

Installation & Operating Handbook

Autohelm 3000

AUTOHELM 3000

Autohelm 3000 is an up-to-the-minute digital autopilot which shares the same microprocessor technology built into our biggest and most sophisticated fully installed pilots. It will provide precise powerful steering for sailing yachts up to 12m (39') LOA.

The basic system comprises the main control unit, wheel drive unit and mounting fittings (Fig. 2). This can be extended by adding any of the following accessories:

- Windvane
- Radio navigation interface
- Hand held control unit

The full system is shown below (Fig. 1).

The system is designed for owner installation which aided by the following guide should prove to be a simple and interesting job. After fitting the equipment it is only necessary to make a single adjustment to the control unit to match the autopilot's response to the steering characteristics of your vessel.

Good Sailing!

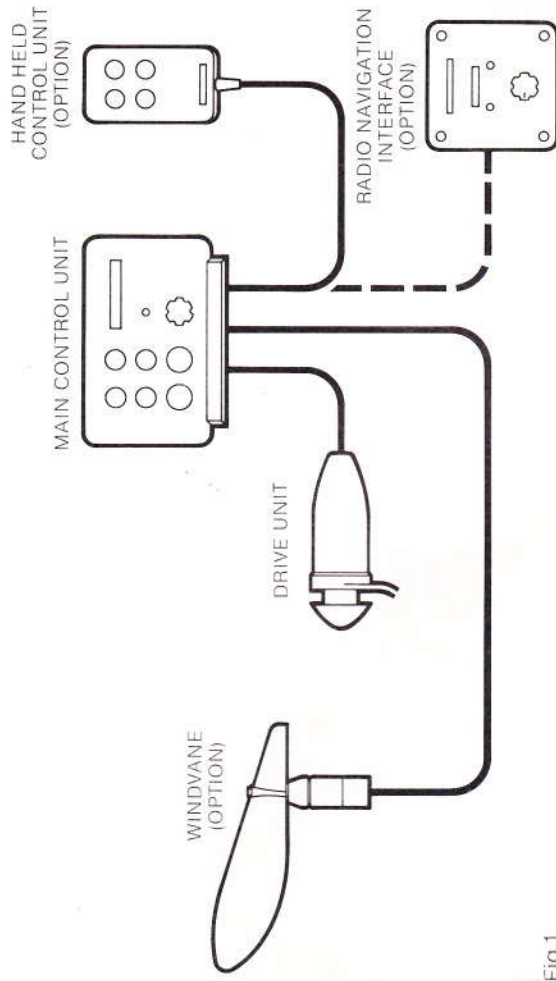


Fig.1

INSTALLATION

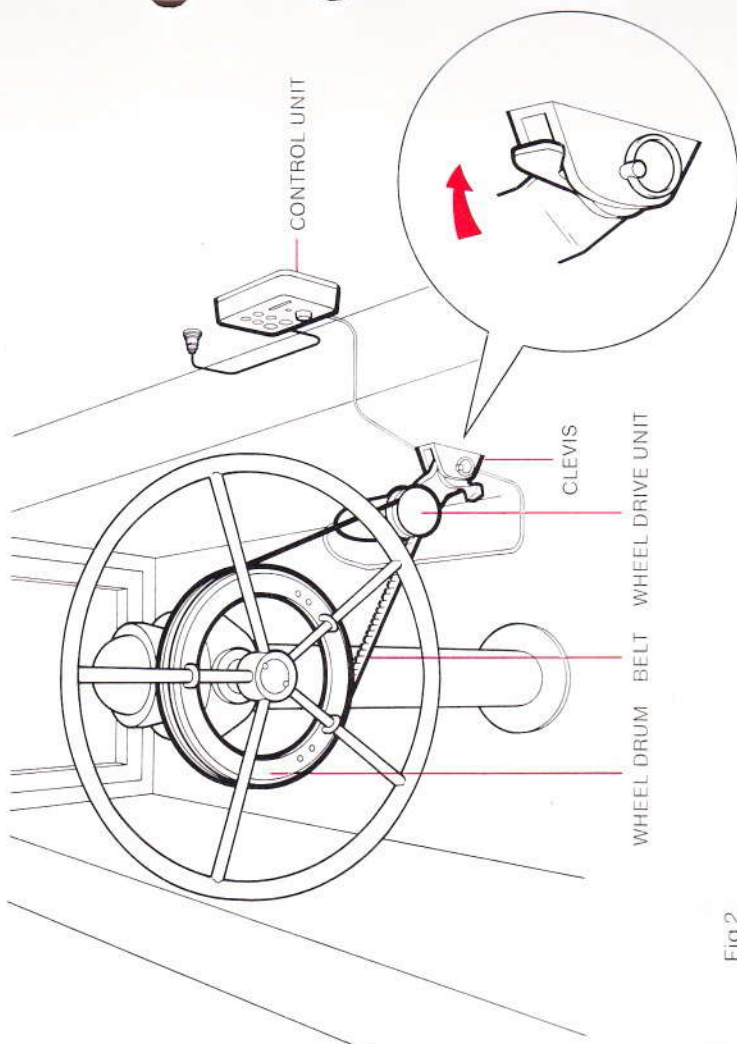


Fig.2

The wheel drive unit (Fig. 2) is attached by a single pin to a clevis permanently fixed to the cockpit structure. Drive is transmitted to the wheel by a tensioned toothed belt. A lever operated eccentric bush in the drive unit mounting arm enables belt tension to be released to facilitate manual override by allowing the belt to slip. The drive disengagement system is both effective and reliable. The control unit is connected to the drive unit cable and is remotely mounted on a permanently fixed socket at a convenient location adjacent to the wheel. After connection to the yacht's 12 volt power supply the system is ready for use.

STEERING SYSTEM

The Autohelm 3000 is designed to operate with steering systems having between 1 and 3 turns lock to lock. Steering systems with more than 3 turns lock to lock may cause impaired steering performance due to reduced rate of rudder application.

Lost motion in the steering system must not exceed 2% of total movement. This is equivalent to 15° of free wheel movement for a system with 2 turns lock to lock. If lost motion exceeds this level it must be corrected otherwise steering performance will be impaired.

WHEEL DRUM ATTACHMENT

The drum (Fig. 3) is clamped onto the wheel spokes using the three U-bolts provided and may be used on wheels with 3, 5, or 6 spokes (Fig. 4). For 4 spoke wheels, Nautech's Technical Sales Department should be contacted to obtain a specially drilled drum.

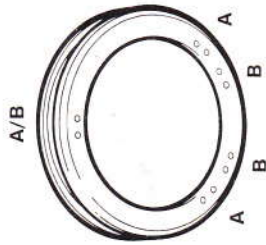


Fig.3

A holes - 3 and 6 spoke wheels

B holes - 5 spoke wheels

The wheel drum should ideally be fitted behind the wheel (i.e. between the wheel and the pedestal Fig. 4). In this case it will be necessary to remove the wheel. If there is insufficient clearance behind the wheel the wheel drum may be fitted on the other side.

The drum attachment kit has three complete sets of spacers to compensate for differing spoke diameters. Marked alongside each spacer is the spoke diameter to

which it relates. When fitting the drum simply break off the appropriate spacers.

The wheel drum is clamped to the wheel spokes by the 'U' bolts provided. After roughly positioning the drum, the clamp nuts should be lightly tightened and concentricity checked by spinning the wheel. The drum should then be tapped central to achieve a total run-out of no more than 2mm (1/16") before the clamp's nuts are finally tightened.

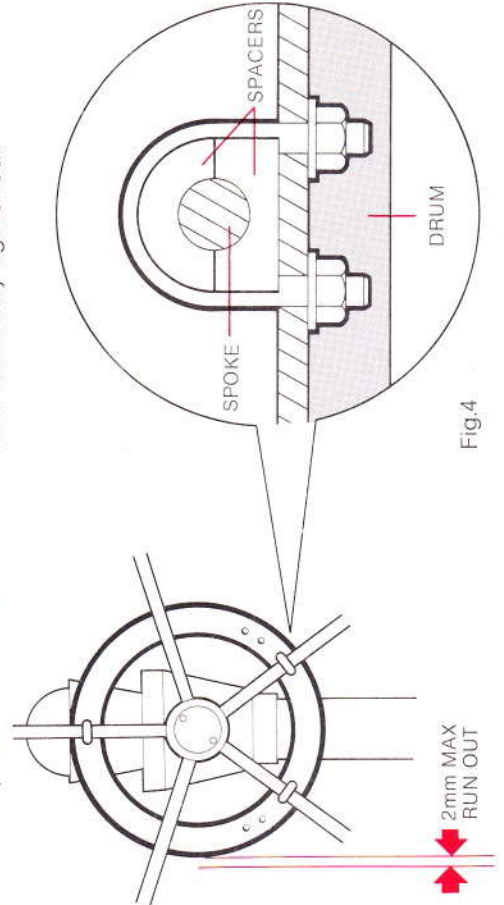


Fig.4

DRIVE UNIT INSTALLATION

STANDARD INSTALLATION

The drive unit is normally mounted on the cockpit side wall (Fig. 2).

Alternative belt sizes are available to increase or decrease the radial offset of the mounting pin. These are used in cases where the standard belt does not allow a convenient location for the mounting clevis (Fig. 5).

Belt Size	Radial Off-Set
B-	512mm (20.1")
A-	546mm (21.5")
Standard Belt	598mm (23.6")
A+	717mm (28.2")
B+	850mm (33.5")

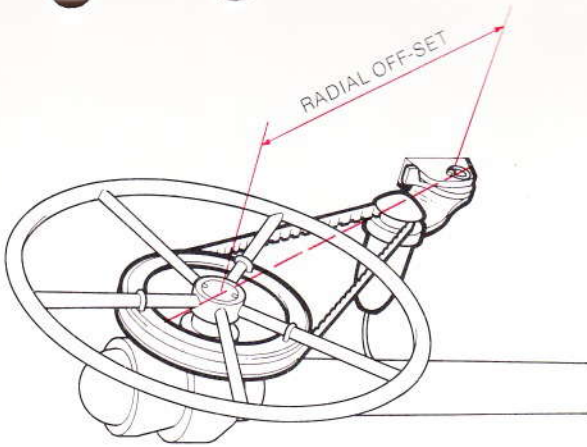


Fig.5

The mounting clevis should be positioned as follows:-

- Attach the mounting clevis to the drive unit using the pin provided and loop the belt drive over both the drum and the drive sprocket.
- Offer the clevis against the vertical side wall after first rotating the eccentric clutch lever fully clockwise against its stop. (i.e. to the 'light belt' position).

- Push the clevis downwards against the side wall until the belt is just taut and then adjust its fore-and-aft position until the belt lies parallel to the wheel. A long straight edge, such as a sail batten, will enable the parallel run of the belt to be easily checked. (Fig.6).

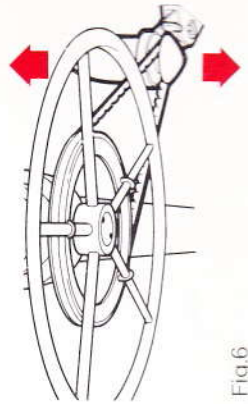


Fig.6

- Having found the correct position for the clevis carefully mark round its base to record its position. (Fig.7) Then remove the drive unit and mark round the inside of the elongated fixing holes. (Fig.8)

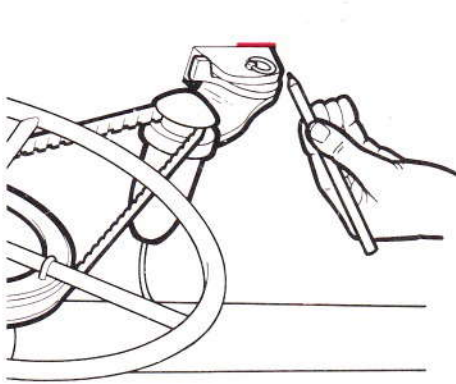


Fig.7



Fig.8

- Finally drill two 8mm (5/16") clearance holes for the clevis fixing bolts at the **lower** end of each elongated hole position (Fig. 9). This allows the belt to be subsequently tightened.

Note Before drilling the holes check that you have access to the other side of the mounting wall to attach the nuts!

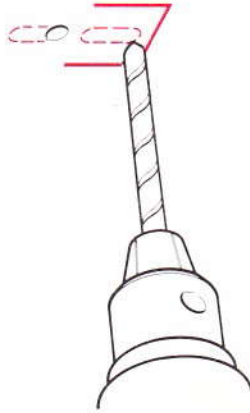


Fig.9

The mounting clevis may now be bolted into position with the fixing bolts positioned **mid-way** in the elongated holes (Fig. 10). This will ensure that the belt is taut when it is tensioned by rotating the clutch lever fully clockwise. Re-assemble the complete drive system and check the operation of the clutch. The clutch lever may be repositioned on the splined eccentric brush if necessary to ensure that the lever can rotate 180° without obstruction.

When the belt is tensioned by rotating the clutch lever fully clockwise it should be possible to back wind the drive unit by slowly rotating the wheel. If belt slip occurs increase belt tension by reclamping the clevis in a slightly lower position. When the clutch lever is rotated fully anti-clockwise the wheel drum should slip easily against the belt.

Do not overtighten belt.

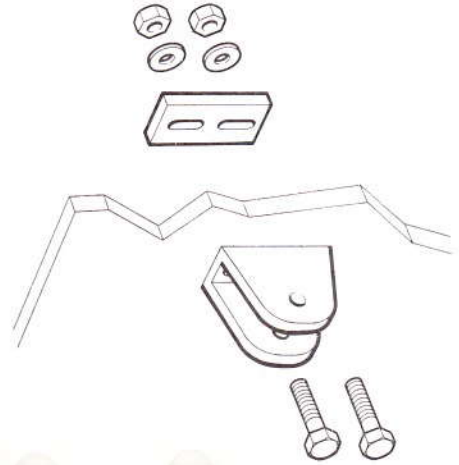


Fig.10

PEDESTAL MOUNTING BRACKET

A special mounting bracket is available to mount the drive unit directly onto the wheel pedestal (Fig. 11).

The bracket should be positioned as follows:-

- Loosely attach the mounting clevis to the pedestal bracket using the backing plate and the two bolts provided.
- Attach the mounting clevis to the drive unit using the pin provided and loop the belt drive over both the drum and the drive unit sprocket.
- Place the bracket onto the pedestal after first rotating the clutch lever fully clockwise against its stop.

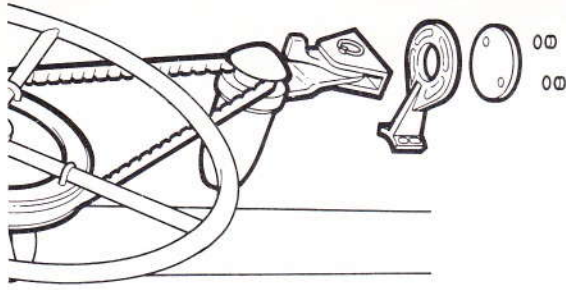


Fig.11

- Push the bracket downwards against the pedestal until the belt is just taut. By sliding the pedestal bracket around the pedestal and rotating the clevis bracket ensure that the belt lies parallel to the wheel (Fig. 12).

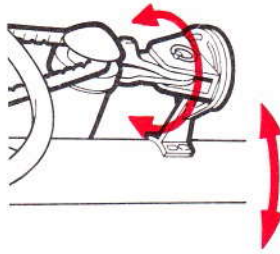


Fig.12

- Having found the correct position for the clevis carefully mark round its base to record its position. Then remove the drive unit and mark round the inside of the elongated fixing holes (Fig.13).

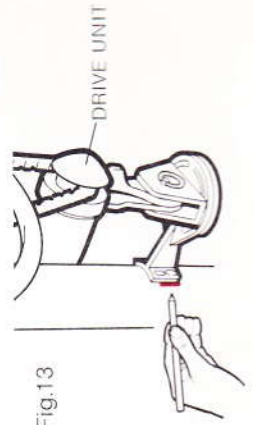


Fig.13

- Finally drill four 4.3mm (11/64") holes for the clevis fixing screws at the **lower** end of each elongated hole position. This allows the belt to be subsequently tightened (Fig. 14). The mounting clevis may now be screwed into position with the self tapping screws positioned **mid-way** in the elongated holes (Fig.15). This will ensure that the belt is taut when it is tensioned by rotating the clutch lever fully clockwise. Re-assemble the complete drive system and check the operation of the clutch. The clutch lever may be repositioned on the splined eccentric bush if necessary to ensure that the lever can rotate 180° without obstruction.

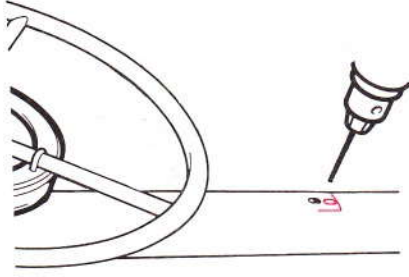


Fig.14

- When the belt is tensioned by rotating the clutch lever fully clockwise it should be possible to back wind the drive unit by slowly rotating the wheel. If belt slip occurs increase belt tension by reclamping the clevis in a slightly lower position. When the clutch lever is rotated fully anti-clockwise the wheel drum should slip easily against the belt.

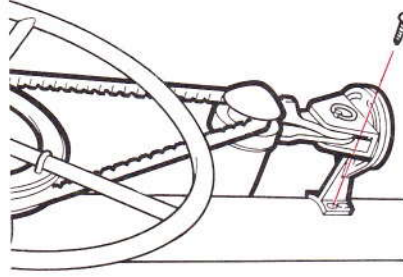


Fig.15

Do not over tighten belt.

ATTACHMENT TO ATHWARTSHIPS BULKHEADS

In cases where the steering wheel is mounted on a bulkhead, special provision usually must be made to mount the drive unit. (L) brackets are available to mount the clevis on a bulkhead as shown (Fig.16).

Hardwood packing may be required to gain correct alignment to the wheel drum.

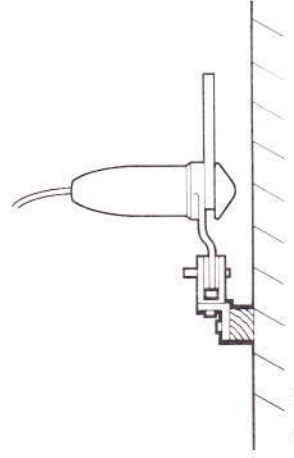


Fig.16

ALTERNATIVE MOUNTING POSITIONS

The wheel drive unit may be positioned on either the port or starboard side of the wheel. The fluxgate compass is calibrated to give correct steering sense with the drive unit sprocket facing aft. Access to the clutch lever is also easier when the drive unit is mounted this way round.

If an obstruction precludes mounting the drive unit with the drive sprocket facing aft it may be mounted the other way round. In this

case it will be necessary to re-adjust the motor drive sense to regain correct steering as follows.

Remove the blanking screw from the control unit back face and use the adjuster provided to rotate the changeover switch anti-clockwise until the endstop is reached (Fig.17). **Never force the changeover switch, light pressure only is required.**

Finally replace and fully tighten the blanking screw to ensure watertightness.

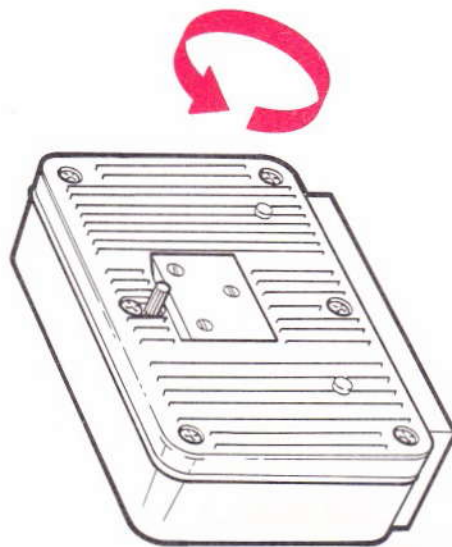


Fig.17

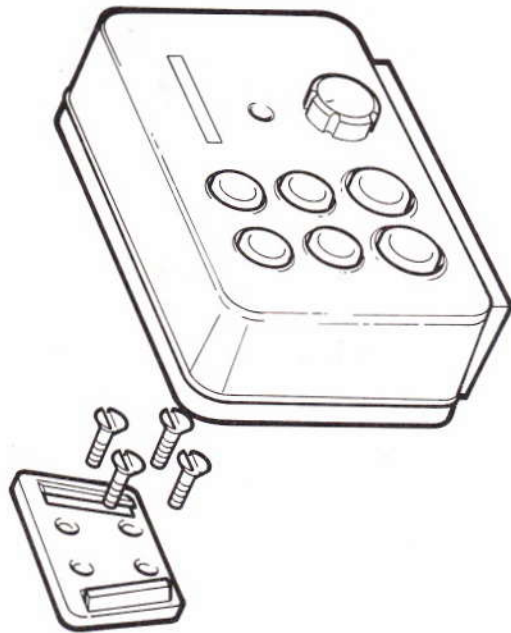


Fig.18

CONTROL UNIT

The control unit slots into a permanently mounted socket sited in the cockpit. It contains a gimballed fluxgate compass and therefore has some restrictions on mounting position.

The control unit should be sited where it can be operated easily from the steering position. It should also be positioned at least 80cm (2'6") away from the main steering compass to avoid deviation of both compasses.

Deviation of the control unit fluxgate compass is less important

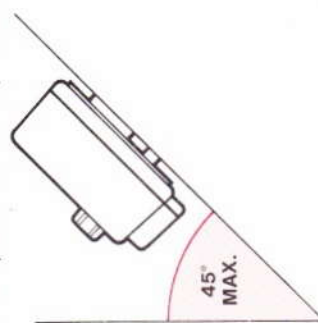


Fig.19

since headings are always adjusted by reference to the main steering compass. Nevertheless, deviation should be avoided if possible and thus the control unit should be sited as far away from other magnetic or iron devices as practical.

Having selected the best mounting site, the mounting socket may be secured to a convenient wooden or glass fibre surface using the self tapping screws provided. The mounting surface may slope away from vertical by a maximum of 45°.

Battery Connection

The waterproof **Dri-Plug** supplied should be situated as close as possible to the Autohelm 3000 to minimise lead length. The Dri-Plug socket must be connected **directly** to the vessels electrical distribution panel and on no account paralleled into existing wiring for other equipment.

The Autohelm supply must be independently switched and protected by a 5 amp fuse or current trip.

Since the autopilot is microprocessor based it is very important that voltage losses in

supply cables are minimised. Supply cables should therefore be as short as possible and of no less size than shown in the following table.

The **brown** wire of the Autohelm 3000 lead should be connected to **positive**. If connections are accidentally reversed the Autohelm 3000 will not operate but no damage will result.

Lead Length	Copper Area
Up to 2.5m (8')	1.0mm ²
Up to 4.0m (13')	1.5mm ²
Up to 6.5m (22')	2.5mm ²

Installation Accessories

Description	Cat No.
B- Belt for 512mm (20.1") offset	D037
A- Belt for 546mm (21.5") offset	D038
Standard Belt 598mm (23.6") offset	D039
A+ Belt for 717mm (28.2") offset	D040
B+ Belt for 850mm (33.5") offset	D041
Pedestal Mounting Bracket	D044
Bulkhead Mounting Bracket	D047
Westerly 506 Belt (pedestal)	D052

Accessory Connection

In common with all the Autohelm 3000's accessories, the drive unit plugs into the control unit to facilitate stowing and servicing. To ensure reliable connection each plug incorporates a locking ring which should be turned clockwise to secure.

Although each accessory has a unique socket and cannot be misconnected, the drive unit should be connected to the socket marked HELM, the windvane to the socket marked VANE and the hand held remote to the socket marked REMOTE.

WINDVANE ATTACHMENT

The windvane attachment is normally mounted centrally on the after rail where it can be sited in clear wind on both tacks. The windvane mounting mast is clamped to the after rail by the two 'U' bolts provided (Fig.20). The interconnecting cable should be brought through the slot to allow the windvane head to be plugged into the top of the mast (Fig 21). The interconnecting cable can then be run back and plugged into the Autohelm 3000.

NB. The windvane head is supplied with the vane detached for ease of packing. The vane is easily assembled to the head and secured by means of the circlip provided (Fig. 22). Care should be taken to ensure that the small circlip is correctly located in the groove.

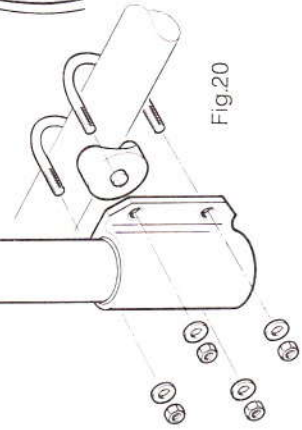
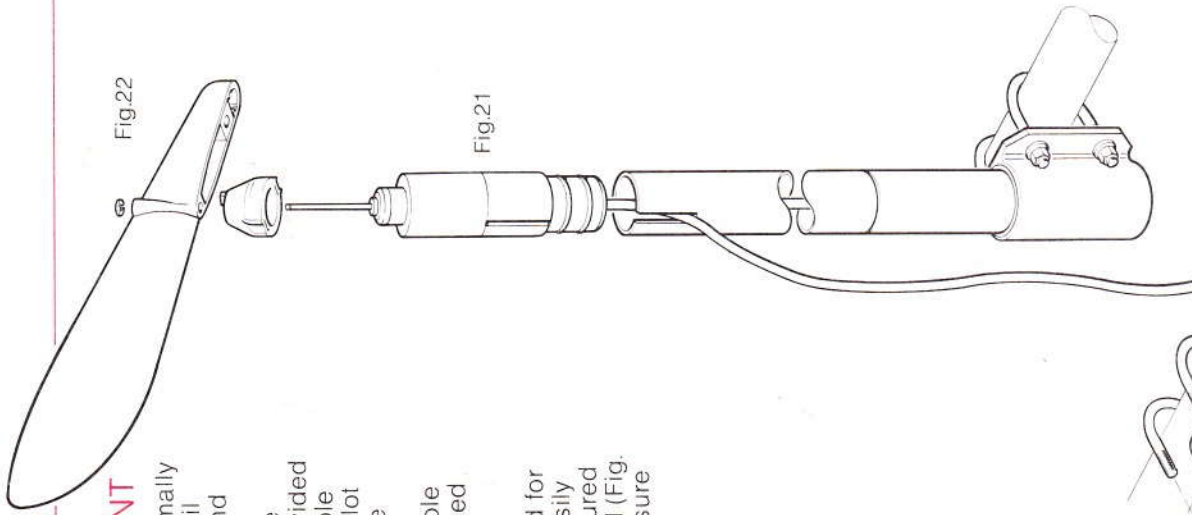


Fig.22

Fig.21

Fig.20

OPERATION

BASIC PRINCIPLES

The following description of the Autohelm 3000's principle of operation will help you to make full use of its advanced features.

The powerful combination of a fluxgate compass and microprocessor control provides "autolock" course selection together with precise push-button course adjustment.

Deviation from the set course is continuously monitored by the sensitive fluxgate compass and corrective rudder is applied to return the vessel to course. The applied rudder is proportional to course error at any time and thus when the course is restored the rudder will be neutralised.

When changes in vessel trim occur due to variations in wind pressure or engine throttle setting the course can only be maintained by the application of permanent rudder off-set (standing helm) to restore balance. If permanent rudder off-set is not applied to restore balance the vessel will bear on to a new heading. Under these

circumstances the Autohelm 3000 detects that the original course is not being restored and continues to apply additional rudder off-set in the appropriate direction until the vessel returns to the original heading.

Automatic trimming capability ensures that the originally set course is held irrespective of any changes in balance that may occur during the course of a passage.

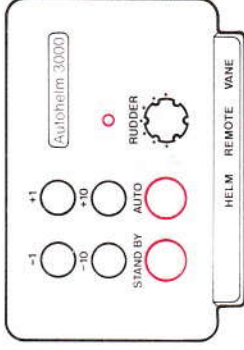
The Autohelm 3000's computer also continuously monitors the pattern of applied rudder correction and can distinguish unnecessary repetitive corrections caused by pitch and roll of the vessel from those necessary to maintain the selected heading. The computer will automatically neglect all unnecessary corrections so that autopilot activity and power consumption is continuously optimised at minimum levels.

The high degree of control automation made possible by the micro computer simplifies user control to a series of push button operations.

Full control of the Autohelm 3000 is provided via a simple six button key pad.

The basic control functions are as follows:-

When the autopilot is switched on it will always start up in **Stand by** mode.



AUTO



Push **once** to engage the autopilot to maintain the current heading or if **Stand by** has previously been selected push **twice** (within 2 seconds) to return to the previous automatic heading.

-1



+1



Push to alter course to port (-) or starboard (+) in increments of 1 and 10 degrees.

-10



+10



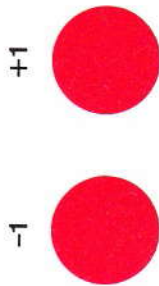
STAND BY



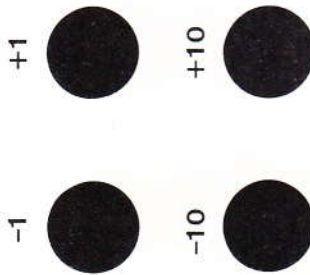
Push **once** to disengage the autopilot and return to **Stand by** mode. (The previous automatic heading will be memorised).

WINDVANE SYSTEM

When a windvane system is fitted, a new layer of control functions is automatically opened on all control units as follows:-



Push **both red keys** together **once** to engage the windvane and maintain the current apparent wind angle.
or
Push **both red keys** together **twice** to return to the previous apparent wind angle.



Push **once** to increase (+) or decrease (-) the vessel's heading relative to the apparent wind direction in increments of 1 or 10 degrees of wind angle.

STAND BY



AUTO



Push **once** to disengage the windvane for manual steering. (The previous apparent wind angle will be memorised).
or
Push **once** to change over to automatic compass heading control and maintain the current heading.

The Autohelm 3000 has an automatic tacking function which operates in windvane mode only as follows:-



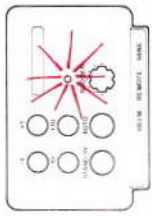
Push -1 and +1 keys together to initiate a tack. The apparent wind angle set up on the current tack will be repeated on the new tack.



Repeat depression of -1 and +1 keys together to alternate between port and starboard tacks.

OPERATING MODE INDICATION

The operating mode of the Autohelm 3000 is indicated by a flashing LED as follows:-



OPERATING MODE	LED FLASHING CODE
STANDBY Provides proportional power steering.	
AUTO Autopilot steers to maintain compass heading.	
WINDVANE Autopilot steers to maintain apparent wind angle. Windvane mode is also confirmed by a single beep tone emitted every 30 seconds.	

ON OFF SECONDS 1 2 3 4 5 6

Hand Held Control Unit

(Cat No. Z049)

An optional hand held control unit can be plugged into the control unit to provide full course change capability from anywhere on board. The unit duplicates the main control units four course change keys and may be used in both stand by and auto modes. The operation of the main control unit is unchanged when the hand held control unit is connected.

Radio Navigation Interface

(Cat No. Z050)

This interface may be used with any radio navigation system that has a suitable autopilot output. It supervises the Autohelm 3000 to maintain the preselected track set on the radio navigation system. Full operating details are supplied with each interface.

Your main distributor or Nautech's Technical Sales Department will be able to advise you of Radio Navigation Systems with suitable autopilot output.

FUNCTIONAL TEST PROCEDURE

After completing the installation you should carry out the following functional test to familiarise yourself with the system before attempting sea trials.

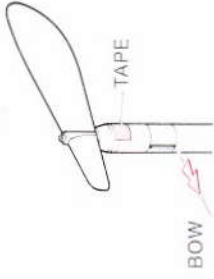
Plug the Autohelm 3000 into the power socket and switch on the electrical supply. The unit will emit a short beep tone to indicate that it is active and the LED will flash to indicate **Stand by** operating mode. Engage the drive by rotating the clutch lever fully clockwise and press the +10 key. The wheel should move to produce a turn to starboard. The unit will emit a short beep tone on each keypress to confirm valid entries. Should the wheel move to produce a turn to port the changeover switch is incorrectly set and must be adjusted as described on page 8.

Press **Auto** to place the autopilot under compass control. The LED will be lit constantly to indicate that the unit is in **Auto** mode. If the yacht is swinging about its mooring, you will see that small variations in heading cause the unit to apply corrective action to the rudder. Press **Stand by** to return the unit to **Stand by** mode.

WINDVANE SETTING

The windvane must be accurately aligned to the yacht's head to provide equal apparent wind angles on opposite tacks when using the Automatic Tacking system.

The windvane head should initially be aligned by rotating the mounting mast in its friction bearing until the vertical line on its body faces the yacht's bows. Then align the windvane parallel to the yacht's centre line using adhesive backed tape to temporarily fix it in position as shown.



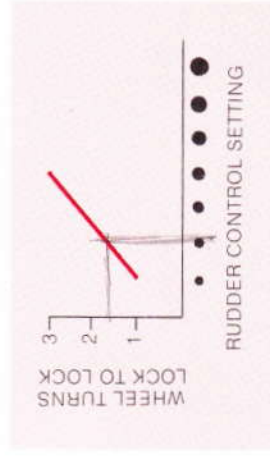
To check correct alignment press the **two** red buttons, to enter vane mode and depress -1 and +1 keys together to initiate a tack (see Operation - Windvane System).

If the head is correctly aligned, rudder movement will not occur. If rudder movement is observed, re-adjust the vane head alignment with the vane remaining parallel to the yacht's centre line until zero helm movement occurs when a tack command is keyed.

To prevent accidental gybing the tack function will only operate with a wind angle of less than 70°.

Rudder Control Adjustment

Before attempting sea trials the rudder control must first be adjusted to suit the wheel reduction ratio of your particular vessel. The rudder control setting recommended for initial sea trials may be obtained from the following chart.



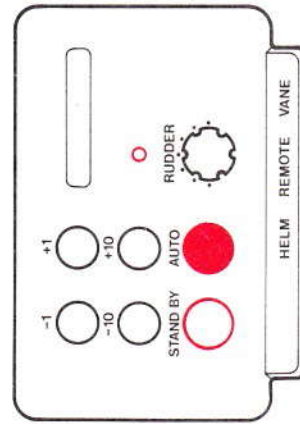
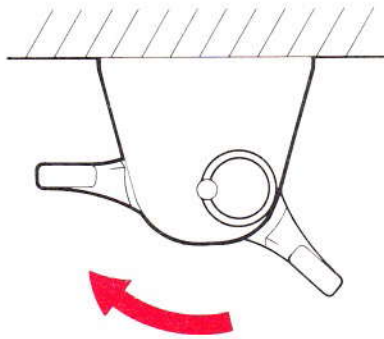
The setting recommendations above will provide stable control for initial sea trials and may, if necessary, be fine tuned later (see page 20).

SEA TRAILS

Initial sea trials should be carried out in calm conditions with plenty of sea room. The previously conducted functional test will have verified that the autopilot is operating correctly and that you are familiar with all of its controls.

During first sea trials, the vessel will be constantly changing heading, and it is, therefore, very important to maintain a constant look-out. The following initial trial procedure is recommended:-

- Steer on to a compass heading and hold the course steady.
- Engage the drive by rotating the clutch lever fully clockwise to its end stops.



- Press **Auto** to lock on to the current heading. In calm sea conditions a perfectly constant heading will be maintained.

- Alter course to port or starboard in multiple increments of 1 and 10 degrees (Fig. 23).

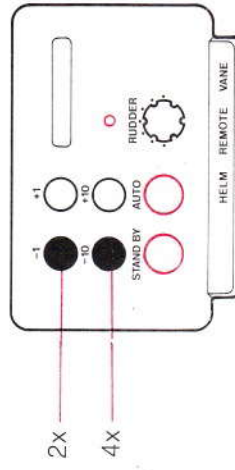
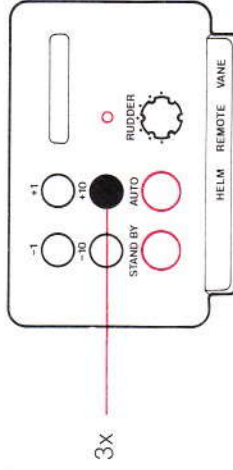


Fig.23

Power Steering

- Press **Stand by** and practice power steering using the four course control keys.
- Press **Auto** twice (within 2 seconds) to return to the original automatic heading.

Hand Steering

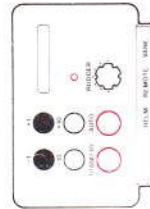
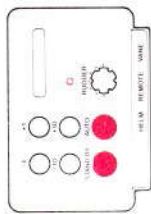
- Press **Stand by** and disengage the drive by rotating the clutch lever fully anticlockwise for return to hand steering.

Automatic Sea State Control
During the sea trial, the operation of the automatic sea state control can be observed. When the autopilot is initially engaged in **Auto** mode the autopilot will respond to all pitch and roll movements. During the first minute of operation, it will be noticed that repetitive movements of the vessel are gradually neglected until finally the autopilot will respond only to true variations in course. To ensure accurate course adjustment the sea state control is automatically reset whenever a course change is executed.

Windvane System

In the case of a sailing yacht fitted with a windvane system the following additional trial is recommended.

- Steer onto a constant heading approximately 10° free of close hauled.
- Press **both red keys** together to engage **Vane** mode and allow the automatic wind angle heading to settle.
- Decrease the relative apparent wind angle in 1° increments (using the +1 key if on the starboard tack) until the yacht is sailing close hauled at optimum penetration.
- Prepare to tack and then press the -1 and +1 keys together to initiate a tack.
- The yacht will go about and sail the same apparent wind angle on the opposite tack. If there is an observable difference in apparent wind angles on opposite tacks, this can be corrected by fine adjustment of the windvane head alignment.
- Press **Stand by** and disengage the drive unit using the clutch lever to return to hand steering.



WIND



Disengagement

When manual override is required the drive unit can be rapidly disengaged by operating the clutch lever to slacken the belt. If it is intended not to use the autopilot for a long period manual steering will be made easier by removing the belt altogether.

OFF-COURSE ALARM

When the autopilot is set to either **Auto** or **Vane** mode a built-in off-course alarm is automatically set up. The off-course alarm will sound when the vessel deviates for any reason from the original course by more than 15° degrees for over 10 seconds. It is denoted by a continuous series of beep tones.

The alarm will be silenced if the vessel returns to within 15° degrees of the original course. If the vessel does not return within course limits the alarm can only be silenced by selecting **Stand by**. This facility is particularly useful for sailing craft when in **Vane** mode since an automatic warning will be given of significant wind direction changes.

CURRENT LIMITING AND CUTOFF

If the autopilot drives the rudder into its end stops, the drive will be **pulsed** to prevent overloading the motor. If the pilot is left in this condition for 60 seconds the microprocessor will automatically cut out power to the motor and sound the alarm continuously.

To restore the autopilot for normal operation the **Stand by** key must be pressed to put the unit in **Stand by** operating mode.

Rudder Control Adjustment

The rudder control setting recommended on page 17 will provide stable control for initial sea trials. However, sailing craft can vary widely in their response to the helm and further adjustment of the rudder control setting may improve the Autohelm's steering characteristics.

An excessively high rudder control setting results in **Oversteer** which can be recognised by the vessel swinging slowly from side to side of the automatic heading accompanied by excessive rudder movement. In addition, distinct overshoot will be observed when the course is changed. This condition can be corrected by reducing the rudder control setting (rotating rudder control anticlockwise).

Similarly an insufficient rudder control setting results in **understeer** which gives sluggish steering performance and is particularly apparent when changing course. This is corrected by increasing the rudder control setting (rotating rudder control clockwise).

These tendencies are most easily recognised in calm sea conditions where wave action does not mask basic steering performance. The rudder control setting is not over critical and should be set to the lowest setting consistent with accurate course keeping. This will minimise actuator movements and hence reduce power consumption.

OPERATING HINTS

The Autohelm 3000's computer continuously optimises automatic steering performance eliminating the need for operator supervision.

It is, however, very important to understand the effect of sudden trim changes on steering performance. When a sudden change in trim occurs the automatic trim compensation system requires approximately 20 seconds to apply the necessary rudder off-set to restore the automatic heading. In gusting conditions, therefore, the course may tend to wander slightly, particularly in the case of a sailing yacht with badly balanced sails. In the latter case, a significant improvement in course keeping can always be obtained by improving sail balance. Bear in mind the following important points:-

- Do not allow the yacht to heel excessively.
- Ease the mainsheet traveller to leeward to reduce heeling and weather helm.
- If necessary reef the mainsail a little early.

It is also advisable whenever possible to avoid sailing with the wind dead astern in very strong winds and large seas. Ideally, the wind should be brought at least 30° away from a dead run and in severe conditions it may be advisable to remove the mainsail altogether and sail under boomed headsail only. Providing these simple precautions are taken the autopilot will be able to maintain competent control in gale force conditions.

It may be noticed that the autopilot tends to be a little less

stable on northerly headings in the higher latitudes of the northern hemisphere (and conversely southerly headings in the southern hemisphere). This is caused by the increasing angle of dip of the earth's magnetic field at higher latitudes which has the effect of amplifying rudder response on northerly headings. The tendency towards northerly heading instability is usually more obvious at higher speeds and when it occurs can be corrected by reducing the rudder control setting.

Passage making under automatic pilot is a very pleasant experience which can lead to the temptation of relaxing permanent watch. This must always be avoided no matter how clear the sea may appear to be.

Remember, a large ship can travel two miles in five minutes – just the time it takes to make a cup of coffee!

After use the Autohelm 3000 is easily stowed by detaching the drive unit from its mounting clevis and removing the control unit from its mounting socket. The unit can then be safely stowed in a small locker.

TOTE BAG

A special zip top padded bag made from tough PVC is available to protect and stow your Autohelm and is available from Autohelm stockists.

Warning

- Do not stow your Autohelm in a locker liable to flooding by bilge water.
- Do not leave your Autohelm in a damp locker over the winter lay up period.

MAINTENANCE

All moving parts of the system have been lubricated for life at the factory. Therefore no maintenance

whatsoever will be required. Should a fault develop the autopilot's pluggability ensures that only the defective unit need be returned.

Before this is done please double check that the power supply cable is sound and that all connections are tight and free from corrosion.

Since the control unit is the most complex, there is a very high probability that if a fault has occurred it is in this unit which

should therefore be returned for repair, which will be carried out speedily and at moderate cost. The drive unit has proven to be extremely reliable and is very unlikely to develop a fault. If however the drive unit is suspected of being faulty it may be checked by connecting 12V across the sockets at the end of the drive unit cable and ensuring the motor runs normally.

In the case of a sailing yacht fitted with a windvane system if a fault occurs only in vane mode then it is likely that a fault has developed in the vane head.

LIMITED WARRANTY

Nautech or its appointed Distributors or Service Centres will, subject to the conditions below, rectify any failures in this product due to faulty manufacture which become apparent within twelve months of its purchase date.

Equipment used in the country of purchase should be sent directly to the authorised Distributor for that country or its appointed Service Centres. The product will then be serviced free of charge and returned promptly direct to the sender.

Equipment used outside the country of purchase can be either:-

- Returned to the Distributor or Dealer in whose country or from whom the equipment was originally purchased – it will then be serviced free of charge and promptly returned direct to the sender, or

- The product can be returned freight pre-paid to the authorised Distributor or its appointed Service Centres in the country in which the product is being used. It will then be serviced and returned direct to the sender on the basis that the Distributor or Service Centre will supply any parts used free of charge but the sender will be invoiced for the necessary labour and return shipment at the local rate.

CONDITIONS

The warranty is invalid if:-

- The product has been misused, installed or operated not in accordance with the standards defined in this manual.
- Repairs have been attempted by persons other than Nautech approved Service personnel.

AFTER SALES SERVICE

Should for any reason your Autohelm 3000 require attention ensure that you return it to one of the Authorised

Service Centres. You will find a list enclosed.

Each service centre is trained and equipped to provide expert attention to your Autohelm 3000.

Autohelm
Service Centres
UK, Eire &
Channel
Islands



Kent
Heron Marine Services
129 Broadway
Herne Bay
Kent
☎ 0222 7361255

East Sussex
DMS Seatonics
Brighton Marina
Brighton
☎ 0273 605166

Chichester Harbour
Nautech Limited
Anchorage Park
Portsmouth
☎ 0705 693611

**Hamble River/
Southampton Water**
Hudson Marine Electronics
Mercury Yacht Harbour
Satchell Lane
Hamble
Hants
☎ 0703 455129

IOW
(Lecmar) Katon Ingram
Services
128 High Street
Cowes
IOW
☎ 0983 293996

**Lymington/Poole
Weymouth**
Greenham Marine
Ethelco House
The Quay
Poole
Dorset
☎ 0202 676363

Greenham Marine
Kings Salthens Lane
Lymington
Hants
☎ 0590 75711

Danlea Electronics
Cobbs Quay
Poole
Dorset
☎ 0202 673880

Rivers Exe & Dart
Westronics Maunier
& Hayman Limited
Ailer Mill
Kingskenwell
Newton Abbot
Devon
☎ 080 47 2666

Salcombe
Burwin Marine Electronics
Island Street
Salcombe
Devon
☎ 054 884 3321

Plymouth
Ocean Marine
Port Edgar Marina
43 Bretonside
Plymouth
Devon
☎ 0752 23922

Cornwall
Mylor Marine Electronics
Mylor Yacht Harbour
Falmouth
Cornwall
☎ 0326 74001

**Severn &
Bristol Channel**
A N D Electronics
Unit 302, Dene Road
Severnside Trading Estate
Avonmouth, Bristol
☎ 0272 821441

**North &
West Wales**
Rowlands Marine
Electronics Limited
The Outer Harbour
Pwllheli
☎ 0758 613193

Salttronic Marine
Church Street
Glan Conwyn
Colwyn Bay
Chwyd
☎ 0492 68536

Merseyside
Robbins Marine Radio
Services
South East Queens Dock
Liverpool
☎ 051 7095431

**Lancs &
Cumbria**
Marine Electronic Services
190 Dock Street
Fleetwood
Lancs
☎ 039 175241

S/W Scotland
Boat Electronics &
Electronics
145 Temple Hill
Troon
Ayrshire
☎ 0292 315355

Northern Scotland
BP I Ltd
Greenbank Road
East Tullos
Aberdeen
☎ 0224 874003

S/E Scotland
Forth Area Marine Electronics
Port Edgar Marina
South Queensferry
Lothian
☎ 031 331 4343

**Tyne & Wear
Cleveland**
A N D Electronics
Tammers Bank
North Shields
Tyne & Wear
☎ 0632 595590

Humberside
Electronic Marine Limited
M W Wright Docks
Hull
☎ 0482 25163

Norfolk/Suffolk
R & J Marine Electronics
2 Birch Avenue
Dovercourt Bay
Harwich
☎ 025 55 502849

Essex/Suffolk
Mansbridge Marine Electronics
19D Spital Road
Maldon
Essex
☎ 0621 53003

Shetland Isles
H Williamson's & Son
(Scalloway) Limited
Main Street
Scalloway
☎ 059 588 645

Isle of Man
Bevan Limited
13 West Quay
Ramsay
☎ 0624 812583

Autohelm
Services Centres -
UK, Eire &
Channel Islands



Eire

Rider Services
Glenbrook
Passage West
Co Cork
☎ 010 3532184 1176

Channel Islands
Channel Island Yacht
Services
North Esplanade
St Peter Port
Guernsey
☎ 0481 23228

**Channel Island Yacht
Services**
8 Commercial Buildings
St Helier
Jersey
☎ 0534 71511

Mainbrayce Ltd
Inner Harbour
Braye
Alderney
☎ 048 1823110

Autohelm
Overseas
Representatives



Australia

Solo Marine Pty
189 Ben Boyd Road
Neutral Bay Junction 2089
New South Wales
Australia
☎ (010 61 2) 90 1221
Telex 007 71 27045 +
A/B: SOLMAR AA27045

Austria

Werner Ober - Yachtelektronik
A-6890 Lustenau
Reichsstrasse 38
☎ (010 43) 55772419

Belgium

West Diep Yachting Centre SPRL
B-8450 Nieuwpoort
Louisweg 2
☎ (010 32 58) 23 40 61

Brazil

Oveteiro Importacao & Exportacao
Rua Teodilo Onton 52
S/1201 Rio de Janeiro 20090
☎ (010 55 21) 2539485

British Virgin Islands

Cay Electronics
PO Box 345
Road Town
Tortola
☎ (010 1 809 49) 4 -2400
Telex 007 292 7969 +
A/B: HDSAIL VB

Canada

Tom Taylor Co Ltd
72 Fasser Avenue
Toronto M6K 3E1
Ontario
☎ (010 1 416) 530 1811
Telex 007 21 06524332 +
A/B: TOMTAYCO TOR

Canary Islands

Nordest
C/S Juan Bautista 57
Santa Cruz de Tenerife
☎ (010 922) 284 871
Telex 0061 92230
A/B: 92230 COCINE

Cyprus

Mercury Divers Co Ltd
53 Spyrou Arakouzou St
PO Box 469
Limassol
☎ (010 357 51) 65492
Telex 007 605 4976 +
A/B: 4976 MERCIVE CY

Denmark

MBP Trading
Ved Klædebo 12
DK - 2970 Horsholm
☎ (010 45) 286 82 89
Telex 0063 37425
A/B: 37425 DAPLUSDK

Finland

Novi Oy
Venemiekijantie 12
00210 Helsinki 21
☎ (010 3580) 90 6922533
Telex 0083 122556
A/B: 122556 NOVIFS

France

S D Marine Electronique
17-25 Rue Banian
78500 Saintrouville
☎ (010 3339) 914 6833
Telex 0022 698347
A/B: SDMELEC 698347F

Gibraltar

H Sheppard & Co
Waterport
☎ (010 350) 77183
Telex 0056 2324
A/B: 2324 MARINA GK

Greece

Piraeus Electronic
50 Har Tricoupi Avenue
Zea Marina
Piraeus
☎ (010 301) 453 10 27
Telex 0052 241219
A/B: 241219 DORIGR

Holland

Boomsma's Handelsmaatschappij BV
Industrieterrein "De Stonger" 74
PO Box 28
1300 - AA Almere Haven
☎ (010 31 3240) 11524
Telex 0021 70121
A/B: 70121 GEBONL

Hong Kong

Avco Marine Co Ltd
Suite 6C Sun House
181 Des Voeux Road C
☎ (010 852 5) 412895
Telex 007 80265605 +
A/B: 65605 AVCOMHX



Autohelm Overseas Representatives

Israel

Briza Yacht & Marine Supply
PO Box 39232
Tel Aviv
☎ (010 972) 522235
Telex: 007 606341118 +
A/B: 341118BXTVIL

Italy

Finder Spa

Via Dei Colli
34 Civitavecchia
☎ (010 39 766) 24601
Telex: 0023 611257
A/B: 611257 FINDER I

Japan

JM J Limited

Maruman Building No.7
6F-22-7 Nishishinbashi, 1 chome
Minato-Ku
Tokyo
☎ (010 81) 591 0912
Telex: 007 72 32191 +

Malta

Ripard Larvin & Ripard

156 Ta Xbiex Seafont
Yacht Marina
☎ (010 356) 35591
Telex: 0082 994
A/B: 994 YOTSMAW

Netherlands Antilles

Lanseair NV

The Caribbean Calamarian Centre
PO Box 314
Simpson Bay Lagoon
Cole Bay
St Maarten
☎ (010 5995) 5317

New Caledonia

Marine Corail Pacifique

BP 848
Noumea
☎ (010 687) 27 58-48
Telex: 007 706 055 +
A/B: M CORAIL 055NM

New Zealand

Kenneth Lusty Ltd

89 Wairau Road
Takapuna
Auckland 10
☎ (010 649) 411
Telex: 007 74 60324 +
A/B: LUSTYNZ00324

Norway

Seastronic A/S

Harald Haarfagrestr 15
1500 Moss
☎ (010 47) 32 72723
Telex: 0025 76542
A/B: 76542 STRONN

Papua New Guinea

Ross Engineering

PO Box 10
Bay Road
Rabaul
☎ (010 675) 92 2009
Telex: 007 703 92936 +
A/B: ROSSENGNE92936

Portugal

A Pereira Jordao

Rua de Jose Falcão 152-156
4000 Porto Codex
San Juan 00904
☎ (010 351 29) 2094779
Telex: 0086 22308
A/B: 22308 JORDAOP

Puerto Rico

Nauticentre Inc

PO Box 3286 San Juan
50 Covadonga Avenue
San Juan 00904
☎ (010 723) 2639
Telex: 007 207 365255 +
A/B: 365255 NAUCENT

Republic of Panama

Tagaropoulos SA

APDO 6
4000 El Dorado
Panama
☎ (010 507) 23 9920
Telex: 007 377 2068 +
A/B: 2068 TONIOPA

Singapore

Light Marine Services

PO Box 27
Pasir Panjang Post Office
Singapore 5
☎ (010 65) 653926/651453
Telex: 007 87 50201 +
A/B: LIGHME RS50201

South Africa

Central Boating Ply Limited

81 Bree Street
Cape Town 8001
☎ (010 27 21) 2480267/8
Telex: 007 9557 26712 +
A/B: 57 26712 SA

Spain

Sitelsa

Muntanor 44
Barcelona 11
☎ (010 343) 3234315
Telex: 0061 54218
A/B: 54218 SITEE

Sweden

Axhede & Hansson

Vivvelindsgatan 8
S-41702 Gothenburg
☎ (010 46 31) 222280
Telex: 0024 21447
A/B: 21447 AXHAS

Switzerland

Yachting Systems

General Wille-Strasse 10
8002 Zurich Erge
☎ (010 411) 2028044

Taiwan

JT Mellis & Associates

PO Box 52-038
Taipei
☎ (010 8862) 3822 580
Telex: 007 785 10540 +
A/B: 10540 UNIONTUP

USA

International Marine Instruments Inc

3 Republic Road
North Billerica
Mass 01862
☎ (010 1 617) 667 6318
Telex: 007 230921 845 +
A/B: IMTECHIMIMA

International Marine Instruments Inc

40 Signal Road
Stamford
CT 06902
☎ (010 1 203) 357 8455
Telex: 007 230643 925 +
A/B: IMCOMBISTD

West Germany

Ferropilot GMBH

Siemensstrasse 35
2084 Rellingen
☎ (010 49 41 01) 301240
Telex: 003 2189160
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