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HB-0504-03

Network Pilot User Manual

GENERAL INTRODUCTION TO B&G NETWORK

The B&G Network range of instruments is designed to be used as individual units or connected together to form an integrated navigational system. A single network cable is used to carry data and power between units. The latest technology and screened cables throughout the Network System ensure the ultimate protection from interference between units and other systems. All Network instruments can be linked to Network PILOT, Network CHART, Network GPS or Network LORAN receivers or via NMEA 0183 (v1.5) to other navigational equipment.

INSTRUMENTS	NAVIGATIONAL AIDS
Network SPEED	Network GPS
Network DEPTH	Network LORAN
Network QUAD	Network NAV
Network WIND	Network CHART
Network TACK	
Network DATA	

| AUTOPILOTS	COMMUNICATIONS
Network PILOT	Network VHF (USA only)

INTRODUCTION TO NETWORK PILOT

This manual describes how to operate your Network PILOT after it has been installed, commissioned and had it's initial sea trial. These procedures are all described in the Network PILOT Installation Manual.

Network PILOT can be used as a stand-alone autopilot with a Network PILOT Display Unit and/or a Hand-held Controller or as part of an integrated Network navigational system, used in conjunction with any of the units listed above.

SWITCHING THE PILOT ON

Your Network PILOT will usually have two circuit breakers, one which supplies the Network PILOT Display and Network Instruments (light duty supply) and the other that supplies the Ram Drive or Pump Unit (heavy duty supply). Both must be switched on before the autopilot will operate.
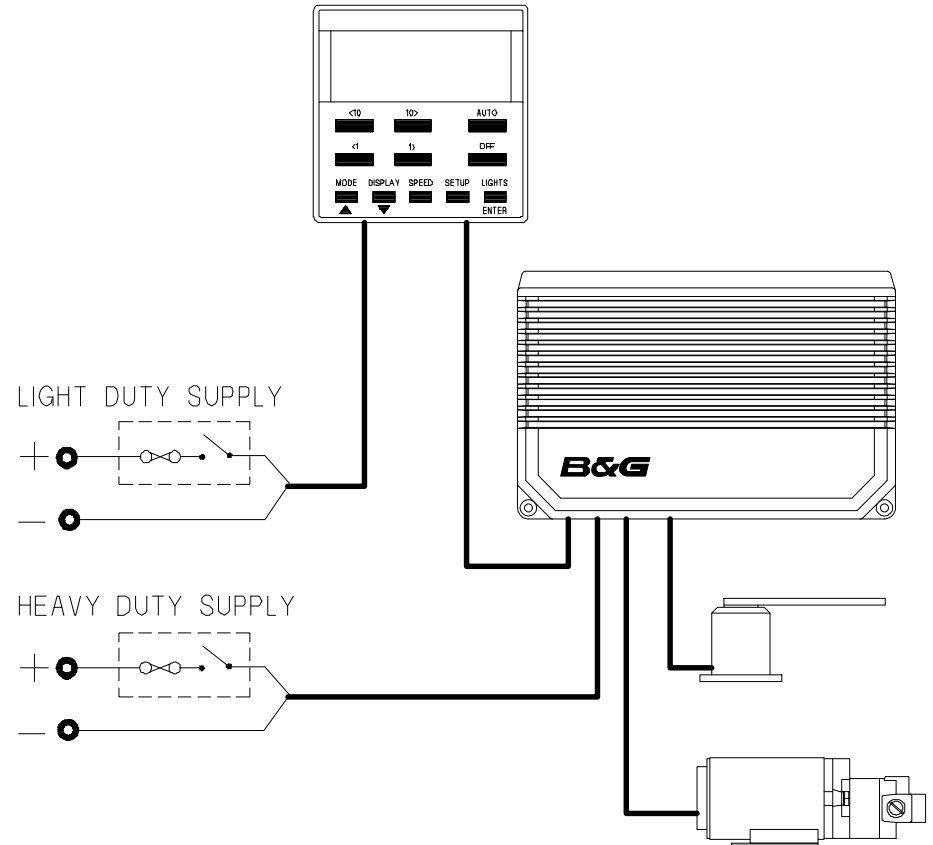
NETWORK PILOT DISPLAY UNIT
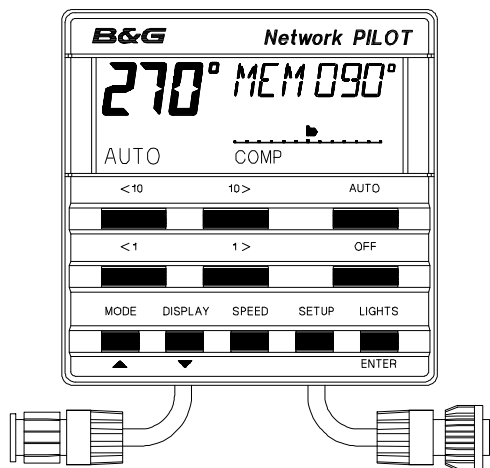
The back-lit Liquid Crystal Display (LCD) shows the following information.

LARGE DIGITS (top left) - When the Network PILOT is disengaged the digits show compass heading. When the autopilot is engaged the digits show the course the autopilot is steering.

TEXT WINDOW (top right) - When visible, information and messages can be displayed.

RUDDER ANGLE BAR DISPLAY - Analogue indication of rudder position. First 6 divisions 1^0 resolution, then 2 of 2^0, then 4 of 5^0. Maximum rudder angle $\pm30^0$.MODE LEGENDS (bottom row) - Text legends appear depending upon the steering mode and if the autopilot is engaged or disengaged.

The six large keys are the main control keys of the Network PILOT.

AUTO   Engages the autopilot in any mode, also used to execute certain steering functions.

OFF   Disengages the autopilot and returns the boat to manual steering.

<10,<1   PORT course change buttons for increments of 10^0 or 1^0.

10>,1>   STARBOARD course change buttons for increments of 10^0 or 1^0.

The five keys in the lowest row of the Network PILOT Display provide additional functions as follows:

MODE   Changes the steering mode. Steer to **COMP**ass, Steer to **VANE** (requires Network WIND), Steer to **NAV** (requires NMEA input from position fixer e.g. GPS, LORAN, DECCA.
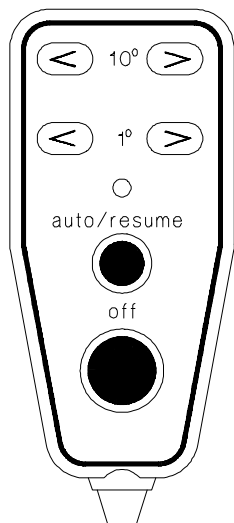
DISPLAY Changes the information displayed in the text window of the LCD, this depends on mode selected.

SPEED   Selects speed information displayed in the text window of the LCD.

SETUP   Enables autopilot parameters and alarms to be set and enabled.

LIGHTS   Three levels of illumination and off.

NETWORK PILOT HAND-HELD CONTROLLER

Standby	_ _ _
Pilot Engaged	_____
Course Change	____ ____
Commissioning	_ _ _ _ _ _
Compass Cal.	_ ___ _ __
Fault	__ __ __
Man Overboard	_ _ _ _ _ _

The Handheld Controller provides remote control of the Network PILOT. The six keys give the same control functions as the six large keys on the Network PILOT display unit.

< 10⁰ > 10^0 course change

< 1⁰ > 1^0 course change

auto/resume   PILOT engage and return to course

off   PILOT disengage

In the centre of the handheld controller is an LED that will flash the coded sequences shown in the table above.

JOYSTICK (OPTIONAL TYPE 2 SYSTEM ONLY)

The joystick allows direct control of the rudder via the autopilot computer unit for quick and responsive steering. There are two modes of joystick operation available to the helmsman, giving different steering control, (see USING THE SETUP KEY, JOYSTICK STEERING to select the modes). The button at the top of the joystick enables the Network PILOT to be engaged and disengaged in joystick steering mode.

1. NORMAL STEERING

The rudder moves in the direction of the joystick, when the joystick is returned to the central position the rudder movement stops. The greater the movement of the joystick the faster the response of the rudder.

2. PROPORTIONAL STEERING

The position of the rudder imitates the position of the joystick, when the joystick is returned to the central position the rudder returns to its initial position.

ENGAGING THE PILOT IN JOYSTICK MODE

• Turn the steering wheel so the rudder is in the midships position. See NOTE.
• Press the button on the top of the joystick to engage the PILOT.
• Move the joystick to port or starboard to move the rudder.

When the PILOT is engaged in joystick mode the text area of the Network PILOT LCD will show **JOYSTCK**, the rudder angle bar display will show rudder position, and heading (in degrees) will be shown on the large LCD digits.

NOTE : When the PILOT is engaged using the joystick button the rudder position (at the moment of engaging) will be the central position of the joystick. It is advisable to ensure that this is the midships position of the rudder.
By steering the vessel on to a straight and steady course before engaging the autopilot, any external influences on the steering will be counteracted, e.g. wind and tide. However this is only true as long as you maintain the same course.

DISENGAGING THE PILOT FROM JOYSTICK MODE
EITHER:
• Press the joystick button.
OR
• Press the red **OFF** key on any Network PILOT display.

When the PILOT is disengaged from joystick mode the Network PILOT LCD will return to the normal **STDBY** display.

IMPORTANT NOTE

The Network PILOT red OFF key can be used to disengage the autopilot and resume manual steering from any mode.

BASIC PRINCIPLES OF OPERATION

When the Network PILOT is powered on it will be in Standby mode, **STDBY** indicated on the Liquid Crystal Display (LCD). The LCD also shows the Current Heading in digits, the rudder position on a bar display and the operating mode, initially Compass **COMP**. To steer the boat automatically, turn the boat onto the desired heading and engage the autopilot by pressing the **AUTO** key on any Network PILOT display or Hand-held Controller. If manual steering is required press the red **OFF** key and the autopilot returns to standby, **STDBY**.

When the autopilot is steering, course changes are made by multiple presses of the **<10** or **10>** keys and the **<1** or **1>** keys on any Network PILOT display or Hand-held Controller.

WARNING

When the autopilot is engaged manual steering is not possible. To resume manual steering the red OFF key must be pressed on any Network PILOT Display or Hand-held Controller. It is the responsibility of the skipper to brief all crew members about this procedure.

MODE SELECTION

The **MODE** key enables the steering mode to be changed. There are three steering modes, however selection is dependant upon your boat type and Network System.
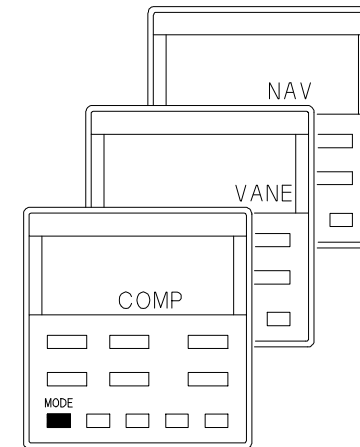

- **COMP** Steer to Compass. The basic mode for all autopilot systems on power and sail boats. When switched on the Network PILOT is always in this mode.
- **VANE** Steer to Wind. Only selectable on sail boats that have a Network System containing a Network WIND unit.
- **NAV** Steer to Navigational data. Selectable with all autopilot systems that are linked to an NMEA position fixer e.g. GPS, Decca, Loran.

Depending upon the mode extra operations and displays are available, refer to the sections on **VANE** and **NAV**.

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STEER TO COMP MODE

ENGAGING PILOT ON CURRENT COURSE
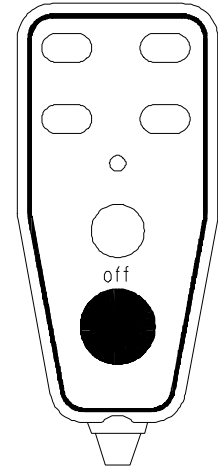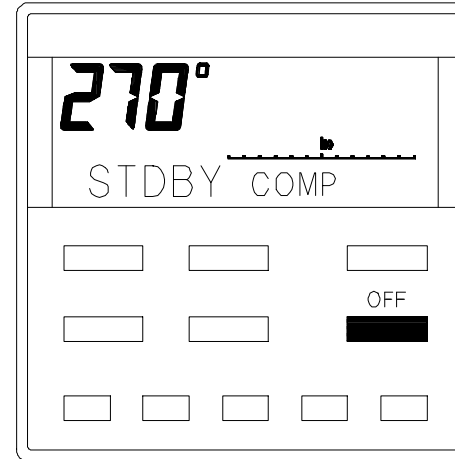
DISENGAGING THE PILOT
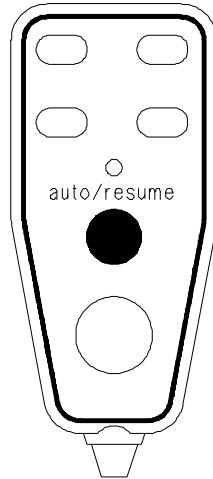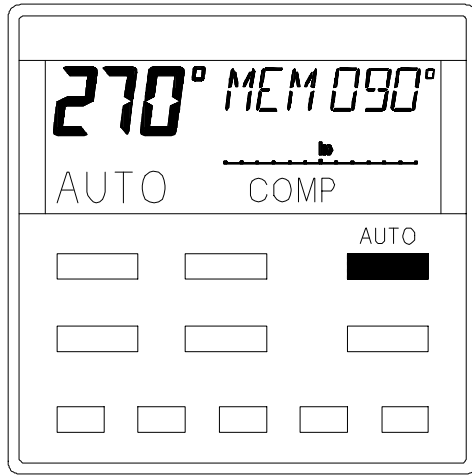
• If necessary, press the **MODE** key to select **COMP**ass.

• Press the **AUTO** key once to engage the autopilot on the current course.

NOTE
The Network PILOT has a Course Memory, the previous autopilot course is stored in it when the autopilot is disengaged for future use. The previous autopilot course is displayed for 4 seconds in the LCD text area, this is recalled from the autopilot Course Memory.

• Press the **OFF** key to disengage the autopilot.

• The previous autopilot course is **MEM**orised.

NOTE
The previous autopilot course is always stored in the course memory when the autopilot is disengaged.

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ENGAGING PILOT ON PREVIOUS COURSE
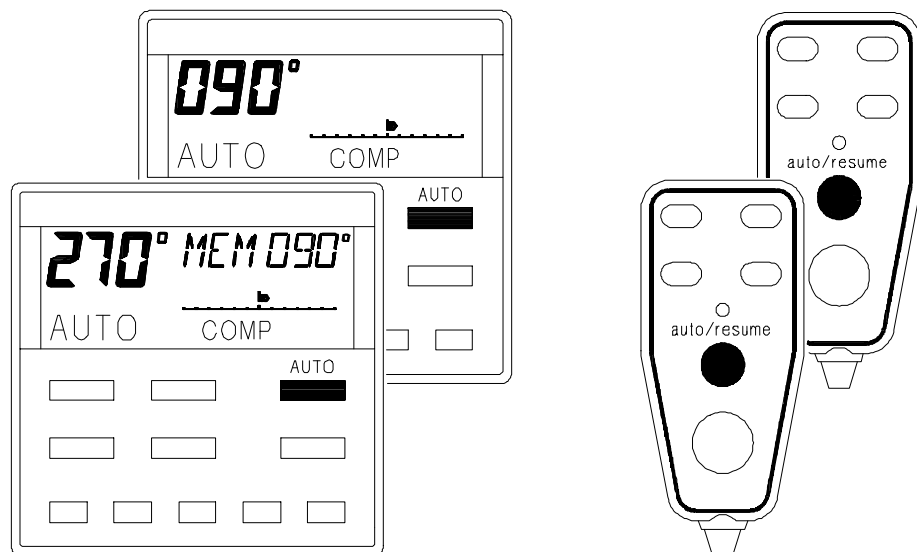
• Press the **AUTO** key twice within 4 seconds to engage the autopilot on the previous **MEM**orised course.

NOTE
In this example the current course is 270^0, the previous autopilot course was 090^0, displayed in the LCD text window. The autopilot will steer the boat on to 090^0 as soon as the **AUTO** key is pressed the second time.

CHANGING PILOT COURSE
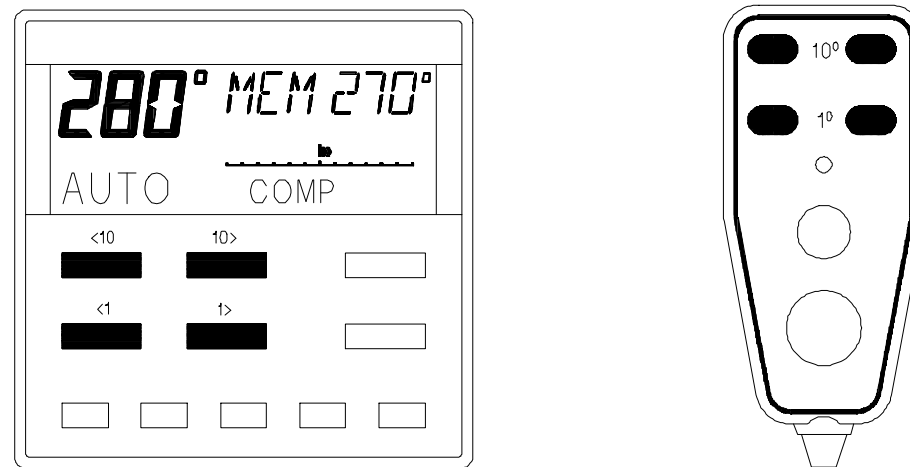
• Press **<10** or **<1** to alter course to port in 10^0 or 1^0 increments.
• Press **10>** or **1>** to alter course to starboard in 10^0 or 1^0 increments.
• Multiple presses of the keys are added together to give the required course change, e.g. for 20^0 to port press **<10** twice, for 11^0 to starboard press **10>** then **1>**.
• The previous autopilot course is **MEM**orised and displayed in the LCD text window.

MEMORISING THE NEW COURSE
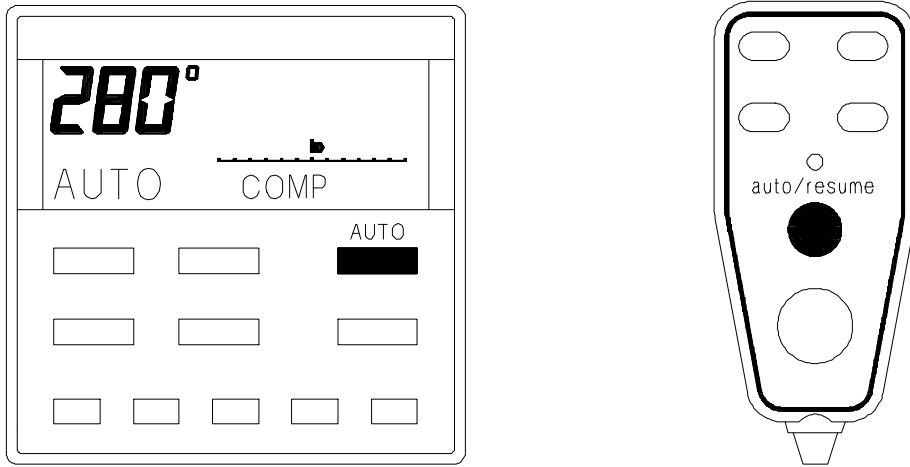
• Press **AUTO** key once to store the new course in the autopilot course memory.

NOTE
It is suggested that this carried out after every permanent course change, i.e. not when you have just steered around an obstacle.

RETURNING TO THE PREVIOUS COURSE
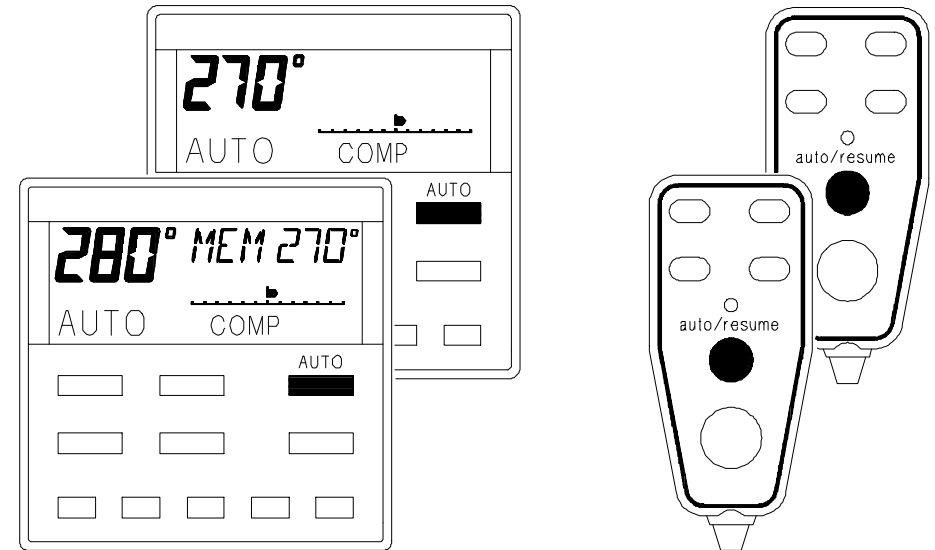
• Press the **AUTO** key twice within 4 seconds to return to the previous **MEM**orised course shown in the LCD text window.

NOTE
If you have used the course memory after every permanent course change then the autopilot will steer the boat back on to your last autopilot course. If not, the autopilot will steer on to the last course that was memorised. Check that the **MEM**orised course in the LCD text window is the one that you want.

PRESETTING THE PILOT COURSE
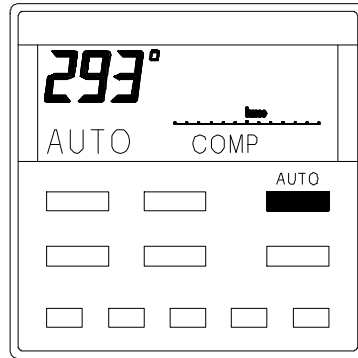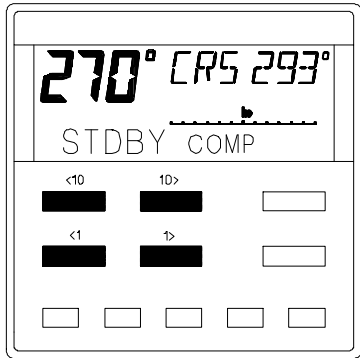
• The autopilot has to be disengaged in **STDBY** to preset the course.

• Use **<10**,**<1**,**10>**,**1>** keys to alter the course displayed in the LCD text window.

• Press **AUTO** to engage the autopilot and automatically steer on to the preset course.

USING THE DISPLAY KEY IN COMP MODE

Press the **DISPLAY** key to cycle through additional autopilot and navigational information, displayed in the LCD text window.

- **RUD** Rudder Angle - Digits indicated rudder angle in degrees to port **<**, or to starboard **>**.

- **W A** Watch Alarm - Will indicate **OFF** or the time in minutes and seconds until the alarm sounds.

- **HDG** Heading - This is the actual compass heading in degrees. The large digits indicate the autopilot course.

PILOT IN STDBY
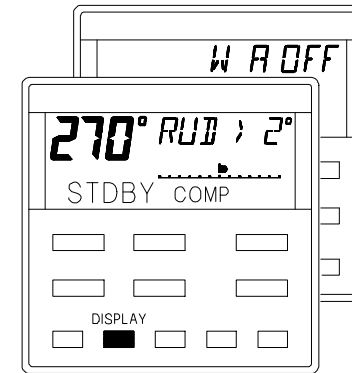
PILOT IN AUTO
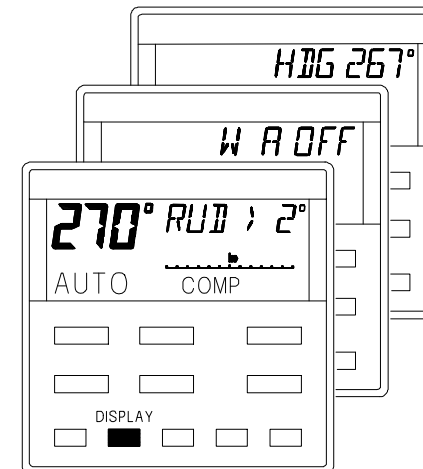
STEER TO NAV MODE

NAV MODE - ADDITIONAL INFORMATION

When the autopilot in engaged in **NAV** mode it will steer a course using waypoint data from a position fixer programmed with the waypoint positions.
The position fixer can be any GPS (Global Positioning System), DECCA or LORAN-C receiver, with a compatible NMEA 0183 (v1.5) interface.

POSITION FIXER ERRORS

It is important to remember that when the autopilot is steering to **NAV**, any erratic or positional errors generated by the position fixer due to poor reception, bad satellite constellation or radio beacon chain transitions, will be transferred to the autopilot via the NMEA interface. This could cause steering inaccuracy so always maintain a log and positional plot on a current chart. Also ensure that the autopilot course will steer you clear of any obstacles, taking into account tides.

Before using your position fixer to steer to **NAV**, check the following:

• The position fixer has a compatible NMEA 0183 (v1.5) interface, set-up and connected in accordance with the manufacturers instructions.

• It is switched on and has the correct current position.

• The signal and noise levels are within the manufacturers recommended levels.

• The waypoint have been entered correctly, and the waypoint arrival alarm switched on (if it has one).

• If using waypoints in a Route or Sail (cruise) Plan, they are entered correctly and the route is enabled.

PILOT IN STDBY - SELECTING NAV MODE

Steer to **NAV** can be selected from any other mode when the autopilot is engaged or when in **STaNDY**. This enables you to change directly from **COMP** to **NAV** or **VANE** to **NAV** and back again during an autopilot steered passage.

IMPORTANT NOTE

If the autopilot is already engaged in another mode, as soon as NAV mode is selected the autopilot will begin to steer the boat on to the selected waypoint bearing. Ensure that when NAV is selected any change of course does not cause the boat to tack or gybe unexpectedly or steer the boat in to danger.

INSTALLATIONS WITH TWO POSITION FIXERS

If the Network PILOT has two sources of NMEA data from two position fixers (supplied via the NMEA input interfaces of two Network PILOT Displays), when the **MODE** key is pressed **NAV1** or **NAV2** will be displayed. Select **NAV1** or **NAV2** to change the source of the NMEA data eg, from GPS to DECCA.

ONE POSITION FIXER
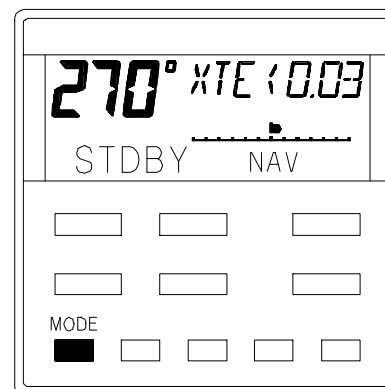
TWO POSITION FIXERS
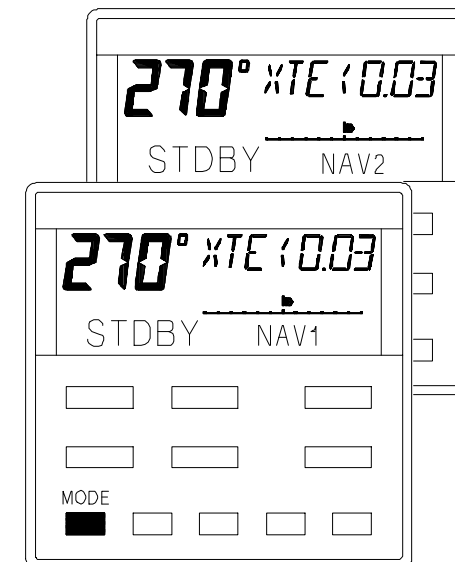
PILOT ENGAGED - SELECTING NAV MODE

• Steer the boat until the compass heading is approximately the same as the selected waypoint bearing (refer to your position fixer).

• Press the **MODE** key to select **NAV**, **NAV1** or **NAV2**.

• Press the **AUTO** key to engage the autopilot if it's not already engaged.

• The Network PILOT Display indicates **XTE** (cross track error) to port **<** or starboard **>** in Nautical Miles, and the autopilots course on the large digits.

• If necessary, use the **<10**,**<1**,**1>**,**10>** keys to alter the autopilots course to port or starboard until the **XTE** value   is less than 0.03, this will enable the autopilot to find the correct track more quickly. Refer to CHANGING COURSE for more information about course changes.

ONE POSITION FIXER
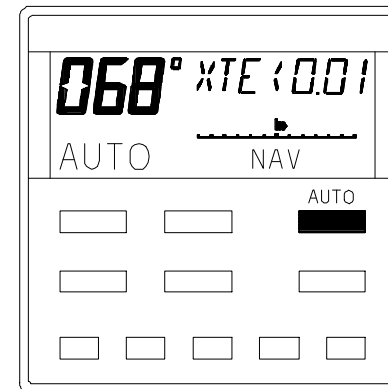
TWO POSITION FIXERS
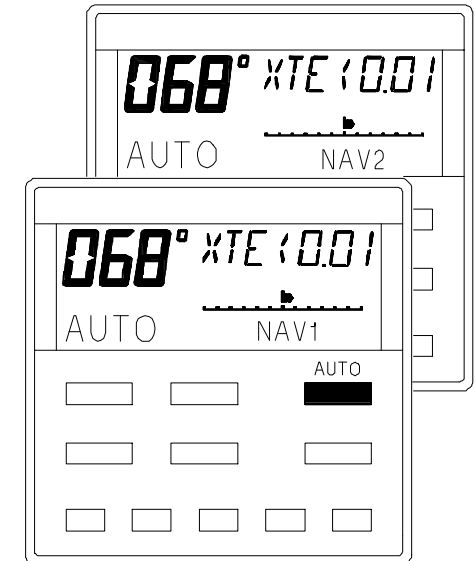
CHANGING COURSE
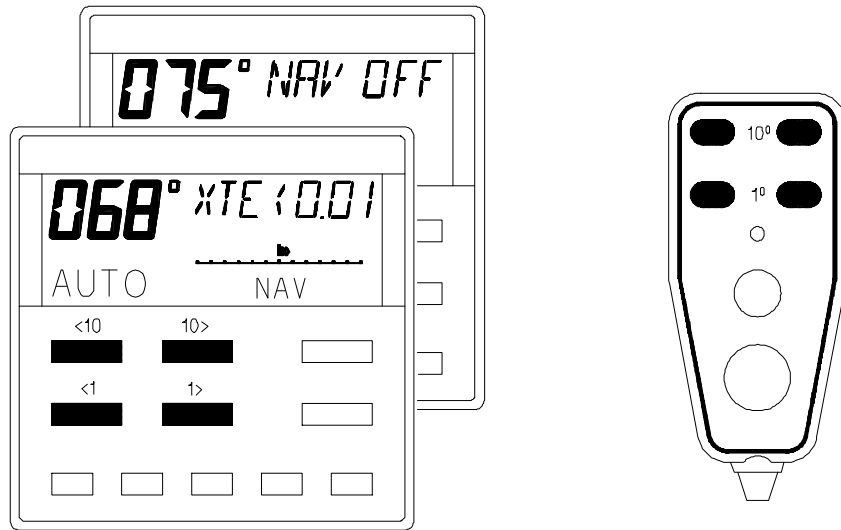
- Press **<10** or **<1** to alter course to port in 10^0 or 1^0 increments.
- Press **10>** or **1>** to alter course to starboard in 10^0 or 1^0 increments.
- **NAV OFF** and **XTE** are shown alternatively in the LCD text window.

NOTE

When a course change is made Steer to **NAV** is temporarily disabled until the autopilot is instructed to return to the previous course. The autopilot will continue to steer the current compass course.

RETURNING TO THE PREVIOUS COURSE
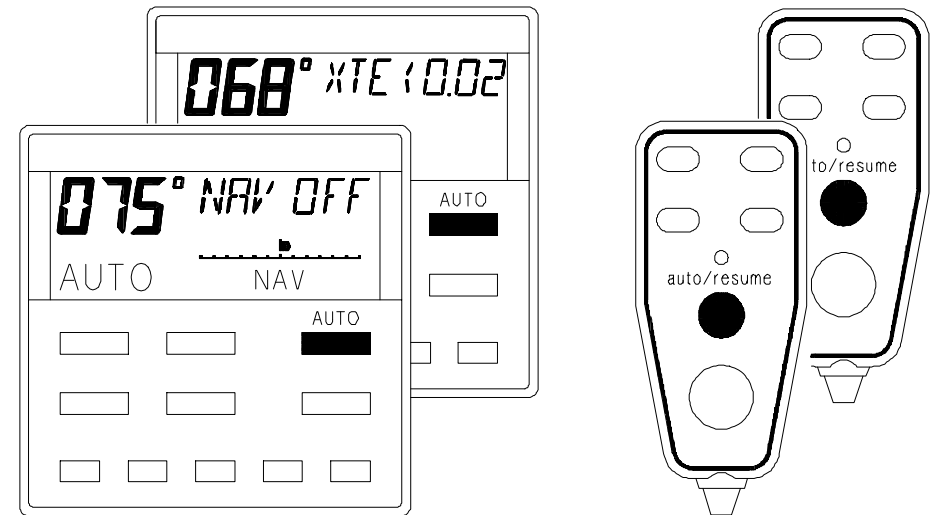
- Press the **AUTO** key twice within 4 seconds to return to the previous **NAV** autopilot course.

WAYPOINT ARRIVAL - NEXT LEG

Many position fixers automatically switch to the next leg when a programmed waypoint is reached. The Network PILOT will not automatically steer the boat on to the next leg. It will prompt the helmsman when the waypoint is reached by displaying **NXT** and the new waypoint bearing. Initially the displayed bearing maybe unstable, once the bearing has stabilised the helmsman can instruct the pilot to steer on to the new course.
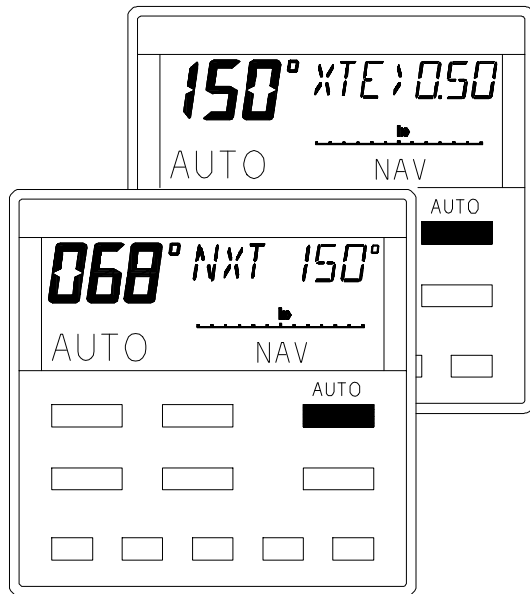
• Press the **AUTO** key TWICE when the displayed bearing has stabilised.

USING THE DISPLAY KEY IN NAV MODE

Press the **DISPLAY** key to cycle through additional autopilot and navigational information, displayed in the LCD text window.

- **XTE**   Cross Track Error indicated to port **<** or **>** starboard in Nautical Miles.

- **RUD**   Rudder Angle - in degrees.

- **W A**   Watch Alarm - in minutes and seconds or **OFF**.

- **HDG**   Heading - The actual compass heading in degrees. The large digits indicate the autopilot course.

- **WPB**   Waypoint Bearing - The bearing to the selected waypoint in degrees.

- **WPD**   Waypoint Distance - The distance from the selected waypoint in Nautical Miles.

- **WP**   Waypoint - The selected waypoint name or number (first 4 characters only).

PILOT IN STDBY
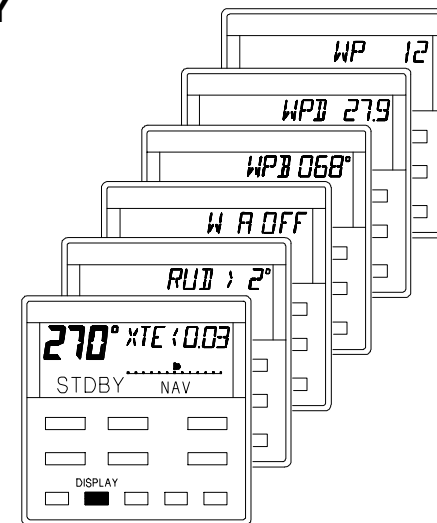
PILOT IN AUTO
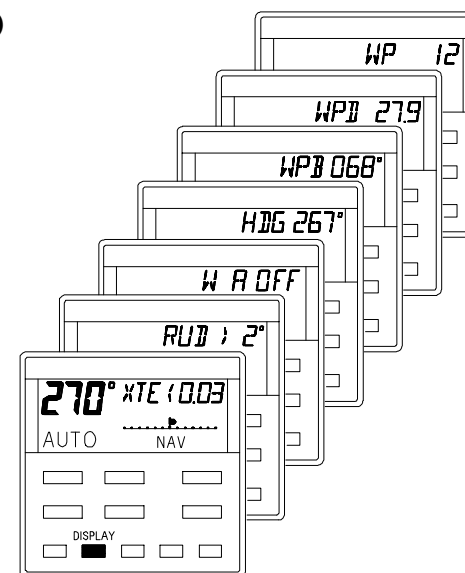
STEER TO VANE MODE

VANE MODE - ADDITIONAL INFORMATION

VANE mode is only available to sailing boats fitted with a Network WIND unit.

When the autopilot is engaged in **VANE** mode it will steer a course that maintains a set Target Apparent Wind Angle (Target AWA). If the AWA shifts the autopilot will alter course so that the Target AWA remains the same. Steer to **VANE** is usually used when sailing upwind, however it can be used on all points of sailing.

IMPORTANT NOTE

If the autopilot is engaged in another mode and VANE is selected ensure that shifts in AWA will not cause the boat to tack or gybe unexpectedly.

SELECTING VANE MODE

Steer to **VANE** can be selected from any other mode when the autopilot is engaged or when in **ST**a**NDY**. This enables you to change directly from **COMP** to **VANE** or **NAV** to **VANE** and back again during an autopilot steered passage.

PILOT STDBY - PRESETTING TARGET AWA

A Target AWA can be set before the autopilot is engaged.
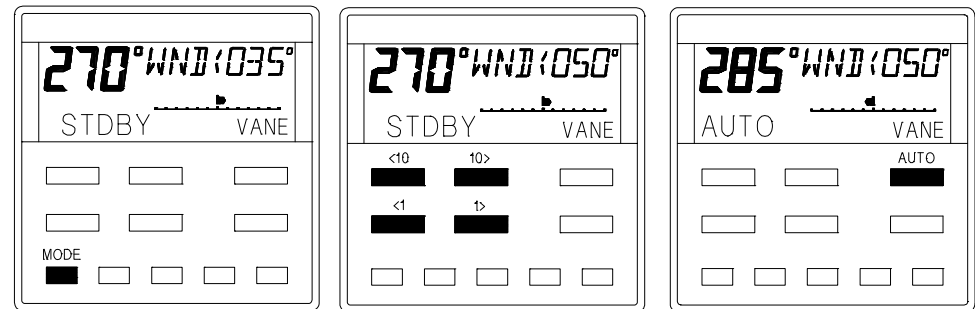
• With the autopilot in **STDBY** press **MODE** key to select   **VANE**.

• Use the **<10**,**10>**,**<1,1>** keys to alter the Target   AWA displayed in the LCD text window in increments of 10^0 and 1^0 to port **<** or to starboard **>**.

• Press the **AUTO** key to engage the autopilot on the preset Target AWA.

PILOT ENGAGED - SELECTING VANE MODE
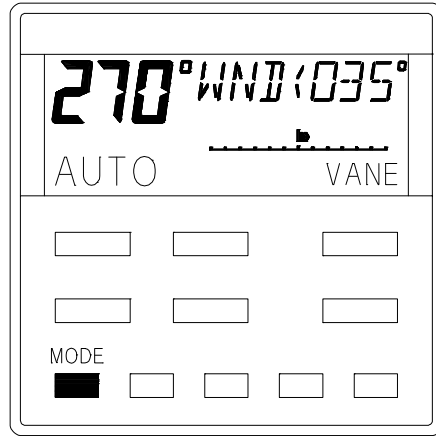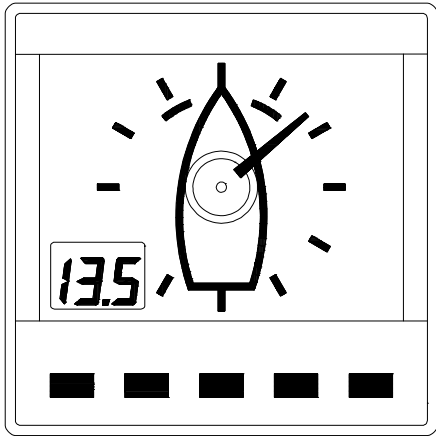
• Check that the AWA on your Network WIND. (AWA can   also be read from Network DATA or Network TACK).

• If safe to do so change mode by pressing the **MODE** key   to select **VANE**.

• The Network PILOT display will show the Target AWA   in the LCD text window, and the autopilot course on the   large digits.

CHANGING COURSE

Changes to the autopilot course while in **VANE** mode uses the same four keys as for other autopilot steering modes, however their purpose is different.
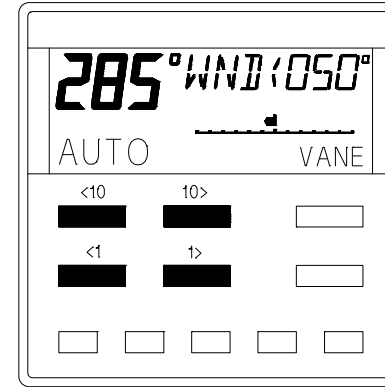
• The **<10**,**10>**,**<1**,**1>** keys alter the Target AWA in   increments of 10^0 and 1^0 to port **<** or to starboard **>**.   The autopilot then calculates the course required to   maintain the Target AWA.

NOTE
When the autopilot is in **VANE** mode the previous course is NOT memorised as there is no a course memory. To return to your previous course you must enter the reciprocal course change.

AUTO TACK

When the autopilot is engaged in **VANE** mode the True Wind Angle (TWA) is calculated. This enables the autopilot to indicate when you can execute a PILOT controlled tack. When the autopilot keys are pressed the boat will be quickly steered through the wind until it is at the same Target AWA on the opposite tack.
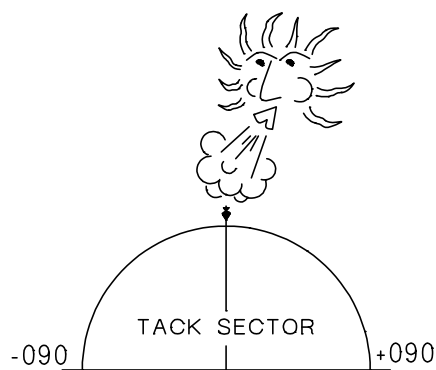

When TWA is in the range -090^0 to $+090^0$ the boat is sailing in the autopilot TACK SECTOR.
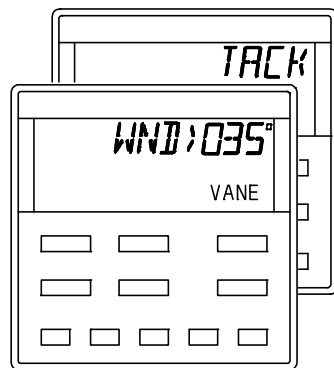
The PILOT display alternatively shows **WND** (target AWA) and **TACK** in the LCD text window.
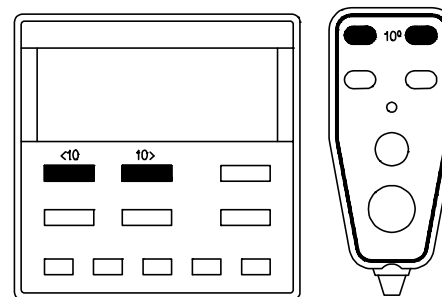
Press **<10** and **10>** keys together on any display or handheld controller to **TACK**.
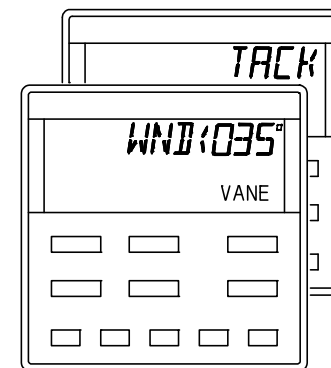
The autopilot will quickly steer the boat on to the same Target AWA on the opposite tack.

AUTO GYBE

When the autopilot is engaged in **VANE** mode the True Wind Angle (TWA) is calculated. This enables the autopilot to indicate when you can execute a PILOT controlled gybe. When the autopilot keys are pressed it will control the steering of the boat so that as the wind passes astern the boom and sails can be safely transferred to the opposite tack. The autopilot will then maintain the same Target AWA on the opposite tack.
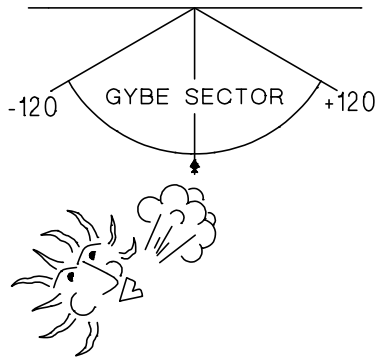
When TWA is in the range -120^0 to $+120^0$ the boat is sailing in the autopilot GYBE SECTOR.
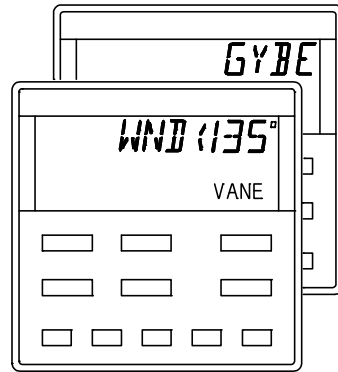
The PILOT display alternatively shows **WND** (target AWA) and **GYBE** in the LCD text window.
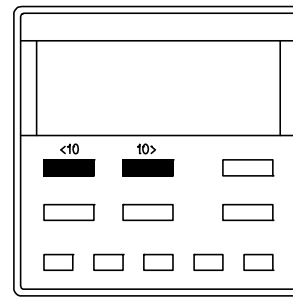
Press the **<10** and **10>** keys together on any Network PILOT display or Hand-held Controller to **GYBE**.
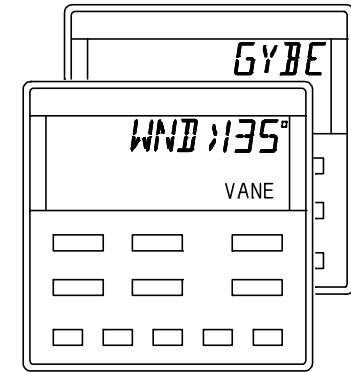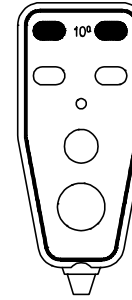
The autopilot will steering the boat on to the same Target AWA on the opposite tack.

USING THE DISPLAY KEY IN VANE MODE

Press the **DISPLAY** key to cycle through additional autopilot and navigational information, displayed in the LCD text window.

- **WND**   TARGET Apparent Wind Angle (TARGET AWA) in degrees to port **<**, or to starboard **>**.

- **RUD**   Rudder Angle - Digits indicated rudder angle in degrees to port **<**, or to starboard **>**.

- **W A**   Watch Alarm - Will indicate **OFF** or the time in minutes and seconds until the alarm sounds.

- **HDG**   Heading - This is the actual compass heading in degrees. The large digits indicate the autopilot course.

PILOT IN STDBY
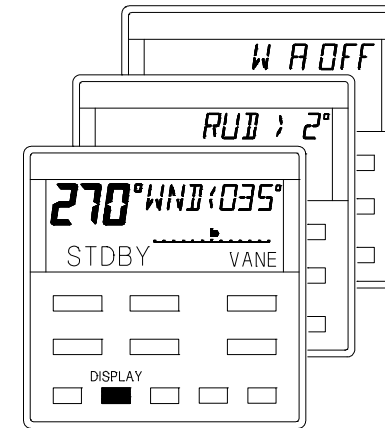
PILOT IN AUTO
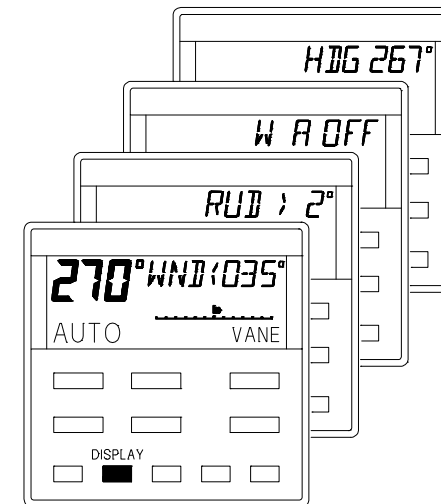
OPERATIONS FOR ALL STEERING MODES

USING THE SPEED KEY

When the **SPEED** key is pressed, boat speed and the source of the speed data will be displayed in the LCD text window. Selection of the speed data source is carried out with the **SETUP** key, refer to SPEED DATA SOURCE SELECTION.

There are five sources of displayed boat speed data:

1. SPD Speed data supplied from a Network SPEED or QUAD unit (connected to a speed sensor) via the system network cables. This is the usual speed source, your Network PILOT is supplied with this selected. If speed data is not available (eg fouled speed sensor) **SPD** with no digits is displayed. It will then be necessary to select an alternative source of speed data using the **SETUP** key.

2. SOG Speed data (Speed Over Ground) supplied from a position fixer via the NMEA interface into the Network PILOT display unit.

3. SLW Slow manual speed band.
4. MED Medium manual speed band.
5. FST Fast manual speed band.

The use and setting of the manual speed bands is described below.

SPEED DISPLAY

SPD 5.74

SOG DISPLAY

SOG 2.45

MANUAL SPEED BANDS

FST 8.00

MED 6.00

SLW 4.00
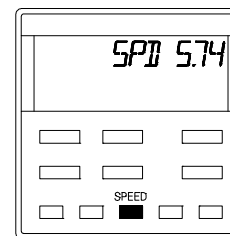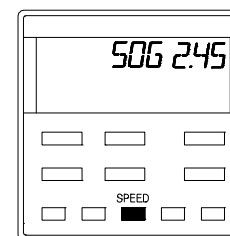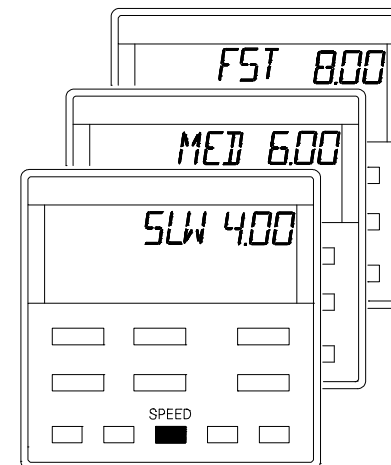
USING THE MANUAL SPEED BANDS

The manual speed bands enable the Network PILOT to be used when there is no speed from the system network due to a damaged or fouled speed sensor or if there is no speed sensor fitted (some stand alone autopilots).

The three speed bands are factory set to the values shown opposite, they are different for sail and power boats, the selection is made automatically by the Network PILOT for you installation. They are all adjustable and can be set according to your own boat speed requirements.

- **SLW**   Slow preset speed stored in the autopilots memory. This value should be adjusted to suit the speed required for slow manoeuvring in harbour or restricted speed areas.

- **MED**   Medium preset speed stored in the autopilots memory. This value should be adjusted to your normal cruising speed.

- **FST**   Fast preset speed stored in the autopilot memory. This should be adjusted to your fast cruising or maximum speed.

FACTORY SET MANUAL SPEED BANDS
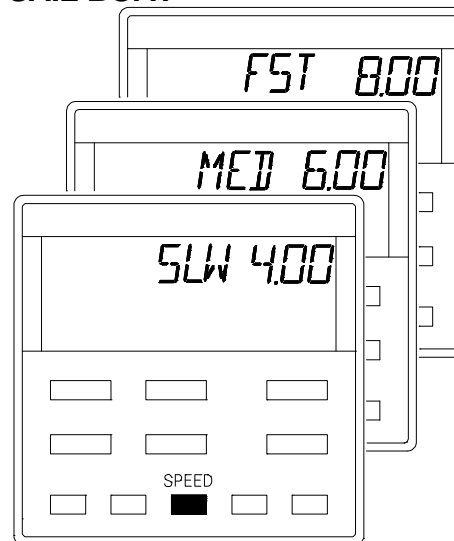
SAIL BOAT   **POWER BOAT**
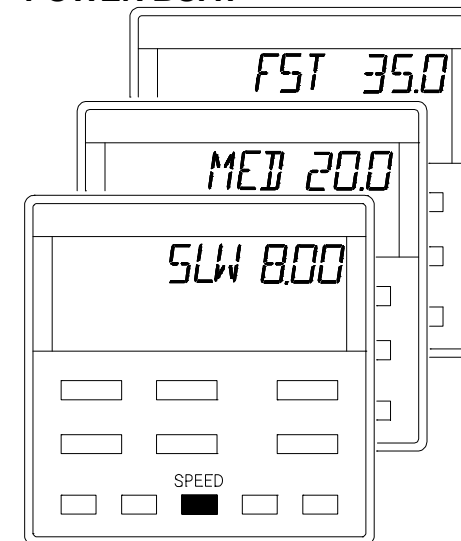
The manual speed band should be selected appropriate to the estimated boat speed. It is not necessary to continuously adjust the value but you must change the bands as you accelerate and decelerate. This can be done instantly by pressing the **SPEED** key. The band displayed is the one that is used by the autopilot for all it calculations, so the correct selection is important for the performance of your Network PILOT.

SETTING THE MANUAL SPEED BAND VALUES

Select the speed band to be adjusted with the **SPEED** key. (**SPD** and **SOG** cannot be adjusted).
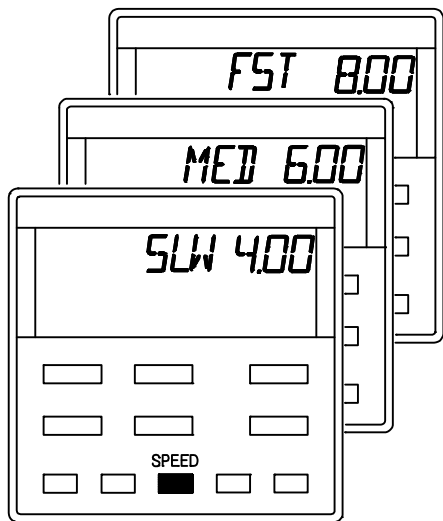
Press **SPEED** key, to display the speed band to be adjusted.
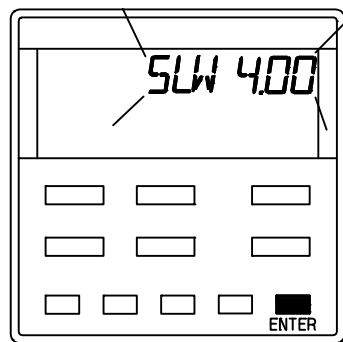
Press **ENTER** key, the display will flash.
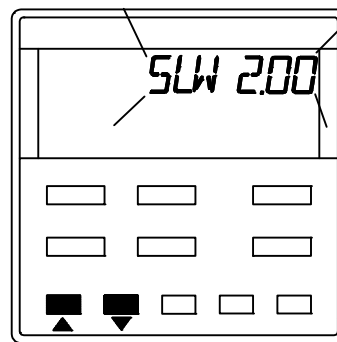
Use the ⋏ or ⋎ keys to alter the displayed speed bands value.
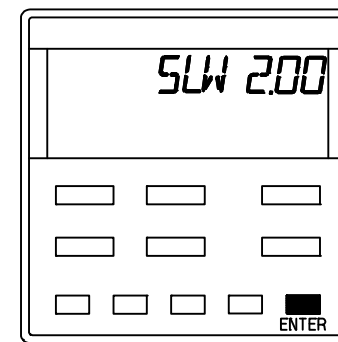
Press **ENTER** key to memorise the new speed value.

USING THE SETUP KEY

The **SETUP** key allows the autopilot operating parameters to be set.
These apply to all steering modes.
Press the **SETUP** key to cycle through the following options displayed
in the LCD text area.

- **SPD TRA** Speed data source selection.

- **RESP N** Autopilot steering response and power consumption
  setting.

- **W A 4** Watch Alarm time interval setting.

- **W A OFF** Watch Alarm enable/disable setting.

- **O C 15^0** Off-course Alarm deviations setting.

- **O C OFF** Off-course Alarm enable/disable setting.

- **DMP 4** Compass heading display damping.

- **JS NORM** Joystick steering mode.

- **F R ON** Fault reporting enable/display setting.

- **TYPE N** Display unit operating type.

The setting of the parameters are described overleaf.

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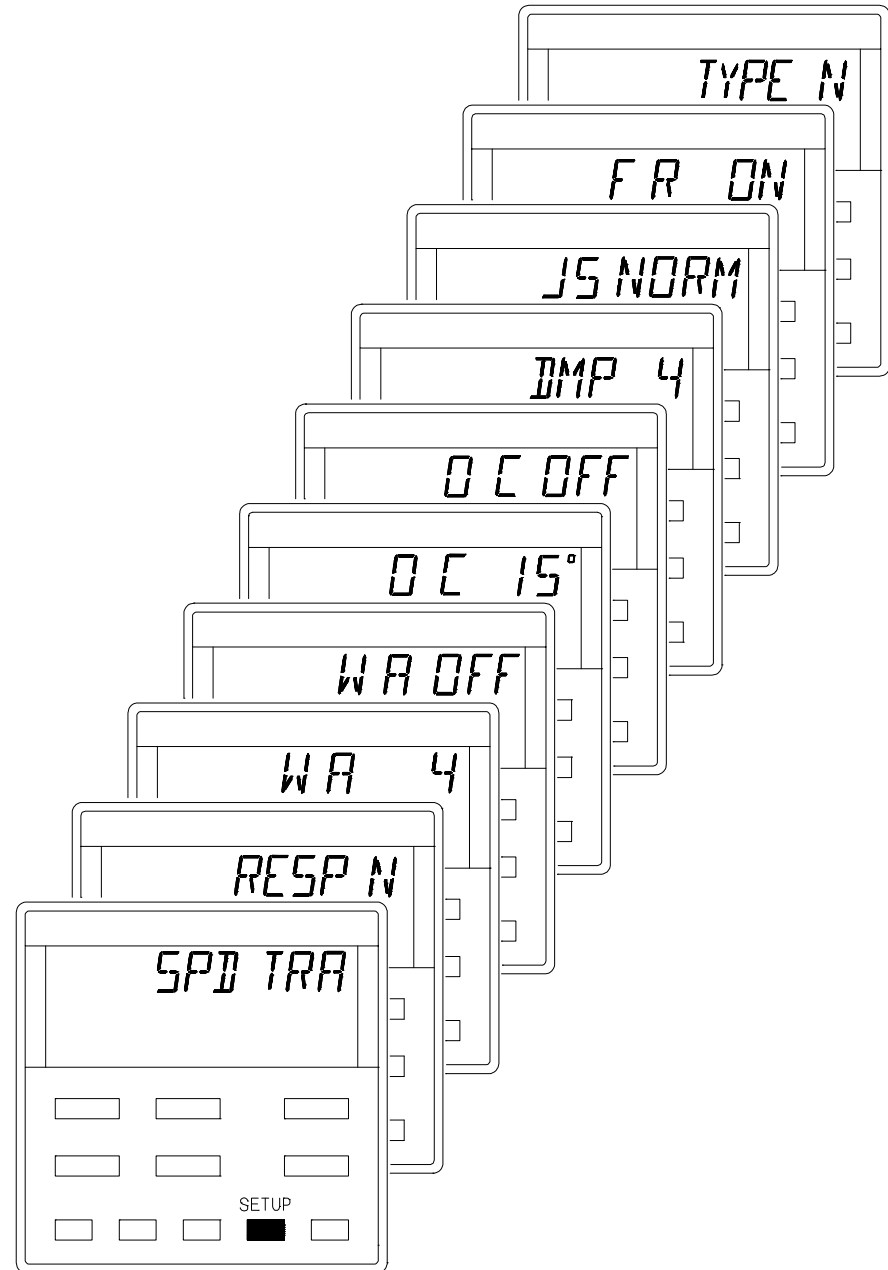
SPEED DATA SOURCE SELECTION

This **SETUP** parameter is used to select the source of the speed data used in the autopilots calculations.

SPD TRA   Speed data from a Speed Sensor supplied via the system network cables from a Network SPEED or QUAD. This is the usual setting for most systems and is the factory setting.

SPD SOG   Speed data via the NMEA interface from a position fixer.

SPD MAN   Manual speed band selection.
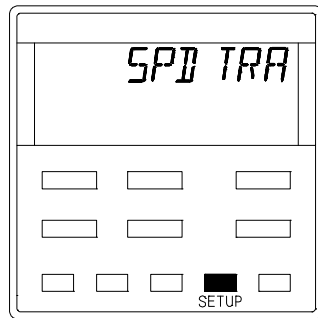
Press **SETUP** key, to display **SPD**.
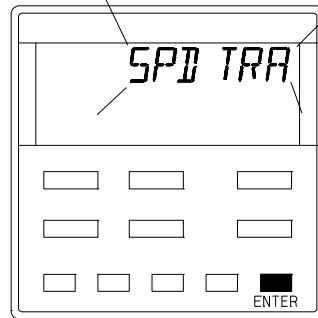
Press **ENTER** key, the display will flash.
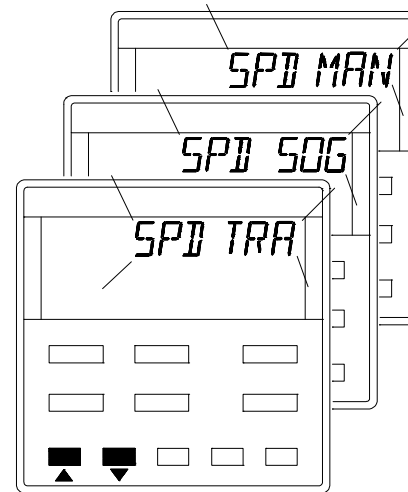
Use the ∧ or ∨ keys to cycle through the options.
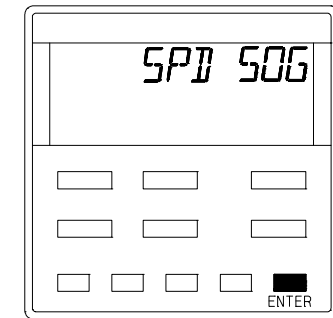
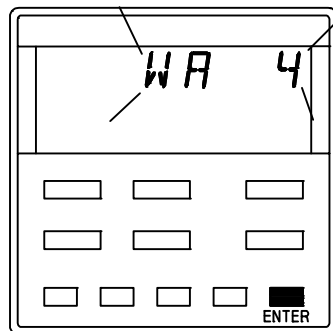Press **ENTER** key to memorise the new **SPD** setup.

STEERING RESPONSE

This **SETUP** parameter allows one of three different autopilot steering response to be selected as follows:

RESP N   Normal steering mode, this setting is suitable for most steering requirements. Factory set mode.

RESP E   Economy steering mode, the power consumption of the autopilot is reduced by minimising the amount of rudder movement. The rudder drive is the main drain on battery power when steering by autopilot. There will be a slight reduction in course keeping as the autopilot will not make so many rudder position changes.

RESP D   Downwind steering mode, this setting modifies the steering response for sailing downwind.
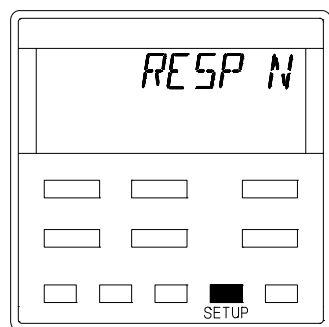
Press **SETUP** key until **RESP N** is displayed.
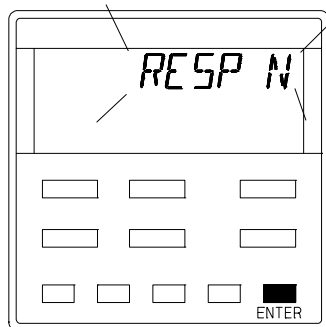
Press **ENTER** key, the display will flash.
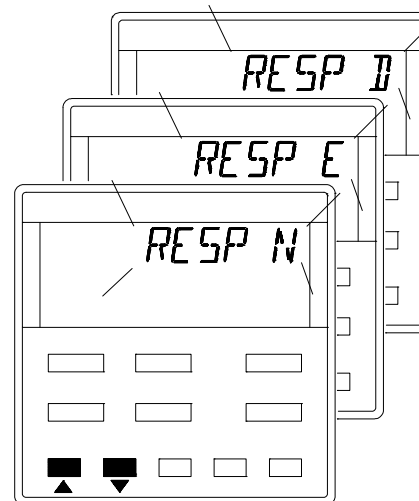
Use the ⋏ or ⋎ keys to select **OFF** or **ON**.
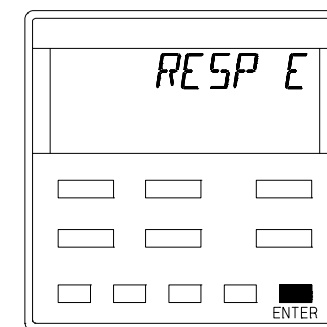
Press **ENTER** key to memorise the new **RESP** setup.

WATCH ALARM

The Watch Alarm can be set to sound the alarm at regular intervals to keep the on-watch crew and helmsman alert.

Alarm Rang 1 to 360 minutes
Factory set 4 minutes: OFF
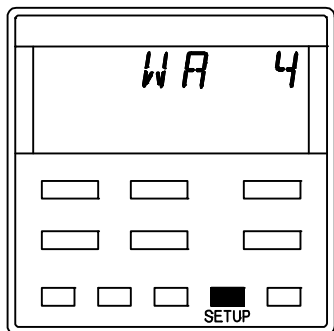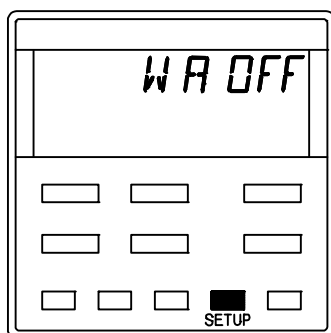

Press **SETUP** key until **W A 4** is displayed.

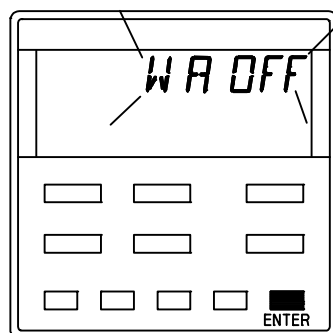Press **ENTER** key, the display will flash.
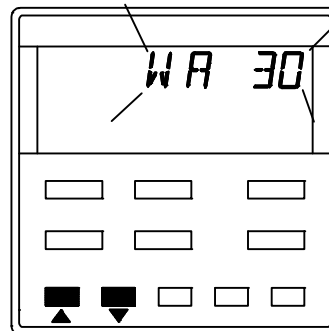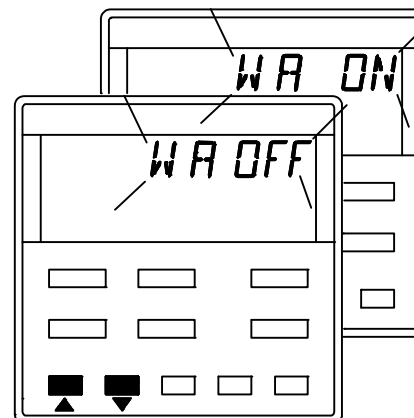

Use the ⋀ or ⋁ keys to alter the displayed alarm value.
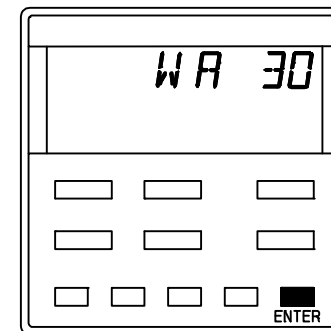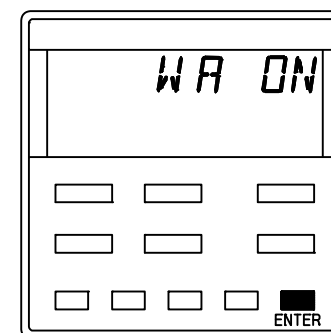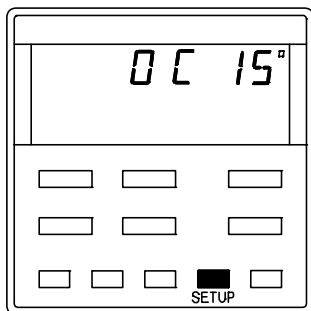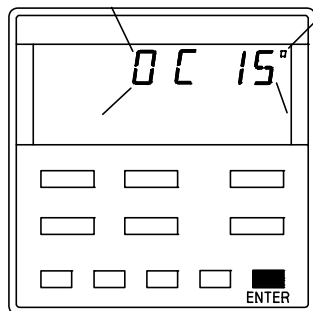

Press **ENTER** key to memorise the new **W A** value.

Press **SETUP** key until **W A OFF** is displayed.

Press **ENTER** key, the display will flash.

Use the ⋀ or ⋁ keys to select **OFF** or **ON**.

Press **ENTER** key to memorise the new **W A** setup.

OFF COURSE ALARM

The Off Course alarm can be set to sound if the boat deviates off course by more than the value set. The alarm is temporarily disabled during autopilot turns.
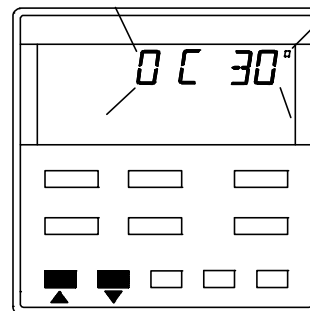
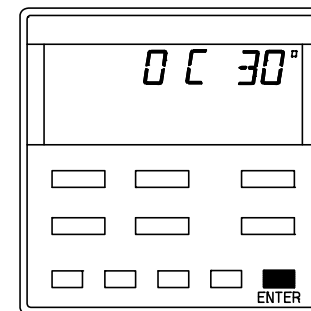Alarm Range 1^0 to 99^0
Factory set 15^0 : OFF
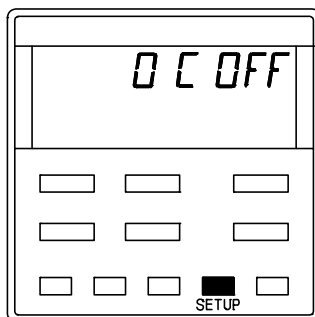

Press **SETUP** key until **O C 15^0** is displayed.
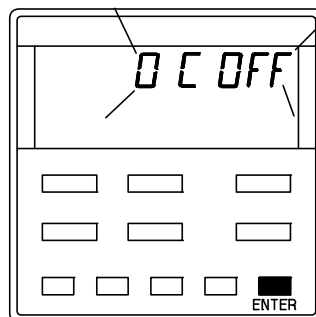

Press **ENTER** key, the display will flash.

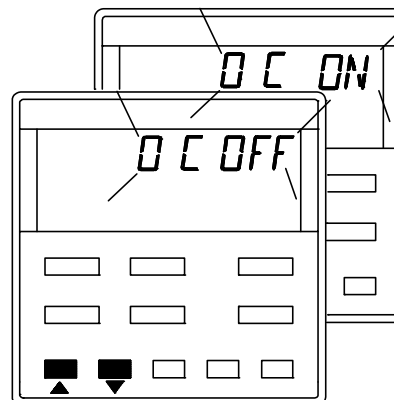Use the ⋏ or ⋎ keys to alter the displayed alarm value.

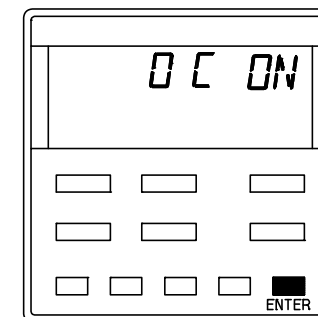

Press **ENTER** key to memorise the new **O C** value.

Press **SETUP** key until **O C OFF** is displayed.

Press **ENTER** key, the display will flash.



Use the ⋏ or ⋎ keys to select **OFF** or **ON**.

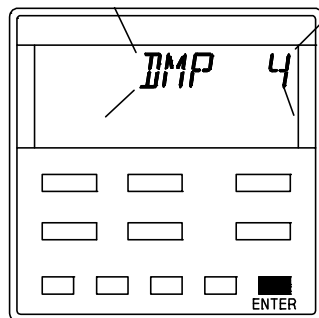Press **ENTER** key to memorise the new **O C** setup.

COMPASS DAMPING

This **SETUP** allows the response time of the displayed compass heading to be adjusted. The heading is averaged over a set time period, the longer the time period the smooth the response of the displayed heading but the longer it takes to display a change. Adjustments to compass damping DO NOT effect the response and performance of the autopilot steering.

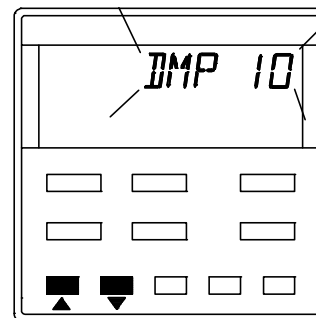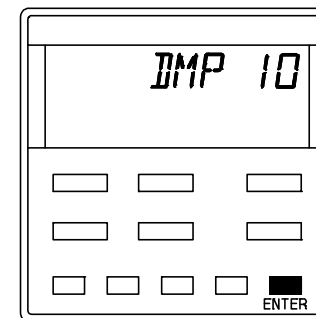Damping Range1 to 99 seconds
Factory set 4 seconds
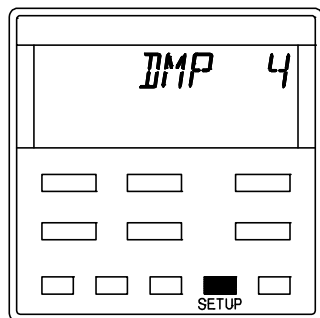
Press **SETUP** key until **DMP 4** is displayed.

Press **ENTER** key, the display will flash.

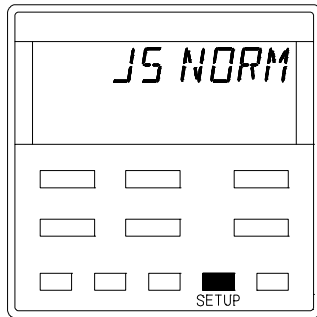Use the ⋏ or ⋎ keys to alter the damping value.

Press **ENTER** key to memorise the new **DMP** value.
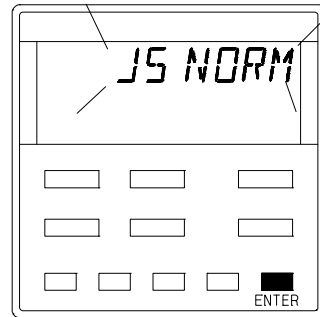
JOYSTICK STEERING MODE

This **SETUP** allows the joystick to control the in steering in one of two different methods.

JS NORM   Normal steering mode. Factory set to this mode.
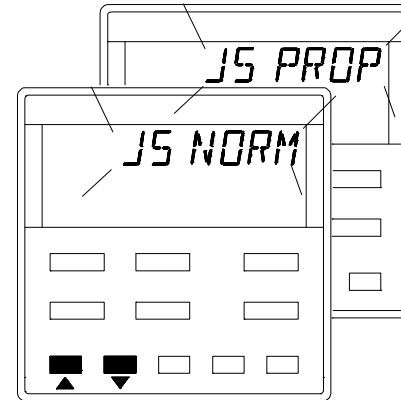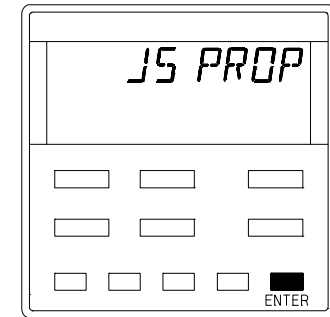**JS PROP**   Proportional steering mode.

Press **SETUP** key until **JS NORM** is displayed.
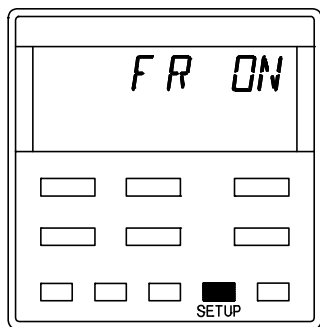
Press **ENTER** key, the display will flash.

Use the ⋏ or ⋎ keys to alter the steering mode.

Press **ENTER** key to memorise the new steering mode.

FAULT REPORTING

This **SETUP** enables the Network PILOT fault reporting to be disabled preventing continuous alarms in the event of an intermittent rudder or compass fault. The autopilot would not be able to steer the boat, but in **STDBY** the PILOT display will still show compass heading and rudder angles (unless there is a total system failure).

Press **SETUP** key until **F R ON** is displayed.

Press **ENTER** key, the display will flash.
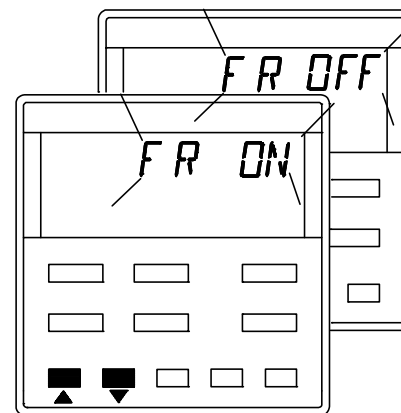
Use the ⋏ or ⋎ keys to select **OFF** or **ON**.

Press **ENTER** key to memorise the new **F R** setup.

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DISPLAY TYPE

This **SETUP** enables the display to run an internal demonstration program. The display should be set to Normal for the autopilot to operate correctly.
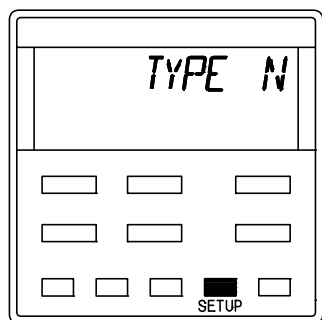
Press **SETUP** key until **TYPE N** is displayed.
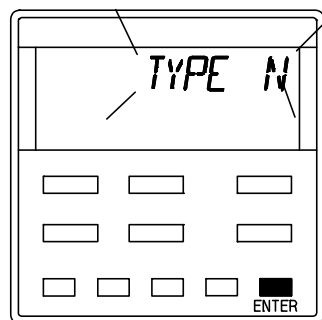
Press **ENTER** key, the display will flash.
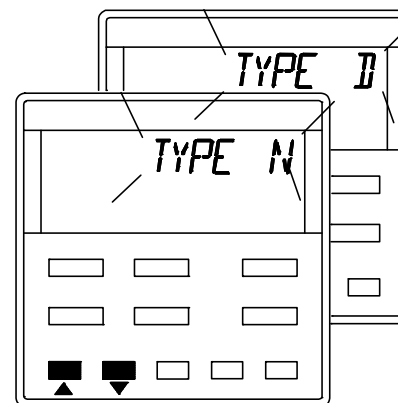
Use the ⋏ or ⋎ keys to select **N**ormal or **D**emo display type.
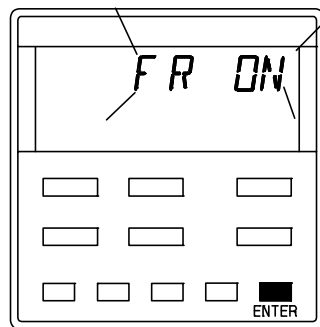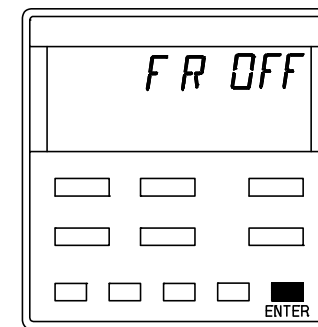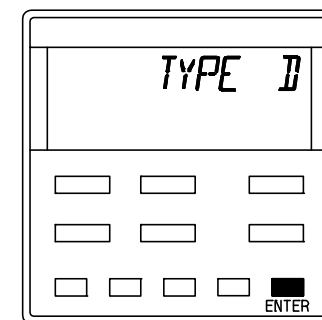

Press **ENTER** key to memorise the new **TYPE** setup.

SETTING THE ILLUMINATION LEVEL

The Network PILOT Display unit has 3 levels of illumination and off, controlled by the **LIGHTS** key. The level set is for the entire Network System.
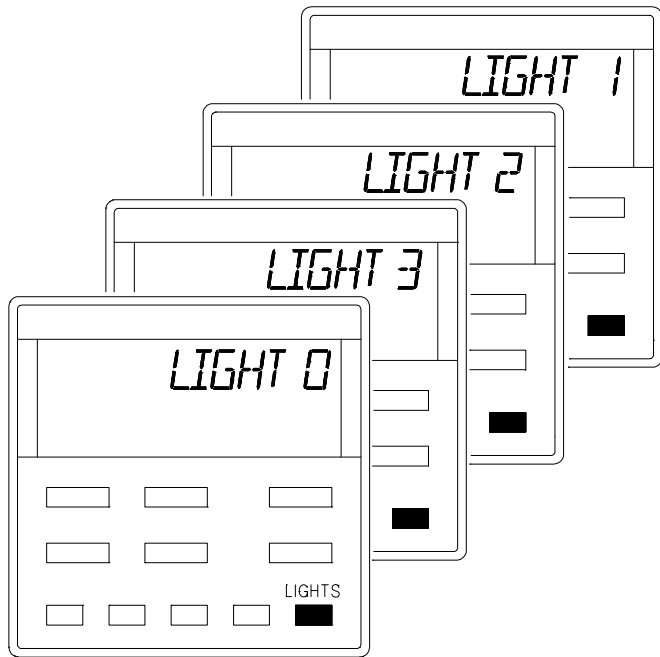
- **LIGHT 0**   Off
- **LIGHT 3**   High
- **LIGHT 2**   Medium
- **LIGHT 1**   Low

The **LIGHTS** key also changes the key legend lighting.
The **LIGHTS** key is always illuminated so even in complete darkness the key can be located.

MAN OVERBOARD PROCEDURE (OPTIONAL)

The Man Overboard Button (MOB) is an optional extra that activates the Network PILOT's man overboard alarm procedure. For this facility to operate you must have a speed sensor input, it will not work with Manual Speed Bands or Speed Over Ground.

It's purpose is to aid you in the recovery of the person or persons that may have been lost overboard. The procedure will help to guide the boat back to the point where the MOB was first pressed, by giving the bearing and distance to that point.

Power boat owner's can use the Network PILOT for Automatic Recovery, the Network PILOT will control the steering of the boat to execute a "Williamson Turn" and return the boat along the reciprocal course.

Sail boats owner's however, because of the need to tack or gybe, have to use Manual Recovery, the bearing and distance displays must be followed and the boat steered back to the person in the water.

When the MOB is pressed the internal alarms will sound in all Network Unit, except Network WIND and TACK, and the LCDs will show the message shown opposite. The alarm is silenced by pressing any of the five keys in the lowest row on any display (except WIND and TACK).
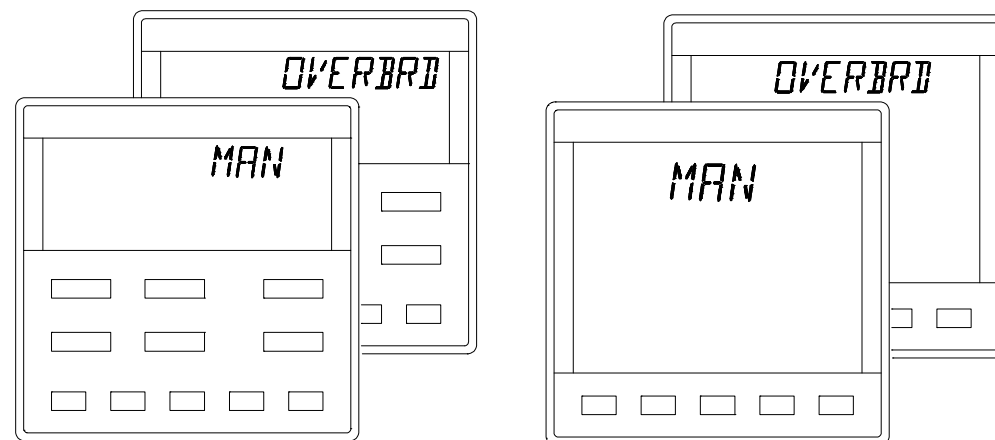
WILLIAMSON TURN
Power boats will follow an autopilot steered course similar to the diagram shown below.
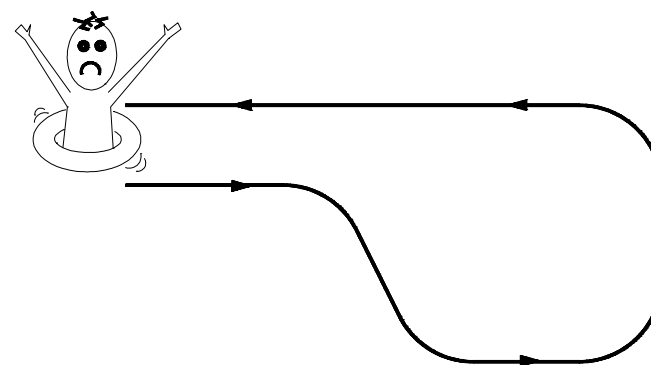
The full procedures for Manual and Automatic Man Overboard Recovery are described overleaf. They should be practised and explained to everybody on board your vessel because one day it could help save a life.

MANUAL RECOVERY (ALL BOATS)

1.

OVERBRD

MAN

• Press the MOB as soon as the person is lost overboard.
• The alarm will sound and the display will show the man   overboard message.

2.

270° DST 0.10
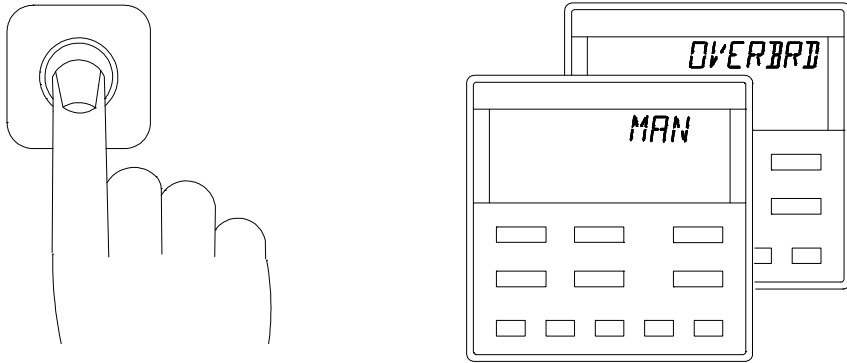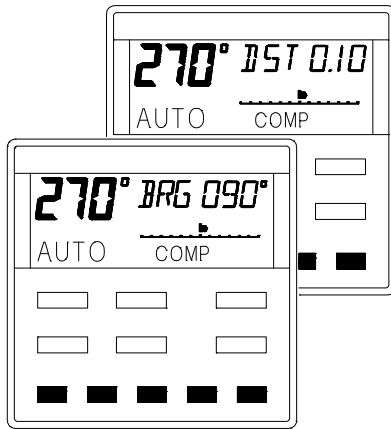AUTO   COMP

270° BRG 090°
AUTO   COMP

• Press any of the five keys in the lowest row to silence the audible alarm.
• The PILOT display will now show the bearing and distance to the person overboard.

3.
• ALWAYS maintain a lookout and keep visual contact with the person in the water.
• Steer the boat back to the person overboard following the bearing and distance display.
• The boat can be steered using the course change buttons when the PILOT is engaged, or press the **OFF** key to disengage the PILOT and manually steer the boat.
• Recover the person overboard.

4.

090°
STDBY COMP

• Press and hold the MOB for 5 seconds to cancel the MOB sequence.
• The bearing and distance display will be cancelled and if   your autopilot was engaged it will disengage and return   to **STDBY**, **COMP** steering mode.

AUTOMATIC RECOVERY (POWER ONLY)

1.

• Press the MOB as soon as the person is lost overboard.
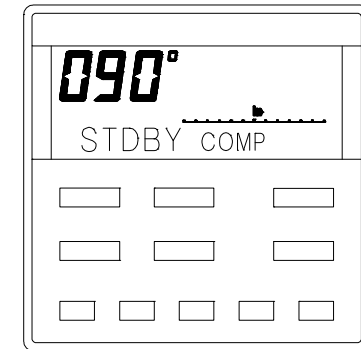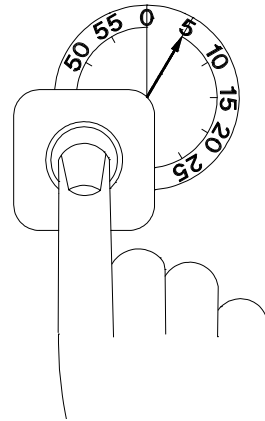• The alarm will sound and the display will show the man overboard message.

2.
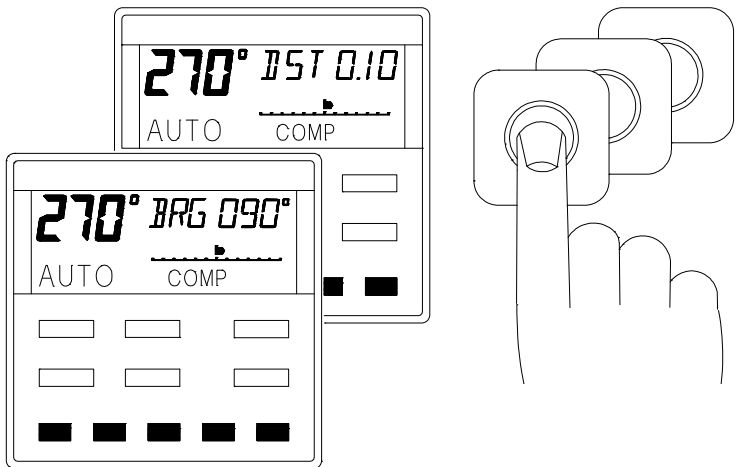
• Press any of the five keys in the lowest row to silence the audible alarm.
• The PILOT display will now show the bearing and distance to the person overboard.
• Press the MOB three times to initiate the automatic recovery.

3.
• ALWAYS maintain a lookout and keep visual contact with the person in the water.
• Reduce the boat speed to less than 8 knots.
• The autopilot will control the steering and execute a `Williamson Turn', or press the **OFF** key to disengage the PILOT and manually steer the boat.
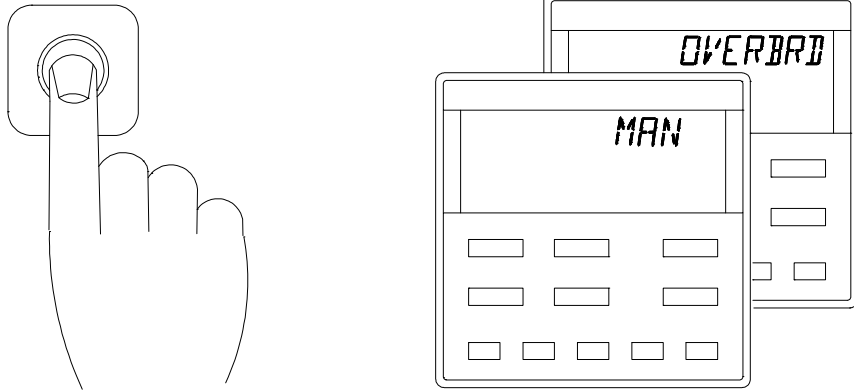• Recover the person overboard.

4.
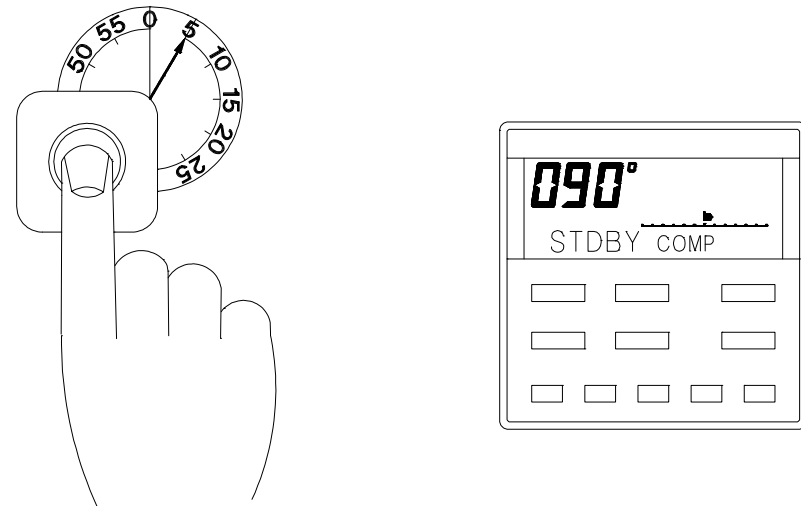
• Press and hold the MOB for 5 seconds to cancel the MOB sequence.
• The bearing and distance display will be cancelled and if your autopilot was engaged it will disengage and return to **STDBY**, **COMP** steering mode.

NETWORK ALARMS

The Network PILOT display unit has an internal buzzer that will sound when an alarm condition is met on a Network unit that has alarm functions ie. Network DEPTH and Network QUAD for depth alarms and Network PILOT for Watch Alarm and Off Course alarms. The unit will also display which alarm is activated.
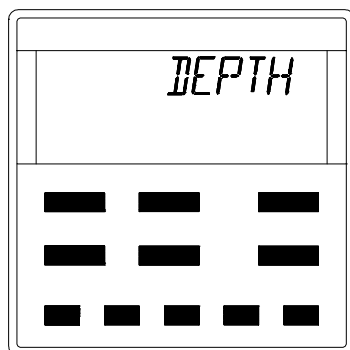
To silence the internal alarm and return the display to normal operation press any of the five keys.

DEPTH ALARM DISPLAY

Depth alarms can be set for the following:
Shallow water
Deep water
Anchor Watch
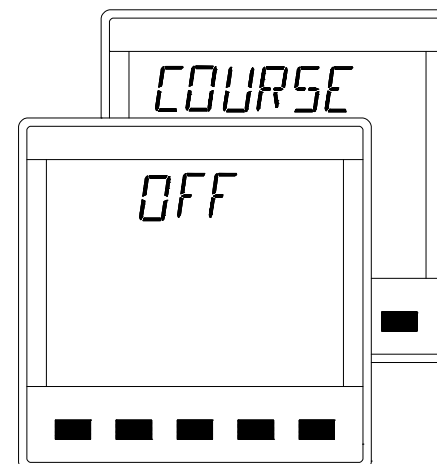Check your Network DEPTH or QUAD unit to see which alarm is activated.

NETWORK PILOT ALARM DISPLAYS
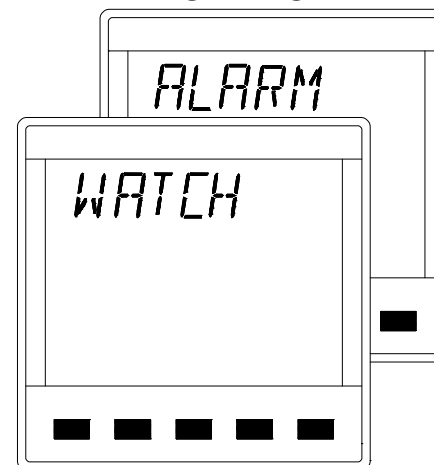
The Watch Alarm is a count-down timer with is activated at the end of the preset count-down period. The display alternates between the messages above.

The Off Course alarm is activated when the boat deviates off course by a preset amount. The display alternates between the messages above.

FAULT AND ERROR MESSAGES

NETWORK PILOT FAULT DISPLAY
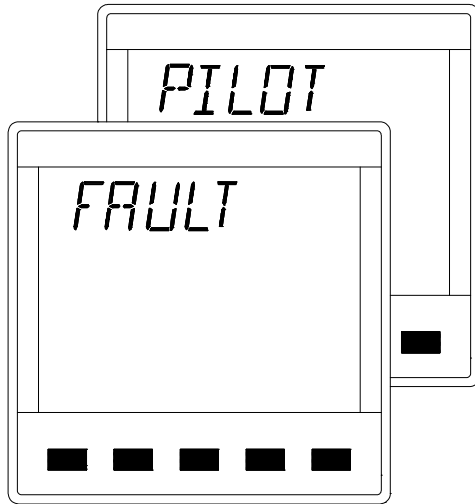
If Network PILOT should have a fault the autopilot computer unit will send a message to all other Network Display Units. The Network units will alternately display the message above, the actual fault will have to read from the Network PILOT Display unit.

UNIT INTERNAL ERRORS
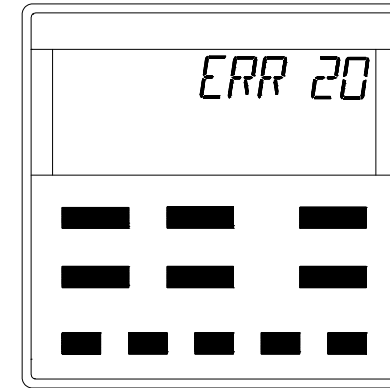
In the unlikely event that your Network PILOT display unit should develop an internal error, the unit will sound it's alarm continuously and the display will show an error number. Pressing the keys will not silence this alarm.

In some cases the fault can be cleared by switching off the instruments at the supply, waiting a few moments and then switching on again. If this does not clear the fault the error number should be recorded.

Switch off the supply and disconnect the faulty unit. Return it with the error number to your dealer for servicing.

TROUBLE SHOOTING GUIDE

ERROR MESSAGES

The Control Unit is continually monitoring the Network Pilot and
Network System for correct operation. If an error is detected the
Network Pilot Display will show an error message, the Hand-held
Controller status LED will flash the error pattern, and the system alarm
buzzers will sound.

• To cancel alarm buzzer, press any of the five lower keys   on any
Network Pilot Display unit, or in an integrated   system any of the five
lower keys on any Network   display except the Network WIND and
Network TACK   units.

• Press the **DISPLAY** key on any Network Pilot Display to cancel the
displayed error message.

• Persistent errors should always be checked by an authorised B&G
service dealer.
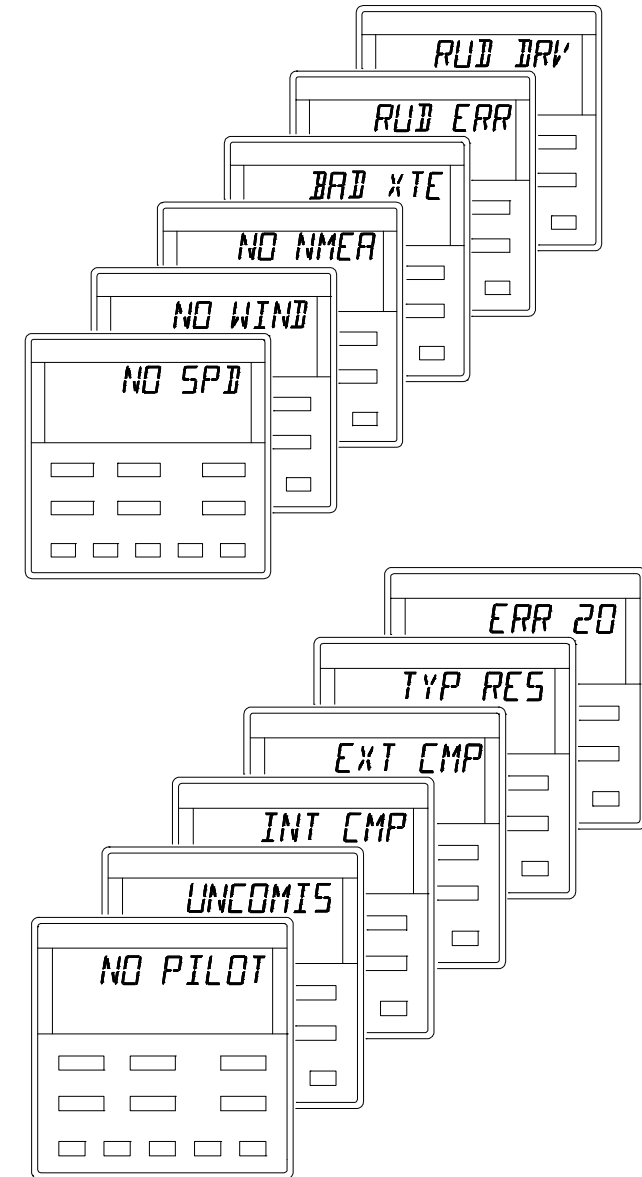
TROUBLE SHOOTING GUIDE

ERROR	PROBABLE CAUSE	REMEDIAL ACTION
UNCOMIS	The rudder end stop positions are invalid or the Network has been reset.	Recommission the rudder end stop positions
INT CMP	Internal compass fault.	Return the Control Unit for servicing
RUD ERR	Rudder reference unit error, invalid data from unit.	Check cabling and output from RRU
RUD DRV	Rudder drive error. The Computer Unit has attempted to move the rudder but there was no feedback from the RRU.	Check the rudder drive cabling, inspect the drive and linkages.
NO SPD	No boat speed data. Networked Speed sensor fault or autopilot engaged when boat was stationary.	Inspect Network Speed or Quad units, speed sensor and inter-connections. Engage autopilot while moving. Select manual speed bands with Pilot display.
NO WIND	No wind data. Networked Wind sensor fault or no wind.	Inspect Network Wind unit, wind sensor and interconnections.
NO NMEA	No NMEA data. The position fixer output has failed.	Check position fixer has a fix, signal level good etc, and inter-connections.
BAD XTE	XTE (cross track error) data is erratic.	Check as above.
ERR ##	Internal Computer Unit error.	Switch off autopilot at main breaker, switch on again. If fault does not clear record number and contact service dealer.
TYP RES	Type Selector not fitted or incorrect.	Check type selector is fitted in Control Unit and is correct for type of boat.
EXT CMP	External Compass fault.	Inspect external compass and connections.
TRIP	Drive unit motor or clutch jammed, shorting or poor connection (i.e. high resistance joint).	Check the steering system is free to move. Inspect all connections to the motor and clutch.
NET ERR	Network communication error between display and computer unit.	Check the connections between the display and the computer unit.