



Alante DX/LT Service Guide



Models GP204/GP215

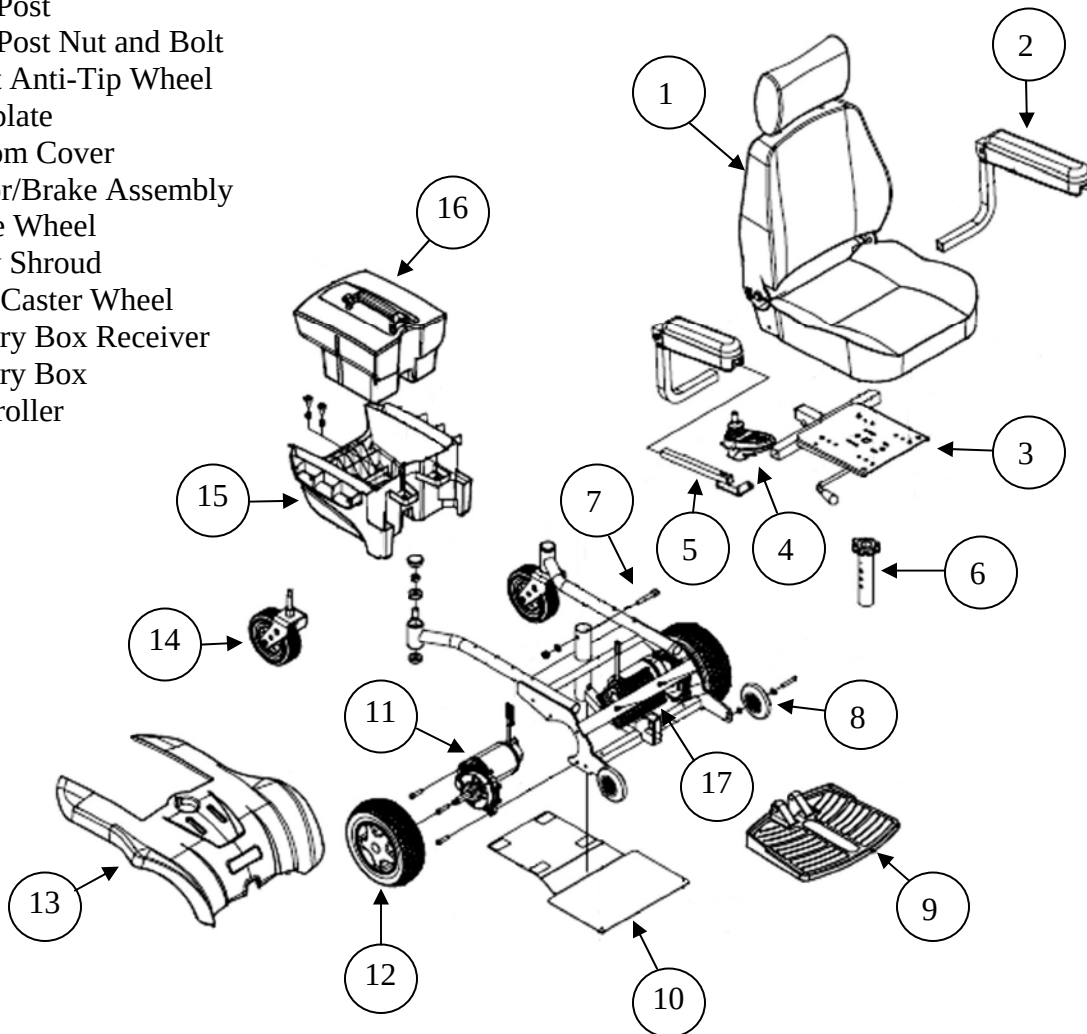
**This Service Guide contains:
Troubleshooting
Replacement Instructions
Illustrated Parts Breakdown**

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Alante DX/LT Nomenclature

1. Seat
2. Arm Assembly
3. Seat Swivel
4. Joystick
5. Joystick Arm
6. Seat Post
7. Seat Post Nut and Bolt
8. Front Anti-Tip Wheel
9. Footplate
10. Bottom Cover
11. Motor/Brake Assembly
12. Drive Wheel
13. Body Shroud
14. Rear Caster Wheel
15. Battery Box Receiver
16. Battery Box
17. Controller



Contact Information

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About the Alante DX/LT Service Guide

This service guide provides you with the information necessary to troubleshoot the Golden Technologies Alante DX (GP204) and Alante LT (GP215) equipped with the PG VR2 controller. The troubleshooting scenarios in this manual consist of procedures that enable you to systematically trace and correct faults in the system.

Before troubleshooting, check the following:

- **Make sure that the circuit breaker is reset.**
- Visually check terminals for corrosion. Check wires for missing insulation.
- **Make sure that the batteries are fully charged and in good working order.** When possible, keep sets of known good batteries of various ratings in your shop at all times. The Alante DX uses 22AH batteries and the Alante LT uses 18AH batteries. Problems that surface during troubleshooting are often due to the fact that the batteries are not fully charged or can not hold their charge.
- **Make sure that the electrical connections are secure.** Unplug the connectors and make sure all of the pins are seated properly. Push the pins back into the connector housing if necessary. Make sure that the battery terminals are tight.

NOTE: If you get to a point during troubleshooting where you cannot continue, call tech support at 800-624-6374.

ALANTE DX/LT COMPONENTS

The Alante DX and Alante LT are battery-operated power chairs controlled by a PG Drives control system. The control system monitors and displays flash codes on the LED array when it detects a fault in the system. The Alante DX/LT power chairs are designed to operate with between 18 – 24 volts (V) of direct current (DC).

The Alante DX and Alante LT control systems are made up of the following components. Refer to page 3.

- Battery Box- Alante DX 12V/(22AH) and Alante LT 12V/(18AH) Batteries (2)
- Main Circuit Breaker
- Battery Charger
- Power Harness
- Motors (2) (left/right)
- Park Brakes (2) (left/right)
- PG VR2 Power Module
- PG Control Unit (Joystick)
- PG Bus Cable

NOTE: 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.

Component: 12VDC Batteries (2)

Location: Connected in series inside the battery box.

Function: Supply 24VDC to the power module. (12VDC x 2).

Connections: Bottom of the battery box.

Failure Signs: Batteries drain quickly. Power chair runs slowly or not at all. Batteries will not charge, but charger is working properly. Flash Code #1.

Tests: Load test. Fully charge the batteries first. Make sure charging system is working.

Expected Readings: 12 - 14VDC each when fully charged.

Serviceable: Replace batteries as necessary. **Replacement sizes: Alante DX- 22AH, and Alante LT – 18AH.**

Component: Park Brake (2)

Location: End of each motor.

Function: Park Brake for the motor.

Connections: Each park brake has a 2 pin male connector, which connects to each motor harness.

Failure Signs: Power chair will not move or moves sluggishly. No audible click when the chair stops.

Tests: Test for open circuit. See Flash Codes #9.

Expected readings: Less than 80 ohms, but not shorted.

Serviceable: Replace if outside this range.

Component: Circuit Breaker

Location: Mounted on the front of the power base.

Function: Protects battery circuit from current overload. When the current draw exceeds the breaker rating, the circuit breaker will open.

Connections: Terminals on the circuit breaker are connected to the batteries through the power harness.

Failure Signs: Opens repeatedly. This may indicate a failed circuit breaker or short in the wiring. Also, may open if the motors are overloaded (from excessive weight, short in system, etc.)

Test: Measure the resistance across the circuit breaker. Also check for continuity across the power harness from the circuit breaker to each battery. Refer to the diagrams on pages 20 and 21.

Expected reading: Less than 10 ohms.

Serviceable: *Circuit breaker must be replaced with exact current rating.* Replace power harness if no continuity.

Component: Battery Charger

Location: Stored inside a pouch on the seatback.

Function: Recharges batteries.

Connections: XLR connector connects to the charger port on the control module and/or the battery box.

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

Tests: Charger tests vary. Some chargers may be tested by measuring positive and negative leads on the charger connector. Other chargers need to see battery voltage before charging.

Expected reading: Varies with charger.

Serviceable: Replace if necessary.

Component: Motors (2)

Location: Left and right sides of the power base.

Function: Drives the power chair.

Connections: The right motor harness connects to M1 on the power module and the left motor harness connects to M2 on the power module.

Failure Signs: Power chair runs slowly or not at all.

Tests: Test for internal resistance in motor. Test motor wires for continuity. See Flash Codes #2, #3, #4, and #5.

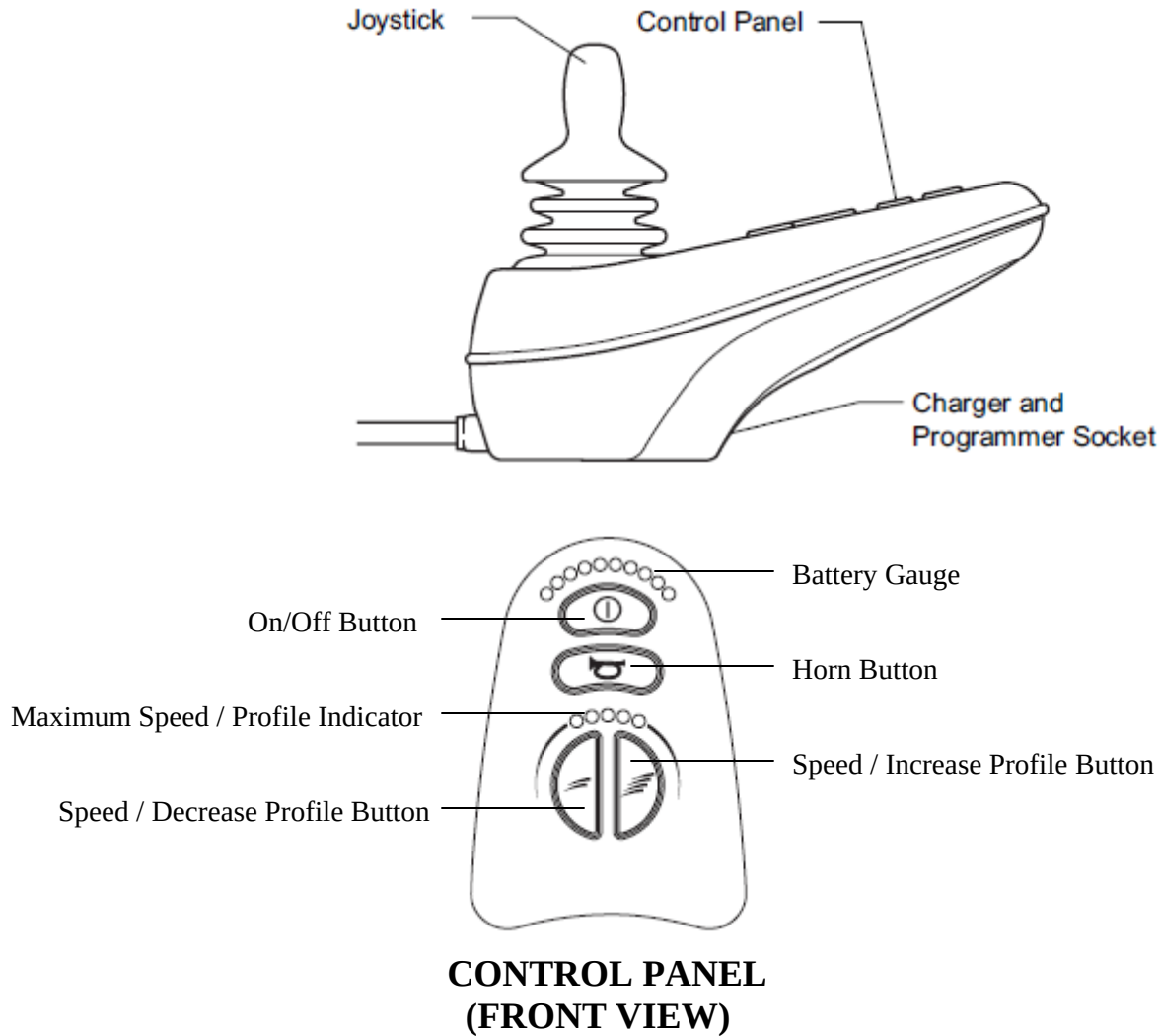
Expected readings: Internal resistance is less than 5 ohms but not shorted.

Note: Can be as low as 0.3 ohms.

Serviceable: Replace motor if outside range.

Component: PG VR2 Power Module**Location:** Front of the power base.**Function:** Monitors the system and displays faults when something in the system is out of range. These faults are displayed as a series of flashes by the battery meter.**Connections:** Control unit (joystick), DCI (not used), M1 (right motor), 24V (power harness from batteries), M2 (left motor). Refer to the power module diagram on page 20.**Failure Signs:** Flash Code #8.**Tests:** Measure voltage at PG VR2 Bus Connector pin 1 (battery positive) and pin 4 (battery negative).**Expected readings:** Battery voltage.**Serviceable:** Replace as necessary.**Component:** PG VR2 Control Unit (Joystick)**Location:** End of the armrest.**Function:** Provides user interface to the power chair. Also, shows battery charge and status of control system.**Connections:** XLR charger/programming port on the front of the control module. Bus cable on the back of the control module.**Failure Signs:** Flash Code #7**Tests:** Measure voltage at pin 1 (battery positive) and pin 2 (battery negative).**Expected readings:** Battery voltage.**Serviceable:** Replace as necessary.**Component:** PG VR2 Bus Cable**Location:** Rear of PG VR2 Control Unit (Joystick).**Function:** Provides connectivity to the PG VR2 power module.**Connections:** 4 pin quick connect bus cable.**Failure Signs:** Flash Code #8 and #9.**Tests:** Measure continuity.**Expected readings:** Less than 10 ohms.**Serviceable:** Replace if open.

VR2 USER CONTROLS



VR2 CONTROLS

On/Off Button and Battery Gauge

The on/off button applies power to the control system electronics, which in turn supply power to the wheelchair's motors. The battery gauge shows you that the wheelchair is switched on. It also indicates the operating status of the wheelchair.

Locking / Unlocking the Wheelchair

The VR2 control system can be locked to prevent unauthorized use.

To lock the wheelchair:

- While the control system is switched on, depress and hold the on/off button.
- After 1 second the control system will beep. Now release the on/off button
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now locked.

To unlock the wheelchair:

- Use the on/off button to switch the control system on. The maximum speed / profile indicator will be rippling up and down.
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now unlocked.

Joystick

The primary function of the joystick is to control the speed and direction of the wheelchair. The further you push the joystick from the center position the faster the wheelchair will move. When you release the joystick the brakes are automatically applied.

Maximum Speed / Profile Indicator

This is a gauge which shows the maximum speed setting for the wheelchair or, if the control system is programmed for drive profile operation, the selected drive profile. This gauge also indicates if the speed of the wheelchair is being limited or if the control system is locked.

- **Maximum Speed Indicator**

This is a gauge that shows the maximum speed setting of the wheelchair.

There are five speed settings – (1) illuminated LED is the lowest speed and (5) illuminated LEDs the highest speed.

- **Profile Indicator**

This is an indicator that shows the selected drive profile. There may be up to 5 drive profiles available, this depends on the programming of the control system.

Horn Button

The horn will sound while this button is depressed.

Speed / Profile Decrease Button

This button decreases the maximum speed setting or, if the control system is programmed for drive profile operation, selects a lower drive profile. It is possible to program the control system so this button has no effect while the wheelchair is being driven.

Speed / Profile Increase Button

This button increases the maximum speed setting or, if the control system is programmed for drive profile operation, selects a higher drive profile. It is possible to program the control system so this button has no effect while the wheelchair is being driven.

SCENARIO 1: Press the on/off button and the LED array does not light up.

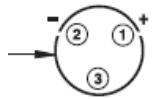
Before attempting to troubleshoot the power chair, make sure all connectors are connected and seated properly. Make sure that the batteries are connected properly and **fully-charged**. If the batteries are not fully charged or connected properly, then voltage measurements may produce faulty readings. Measure the voltage across the battery box negative terminal and the battery box positive terminal on the underside of the battery box to get battery voltage. If the batteries will not charge, go to “Scenario 2: Batteries will not charge.”

1. Check the circuit breaker.

- If it is tripped – Reset it.
- Not tripped – Go to the next step.
- Tripped but does not reset – Remove the seat and the battery box. Open the battery box by removing the 9 screws that fasten the cover. Remove the cover and measure voltage from the positive (red) terminal of one battery to the negative (black) terminal of the opposite battery.
- 25VDC or (battery voltage) – Go to the next step.
- 0VDC - Go to step 14.

2. Measure voltage across pin 1 (B+) and pin 2 (B-) on the control unit (Joystick) charging socket.

- 0VDC – Go to the next step.
- 25VDC or (battery voltage) – Replace the control unit.

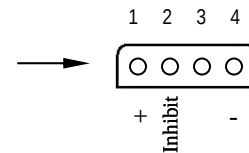


WARNING Prevent damage to the Joystick. Be careful when inserting the meter leads into the charging socket. Do not allow the meter leads to touch each other, which will cause a short.

3. Disconnect the bus cable from the control unit (Joystick).

4. Measure voltage across pin 1 (+) and pin 4 (-) on the bus cable.

- 0VDC – Go to the next step.
- 25VDC or (battery voltage) – Replace the control unit (Joystick).



5. Remove the seat.

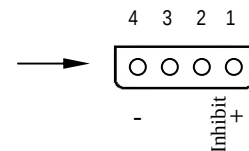
6. Remove the seat post.

7. Remove the 8 screws on the underside of the frame, which connect the shroud to the body of the power chair.

8. Disconnect the bus cable from the power module.

9. Measure voltage across pin 1 (+) and pin 4 (-) on the power module.

- 0VDC – Go to the next step.
- 25VDC or (battery voltage) – Replace bus cable.

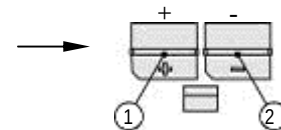


WARNING Prevent damage to the (VR2) power module. Be careful when touching the leads on the power module. Do not allow the meter leads to touch each other, which will cause a short.

10. Disconnect the power harness from the power module.

11. Measure voltage across the pin 1 (+) and pin 2 (-) on the power harness.

- 0VDC – Go to the next step.
- 25VDC or (battery voltage) – Replace the power module.



WARNING Before attempting to measure resistance, make sure there is no power to the circuit.

12. Remove the battery box; open the battery box by removing the 9 screws on the underside of the battery box. Now, disconnect the 2 white circuit breaker wires from the batteries.

13. Measure Resistance across the terminals on the circuit breaker.

- Less than 10 ohms – Go to the next step.
- Open – Replace the circuit breaker.

14. Check continuity across the circuit breaker wires. Remove the positive (red) terminal and the negative (black) terminal wires from the batteries and check continuity across each wire. Replace wires as necessary.

15. Remove the power harness from the (VR2) power module. Check continuity across both the positive and negative wires from the connector to the spring loaded connections in the bottom of the battery box.

Note: When checking continuity, visually inspect wires, connectors, and pins for any damage and to make sure the pins are seated properly in their connectors.

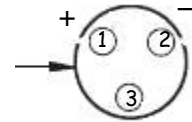
SCENARIO 2: Batteries Will Not Charge (VR2 Charging Test)

NOTE: Battery chargers will not charge the batteries unless the battery voltage is 18VDC or above and there is a closed circuit between the batteries. The circuit breaker completes that circuit. *Make sure that the circuit breaker is reset.* If necessary, use a set of known good batteries.

1. Check the voltage across pin 1 (+) and pin 2 (-) on the charger XLR connector.

Note: The charger must be plugged in and turned to the on position.

- Greater than 24VDC – Go to the next step.
- Less than 24VDC – Try another wall outlet or known good charger.



WARNING

Do not touch either of the multimeter probes on the third pin or the XLR connector cover. You may damage the charger.

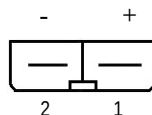
2. Remove the seat and the battery box. Open the battery box by removing the 9 screws on the underside of the battery box. *Note: The battery box must be installed to perform the following testing procedures.*

3. Make sure that the batteries are connected according to the battery connection diagram on the inside of the battery cover and/or on page 21. Check the batteries and cables for corroded or loose terminals. Clean and tighten if necessary.

4. Measure voltage across the battery negative (black) terminal and the battery positive (red) terminal.

- Less than 18VDC – Load test and replace batteries as necessary.
- Greater than 18VDC – Go to next step.
- 0VDC – Go to step 9.

5. Unplug the battery harnesses from the (VR2) power module. Measure the voltage across pin 1 and pin 2 of the power module. Place the red meter lead on the positive pin 1 and the black meter lead on the negative pin 2 of the power module.



Note: The charger must be plugged in and turned to the on position to perform the testing procedure.

- Greater than 24VDC – Test the battery harnesses for continuity and replace as necessary.
- 0VDC – Go to the next step.

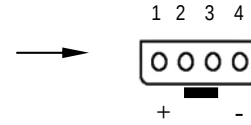


WARNING Prevent damage to the (PG VR2) power module. Be careful when touching the leads on the power module. Do not allow the meter leads to touch each other, which will cause a short.

6. Reconnect the power harness to the power module. Disconnect the bus cable from the power module.

Measure voltage across pin 1 (+) and pin 4 (-) on the bus cable.

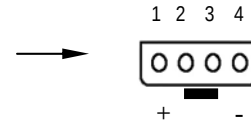
- Greater than 24VDC - Replace the power module.
- 0VDC – Go to the next step.



7. Reconnect the bus cable to the power module. Disconnect the bus cable from the joystick.

Measure voltage across pin 1 (+) and pin 4 (-) on the joystick.

- Greater than 24VDC - Replace the bus cable extension.
- 0VDC – Replace the control unit.



WARNING Before attempting to measure resistance, make sure there is no power to the circuit.

8. Disconnect the 2 white circuit breaker wires from the batteries. One labeled (+) positive terminal on one battery and the other labeled (-) negative terminal on the opposite battery.

9. Measure Resistance across the terminals on the circuit breaker.

- Less than 10 ohms – Go to the next step.
- Open – Replace the circuit breaker.

10. Check continuity across the circuit breaker wires. Remove the positive (red) terminal and the negative (black) terminal wires from the batteries and check continuity across each wire. Replace wires as necessary.

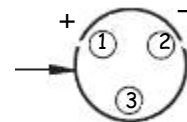
SCENARIO 3: Batteries Will Not Charge (Battery Box Charging Test)

NOTE: Battery chargers will not charge the batteries unless the battery voltage is 18VDC or above and there is a closed circuit between the batteries. The circuit breaker completes that circuit. *Make sure that the circuit breaker is reset.* If necessary, use a set of known good batteries.

1. Check the voltage across pin 1 (+) and pin 2 (-) on the charger XLR connector.

Note: The charger must be plugged in and turned to the on position.

- Greater than 24VDC – Go to the next step.
- Less than 24VDC – Try another wall outlet or known good charger.



WARNING Do not touch either of the multimeter probes on the third pin or the XLR connector cover. You may damage the charger.

2. Remove the seat and the battery box cover by removing the 9 screws on the underside of the battery box.

Note: The battery box must be installed to perform the following testing procedures.

3. Make sure that the batteries are connected according to the battery connection diagram on the inside of the battery cover and/or on page 21. Check the batteries and cables for corroded or loose terminals. Clean and tighten if necessary.

4. Measure voltage across the battery negative (black) terminal and the battery positive (red) terminal.

- Less than 18VDC – Load test and replace batteries as necessary.
- Greater than 18VDC – Go to next step.
- 0VDC – Go to step 9 on page 11.

5. Measure voltage across pin 1 (+) and pin 2 (-) on the battery box charger port located on the outside of the battery box. *Note: The battery box must be removed to perform the following testing procedures.*



- Less than 18VDC – Load test and replace batteries as necessary.
- 0VDC – Check in-line fuse for continuity.



WARNING Before attempting to measure resistance, make sure there is no power to the circuit.

If the fuse is bad (open), replace with the **exact type and rating fuse**.

If the fuse is good (short), check the battery box charger port wires for continuity.

Troubleshooting Guide for the VR2 Power System

Step 1: Battery voltage is always the first thing to check.

A. Check the battery voltage through the 3-pin battery charger port located on the front of the controller as shown in figure 1.

- Set voltmeter to the 50 VDC scale.
- Place the meter leads into the two outside pins of the battery charger port as shown in figure 2.
- Meter should read approximately 25 VDC.

B. If the voltage is below 25 VDC:

- Recharge the batteries for 8 hours.
- Check wiring for any visible damage and make sure all the cables are connected properly.
- Make sure that the pins are seated in the connectors properly and the fuses are good.

C. If the voltage is 20 VDC or less:

- The battery charger may not recognize a low voltage and thus will not charge the batteries.
- Boost charge the batteries to bring the voltage up to a level that the charger will see, then plug the battery charger into the charger port and charge for 8 hours.
- If the batteries will not charge, replace both batteries.

D. If the voltage is dropping too quickly, perform a load test on the batteries using a load tester. If you do not have access to a load tester, you can load test by performing the follow steps.

- Place the meter leads into the outside pins of the battery charger port as shown in figure 2. Sit in the power chair and drive it.
- After an initial drop, the voltage should hold steady at approximately 24VDC or higher when driving with a load on the chair.
- If the voltage continues to drop while driving, replace BOTH batteries.



Figure 1



Figure 2

Control System Status indication

The battery gauge and maximum speed / profile indicator show the status of the control system.

Battery Gauge is Steady

This indicates that all is well.

Battery Gauge Flashes Slowly

The control system is functioning correctly, but you should charge the battery as soon as possible.

Battery Gauge Steps Up

The wheelchair batteries are being charged. You will not be able to drive the wheelchair until the charger is disconnected and you have switched the control system off and on again.

Battery Gauge Flashes Rapidly (even with the joystick released)

The control system safety circuits have operated and the control system has been prevented from moving the wheelchair. This indicates a system trip, i.e. the VR2 has detected a problem somewhere in the wheelchair's electrical system.

Please follow this procedure:

- Switch off the control system.
- Make sure that all connectors on the wheelchair and the control system are mated securely.
- Check the condition of the battery.
- If you can't find the problem, refer to the Diagnostic "Flash Codes" on page 14.
- Switch on the control system again and try to drive the wheelchair. If the safety circuits operate again, switch off and do not try to use the wheelchair. **Contact Golden Technical Support at 800-624-6374.**

Step 2: Diagnostic “Flash Codes”

If a system trip occurs, you can find out what has happened by counting the number of bars on the battery gauge that are flashing.

Below is a list of self-help actions. Go to the number in the list which matches the number of flashing bars to diagnose the problem. Follow the troubleshooting instruction for each specific flash code to repair the unit.

If the problem persists after you have made the repairs, contact *Golden Technical Support at 800-624-6374*.

** If the programmable parameter, Motor Swap has been enabled, then left and right hand references in this table will need transposing.*

1 Bar 	The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If the connections are good, try charging the battery.
2 Bar 	The left hand motor* has a bad connection. Check the connections to the left hand motor.
3 Bar 	The left hand motor* has a short circuit to a battery connection.
4 Bar 	The right hand motor* has a bad connection. Check the connections to the right hand module.
5 Bar 	The right hand motor* has a short circuit to a battery connection.
6 Bar 	The wheelchair is being prevented from driving by an external signal. Make sure the battery charger is not connected to the power chair.
7 Bar 	A joystick fault is indicated. Make sure that the joystick is in the center position before switching on the control system.
8 Bar 	A control system fault is indicated. Make sure that all connections are secure.
9 Bar 	The parking brakes have a bad connection. Check the parking brake and motor connections. Make sure the control system connections are secure.
10 Bar 	An excessive voltage has been applied to the control system. This is usually caused by a poor battery connection. Check the battery connections.

Flash Code 1: Low Battery Voltage

- A. Try charging the batteries.
- B. Check the battery voltage and cabling. Refer to step 1 on page 15.
- C. If the battery voltage fault persists after completing step 1, replace the batteries.

Flash Code 2: Left Motor Disconnected

- A. Check the connections to the left hand motor by disconnecting and reconnecting the motor harness.
 - Turn the controller off and then on again to clear the fault.

Flash Code 3: Left Motor Wiring Trip

A. Check the resistance of the left motor to determine if the fault is in the motor or the controller.

- Set your meter to the 20 Ohm scale.
- Touch the leads together to make sure the ohm meter is accurate. You should have 0 ohms at this point. If not, your meter needs to be calibrated.
- Place the red and black meter leads on the two bottom pins of the connector on the motor as shown in figure 3.
- Meter reading should be between 0.3 and 5 ohms.
- Any reading outside this range, replace the motor.

B. Check the resistance of the M2 motor connector on the controller.

- Disconnect the battery from the controller.
- Set your meter to the 200k ohm scale.
- Touch the leads together to make sure the meter is accurate. You should have 0 ohms at this point. If not, your meter needs to be calibrated.
- Place the red and black meter leads on the two bottom pins of the M2 motor connector on the controller as shown in figure 4.
- Meter reading should be approximately 93k ohms.
- Any reading outside this range, replace the controller.

C. If the reading is within range, and the controller still displays a flash code, check the wiring for visible damage and that all cables are connected properly. Make sure all connectors are seated properly in their connectors.



Figure 3



Figure 4

Flash Code 4: Right Motor Disconnected

A. Check the connections to the right hand motor by disconnecting and reconnecting the motor harness.

- Turn the controller off and then on again to clear the fault.

Flash Code 5: Right Motor Wiring Trip

A. Check the resistance of the right motor to determine if the fault is in the motor or the controller.

- Set your meter to the 20 Ohm scale.
- Touch the leads together to make sure the ohm meter is accurate. You should have 0 ohms at this point. If not, your meter needs to be calibrated.
- Place the red and black meter leads on the two bottom pins of the connector on the motor as shown in figure 5.
- Meter reading should be between 0.3 and 5 ohms.
- Any reading outside this range, replace the motor.

B. Check the resistance of the M1 motor connector on the controller.

- Disconnect the battery from the controller.
- Set your meter to the 200k ohm scale.
- Touch the leads together to make sure the meter is accurate. You should have 0 ohms at this point. If not, your meter needs to be calibrated.
- Place the red and black meter leads on the two bottom pins of the M1 motor connector on the controller as shown in figure 6.
- Meter reading should be 93k ohms.
- Any reading outside this range, replace the controller.

C. If the reading is within range, and the controller still displays a flash code, check the wiring for visible damage and that all cables are connected properly. Make sure all connectors are seated properly in their connectors.



Figure 5



Figure 6

Flash Code 6: Charger Connected

- Check to see if the battery charger is connected.
- Check all connections and wiring.

Flash Code 7: Possible Joystick Trip

- Make sure the joystick is in the center position before switching on the control system.
- Check all connections and wiring.

Flash Code 8: Possible Control System Trip

- Make sure all connections are secure.
- Check that the wiring is not damaged.
- Make sure all pins are seated properly in their connectors.
- Check all harnesses for continuity.
- If after performing the previous tests and the fault still persists; replace the VR2 power and joystick modules.

Flash Code 9: Solenoid Brake Trip

- Make sure the left and right park brake levers are engaged.
 - If disengaged, re-engage the park brake lever(s) and turn the power off and back on to reset flash code.
- Check the resistance of the left and right park brakes, to determine if the fault is in one of the park brakes or in the controller.
 - Set your meter to the 200 ohm scale.

- Touch the leads together to make sure the meter is accurate. You should have 0 ohms at this point. If not, your meter needs to be calibrated.
- Place the red and black meter leads on the two top pins of the left and right motor connectors as shown in figure 7.
- Meter reading should be between 40 and 80 ohms.
- Any reading outside this range, replace that park brake.

C. If the reading is within range, and the controller still displays a flash code, check the wiring for visible damage and that all cables are connected properly. Make sure all connectors are seated properly in their connectors.



Figure7

Flash Code 10: High Battery Voltage

- Check the battery voltage.
- Check the battery connections and wiring.
- Call Technical Support.

Step 3: Check for other conditions displayed by the PG VR2 Control Unit.

Slow or sluggish movement

If the wheelchair does not travel at full speed or does not respond quickly enough, and the battery condition is good, check the maximum speed setting. If adjusting the speed setting does not remedy the problem then there may be a non-hazardous fault. **Contact Golden Technical Support at 800-624-6374.**

Speed / Profile Indicator is Steady

The display will vary slightly depending on whether the control system is programmed to operate with drive profiles.

Speed Indication

The number of LEDs illuminated shows the maximum speed setting. For example, if the setting is speed level 4, then the four left hand LEDs will be illuminated.

Profile Indication

The LED illuminated shows the selected drive profile. For example, if drive profile 4 is selected, then the fourth LED's from the left will be illuminated.

Speed / Profile Indicator Ripples Up and Down

This indicates the control system is locked. Refer to page 8 for details of how to unlock the control system.

Speed / Profile Indicator Flashes

This indicates the speed of the wheelchair is being limited for safety reasons. The exact reason will depend on the type of wheelchair.

How to Read a TruCharge Battery Gauge

- If the battery gauge shows red, yellow and green, the batteries are charged.
- If the battery gauges show just red and yellow, then you should charge the batteries as soon as you can.
- If the battery gauge shows just red, either steady or flashing slowly, then you should charge the batteries immediately.

IMPORTANT

New batteries **MUST** be fully charged prior to the initial use of the power chair.

Charge new batteries for 12 hours even if the battery gauge already shows a full charge. This is to condition the new batteries for maximum performance.

- For daily use, keep batteries fully charged. We recommend that you plug in the off-board charger after each use and charge 6-8 hours.

“For best results please charge your batteries overnight after every use.”

- If you are not going to use the power chair for more than a week, **fully charge** the batteries and then remove the battery box from the power chair.

Charging Guidelines Checklist to Maximize Battery Life

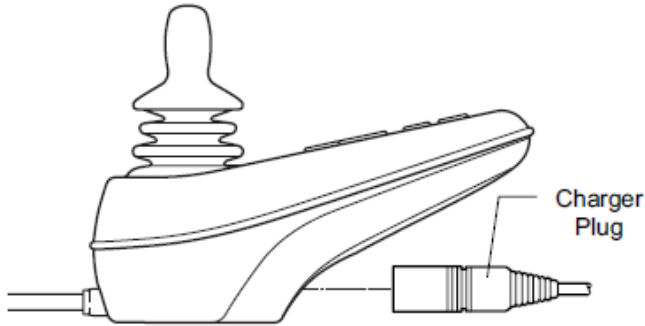
- ✓ Use only the automatic off-board charger supplied for all routine charging.
- ✓ Never use an automotive or wet type charger.
- ✓ Avoid deep discharges and never drain the batteries completely.
- ✓ Do not leave batteries in a low state of charge for extended periods. Charge a discharged battery as soon as possible.
- ✓ Fully recharge batteries regularly.
- ✓ Always store batteries fully charged.
- ✓ Check stored batteries once a month and recharge as necessary.

Battery Charging

To charge the wheelchair batteries connect the charger plug into the battery charging socket on the VR2. You will not be able to drive the wheelchair when the charger is connected.

To connect the charger plug, ensure the single pin is at the bottom, as shown in the illustration below, and then insert the charger plug into the VR2. The molded guide on the VR2 will help you to locate the plug. Make sure the plug is pushed fully into position. Now plug the 3-pronged plug into a standard AC wall outlet.

Note: Make sure the AC wall outlet you are using is not controlled by a light switch causing the charger to be switched off during the charging process.



VR2 Charger Connection

Pin	Connection
1	Battery Positive
2	Inhibit
3	Battery Negative



Note: To prevent the wheelchair from driving while the charger is connected, pin 3 must be linked to pin 2 inside the charger's plug.

Battery Charging

Alternatively, you may charge the battery pack directly.

1. Remove the battery pack from the power chair.
2. Locate the charger port at the rear side of the battery pack and swing the cover out of the way.
3. Plug the charger into the battery pack socket.

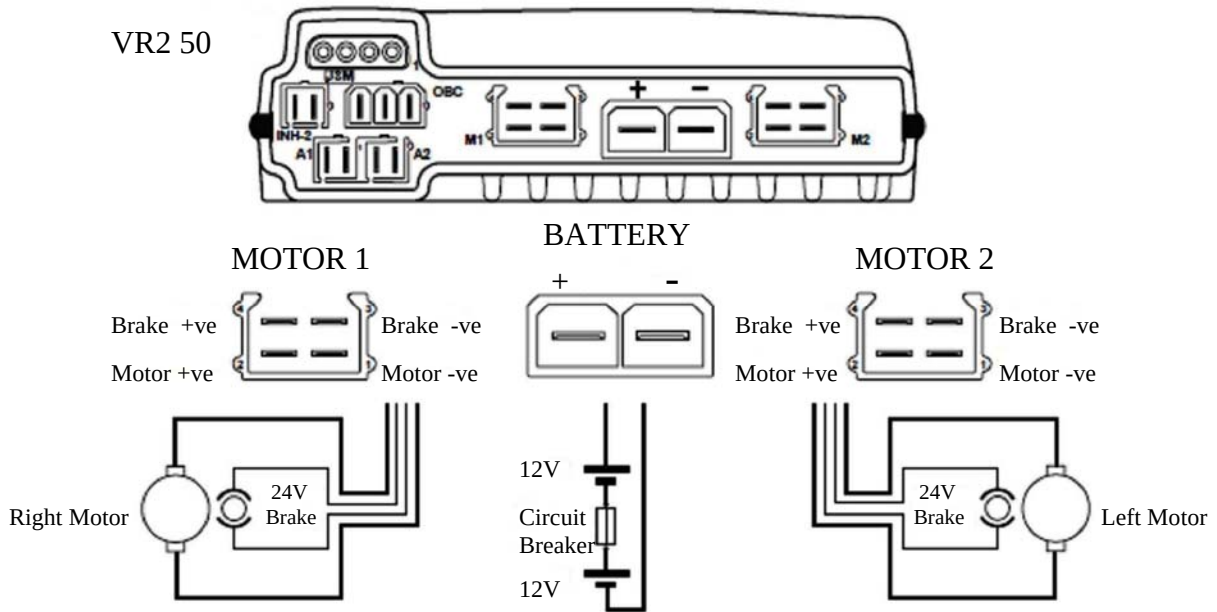
Charger port



4. Insert the plug at the other end of the charger power cord into a standard electrical wall outlet.
5. Disconnect the charger power cord from the wall outlet and from the battery pack charging socket when the batteries are fully charged.

NOTE: The batteries should be fully charged in approximately eight hours. A full charge is indicated when the green light on the battery charger side panel turns on and all 10 joystick LEDs are lit when the joystick is turned on.

VR2 POWER MODULE CONNECTIONS

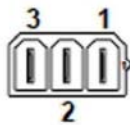


INHIBIT 2



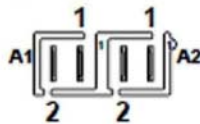
INH-2	Function
1	0V
2	Inhibit 2

ON-BOARD CHARGER



OBC	Function
1	Battery +ve
2	Inhibit 3
3	0V

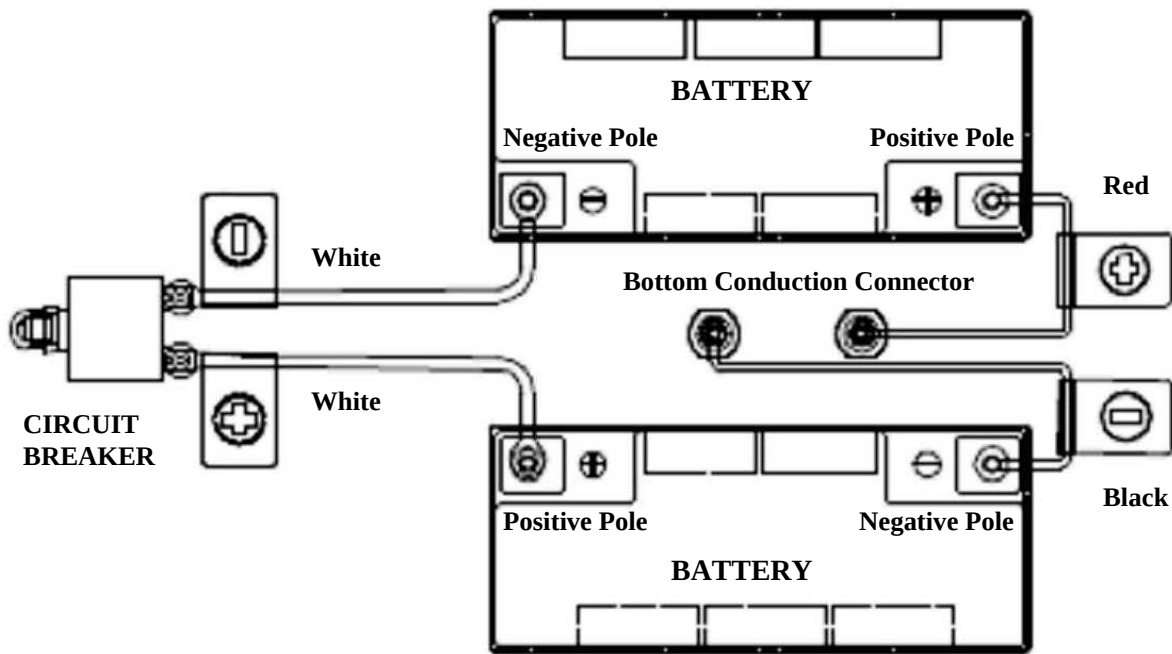
ACTUATORS



Joystick Movement	Pin 1	Pin 2	Actuator Movement
Forward	+ve	-ve	Channel Up
Backward	-ve	+ve	Channel Down

Note: The inhibit-2, on-board charger, and actuator connections are not being used on this power chair.

BATTERY WIRING DIAGRAM



REPLACEMENT INSTRUCTIONS

DRIVE WHEEL

1. Turn off power.
2. Place the power chair in drive mode.
3. Place a support under the frame so that the drive wheel is off the ground.
4. Remove the 17mm nut holding the drive wheel onto the axle. **Note: Make sure to retain the nut and washer.**
5. Remove the drive wheel noting hardware placement. **Note: Make sure to retain the axle key.** See figure 8.
6. Install the new drive wheel. **Note: Make sure the axle key is installed correctly in the axle slot.**
7. Remove the frame support.
8. Power on and test the power chair.

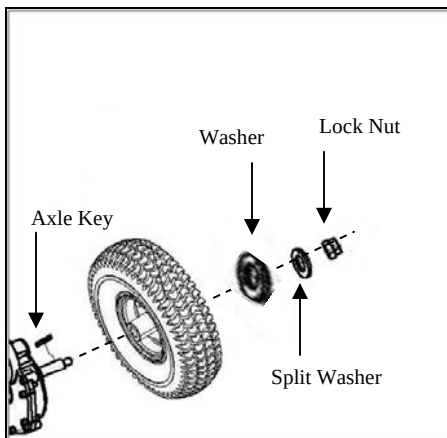


Figure 8. Drive Wheel Assembly

CASTER

1. Turn off power.
2. Place the power chair in drive mode.
3. Place a support under the frame so that the caster wheel is off of the ground.
4. Remove the cap from caster arm. See figure 9.
5. Remove the nut that fastens the caster wheel to the caster arm. See figure 9.
- Note: Make sure you retain the hardware used to secure the caster assembly.**
6. Install the new caster assembly.
7. Remove the frame support.
8. Power on and test the power chair.

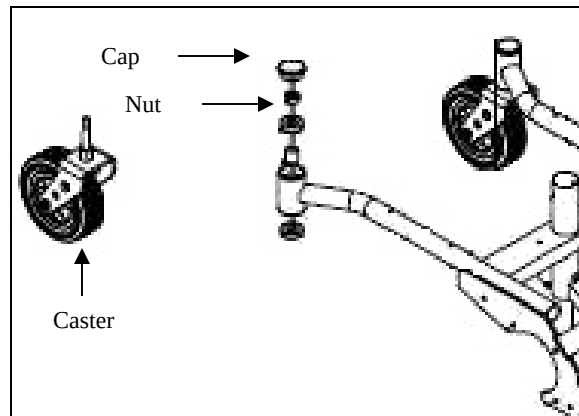


Figure 9. Caster Assembly (Right side shown)

MOTOR/BRAKE ASSEMBLY

1. Turn off power.
2. Place the power chair in drive mode.
3. Disconnect the bus cable coming from the joystick.
4. Remove the seat and seat post.
5. Remove the battery box.
6. Remove the (red metallic) body shroud by removing the (8) Phillips head screws from the bottom side of the frame.
7. Disconnect the motor harness (either left or right) from the power module.
8. Prop up the frame on the side being replaced in order to raise the wheel off the ground.
9. Remove the 17mm nut holding the drive wheel onto the axle. **Note: Make sure to retain the axle key.**
10. Remove the drive wheel (either left or right) from the power chair.
11. Remove the (3) 5mm Allen head bolts connecting the motor/brake assembly to the frame. See figure 10 on page 23.
12. Install the new motor/brake assembly using the (3) 5mm Allen head bolts.
13. Install the drive wheel back onto the new motor/brake assembly.
- Note: Make sure the axle key is installed correctly in the axle slot.**
14. Reconnect the motor/brake harness (either left or right) to the power module.
15. Reinstall the (red metallic) body shroud by tightening the (8) Phillips head screws through the bottom side of the frame into the shroud.
16. Remove the prop; making sure the power chair is stable.
17. Reinstall the battery box.
18. Reinstall the seat post and seat.
19. Reconnect the bus cable coming from the joystick.
20. Power on and test the power chair.

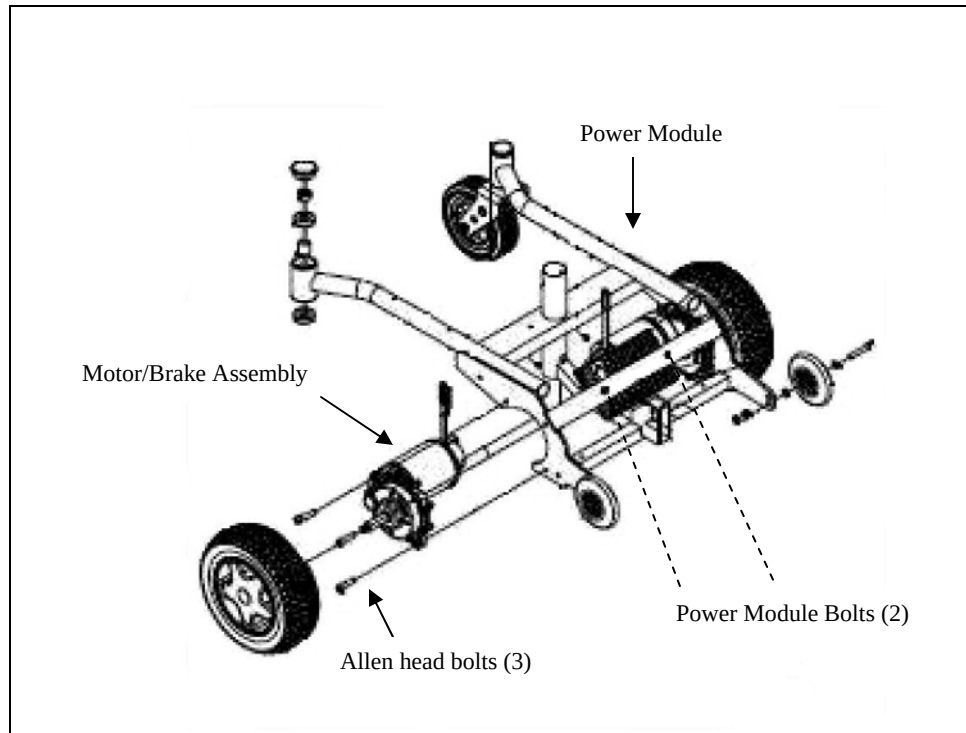


Figure 10. Frame with motor/brake and power module.

POWER MODULE

1. Turn off power.
2. Place the power chair in drive mode.
3. Disconnect the bus cable coming from the joystick.
4. Remove the seat and seat post.
5. Remove the battery box.
6. Remove the (red metallic) body shroud by removing the (8) Phillips head screws from the bottom side of the frame.
7. Disconnect the motor harnesses M2 and M1, the power harness, and the bus cable from the power module.
8. Remove the power module from the frame, by removing the (2) bolts securing it. See figure 10.
9. Install the new power module onto the frame.
10. Reconnect the motor harnesses M2 and M1, the power harness, and the bus cable to the new power module.
11. Reinstall the (red metallic) body shroud and secure.
12. Reinstall the battery box.
13. Reinstall the seat.
14. Reconnect the bus cable coming from the joystick.
15. Power on and test the power chair.

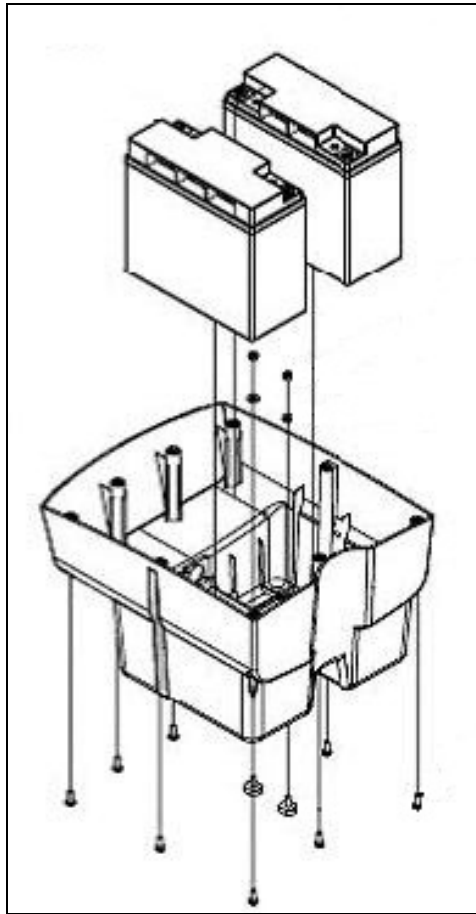


Figure 11. Battery Box (Inside View)

BATTERIES

1. Turn off power.
2. Place the power chair in drive mode.
3. Disconnect the bus cable coming from the joystick.
4. Remove the seat.
5. Remove the battery box from the power chair.
6. Remove the 9 screws on the bottom side of the battery box that are holding the lid on. See figure 11.
7. Remove the hardware connecting each battery cable to each battery terminal noting the hardware placement.

Note: Retain the hardware.

8. Remove the two batteries.
9. Place the two new batteries into the battery box. Reconnect each battery harness to each battery terminal and tighten the hardware.
10. Reinstall the battery box cover.
11. Reinstall the battery box into the power chair.
12. Reinstall the seat.
12. Reconnect the bus cable coming from the joystick.
13. Power on and test the power chair.

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 12. 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 multimeter 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

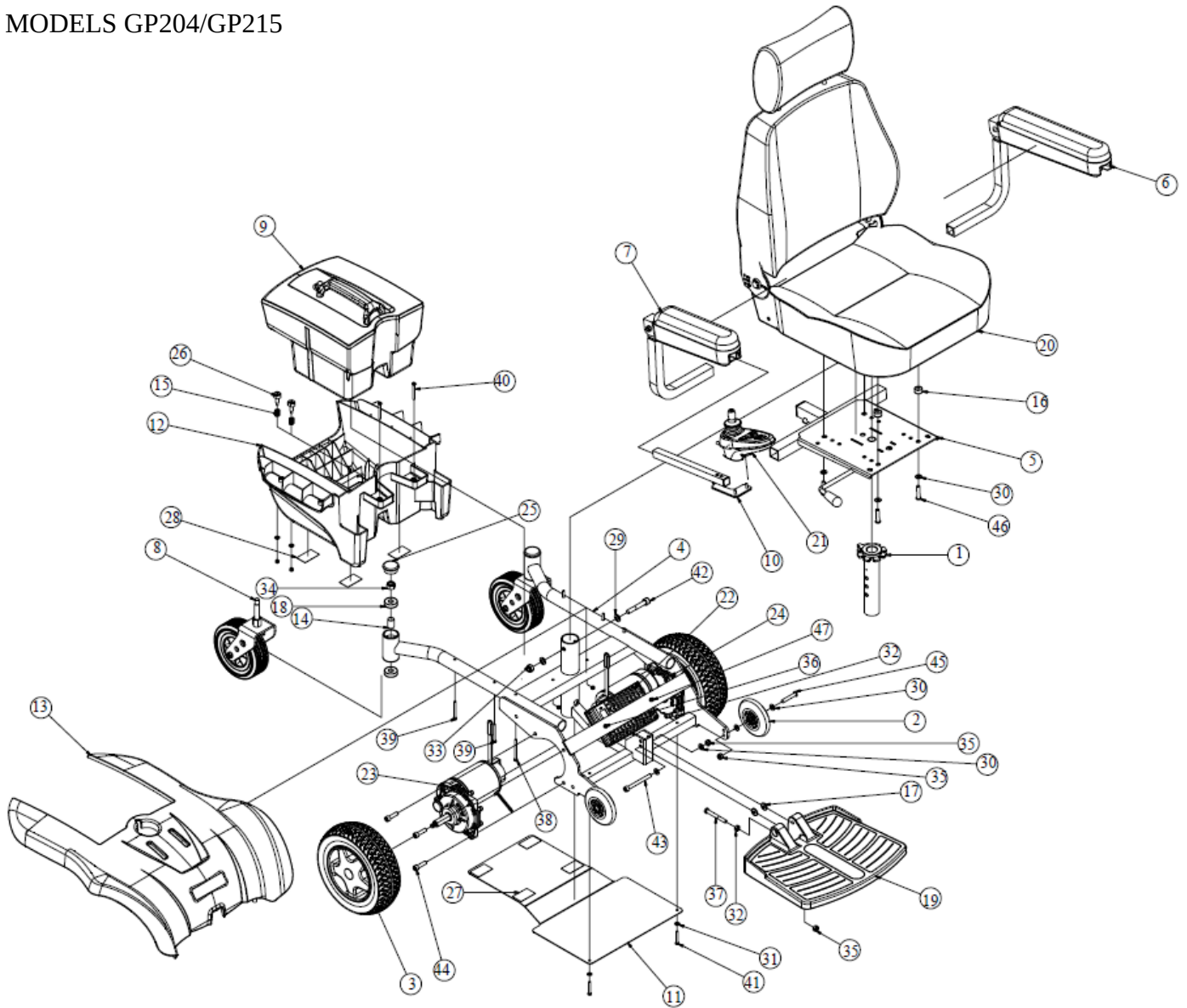
Set the dial to the "ohms" setting with a multimeter. On an individual ohmmeter, you may have to set a range for the readings, in ohms, kilohms or megohms. Use the range you located in your service manual to set the dial.



Figure 13. Multimeter (Set to Ohms)

ILLUSTRATED PARTS BREAKDOWN

MODELS GP204/GP215

**ALANTE DX COMPLETE ASSEMBLY (PWG001-391-02)**

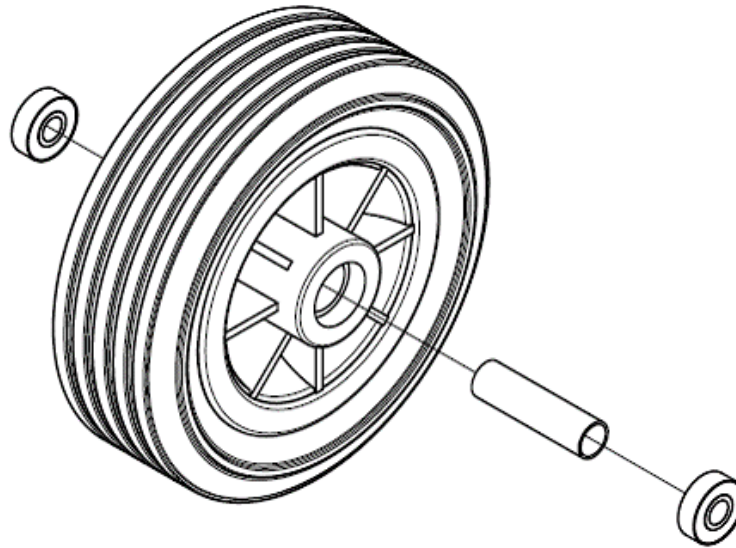
Item	Part Number	Description	Qty.
1	P3095-0013-01	Seat post upper with angled daisy	1
2	P3011-0040-01	Anti-tipper 4" PU wheel	2
3	P3011-0039-01	240x75 wheel unit, with PU tire	2
4	P2012-0020-01	Compass Jr frame unit	1
5	A3095-0011-01	Seat swivel assembly	1
6	A3095-0010-01	Armrest assembly (long)-- Left side, incl. arm pad & bracket & hardware	1
7	A3095-0009-01	Armrest assembly(short) -- Right side, incl. arm pad & bracket & hardware	1
8	A3067-0040-01	6 x 2 caster unit, w/ PU tire	2
9	A3064-0021-01	22AH battery box assembly, includes 22AH battery	1
10	A2029-0006-01	Joystick holder assembly	1

Item	Part Number	Description	Qty.
11	3093-0023-01	Plastic cover(sheet)	1
12	3093-0020-01	Plastic battery receiver	1
13	3093-0019-01	Plastic shroud top - in Metallic Red color	1
14	3061-0002-01	Bushing, in the fork's bearing house	2
15	3051-0015-01	spring	2
16	3046-0013-01	Spacer	2
17	3046-0012-01	Spacer	2
18	3045-0009-01	Bearing 6201-ZZ	4
19	3042-0020-01	Plastic footplate	1
20	3030-0038-01	Captain seat, with headrest	1
21	3023-0021-01	VR2 joystick	1
22	3023-0020-07	PG-VR2 power module	1
23	3021-0045-01	DC motor gearbox unit w/Electromagnetic braking system - Right side	1
24	3021-0044-01	DC motor gearbox unit w/Electromagnetic braking system - Left side	1
25	3010-0002-01	Dust cover	2
26	3002-0018-01	Battery contact - bottom	2
27	0034-0002-02	Velcro -- male side	4
28	0034-0001-02	Velcro -- female side	4
29	0012-0011-02	Iron washer	2
30	0012-0009-02	Iron washer	10
31	0012-0002-02	Iron washer	4
32	0008-0004-01	Nut	7
33	0006-0005-02	Nylock nut	1
34	0006-0004-02	Nylock nut	2
35	0006-0003-02	Nylock nut	4
36	0006-0002-02	Nylock nut	6
37	0005-0011-01	Hexagon head cap screws (bolt)	1
38	0004-0011-01	Button Head Cap Phillips Screw	2
39	0004-0010-01	Button Head Cap Phillips Screw	4
40	0004-0009-01	Button Head Cap Phillips Screw	2
41	0004-0008-01	Button Head Cap Phillips Screw	2
42	0001-0035-02	Hexagon Socket Cap Screw	1
43	0001-0024-02	Hexagon Socket Cap Screw	1
44	0001-0014-01	Hexagon Socket Cap Screw	6
45	0000-0026-02	Hexagon Socket Button Head Cap Screw	2
46	0000-0024-03	Hexagon Socket Button Head Cap Screw	4
47	0000-0006-02	Hexagon Socket Button Head Cap Screw	2

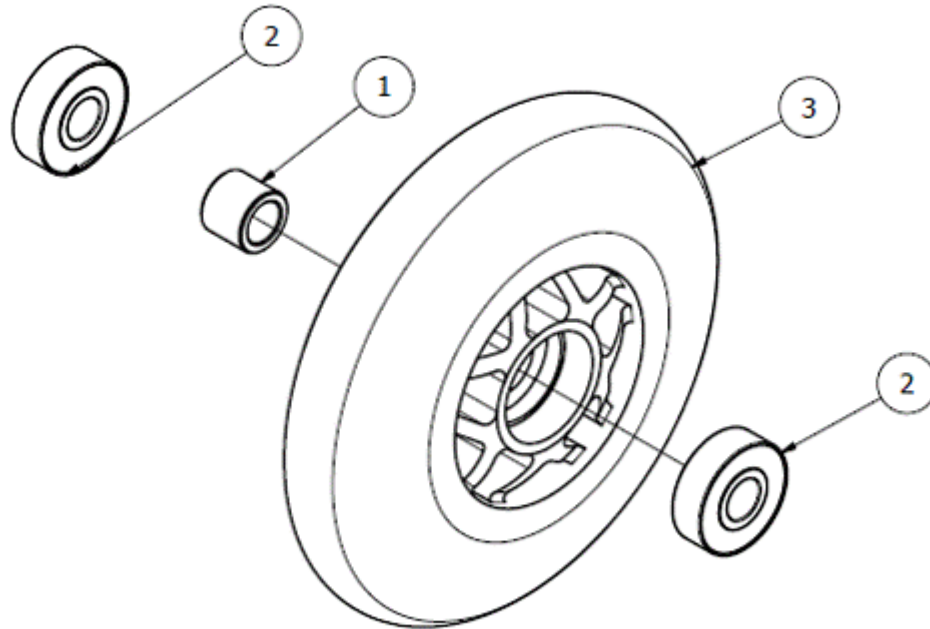
PWG001-391-02 CONTINUED (NO ILLUSTRATION AVAILABLE)

Item	Part Number	Description	Qty.
48	P3026-0032-01	VR2 wiring harnesses	1
49	3023-0023-01	VR2 Extension cord	1
50	3024-0014-01	HP1211B1 charger -3A	1
51	0039-0001-01	L-type hexagon wrench	1
52	0012-0021-02	Spring washer M8	1
53	1024-0001-01	Styrofoam board	1
54	1020-0009-01	Partition	1
55	1020-0008-01	L-type paper supporter	4
56	1020-0007-01	Partition	2
57	1017-0001-01	inner box	1
58	1013-0004-01	EPE bag for upper post	1
59	1013-0001-01	EPE bag	2
60	1012-0001-01	Binder -- black color	1
61	1010-0004-01	Zip PE bag	1
62	1009-0012-01	PE bag	5
63	1009-0006-01	PE bag	1
64	1005-0029-01	Master box for Alante DX	1
65	3053-0073-01	Maximum loading sticker	1
66	3053-0068-01	"Golden" sticker	2
67	3069-0034-01	Alante DX user's manual	1
68	3053-0069-01	"Alante DX" sticker	2
69	3053-0070-01	Alante DX serial number sticker	1
70	3053-0071-01	Motor braking release sticker	1
71	3053-0072-01	Battery wiring circuit diagram sticker	1
72	3002-0019-01	Fabric	1

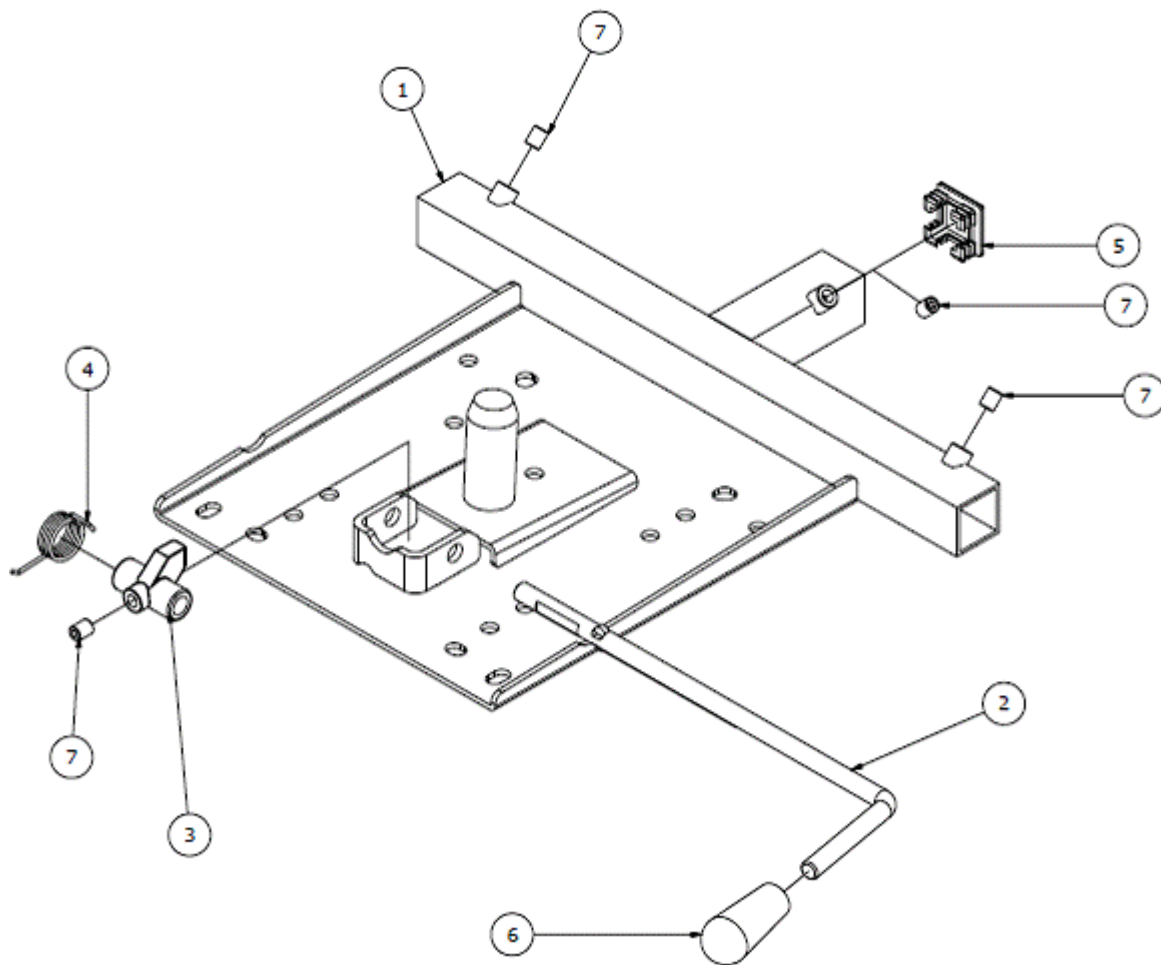
* Items 48-72 are not illustrated. Only part numbers are available.

**6x2 CASTER WHEEL (P3011-0041)**

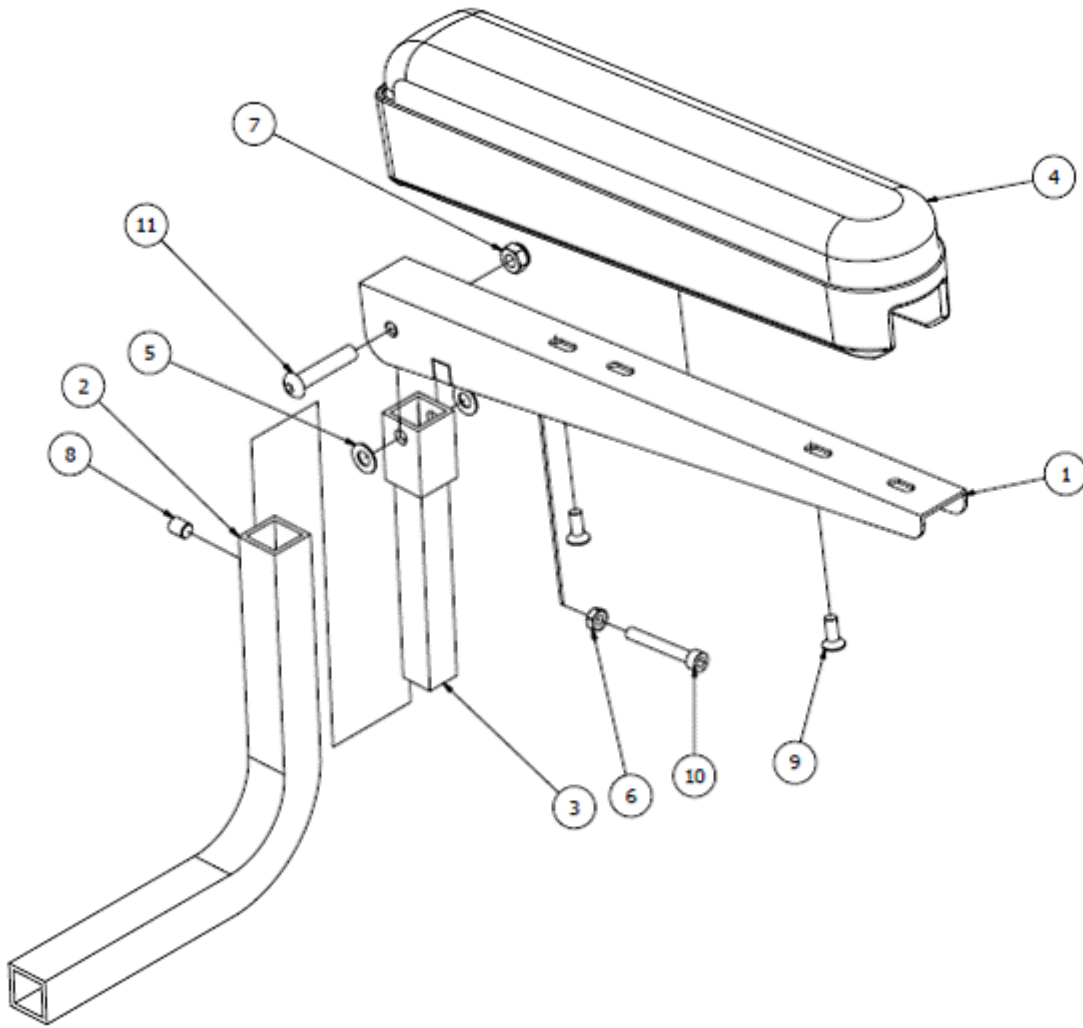
Item	Part Number	Description	Qty.
1	3059-0001-01	200*50 wheel bushing	1
2	3045-0001-01	608ZZ bearing	2
3	3011-0016-01	6"*2" PU wheel	1

**ANTI-TIP WHEEL (P3011-0040)**

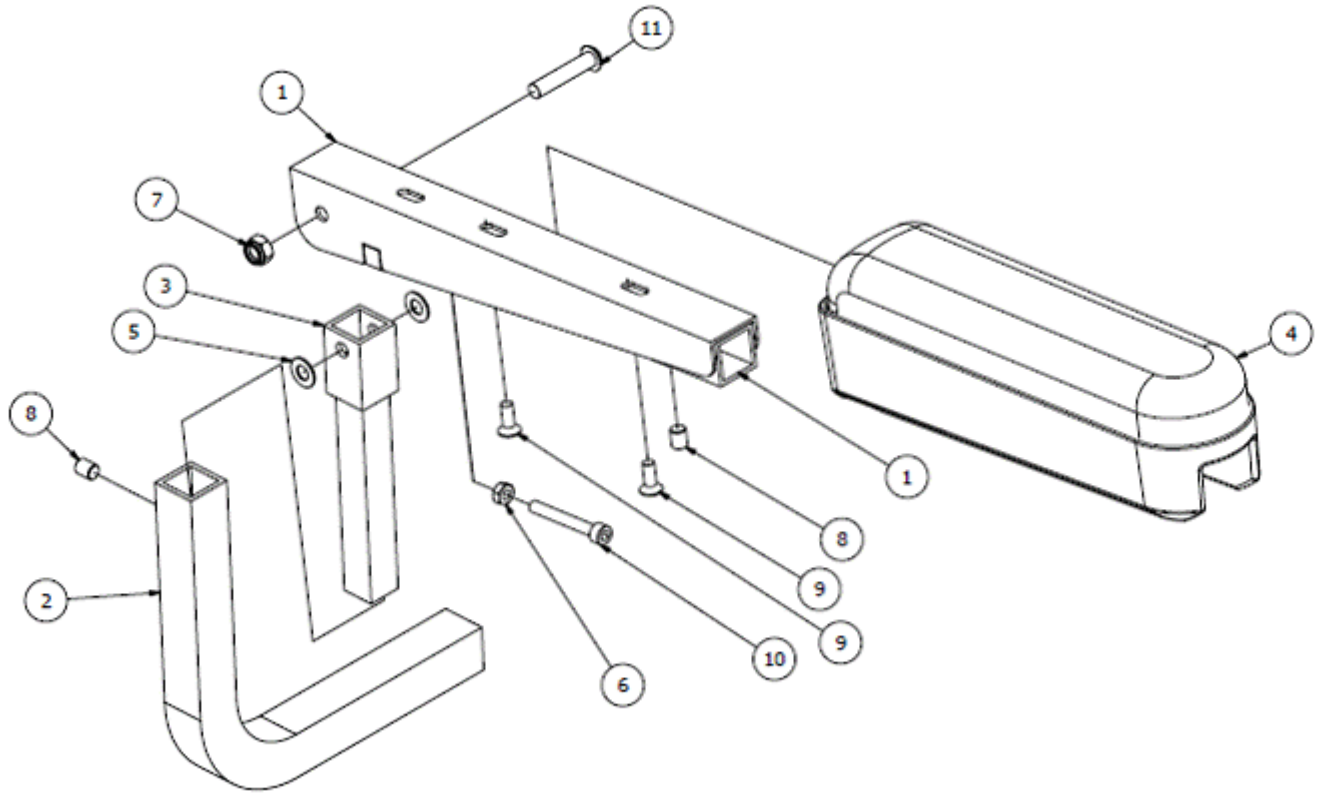
Item	Part Number	Description	Qty.
1	3059-0009-00	M8-10L wheel bushing - raw material	1
2	3045-0001-01	608ZZ bearing	2
3	3011-0004-03	4" PU wheel	1


SEAT SWIVEL ASSEMBLY (A3095-0011)

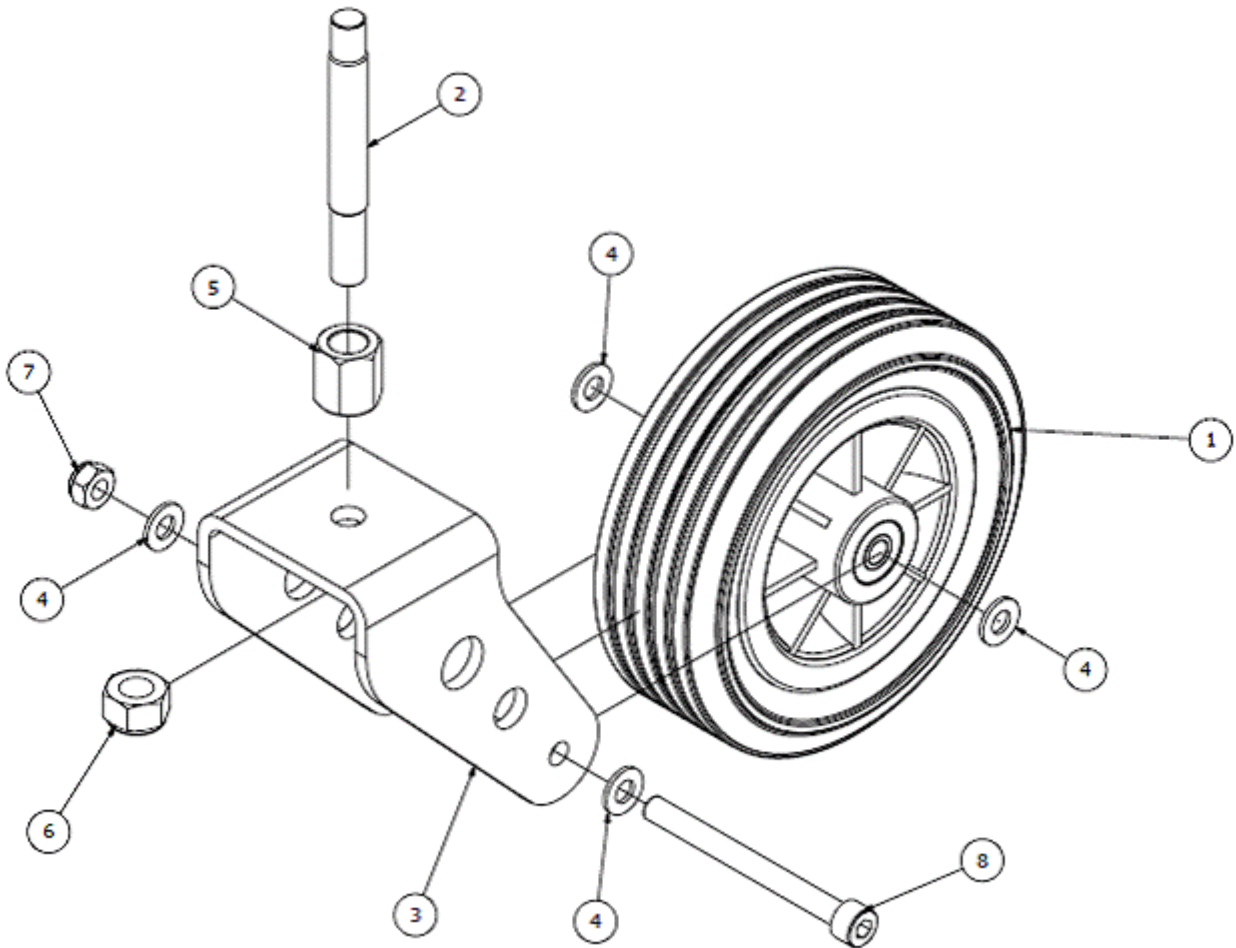
Item	Part Number	Description	Qty.
1	P3095-0012-01	Seat swivel	1
2	3095-0028-01	Lever of seat swivel	1
3	3095-0021-01	Located block of seat swivel	1
4	3051-0016-01	Spring for seat swivel located block	1
5	3038-0024-01	SQ3030-1 30x30 square tube end plug	1
6	3036-0003-02	Grip - black color	1
7	0003-0002-00	Headless screw with inner hexagon hole M8-10	4

**LEFT ARMREST ASSEMBLY (A3095-0010)**

Item	Part Number	Description	Qty.
1	P3095-0006-01	Long armrest bracket	1
2	P2053-0006-01	CN armrest support bracket - left side	1
3	P2053-0005-01	CN armrest support fixed bracket	1
4	3033-0018-01	HC-179 long arm pad - left side	1
5	0014-0002-01	Nylon washer M8.2-16	2
6	0008-0001-01	M6-P1.0 nut	1
7	0006-0003-02	M8-P1.25 Nylock nut	1
8	0003-0002-00	Headless screw with inner hexagon hole M8-10	1
9	0002-0019-02	Head screw with inner hexagon hole M6-16	2
10	0001-0006-02	Head screw with inner hexagon hole M6-45	1
11	0000-0025-02	Half-dome head screw with hexagon hole M8-40	1

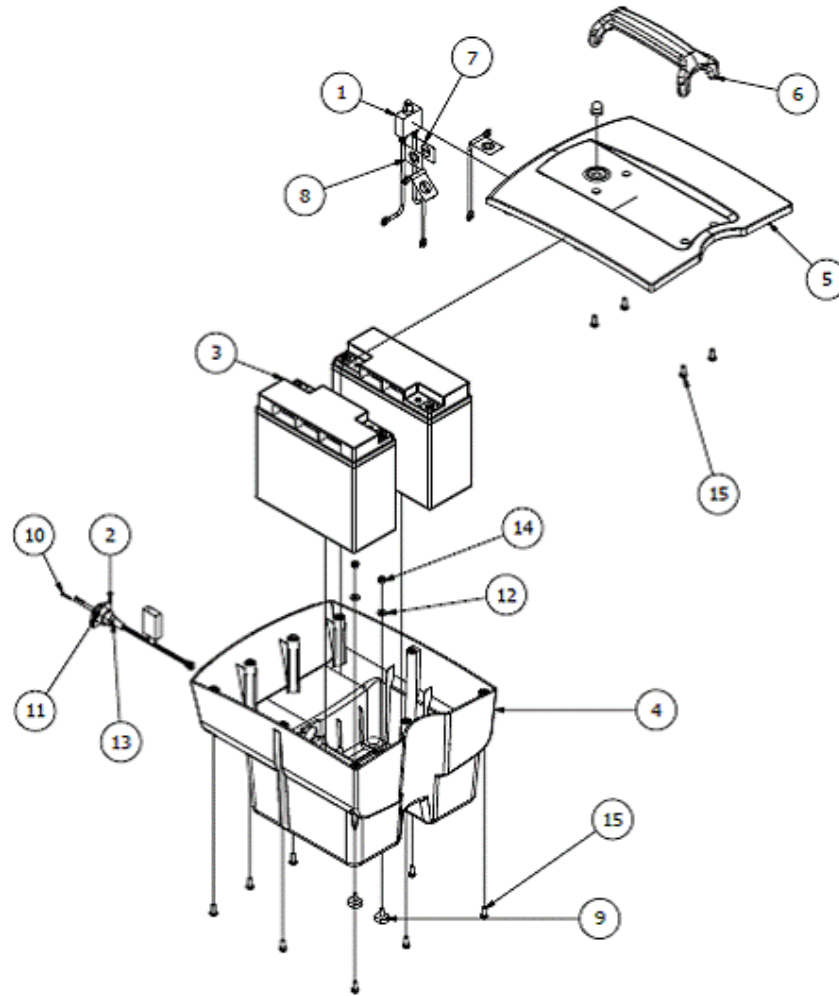

RIGHT ARMREST ASSEMBLY (A3095-0009)

Item	Part Number	Description	Qty.
1	P3095-0007-01	Short armrest bracket	1
2	P2053-0007-01	CN armrest support bracket - Right side	1
3	P2053-0005-01	CN armrest support fixed bracket	1
4	3033-0019-01	HC-179 arm pad - Right side	1
5	0014-0002-01	Nylon washer M8.2-16B-1t	2
6	0008-0001-01	M6-P1.0 nut	1
7	0006-0003-02	M8-P1.25 Nylock nut	1
8	0003-0002-00	Headless screw with inner hexagon hole M8-10	2
9	0002-0019-02	Head screw with inner hexagon hole M6-16	2
10	0001-0006-02	Head screw with inner hexagon hole M6-45	1
11	0000-0025-02	Half-dome head screw with hexagon hole M8-40	1



CASTER WHEEL ASSEMBLY (A3067-0040)

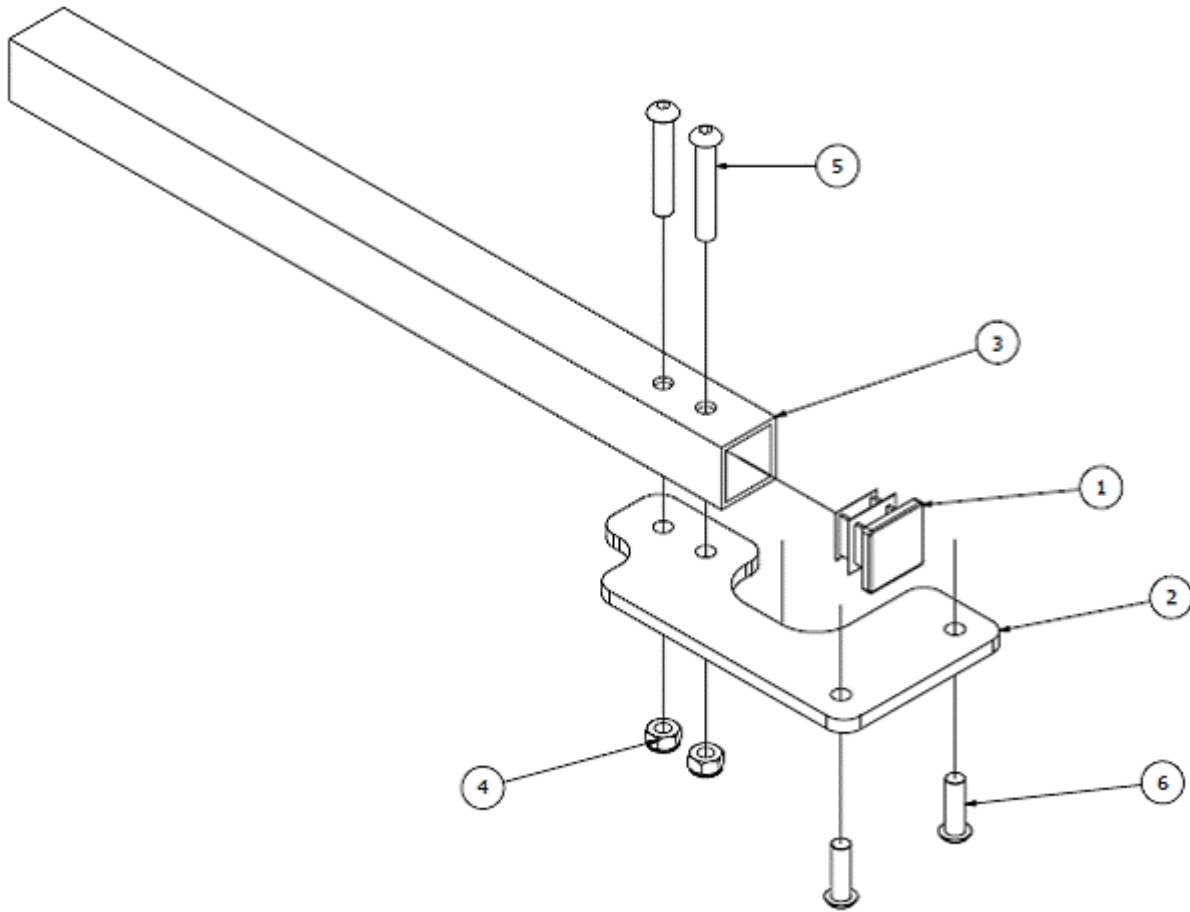
Item	Part Number	Description	Qty.
1	P3011-0041-01	6x2 PU wheel unit	1
2	3008-0002-01	Front fork axle	1
3	3007-0016-01	Fork of 6x2 PU wheel unit	1
4	0012-0009-02	Iron washer M8-16B-1.5t	4
5	0009-0002-01	Nut for front fork axle	1
6	0006-0004-02	M12-P1.25 Nylock nut	1
7	0006-0003-02	M8-P1.25 Nylock nut	1
8	0001-0025-01	Hexagon Socket Cap Screw M8-85	1



22AH BATTERY BOX ASSEMBLY (A3064-0021)

Item	Part Number	Description	Qty.
1	P3026-0033-01	40A circuit breaker for Compass Jr (Alante DX)	1
2	P3026-0031-01	Battery charger wire for Compass Jr (Alante DX)	1
3	3082-0007-01	WP22-12NE 22AH battery	2
4	3064-0012-01	Battery box base for Compass Jr (Alante DX)	1
5	3064-0011-01	Battery box lid for Compass Jr (Alante DX)	1
6	3064-0010-01	Battery box handle for Compass Jr (Alante DX)	1
7	3053-0005-01	Negative - sticker for battery inner wire	2
8	3053-0004-01	Positive - sticker for battery inner wire	2
9	3002-0017-01	Battery box connecting copper head - upper	2
10	0013-0007-01	Flat head Cap Phillips Screw M2.5-16	2
11	0012-0016-01	Iron washer M3-8B-0.8t	2
12	0012-0002-01	Iron washer M5-12B	2
13	0008-0011-01	M2.5-P0.45 nut	2
14	0006-0002-01	M5-P0.8 nylon nut	2
15	0004-0007-01	Button Head Cap Phillips Screw M5-12	13
16	0034-0001-02	Velcro -- female side	2
17	1013-0005-01	EPE bag	1

Note: Item 3 – Use 18AH batteries for the Alante LT (model GP215).


JOYSTICK CONTROL ARM ASSEMBLY (A2029-0006)

Item	Part Number	Description	Qty.
1	3038-0005-01	SQ1818 18x18 square tube end plug	1
2	2029-0031-01	VR-2 controller fixed plate	1
3	2029-0030-01	Controller fixed bracket	1
4	0006-0002-02	M5-P0.8 nylon nut	2
5	0000-0005-02	Half-dome head screw with inner hexagon hole M5-30	2
6	0000-0002-02	Half-dome head screw with inner hexagon hole M5-16	2



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