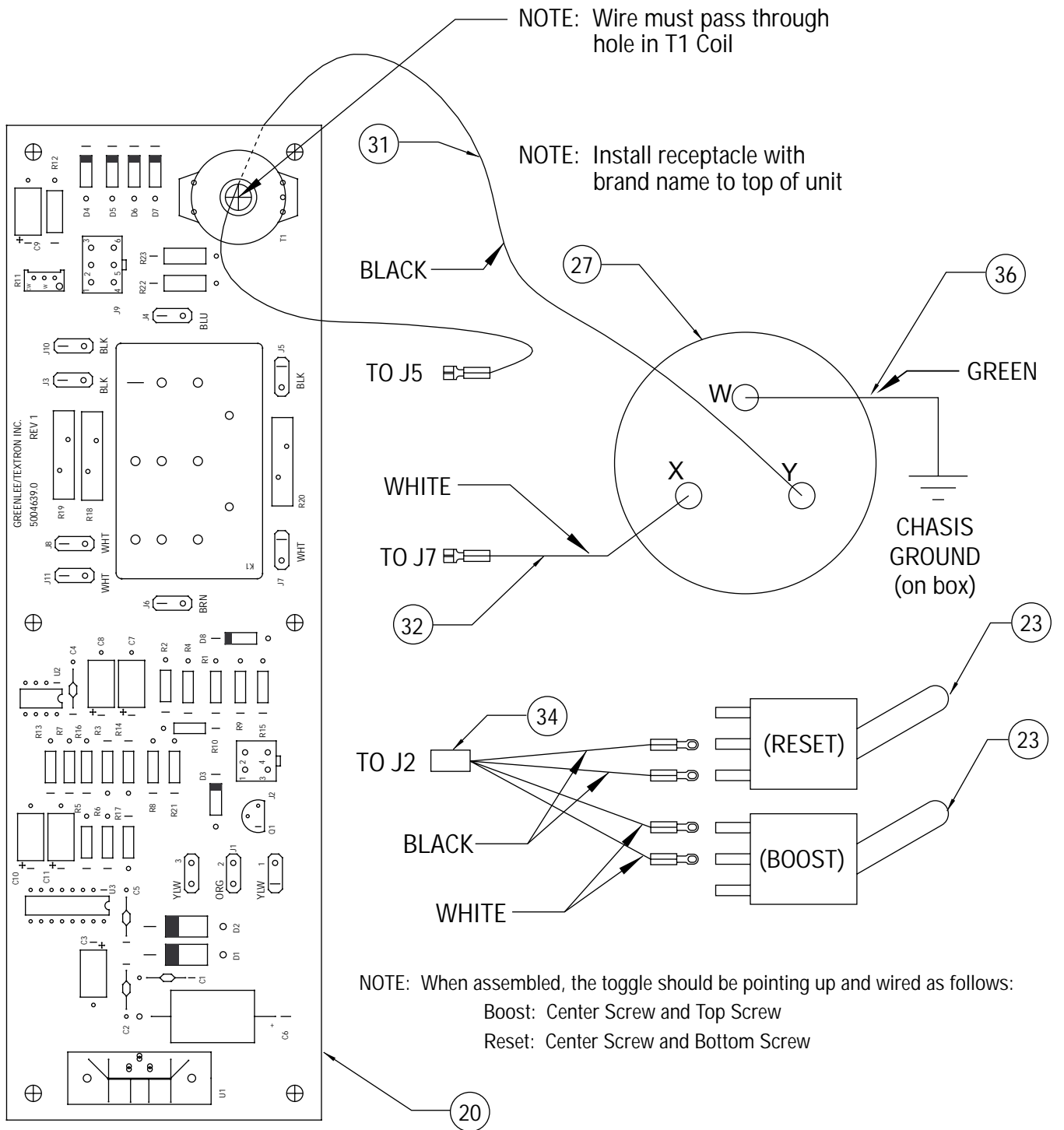
Schematic



**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



- 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.

GREENLEE **TEXTRON**

Greenlee Textron / Subsidiary of Textron Inc.

4455 Boeing Drive, Rockford, IL 61109-2988 USA

General Offices: 815/397-7070

Customer Center and Field Service: 800/435-0786

International Customer Service: 815/397-7070

Fax (24 Hour) Customer Center: 800/451-2632 • 815/397-1865

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