

frequently asked questions

H3000 Pilot

“What do the Pilot fault codes mean?”

Fault	Cause	Fault Description
FAULT 100	Pilot not Commissioned	Rudder not commissioned or memory corrupted.
FAULT 101	Pilot Compass Failure	The signal from the Pilot compass is too big or too small.
FAULT 102	Rudder sensor out of Range	The signal from the rudder reference unit is outside the limits set during commissioning.
FAULT 103	Rudder Drive	The Pilot attempted to move the rudder but did not sense any change in rudder position.
FAULT 104	No (or low) Boat Speed	The boat is stationary or the speed sensor has stopped transmitting data.
FAULT 105	System Compass Failure	Compass data from Super Halcyon 3 via Instrument System network has stopped.
FAULT 106	No NMEA data	XTE data from position fixer via Instrument System network has stopped.
FAULT 108	Poor Quality NMEA Data	The value of XTE data being received has suddenly changed by more than 0.3 nautical miles.
FAULT 109	No (or low) Wind Speed	There is no valid wind data being received via the Instrument System network, or the wind speed is less than 1knot.
FAULT 110	No Optimum Wind Data	There is no optimum wind angle data being received via the Instrument System network.
FAULT 111	Current Trip (Drive or Clutch)	The current limit circuit for the drive motor (25 amps) or the clutch (2 amps) has tripped.
FAULT 112	Network Communication Error	No regular messages being received by pilot control from pilot display via instrument system network, i.e. either the display is not transmitting or the Pilot computer is not receiving.
FAULT 113	Memory Card Changed	The memory card fitted is new or from another Pilot and the rudder end-stops are no longer valid.
FAULT 114	Memory Card Error	Either the contents of the memory card fitted are not compatible with the Pilot, the memory card is faulty or no card is present.
FAULT 115	Drive Power Failure	The Pilot processor PCB is unable to communicate with the drive PCB.
NO PILOT		No regular messages being received by pilot display from pilot control via instrument system network, i.e. either the display is not receiving or the Pilot computer is not transmitting.

FAULT DIAGNOSIS

Fault 100 – Pilot not Commissioned

Remedial Action

1. Has the Pilot ever been successfully commissioned?

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- Yes go to step (4)
- No go to step (2)
- 2. Carry out the Dockside commissioning procedure (see Pilot manual page 56).
Display the Pilot screen, move the helm, does the rudder indicator function?
Yes go to step (4)
No go to step (3)
- 3. The rudder indicator on the Pilot screen will not function if invalid rudder end and mid points have been entered. Check the rudder reference unit installation (see page 91) is such that the voltage difference between the port and starboard end stops is a minimum of 1.0 volt. After checking repeat step (2).
- 4. If the rudder has previously been successfully commissioned then the fault is likely to be due to memory corruption. This may be due to a recent change of software version or severe interference (e.g. lightning). We recommend that you reset the Pilot computer (node 18) and attempt to re-commission the Pilot. If this fails contact your local specialist dealer.

Fault 101 – Pilot Compass Failure

Remedial Action

- 1. Is an HGSC sensor in use?
Yes go to step (3)
No go to step (2)
- 2. Ensure that the Heading Source (SETUP X COMMISSIONING X HEADING SOURCE) to the correct value for the compass sensor in use.
- 3. Check all wiring connections to the compass unit. There should be both a sensor cable AND a 12V supply cable, see page 87 or 88

Fault 102 - Rudder Sensor out of Range

Remedial Action

- 1. Check installation of rudder reference unit for slack or loose fittings.
Replace any worn parts and secure any loose items. If the position of any part has been changed it is necessary to follow the Dockside Commissioning procedure.
- 2. Display the Pilot screen on a GPD, watch the rudder indicator carefully whilst turning the helm slowly from hard-over port to hard-over starboard. The indicated angle should change smoothly as the wheel is turned.
If the indicator does not move at all follow the Dockside Commissioning procedure
If the indicator is erratic move to step (3)
- 3. Check the voltage supply to the rudder reference is 4.5 to 5.0 volts.
- 4. Check the signal from the rudder reference with a voltmeter at the Pilot computer.
With someone moving the helm slowly port to starboard (as in step 2) the voltage should change smoothly. If the signal is incorrect suspect a faulty rudder reference unit. Note: The difference between the signal voltages measured at the two end stops must be at least 1V dc.

If the fault always occurs at the same rudder angle, suspect a faulty rudder reference unit.

If the fault occurs at different rudder angles suspect a fault in the wiring connections to the Pilot computer or a fault with the Pilot computer electronics.

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Fault 103 - Rudder Drive

Remedial Action

If the fault occurs all the time when the Pilot is engaged:

1. Is the heavy-duty power supply circuit breaker for the Pilot drive switched on? If not the fault 103 message may be triggered alongside a fault 115 message (see below).
2. Move the helm. Does the rudder indicator work? if not check physical installation of the rudder reference unit as detailed above.
3. Select Power mode. If drive system includes a clutch or solenoid valve (normal ram drives and most mechanical rotary drives), engage the pilot and check the operation of the clutch or solenoid valve. It should not be possible to move the helm with the Pilot engaged. If the helm can be moved (i.e. the clutch fails to operate) disconnect the clutch from the Pilot electronics and test its operation when connected directly to the drive power supply.
4. With Pilot engaged in "Power Steer" mode use the 10° and 1° port and starboard keys to move the rudder. If the motor fails to run disconnect the motor from Pilot electronics and test the operation when connected directly to power supply.

If the fault occurs intermittently or under heavy loads:

1. Use power steer mode to move rudder while restricting movement by holding wheel. If the fault occurs under these conditions it could be due to:
Excessive motor current
Too much slack or backlash in drive or fixing to tiller
Air in hydraulic system
2. Check the physical installation of the drive system for these points.

Fault 104 - No (or Low) Boat Speed

Remedial Action

1. If the Pilot is taking boat speed from an instrument system check the speed shown on the instrument system display, if the instruments are showing an erroneous value then investigate the cause on the instrument system (fouled sensor etc.)
2. If the boat speed sensor is connected directly to Pilot check the wiring connections.
3. Check the functionality of the speed sensor, change the Speed Source from Boat Speed to SOG or Manual Speed if the paddle wheel sensor is inoperative.

Fault 105 - System Compass Failure

Remedial Action

1. Check the Heading Source is set correctly for the compass in use, see page 41
2. Check the heading data on the instrument system updates normally as the boat changes course.
3. Check the wiring connections for the compass sensor in use and the connection of the Pilot ACP to the Fastnet network.

Fault 106 - No NMEA Data

Remedial Action

1. Check that the XTE data displayed on the instrument system is accurate and updating regularly.

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2. Check the operation of the position fixer, if the device no longer has a position fix it is likely that the NMEA output has stopped. Refer to the troubleshooting guide in your position fixer documentation for further information.

Fault 108 - Poor Quality NMEA Data

Remedial Action

1. Check that the XTE data displayed on the instrument system is stable, accurate and updating regularly.
2. Check the operation of the position fixer, if the device no longer has a position fix it is likely that the NMEA output has stopped. Refer to the troubleshooting guide in your position fixer documentation for further information.

Fault 109 - No (or Low) Wind Speed

Remedial Action

1. Check the Measured Wind Speed (MWS) data displayed on the instrument system, if this is very low, and there is obviously a significant amount of wind, investigate the wind instrument wiring connections.
2. Check connections to instrument system.

Fault 110 - No Optimum Wind Data

Remedial Action

1. Check the Optimum Wind Angle (OPT W/A) data displayed on the instrument system.
2. Check connections to instrument system.

Fault 111 - Current Trip: Drive or Clutch

Remedial Action

1. Check the installation and wiring for short circuits or loose connections.
2. Check the current to the clutch, if this exceeds the maximum value the fault will occur immediately.
3. Check the current to the drive motor, if this exceeds the maximum value the fault will occur immediately.

Fault 112 - Network Communication Error

Remedial Action

1. Check the installation and operation of the Pilot display.
2. If Pilot responds to commands from other displays then the Pilot computer is operating correctly. Check installation of Fastnet network cable.

Fault 113 – Memory Card Changed: Reset End Stops

Remedial Action

Either reset and re-commission the Pilot or, if you are certain the memory card has come from a Pilot of the same software version, carry out the Dockside Commissioning procedure to set the new rudder end stops.

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Fault 114 – Memory Card Error

Remedial Action

1. Reset and re-commission the Pilot.
2. If a reset is unsuccessful it may be necessary to replace the Pilot memory card, consult your local dealer.

Fault 115 – Drive Power Failure: Check Supply

Remedial Action

Check to ensure the high current drive supply is present and is of the correct voltage. It is normal for the drive supply to be on a separate circuit breaker to the rest of the Pilot electronics, ensure this breaker (if present) is switched on.

Pilot Display Shows "No Pilot"

Remedial Action

1. If other displays show Pilot data, check the Fastnet network installation of the affected Pilot display. If the installation is correct suspect a fault with the Pilot display unit.
2. If no Pilot data is available on any display check the installation of the whole Fastnet network, if there is an instrument system operating on the same network is that data available on displays? If the installation is correct, and the instrument system displays are functioning on the same network, suspect a fault with the Pilot computer.

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