



## **Buzzaround Carry On Service Guide**



**Model: GB120**

**This Service Guide contains:  
Troubleshooting  
Replacement Instructions  
Multi-meter Instructions**

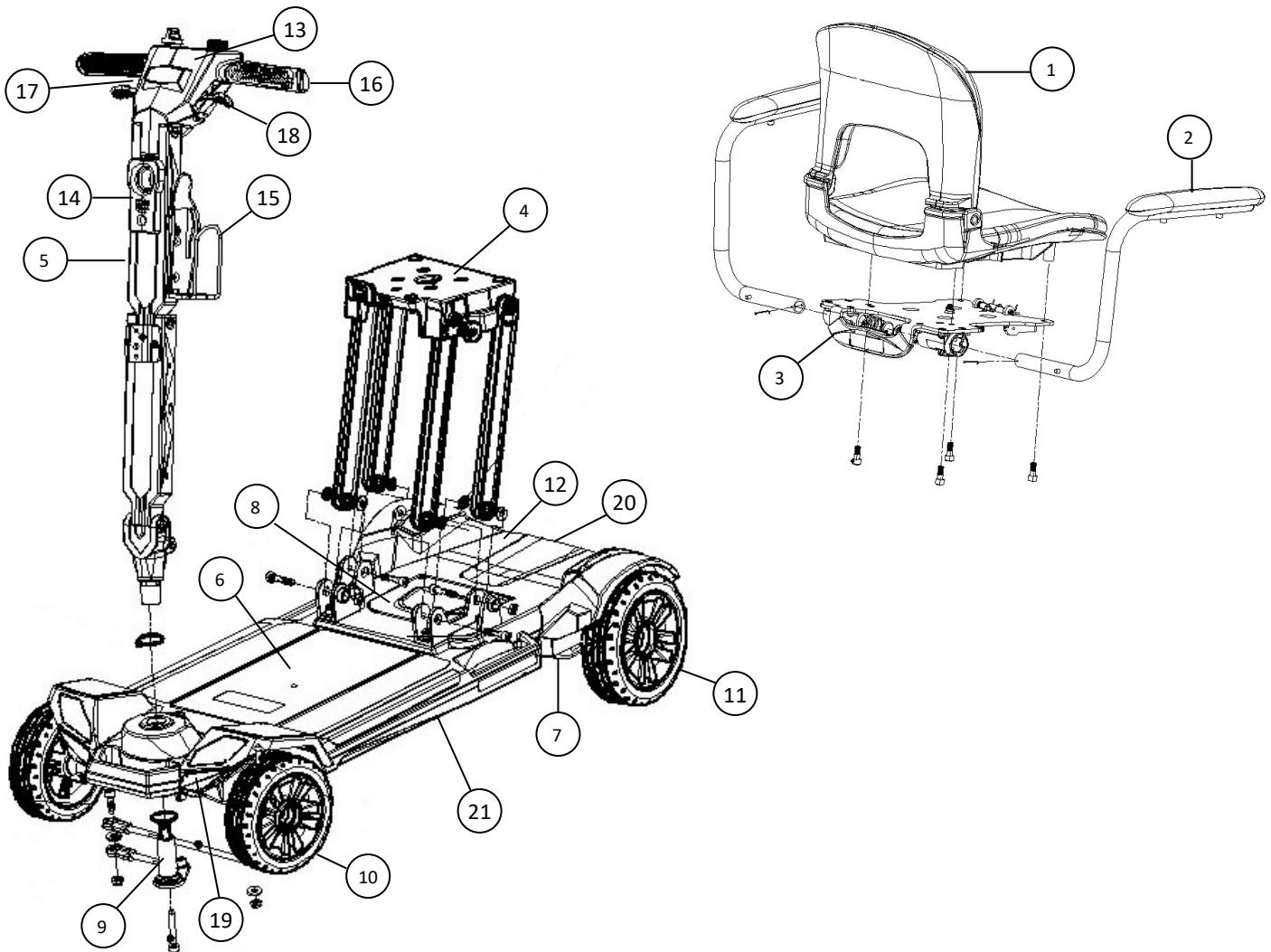


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## BUZZAROUND CARRY ON NOMENCLATURE

- |  |                                      |                              |
|--|--------------------------------------|------------------------------|
| 1 - Seat                                     | 8 - Controller (located under cover) | 15 - Bottle Holder           |
| 2 - Arm Assembly                             | 9 - Steering Assembly                | 16 - Hand Grip               |
| 3 - Seat Plate                               | 10 - Front Wheel                     | 17 - Tiller Adjustment Lever |
| 4 - Seat Pedestal                            | 11 - Rear Wheel (Drive)              | 18 - Paddle (Throttle Lever) |
| 5 - Tiller Assembly                          | 12 - Freewheel Switch                | 19 - LED Head Light          |
| 6 - Lithium Ion Battery Pack                 | 13 - Dash (Upper/Lower)              | 20 - LED Tail Light          |
| 7 - Drive Train<br>(Transaxle, Motor, Brake) | 14 - USB Board (Inside)              | 21 - Deck (Upper/Lower)      |



**Figure 1. Buzzaround Carry On (Model GB120)**

**Contact Information**  
 Golden Technologies  
 401 Bridge Street  
 Old Forge, PA 18518

Toll-free: 800-624-6374  
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This service guide provides you with the information necessary to troubleshoot the Golden Technologies Buzzaround Carry On GB120. The troubleshooting scenarios in this manual consist of procedures that enable you to systematically trace and correct faults in the system. Appendices A and B include instructions on how to measure voltage and continuity with a multimeter.

**Before troubleshooting, check the following:**

- ✓ ***Make sure the battery pack is seated securely.***
- ✓ ***Visually check terminals for corrosion. Check wires for missing insulation.***
- ✓ ***Make sure there are no blown fuses.***
- ✓ ***Make sure that the battery pack is fully charged and in good working order.*** When possible, keep a known good battery pack in your shop at all times. The Buzzaround Carry On uses (1) 15AH or 6.5AH Lithium Ion battery pack. Problems that surface during troubleshooting are often due to the fact that the battery pack is not fully charged or can not hold a charge.
- ✓ ***Make sure that the electrical connections are secure.*** Unplug the connectors and make sure all the pins in the connectors are seated securely. If necessary, push any unseated pins back into their connector housings to securely seat them.

**NOTICE**

**If you get to a point during troubleshooting where you cannot continue, call Technical Support at 800-624-6374.**

**BUZZAROUND CARRY ON COMPONENTS**

The Buzzaround Carry On is a battery-operated scooter with a controller that monitors the system and flashes/beeps when it detects a fault in the system. The Buzzaround Carry On was designed to operate within a range of between 22V– 30.8V (Volts) of direct current (DC).

**NOTICE**

The Buzzaround Carry On control system is made up of the components listed below. Each of these components is designated by its assigned number. Refer to the wiring diagram on page 11.

- 24V Lithium Ion Battery Pack - #1
- Battery Harnesses - #2
- Motor Harness - #3
- Dynamics R-Series Controller - #4
- Main Harness - upper/lower - #5
- Motor/Brake Assembly - NA
- Dash (Upper/Lower) - NA, see console board- #7  
Note: includes Throttle Pot- #8, Speed Pot - #9, Key Switch - #10, Horn Button, Light Switch, and Battery Meter
- XLR Charging Ports - One located on the tiller and one on the bottom side of the battery pack. - NA
- USB Charging Ports - One located on the tiller and one on the bottom side of the battery pack. - NA  
Note: See Charger Harness - #11
- Off-Board Battery Charger - NA

**Note: NA - Not Applicable**

**NOTICE**

**Parts and service must be authorized by the Golden Technologies Service Department. Unauthorized parts or service may void the warranty. For more information, contact the Golden Technologies Service Department at 800-624-6374 or [parts@goldentech.com](mailto:parts@goldentech.com).**

**Component:** 1-24VDC Lithium Ion Battery Pack (15AH or 6.5AH) - #1

**Location:** Center of the upper deck. **See figure 2.**

**Function:** Supply 24-29VDC to the motor and/or accessories.

**Connections:** Connected by two spring loaded connectors at the rear of the battery pack and a push-button latch at the front of the battery pack.

**Failure Signs:** Batteries drain quickly. Scooter runs slowly or not at all. Batteries will not charge, but charger is working properly. Beep Code #1 or #2.

**Tests:** Fully charge the battery pack first and load test. Make sure the contacts are not corroded.

**Expected Reading:** 24-29VDC when fully charged.

**Serviceable:** Replace battery pack as necessary.



**Figure 2. Lithium Ion Battery Pack**

**Component:** Battery Harness - #2

**Location:** Inside the plastic upper/lower body halves.

**Function:** Connects the battery (1) to the controller (4), and the control board inside the scooter deck.

Provides short circuit protection through a 35-amp inline fuse, located inside the controller cover.

**Connections:** Connected to the battery (Bat -) and (Bat +), controller (Bat -) and (Bat +), control board, and battery fuse. Refer to the wiring diagram on page 11.

**Failure Signs:** Open fuse, corroded wires, poor connections, and poor spring tension can cause the battery voltage (24-29 volts) not to be supplied to the entire electrical system.

Make sure the fuse is good, and all connections are good.

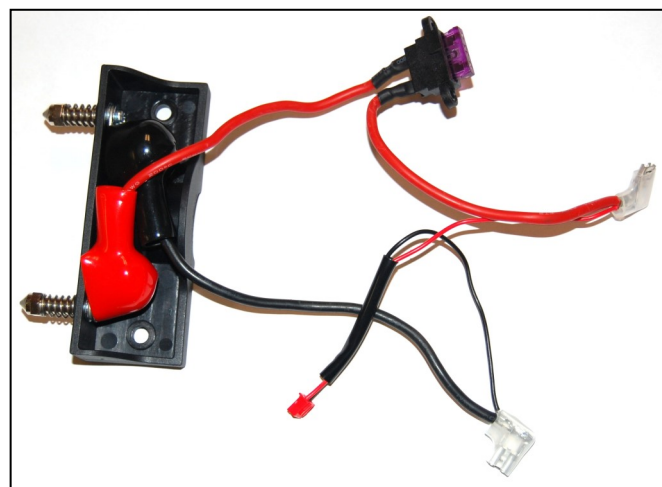
**Note:** Battery pack will not charge if the inline fuse is blown.

**Tests:** Test the fuse for continuity. Test the harness for continuity. **See figure 3.** Refer to the wiring diagram on page 11.

**Expected Readings:** Less than 10 ohms.

**Serviceable:** Replace the harness as necessary.

**Replace inline fuse with exact type and rating.** Refer to the wiring diagram on page 11.



**Figure 3. Battery Harness**

**Component:** Motor Harness - #3

**Location:** Rear of the scooter – Inside the plastic upper/lower body halves. **See figure 4.** Refer to the wiring diagram on page 11.

**Function:** Supplies 24-29 volts from the controller to the motor.

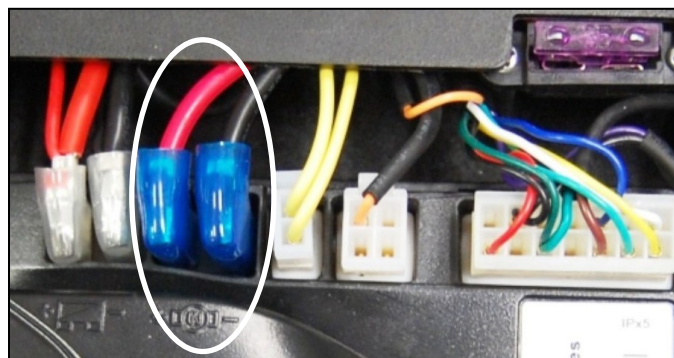
**Connections:** Controller (M+) and (M-) and the motor. **See figure 4.** Refer to the wiring diagram on page 11.

**Failure Signs:** Scooter will not run. The motor is not receiving the correct 24-29 volt battery voltage from the controller.

**Tests:** Test harnesses for continuity. Check connectors. Make sure the contacts are not corroded and are seated properly.

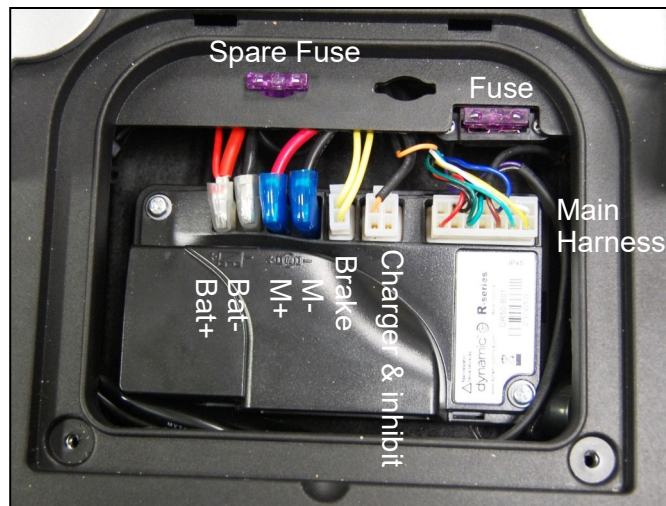
**Expected Readings:** Continuity (less than 10 ohms).

**Serviceable:** Replace as necessary.



**Figure 4. Motor Harness (hard wired into motor)**





**Figure 5. Controller**

**Component:** Controller - #4

**Location:** Mounted inside the deck under the removable controller cover. See figure 5.

**Function:** Controls and monitors the system. Uses a series of beeps/flashes when something in the system is out of range.

**Connections:** Connected to the main harness (5), charger & inhibit, brake, motor (M-M+), battery (B-B+). See figure 3. Refer to the wiring diagram on page 11.

**Failure Signs:** Beep Code #9. No power to the control panel or the motor.

**Tests:** Test for voltage coming into and out of the controller.

**Expected readings:** Battery voltage (24-29VDC).

**Serviceable:** Replace as necessary.

**Component:** Main Harness - #5

**Location:** Inside the dash and the plastic upper/lower body halves. See figures 5 and 6. Refer to the wiring diagram on page 11.

**Function:** Provides connectivity for the tiller components and the controller.

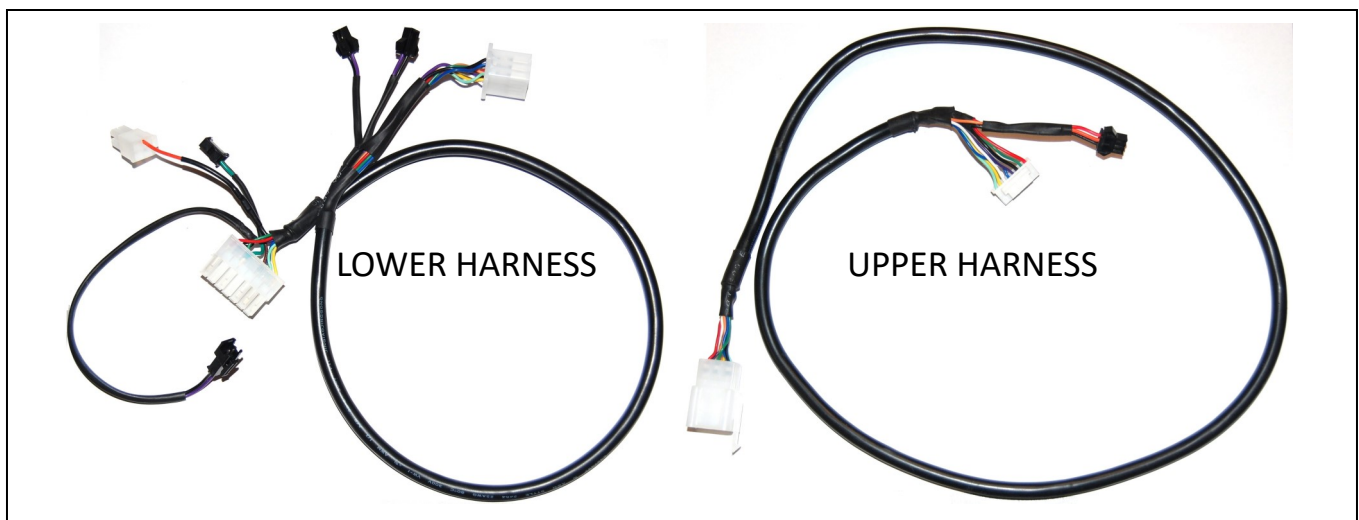
**Connections:** Connected to the controller, and control panel. Refer to the wiring diagram on page 11.

**Failure Signs:** Scooter will not run.

**Tests:** Test for voltage and continuity. Check connectors. Make sure the pins are not corroded and are seated properly.

**Expected readings:** Battery voltage (24-29VDC). Continuity (less than 10 ohms).

**Serviceable:** Replace as necessary.



**Figure 6. Main Harness (Shown Separated)**

**Component:** Brake Harness - #6

**Location:** From the brake to the control board. See figure 7.

**Function:** Provides connectivity between the brake and the freewheel switch.

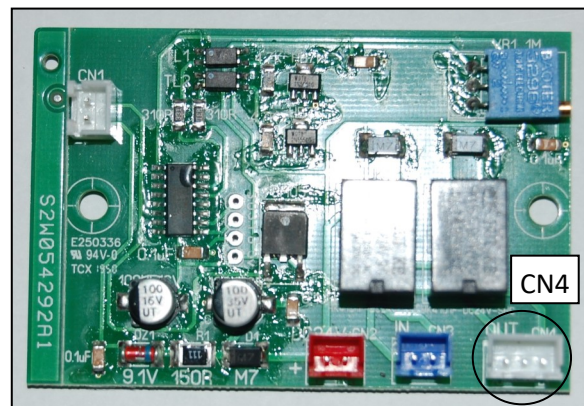
**Connections:** CN4 on the control board. Refer to the wiring diagram on page 11.

**Failure Signs:** Scooter faults and will not move.

**Tests:** Test for voltage and continuity. Check connectors. Make sure the pins are not corroded and are seated properly.

**Expected readings:** Continuity (less than 10 ohms).

**Serviceable:** Replace as necessary.



**Figure 7. Control Board**

**Component:** Console Board - #7

**Location:** Mounted inside the dash. See figure 8.

**Function:** Provides connectivity for the main harness, key switch, speed pot, throttle pot, battery meter, on/off switch, horn, and horn button.

**Connections:** Connections CN1 - CN8. Refer to the wiring diagram on page 11.

**Failure Signs:** Scooter faults, will run slowly or not at all.

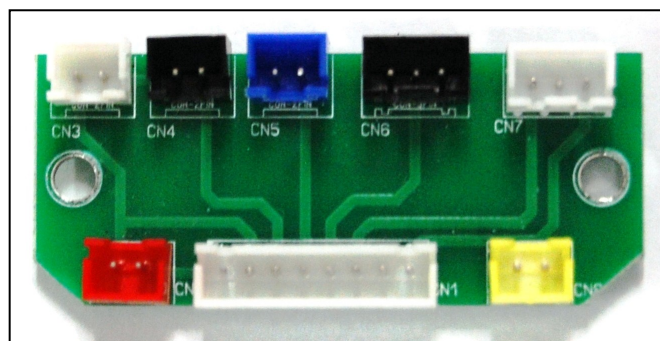
Meter and/or horn does not function.

**Tests:** Test for voltage and continuity. Check connectors.

Make sure the contacts are not corroded.

**Expected readings:** Continuity (less than 10 ohms).

**Serviceable:** Replace as necessary.



**Figure 8. Console Board**

**Component:** Throttle Pot (Potentiometer) - #8

**Location:** Below the control panel. See figure 9.

**Function:** The throttle pot uses variable resistance to control speed and direction of travel by varying voltage.

**Connections:** CN7 on the console board. Refer to the wiring diagram on page 11.

**Failure Signs:** Beep Codes #6 and #7.

**Tests:** Test resistance across pins 1, 2, and 3 on the throttle pot.

**Expected readings:** Depends on direction of deflection.

**Serviceable:** Replace as necessary.



**Figure 9. Throttle Potentiometer**

**Component:** Speed Pot (Potentiometer) - #9

**Location:** Mounted on the control panel. See figure 10.

**Function:** The speed pot uses variable resistance to control the speed of the scooter.

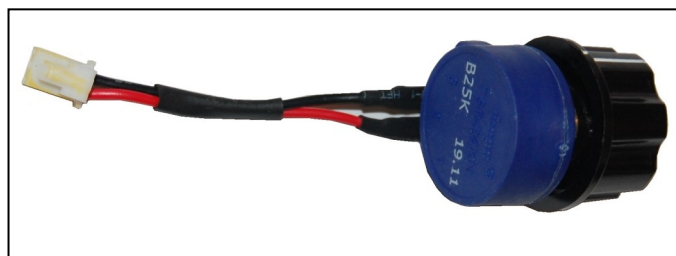
**Connections:** CN8 on the console board. Refer to the wiring diagram on page 11.

**Failure Signs:** Beep Code #7

**Tests:** Call Tech Support

**Expected readings:** Depends on speed pot position.

**Serviceable:** Yes. Replace the speed pot.



**Figure 10. Speed Pot**



**Component:** Key Switch - #10

**Location:** Mounted on the control panel. See figure 11.

**Function:** Completes the circuit to provide power to the motor.

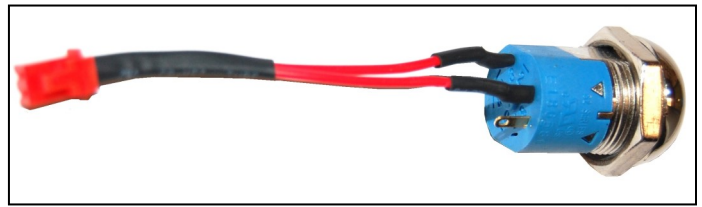
**Connections:** CN2 on the console board. Refer to the wiring diagram on page 11.

**Failure Signs:** No power when the key is in the “ON” position.

**Tests:** Continuity when the key is in the “ON” position. Make sure the connector pins are seated properly.

**Expected readings:** Less than 10 ohms.

**Serviceable:** Yes. Replace the key switch.



*Figure 11. Key switch*

**Component:** Charger Harness - #11

**Location:** Inside of the tiller below the control panel.

See figure 12.

**Function:** Supplies voltage to the USB port and allows the battery pack to be charged through the tiller XLR port.

**Connections:** Connected to the USB board, tiller fuse, and tiller XLR charging port. See figure 12. Refer to the wiring diagram on page 11.

**Failure Signs:** Battery pack will not charge through the tiller XLR port, and USB port does not function.

**Tests:** Test for voltage and continuity. Check connectors. Make sure the pins are not corroded and are seated properly.

**Expected readings:** Battery voltage (24-29VDC). Continuity (less than 10 ohms).

**Serviceable:** Replace the harness as necessary.



*Figure 12. Charger Harness*

**Component:** Motor/Brake Assembly - NA

**Location:** Mounted on the transaxle. See figure 13.

**Function:** Drives the scooter.

**Connections:** Connected to the controller, control board, and the transaxle.

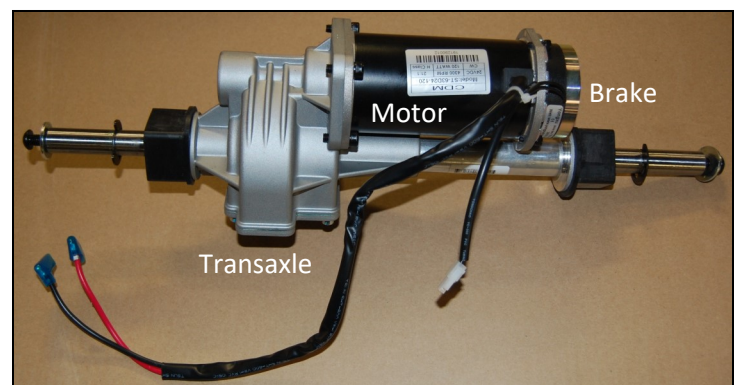
Refer to the wiring diagram on page 11.

**Failure Signs:** Scooter runs slowly or not at all.

**Tests:** Test for internal resistance in motor. Test motor wires for continuity. See Beep Codes #5 and #8.

**Expected readings:** Internal motor resistance is 0.8 ohms – 1.5 ohms. Brake resistance is 45 ohms – 52 ohms.

**Serviceable:** Replace the complete transaxle assembly.



*Figure 13. Complete Transaxle Assembly*

**Component:** Brake - NA

**Location:** Mounted on the end of the motor.

See figure 13.

**Function:** Keeps the motor from moving when the power is off.

**Connections:** Connected to CN4 on the control board through the brake harness (6). Refer to the wiring diagram on page 11.

**Failure Signs:** Scooter runs slowly or not at all.

**Tests:** Test for internal resistance. See Beep Code #5.

**Expected readings:** Brake resistance is 45 ohms – 52 ohms.

**Serviceable:** Replace the complete transaxle assembly.

**Component:** Off-Board Charger - NA, *(Not shown)*

**Location:** Stored inside a pouch on the seatback.

**Function:** Charges the battery pack.

**Connections:** Connects to the XLR charger port on the tiller or back side of the battery pack. Refer to the wiring diagram on page 11.

**Failure Signs:** Charger power LED does not go on. Batteries will not charge.

**Tests:** Measure voltage across (B-) a black wire and (B+) a red wire on the controller (4) battery terminals.

While observing the voltage reading, plug the charger into the wall outlet and make sure the voltage reading increases.

**Expected readings:** Battery voltage (24-29VDC) first, approximately 29 volts when fully charged. Also, refer to the charger test on page 13. Test charger harness and fuse for continuity.

**Serviceable:** Replace if necessary.



#### WARNING

Only use the charge that was supplied with the scooter. The charger was specifically designed and tested for the product it came with.

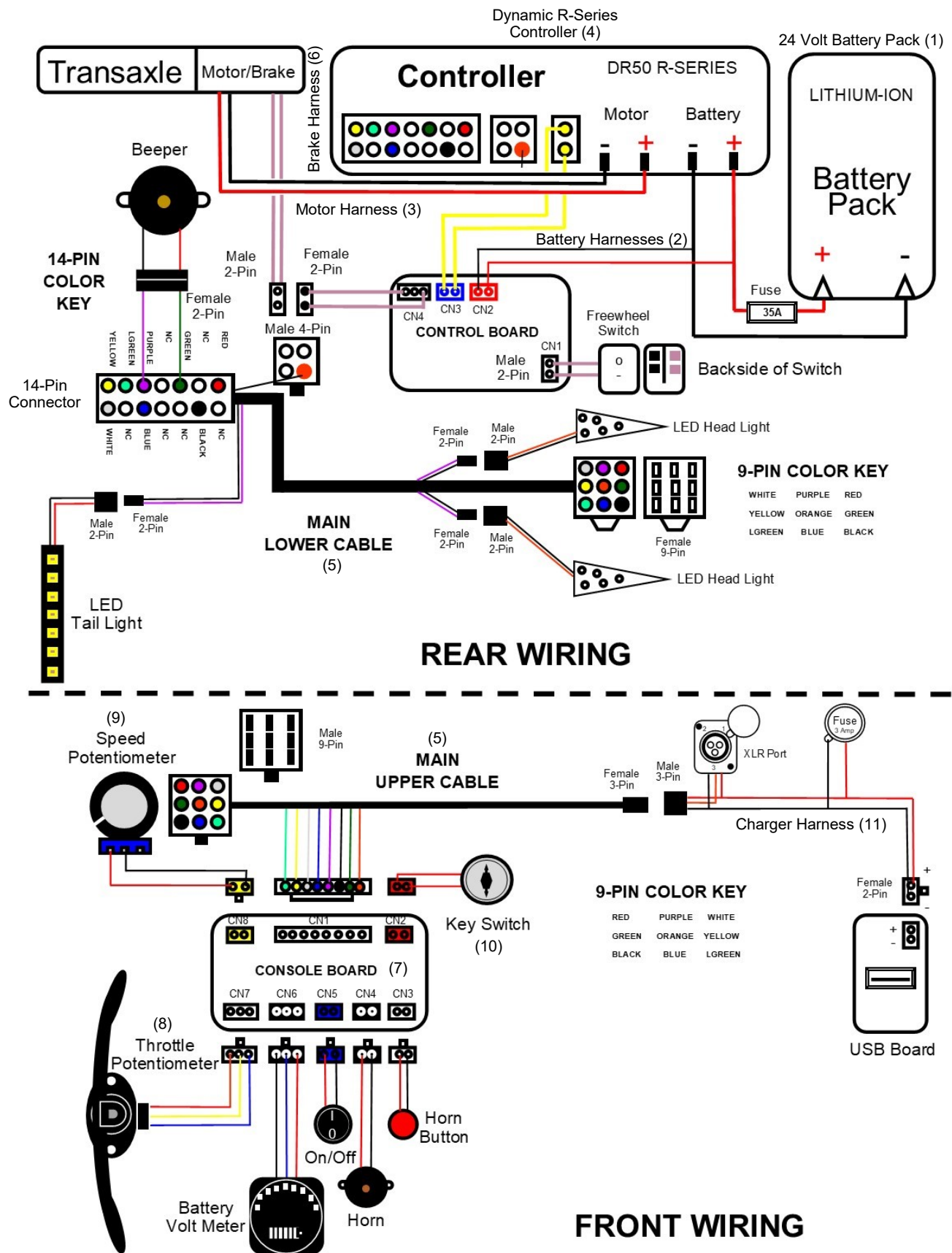



Figure 14. Buzzaround Carry On Wiring Diagram

## SCENARIO 1: TURN THE KEY TO THE ON POSITION AND NO POWER

Put the key into the key switch and turn to the on position. There is no power to the dash. The horn does not work and the battery condition meter does not work. Battery voltage travels from the battery, through the controller and the key switch. The test below will verify that there is battery voltage at the battery, the controller, the main harness, and the key switch. Make sure that the battery is fully-charged and connected properly. You can also refer to the wiring diagram on page 11. If the batteries will not charge, go to “Scenario 2: Batteries will not charge.”

 **WARNING** If you are unsure of the correct way to measure voltage or resistance, refer to Appendix A and B in this manual before proceeding.

### Check Battery Voltage at the Battery pack.

1. Remove the battery pack.
2. Measure voltage across the two inside terminals on the battery pack. **See figure 15.**
  - 24-29VDC (or battery voltage on pack?) - Go to the next step.
  - More than 22VDC on pack? - Try to recharge the batteries. Load test and replace if necessary.
  - 0VDC? - Replace the battery pack.

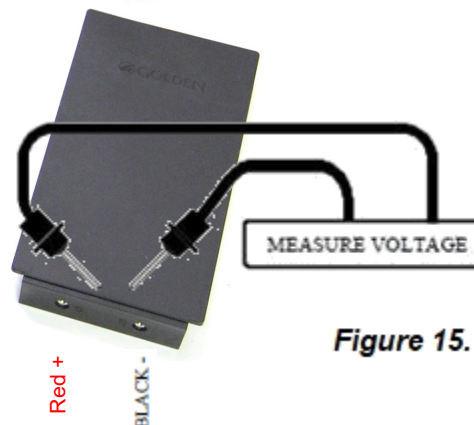


Figure 15.

### Check Voltage Into the Controller.

3. Make sure the battery pack is installed.
4. Remove the two thumb screws directly below the seat to remove the controller cover.
5. Measure voltage across the red B+ and black B- wires on the controller. **See figure 16.**
  - 24-29VDC (or battery voltage?) - Go to the next step.
  - 0VDC? - Check the 35A fuse for continuity, battery harness for continuity. Replace as necessary.

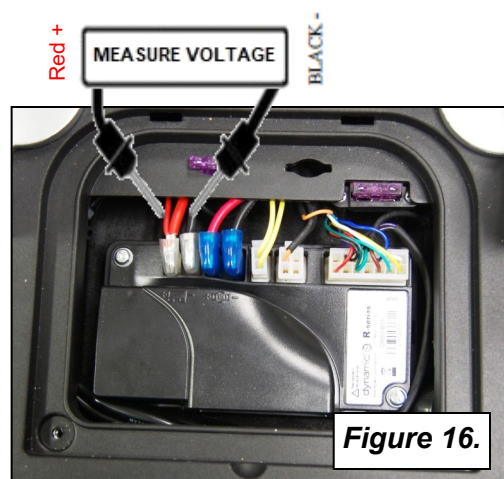


Figure 16.

### Check Voltage Out of Controller.

6. Make sure the red B+ and black B- wires are connected to the controller.
7. Remove the red M+ and black M- wires from the controller. **See figure 17.**
8. Measure voltage across the M+ and M- terminals of the controller.
  - 24-29VDC (or battery voltage?) - Go to the next step.
  - 0VDC? - Replace the controller.

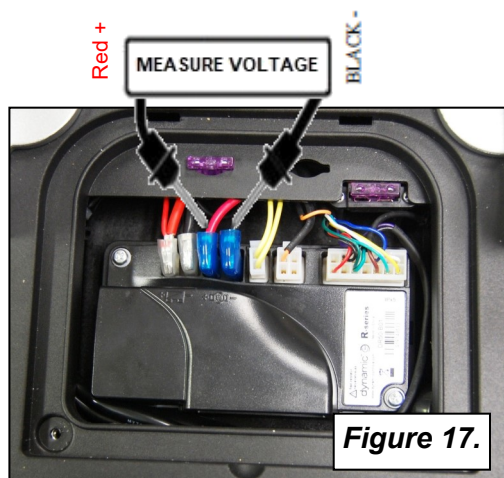


Figure 17.

### Check Voltage at Main Harness.

9. Measure voltage across pin 1 and pin 2 of the XLR port on the tiller.
  - 24-29VDC (or battery voltage?) - Go to next step.
  - 0VDC? - Check the tiller fuse for continuity. No continuity? - Replace the 3 amp fuse. Refer to the wiring diagram on page 11.
- Continuity? - Go to the next step.
10. Open the dash.
11. Disconnect the red key switch harness from the console board (7).
12. Measure voltage across the two pins of connector (CN2). Refer to the wiring diagram on page 11.
  - 24-29VDC (or battery voltage?) - Check continuity across the key switch. No continuity? - Replace key switch.
  - Continuity? - Replace the console board.
  - 0VDC? - Replace the main harness (5).



## SCENARIO 2: BATTERY PACK WILL NOT CHARGE

The battery charger needs to “see” at least 22VDC at the charger port. Otherwise, it may not send a charging current to the batteries. This test will ensure that the battery voltage is making it to the charger port., and that the battery pack is working properly.



### WARNING

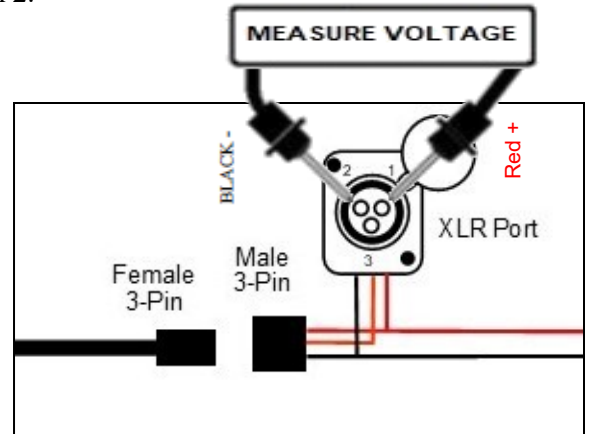
**If you are unsure of the correct way to measure voltage or resistance, refer to Appendix A and B in this manual before proceeding.**

### Check Battery Charger Voltage.

1. Open the tiller XLR port and check the voltage across pin 1 and pin 2.

**See figure 18.** Refer to the wiring diagram on page 11.

- 24-29VDC (or battery voltage on pack?) - Go to the next step.
- More than 22VDC on pack? - Try to recharge the battery pack. Load test and replace if necessary.
- 0VDC? - Replace the battery pack.

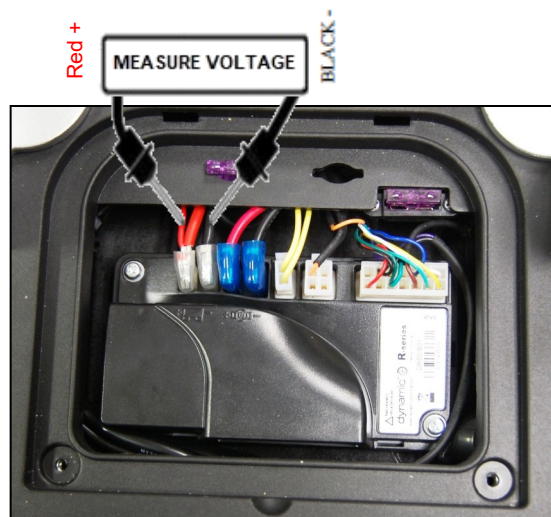


*Figure 18. Tiller XLR Charger Port*

2. Open the controller cover directly under the seat.
  3. Plug the charger into the XLR charger port and then into a wall outlet.
  4. Measure voltage across the B+ and B- connections on the controller (4).
- See figure 19.** Refer to the wiring diagram on page 11.

Does the voltage increase?

- Yes? - Load test the batteries and replace as necessary.
- No? - But there is voltage. If the voltage is lower than 22VDC, then replace the batteries. If the voltage is 22VDC or greater, then replace the charger.



*Figure 19. Controller B+ and B- Connections*



## BEEP/FLASH CODES

The controller uses audible beeps/flashes to indicate the status of the system. When the controller notices that there is a malfunction in the system, it will beep/flash a code when the power is on. For example, when it beeps/flashs five times and stops that indicates beep/flash code #5 – Brake Fault.

The following beep/flash codes are used to help diagnose system errors:

- Beep/Flash Code #1 – Battery Pack Low (Scooter will operate)
- Beep/Flash Code #2 – Battery Pack Very Low (Scooter will not operate)
- Beep/Flash Code #3 – High Battery Voltage
- Beep/Flash Code #4 – Current limit timeout
- Beep/Flash Code #5 – Brake Fault
- Beep/Flash Code #6 – Paddle Fault (out of neutral)
- Beep/Flash Code #7 – Throttle Pot/Speed Pot Fault
- Beep/Flash Code #8 – Motor Voltage Fault (Open/Shorted)
- Beep/Flash Code #9 – Controller Fault



**WARNING** If you are unsure of the correct way to measure voltage or resistance, refer to Appendix A and B in this manual before proceeding.

### BEEP/FLASH CODE #1 - BATTERY PACK LOW (SCOOTER MAY DRIVE SLOWLY)

This Beep/Flash Code occurs when the battery voltage drops below a certain level. Recharge the battery Pack immediately. If the battery pack will not recharge, then load test it or refer to “Scenario 2: Battery Pack will not Charge”, on page 13.

### BEEP/FLASH CODE #2 - BATTERY PACK LOW (SCOOTER WILL NOT OPERATE)

This Beep/Flash Code occurs when the battery voltage drops lower than Beep Code #1. Recharge the battery pack immediately. If the battery pack will not recharge, load test it or refer to “Scenario 2: Battery Pack will not Charge”, on page 13.

### BEEP/FLASH CODE #3 - HIGH BATTERY VOLTAGE

This Beep/Flash Code occurs when the battery voltage climbs above 29.6VDC.

1. Insert the key into the key switch and turn it to the on position. Allow the battery level to drop. Do not allow the battery voltage to fall into the red area on the battery meter.
2. Check the battery charger. Make sure it is an approved charger.

### BEEP/FLASH CODE #4 - CURRENT LIMIT TIMEOUT

This Beep/Flash Code occurs when the motor has been exceeding its maximum current rating for too long. This may be due to a faulty motor, poor battery condition, excessive uphill driving, or excessive weight. First turn off the scooter and allow it to cool for ten minutes. If this does not work, use the following procedure.

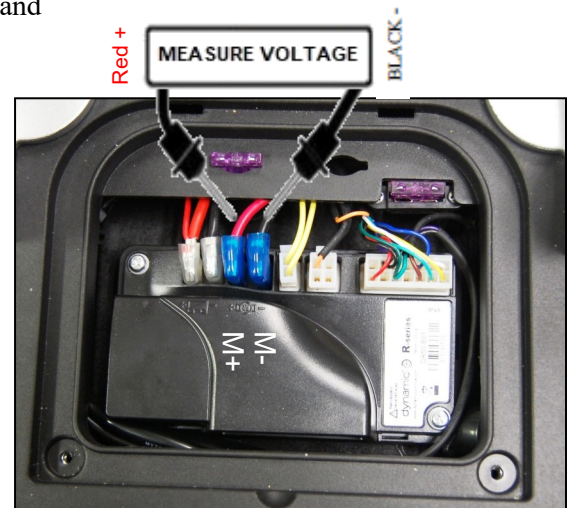
#### Inspect the Following Connections:

Motor Harness (3), Brake Harness (6), (M+M-) Controller Connections, and Control Board (CN4) Connection.

1. Remove the battery pack.
2. Inspect the motor/brake assembly, control board connector (CN4), and controller (4). Is there visible damage, discolored or melted wires? Refer to the wiring diagram on page 11.
  - Yes? - Replace the complete transaxle/motor/brake assembly or brake harness as necessary.
  - No? - Go to the next step.

#### Check Motor Resistance at Motor.

3. Remove the (M+ M-) connectors from the controller (4).
4. Measure resistance across the red M+ and black M- connectors. (Internal resistance of the motor). **See figure 20.**
  - 0.8 ohms – 1.5 ohms but not shorted? – Go to the next step.
  - Out of that range, or open? – Replace the complete transaxle/motor/brake assembly.



## BEEP/FLASH CODE #5 - BRAKE FAULT

This Beep/Flash Code occurs because the park brake release switch is active or the park brake may be faulty.

### Check the Park Brake Position

1. Turn the key to the off position.
2. Disengage and then re-engage the park brake.
3. Turn the key to the on position. Did the beep code clear?
  - Yes? - OK.
  - No? - Go to the next step.

### Check Resistance at the Brake.

4. Remove the battery pack.
5. Separate the brake harness (6) and measure resistance (**with the park brake engaged**) across the two purple wires coming from the brake. See **figure 21**. Refer to the wiring diagram on page 11.
  - 45 ohms – 52 ohms? – Replace the controller.

**Note: If you have replaced the controller and the fault persists, go to step 6 below.**

- Out of range? – Replace the complete transaxle/motor/brake assembly.
- Shorted or open? – Replace the complete transaxle/motor/brake assembly.

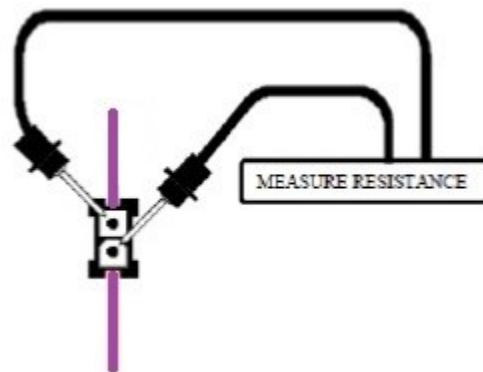
### Check Park Brake Resistance at the Controller.

6. Remove the two screws securing the controller.
7. Lift the controller to expose the control board underneath it.
8. Measure continuity across the purple brake harness CN4 and yellow brake harness CN3. See **figure 23**. Refer to the wiring diagram on page 11.

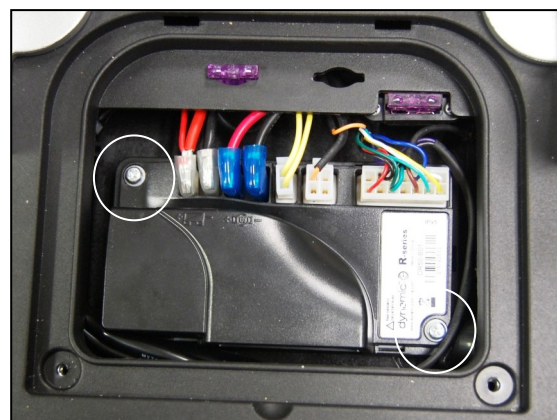
- Continuity?

Yes - Replace the control board.

No - Replace harness(es) as needed.



*Figure 21. Connection from Brake*



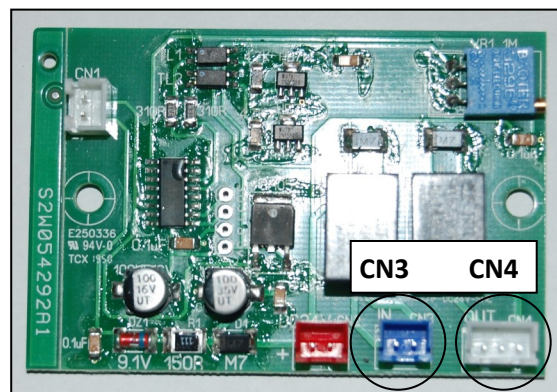
*Figure 22. Connection from Brake*

## BEEP/FLASH CODE #6 - PADDLE FAULT (OUT OF NEUTRAL)

This Beep/Flash Code means that the throttle control lever was not in the neutral position when the key is turned to the on position.

1. Turn the key to the off position.
2. Make sure that the paddle pot is not obstructed and it can return to the neutral (center) position.
3. Move the throttle pot forward and then reverse. Make sure that it is not obstructed. Does it spring back to the neutral position?
  - Yes? – Go to the next step.
  - No? – Check for obstructions. Adjust if necessary. Replace if the adjustment does not work or if there are no obstructions.

4. Turn the key to the on position. Does the code return?
  - No? – OK
  - Yes? – Go to Beep CODE #7 to test the paddle pot.



*Figure 23. Control Board*

## BEEP/FLASH CODE #7 - THROTTLE POT/SPEED CONTROL FAULT

This Beep/Flash Code occurs because there is a fault with the throttle pot, speed pot, or the associated wiring.

### Check Throttle Pot Resistance at Controller.

1. Remove the battery pack.
2. Remove the controller panel by loosening the (2) thumb screws on the scooter deck directly below the seat.
3. Turn the speed pot to **full rabbit**.
4. Set your multimeter to measure resistance.
5. Disconnect the main harness (5) from the controller (4). Refer to the wiring diagram on page 11.
6. Insert multimeter probes into the main harness connector at pin 2 and pin 8 (light green wire and white wire).

See figure 24.

- 5k ohm  $\pm 10\%$ ? – Replace the controller.
- Outside that range? - Go to the next step.

7. Insert the multimeter probes into the main harness connector 5 at pin 1 and pin 8 (yellow wire and white wire). See figure 25. Note the resistance reading. Insert the multimeter probes into the main harness connector 5 at pin 1 and pin 2 (yellow wire and light green wire). See figure 26. Note the resistance reading.

- Are both readings within 500 ohms of each other? - Replace the controller.
- Are either of the readings outside that range? - Go to the next step.

### Check Throttle Pot Resistance at Throttle Pot.

8. Separate the lower dash from the upper dash.
9. Disconnect the throttle pot harness (CN7) from the console board (7). Note: This is a white connector with three wires, blue, yellow, and orange. Refer to the wiring diagram on page 11.

10. Insert the multimeter probes into the throttle pot connector (CN7) at the blue wire and the orange wire (outside two pins). See figure 27.

- 5k ohm  $\pm 10\%$ ? - go to the next step.
- Outside that range? - Replace the throttle pot.

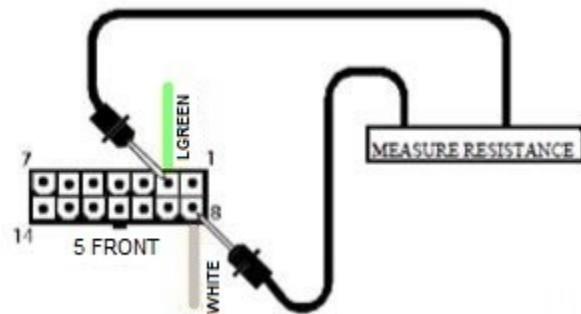


Figure 24. Connector, Pins 2 and 8

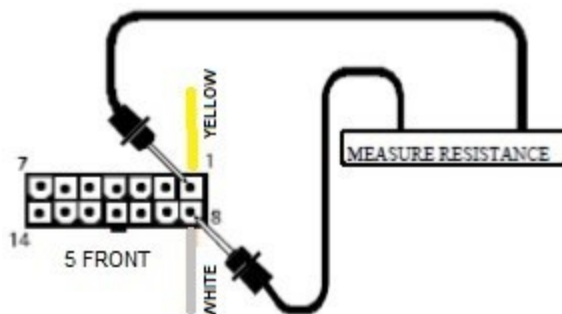


Figure 25. Connector, Pins 1 and 8

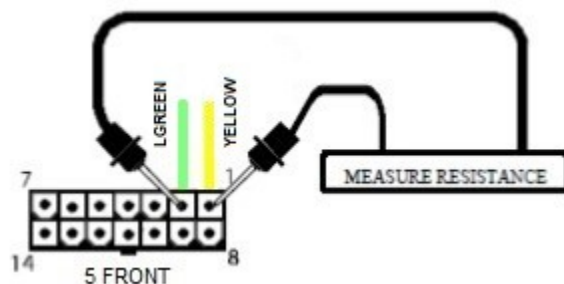


Figure 26. Connector, Pins 1 and 2

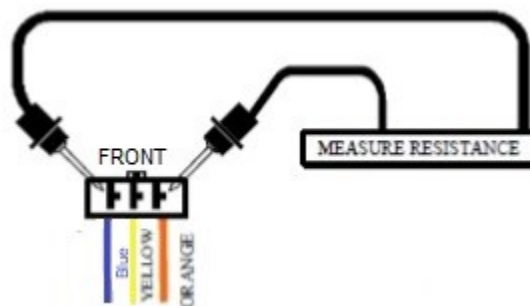


Figure 27. Connector, CN7

11. Insert the multimeter probes into the throttle pot connector (CN7) at the yellow wire and the orange wire.

**See figure 28.** Note the resistance reading.

Insert the multimeter probes into the throttle pot connector (CN7) at the yellow wire and the blue wire. **See figure 29.** Note the resistance reading.

- Are both readings within 500 ohms of each other? - Go to the next step.
- Are either of the readings outside that range? - Replace the throttle pot.

12. Check the light green, yellow, and white wires on the main harness (5) for continuity.

- 10 ohms or less on each one? - Replace the speed pot.
- Open on any wire? - Replace the main harness.

### **BEEP/FLASH CODE #8 - MOTOR VOLTAGE FAULT (OPEN)**

This Beep/Flash Code occurs when there is an internal problem with the motor or its wiring.

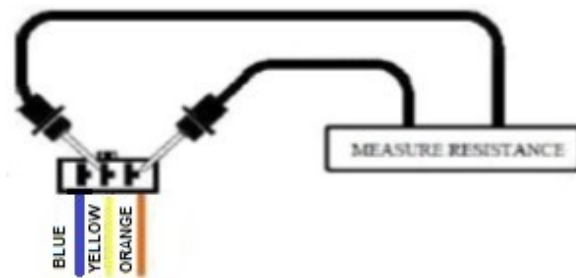
#### **Check Motor Resistance at Motor.**

1. Remove the battery pack.
2. Remove the controller panel by loosening the (2) thumb screws on the scooter deck directly below the seat.
3. Disconnect the (M- and M+) connections from the controller. Refer to the wiring diagram on page 11.
4. Measure the (internal resistance of the motor), across (M- and M+). **See figure 30.**
  - 0.8 ohms – 5 ohms? – Replace the controller.
  - Out of range? – Replace the complete transaxle assembly.
  - Open? – Replace the complete transaxle assembly.
  - Shorted? – Replace the complete transaxle assembly.

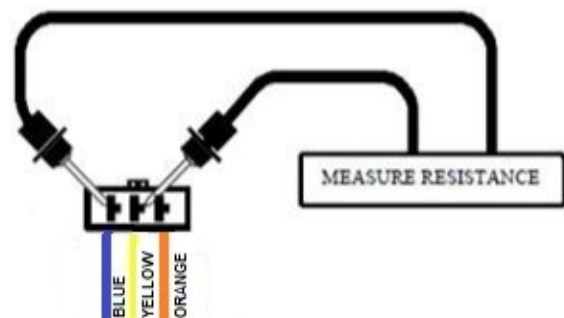
### **BEEP/FLASH CODE #9 - CONTROLLER FAULT**

This Beep/Flash Code means that the controller has an internal fault.

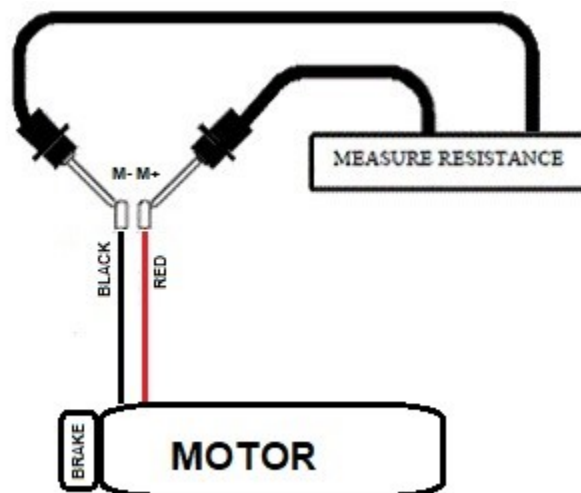
1. Remove the key from the key switch and allow the controller to cool down. If the code continues, then replace the controller.



*Figure 28. Connector, CN7*



*Figure 29. Connector, CN7*



*Figure 30. Controller, M- M+ Connections*



## BUZZAROUND CARRY ON REPLACEMENT INSTRUCTIONS DRIVEWHEEL REPLACEMENT

Tools needed: 5mm Allen wrench, small straight screwdriver.

1. Place the freewheel lever into the engaged position.
2. Remove the key from the key switch.
3. Place the rear of the scooter onto blocks.
4. Remove the center cap.
5. Remove the bolt and washer that fasten the wheel to the axle.  
***Make sure you retain the axle key. See figure 31.***
6. Place a new wheel onto the axle. ***Make sure that the axle key is reinstalled in its original position.***
7. Reinstall the hardware removed in step 5 and tighten securely.
8. Reinstall the center cap.



**Figure 31. Drive Wheel Axle Key**

## ANTI TIP REPLACEMENT

Tools needed: 13mm Socket, Phillips screwdriver.

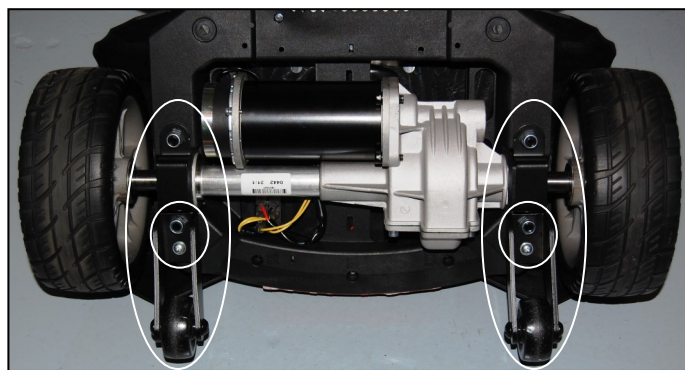
1. Place the freewheel switch in the engaged position.
2. Remove the key from the key switch.
3. Remove the seat.
4. Remove the battery pack.
5. Stand the scooter up as shown. ***See figure 32.***



**WARNING** **Tip Hazard!** Make sure the scooter is stable before attempting any repairs.

6. Remove the left or right anti tip assembly, by removing the (1) lock nut and (1) Phillips screw shown inside the small circles. ***See figure 32.***
7. Install the new anti tip assembly by reversing steps 1-6.

Note: If needed, repeat step 6 for the opposite side.



**Figure 32. Anti Tip Assemblies**

## THROTTLE POT REPLACEMENT

Tools needed: Phillips screwdrivers, 7mm socket

1. Place the freewheel lever in the engaged position.
2. Remove the key from the key switch.
3. Remove the battery pack from the scooter.
4. Separate the upper and lower dash halves by removing the (7) Phillips screws. ***See figure 33. Refer to figure 37 on page 21.***
5. Unplug the throttle pot (8) harness from (CN7) on the console board.
6. Remove the (2) nut and bolts that fasten the throttle pot assembly.
7. Reverse steps 1-6 to reassemble.



**Figure 33. Throttle Pot**



## BATTERY PACK REPLACEMENT

Tools needed: None

1. Place the freewheel lever in the engaged position.
2. Remove the key from the key switch.
3. Press the release lever in front of the battery pack on the scooter deck.
4. Remove the battery pack. *See figure 34.*
5. Insert the new battery pack, and press down to lock it into place.



### WARNING

**DO NOT ATTEMPT TO OPEN THE BATTERY PACK.  
THE BATTERY PACK AND ITS COMPONENTS ARE NOT SERVICEABLE.**



*Figure 34. Battery pack (Top side)*

## FUSE REPLACEMENT

### Non-Flash/Beep Code Faults

If the following faults occur, please check the appropriate fuses located inside the controller panel or at the center of the tiller. Refer to figures 35 and 36 on page 20 for fuse replacement and warnings.

3AMP Mini Glass Fuse shown



Good Fuse Bad Fuse

### Fault

- The XLR charging port is not functioning, causing the battery pack not to charge when the off-board battery charger is connected.

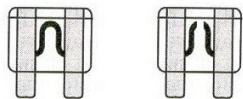
**Remedy:** Check the fuse (F3AL250V) inside the fuse holder located on the tiller below the control panel. Replace the fuse with the same type and rating if the fuse is bad.



### WARNING

**FUSES MUST BE REPLACED WITH SAME TYPE AND RATING.**

35AMP Blade Style Fuse shown



Good Fuse Bad Fuse

### Faults

- The dash does not illuminate when the key is turned to the “on” position. The scooter does not operate and the headlight/taillight do not illuminate.
- The USB charging port will not charge your smart devices such as a phone or tablet.

**Remedy:** Check the fuse (35 AMP) inside the power module panel located directly under the seat. Replace the fuse with the same type and rating if the fuse is bad.

## FUSE REPLACEMENT - CONTINUED

### 3AMP MINI GLASS - TILLER FUSE REPLACEMENT

Tools needed: None

1. Remove the key from the key switch.
3. Remove the fuse cap by turning it counterclockwise. **See figure 35.**
4. Remove the bad fuse.
5. Install a new fuse, insert the cap, and twist the cap clockwise to secure.



*Figure 35. Tiller Fuse (F3AL250V)*

### 35 AMP BLADE - CONTROLLER FUSE REPLACEMENT

Tools needed: None

1. Remove the key from the key switch.
2. Loosen the two thumb screws securing the controller cover, by turning them counterclockwise.
3. Remove the cover to access the fuse. **See figure 34.**
4. Remove the bad fuse.
5. Install a new fuse, into the fuse holder.



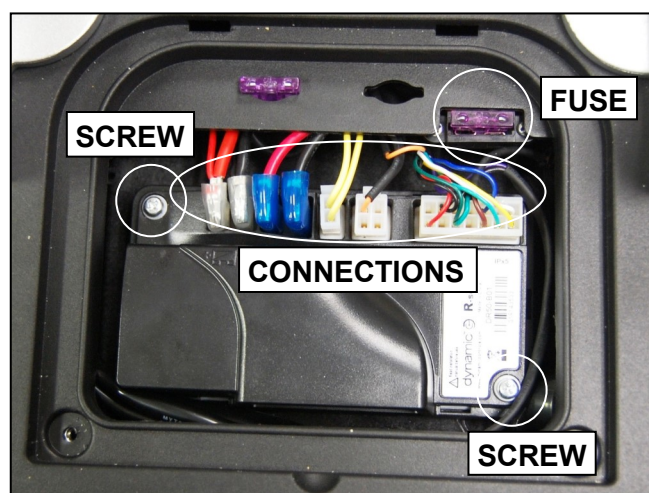
#### WARNING

*Fuse(s) must be replaced with exact type and rating. Refer to the wiring diagram on page 11.*

### CONTROLLER REPLACEMENT

Tools needed: Phillips Screwdriver

1. Place the freewheel lever in the engaged position.
2. Remove the key from the key switch.
3. Remove the battery pack from the scooter.
4. Loosen the two thumb screws securing the controller cover, by turning them counterclockwise.
5. Remove the cover to access the controller. **See figure 36.**
6. Unplug all connections from the controller, noting their locations. **Refer to the wiring diagram on page 11.**
7. Remove the (2) screws securing the controller.
8. Remove the controller.
9. Install the new controller by reversing steps 1-8.



*Figure 36. Controller*



#### CAUTION

**Wire placement is critical! Misplaced wires can cause damage to the controller and associated wiring.**

## DASH and DASH COMPONENTS REPLACEMENT

Tools needed: Phillips screwdriver, 5mm Allen wrench, 3mm Allen wrench, slotted screwdriver

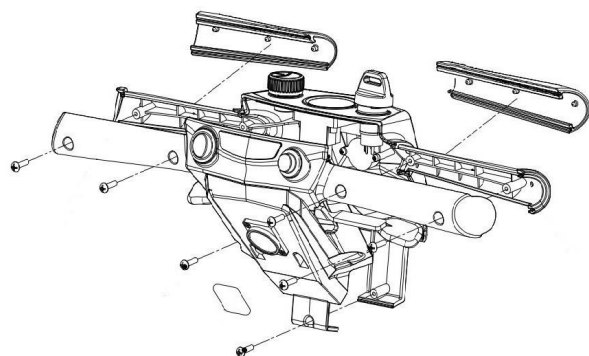


**WARNING** Before attempting repairs, engage the brake, turn off the key switch, and remove the battery pack.

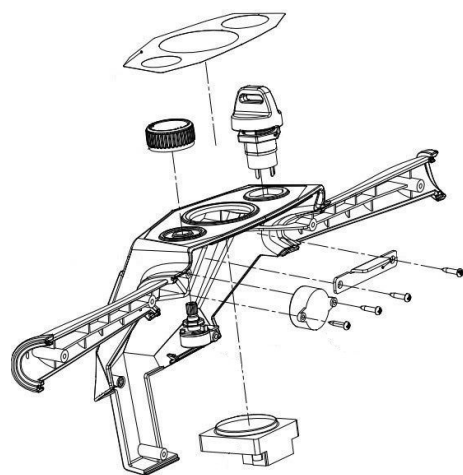
1. Remove the (7) dash screws. See **figure 37**.
2. Remove the top (2) Allen Bolts from the tiller uprights.  
*Note: Located just below the dash on either side. See figure 45 on page 22.*
3. Remove the (4) screws that fastens the USB panel halves together. *Note: Located just below the dash.*
4. Separate the top of the tiller uprights enough to remove the upper/lower dash.
5. Separate the upper/lower dash halves, and remove the Allen bolt securing the tiller adjustment cable. See **figure 39**.  
*Note: At this point, you can replace the upper/lower dashes and/or any of their components.*
6. Complete steps 1-5 in reverse to reassemble.

## UPPER MAIN HARNESS REPLACEMENT

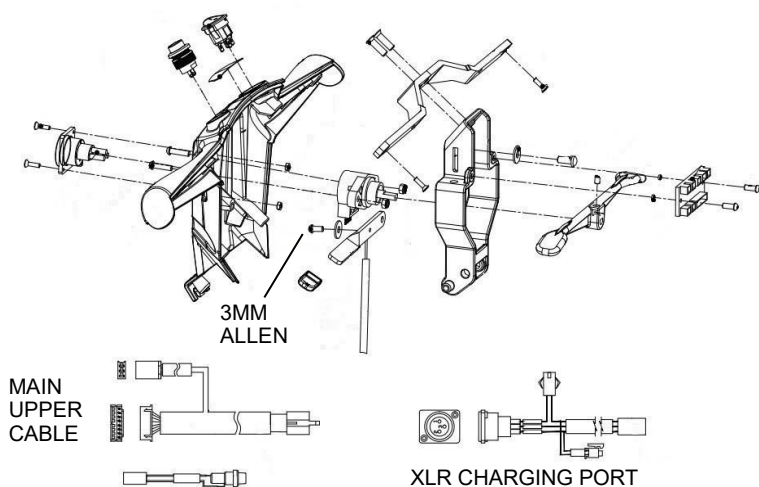
1. Complete steps 1-5 above.
2. Remove the (2) screws securing the cable clamp (located in front of the battery release button) to allow access to the upper main harness.  
*Note: The screws must be removed from the underside of the scooter.* See **figure 40**.
3. Lift the cable clamp and separate the upper main harness from the lower main harness.
4. Unplug and remove the upper main harness from the lower dash. See **figure 39**.
5. Complete steps 1-4 in reverse.
6. Complete steps 1-5 of the “Dash/Dash Components/ Upper Main Harness Replacement” instructions above in reverse to complete reassemble.



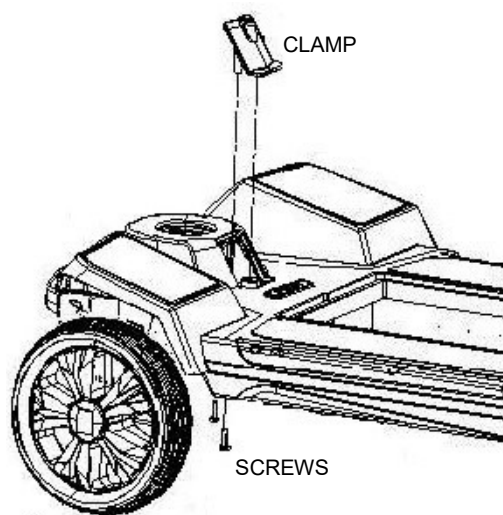
**Figure 37. Dash - Upper/Lower**



**Figure 38. Upper Dash**



**Figure 39. Lower Dash**



**Figure 40. Cable Clamp**

## COMPLETE TRANSAXLE ASSEMBLY REPLACEMENT

Tools needed: Phillips screwdriver, Small Straight Screwdriver  
5mm Allen wrench, 13mm Socket

**WARNING** Before attempting repairs, engage the brake, turn off the key switch, and remove the battery pack.

1. Remove the controller panel by loosening the (2) thumb screws on the scooter deck directly below the seat.
2. Disconnect the (M- and M+) connections from the controller.
- Refer to the wiring diagram on page 11.
3. Remove the (2) wheel caps.
4. Remove the (2) bolts fastening the rear wheels to the transaxle.

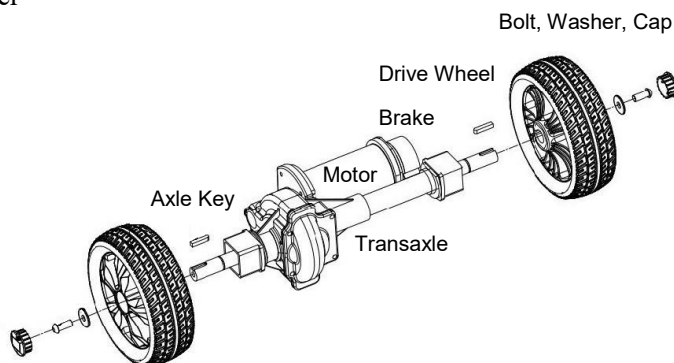


Figure 41. Transaxle Assembly

**WARNING** Tip Hazard! Make sure the scooter is stable before attempting any repairs.

5. Stand the scooter up. *See figure 32 on page 18.*
6. Remove the drive wheels. *Make sure you retain the axle keys.*
7. Remove the left and right anti tips and transaxle mounts from the scooter, by removing the (4) lock nuts and (2) Phillips screws shown inside the large ovals. *See figure 32 on page 18.*
8. Remove the complete transaxle assembly, by disconnecting the brake harness (6). Refer to the wiring diagram on page 11. *See figure 41.*
9. Install the new transaxle assembly by reversing steps 1-8.

## LOWER MAIN HARNESS REPLACEMENT

Tools needed: Phillips Screwdriver, 8mm Allen Wrench

**WARNING** Before attempting repairs, engage the brake, turn off the key switch, and remove the battery pack.

1. Remove the (2) screws securing the cable clamp (located in front of the battery release button) to allow access to the upper main harness.
- Note: The screws must be removed from the underside of the scooter. See figure 40 on page 21.*
2. Lift the cable clamp and separate the upper main harness from the lower main harness.
3. Remove the 8mm Allen bolt securing the tiller uprights, and set the tiller aside. *See figure 42.*
4. Remove the (30) screws securing the upper and lower decks together, then separate the deck halves. *See figure 42.*
5. Disconnect the (2) headlights, beeper, tail light, and controller connections on the lower main harness and remove the harness. *See figure 43.*
6. Reverse steps 1-5 to reassemble the scooter.

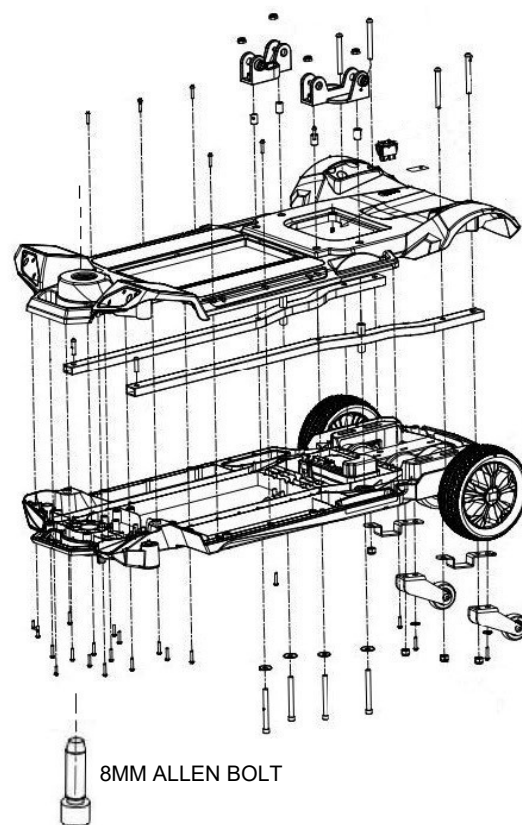


Figure 42. Chassis Moldings

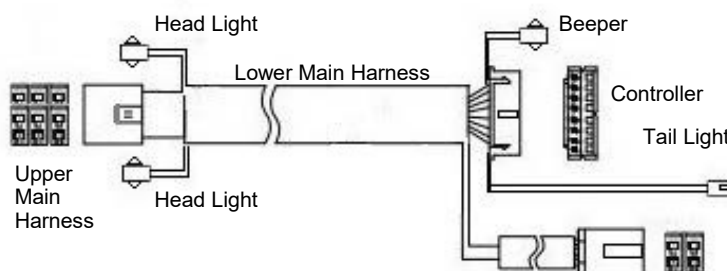


Figure 43. Lower Main Harness



## STEERING ASSEMBLY REPLACEMENT

Tools needed: Small Straight Screwdriver, 5mm Allen Wrench, 8mm Allen Wrench

**WARNING** Before attempting repairs, engage the brake, turn off the key switch, and remove the battery pack.

1. Remove the (2) front wheel caps.
2. Remove the (2) bolts fastening the front wheels to the transaxle.
3. Remove the (2) front wheels.
4. Remove and retain the (2) 5mm Allen bolts.

*See figure 44.*

**Note:** These bolts are located behind the front wheels, and must be removed from the top side of the scooter.

5. Remove and retain the (1) 8mm Allen bolt, which connects the steering assembly to the scooter.

*See figure 44.*

6. Remove the steering assembly.

**Note:** It may require some force to remove the steering assembly from the front bearings.

7. Install the new steering assembly by reversing steps 1-6.

**Note:** The steering assembly does not include the 5mm or 8mm Allen bolts.

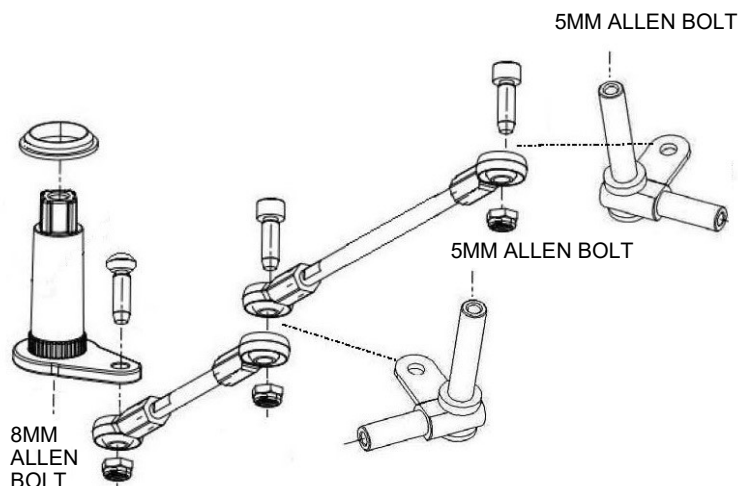


Figure 44. Steering Assembly

## TILLER SHOCK REPLACEMENT

Tools needed: 14mm Open End Wrench, 6mm Allen Wrench, 3mm Allen Wrench, Punch, Hammer

1. Remove roll pin with a punch and hammer. *See figure 45.*
2. Remove tiller locking bracket.

**CAUTION** Take note of the tiller cable position in relation to the tiller shock! The tiller will not operate properly if the cable is routed incorrectly.

3. Remove the (1) 6mm Allen bolt. *See figure 45.*
4. Remove the (2) 5mm Allen bolts on either side of the tiller uprights, and remove uprights. *See figure 45.*
5. Loosen the locking nut at the bottom of the tiller just above the cable bracket.
6. Remove the shock by twisting it from the top side.
7. Remove the cable from the cable bracket at the bottom of the shock.
8. Remove the cable bracket from the shock bottom side and retain.
9. Remove the top pin of the shock by twisting it off and retain. *See figure 45.*
10. Install the new shock by reversing steps 1-9.

**CAUTION** The shock may need to be compressed to reassemble.

**CAUTION** The tiller cable must be routed over top of the top pin on the shock (inside view from a seated position), and behind the shock (inside view from a seated position) when reassembling.

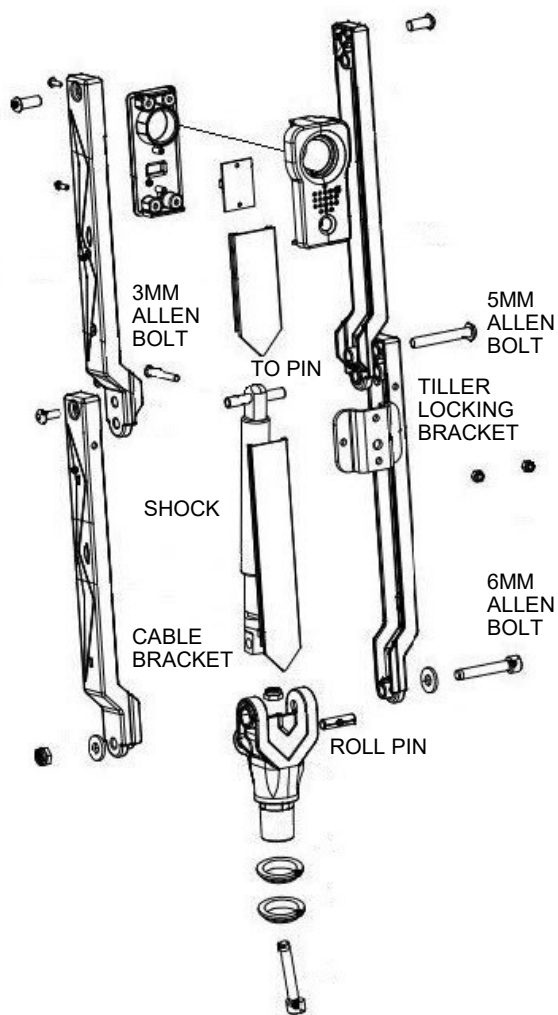


Figure 45. Tiller Assembly



## APPENDIX A - HOW TO USE A VOLTMETER

### Step 1

Plug the probes into the meter. Red goes to the positive (+) and black to the negative (-).

### Step 2

Turn the selector dial or switch to the type of measurement you want. To measure direct current - a battery, for example - use DCV. To measure alternating current, such as a wall outlet, use ACV.

### Step 3

Choose the range setting. The dial may have options from 5 to 1000 on the DCV side and 10 to 1000 on the ACV side. The setting should be the top end of the voltage you are reading. Not all voltmeters have this setting.

### Step 4

Turn the meter on.

### Step 5

Hold the probes by the insulated handles and touch the red probe to the positive side of a DC circuit or either side of an AC circuit. Touch the other side with the black probe.

### Step 6

Read the digital display or analog dial.



*Figure 46. Multimeter (Set to DC Volts)*

## APPENDIX B - HOW TO USE AN OHM METER

Ohm's law breaks down into the basic equation: Voltage = Current x Resistance. Current is generally measured in amps, and resistance in ohms. Testing the resistance on an electrical circuit in your home or car can help you diagnose problems with that circuit. You can use a simple ohmmeter for this task, but most professionals now use the ohmmeter function of a multimeter (also called multitester or VOM, for volt/ohmmeter). Read on for instructions on how to use an ohmmeter and test for resistance.

- Ohmmeter or Multimeter (Volt/ohmmeter)
- Circuit to test (with all power OFF)
- Service manual

### Step 1

Disconnect completely and/or turn OFF all power to the circuit you are testing. You must have a completely dead wire or circuit in order to ensure accuracy in measurement, as well as your own safety. Your ohmmeter will supply the voltage and current for your circuit so NO other power is necessary. Testing a powered circuit can “cause damage to the meter, circuit, and \*you\*.”

### Step 2

Connect testing wires to the ohmmeter. The black wire goes to the ground (common) outlet, the red wire to the volt/ohms outlet.

### Step 3

Consult a service manual for the normal range of resistance for the circuit you are testing.

### Step 4

Set the dial to the “ohms” setting with a multimeter. On an individual ohmmeter, you may have to set a range for the readings, in ohms, kilohms or megohms. Use the range you located in your service manual to set the dial.



*Figure 47. Multimeter (Set to Ohms)*



Model: GB120



Golden Technologies  
401 Bridge Street  
Old Forge, PA 18518  
[www.goldentech.com](http://www.goldentech.com)