



MOBILITY DIAGNOSTIC GUIDE

newVSI, VSI, VR2, PILOT+, S-DRIVE, EGIS & SOLO

If the Programmer displays **Unrecognized Error**, this is probably because the Programmer software needs upgrading to include the Help Text for that Error Code. Please refer to the Programmer's documentation for details of how to upgrade to the latest software.

Diagnostic Warning

Diagnostics should only be conducted by electronic service professionals with in-depth knowledge of PG Drives Technology electronic controllers. An incorrect or badly effected repair could result in an unsafe set-up of a vehicle.

PG Drives Technology accepts no liability for losses of any kind arising from an incorrect or badly effected repair.

PG Drives Technology accept no liability for losses of any kind arising from unauthorised opening, adjustments or modifications to any component of a control system.

0A00: Control System in Sleep Mode

Wheelchair Control Systems

This condition is indicated by the TruCharge display "blinking on" once every 2.5 seconds. It is not a trip condition, but an indication that the control system has gone to sleep. To awake the system, switch off and on again.

In the case of the VR2 the control system will turn off completely.

The control system goes to sleep after a programmed period of time. If you want to adjust this time or remove the function altogether go to the **Operation** group.

Scooter Controllers

This condition is indicated by the Status Indicator "blinking on" once every 2.5 seconds. It is not a trip condition, but an indication that the controller has gone to sleep. To awake the system, switch off and on again.

The controller goes to sleep after a programmed period of time. If you want to adjust this time or remove the function altogether go to the **Operation** group.

0300, 0810, 0814, 0815, 0816, 0817, 0E07, 0E08: Throttle Trip

This occurs when the controller detects a fault in the throttle or the connections to it. Check the connections and the Throttle.

If the trip is still present after the above checks have been made, then the controller may be defective.

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Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

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EGIS

0814 - Throttle High Reference disconnected (pin 12)

0815 - Throttle Potentiometer High or Low Ref. disconnected.

0816 - Short Circuit between Throttle Wiper and Throttle High Reference. (pins 7 & 12)

0817 - Short Circuit between Throttle Wiper and Throttle Low Reference. (pins 7 & 5)

S-DRIVE

0300 - Speed Limit Potentiometer wiper open. (Non-Trip, allows limited Drive Speed)

0815 - Throttle Potentiometer High or Low Ref. disconnected.

0E07 - Wiper shorted to either Ref. (Only applicable if an ISO-Test Resistor is fitted)

0E08 - Open circuit Throttle Potentiometer Wiper.

1320: Current Limit Active

This occurs when the control system operates above the Current Limit Threshold for a period of time greater than the Current Limit Time.

This has been designed to notify the Healthcare Technician that the control system has operated outside of its programmed range.

1330: Motor Stall Timeout

If the throttle is deflected but the scooter cannot drive because:

It is on a slope that is too steep, or

It tries to climb up a curb that is too high, or

It is trapped, then the maximum current (as set by the Current Foldback Threshold parameter) will flow through the motor continuously, because the motor is still trying to drive.

Motor stalling can cause motor damage when the motor becomes too hot. To prevent motor damage, the after Motor Stall Timeout current will be cut to the motor and the brake engaged. The occurrence of this event is recorded in the system log.

1500, 1501, 1502, 1504, 1505, 1506: Solenoid Brake Trip

This occurs when the control system detects a fault in the solenoid brakes or the connections to them. Check these connections and the solenoid brakes.

If the trip is still present after the above checks have been made, then the controller may be defective.

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EGIS

1500 - Open Circuit in Solenoid Brake Circuit.

1501 - Short Circuit in Solenoid Brake Circuit.

1502 - Over-current Solenoid Brake Circuit.

S-DRIVE

1500 - Short Circuit in Solenoid Brake Circuit.

1502 - Open Circuit in Solenoid Brake Circuit.

PILOT+

1505 - Refers to a Left Brake Trip

1506 - Refers to a Right Brake Trip

VSI

1501 - Short Circuit in Solenoid Brake Circuit.

1502 - Open Circuit in Solenoid Brake Circuit.

VR2

1505 - Refers to a Left Brake Trip

1506 - Refers to a Right Brake Trip

1600, 1601: High Battery Voltage

This occurs when the control system detects that the battery voltage has risen above 35V. The most common reasons for this are overcharging of the battery or bad connections between the control system and the batteries. Check the batteries and the connections to them.

If the trip is still present after the batteries and connections have been checked, then the control system may be defective.

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1D02: Front End Reconfiguration Trip

This is a safety feature that stops the vehicle driving if any of the Throttle Programmable Parameters have been written to. Intentionally or not.

To enable drive switch the controller off and on again.

The Trip Code can then be removed from the System Log.

1D05: Joystick Stationary Time Exceeded

This occurs when the joystick has been held stationary for an excessive period of time. The controller will stop drive to prevent possible damage the wheelchair's motors.

Turning the control system Off and On again will clear this error message.

If the message persists contact your wheelchair manufacturer.

1E03, 1E08: Off-board Charger Connected – Inhibit 2 Active

Please refer to the specific details for the controller currently connected.

VSI

This occurs when an off-board battery charger is connected to the charging socket of the VSI, and is indicated by the TruCharge battery gauge "stepping up." Check that the battery charger is disconnected.

If the trip is still present after the charger has been disconnected then the control system may be defective.

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PILOT+

This occurs when the control system detects that an off-board charger is connected to the charging socket in the Joystick Module. Check that the battery charger is disconnected.

If the trip is still present after the charger has been disconnected then the Joystick Module may be defective.

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VR2

This occurs when an off-board battery charger is connected to the charging socket of the VR2, and is indicated by the TruCharge battery gauge "stepping up." Check that the battery charger is disconnected.

If the trip is still present after the charger has been disconnected then the control system may be defective.

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S-DRIVE

This occurs when an off-board battery charger is connected to the charging socket, and is indicated by the TruCharge battery gauge "stepping up." Check that the battery charger is disconnected.

If the trip is still present after the charger has been disconnected then the controller may be defective.

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1E04, 1E09: Inhibit 2 Active

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the VSI's Inhibit 2 input is active. The Inhibit 2 input is via the blue 2 way connector and is normally associated with speed limiting functions. The operation of Inhibit 2 will depend upon the programmed settings of the VSI and the wheelchair on which it is being used.

Check all wiring and switches connected to Inhibit 2. If these appear to be in working order, then the VSI may be defective.

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PILOT+

The control system can be inhibited via pin 3 of the control socket. This inhibit signal can originate from devices such as on-board battery chargers or seat height switches. The polarity of the signal depends on the programming of the Power Module. Refer to the wheelchair operating manual to ascertain the polarity of the inhibit signal then check the output of the device from which it originates.

If the trip is still present after these checks then the Power Module or the ALM, if fitted may be defective.

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VR2

This occurs when the control system detects the Inhibit 2 input is active. The Inhibit 2 input is via the INH-2 way connector and is normally associated with actuator functions. The operation of Inhibit 2 will depend upon the programmed settings and the wheelchair on which it is being used.

Check all wiring and switches connected to Inhibit 2. If these appear to be in working order, then the Power Module may be defective.

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S-DRIVE

This occurs when the S-Drive's Inhibit 2 input is active. The Inhibit 2 input is via the Tiller connector and is normally associated with actuator functions. The operation of Inhibit 2 will depend upon the programmed settings of the S-Drive and the scooter on which it is being used.

Check all wiring and switches connected to Inhibit 2. If these appear to be in working order, then the controller may be defective.

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1E05, 1E0A: Inhibit 3 (On-board Charger) Active

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the VSI's Inhibit 3 input is active. The Inhibit 3 input is via the 3 way on-board charger (OBC) and is normally associated with this function. The operation of Inhibit 3 will depend upon the programmed settings of the VSI and the wheelchair on which it is being used.

Check all wiring, switches and OBC (if fitted) connected to Inhibit 3. If these appear to be in working order, then the VSI may be defective.

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S-DRIVE

This occurs when the S-Drive's Inhibit 3 input is active. The Inhibit 3 input is via the Tiller Connector and is normally associated with the On-board Charger function. The operation of Inhibit 3 will depend upon the programmed settings of the controller and the scooter on which it is being used.

Check all wiring, switches and OBC (if fitted) connected to Inhibit 3. If these appear to be in working order, then the controller may be defective.

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VR2

The control system can be inhibited via pin 2 of the control socket. This inhibit signal can originate from devices such as on-board battery chargers or seat height switches. Check the output of the device from which it originates.

If the trip is still present after these checks then the Power Module may be defective.

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2C00: Low Battery Voltage

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects that the battery voltage has fallen below 16V. Check the condition of the batteries and the connections to the control system.

If the trip is still present after the batteries and connections have been checked, then the control system may be defective.

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PILOT+

This occurs when the control system detects that the battery voltage has fallen below 16V. Check the condition of the batteries and the connections to the control system.

If the trip is still present after the batteries and connections have been checked, then the Power Module may be defective.

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VR2

This occurs when the control system detects that the battery voltage has fallen below 16V. Check the condition of the batteries and the connections to the control system.

If the trip is still present after the batteries and connections have been checked, then the Power Module may be defective.

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S-DRIVE

This occurs when the controller detects that the battery voltage has fallen below 16V. Check the condition of the batteries and the connections to the controller.

If the trip is still present after the batteries and connections have been checked, then the controller may be defective.

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2C02: Low Battery Lockout

This occurs when the control system detects that the low battery lockout function has been initiated. This creates a log of the event. Check the condition of the batteries, its charge level and the connections to the control system.

If the trip is still present after the batteries and connections have been checked, then the Power Module may be defective.

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2F00, 710D, 7146: Joystick Deflected at Power-up

Please refer to the specific details for the controller currently connected.

VSI

The most common cause of this trip is if the joystick is deflected away from center before the control system is switched on. When the control system is switched on, the battery gauge will blink for a short time. Check that the user is not deflecting the joystick before the blink finishes.

If the problem persists, a defective joystick must be assumed.

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PILOT+

The most common cause of this trip is if the joystick is deflected away from center before the control system is switched on. When the control system is switched on, the battery gauge will blink for a short time. Check that the user is not deflecting the joystick before the blink finishes.

If the problem persists, then the Joystick Module must be assumed to be defective.

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VR2

The most common cause of this trip is if the joystick is deflected away from centre before the control system is switched on. When the control system is switched on, the battery gauge will blink for a short time. Check that the user is not deflecting the joystick before the blink finishes.

If the problem persists, then the Joystick Module must be assumed to be defective.

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7107: Primary Joystick Deflected

The most common cause of this trip is if the Primary Joystick on the Joystick Module is deflected away from center whilst a Dual Attendant Module is in control. Check that the user is not deflecting the joystick by accident. Centre the joystick and cycle the power.

If the problem persists, then the Joystick Module must be assumed to be defective.

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2F01: Throttle Displaced at Power-up

The most common cause of this trip is if the Throttle is deflected away from center before the controller is switched on. When the controller is switched on, the Status Indicator will blink for a short time. Check that the user is not deflecting the throttle before the blink finishes.

If the problem persists try manual adjustment of the Throttle Potentiometer to reset the Deadband area. Try replacing the throttle completely.

If the trip still persists then the controller must be assumed to be defective.

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3B00: Left Motor Disconnected

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects that the left hand motor has become disconnected. Check the left hand motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the control system may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the right hand motor. Consult the wheelchair manufacturer for more details.

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PILOT+

This occurs when the control system detects that the left hand motor has become disconnected. Check the left hand motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the right hand motor. Consult the wheelchair manufacturer for more details.

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VR2

This occurs when the control system detects that the left hand motor has become disconnected. Check the left hand motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the right hand motor. Consult the wheelchair manufacturer for more details.

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3B01: Motor Disconnected

This occurs when the controller detects that the motor has become disconnected. Check the motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the controller may be defective.

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3C00: Right Motor Disconnected

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects that the right hand motor has become disconnected. Check the right hand motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the control system may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the left hand motor. Consult the wheelchair manufacturer for more details.

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PILOT+

This occurs when the control system detects that the right hand motor has become disconnected. Check the right hand motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the left hand motor. Consult the wheelchair manufacturer for more details.

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VR2

This occurs when the control system detects that the right hand motor has become disconnected. Check the right hand motor, motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the left hand motor. Consult the wheelchair manufacturer for more details.

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3D00, 3D01: Left Motor Wiring Trip

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects a fault in the wiring to the left hand motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the left hand motor connectors and wiring.

If the trip is still present after the above checks have been made, then the control system may be defective. In the case

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PILOT+

This occurs when the control system detects a fault in the wiring to the left hand motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the left hand motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective. In the case

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VR2

This occurs when the control system detects a fault in the wiring to the left hand motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the left hand motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the right hand motor. Consult the wheelchair manufacturer for more details.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to any component of a control system.

3D02, 3D03: Motor Wiring Trip

This occurs when the controller detects a fault in the wiring to the motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the motor connectors and wiring.

If the trip is still present after the above checks have been made, then the controller may be defective.

There are no serviceable parts in any of the PG Drives Technology controller. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a controller or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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3E00, 3E01: Right Motor Wiring Trip

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects a fault in the wiring to the right hand motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the right hand motor connectors and wiring.

If the trip is still present after the above checks have been made, then the control system may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the left hand motor. Consult the wheelchair manufacturer for more details.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to a any component of a control system.

PILOT+

This occurs when the control system detects a fault in the wiring to the right hand motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the right hand motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the left hand motor. Consult the wheelchair manufacturer for more details.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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VR2

This occurs when the control system detects a fault in the wiring to the right hand motor, in particular if a motor connection has "short-circuited" to a battery connection. Check the right hand motor connectors and wiring.

If the trip is still present after the above checks have been made, then the Power Module may be defective.

The control system may be programmed to exchange the left and right motor outputs. In this instance, this section will refer to the left hand motor. Consult the wheelchair manufacturer for more details.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

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3000, 714D, 7147: Dual Attendant Joystick Deflected at Power-up

Please refer to the specific details for the controller currently connected.

VSI, VR2, Pilot+

The most common cause of this trip is if the Dual Module's joystick is deflected away from center before the control system is switched on. When the control system is switched on, the battery gauge will blink for a short time. Check that the attendant is not deflecting the joystick before the blink finishes.

If the problem persists, a defective joystick in the Dual Module must be assumed.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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5300: Programmable Setting Changed

The S-Drive has had a programmable parameter value adjusted.

Switch the control system off and on again to clear the trip.

7000, 7001: Freewheel Mode Engaged

This occurs if the freewheel switch is operated whilst the vehicle is driving, or if the freewheel switch is already operated when the vehicle is switched on. Check the position of the freewheel switch.

If the freewheel switch is in the correct position, check the cables and connections.

7A00: Actuator Motor Disconnected

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects that either actuator motor has become disconnected. Check the actuator motors, motor connectors and wiring.

If the error persists then the control system may be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to a any component of a control system.

7A01: Actuator Motor Wiring Trip

This occurs when the control system detects a fault in the wiring to either actuator motor, in particular if a motor connection has short-circuited to a battery connection. Check the actuator motors, motor connectors and wiring.

If the error persists then the Power Module may be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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7A02, 7A03: Actuator Motor Wiring Trip

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the control system detects a fault in the wiring to either actuator motor, in particular if a motor connection has short-circuited to a battery connection. Check the actuator motors, motor connectors and wiring.

If the error persists then the control system may be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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VR2

This occurs when the control system detects a fault in the wiring to either actuator motor, in particular if a motor connection has short-circuited to a battery connection. Check the actuator motors, motor connectors and wiring.

If the error persists then the Power Module may be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

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5400, 7113, 7124, 7126, 7133: Communications Trip

Please refer to the specific details for the controller currently connected.

VSI

This occurs when the Dual Module has become disconnected from the VSI control system while it is switched on. Check the cable between the VSI and the Dual Module is properly connected and in good condition.

If this situation occurs, the wheelchair can still be driven by the user. To achieve this, switch off the VSI and then switch it back on when the Dual Module is disconnected. The VSI will now be in control.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments, repair or modifications to a any component of a control system.

PILOT+

A communications fault is signaled by its trip type flash code and the flashing of the maximum speed indicator LED's (Note the flash pattern may only occur for a few seconds before the system automatically powers down. The pattern can be re-observed by powering up the system again).

The most likely cause of a communications trip is a defective cable between the Power Module and the Joystick Module. The cable should be checked for continuity, and replaced if found to have a fault.

If this problem persists then either the Power Module or the Joystick Module could be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to any component of a control system.

VR2

A communications fault is signaled by its trip type flash code and the flashing of the maximum speed indicator LED's (Note the flash pattern may only occur for a few seconds before the system automatically powers down. The pattern can be re-observed by powering up the system again).

The most likely cause of a communications trip is a defective cable between the Power Module and the Joystick Module. The cable should be checked for continuity, and replaced if found to have a fault.

If this problem persists then either the Power Module or the Joystick Module could be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

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7164: Dual Attendant Joystick Orientation Error

This occurs if the joystick orientation data in the Dual Module has been corrupted. A possible cause is an incorrect or incomplete orientation sequence. To rectify the error, re-perform the orientation sequence as detailed below.

- 1 Ensure the system is switched over for Dual Module operation by ensuring the green LED indicating Attendant control on the Dual Module is illuminated. Then turn the system off at the VSI.
- 2 On the Dual Module, hold down the Speed button and displace the joystick from centre, then switch the unit on at the VSI. The green LED indicating Attendant control on the Dual Attendant Module is flashing and you should continue to hold the Speed button and displace the joystick until the green LED indicating Attendant control and red LED indicating User control flash alternately, this happens after approximately 5 seconds. The Speed Display will go blank at this point as well.
- 3 Release the joystick and operate the Speed button again, the green and red LEDs will both be illuminated and 1 LED will flash on the Speed Display.
- 4 Now fully deflect the joystick to the desired forward position and operate the Speed button. The Speed Display will show 2 LEDs flashing.
- 5 Now fully deflect the joystick to the desired left position and operate the Speed button. The Speed Display should show 5 LEDs flashing. To drive, the system should be switched off and on again at the VSI.

If the sequence has been unsuccessful, instead of 5 LEDs flashing on the Speed Display, just 1 LED will flash. In this instance, switch off the system at the VSI and repeat the sequence.

If the trip persists, then the Dual Module may be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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7B00: Dual Module Connected When System is Switched On

This occurs if the Dual Module is connected to the VSI while it is already switched on. To rectify the error, switch off the VSI, connect the Dual Module and then switch on again.

If the error persists then the control system may be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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714A, 714B, 714C, 714E, 714F, 7150, 7151, 7152, 7155, 7157, 7163, 7164, 716B, 716C, 716E, 716F, 7170, 7173, 7174, 7175: Dual Module Trip

Please refer to the specific details for the controller currently connected.

VSI, VR2, Pilot+

This indicates a problem internal to the Dual Module and it should be returned to PG Drives Technology.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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7100, 7101, 7102, 7103, 7104, 710A, 710B, 710C, 710E, 710F, 7110, 7111, 7114, 7115, 7117: Joystick Module Trip

Please refer to the specific details for the controller currently connected.

VSI

Joystick Module Trip

This can occur if there is a fault detected within the Control System.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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PILOT+

Joystick Module Trip

This can occur if there is a fault detected within the joystick itself, in the Joystick Module, or a communications trip between the Joystick Module and the Power Module.

The joystick can only be replaced by an authorized person.

A communications trip is indicated by flashing the green LEDs below the TruCharge display (Note the flash pattern may only occur for a few seconds before the system automatically powers down. The pattern can be re-observed by powering up the system again.). If these LEDs are flashing then the most likely cause of the problem is the cable between the Joystick Module and the Power Module. The cable should only be repaired by an authorized person.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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VR2

This occurs if the control system detects a problem within its own joystick, or there is a communications error between the Joystick Module and Power Module. The joystick can only be replaced by a person authorized by the wheelchair manufacturer.

- 7100 Loss of comms to the joystick, check the joystick cable and, if you have authorization the joystick ribbon cable, connections and mating sockets.
- 7101 Loss of comms to the joystick, check the joystick cable and, if you have authorization the joystick ribbon cable, connections and mating sockets.
- 7102 Loss of power to the joystick, check the joystick cable and, if you have authorization the joystick ribbon cable, connections and mating sockets.
- 7103 Internal trip, if you have authorization check the joystick ribbon cable, connections and mating sockets. Ensure the cable is connected correctly to both the joystick and the PCB.
- 7104 Internal trip, if you have authorization check the joystick ribbon cable, connections and mating sockets. Ensure the cable is connected correctly to both the joystick and the PCB.

Check the cable is connected correctly at both the Joystick and the PCB.

If the trip is still present then the Joystick Module may be defective, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to any component of a control system.

7102: Power Loss

Please refer to the specific details for the controller currently connected.

VSI

This can be caused by a defective cable or a defective Control System.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to any component of a control system.

PILOT+

This can be caused by a defective cable or a defective Joystick Module.

Check the cable for continuity. If the cable appears to be in working order, then the Joystick Module must be assumed to be defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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VR2

This occurs if the control system detects a problem within its own joystick, or there is a communications error between the Joystick Module and Power Module. The joystick can only be replaced by, a person authorized by, the wheelchair manufacturer.

If you have the required authorization then check the connections of the Joystick Ribbon Cable. Ensure that the connectors and their associated mating sockets are clean, clear and not damaged.

Check the cable is connected correctly at both the Joystick and the PCB.

If the trip is still present after the charger has been disconnected then the Joystick Module may be defective, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

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7125, 7127, 7128, 7129, 7130, 7131, 7132, 7137: Omni+ Trip

The Omni+ Module is defective.

There are no serviceable parts in any of the PG Drives Technology control systems. Consequently, any defective units must be returned to PG Drives Technology or a PG Drives Technology approved service organization for repair.

Opening or making any unauthorised adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

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712A: Sip & Puff Out Of Calibration

The Omni+ requires calibration of its Sip & Puff input.

To Calibrate the Sip & Puff input use the following description:

- 1 Press and hold the **Select** button on the Omni+ controller whilst switching the unit on.
- 2 Once the screen has lit up press the **Mode** button to select '**Sip & Puff Calibration**'
- 3 The screen will display the command **Hard Puff**. A hard puff should now be made by the user and repeated to ensure they can achieve the pressure consistently.
- 4 As the user is exhaling, or puffing, press the **Select** button to store the value.
- 5 The screen will then prompt the same procedure to calibrate the **Soft Puff, Hard Sip** and **Soft Sip** pressures.
- 6 Once this sequence has been completed the Omni+ will prompt you to switch it off and on again.

The Calibration is now complete.

712B, 712C, 712D, 712E, 712F, 7134, 7135: Omni+ Input Device

The Omni+ is not receiving a valid signal from the user input device. Refer to the Omni+ Technical Manual for the electrical specifications for input devices.

Refer also to the operating instructions for the input device type in use.

7136: Omni+ Analog Input Out Of Calibration

The Omni+ requires calibration of its analog input.

- 1 Press and hold the **Select** button on the Omni+ controller whilst switching the unit on.
- 2 Once the screen has lit up press the **Mode** button to select '**Joystick Calibration**'
- 3 The screen will display the command **Centre Joystick**. If the Joystick is not in the center then move it so it is and press Select.
- 4 The screen will now display Push Joystick F'ward.
- 5 Once the Joystick is fully deflect5 forward press the Select button.
- 6 The screen will then prompt the same procedure to calibrate the **Joystick Left, Joystick Right** and **Joystick Backward** positions.
- 7 Once this sequence has been completed the Omni+ will prompt you to switch it off and on again.

The Calibration is now complete.

7140, 7142: Dual Communications Trip

There is a communications trip between the Joystick Module, the Dual Attendant Module and the Power Module. Check each cable for continuity.

If cables appear to be in working order, then the Dual Attendant Module must be assumed to be defective.

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7821: Thermal Foldback Active

To protect the internal components, the controller will limit the maximum current output when its internal temperature threshold is exceeded.

The occurrence of this event is recorded in the system log. An entry is made in the system log each time the controller gets to hot and goes out of drive.

7825: Thermal Shutdown

If the controller's internal temperature is exceeded, power will be cut to the motor and the brakes engaged. The occurrence of this event is recorded in the system log, this has been designed to notify the Healthcare Technician that the control system has operated outside of its programmed range.

7902: Thermal Foldback Active

This occurs when the control system reaches its Temperature Threshold and thus becomes too hot. The controller goes out of drive into standby to allow the controller to cool down. An entry is made in the system log each time the controller gets too hot and goes out of drive.

Other Conditions

This section covers conditions that are not displayed as trip codes or on the TruCharge display. This may be because: either the control system cannot switch on; the condition is not considered critical enough to force a "trip"; or the control system cannot detect the condition.

Control System Will Not Switch On

Check the battery connections to the control system. If these appear to be good, then the control system may be defective.

Vehicle Drives Slowly

This could be caused by one of the following.

The control system has been incorrectly programmed.

A speed limiting function is active, e.g. seat in a raised position on wheelchairs fitted with lifting seats.

Defective motor or defective brake.

Vehicle Will Not Drive in a Straight Line

This could be caused by a defective motor or defective brake.

One Motor or Brake becomes Very Warm

This could be caused by a defective motor or defective brake.

Batteries Discharge Very Quickly

The batteries can discharge very quickly for several reasons, these described below.

Worn or damaged batteries - check battery condition.

Charger defective or incorrect charger being used - check charger operation (refer to vehicle's operating manual).

Incorrect batteries being used - refer to vehicle manufacturer's instructions for correct battery types.

One motor or brake jamming.

NOTE: Ambient temperature has a significant effect on battery capacity. Therefore, if the temperature is lower than normal the wheelchair's range will be reduced. In this situation, the TruCharge battery gauge still gives an accurate state-of-charge reading.

Actuators do not respond

If the vehicle has more than one actuator, check to see how many are not working.

Check that all connections between the control system and the actuator motors are correct.

Check that the actuator motor is not faulty.

This can be achieved by disconnecting the control system and routing power straight to the Actuator motor in question.

If the actuator motor is not faulty check the connections between the control system modules are correct.

If the connections are good, then in the case of Pilot+ the ALM should be returned to PGDT for investigation.

In the Case of VR2 the Power Module should be returned to PGDT for investigation

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Lights do not respond

Check that all connections between the control system and the lights are correct.

Check that the bulbs are all in good working order.

Replace any blown bulbs and check the system to see if this has cured the problem.

If the lighting circuit is not faulty check the connections between the control system modules are correct.

If the connections are good, then in the case of Pilot+: the ALM should be returned to PGDT for investigation.

In the case of VSI The Lighting Module should be returned to PGDT for investigation.

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WARNING

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Basic Tests

After a repair had been carried out, the following tests should be carried out. These are minimum recommendations, depending on the nature of the original trip then additional tests may be required.

PG Drives Technology accept no liability for losses of any kind arising from the carrying out of the described tests, or from not carrying out additional relevant tests.

WARNING

These tests are a minimum recommendation only. It is the responsibility of the service person(s) other tests relevant to the original trip and wheelchair type are carried out. Refer to the vehicle's Technical Manual for exact information of other tests.

General Inspection

Make sure all connectors are securely mated.

Check the condition of all cables and connectors for damage.

Check the thin rubber gaiter or boot around the base of the joystick shaft for damage. Check visually only, do not handle the gaiter.

Make sure that all components of the control system are securely mounted. Do not overtighten any securing screws.

Brake Test

These tests should be carried out on a level floor with at least one meter clear space around the vehicle.

- 1 Switch on the control system.
- 2 Check the TruCharge display remains on, or flashes slowly, after one second.
- 3 Push the joystick/throttle slowly forwards until you hear the parking brakes operate. The vehicle may start to move.
- 4 Immediately release the joystick/throttle. You must be able to hear each parking brake operate within 2 seconds.
- 5 Repeat the test a further three times, pushing the joystick/throttle slowly backwards, left and right (Left and Right are for wheelchair joysticks only).

Drive Test

With the maximum speed control in the minimum position, drive the vehicle in all directions, ensuring the drive is comfortable and easy to control for the user.

Repeat the above but with the speed control set to maximum.

Gradient Test

Before carrying out this test ensure another person is present to prevent the vehicle from tipping backwards.

Drive the vehicle forwards up its maximum rated gradient. While on the gradient release the joystick/throttle and ensure the vehicle comes to rest and the brakes are applied without the front wheels lifting of the ground.

Deflect the joystick/throttle forwards and continue driving up the slope. Ensure the pick up is smooth and positive. Stop the vehicle and reverse down the gradient. While on the gradient release the joystick/throttle and ensure the vehicle comes to rest and the brakes are applied without the front wheels lifting of the ground.

All Other Trip Codes

This could indicate a problem internal to the control system itself and it may need to be returned to PG Drives Technology. However, intermittent problems associated with the vehicle could cause these Trip codes to be displayed, e.g. poor battery connections.

Prior to returning the control system check that all connections to Motors, Brakes, Battery and the Control System are sound.

For further advice on possible intermittent vehicle generated trips please contact the vehicle manufacturer or PGDT.

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Opening or making any unauthorized adjustments or modifications to a control system or its components will invalidate any warranty and may result in hazards to the vehicle user, and is strictly forbidden.

WARNING

PG Drives Technology accept no liability for losses of any kind arising from unauthorized opening, adjustments or modifications to a any component of a control system.