Installing the FX503 into the E-Z-Go DCS Golf Car

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Note:
To prevent draining the batteries prematurely, this control requires that the Tow/Run switch be placed in the Tow position when storing cart

REV. E 5/21/25

Conversion Kit Parts List

Qty	Description	FSIP Part Number
1	Motor Control	FX503
1	Wire Harness	51-FX503-EZDCS
1	Switch Plate	81138-2

Table 1

RECOMMENDED TOOLS:

1.) 1/4" drive wrench with 6" extension.
2.) 10, 11, and 14mm sockets.
3.) 13mm (two may be necessary) and 16mm combination wrench.
4.) 5/32 Allen wrench

REMOVAL:

1.) Jack up rear end of car, making sure that both wheels are off the ground
2.) Make sure the key switch is off and the Tow/Run switch is in the Tow position.
3.) Disconnect the battery positive and negative wires.
4.) Remove the motor control cover (**Figure 1**), by removing the four mounting bolts (10mm socket). Follow the Tow/Run switch wires to the control and then unplug connector (**Figure 2**).



Figure 1

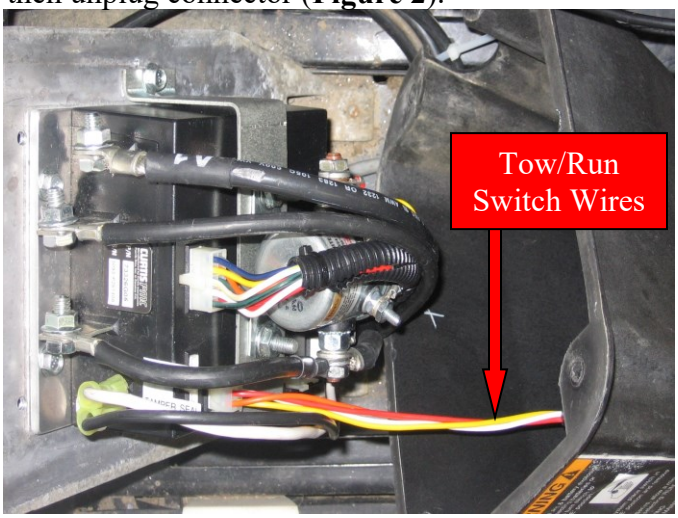
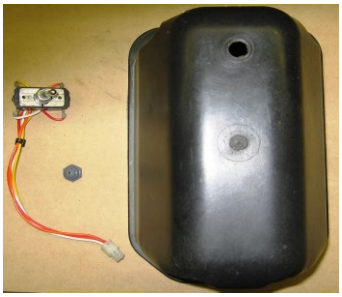


Figure 2

5.) Remove the Tow/Run switch (16mm wrench) from the cover (the switch will be reinstalled on a new bracket later).

Figure 3



Tow/Run switch, mounting nut, and cover after disassembly

6.) Disconnect all remaining connectors on the control.
7.) Disconnect the motor wires (A1, B-, B+, F1 (white wire), and F2 (black wire)) from the control (13mm wrenches, 1/2 inch wrench will also work).
8.) Remove all the terminals from the contactor (13mm wrench) on the side that points to the passenger side of the cart (**Figure 4**). Remove the pre-charge resistor completely (it is not used with the new control)
9.) Remove the two nuts holding the contactor onto the bracket (11mm socket), and move contactor out of the way (**Figure 4**).
10.) Remove the two bolts (10mm socket) holding the contactor bracket to the heat sink and pull bracket out of cart (this bracket will be reinstalled later) as shown in **Figure 4**.
11.) Remove the three bolts (10mm) that mount the control to the heat sink.

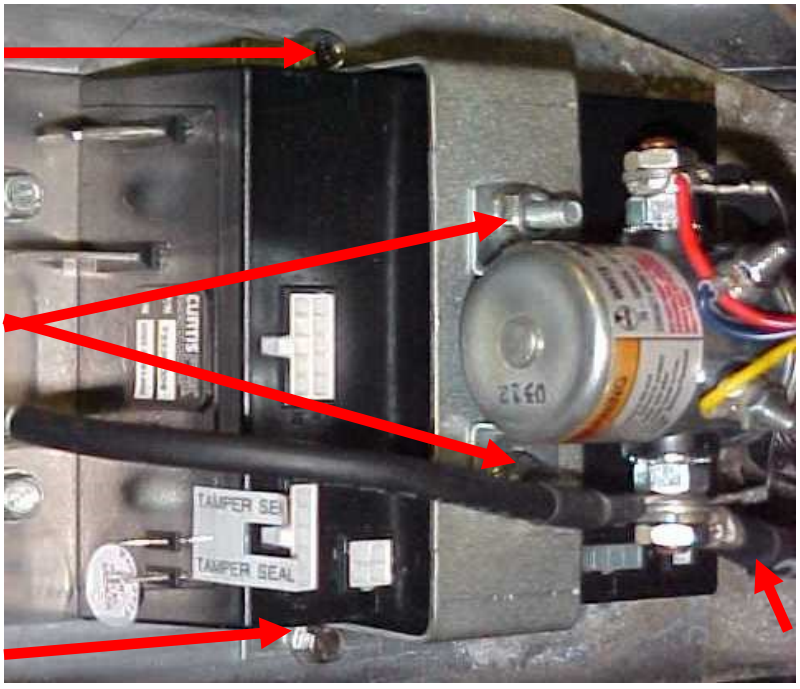


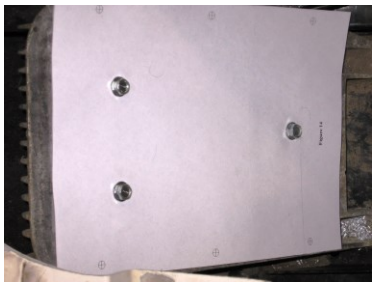
Figure 4

Remove all terminals from this post of the contactor (13mm wrench). The short wire (B+) will be reinstalled to this post later. **The "C" will be connected to the new control.** Keep the lock washer and nut. Remove the pre-charge resistor completely at this time.

INSTALLATION:

1.) Cut the drill template out, **Figure 19** found at the end of this procedure. Punch out the holes labeled "**A**" and install the template to the heat sink, using the three original motor control mounting bolts as shown in **Figure 5**.

Figure 5



2.) Drill the six holes indicated by the template, then tap to 1/4 - 20.

3.) Install the new control using the motor control cover bolts and motor control bolts as shown in **Figure 6**. Be sure to remove the paper template before mounting the new control.

Figure 6



3.) Connect the wire labeled "A1" to the control terminal labeled "A1" using the supplied M6 -1.0 X 25MM bolt (HW B M6 X 25MM), M6 lock washer (HW L M6), and flat washer (HW F M6) with 10mm socket. See **Figure 7**.

4.) Connect the wire labeled "C" (which was disconnected from the contactor) to the control terminal labeled "A2", using the supplied M6 - 1.0 X 50MM bolt (HW B M6 X 50MM), M6 lock washer (HW L M6), and flat washer (HW F M6) with 10mm socket. See **Figure 7**.

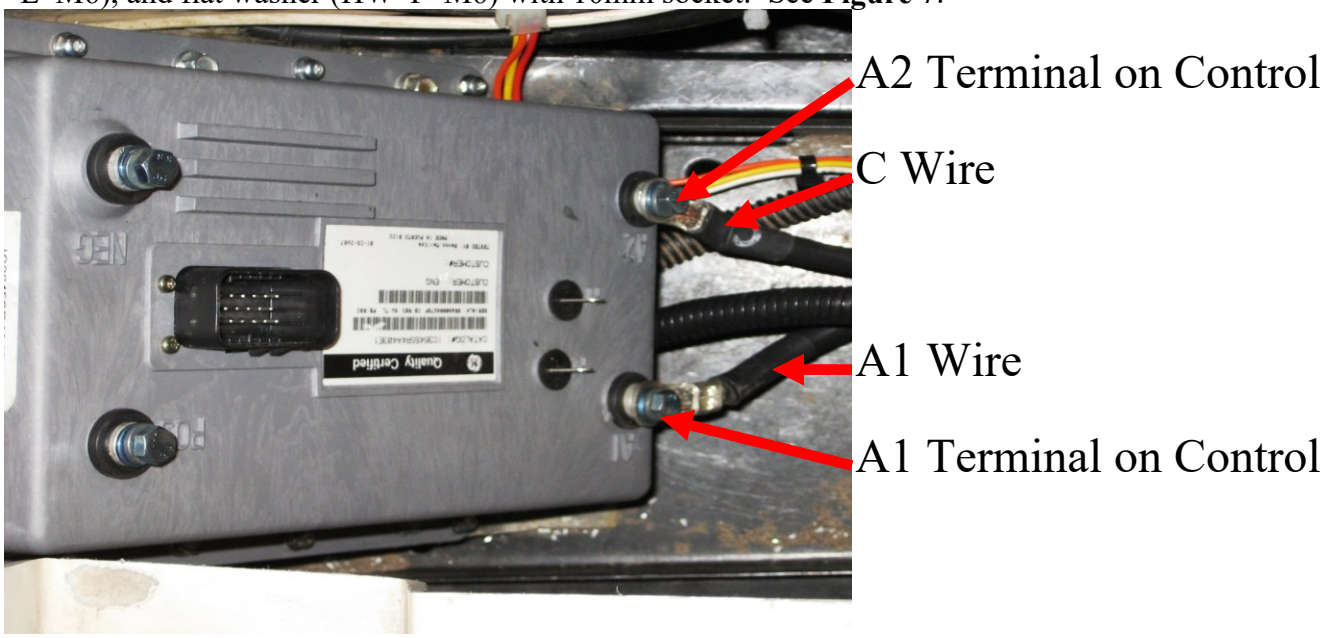


Figure 7

5.) Remove the red wire with yellow stripe from the tow switch and install one end of the black wire (with ring terminals) along with the original red wire with yellow stripe. Refer to **Figures 8** and **9**.



Figure 8



Figure 9

6.) Install the Tow/Run switch (16mm wrench) onto the rectangular plate supplied with the kit, refer to **Figure 10**.

Figure 10



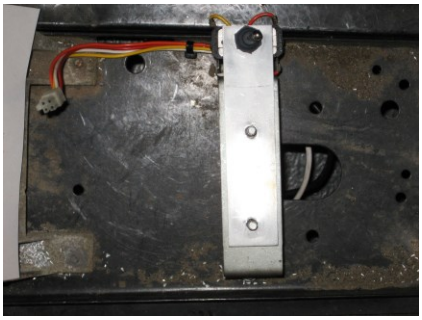
7.) Install the contactor bracket onto the floor pan in front of the control. There are holes in the floor pan in which the bracket can be mounted with nuts and bolts (**Figure 11**).

8.) Slide the switch assembly onto the contactor bracket with the switch on the battery side of the control (**Figure 12**).

Figure 11



Figure 12



9.) Slide the contactor back into position and reinstall the contactor nuts (11mm socket) as shown in **Figure 13**.



Figure 13

10.) Connect the white motor wire to F1 of the control and the black motor wire to F2 of the control.
11.) Remove the red, yellow, and white wires from the contactor post and install the other ring terminal (black wire from the tow switch) onto that contactor post as shown in **Figure 14**.
12.) Install the supplied spacer on the other contactor post as shown in **Figure 15**.
13.) Install the red, yellow and white wires onto the spacer as shown in **Figure 16**.

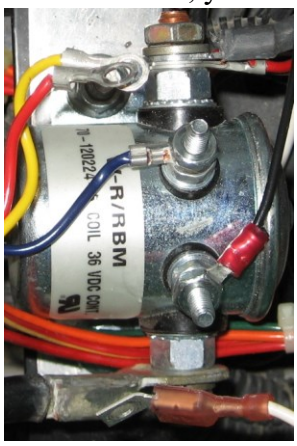


Figure 14

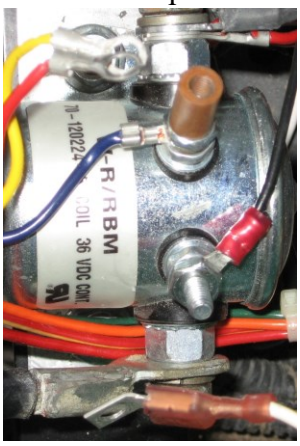


Figure 15

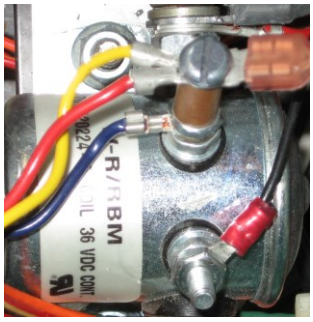


Figure 16

14.) Connect the wire labeled "B-" to the B- terminal of the control, using the supplied M6 -1.0 X 50MM bolt (HW B M6 X 50MM), M6 lock washer (HW L M6), and flat washer (HW F M6) with 10mm socket as shown in **Figure 17**.

15.) Connect the supplied wire to the contactor post, in which all wires were removed earlier, and then connect the other end of the wire to the B+ terminal of the control, using the supplied M6 -1.0 X 50MM bolt (HW B M6 X 50MM), M6 lock washer (HW L M6), and flat washer (HW F M6) with 10mm socket as shown in **Figure 17**.

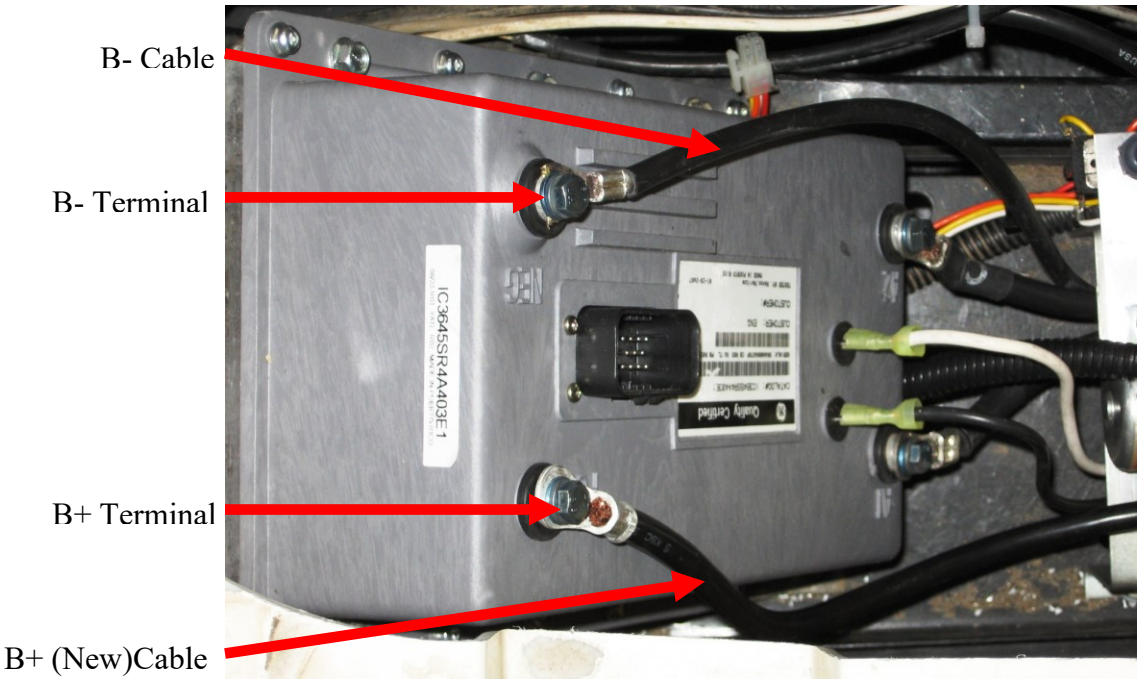


Figure 17

16.) Connect all of the cart connectors to the proper mating connector of the wire harness supplied with the kit (refer to **Figure 18**).
17.) Connect the 23 pin connector to the control as shown in **Figure 18**.
18.) Reconnect the battery cables.

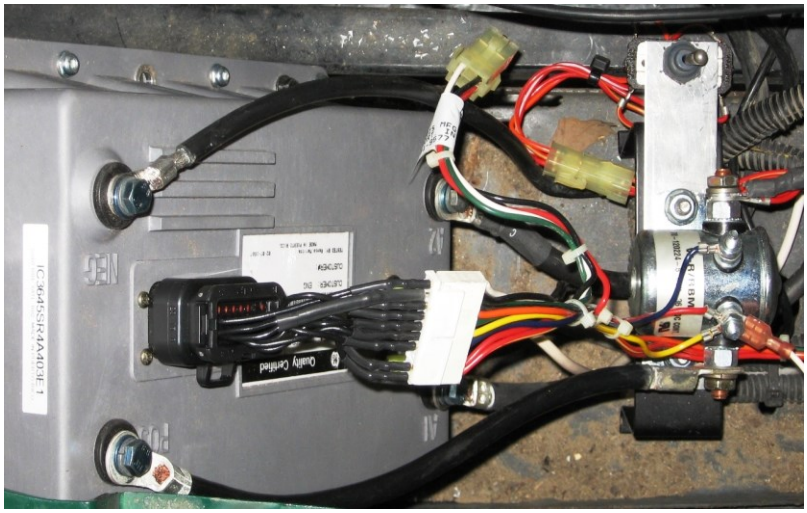
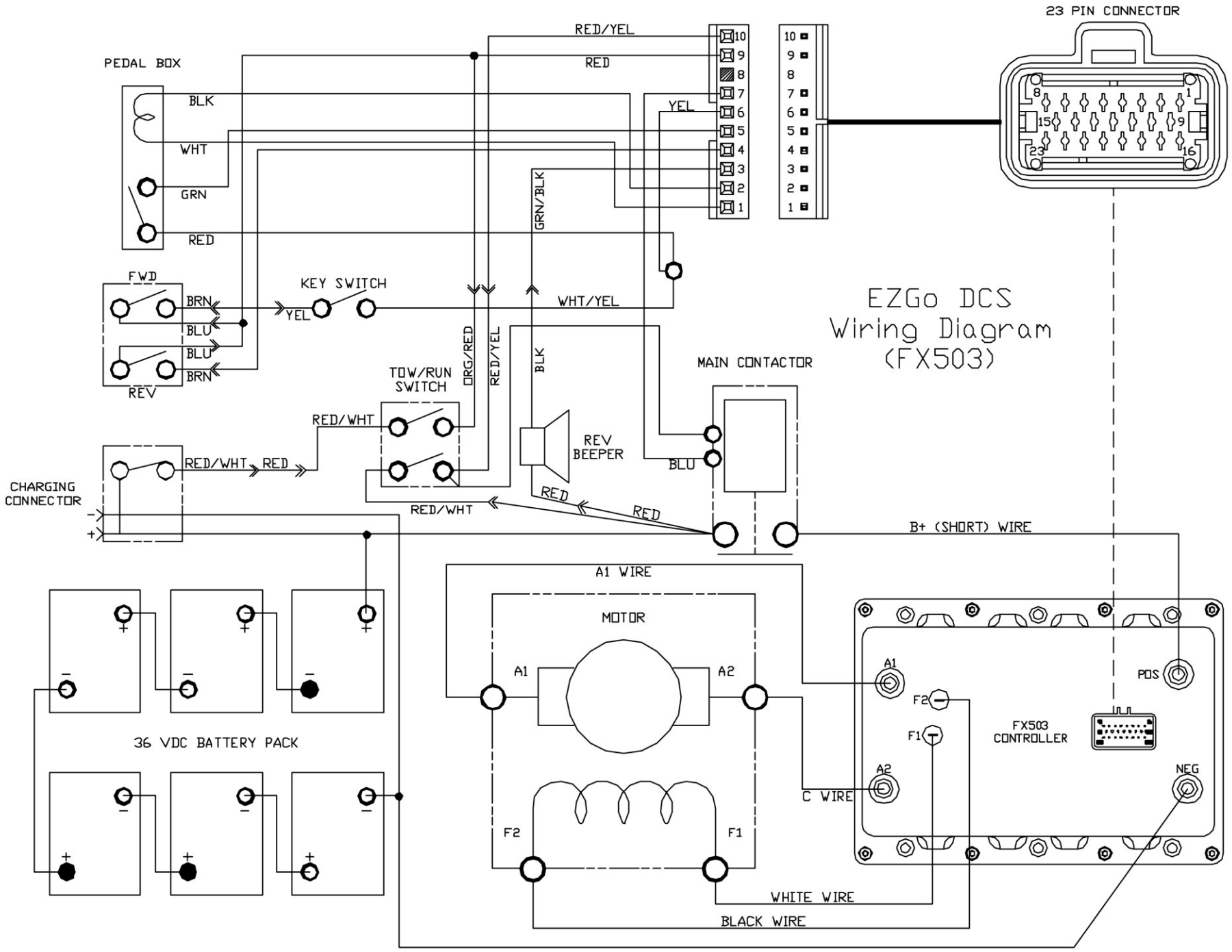


Figure 18


EZGo DCS
Wiring Diagram
(FX503)
23 PIN CONNECTOR
PEDAL BOX
BLK
WHT
GRN
RED
RED/YEL
YEL
GRN/BLK
FWD
REV
BRN
BLU
KEY SWITCH
WHT/YEL
ORG/RED
RED/YEL
BLK
TOW/RUN SWITCH
RED/WHT
REV BEEPER
MAIN CONTACTOR
CHARGING CONNECTOR
B+ (SHORT) WIRE
A1 WIRE
MOTOR
A1
A2
F2
F1
36 VDC BATTERY PACK
FX503 CONTROLLER
POS
NEG
C WIRE
WHITE WIRE
BLACK WIRE

Harness Wiring Table

EZGO Connector Pin Numbers	23 Pin Connector Pin Numbers
1	15
2	7
3	10
4	5
5	3
6	6,4
7	17
9	2
10	1
Pin 8 of the EZGO connector is not used. There is a 475 Ohm resistor between pins 7 and 8 of the 23 pin connector.	

Table 2

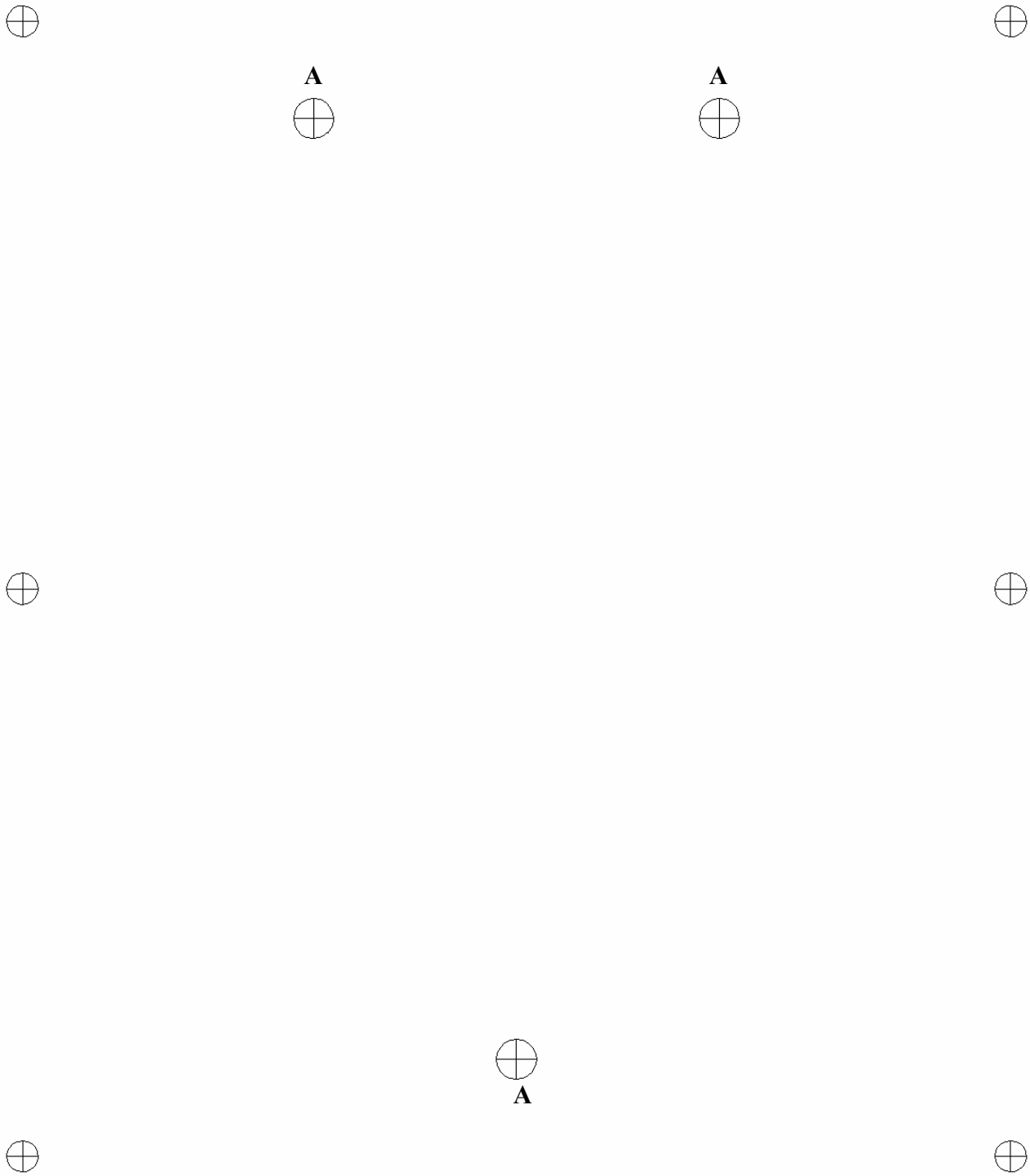


Figure 19

REV.

Notes:

 Troubleshooting: 

Perform all troubleshooting checks with rear wheels off the ground.

Cart does not operate

- Verify that all wire connections are correct and secure.
- Verify that the Tow switch is in the run position and the key is on.
- Verify battery volts on pins 1, 2, & 6 on the control.
- Verify approximately battery volts on pin 17 of the control.
- Verify zero volts on pin 3 of the control with no throttle.
- Verify battery volts on pin 3 of the control at full throttle.
- Verify battery volts on pin 4 and zero volts on pin 5 of the control when the forward direction is selected.
- Verify battery volts on pin 5 of the control when the reverse direction is selected.
- Verify that control is configured for the correct application (check label).

Contactor closes but no movement

- Verify proper armature and field connections (Refer to supplied wiring diagram).
- Verify approximately 0.5 volts to 1.6 volts on pin 7 of the control as the accelerator is slowly depressed.

Disclaimer:
FSIP Electronics is not responsible for personal injury or equipment damage due to misuse of the product.