



i-Drive, i45 & i90

DIAGNOSTIC GUIDE

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

This occurs when the controller enters Sleep Mode. Turn the controller off and then on to awake the system. To disable Sleep Mode, program the parameter Sleep Timer to 0 minutes.

0A01 Keyswitch Cycled In Drive

This occurs when the controller detects that the keyswitch has been turned off and then on (cycled), before drive has finished. After turning the keyswitch off, ensure that the vehicle has come to a complete stop before turning on again.

0300, 0815, 0E07, 0E08: Throttle Trip

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

i-Drive

0300 Parallel Speed Pot. Wiper Error

This occurs when the controller detects that the Parallel Speed Limit Potentiometer Wiper is open circuit or has been shorted to one of the throttle references. The Parallel Speed Limit Potentiometer Wiper input is located on pin 9 of the 14-way Tiller Connector. If this error occurs, the controller will allow drive to continue but at the minimum programmed speed. Check the parallel speed potentiometer, connections and relevant wiring to the controller.

If the trip is still present after the potentiometer, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

0815 Throttle Reference Error

This occurs when the controller detects that the Throttle Low Reference is outside of its normal range. The Throttle Low Reference is located on pin 8 of the 14-way Tiller Connector. Check the throttle potentiometer, connectors and relevant wiring to the controller.

If the trip is still present after the potentiometer, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

0E07 Series Speed Pot. Wiper Error

This occurs when the controller detects that the Series Speed Limit Potentiometer Wiper is shorted to one of the throttle references, either high or low. The Series Speed Limit Potentiometer Wiper input is located on pin 1 of the 14-way Tiller Connector. The trip is only applicable if an ISO-test resistor is fitted and programmed correctly. Check the throttle potentiometer, programming, connectors and relevant wiring to the controller.

If the trip is still present after the potentiometer, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

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0300 Parallel Speed Pot. Wiper Error

This occurs when the controller detects that the Parallel Speed Limit Potentiometer Wiper is open circuit or has been shorted to one of the throttle references. The Parallel Speed Limit Potentiometer Wiper input is located on pin 9 of the 14-way Tiller Connector. If this error occurs, the controller will allow drive to continue but at the minimum programmed speed. Check the parallel speed potentiometer, connections and relevant wiring to the controller.

If the trip is still present after the potentiometer, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

0815 Throttle Low Reference Error

This occurs when the controller detects that the Throttle Low Reference is outside of its normal range. The Throttle Low Reference is located on pin 8 of the 14-way Tiller Connector. Check the throttle potentiometer, connectors and relevant wiring to the controller.

If the trip is still present after the potentiometer, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

0E07 Series Speed Pot. Wiper Error

This occurs when the controller detects that the Series Speed Limit Potentiometer Wiper is shorted to one of the throttle references, either high or low. The Series Speed Limit Potentiometer Wiper input is located on pin 1 of the 14-way Tiller Connector. The trip is only applicable if an ISO-test resistor is fitted and programmed correctly. Check the throttle potentiometer, programming, connectors and relevant wiring to the controller.

If the trip is still present after the potentiometer, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

0E08 Throttle Wiper Error

This occurs when the controller detects an error with the Throttle Wiper. The Throttle Wiper input is located on pin 1 of the 14-way Tiller Connector. Check the throttle potentiometer, programming, connectors and relevant wiring to the controller.

If the trip is still present after the potentiometer, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1310: Motor Overcurrent

This occurs when the controller detects that the motor is drawing excessive current. Check the motor, connectors and relevant wiring to the controller.

If the trip is still present after the motor, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1500, 1502: Solenoid Brake Trip

1500 Short Circuit in Solenoid Brake

This occurs when the controller detects a short circuit in the solenoid brake. Check the solenoid brake, connectors and relevant wiring to the controller.

If the trip is still present after the brake, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1502 Open Circuit in Solenoid Brake

This occurs when the controller detects an open circuit in the solenoid brake at start-up or in standby. Check the solenoid brake, connectors and relevant wiring to the controller.

If the trip is still present after the brake, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1600: High Battery Voltage

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

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This occurs when the controller detects that the battery voltage has exceeded approximately 35V on 24V controllers and approximately 45V on 36V controllers. Check the condition of the batteries, connectors and relevant wiring to the controller.

If the trip is still present after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

i45/i90

This occurs when the controller detects that the battery voltage has exceeded approximately 35V. Check the condition of the batteries, connectors and relevant wiring to the controller.

If the trip is still present after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1601: Very High Battery Voltage

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

i-Drive

This occurs when the controller detects that the battery voltage has exceeded approximately 45V on 24V controllers and approximately 49.5V on 36V controllers. Check the condition of the batteries, connectors and relevant wiring to the controller.

If the trip is still present after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

i45/i90

This occurs when the controller detects that the battery voltage has exceeded approximately 45V. Check the condition of the batteries, connectors and relevant wiring to the controller.

If the trip is still present after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1D04: Both Direction Switches Active

This occurs when the controller detects that both of the Direction Switches have been operated. Check that the operator is not deflecting the direction switches, the direction switches themselves, connectors and relevant wiring to the controller.

If the trip is still present after the operator use, direction switches, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1E08: Inhibit 1 Active

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

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This occurs when the controller detects that the Inhibit 1 input is active, Inhibit 1 Speed has been set to '0' and Inhibit 1 Operation has been set to 'Latched'. This input is located on pin 6 of the 14-way Tiller Connector. Check the state of the input, Inhibit 1 programming, connectors and relevant wiring to the controller.

If the trip is still present after the state of the input, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

i45/i90

This occurs when the controller detects that the Inhibit 1 input is active, Inhibit 1 Speed has been set to '0' and Inhibit 1 Operation has been set to 'Latched'. This input is located on pin 4 of the 4-way Programming Connector. Check the state of the input, Inhibit 1 programming, connectors and relevant wiring to the controller.

If the trip is still present after the state of the input, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1E09: Inhibit 2 Active

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

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This occurs when the controller detects that the Inhibit 2 input is active, Inhibit 2 Speed has been set to '0' and Inhibit 2 Operation has been set to 'Latched'. This input is located on pin 14 of the 14-way Tiller Connector. Check the state of the input, Inhibit 2 programming, connectors and relevant wiring to the controller.

If the trip is still present after the state of the input, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

i45/i90

This occurs when the controller detects that the Inhibit 2 input is active, Inhibit 2 Speed has been set to '0' and Inhibit 2 Operation has been set to 'Latched'. This input is located on pin 6 of the 14-way Tiller Connector. Check the state of the input, Inhibit 2 programming, connectors and relevant wiring to the controller.

If the trip is still present after the state of the input, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

1E0A: Inhibit 3 Active

This occurs when the controller detects that the Inhibit 3 input is active, Inhibit 3 Speed has been set to '0' and Inhibit 3 Operation has been set to 'Latched'. This input is located on pin 14 of the 14-way Tiller Connector. Check the state of the input, Inhibit 3 programming, connectors and relevant wiring to the controller.

If the trip is still present after the state of the input, programming, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

2C00: Low Battery Voltage

This occurs when the controller detects that the battery voltage has fallen below approximately 13.5V. Check the condition of the batteries, connectors and relevant wiring to the controller.

If the trip is still present after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

2C01: Very Low Battery Voltage

This occurs when the controller detects a sudden drop in battery voltage. Check the condition of the batteries, connectors and relevant wiring to the controller.

If the trip is still present after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

2F01: Throttle Displaced At Start-Up

This occurs when the controller detects that the Throttle Potentiometer has been displaced at start-up and the parameter Throttle Operated At Power-Up has been set to 'Trip'. Check that the operator is not deflecting the throttle at power-up, the throttle potentiometer, connectors and relevant wiring to the controller.

If the trip is still present after the operator use, potentiometer, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

3B01: Motor Open Circuit

This occurs when the controller detects that the motor has become disconnected at start-up or in standby. Check the motor, connectors and relevant wiring to the controller.

If the trip is still present after the motor, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

3D02: Motor Shorted To Battery Positive

This occurs when the controller detects that the motor wiring has been shorted to Battery Positive. Check the motor, connectors and relevant wiring to the controller.

If the trip is still present after the motor, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

3D03: Motor Shorted To Battery Negative

This occurs when the controller detects that the motor wiring has been shorted to Battery Negative. Check the motor, connectors and relevant wiring to the controller.

If the trip is still present after the motor, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

4401: Possible Controller Fault

Each time the controller trips with a suspected controller error, it records one instance of the code '4401' in the controller's System Log. The actual controller trip code is also recorded in the controller's Control Log. The number of '4401' trips shown in the System Log should therefore equal the cumulative number of trip occurrences shown in the Control Log.

If the controller continues to trip after the batteries, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

5300: Programmable Setting Changed

This occurs whenever the value of a parameter is altered using a programmer. Turn the controller off and then on to reset the trip.

7000: Freewheel Input Operated At Start-Up

This occurs when the controller detects that the Freewheel Input has been operated at start-up. The Freewheel Input is located on pin 14 of the 14-way Tiller Connector. Check the Freewheel Input, connectors and relevant wiring to the controller.

If the trip is still present after the input, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

7001: Freewheel Input Operated During Drive

This occurs when the controller detects that the Freewheel Input has been operated during drive. The Freewheel Input is located on pin 14 of the 14-way Tiller Connector. Check the Freewheel Input, connectors and relevant wiring to the controller.

If the trip is still present after the input, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

7901: Belly Button Active At Start-Up

This occurs when the controller detects that the Belly Button Switch has been operated at power-up. The Belly Button Input is located on pin 9 of the 14-way Tiller Connector. Check the Belly Button Switch, connectors and relevant wiring to the controller.

If the trip is still present after the switch, connectors and wiring have been checked, the controller may be defective. Refer to Servicing Of Defective Units.

Servicing Of Defective Units

There are no serviceable parts within the controller. Consequently, any defective units must be returned to PGDT or a PGDT approved service organization for repair.

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

WARNING

PGDT accepts no liability for losses of any kind arising from unauthorized opening, adjustment or modification to the controller.

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. an inhibit input has changed state.

Defective motor or defective brake.

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 are 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 vehicle's range will be reduced. In this situation, the TruCharge battery gauge still gives an accurate state-of-charge reading.