Welcome

All of us at Cetrek would like to welcome you to the world of Cetrek Autopilot Systems. At Cetrek we did not invent the word satisfaction we just helped to define it and we assure you that your new autopilot will give you many hours of satisfaction.

Your Propilot 725 is easy to operate ensuring that you and your friends can enjoy your boating to the full. It will effortlessly steer your boat on a straight course moving the rudders with the minimum of fuss to ensure the absolute minimum wear and tear on the steering system. When properly set up it will also help to optimise fuel economy and minimise power consumption.

Your Safety

THE USE OF AN AUTOPILOT DOES NOT AVOID THE NEED FOR NORMAL WATCHKEEPING.

Your System

The Autopilot System consists of five basic units:

- The 930 725 Autopilot Control
- A Distribution Box
- A Heading Sensor, normally a Compass
- A Drive Unit to power the steering system
- A Rudder Feedback Unit

  It may also include any of these options:

- Dodge and Course Change remote controls
- Power Steer remote controls
- Rudder Position Indicators and Repeaters
- Compass Repeaters
- External Audible Alarms
- A Windvane
- A Navigator
- Gyro Synchro/Stepper Interface
- A second station Autopilot Control

Most of these options can be added to your system at any time. Your Cetrek Dealer will be glad to give you the latest information on any of them.
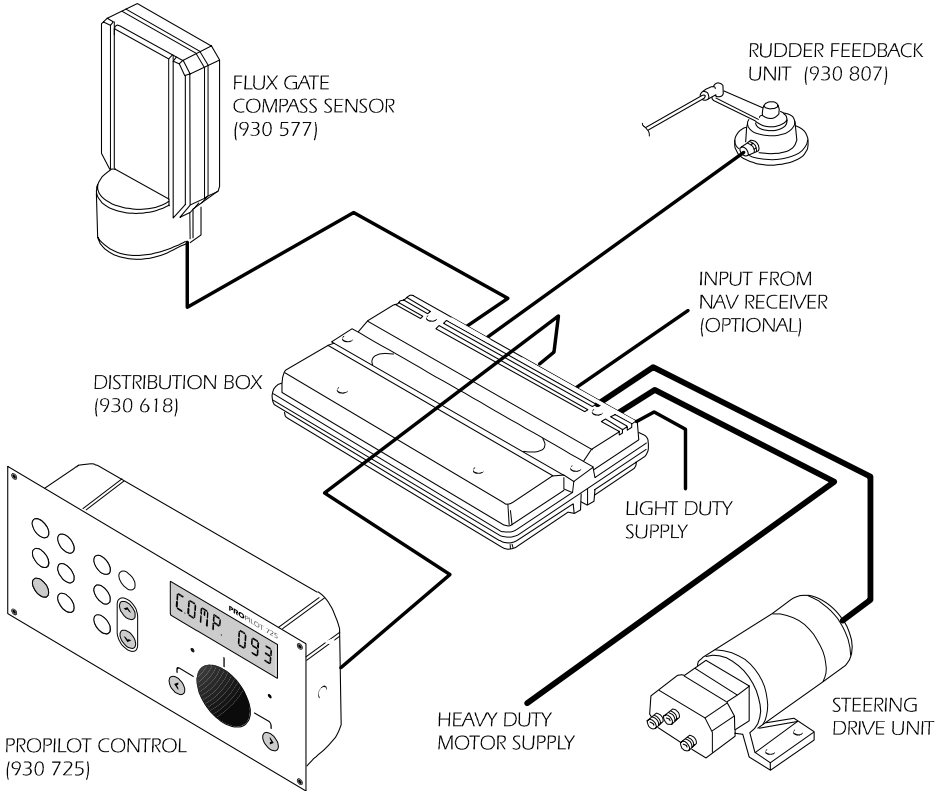
EMC Directive 89/336/EEC
This product has been designed to be compliant with the above Directive.

The Propilot 725 System

FLUX GATE
COMPASS SENSOR
(930 577)

RUDDER FEEDBACK
UNIT (930 807)

INPUT FROM
NAV RECEIVER
(OPTIONAL)

DISTRIBUTION BOX
(930 618)

LIGHT DUTY
SUPPLY

COMP 093

PROPILOT 725

HEAVY DUTY
MOTOR SUPPLY

STEERING
DRIVE UNIT

PROPILOT CONTROL
(930 725)

CONTENTS

The Propilot 725 Autopilot Control

Visual Alarm Indicator

LCD
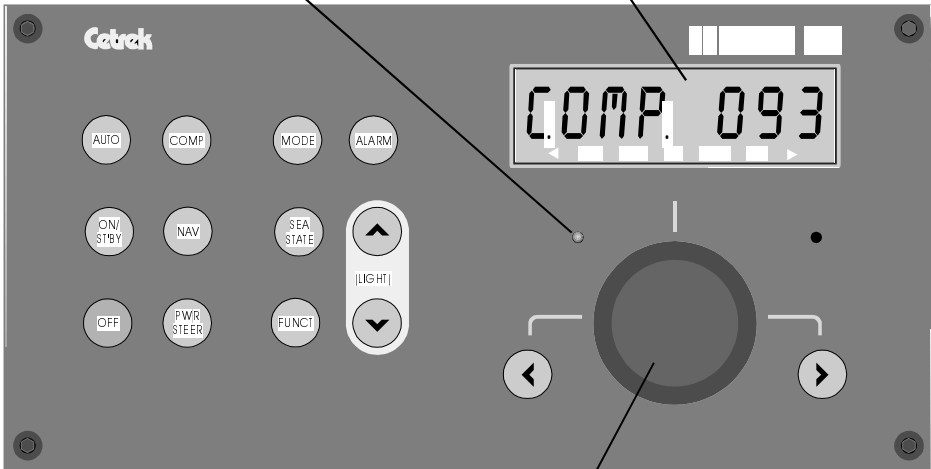
Course Selector Knob

USING YOUR PROPILOT 725

The Autopilot Control

This is the unit where you, the Helmsman, tell your autopilot what you require is to do for you.

It communicates to you using an 8 digit Liquid Crystal Display (LCD), a Light Emitting Diode (LED) and its internal audible alarm. You communicate with it using the 14 keys and the rotary Course Selector Knob.

Remember

> In an EMERGENCY press OFF to regain manual control.

Getting Started The autopilot has 2 basic modes of operation.

1. Standby Mode where the autopilot is switched on but not in control of the vessel.
2. Auto Mode where the autopilot is in control of the vessel.

The ON/ST'BY key turns the autopilot on. There will be a delay of about 10 seconds while the autopilot checks itself. If it detects something is wrong it will display an error message. These are explained in the section on Error and Fault Displays in the Installation and Servicing Manual.

HEAD 035

Usually all will be OK so the LCD displays HEAD to tell you the autopilot is in Standby Mode and is displaying the vessel's heading (035° in this example). This changes as you steer, just like a conventional compass. The autopilot is not in control of the vessel.

The AUTO key now switches the autopilot from Standby to Auto Mode which puts the autopilot in control of the vessel's course.

Full stops within the LCD text align with a sub-menu at the base of the LCD to indicate whether the autopilot is under Navigator Control (NAV 1/NAV 2), if the Gyro is operational, if Power Steer is on or if a Compass Variation is entered. In addition flashing points above the directional arrows indicate that the vessel is off course.

| C.OMP 08.1 | The LCD displays COMP to tell you the autopilot is in Auto Mode, steering from a compass, steering the course displayed (081° in this example). |

So you could simply turn your autopilot on, steer to the heading you want to maintain then switch to Auto Mode letting the autopilot hold that course until you tell it otherwise. This method is termed Autofollowing.

Changing Course

Changing course is just as simple. You could switch your autopilot back to Standby Mode, steer to the new course manually then switch back to Auto Mode.

| COMP 091 | Alternatively, if you are in Auto Mode you can just rotate the Course Selector Knob until the new course is displayed on the LCD. The autopilot will then bring the vessel to the new course for you. |

Pre-selecting a Course

You may pre-select a course while the autopilot is in Standby Mode. Simply rotate the Course Selector Knob.

| CTS 120 | The LCD will display CTS so that you know the reading is no longer your heading but the autopilot's Course To Steer. The numbers indicate the heading that the autopilot will steer the vessel to if you press the AUTO key and put the autopilot into Auto Mode. |

WARNING

> This can cause a very sudden and severe course change if the Course to Steer is a lot different from the current course.

When you put the autopilot into Auto Mode the LCD will change from CTS to COMP.

Course Dodging When you are in Auto Mode and you press the ⊖ or ⊖ key the vessel will turn and continue to turn until you release the key. The autopilot will then return you to its preset heading.

This function is used to sidestep small obstacles in the vessel's path and will return you to a parallel track from your original. The internal alarm will sound and the warning light will illuminate while the key is being pressed.

Press the ⊖ key and the display will indicate a dodge to Port (left) and the vessel will turn to Port.

Press the ⊖ key and the display will indicate a dodge to Starboard (right) and the vessel will turn to Starboard.

Using Two Courses

There is a function which allows the Helmsman to quickly and easily alternate between two courses, ideal for tacking sailing vessels.

PREV 127

Each time the AUTO key is pressed, the autopilot remembers the course prior to the press of the key. This course can then be recalled by pressing the FUNCT key once. The LCD will display the prefix PREV to tell you that it is the previously stored course.

COMP 127

Pressing the AUTO key will instruct the autopilot to follow this new course and at the same time store the old course.

PREV 213

Pressing the FUNCT key once again will display the previously stored, or old, course.

COMP 213

Pressing the AUTO key will instruct the autopilot to follow this course and at the same time store the previous course.

So by following this simple sequence the Helmsman can alternate between two courses as often as he likes.

If you press the FUNCT key and the previously stored course is not the one that you wish to use, you can change it:

a) by rotating the Course Selector Knob until the required course is displayed, or
b) by pressing either the ⊙ or ⊙ key to enter the current heading.

PROPILOT 725 FRONT PANEL (KEY) FUNCTIONS

| Key	Primary Function	Secondary Function
⊘⊘	1. Adjust LCD backlighting	When within a function used to switch functions **ON/OFF** or to adjust settings.
⊖	1. Dodges to Port	
⊖	1. Dodges to Starboard	
A U T O	1. Select Autopilot Mode	1. Rudder Position & Off Course Indicator 2. Cross Track Error (only if a Navigator is fitted)
ON/ST'BY	Switches Autopilot on 1. Selects Standby Mode	1. Rudder Position 2. Cross Track Error (only if a Navigator is fitted)
O F F	1. Power off Autopilot	None

C O M P	1. Select Compass Control	With LCD displaying COMP ON/OFF press & hold for:
		1. VAR--E00 Compass Variation
		2. DAMP--07 Compass Damping
		3. GYRO--ON Gyro Selection
		If Gyro is ON press again for:
		   GCAL--120 Gyro Calibration
		   (Must be switched OFF after calibration)
		   RATIO 0 Gyro Ratio (Gyro Type)

	2. Selects Windvane Control	With LCD displaying WIND ON/OFF press & hold for: 1. WIND-0 Windvane Interface Format 2. WTRM-05 Wind Trim
N A V	1. Selects NAV1	Press & hold for: 1. NAV1-0 Navigator Interface Format 2. NMG1-05 Navigator Gain
	2. Selects NAV2	Press & hold for: 1. NAV2-0 Navigator Interface Format 2. NMG2-05 Navigator Gain
Pwr STEER	1. Switches Power Steer on/off P/S 198	

PROPILOT 725 FRONT PANEL (KEY) FUNCTIONS (cont..)

Key	Primary Function	Secondary Function

M O D E   1. Cycles through Sea State
Adjustments – Pilot A, B or C
PILOT A

SEA STATE   1. RUD--05   Rudder Ratio   Press & hold to enter Configurations:
2. RESP--07   Response (Yaw)   CONFIG
3. PWM--ON   1. C/R--03   Counter Rudder
Pulse Width Modulation   2. TRIM--04   Trim
                           3. GAIN--03   Rudder Ratio Gain
                           4. RDB--03   Rudder Deadband
                           5. RLIM--07   Rudder Limit
                           6. TURN--20   Max Turn Rate
                           7. PSG--07   Power Steer Gain
                           8. AUTO-DEV   Auto-deviation

FUNCT   1. PREV 127   Previous Course
2. 180 TURN   180° Turn
3. NEXT 331   Next Course
4. PORT TRN   Port Turn
5. STBD TRN   Starboard Turn

ALARM   1. Clear Alarm   Press & hold to enter Alarm settings:
                           1. OCAL--00   Off Course Alarm
                           2. WATCH AL   Watch Alarm
                              30 mins
                              60 mins
                              2 hours
                              4 hours
                           3. XALM--ON   External Alarm

180° Turns (Man Overboard Turns)

There is a function which allows the Helmsman to quickly
and easily turn the vessel through 180° and go
back along the course previously being followed.
This is useful as a Man Overboard Routine.
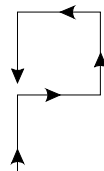
| 180 TURN |

With the autopilot in Auto Mode, press the
FUNCT key twice and the LCD will display the
function selected.

| COMP 195 |

Press the AUTO key to accept the function and the vessel will
turn to Starboard, navigate round and turn back down the
track that it has just been travelling.

Using the Next Course Function

There is a function which allows the Helmsman to quickly
and easily enter a new course from the autopilot's memory.

| NEXT 000 |

Press the FUNCT key three times so that the LCD displays the
course held in its memory.

| NEXT 331 |

Should you wish to enter the vessel's present heading into
the memory, press either the ⊙ or ⊙ key. Enter any other
heading by rotating the Course Selector Knob until the
required heading is displayed.

| COMP 195 |

When the displayed course is the desired one, you can leave
it stored for future use and return to normal Auto or Standby
Mode by pressing the FUNCT key again.

| COMP 331 |

Or if you are in Auto Mode, you can tell the autopilot to
accept the heading from the memory straight away by
pressing the AUTO key.

So if you are in Auto Mode and want to enter the course from
the memory, just press the FUNCT key three times then the
AUTO key once.

Note: Memory can be set with the autopilot in either Standby or
           Auto Mode. The memory is not stored when the autopilot
           is turned off.

Port and Starboard Turns

These functions are accessed with the forth and fifth press of
the FUNCT key. They will give a 180° turn, in the direction
selected, at a maximum turn rate to a course parallel with the
present one.

```
 PORT  TRN
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While in Auto Mode, press the FUNCT key four or five times
and the LCD will display the function selected. Press the
AUTO key to accept the turn.

Adjusting the LCD Backlighting

Ensuring the autopilot is not within a function use the blue
(light) buttons ⊙ and ⊙ to increase or decrease the
backlighting. If the autopilot is within another function these
buttons are used to increase, decrease or confirm settings.

Power Steer   It is possible to use the autopilot's Power Steering facility
simply to position the rudder, so that the Helmsman can steer
the vessel under direct rudder control.

```
 P/S 193
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Simply press the PWR STEER key. The LCD will display P/S
to tell you that you are under Power Steer control. It will also
display your live heading.

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 P/S 198
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To change the rudder position, rotate the Course Selector
Knob. You can view the rudder position display by pressing
the AUTO key, as explained below.

```
 COMP  198
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To disengage the Power Steer function, press the PWR STEER
key. The power steering is disengaged and the vessel is back
under autopilot control steering the new course.

Rudder Position and Off Course Indicators

The LCD can display a pictorial representation of the position
of the rudder. In addition, an Off Course Indicator is shown if
the autopilot is in Auto Mode.
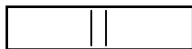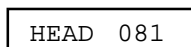
‖	If the autopilot is in Standby Mode, a second press of the ON/ST'BY key will activate the Rudder Position Display. When the rudder is amidships, two vertical bars are shown in the centre of the LCD.
‖ ‖‖‖‖	As the rudder moves to Port, the lower half of the bars to the left of the centre bar are gradually displayed.
‖ ‖‖‖‖	As the rudder moves to Starboard, the lower half of the bars to the right of the centre bar are gradually displayed.
HEAD 081	Press the ON/ST'BY key again to revert back to the heading display.

Note:

If a Navigator is connected the second press of the ON/ST'BY key will bring up the Cross Track Error Display, press the ON/ST'BY key again to revert to the heading display.

‖‖‖ ‖‖	If the autopilot is in Auto Mode, press the AUTO key to show the Rudder Position Display. The top row of bars provide an Off Course Indicator.
COMP 198	Press the AUTO key again to revert back to the course display.

Note:

If the autopilot has a Navigator connected you will need to press the AUTO key twice to return to the course display.

Local Compass Variations

If you need to enter a local compass variation you can do so by following the procedure outlined in the Installation and Servicing Manual. When a variation is entered, a single dot over "Var" on the LCD sub-menu will remind you of this.

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ALARMS

The autopilot has its own internal audible alarm and a red visual alarm that will light up. You may also connect further external alarms to the autopilot system.

There are three alarms that can be set by the Helmsman, an Off Course Alarm, a Watch Alarm and a Timed Alarm.

Off Course Alarm

This alarm will trigger after the vessel has been off course by more than the set amount, for a period of 30 seconds. The alarm will be triggered instantly if the vessel is off course by more than twice the set amount.

OC ALARM

When the alarm triggers, the LCD will display the Off Course Alarm message. Once the vessel is back on course the alarm will cancel, it cannot be manually cancelled.

Setting the Off Course Alarm

OCAL--00

Press and hold the ALARM key to enter the alarm options, the Off Course Alarm setting is the first option and will be displayed immediately. The right had two digits indicate the number of degree's the vessel may go off course before the alarm is triggered. The OCAL--00 value is the alarm's default setting and represents a maximum setting of 20°, the Off Course Alarm cannot be switched off.

OCAL¦15

To set a higher value, press the ⌃ key and the set value will increase. An arrow will also appear to confirm the value is increasing.

OCAL§10

Press the ⌄ key and the value will start to decrease. An arrow will confirm that the value is decreasing.

The value displayed is the one that the autopilot will use. The ALARM key will step through the other alarm settings or the AUTO or ON/ST'BY keys will take you back to the appropriate displays.

Remember..   .. changed settings will only be stored if the autopilot is
                   turned off by pressing the OFF key.

Watch Alarm   When turned on, if the autopilot is in Auto Mode and a key
                   has not been pressed after four minutes the integral audible

| *WATCH** | alarm will be triggered and the LCD will display the Watch
                   Alarm message. If a key is not then pressed within a further
                   minute any external alarm that is connected will also be
                   triggered.

| WATCH AL | To set the Watch Alarm, press and hold the ALARM key to
                   enter the Alarm options and then press again to display the
                   Watch Alarm message. If the message flashes the alarm is
                   turned ON. If it does not flash, it is turned OFF. Press either
                   the ⌃ or ⌄ key to change between the ON and OFF
                   setting.

                   To reset the alarm, press the ALARM key.

Timed Alarm   A timed alarm for 30 minutes, 60 minutes, two hours or four
                   hours can be set if the Watch Alarm is not used.

| *WATCH** | When the alarm is triggered the LCD will show the Watch
                   Alarm message.

| 30 MINS | To use the alarm, access the Alarm options by pressing and
                   holding the ALARM key, then press the ALARM key twice for
                   a 30 minute alarm.

| 60 MINS | Press the ALARM key three times for a 60 minute alarm.

| 2HOURS | Press the ALARM key four times for a two hour alarm.

| 4HOURS | Press the ALARM key five times for a four hour alarm.

                   Pressing either the ⌃ or ⌄ key turns the alarm ON or OFF.
                   If the alarm is turned on the display will flash.

Note: Only a Watch Alarm or a Timed Alarm can be selected, not
                   both.

SFIA Versions   The SFIA (Sea Fish Industries Authorities) version includes a Watch Alarm and Power Fail Alarm that comply with the SFIA regulations and therefore cannot be disabled.

Watch Alarm

| *WATCH** | If the autopilot is in Auto Mode and a key has not been pressed after four minutes the alarm is activated. This display indicates that the watch alarm has been triggered and is accompanied by the integral low level audible alarm. If this is not reset by pressing the ALARM key within one minute, an external high level audible alarm will sound.

| *RESET* | To reset the high level alarm, press either the ⊗ or ⊗ key.

Note:

ALARM can be pressed at any time before the alarm sounds, at which point the alarm cycle is reset.

Power Fail Alarm

The external, high level alarm shares the autopilot's primary supply but has an independent secondary supply. In the event of a power failure of either the primary or secondary supplies, the audible alarm will sound.

| PWR FAIL | If the secondary power supply fails, the display PWR FAIL can be cleared by pressing either the ⊗ or ⊗ key. The audible alarm can only be cancelled by restoring the secondary power supply.

If the primary power supply fails, the autopilot also switches off and the display will be blank. The external audible alarm will sound. This can be cancelled by switching off the secondary supply. The primary supply will have to be restored for the autopilot to operate again.

Note:

Any adjustments made to autopilot settings during operation prior to a primary supply failure will be lost. The autopilot only stores in its permanent memory changes in settings when it is switched off using the OFF key.

SEA STATE ADJUSTMENTS

As conditions around you vary, it is best to optimise how your autopilot reacts in order to obtain optimum performance. The two settings RESPONSE and RUDDER should enable you to fine tune the autopilot's performance to most conditions.

Proper setting of these controls has a marked effect on steering system wear and tear and in sailing craft, also upon battery life. Aim to set these controls so that the autopilot-controlled helm movements are of roughly the same frequency and magnitude as those performed by hand when steering manually.

Selecting Pilot A, B or C

You can store three sets of Sea State adjustments, called PILOT A, PILOT B and PILOT C. These enable the autopilot to be tuned for differing speeds and sea conditions. They are linked to the Configuration Settings which are explained in the Installation and Servicing Manual.

To select a pilot set press the MODE key.

| PILOT A |

The set which the autopilot is currently using will be displayed.

| PILOT B |

Press the MODE key and the alternative sets are displayed, once displayed these are automatically selected.

You may change any of the settings and the autopilot will use them but it will not store them until the unit is turned off by the OFF key.

Rudder Ratio The Rudder Ratio setting is used primarily to match rudder movement to boat speed. Generally the higher the speed, the lower the setting needs to be.
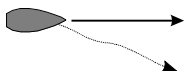
If the setting is too low the vessel will understeer and tend to drift off course to one side.

If the setting is too high the vessel will oversteer and build up
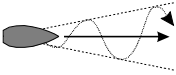oscillations from side to side.

To Adjust the Rudder Setting

Use the MODE key to select Pilot A, B or C then press the
SEA STATE key and the LCD will show the rudder setting.

RUD--05

The setting will be between 0 and 20.
Change the setting by using the ⊙ or ⊙ key.

RUD¦08

Press the ⊙ key and the setting value begins to increase.
An arrow on the display confirms that it is increasing.

RUD§06

Press the ⊙ key and the setting value begins to decrease.
An arrow on the display confirms that it is decreasing.

Response (Yaw) The Response setting, also known as the Yaw setting, is
primarily the autopilot's "weather" control. It sets the
amount that the vessel is permitted to move off course before
rudder is applied to bring it back onto its set heading.

You may need to open the Response (ie increase the setting
value) in heavy seas and close it (ie decrease the setting value)
in calm seas.
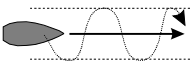
If the Response setting is too high the vessel moves a long
way from the course before it is corrected. You will need to
decrease the Response setting to overcome this.
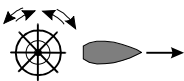
If the Response setting is too low the vessel will hold its
course but the helm will be constantly and rapidly moving,
making small unnecessary corrections. You will need to
increase the Response setting to overcome this.

To Adjust the Response Setting

Select Pilot A, B or C using the MODE key and then press the
SEA STATE key two times, the LCD will show the Response
setting.

RESP--07   The setting will be between 0 and 20.

Change the setting by using the ⊗ or ⊗ key as detailed in
the Rudder Ratio section above.

Pulse Width Modulation

Also accessible within this group of settings is the Pulse Width
Modulation (PWM). This is a method of controlling the
steering motor of the vessel's drive unit, so that it gives a
smoother rudder operation, especially useful if the vessel has
a high steering inertia. It can however, generate RFI (Radio
Frequency Interference) in some instances and so there is a
simple means of switching it off if necessary.

PWM-ON   The third press of the SEA STATE key will display the status
of the PWM setting. It can only be ON or OFF. Pressing
either the ⊗ or ⊗ key will change the setting.

For all settings, the value displayed is the one that the
autopilot will use. Pilot A settings can be set different to Pilot
B or Pilot C settings.

The SEA STATE key will step through the other Sea State
adjustments, alternatively the AUTO or ON/ST'BY keys will
take you back to the relevant displays.

Remember...   ..changed settings will only be stored if the autopilot is
turned off using the OFF key.

NAVIGATOR   CONTROL

Using Navigator Control

Connection and message format selection information for the
Navigator are given in the Installation and Servicing Manual.
Ensure that the autopilot is programmed to receive the
correct format messages.

In the event of the Navigator indicating an alarm condition,
the autopilot will display NAV DATA on the LCD. The
autopilot will hold the vessel on its present heading and will
not accept any further changes until this error is cleared.
(Note: the Navigator should also indicate this alarm
condition.) To clear the above alarm from the autopilot, press
any key except ⊙, ⊙ or OFF. If the alarm clears the
autopilot will accept data. If the above condition still exists,
turn the autopilot off and resume autopilot control under
Compass Control or manually steer the vessel.

NMEA 0182 or NMEA 0183 Navigators

| HEAD 081 |

Programme the Navigator with the required Waypoints.
Turn the autopilot on by pressing the ON/ST'BY key.

| NAV1--OFF |

Select Navigator Control by pressing the NAV key, once to
select Nav 1 or twice to select Nav 2.

| NAV1--ON |

Use the ⊙ or ⊙ key to switch a Navigator on, the vessel is
not yet under Navigator Control. (If Nav 2 is selected the
display will read NAV2--ON.)

| NAV1 090 |

Engage the autopilot by pressing the AUTO key. The vessel
is now under Navigator Control. (If Nav 2 is selected the
display will read NAV2 090.)

Note:

It is recommended that the vessel's heading should be
within 30° of the course before engaging the autopilot.

The vessel will now follow the Navigator's course,
automatically changing at Waypoints if the Navigator outputs
Waypoint Number data.

If the Navigator does not Output Waypoint Numbers

| HEAD 090 | When the Waypoint is reached press the ON/ST'BY key, |

| NAV1 135 | then press the AUTO key and the vessel turns onto the new course given to it by the Navigator. |

NMEA 0180 Navigators

Programme the Navigator with the required Waypoints and select the display on the Navigator to show the course to the next Waypoint.

| HEAD 190 | Turn the autopilot on by pressing the ON/ST'BY key then steer to the heading for the next Waypoint. |

| COMP 190 | Press the AUTO key to engage the autopilot. |

| <<47 | Check the Cross Track Error by pressing the AUTO key twice. The number displayed is the Cross Track Error in one hundredths of a nautical mile. The arrows indicate if the error is to Port or Starboard (in this example you are 0.47 miles Starboard of the track). |

| <<02 | If the Cross Track Error is greater than 0.4, reduce it by steering the vessel using the rotary Course Selector Knob. Steer in the direction of the arrows, returning the vessel to the approximate heading to Waypoint. |

| NAV1--OFF | When the error is 0.4 or below, select Navigator Control by pressing the NAV key, once to select Nav 1 or twice to select Nav 2. |

| NAV1--ON | Use the ⌃ or ⌄ key to switch a Navigator on, if Nav 1 is turned ON Nav 2 will automatically be switched off and vice versa. |

| NAV1 185 | Engage the autopilot by pressing the AUTO key. The vessel is now under Navigator Control. (If Nav 2 is selected the display will read NAV2 185.) |

Cross Track Error Display

> You may display the Cross Track Error by pressing the AUTO
> key twice if you are in Auto Mode, or by pressing the
> ON/ST'BY key twice if you are in Standby Mode.

<<14

> The number displayed is the Cross Track Error in one
> hundredths of a nautical mile. The arrows indicate if the error
> is to Port or Starboard (in this example you are 0.14 miles
> Starboard of the track).

Cancelling Navigator Control

> To exit from Navigator Control you must return to Compass
> Control by pressing the COMP key and using the ⬙ key to
> switch Compass Control on.

WINDVANE CONTROL

The autopilot is capable of steering the vessel to a course that is at a constant angle to the Apparent Wind Angle. A Windvane instrument needs to be fitted, connection details are provided in the accompanying Installation and Servicing Manual.

| HEAD 081 |

Turn the autopilot on by pressing the ON/ST'BY key.

| WIND--OFF |

| WIND--ON |

Select and engage the Windvane Control option by pressing the COMP key twice, then use the ⊙ or ⊙ key to switch the Windvane Control on.

| W.IND 08.3 |

Steer the vessel onto the required heading then engage the autopilot by pressing the AUTO key. The vessel is now under Windvane Control. The LCD indicates the live compass heading.

| WIND 195 |

Small 'angle to wind' changes can be made by rotating the Course Selector Knob and the vessel will turn onto a new heading.

Note:

For large course changes, use the ON/ST'BY key to select Standby Mode and steer the vessel to the new course.

Wind Trim

This setting is used to set the Gain of the signal from the Windvane. The range is from 01 to 10, details for initial adjustments are contained in the Installation and Servicing Manual. However, should the vessel not respond to wind shifts fast enough, the setting may be increased.

| WTRM 08 |

To alter the setting press the COMP key twice until the LCD displays WIND ON (or WIND OFF). Then press and hold the COMP key until WIND-0 is shown, release the key and press once again to access the Wind Trim setting. This may then be altered using the ⊙ and ⊙ keys.

GYRO COMPASS CONTROL

Note:

Although the Autopilot Control will access the following gyro displays, the autopilot can only be operated under Gyro Control if the necessary interface (930 523) is fitted to the 930 618 Distribution Box.

The autopilot can be set to take its heading information from a Gyroscope instead of a compass sensor.

When installing a Gyro Compass care must be taken to select the correct Gyro Type. This is explained in the Installation and Servicing Manual under "Settings for Optional Equipment".

Whenever the autopilot is to take its heading information from a Gyro Compass, the Gyro reading must first be calibrated to the correct compass heading when the autopilot is switched on. To do this:

| VAR--E00 |

Press the COMP key until COMP OFF (or COMP ON) is displayed, press and hold the COMP key until the compass variation message is shown. Then release the key and press it twice more to enter the Gyroscope menu. Use the ⬡ or ⬡ key to switch the Gyro on.

| GYRO--ON |

| GCAL--OFF |

With the Gyro switched on, press the COMP key to enter the Gyro calibration option.

| GCAL--000 |

Use the ⬡ or ⬡ key to instigate Gyro calibration.

| GCAL--120 |

Dial in the vessel's heading by turning the Course Selector Knob.

| GCAL--OFF |

Press the ⬡ or ⬡ key to complete the calibration of Gyro to autopilot.

| STBY--120 |

When under Gyro Control, the autopilot will display STBY instead of HEAD in Standby Mode, and DRIVE instead of COMP in Auto Mode.

Note:

Calibration is not accepted unless either the ⌃ or ⌄ key has been pressed. The autopilot will remain under Gyro Control when powered down and switched on again but calibration will be lost.

OPERATION   SUMMARY

When power is applied (**ON/ST'BY** key), the Propilot switches
to Standby and displays heading

| HEAD   095 |

COMPASS CONTROL

To Engage on
Vessel's Heading
(Autofollowing)

AUTO

| CCMP   095 |

To change
course

To revert
to Standby

ON
ST'BY

| HEAD   093 |

To Preselect
Course with
Pilot in Standby

| CTS   120 |

To engage
Pilot

AUTO

| CCMP   120 |

WARNING This can cause a very sudden & severe course change if Course to Steer is very different
from current course.

DODGE CONTROLS (When in Auto Mode)

To Dodge
to Port

<

| <<<   DODGE |

To Dodge
to Starboard

>

| DODGE   >>> |

WINDVANE CONTROL

To select
Windvane Control

COMP x2

To turn Windvane
Control on

∧ or ∨
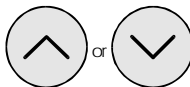
| WIND --ON |

To engage
Pilot & display
heading

AUTO

| WIND 095 |

For small
course changes

NAVIGATOR CONTROL

To select Navigator Control	To turn Navigator Control on	To engage Pilot Under Nav Control
NAV x2 NAV2	∧ or ∨	AUTO
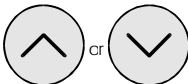
NAV1 --CN

Nav with Cross Track Error Only	Nav with Cross Track & Bearing to Waypoint Output only	To Exit Navigator Control

At Waypoint arrival trim course onto new track, unless there is only a small change (15° or less)

At Waypoint arrival To select next Waypoint
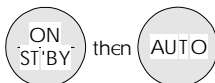
Switch Compass Control on:

CCMP 125

↶↷	ON ST'BY then AUTO	COMP then ∧
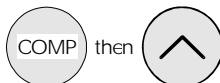
SEA STATE CONTROL

There are 3 seperate sets of Pilot adjustments, 'Pilot A', 'Pilot B' and 'Pilot C'.

To check which set of adjustments are selected	To select Pilot A, B or C
MODE	MODE

PILOT   C

Rudder Ratio

To access Rudder Ratio setting	To increase the setting	To decrease the setting
SEA STATE	∧	∨

RUD --05

Response

To access Response setting	To increase the setting	To decrease the setting
SEA STATE x2	∧	∨

r esp --07

Pulse Width Modulation (Motor speed control)

To access PWM setting	To switch PWM on or off
SEA STATE x3	∧ or ∨
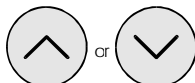
PWM --CN

RUDDER POSITION AND OFF COURSE INDICATOR

With Pilot in Standby			With Pilot in Auto	

To indicate Rudder position	To return to Heading		To indicate Rudder position & Off Course	To return to Heading
ON ST'BY	ON ST'BY	`|					''`	AUTO	AUTO
	x2 if Windvane or Nav connected			x2 if Windvane or Nav connected

DISPLAY CROSS TRACK ERROR AND WIND TRIM

(Only displayed if Navigator is connected)

With Pilot in Standby			With Pilot in Auto	

To display Cross Track Error	To display vessel's Heading		To display Cross Track Error	To display vessel's Heading
ON ST'BY x2	ON ST'BY	`<<02`	AUTO x2	AUTO

SET ALARMS

Off Course Alarm (Note, Setting 00 = Off)

To select Off Course Alarm	To Increase	To decrease	
ALARM	∧	∨	`CCAL --02`

Watch and Time Alarms

Watch Alarm (4 minutes)	To set on or Off Flashing Display = On	To reset the Alarm	
ALARM x2	∧ or ∨	ALARM	`WATCH  AL`

30 minutes	60 minutes	2 hours	4 hours	
ALARM x3	ALARM x4	ALARM x5	ALARM x6	`4  hCURS`
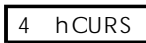
To set on or off Flashing display = On		To reset the Alarm	
	∧ or ∨	To reset the Alarm	ALARM

POWER STEER

With Pilot in Auto

To return to
Autopilot Control

(Pwr STEER)   (⟳)   (Pwr STEER) | p/s   198 |

FUNCTION CONTROL

With Pilot in Auto

To select previous course

To select or turn onto previous course

(FUNCT)   (AUTO) | PREV 210 |

To reset previous course

To select required Heading or To select present Heading

(FUNCT)   (⟵⟶)   (FUNCT) | CCMP 210 |

To select 180°

To start first 90° Starboard turn

(FUNCT) x2   (AUTO) | 180 TURN |

To select Memory Function (Next Course Function)

To display present
Memory Course

To enter vessel's or
present course

To set a new
Memory Course

To store displayed
course & return to
Auto/Standby

To turn onto
Memory Course
(with desired
Course displayed)

(FUNCT) x3   (∧) or (∨)   (⟵⟶)   (FUNCT)   (AUTO)

To select Port or Starboard Turns

To start Port/Starboard turn

(FUNCT) x 4/5   (AUTO) | PORT TRN |

NOTE: When using "Function"
to return to normal operation,
press repeatedly until normal
display returns. This will be
HEAD or COMP, depending
on whether the Pilot is in
Standby or Auto.

If You Need Assistance

If you do ever need to contact your Cetrek Dealer or Distributor, it would save time if you could make a note of the following details for them:

Model Number:

Serial Number:

Software Version Number:

A description of the failure.

-29-

WARRANTY

I   The Warrantor is:
    Cetrek Ltd, 1 Factory Road, Upton, Poole, Dorset. BH16 5SJ.
    Tel: 01202 632116. • Fax: 01202 631980.

II This Warranty shall extend only to the original purchaser of the
    equipment.

I   The Warranty registration card must be completed in full and returned
    to Cetrek Ltd before any warranty service may be authorised.

IV This Warranty applies to all equipment manufactured by, or bearing
    the name plaque of, Cetrek Ltd, and the warrantor warrants all such
    equipment to be free from defects in workmanship or material under
    normal use and service.

V   This Warranty is in effect for a period of 12 months from date of
    invoice from a duly authorised Cetrek distributor, or 18 months after
    shipping date from Cetrek Ltd, whichever comes first.

VI i   If any part of the equipment proves to be defective in
         workmanship or material, the warrantor will examine said
         equipment after it is returned to the warrantor as hereinafter
         stated: and
    i   If the returned equipment is found by the warrantor to be
         defective in workmanship or material, the equipment will be
         repaired or replaced at the above address of the warrantor's place
         of business without charge except for transportation charges as
         herein provided, and there will be no option for the purchaser to
         receive a refund of the purchase price until after a reasonable
         number of attempts to remedy the defect have been made by the
         warrantor.
    iii Only persons expressly authorised by the warrantor shall be
         permitted to perform warranty service. The warrantor agrees to
         pay a duly authorised distributor or dealer up to a maximum of
         two hours labour at a predetermined and fixed rate for the repair
         on board the vessel. The warrantor will not assume the costs of
         any unauthorised labour, waiting time, travelling time, overtime
         or correction of faulty installation, unauthorised labour, travel
         accommodation and/or living expense, replacement or repair of
         units abused or subjected to water damage (other than units
         designated watertight).

VII i   If the purchaser believes any part of the equipment is defective he
         should return the said part within 12 months of the date of
         purchase to Cetrek Ltd at the address provided herein.
    i   The expense of transporting the defective equipment to the
         warrantor's place of service shall be paid in advance by the
         purchaser. The return of goods by normal transportation will
         normally be prepaid by the warrantor.

VIII i   There are no warranties which extend beyond the description on
         the face hereof. This warranty is expressly in lieu of all other
         warranties, guarantees, obligations or liabilities expressed or
         implied by the warrantor or it's representatives. All statutory or

implied warranties other than title are hereby expressly excluded to the extent to which they may be excluded by law. This warranty will not apply where the purchaser, or others, have misused, abused or failed to normally service the equipment, and the warrantor will not be liable for any damage of any kind caused by such misuse, abuse, or lack of service.

i   There is no warranty coverage of any kind for defects of damage due to water immersion or salt spray except for equipment which is designated as watertight, and equipment so designated is warrantied as set forth in paragraph VI herein.

iii There is no warranty and the warrantor shall not be held liable for any damages incurred as a result of a malfunction of any part of the warrantor's products, if said damages incur during or as a result of the autopilot being left unattended by the operator. The warrantor shall not be liable for any damage arising from collisions with other vessels or objects. The autopilot product, including parts thereof, is designed to assist the operator or the man on watch to navigate accurately by maintaining an average course selected by the man on watch. The warrantor's products are not designed to, and do not, replace the man on watch. Due to the potential of a collision with an object in the vessel's path or of an electrical, mechanical, or hydraulic malfunction of the parts of the autopilot or the associated equipment of the vessel, the energised pilot should never be left unattended when the vessel is moving.

iv The sole remedy available to the purchaser if there is a defect in material or workmanship of the equipment is as set out in paragraph VI.

v   Save in respect of loss of life and personal injury, which liability can not be excluded by law, the warrantor shall have no liability for incidental or consequential damages of any kind.

vi This warranty shall not cover defects or damage arising as a result of the faulty workmanship of any distributor, agent of the seller or dealer in the goods, or other person not being the seller or it's employee in respect of the installation of the goods.

vii The warrantor hereby notifies the purchaser purchasing as a consumer, that his statutory rights given under the Sale of Goods Act 1979 and Supply of Goods and Services Act 1982 are not affected by this warranty.

IX   The purchaser's obligations in the event of defect are to:

i   Prepare a written detailed statement of the defect.

i   Deliver the written statement to the warrantor's factory at the above indicated address.

iii Deliver or arrange for the delivery of the equipment to the warrantor's factory.

iv Arrange for the return of the equipment from the warrantor to the purchaser by either agreeing to pick up the equipment at the warrantor's factory or by depositing with the warrantor sufficient funds to pay to have the equipment delivered to the purchaser by means of commercial transportation other than standard freight services (UPS ground).

X   The purchaser hereby agrees that he has read and understands that the above warranty sets forth the exclusive warranty for this equipment.

CETREK UK DEALER LIST

Cetrek Ltd., 1 Factory Road, Upton, Poole, Dorset BH16 5SJ England.
Telephone: (01202) 632116 • Fax: (01202) 631980

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MARINE ELECTRONIC
SERVICES LTD
Innovation House
132 Nibley Road
Bristol BS11 9XN
Tel: (01179) 821522
Fax: (01179) 821702
Contact: Nick Heyes

CHANNEL ISLANDS

IRON STORES LTD
15-16 Commercial Buildings
St Helier
Jersey
Tel: (01534) 877755
Fax: (01534) 827449
Contact: Paul Battrick

RADIO & ELECTRONIC SERVICES
Les Chenes, Rohais
St. Peter Port Guernsey
Tel: (01481) 728837
Fax: (01481) 714379
Contact: David Eaton
          Robin Ayres

JERSEY MARINE ELECTRONICS
Unit 2 La Folie
St Helier Jersey
Tel: (01534) 21603
Fax: (01534) 69739
Contact: Peter Amy

SOUTH PIER SHIPYARD
St Helier Jersey
Tel: (01534) 67751
Fax: (01534) 37342
Contact: Richard Brown

CLEVELAND

HARTLEPOOL MARINE SALES
Ferry Road
The Marina
Hartlepool TS24 0SQ
Tel: (01429) 862932
Fax: (01429) 865427
Contact: Bart Williams

CORNWALL

MYLOR MARINE ELECTRONICS LTD
Mylor Yacht Harbour
Falmouth
Tel: (01326) 374001
Fax: (01326) 372120
Contact: Chris Mulcahy

CORNWALL (cont)

KERNOW MARINE ELECTRONICS
3-4 Badcocks Block
The Strand
Newlyn Penzance TR18 5HW
Tel/Fax: (01736) 68606
Contact: Peter Eddy

MARCONI MARINE
Building 43
The Docks
Falmouth TR11 4NJ
Tel: (01326) 312855
Fax: (01326) 211337
Contact: Dave Hibberd

D E V O N

OCEAN MARINE
SERVICES LTD
Mayflower Marina
Plymouth PL1 4LS
Tel: (01752) 500121
Fax: (01752) 500221
Contact: Peter Wolfe

QUAY ELECTRICS
(TEIGNMOUTH) LTD
The Sail Loft
Pump Street
Brixham TQ5 8ED
Tel: (01803) 853030
Fax: (01803) 852060
Contact: James Stratton
          Richard Addicott

R & J MARINE
Queen Anne's Battery Marina
Plymouth
Devon
PL4 0LP
Tel: (01752) 265619
Fax: (01752) 265632
Contact: Jason Burdett

SM GROUP (EUROPE)LTD
Salt Quay House
North East Quay
Plymouth
PL4 0RA
Tel: (01752) 662129
Fax: (01752) 222717
Contact: Kevin Turner
          Nick May

TOLLEY MARINE LIMITED
13 Commercial Road
Coxside
Plymouth PL4 0LE
Tel: (01752) 222530
Fax: (01752) 226169
Contact: Paul Rees

DORSET

FLEET MARINE ELECTRONICS
(INTERNATIONAL) LIMITED
1 Ventura Centre
Upton Industrial Estate
Upton, Poole, BH16 5SW
Tel: (01202) 632666
Fax: (01202) 632777
Contact: Hugh Slavin

GREENHAM MARINE LTD
Unit 3, Quay West Marina
23 West Quay Road
Poole BH15 1HZ
Tel: (01202) 676363
Fax: (01202) 671031
Contact: Chris Ellery

TOLLEY MARINE LIMITED
Unit 5, Blackhill Road
Holton Heath Trading Estate
Poole BH16 6LS
Tel: (01202) 632644/55
Fax: (01202) 632622
Contact: Tony Olley
          Simon Potterton

TOLLEY MARINE LIMITED
Salterns Marina
40 Salterns Way
Lilliput
Poole, BH14 8UR
Tel: (01202) 706040
Fax: (01202) 706039
Contact: Simon Wood
          Matthew Sydenham

ESSEX

MANTSBRITE MARINE
ELECTRONICS
19f Spital Road
Maldon CM9 6DY
Tel: (01621) 853003/
      (01621) 852092
Fax: (01621) 850877
Contact: Brian Ash
          David Ash

HAMPSHIRE

B K ELECTRO MARINE
Hamble Point Marina
School Lane, Hamble
Southampton SO3 5NB
Tel: (01703) 455112
Fax: (01703) 455746
Contact: Sam Taylor-Nobbs
          Brian Kaye

GREENHAM MARINE LTD
Lymington Yacht Haven
Kings Saltern Road
Lymington
Tel: (01590) 675771
Fax: (01590) 679517
Contact: Andy Haines

HAMPSHIRE (Cont)

GREENHAM MARINE LTD
Emsworth Yacht Harbour
Thorney Road
Emsworth
Tel: (01243) 378314
Contact: George Juggins

HUDSON MARINE LTD
Mercury Yacht Harbour
Satchell Lane, Hamble
Southampton SO3 5HQ
Tel: (01703) 455129/
      (01703) 452467
Fax: (01703) 456780
Contact: Bob Hudson
          Ann Roberts

MARICOM
Unit 1 Cougar Quay
Hamble, Southampton
Tel: (01703) 454263
Fax: (01703) 456910
Contact: Carol Newton

MARINE ELECTRONIC
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26 The Slipway
Port Solent
Portsmouth PO6 4PR
Tel/Fax: (01705) 326366
Contact: Jim Staig

REGIS ELECTRONICS LTD
Regis House, Quay Hill
Lymington SO41 9AR
Tel: (01590) 679251
Fax: (01590) 679910
Contact: Reg Suter

REGIS ELECTRONICS LTD
Shamrock Quay
William Street
Southampton SO1 1QJ
Tel: (01703) 636555
Fax: (01703) 231426
Contact: Jon White

HUMBERSIDE

ELECTRONICS MARINE LTD
Wm. Wright Dock
Hull HU3 4PG
Tel: (01482) 325163
Fax: (01482) 212899
Contact: Colin Sonley

ISLE OF MAN

BEVAN LIMITED
Steam Packet Building
East Quay, Ramsey
Tel: (01624) 812583
Fax: (01624) 812491
Contact: Bill Bevan

ISLE OF WIGHT

RHP MARINE
Shepards Wharf, Medina Road
Cowes PO31 7HT
Tel: (01983) 290421
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Contact: Richard Pierrepont

REGIS ELECTRONICS
Cowes Yacht Haven
Cowes
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Tel: (01983) 293996
Fax: (01983) 296219
Contact: Malcolm Lane

KENT

SMYE-RUMSBY MARINE LTD
123 Snargate Street
Dover CT17 9DA
Tel: (01304) 201187/
          (01304) 201525
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YACHT ELECTRONIC SERVICES
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2 Mill Row, High Street
Bexley, Kent, DA5 1LA
Tel: (01322) 556633
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LANCASHIRE

FLEETWOOD HARBOUR MARINE
190 Dock Street
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BRIDGE MARINE
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TOLLEY MARINE LTD
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13-16 Northumberland Avenue
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Fax: (0171) 930 2802
Contact: Jason MacIntosh

TELESONIC MARINE LTD
60-64 Brunswick Centre
Marchmont Street
London WC1N 8AE
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Fax: (0171) 837 4100
Contact: Mel Curnow

MERSEYSIDE

TSA COMMUNICATIONS LTD
2nd Floor Cunard Buildings
Pier Head Liverpool
Tel: (0151) 227 4928
Fax: (0151) 236 7413
Contact: John Williamson

ROBBINS MARINE RADIO SERVICE
Marine House, North East Coburg
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NORTHERN IRELAND

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Contact: Tony Small

SCOTLAND

BOAT ELECTRICS &
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           Martin Beard

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Fax: (01292) 315825
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YACHT ELECTRICAL & ELECTRONIC
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Contact: David Noble
           Jeff Rutherford

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Fax: (01463) 715510
Contact: Ron Gray

SHETLAND

H. WILLIAMSONS & SONS
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ZE1 0TR
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Fax: (01595) 88535
Contact: James Smith

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Levington, IP11 0LN
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Fax: (01473) 659877
Contact: John Coulling

CHARITY & TAYLOR LTD
4 Battery Green Road
Lowestoft NR 32 1DE
Tel: (01502) 581529
Fax: (01502) 588463
Contact: Malcolm Taylor

MARCONI INT'L MARINE LTD
9 Battery Green Road
Lowestoft NR32 1DG
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Fax: (01502) 508955
Contact: Dave Bennett

FOX'S MARINA (IPSWICH) LTD
The Strand, Wherstead
Ipswich, Suffolk, IP2 8SA
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Fax: (01473) 601737
Contact: Robin Cole

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Contact: Fred Streeter

TYNE & WEAR

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Contact: Philip Lynch

J. SOUTHERN & SONS
10 Clifford Fort, Fish Quay
North Shields NE30 1JA
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Fax: (0191) 257 6958
Contact: Jack Southern
           Paul Southern

WALES - NORTH

A M DICKIE & SONS LIMITED
36 Garth Road, Bangor
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Fax: (01248) 354169
Contact: Dave Worrall
           Brian Pumfrey

ROWLANDS MARINE ELECTRONICS
Unit 4, Glen-Y-Don Ind Est
Pwllheli
Gwynedd LL53 5YT
Tel/Fax: (01758) 613193
Contact: Brenic Rowlands

WALES - SOUTH

ADITEL
Prince of Wales Ind. Estate
Abercarn, Gwent NP1 5AR
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Fax: (01495) 216311
Contact: Andrew Fairgrieve

DYFED ELECTRONICS LIMITED
13 Priory Street, Milford Haven
Dyfed SA73 2AD
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Fax: (01646) 690646
Contact: Tim Morgan

NEYLAND MARINE
Milford Dry Docks
The Docks
Milford Haven
Dyfed SA73 3DJ
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Contact: Gordon Davison

WIGMORE WIGHT MARINE
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           Gareth Wigmore

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           Tony Blogg

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