G- **Pilot 3380**

Operation Manual

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FCC Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a normal installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an output on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.
- A shielded cable must be used when connecting a peripheral to the serial ports.

Contents

Congratulations on choosing the Navman G-PILOT 3380 G-PILOT. For maximum benefit, please read this manual carefully before installation and use. This manual describes how to use and set up the G-PILOT 3380 and the associated equipment. This manual also explains how to operate the G-PILOT 3380 effectively and provides troubleshooting and performance tips.

Important Notice:

- It is the owner's sole responsibility to install and use the instrument and transducer(s) in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing safe boating practices.

- It is vital to the performance of the G-PILOT that the transducers are installed in the best location. Please follow the installation instructions very carefully.

- The choice, location, and installation of all components in any G-PILOT system is critical. If installation is not correct, the unit can not perform at its designed potential. If in doubt, consult your Navman dealer.

- Ensure that any holes that are cut are in a safe position and will not weaken the boat's structure.

- **If in doubt, consult a qualified boat builder.**

Using the G-PILOT 3380:

- The G-PILOT 3380 is intended to aid a helmsman from having to steer for long periods of time, not as the main means of steering the boat.

- The G-PILOT 3380 is not intended for use in extreme weather, in adverse conditions or in water near other boats, dangerous waters or land.

- The G-PILOT 3380 can not control the boat better than a helmsman. In adverse conditions steer the boat manually.

- Never leave the helm unattended. Keep a watch at all times. The helmsman should always monitor the course of the boat and the G-PILOT 3380 and be ready to resume steering the boat manually.

- The performance of the G-PILOT 3380 can be affected by the failure of a part, environmental conditions, improper installation and use.

Note: The User is to be aware that when the G-PILOT is powered on, the Control Dial and Dodge keys are active and can operate the rudder at any time (see Power Steering modes 1-1-3)

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Navman is continuously improving this product; we retain the right to make changes to the product at any time which may not be reflected in this version of manual. Please contact your nearest Navman office if you require any further assistance.

Governing Language: This statement, any instruction manuals, user guides and other information relating to the product (Documentation) may be translated to, or has been translated from, another language (Translation). In the event of any conflict between any Translation of the Documentation, the English language version of the Documentation will be the official version of the Documentation.

1 Introduction

The G-PILOT 3380 is a superior quality, high performance G-PILOT display head. The Navman G-PILOT system has the flexibility to be used with power or sail boats.

The G-PILOT 3380 has dedicated function keys and a large 3.8" Color TFT display. This provides the user with exceptionally easy to use controls.

The G-PILOT 3380 is part of the Navman family of instruments for boats, which includes instruments for speed, depth, wind and repeaters. These instruments can be connected together to form an integrated data system for a boat. The G-PILOT's performance is enhanced if it is connected to a boat speed instrument such as a NAVMAN SPEED 3100 or a GPS instrument.

NAVMAN G-PILOT 3380
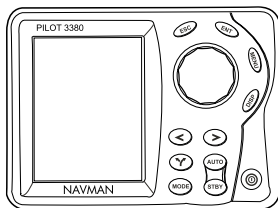
Using this manual

This manual describes how to operate the G-PILOT 3380. Refer to the separate G-PILOT 3380 System Installation Manual for information on how to install and setup the G-PILOT 3380 before use.
For maximum benefit, please read this manual carefully before using the G-PILOT 3380.

Cleaning and maintenance

Clean the parts of the G-PILOT 3380 with a damp cloth or mild detergent. Avoid abrasive cleaners, petrol or other solvents. Do not paint any part of the G-PILOT 3380 except for the cables.

1-1   G-PILOT Modes

1-1-1   Operating modes

The G-PILOT has three operating modes (see sections 3-5 and 3-6):

STANDBY:

The G-PILOT *does not* steer the boat (except during jog steer). The **helmsman** steers the boat with the manual helm.

AUTO:

The G-PILOT steers the boat automatically based on selected Steering Mode and course. **Do not** steer the boat manually.

HAND-STEER:

The G-PILOT does not steer the boat, but displays steering information for you to use to manually steer a course. Steer manually using the displayed steering data.

1-1-2   Steering modes

The G-PILOT has three steering modes (see section 3-7):

Compass - The boat sails at a set compass heading.

COMPASS

GPS - The boat sails to a destination along a preset route.

GPS

This mode requires a GPS instrument, such as a NAVMAN TRACKER 5500 chart-plotter to be connected via NMEA.

Wind - The boat sails at a set angle to the wind. This mode requires a wind instrument, such as a NAVMAN WIND 3100 to be connected via NavBus or NMEA.

WIND

1-1-3 Power steering modes

When the G-PILOT is in **STBY (**STANDBY) mode the helmsman must steer the boat manually. However The G-PILOT 3380 has two different power steering control modes (see section 3-11).

Jog: Turns the rudder left or right while the key is pressed.

Follow-up: Sets the target position of the rudder. The rudder will turn until it is in the target position.
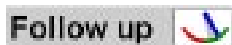
Note regarding Jog and Follow-up mode:

The user is to be aware that while in Standby (STBY) Mode, the G-PILOT can move the rudder at anytime that the Dodge keys or Control Dial is operated.

1-1-4 Turn modes

The G-PILOT 3380 can follow a preprogrammed turn sequence. The G-PILOT has three different turn modes (see section 3-10):

Tack/Gybe: Auto-tacks OR Auto-gybes the boat after a delay period. The tack/gybe angle and tack/gybe delay can be customised.

90° turn: The boat turns through 90°

180° turn: The boat turns through 180°

Note: Not all turn modes are available in all operating modes.

2 Quickstart

2-1 Starting the G-PILOT system

1. Turn the G-PILOT system on by pressing ⓞ.

2. If the G-PILOT is connected to speed, wind or GPS instruments, turn these on too.

3. If necessary, adjust the backlight so that the display can be easily read (press ⓞ

   briefly and adjust using the Control Dial).

2-2 Using the G-PILOT to steer the boat automatically

1. Manually steer the boat to open waters before engaging the G-PILOT to steer the boat.

2. Select the desired steering mode by pressing ⍟ₘₒ𝒹ₑ then use the Control Dial

   to highlight Compass, GPS or Wind then press ⍟ₑₙₜ.

3. If using GPS mode, start navigating to a waypoint using the GPS instrument.

4. Engage the G-PILOT by pressing ⍟auto.

2-3 Changing course during a voyage

In Compass mode and Wind mode it is possible to change course during a voyage:

Turn the Control Dial in the direction of the intended course change, for example:

• To change course 10° to starboard, turn the Control Dial 10 clicks clockwise.

• To change course 30° to port, turn the Control Dial a whole turn counter-clockwise.

2-4 Changing steering mode during a voyage

It is possible to change the steering mode during a voyage, for example:

• Change from GPS mode to Compass mode at the end of a route, or,

• On a sailing boat, change from Wind mode to Compass or GPS modes when changing from sailing to motoring.

1. Press ⍟ₘₒ𝒹ₑ then use the Control Dial to highlight the desired steering mode then press ⍟ₑₙₜ.

2-5 Regaining manual control

1. Press ⍟stby. The G-PILOT is now disengaged and you have complete steering control.

   ⍟stby can be pressed at any time.

2. Manually steer the boat using the boats steering helm.

3. To re-engage the G-PILOT, press ⍟auto.

2-6 Action in an emergency

To regain control of the boat in an emergency situation:

1. Press ⍟stby. The G-PILOT is now disengaged and you have complete steering control.

2. Manually steer the boat.

Alternatively:

1. Press ⍟< or ⍟> to make an immediate course change to port or starboard.

2. After a period of time, press ⍟esc to resume original course, or press ⍟ent to continue on the alternative course.

2-7 Manually steering the boat from the boats helm

To manually steer the boat:

1. Press (STBY). The G-PILOT is now disengaged and you have complete steering control.

2-8 Manually steering the boat using power steering

To manually steer the boat using the G-PILOT to move the rudder:

1. Ensure the G-PILOT is in **STBY** by pressing (STBY).

2. Press and hold (<) or (>) to turn the rudder to port or starboard. Pressing both will center the rudder

3. Release the button when the rudder is in the desired position.

Alternatively:

1. Ensure the G-PILOT is in **STBY** by pressing the (STBY) key.

2. Turn the Control Dial until the on-screen rudder indicator is in the desired position.

3. The G-PILOT will turn the rudder until it is in the target position.

3 G-PILOT operation

3-1 The keys

	Button		Function
①	**ESC**	ESC	Step back a menu level or return to selected G-PILOT screen
②	**ENT**	ENT	Selects highlighted items or brings up Parameters menu when in G-PILOT display mode
③	**MENU**	MENU	Shows context sensitive Options menu, press twice to show the Setup menu.
④	**DISP**	DISP	Opens display menu to change between G-PILOT screens
⑤	**Control Dial**		Use to scroll through menus, increment or decrement selected values, follow up rudder control and to make course changes.
⑥	**Dodge Left**	<	Dodge to Port key (repeated presses increments values) Initiates left tack/gybe, 90° turns and 180° turns
⑦	**Dodge Right**	>	Dodge to Starboard key (repeated presses increments values) Initiates right tack/gybe, 90° turns and 180° turns
⑧	**Turns**		Opens turn menu to access tack/gybe, 90° turns and 180° turns
⑨	**AUTO**	AUTO	Places G-PILOT into auto mode
⑩	**MODE**	MODE	Invokes steering mode menu
⑪	**STBY**	STBY	Places G-PILOT into standby mode
⑫	**Power**	ⓞ	Press and hold to turn instrument off. Single press shows backlight control
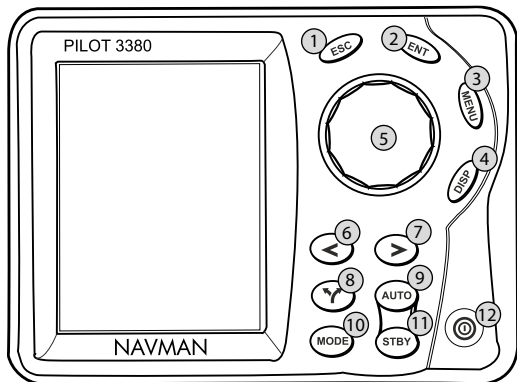
3-1-1 AUTO key AUTO

Press to engage **AUTO** mode. The G-PILOT is now steering the boat based on the selected steering mode. Press and hold for 2 seconds to engage **H-STEER** mode.

3-1-2 STBY key STBY

Press to disengage **AUTO** mode and set **STBY** mode. The G-PILOT is not steering the boat – the helmsman must steer the boat using the manual helm.

3-1-3 Dodge keys ◁ ▷

Press ◁ or ▷ to trigger an immediate dodge to port or starboard. Repeated presses of the same key increments dodge angle.

STBY mode: Jogs the rudder left or right while the key is pressed

AUTO mode: Activates a dodge. Causes the vessel to deviate from the set course by a preset angle.

3-1-4 Turn key ⏀

Press to display the turn menu. The boat follows a preprogrammed turn sequence. Select an item from the menu then press ◁ or ▷ to activate the turn in the corresponding direction.

Tip: Repeated pressing ⏀ will cycle through the menu selection.

3-1-5 MODE key MODE

Press to select steering mode.

Tip: Repeated pressing MODE will cycle through the menu selection.

3-1-6 Control Dial ◯

When using menus and adjusting settings, use to scroll through items and increment or decrement values.

STBY mode: Moves the rudder to port or to starboard half of a degree per click.
AUTO mode: Changes the set course by one degree per click.

Note: In GPS mode, the set course can not be adjusted as the course is controlled by the navigation instrument.

3-1-7 ESC key ESC

When using menus and adjusting settings, press to step back one level without saving changes.

When no menus or settings are displayed, press to jump back to the most recently used G-PILOT display screen.

3-1-8 ENT key ENT

When using menus and adjusting settings, press to choose selection or save setting.

Tip: When showing the Basic, G-PILOT or Compass screen, pressing ENT opens the Parameters menu.

3-1-9 MENU key MENU

Press to show the Options menu (where applicable).

Press twice to show the Setup menu.

3-1-10 DISP key DISP

Shows the Display menu.

Tip: Repeated pressing DISP will cycle through the menu selection and will automatically select the highlighted entry after 1 second.

3-2 Turning the G-PILOT 3380 on

- Press ⓪.
- If there are no other G-PILOT display heads on the system, The G-PILOT 3380 will turn on and enter **STBY** (Standby) mode.

Note: If the G-PILOT was switched off while still in **AUTO** mode, a warning message will be displayed to alert the user that there may have been a power interruption.

Note: When the G-PILOT is powered on, the Control Dial and Dodge keys are active and can operate the rudder at any time (see Power Steering modes 1-1-3)

3-3   Turning the G-PILOT 3380 off

When in **STBY** mode:

- Press and hold ⓞ. A pop-up box will appear and start a 3 second count-down. The unit will turn off when the counter reaches 0.

- Releasing ⓞ during this time will resume normal operation.

- Any settings you have made are retained by the unit.

When in **AUTO** mode:

- Press and hold ⓞ. A warning pop-up box will remind you to enter **STBY** mode before the unit can be turned off. Press (ENT) to close the pop-up.

3-4   Backlight

Briefly press ⓞ. The Backlight pop-up will appear.

Repeating this action will toggle from day to night mode.

Use the Control Dial to increase or decrease the display and keypad backlighting.

- The G-PILOT 3380 has a choice of white background 'Day' and black background 'Night' backlighting modes. Either mode can be selected using the Control Dial.

- The Backlight pop-up may also be selected: *Menu > Setup > System > Backlight* menu.

- Backlighting on all other Navman instruments that are connected on the same NavBus backlighting channel will also change.

3-5   Engaging G-PILOT

Select **AUTO** mode by pressing (AUTO). The G-PILOT is now steering the boat based on the selected steering mode.

3-6   Disengaging G-PILOT

Select **STBY** mode by pressing (STBY). The G-PILOT is not steering the boat – the helmsman must steer the boat using the manual helm.

3-7   Setting the steering mode

For a power boat:

For a boat without GPS, or for a boat with GPS but you do not want to navigate to a waypoint, choose Compass mode. The G-PILOT steers the boat at a set compass heading.

- Select Compass mode by pressing (MODE), choose Compass and press (ENT).

To use the G-PILOT with a GPS to navigate to a waypoint or along a route, choose GPS mode. The G-PILOT steers the boat using navigation data from the GPS.

- Select GPS mode by pressing (MODE), choose GPS and press (ENT).

For a sailing boat:

To steer to a set compass heading, choose Compass mode.

- Select Compass mode by pressing (MODE), choose Compass and press (ENT).

To navigate to a waypoint or along a route, choose GPS mode.

- Select GPS mode by pressing (MODE), choose GPS and press (ENT).

To sail, tack and gybe at a set angle to the wind, choose Wind mode.

- Select Wind mode by pressing (MODE), choose Wind and press (ENT).

Tip: It is possible to change steering modes while in **AUTO** mode. For example it is helpful to use Compass mode to control the boat when setting up a GPS route, then change directly to GPS mode.

Note for sailing boats:

- The G-PILOT is not recommended for use in light, changeable or gusty winds.

- Take care when running downwind to avoid an accidental gybe.

- Wind mode requires the wind instrument to be accurately calibrated.

Note: To select GPS mode, the G-PILOT must be receiving data from a compatible GPS instrument, otherwise the GPS selection will not be available.

To engage the G-PILOT in GPS mode, the GPS must be navigating to a waypoint or along a route; otherwise the G-PILOT 3380 will display an error message. If the boat is too far from the plotted course, the G-PILOT 3380 will display a warning message.

To select Wind mode, the G-PILOT must be receiving data from a compatible wind instrument, otherwise the Wind selection will not be available.

3-8   Changing course

3-8-1   Changing course in compass mode

To change course in 1° steps, turn the Control Dial.

- turn the Control Dial counter-clockwise to change course to port
- turn the Control Dial clockwise to change course to starboard

Example

Heading = 45°
CTS = 45°

CTS changes to 44°
Boat comes to 44° heading

Heading = 45°
CTS = 45°

CTS changes to 46°
Boat comes to 46° heading
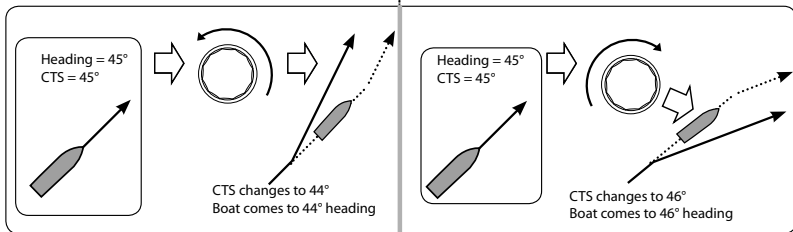
3-8-2   Changing course in GPS mode

The course maintained by the G-PILOT is controlled by the GPS device that is navigating to a waypoint. To change course in GPS mode, select a different waypoint on the GPS device.

3-8-3   Changing set wind angle in wind mode

To change set wind angle (SWA) in 1˚ steps, turn the Control Dial.

- turn the Control Dial counter-clockwise to change course to port
- turn the Control Dial clockwise to change course to starboard

Example

| Wind | | SWA changes to 39°. Boat comes to new wind angle of 39° | Wind | | SWA changes to 41°. Boat comes to new wind angle of 41° |

SWA = 40°

SWA = 40°
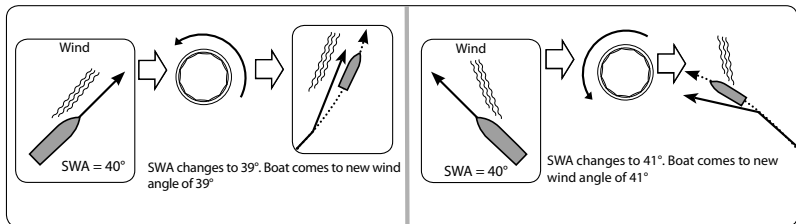
3-9   Dodge

A dodge is a sharp change of course, usually to avoid an obstacle.

- press ⟨⟨ to dodge to port by the dodge angle
- press ⟩⟩ to dodge to starboard by the dodge angle.

The boat will change course by a preset dodge angle. To dodge further, press ⟨⟨ or ⟩⟩ more times. To view or change the dodge angle, go to *Dodge angle* in the Options menu (see section 6-3).

3-9-1   Dodging in compass mode

Heading = 45°
CTS = 45°

⟨⟨

CTS changes by the dodge angle.
Boat comes to new heading.

Press **ENT** to continue on the **new** heading

or

Press **ESC** to resume the earlier heading

3-9-2 Dodging in GPS mode

CTS changes by the dodge angle.
Boat comes to new heading.

Press ESC to resume the earlier heading

WARNING: The G-PILOT 3380 will steer back to the GPS plotted course. Make sure there are no obstacles or dangerous waters in the way.

3-9-3 Dodging in wind mode

Wind

SWA = 40°

SWA changes by the dodge angle. Boat comes to new wind angle.

The G-PILOT 3380 beeps.

Press ESC to resume the earlier wind angle

3-10   Turn modes

The G-PILOT 3380 can follow a preprogrammed turn sequence. The G-PILOT has three different turn modes:

Tack/Gybe: Auto-tacks the boat after a delay period. The tack angle and tack delay can be customised. Gybes can be disabled.

90º turn: The boat turns through 90º

180º turn: The boat turns through 180º

Availability:	Compass	GPS	Wind
Tack/Gybe	yes	no	yes
90º	yes	no	no
180º	yes	no	no

3-10-1 Auto tacking in compass mode

Auto tacking is intended to tack a sailing boat. The course to steer changes by the tack angle.

- press ⓨ, select Tack/Gybe then press ⓐ to tack to port by the tack angle
- press ⓨ, select Tack/Gybe then press ⓑ to tack to starboard by the tack angle.

Press ⓨ to initiate a tack to port or starboard.

Press ⓐ or ⓑ to select tack direction

Ⓐ The boat sails straight while the G-PILOT 3380 counts down the tack delay.

The unit gives a long beep at 60 and 30 seconds to go, a short beep every second from 10 seconds to 1 second to go and a long beep that finishes when the countdown ends.

Course after tacking

Course prior to tacking

delay count

Ⓑ The tack is finished when the boat reaches the new heading

3-10-2 Turns in compass mode

To change course by 90˚

- press ⓨ, select 90˚ turn then press ⓔ to turn to port by 90˚
- press ⓨ, select 90˚ turn then press ⓓ to turn to starboard by 90˚

To change course by 180˚

- press ⓨ, select 180˚ turn then press ⓔ to turn to port by 180˚
- press ⓨ, select 180˚ turn then press ⓓ to turn to starboard by 180˚

Press ⓨ to initiate a 90˚ or 180˚ turn to port or starboard.

Press ⓔ or ⓓ to select turn direction

Warning: When auto-tacking (in Compass Mode), the course to steer changes by the tack angle. The G-PILOT does not use data from any wind instrument. It is possible for the boat to gybe or to end in irons (head to wind).

Note: To tack to a fixed wind angle, use the G-PILOT in Wind mode (see section 7-3). To view or change the tack angle or the tack delay, go to tack mode, tack angle or tack delay in the Options menu (see section 6-3). Gybe angle is not used in Compass mode.

3-10-3 Auto tacking or gybing in wind mode

If the set wind angle (SWA) is 90° or less, the boat tacks, if the SWA is more than 90° the boat gybes. After the tack or gybe, the SWA is the same as the SWA before the tack or gybe, but from the other side.

- Press ⓨ, select Tack/Gybe then press ⓐ to tack or gybe to port
- Press ⓨ , select Tack/Gybe turn then press ⓑ to tack or gybe to starboard

 Example:

SWA is 40°, so the boat will tack, not gybe. If the tack angle is not set to Auto, the boat changes direction twice:

- first by the tack angle
- second so that SWA is the same as before the tack or gybe, but on the other side:

5 The tack is finished when the boat reaches the new wind angle

4 After the boat has reached the tack angle, the boat turns again so that the SWA (set wind angle) is the same as the SWA before the tack, but from the other side

3 At the end of the tack delay, the course changes by the tack angle (in this example, the tack angle is not set to Auto). The boat turns.

To cancel the tack at any time, press ⓔⓢⓒ

2 The boat sails straight while the G-PILOT 3380 counts down the tack delay.

The unit gives a long beep at 60 and 30 seconds to go, a short beep every second from 10 seconds to 1 second to go and a long beep that finishes when the countdown ends.

Wind

SWA = 40°

1 Press ⓨ, select Tack/Gybe then press ⓐ to initiate a tack to port.

0:03 3 seconds to go until the tack starts

Example:

SWA is 120°, so the boat will gybe. The tack angle is not set to Auto:

Wind

(1) Press ⓨ, select Tack/Gybe. Then press ⊙ to initiate a gybe to starboard

(2) The G-PILOT 3380 counts down the tack delay.

To cancel the gybe at any time, press ⟨ESC⟩

(3) The course changes by the gybe angle

(4) The course changes again so that the SWA is the same as the SWA before the tack

(5) End of tack, boat is at new SWA
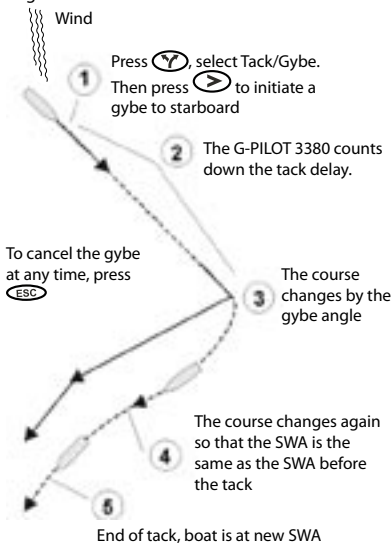
Example:

SWA is 40°. The tack angle is set to Auto so the boat changes direction once:

(5) End of tack, boat is at new SWA

(4) The course changes so that the SWA is the same as the SWA before the tack

To cancel the gybe at any time, press ⟨ESC⟩

Wind

(3)

(2) The G-PILOT 3380 counts down the tack delay.

(1) Press ⓨ, select Tack /Gybe then press ⊙ to initiate a tack to port
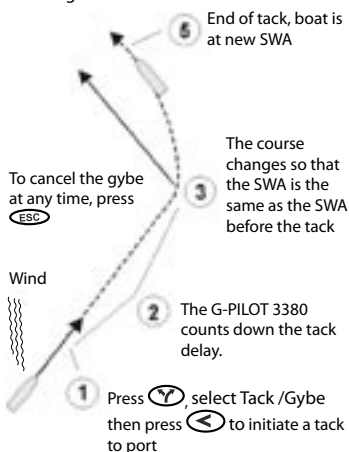
If SWA is more than 90° and the gybe angle is set to AUTO then the boat will change direction once during a gybe, so that the SWA is the same as the SWA before the gybe.

There are four possibilities for auto tacking or gybing:

Tack (SWA is 90° or less)   Gybe (SWA is more than 90°)

Wind

Press ⓨ, select Tack/Gybe then press ⊙ to tack to port.

Press ⓨ select Tack/Gybe then press ⊙ to tack to starboard.

Press ⓨ select Tack/Gybe then press ⊙ to gybe to port.

Press ⓨ select Tack/Gybe then press ⊙ to gybe to starboard.

Note: To view or change the tack mode, tack angle, gybe mode, gybe angle or tack delay, go to the Options menu (see section 6-3).

3-11   Power steering

When the G-PILOT is in **STBY** mode the helmsman must steer the boat manually. However the G-PILOT has power steering control modes available while in **STBY** mode:

To Jog Steer to port:

- hold down ⬅ to turn the rudder to port

To Jog Steer to starboard:

- hold down ➡ to turn the rudder to starboard

Follow-up steering:

- turn the Control Dial to set the desired position of the rudder (this function is disabled until the rudder feedback unit and the compass have been calibrated [see section 6-8])

- a popup window will appear at the bottom of the screen indicating the desired position and the current position of the rudder.

- the rudder will move to the desired position.

- To stop the rudder turning, press ESC, ⬅ or ➡.

To centre the rudder:

- press and release ⬅ + ➡ together to turn the rudder to amidships (this function is disabled until the rudder feedback unit and the compass have been calibrated [see section 6-8])

- To stop the rudder turning to amidships press ESC, ⬅ or ➡

Warning: Until the rudder feedback unit is calibrated, there is no rudder limit and the user must ensure that the rudder is not driven onto an end stop when using jog steering (damage may occur).

3-12   Alarms

There are several alarms that monitor the condition of the G-PILOT system, these alarms can not be adjusted. There are also alarms that can be enabled to automatically detect certain conditions, such as low battery.

Alarms that are enabled are shown as black icons in the alarm status box on the G-PILOT 3380 header.

When an alarm is triggered:

- the beeper sounds
- the external alarm sounds or lamp illuminates (if connected)
- the bezel backlight on the G-PILOT 3380 flashes
- the alarm window is displayed
- and the alarm status icon is shown in the color corresponding to the severity of the alarm.

Press ENT or ESC to acknowledge and reset the alarm. This action does not disable the alarm.

- Alarms can be set: *Menu* > *Setup* > *Alarms* menu (see section 6-5).

Severity	Alarm tone	Color	Description
Info	Single beep	Blue	Information message, does not affect G-PILOT operation.
Warning	Slow beeping	Black	A low priority event has occurred.
Caution	Moderate beeping	Yellow	An event has occurred that may require corrective action.
Severe	Rapid beeping	Orange	An important event has occurred requiring immediate attention.
Critical	Rapid beeping, low tone	Red	A critical problem is preventing the G-PILOT from controlling the boat, manual steering is required immediately.

3-12-1 The alarm window

The alarm window shows a list of the latest active alarms. The most severe alarms appear at the top of the list.

Turn the Control Dial to stop the G-PILOT 3380 from beeping.

Select 'Details' to acknowledge the displayed alarms and jump directly to the Alarm history screen.

Select 'OK' to acknowledge the displayed alarms.

3-12-2 Active alarms

The Active alarms screen shows a list of the currently active alarms.

To show the Active alarms screen:

- Select 'Active alarms' in the Display menu or,
- Go to Menu > Setup > Alarms > Active alarms.

Turn the Control Dial to select an alarm in the list and press ENT to see the Alarm details.

3-12-3 Alarm history

The G-PILOT 3380 keeps a record of alarms. The Alarm history screen shows a list of up to 18 recorded alarm events.

To show the Alarm history screen:

- Select 'Details' from the alarm window or,
- Go to Menu > Setup > Alarms > Alarm History.

Turn the Control Dial to select an alarm in the list and press ENT to see the Alarm details.

3-12-4 Alarm details

The alarm details window shows extra detail on an individual alarm.

3-13 Keylock

When keylock is activated, the G-PILOT 3380 will ignore most key presses.

- To turn keylock on:

Press and hold the DISP key for 2 seconds. A 'Keys locked' message will appear and a small lock icon will appear on the lower right-hand display. 🔒

- To turn keylock off:

Press and hold the DISP key for 2 seconds. A 'Keys unlocked' message will appear and the keys are re-enabled.

3-14 Simulate mode

If the word 'Simulate' flashes on the display, then the unit is in simulate mode.

- Simulate mode allows you to become familiar with the unit off the water.
- Simulate mode can be turned on or off: Menu > Setup > Simulate menu.
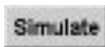
Simulate

Warning: Do not use simulate mode while at sea.

4 The displays

Press ⊙ISP key to show the Display menu, select a display option using the Control Dial and press ⊂ENT⊃.

Tip: Repeated pressing ⊙ISP will cycle the menu selection and will automatically select after 1 second.

4-1 Display > Basic

Displays a standard G-PILOT display with just the essential G-PILOT data.

Display area		Function
①	**Drive indicators**	Left and right boxes light up to indicate when the G-PILOT is driving the rudder
②	**Heading**	Large digits show the heading of the vessel
③	**Info panel**	This panel can be configured to display different data items. Default: Automatically switches between Rudder angle, Course error and Cross track error.
④	**Set course**	**STBY** mode: shows '---' since the set course is not valid in standby mode. **AUTO** mode: digits show the current course to steer (CTS), except for **WIND** mode: digits show the current set wind angle (SWA) The colored ring is *yellow* in **STBY** mode, *green* in **AUTO** mode, *magenta* in **H-STEER** mode and *red* when there is a critical alarm
⑤	**Steering mode panel**	Shows the steering mode (COMPASS, GPS, WIND)
⑥	**Operating mode panel**	Shows the operating mode (Standby, Auto, H-Steer). Panel changes to blue when in **AUTO** mode.

Options menu:

Data setup - Selects what data is displayed in the info panel.

Auto Rd/CE/XTE – Automatically switches the displayed data between rudder, course error and cross track error depending on the operating mode.

Course error – Shows a course error bar in the info panel.

Rudder angle – Shows a rudder angle gauge in the info panel.

XTE – Shows a cross track error bar in the info panel.

Basic displays

4-2   Display > G-PILOT

Displays an advanced G-PILOT display with essential G-PILOT data.

Display area		Function
①	**Data Header**	Customizable data cells. Each display page has a separate header configuration. Default: Voltage, Current, Alarm Status (see section 5).
②	**Heading**	Large digits show the heading of the vessel
③	**Drive indicators**	Left and right boxes 'fill up' to indicate when the G-PILOT is driving the rudder and how much power is being used by the drive system
④	**Numerical data panels**	Customizable data cells. Default: Course to steer, Course error.
⑤	**Bar data panels**	Customizable indicator bar. Default: Automatically switches between Rudder angle, Course error and Cross track error.
⑥	**Mode panel**	Left hand side: shows the steering mode (COMPASS, GPS, WIND) Right hand side: shows the operating mode (Standby, Auto, H-Steer) inside a colored tab.
		Panel changes to blue when in **AUTO** mode. The colored tab is yellow in **STBY** mode, green in **AUTO** mode, magenta in **H-STEER** mode and red when there is a critical alarm.

Options menu:

Header   Menu for configuring the data header in this display (see section 5).

Data setup   Enters the data set-up mode. Use the Control Dial to highlight a data cell, press ⊂ENT⊃ to display a list of data types that can be displayed in that cell.

G-PILOT displays

4-3   Display > Compass

Displays a standard G-PILOT display with just the essential G-PILOT data.

	Display area	Function
①	**Data Header**	Customizable data cells. Each display page has a separate header configuration. Default: Course to steer, Heading, Alarm Status (see section 5).
②	**Drive indicators**	Left and right boxes 'fill up' to indicate when the G-PILOT is driving the rudder and how much power is being used by the drive system
③	**Compass card**	Compass card rotates to show the heading of the vessel under the lubber mark.
④	**Course arrow**	**STBY** mode: points to the current heading **AUTO** mode: points to the set course, except for: **GPS** mode: points to the bearing to waypoint
⑤	**Deviation bar**	Moves laterally to show course information. *Note:* This bar can be configured to display different items. Default: Automatically switches between Rudder angle, Course error and Cross track error.
⑥	**Deviation scale**	Indicates what data the deviation bar is currently showing and the magnitude
⑦	**Mode panel**	Left hand side: shows the steering mode (COMPASS, GPS, WIND) Right hand side: shows the operating mode (Standby, Auto, H-Steer) inside a colored tab. Panel changes to blue when in **AUTO** mode. The colored tab is yellow in **STBY** mode, green in **AUTO** mode, magenta in **H-STEER** mode and red when there is a critical alarm.

Options menu:

Deviation bar Selects what data is displayed by the deviation bar.

Auto Rd/CE/XTE – Automatically switches the deviation bar between rudder, course error and cross track error depending on the operating mode.

Course error – Shows course error using the deviation bar.

Rudder angle – Shows rudder angle using the deviation bar.

XTE – Shows a cross track error bar using the deviation bar.

Header – Menu for configuring the data header in this display (see section 5).
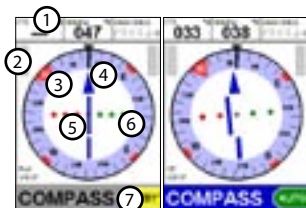
Compass displays

4-4 Display > Data

The data display shows one large data cell, two smaller data cells and a data history graph. Each is these items can be configured to display a range of data types. The graph is useful for analysing the performance of the G-PILOT.

	Display area	Function
①	**Big data cell**	Customizable data cell. Default: Rudder angle.
②	**Small data cells**	Customizable data cells. Default: Voltage, G-PILOT Status.
③	**History graph**	This graph plots data over a period of time. There are two graph series that can be configured, red and green. Default: Rudder angle, Course error.
④	**Time base**	The time base of the graph can be set from 2 minutes to 1 hour. This is the amount of time it takes for new data to scroll from the right hand side to the left hand side.

Options menu:

Data setup Enters the data set-up mode. Use the Control Dial to highlight a data cell, press ⟨ENT⟩ to display a list of data types that can be displayed in that cell.

Time base - Selects the time base of the history graph. Select 2 min, 4 min, 10 min, 20 min or 1 hour.
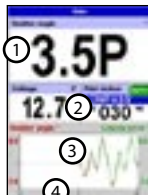
Data display

4-5 Display > Active alarms

Shows a list of the currently active alarms (see section 3-12-2).

5 Data headers

 Data headers are available on the G-PILOT and Compass screens. A data header is a customizable feature that can be used to display up to 6 different data items, such as boat speed or alarm status. The G-PILOT and Compass screens have separate settings for the data header.

Header menu:

Data   Turns the data header completely on or off.

Data setup
Enters the data set-up mode. The Data header expands to display all 6 possible data cells. Some data cells may be blank. Use the Control Dial to highlight a data cell, press ⟨ENT⟩ to display a list of data types that can be displayed in that cell.

Size
   Selects the size of the data header items. Select Small, Medium or Large.

6 Menus

Many of the G-PILOT 3380 features and functions are operated through menus.

- To scroll through menu items, scroll through items in a list or change data use the Control Dial. Clockwise scrolls across/down or increments data.
- To select a menu item press ⒺⓃⓉ.
- To go back to the previous menu press ⒺⓈⒸ.
- To accept changes press ⒺⓃⓉ.
- To discard changes press ⒺⓈⒸ.

Note: Some menu items in the G-PILOT 3380 menus utilize checkboxes.

- If the box is 'checked' (contains a check or tick), then that function is selected (enabled) or ON.
  Key beep   ☑

- If the box is 'un-checked' (does not contain a check or tick), then that function de-selected (disabled) or OFF.
  Key beep   ☐

- To select or de-select a checkbox, highlight the menu item using the Control Dial and press ⒺⓃⓉ. The change will happen immediately.

The main menu for configuring the G-PILOT 3380 is the Setup menu. Press ⓂⒺⓃⓊ until the Setup menu is displayed (normally twice).

The Setup menu and options are summarized in this chapter. The factory default settings are shown where applicable. Each Setup menu option is explained in the following sections.

6-1   Setup > System

Language
Select the language for the display. The options are: English, Italian, French, German, Spanish, Dutch, Swedish, Portuguese, Finnish and Greek.

Tip: In case you can't read the current language, the language setting is the first item in the system menu.

Backlight

The backlight pop-up is displayed (see also section 3-4).

The bar setting represents the current level of backlighting.

Night Mode –Allows low contrast Night mode.

Auto – allows night mode to be selected in backlight pop-up

On – night mode is active all the time

Off – night mode is not available

Key beep
Enables or disables an audible beep when a key is pressed or Control Dial is rotated.

Auto power off
Select to have the G-PILOT power off automatically every time the boat's ignition is switched off. This applies only if the display unit is wired for Auto Power (see installation manual).

About
Displays information about the unit.

Factory Reset Resets all settings to the factory default settings. A warning box asks: Are you sure? Select *Yes* and press ⒺⓃⓉ to confirm, or *No* or ⒺⓈⒸ to cancel.

Main control unit – Resets the MCU's settings

Head unit – Resets just this head unit's settings

Both – Resets the MCU's settings and this unit's settings

SmartCraft™ Select to enable SmartCraft functions. SmartCraft is only available with certain Mercury engines, and requires a SmartCraft Gateway. For more information refer to the SmartCraft manual included with the SmartCraft gateway.

6-2 Setup > Profiles

Profiles are used to store a range of G-PILOT settings for different sea, environmental and vessel conditions. Up to 5 user profiles may be configured (see section 8-2).

Profiles	
Profile	User 1
Edit name	
Parameters ▸	

Profile
Select the current profile to use.

Edit name
Use to edit the name of the currently selected profile (see section 8-2).

Parameters
Opens the Parameters menu (see section 8-1).

6-3 Setup > Options

Options can be selected to set G-PILOT operating limits:

Options	
Dodge angle	10 °
Tack mode	Auto
Tack angle	
Gybe mode	Auto
Gybe angle	
Tack delay	30 s
Turn rate	10 °/s

Dodge angle
Sets size of the dodge angle steps in degrees.

Minimum = 5˚; maximum = 30˚

Tack mode
Auto – vessel tacks to the same set wind angle but on the opposing tack.

Set angle – vessel tacks through an angle set in Tack angle, then steers to the same set wind angle but on the opposing tack.

Tack angle
Set tack angle if Set angle is selected in Tack mode.

Minimum = 50˚; maximum = 160˚

Gybe mode
Off – gybing is disabled.

Auto – vessel gybes to the same set wind angle but on the opposing tack.

Set angle – vessel gybes through an angle set in Gybe angle, then steers to the same set wind angle but on the opposing tack.

Gybe angle
Set gybe angle if Set angle is selected in Gybe mode

Minimum = 40˚; maximum = 140˚

Tack delay
Set delay that the G-PILOT will use from the time a Tack is requested to the time a Tack is carried out by the G-PILOT.

Minimum = 0; maximum = 120 (seconds)

Turn Rate
Set the maximum turn rate you want the G-PILOT to use.

Minimum = 3; maximum = 20 (˚/second)

6-4 Setup > Vessel

Vessel type can be selected to alter the performance characteristics of the G-PILOT depending on the vessel hull type:

Vessel	
Vessel type	Sailing
Drive type	Motor
Wind features	☑

Vessel type
Select Planing, Displacement or Sailing.

Warning: Changing the vessel type causes the steering parameters to be reset to default values in the current profile.

Drive type
Configures the G-PILOT to drive the type of steering system. See installation manual for details.

Wind features
Controls whether wind features such as Tack/Gybe are accessible.

6-5 Setup > Alarms

Some of the G-PILOT alarms are user configurable. Alarm trigger settings can be defined to suit the boat and individual preferences as follows:

Course error

The alarm will sound if the vessel strays from its intended course by more than the set error. Set OFF or a value in degrees.

Minimum = 1˚; maximum = 90˚

XTE

Cross Track Error – The alarm will sound if the vessel strays from it's intended track by more than the set error. Set OFF or a value in nautical miles.

Minimum = 0.01; maximum = 2.0 (nautical miles)

Waypoint akn

The alarm will sound and ask the user for confirmation, when in GPS mode, when arriving at a waypoint before steering to the next waypoint.

Set ON or OFF.

Wind shift

The alarm will sound if, when in Wind mode, the wind shifts by more than the set angle since engaging **AUTO.**

Set OFF or a value in degrees.

Minimum = 1˚; maximum = 90˚

Low battery

The alarm will sound if the vessel battery voltage is below the setting.

Set OFF or a value in Volts.

Minimum = 7; maximum = 14 (Volts)

High current

The alarm will sound if the current drawn from the battery by the rudder drive system exceeds the setting.

Set a value in Amps.

Minimum = 5; maximum = 20 (Amps)

Active alarms

Displays a list of currently active alarms (see section 3-12-2).

Alarm history

The G-PILOT 3380 keeps a record of alarms. Displays the alarm history list (see section 3-12-3).

Clear alarm history

Allows the alarm history to be cleared.

A warning box asks: *Are you sure?*

Select Yes and press ⬚ENT to confirm, or No or ⬚ESC to cancel.

6-6 Setup > Units

Select the units you prefer the G-PILOT to display:

Distance

All distance readings are displayed in the selected units.

nm (nautical miles), mi (miles), km (kilometers)

Compass

All compass readings are displayed in the selected units.

°T (degrees True), °M (degrees Magnetic)

Magnetic variation

Set the local magnetic variation in degrees.

Minimum= -°90(W); maximum= +°90(E) (degrees)

Wind

All wind readings are displayed in the selected units.

App (Apparent), True (True)

6-7 Setup > Comms

Comms
NMEA mode : **Input**
NavBus group 1

Use this feature when the G-PILOT is connected to other Navman instruments through NavBus or any compatible NMEA instrument.

NMEA mode

Select NMEA port mode.

Input – NMEA port can receive NMEA data

Slow – NMEA port outputs heading and rudder angle once per second

Fast – NMEA port outputs heading data ten times per second

NavBus group

Use this when a group of Navman instruments are connected together using NavBus, to specify a group of instruments for backlighting, if required. Then, if the backlight setting on one instrument in the group is adjusted, the other instruments change automatically. Otherwise, select 0.

6-8 Setup > Calibrate

Calibrate
Compass
Rudder

Align heading
Centre rudder

The calibrate wizard screens are used during the initial G-PILOT installation stage or if any previously installed G-PILOT transducers have changed or moved.

It is vital to the performance of the G-PILOT that the transducers are installed in the best location and carefully calibrated.

Compass

Use this calibration wizard to calibrate the compass.

Follow the on-screen instructions:

- Slowly turn boat 2.5 times, observing the turn rate indicator
- Align heading – press <ENT> and dial in the current heading
- Accept calibration
- Calibration complete

Rudder

Use this calibration wizard to calibrate the rudder.

Follow the on-screen instructions:

- Center the rudder
- Turn rudder to Maximum Port
- Turn rudder to Maximum Starboard
- Set angle – press <ENT> and dial in the current rudder angle
- Center the rudder
- Stand clear of the rudder and linkages so the G-PILOT can test the limits.
- Testing limits – press <ESC> at any time to abort the calibration
- Accept calibration
- Calibration complete

Align heading

Use to align the compass to the actual boat heading. If a compass calibration has recently been performed, it is not necessary to align the heading again.

Use the manual helm to sail a straight course and ensure the boat heading does not change during this procedure. Use an accurate reference compass or external GPS to find the actual boat heading. If you are using an external GPS, sail as fast as convenient to ensure the heading is accurate.

Enter the actual course heading.

Minimum = 0°; maximum = 359° (degrees)

Center Rudder

Use to set the rudder center position. If a rudder calibration has recently been performed, it is not necessary to set the rudder centre position again. Ensure the rudder is in the center position and that there is no cross-wind or tidal current affecting the rudder.

Select OK and press <ENT> when the rudder is centered.

6-9 Setup > Simulate

Turn simulate mode on and off
(see section 3-14).

7   Steering modes

Important:

- The G-PILOT cannot control the boat better than a helmsman. The G-PILOT is not intended for use in extreme weather, in adverse conditions or near other boats, dangerous waters or land. In these conditions, disengage the G-PILOT and steer manually.

- Never leave the helm unattended, keep a watch at all times and be ready to resume steering the boat manually.

- Do not try to turn the rudder by hand when the G-PILOT is engaged.

- Local variations in magnetic field can affect the accuracy of the compass heading. Such variations are the responsibility of the user.

7-1   Compass steering mode

The G-PILOT has three ways of steering the boat, compass, GPS and wind. To select an appropriate mode, see section 3-7. In Compass mode, the G-PILOT steers the boat to a set course, called CTS (Course to steer).

7-1-1   Compass steering data

Actual boat heading is 45°   Course error = 10°

CTS (course to steer, the intended G-PILOT course) 55°
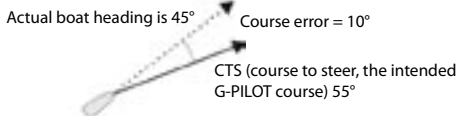
7-1-2 Engaging and disengaging the G-PILOT in compass mode

Manually steer the boat to open waters. Sail straight on the intended course.

For example:

Heading = 45°

COMPASS
Standby

To engage AUTO, press (AUTO)

To engage H STEER, hold (AUTO)

AUTO:

COMPASS
Auto

The G-PILOT steers the boat automatically.

The G-PILOT 3380 sets CTS (course to steer) to the current heading, in this example 45°, and starts steering on this course.

HANDSTEER:

COMPASS
H-Steer

Steer the boat manually. Display CTS in the info data or course error in the bar data and use these to steer by.

Heading = 45°
CTS = 45°

To disengage the G-PILOT, press (STBY)

The G-PILOT returns to **STBY** mode. Steer the boat manually.

7-2   GPS steering mode

The G-PILOT has three ways of steering the boat, compass, GPS and wind. To select an appropriate mode, see section 3-7. In GPS mode, the G-PILOT uses data from a GPS to steer the boat along a route or to a waypoint.
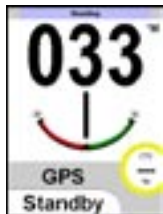
7-2-1   GPS navigation data
Navigating to a waypoint:
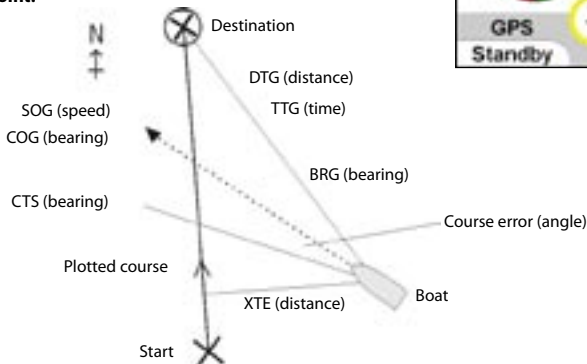
The boat is sailing from the start to the destination and has moved off the GPS plotted course from the start to the destination:

BRG	**Bearing to destination**
	The bearing to the destination from the boat.
COG	**Course over ground**
	Direction in which the boat is moving over the ground.
CE	**Course error**
	The difference between CTS and the boat heading.
CTS	**Course to steer**
	Optimum course to steer to return to the plotted course.
DTG	**Distance to go**
	Distance from the boat to the destination.
SOG	**Speed over ground**
	The current boat speed over the ground. This is not necessarily the same as the boat speed through the water nor the speed at which the boat is approaching the destination.
TTG	**Time to go**
	The estimated time to reach the destination.
XTE	**Cross track error**
	The distance from the boat to the nearest point of the plotted course. XTE may have a letter: R means steer to the right to return to the plotted course, L means steer to the left.

7-2-2 Engaging and disengaging the G-PILOT in GPS mode

Manually steer the boat to open waters. Start the GPS navigating to a waypoint, either a waypoint on a route or a single waypoint.

GPS plotted course to a waypoint

BRG (direction of GPS course)

XTE (distance to GPS course)
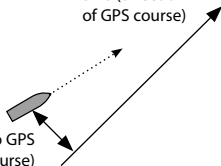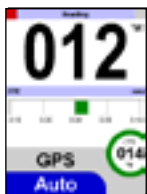
GPS
Standby

To engage AUTO, press (AUTO)

To engage HAND STEER, hold (AUTO)

AUTO:

GPS
Auto

The G-PILOT steers the boat automatically.

HANDSTEER:

GPS plotted course

GPS
H-Steer

Steer the boat manually. Display CTS in the info data or course error in the bar data and use these to steer by.

When the G-PILOT 3380 is engaged, if the XTE is more than 0.05 nm or the boat heading is not within 30° of BRG then the G-PILOT 3380 displays a warning:

Boat is significantly off course, are you sure you want to engage autopilot?

Cancel | OK
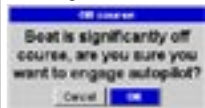
Press (ESC) to remain in **STBY** mode or press (ENT) to have the G-PILOT 3380 steer the boat to the course.

When the G-PILOT 3380 is engaged, it uses data from the GPS to steer the boat along the plotted course to the waypoint.
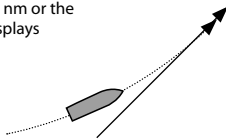
To disengage the G-PILOT, press (AUTO)

The G-PILOT returns to **STBY** (standby). Steer the boat manually.

7-2-3 Arriving at waypoints

If the GPS is following a route and the boat reaches an intermediate waypoint:

If the Waypoint Acknowledge alarm (see section 6-5) is off, the G-PILOT automatically starts steering to the next waypoint in the route. If the Waypoint Acknowledge alarm is on, the G-PILOT shows the following alarm:

The G-PILOT continues steering on the old course. Select "*OK*" to start steering to the next waypoint.

When the boat reaches the final waypoint, the G-PILOT shows the following alarm:

The G-PILOT continues steering on the old course. Select "*OK*" change to Compass mode and continue sailing at the current heading. Press (STBY) to return to **STBY** mode.

Note: To return to the last waypoint if the boat has passed the waypoint, restart the GPS navigating to the waypoint.

7-2-4 GPS gain

In GPS mode, The GPS gain determines how much correction is applied to remove cross track error. A high setting will cause the G-PILOT to steer quickly back towards the track. A low setting will cause the G-PILOT to steer very gently back towards the track.

7-3   Wind steering mode

The G-PILOT has three ways of steering the boat, compass, GPS and wind. To select an appropriate mode, see section 3-7. In wind mode, the G-PILOT steers the boat to a set angle to the wind, called SWA (set wind angle).

7-3-1   Wind steering data
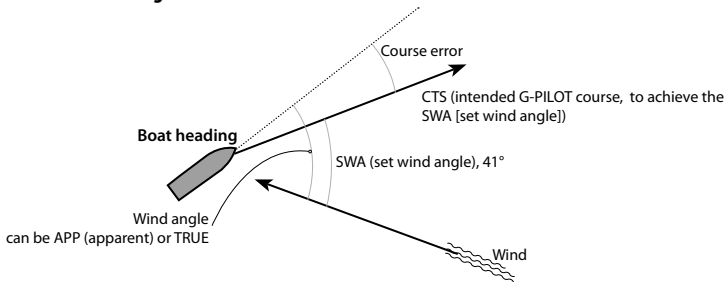
APP	**Apparent wind angle**	The apparent wind angle at the boat. P in front of the angle means the wind is from port, S means that the wind is from starboard.
CTS	**Course to steer**	The course to steer to maintain the SWA (set wind angle).
	Course error	The difference between APP (wind angle) and SWA (set wind angle).
SWA	**Set wind angle**	The desired wind angle.
TRUE	**True wind angle**	The true wind angle at the boat. P in front of the angle means the wind is from port, S means that the wind is from starboard.

7-3-2   True and apparent wind speed and direction

Apparent wind speed and direction are the values measured on the boat. True wind speed and direction are the values after allowing for boat speed through the air.

If the boat is moving, then the apparent wind speed is different to the true wind speed and the apparent wind direction is different to the true wind direction, as shown below.

Boat at rest

True wind speed is the same as apparent wind speed and true wind direction is the same as apparent wind direction

Boat is at rest
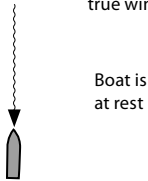
Boat moving upwind

Apparent wind speed is greater than true wind speed and apparent wind direction is closer to dead ahead than true wind direction

True wind direction 45°

True wind speed 20 kts

Boat speed 10 kts

True wind speed 20 kts

Apparent wind speed 28 kts

Boat speed 10 kts

Apparent wind direction 30°

Apparent wind speed 28 kts
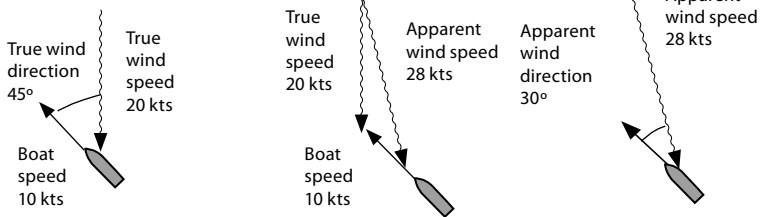
Boat moving downwind

Apparent wind speed is less than true wind speed and apparent wind direction is closer to dead ahead than true wind direction

True wind speed 20 kts

True wind direction 135°

Boat speed 10 kts

Apparent wind speed 15 kts

True wind speed 20 kts

Boat speed 10 kts

Apparent wind speed 15 kts

Apparent wind direction 107°

7-3-3 Engaging the G-PILOT in wind mode

Manually steer the boat to open waters. Sail straight at the intended wind angle.

The G-PILOT 3380 info data can display TRUE (true wind angle) or APP (apparent wind angle) (see section 3-4)
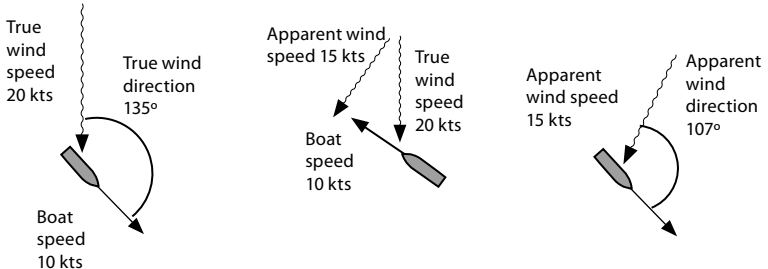
For example:

Wind
APP = P40°

SWA = 45°

To engage AUTO, press (AUTO)
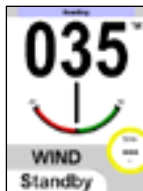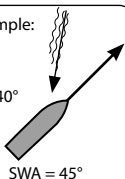
To engage HAND STEER, hold (AUTO)

AUTO:

The G-PILOT steers the boat automatically.

HANDSTEER:

GPS plotted course

Steer the boat manually. Display CTS in the info data or course error in the bar data and use these to steer by.

The G-PILOT 3380 sets CTS (course to steer) to the current heading, in this example 45°, sets SWA (set wind angle) to the current wind angle and starts steering at this wind angle.
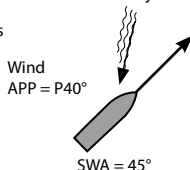
Wind
APP = P40°

SWA = 45°

To disengage the G-PILOT, press (AUTO)

The G-PILOT returns to **STBY** (standby). Steer the boat manually.

The G-PILOT 3380 can also be engaged on the starboard tack, for example:

Wind

APP = S40°
SWA = 40°
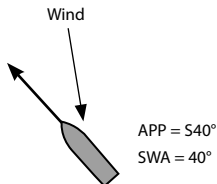
or when running, for example:

Wind

APP = S120°
SWA = 120°
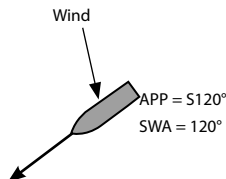
7-3-4 Wind gain

In GPS mode, The wind gain determines how much correction is applied to reduce any difference between the set wind angle and the actual wind angle. A high setting will cause the G-PILOT to be strongly affected by changes in the wind. A low setting will cause the G-PILOT to be very mildly affected by changes in the wind.

8   Optimising steering performance

8-1   Steering parameters

The G-PILOT has seven steering parameters which can be adjusted to optimize steering performance. Select the Advanced checkbox to view all parameters.

These parameters can be adjusted using the Parameters menu. To adjust the parameters, go to *Menu > Setup > Profiles > Parameters* (see section 6-2). From the Basic, G-PILOT or Compass screens, press ⒺⓃⓉ to open the Parameters menu directly.

Adaptive
This is an adaptive response setting where the G-PILOT adjusts how far the boat can move off course to maintain a constant rate of rudder corrections. The adaptive setting eliminates the need to set the response according to varying weather conditions.

• The range is A1 (adapts slowly) to A5 (adapts quickly).

Response (dead band)
How far the boat will be allowed to fall off course before it makes a correction. A lowest response setting lets the boat fall very far off course before the G-PILOT corrects. The highest response setting corrects for every boat movement

• The range is 1 (broad course keeping) to 10 (tight course keeping).

Ratio (gain)
How far the rudder moves relative to the degrees of course error

• The range is 1 (small corrections) to 10 (large corrections).

Trim
Trim gain -(Integral gain) Watches if the boat is off course consistently in one direction (Ex. Due to a strong wind, or poor weight distribution).Trim Gain causes the G-PILOT to slowly apply extra rudder in the opposite direction to correct for the course error.

• The range is 1 (trim slowly) to 10 (trim quickly) and 0 (OFF no trim effect).

C-rudder
Counter rudder gain – (derivative gain) At the end of the turn, counter rudder will steer in the opposite direction to help stop the turn at the desired heading. If the boat is turning quickly towards the set course, the G-PILOT with start to apply rudder in the opposite direction to prevent to boat steering past the desired direction, this is called counter rudder. Counter rudder gain sets how strong this effect is.

• The range is 1 (low: Most often used with a plaining boat) to 10 (high : Most often used with a sail boat or displacement boat) and 0 (OFF no counter rudder effect).

GPS gain
In GPS mode, this determines how much correction is applied to remove cross track error.

• The range is 1 (steer gently back on track) to 10 (steer quickly back on track).

Wind gain
In wind mode, this determines how much correction is applied to reduce any difference between the set wind angle and the actual wind angle.

• The range is 1 (slowly affected by wind change) to 10 (sensitive to wind change).

Optimum steering
Change the values of the steering parameters for optimum steering performance.

Generally:

• For calm seas, increase response; for rough seas (or to save power) decrease response.

• For higher boat speeds, decrease ratio; for lower speeds, increase ratio.

• In case of cross-winds or weather-helm, increase trim; In case of balanced steering, decrease trim.

• For large displacement boats and boats with insensitive steering, increase counter rudder; for lightweight boats and boats with responsive steering, decrease counter rudder.

- For higher boat speeds and large GPS routes, decrease GPS gain; for lower speeds and tight GPS routes, increase GPS gain.
- For higher and/or more stable winds, increase wind gain; for lower and/or unstable winds, decrease wind gain.

Ideally, in AUTO the G-PILOT should steer the boat to the course without the rudder moving too often.

8-2   Profiles

The G-PILOT provides five configurable steering profiles that can be quickly recalled to alter the G-PILOT's performance based on changing sea, environmental and vessel conditions.

- To change a profile go to: *Menu > Setup > Profiles > Profile* menu.

Each of the five profiles can be individually named and configured with different steering performance settings, and recalled as needed.

To name the currently selected profile, go to *Menu > Setup > Profiles > Edit* name then:

- Use the Control Dial, ⏎ and ⎋ to edit the name of the profile.
- Rotate the Control Dial to select numerical and upper and lower case alphabetical characters. Maximum number of alphanumeric characters is 8.
- Repeatedly press ⏎ to finish editing.

Note: When using more than one G-PILOT 3380, profile names are not transferred between units. So when naming profiles, be sure to name the profile on each G-PILOT 3380.

How to use profiles:

1. When the G-PILOT is installed, the steering parameters in all the profiles are set to their default values.
2. Select User 1, and adjust the steering parameters for optimum steering in typical conditions.
3. If the conditions change and the steering is no longer optimum, select another profile and adjust the steering parameters again Repeat this step as required to adjust the parameters in each profile.
4. When using the G-PILOT to steer, select a profile suitable for the current conditions. For example different profiles can be configured for rough conditions and calm conditions, sailing or motoring.
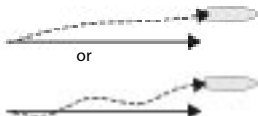
Problem: rudder turns too frequently

This causes wear on the steering linkage and uses power.

Decrease response.

Reduce ratio.

Reduce counter rudder gain.

Problem: drifts off course to one side

or

Increase ratio.

Increase trim gain.

Increase response.

Problem: boat moves too far off course closely before the rudder turns to correct the course

Decrease ratio.

Decrease counter rudder gain.

Decrease trim gain.

Problem: oscillations from side to side build up

Decrease ratio.

Problem: after a large course change, boat overshoots and oscillates before settling to new course

Increase counter rudder gain

Problem: after a large course change, boat takes too long to settle to new course

Decrease counter rudder gain

Problem: after a sideways current or wind, the correction is applied too quickly or too slowly

If the boat encounters a sideways force, then it will move off course sideways. The G-PILOT will automatically bring the boat back to the correct heading by applying a few degrees of rudder, called trim. Trim gain sets how quickly the trim is applied. Trim gain should be adjusted to trim the boat in about one minute. Getting the Trim gain setting right can be difficult for your specific boat and it is easy to alter the Trim gain too much. Change the settings slowly and conservatively at first, until the right settings are known.

a   Boat takes much more than one minute to trim
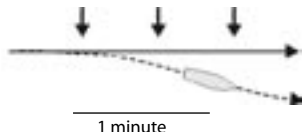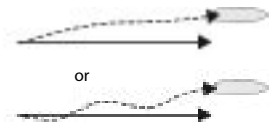

Increase trim gain

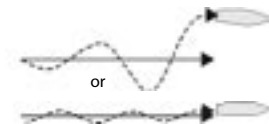b   Boat takes much less than one minute to trim
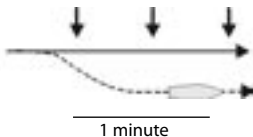
Decrease trim gain

Problem: drifts off GPS course

Increase GPS gain.

Problem: boat oscillated around GPS course

Decrease GPS gain.

9   Troubleshooting

This troubleshooting guide assumes that you have read and understood this manual.

It is possible in many cases to solve difficulties without having to send the unit back to the manufacturer for repair. Please follow this troubleshooting section before contacting the nearest Navman dealer.

There are no user serviceable parts. Specialized methods and testing equipment are required to ensure that the unit is reassembled correctly.

Repairs to the unit must only be carried out by a service centre approved by Navman NZ Limited.

Users who service the unit themselves will void the warranty. More information can be found on our Website: www.navman.com.

1   Unit will not turn on:

a   Fuse blown or circuit breaker tripped.

b   Battery voltage is outside the range 10.5 to 30.5 V DC.

c   Power/data cable damaged.

2   G-PILOT makes too frequent course corrections:

The value of response is too low (see section 8-1).

3   When sailing a straight course, the boat drifts from side to side of the course:

a   The boat should drift from side to side of the course when the G-PILOT steering is optimized.

b   Change to a profile suitable for boat speed and sea conditions (see section 8-2).

c   If the boat drifts too far from the course, adjust response, ratio, counter rudder gain, GPS gain (if G-PILOT is in GPS mode) or wind gain (if G-PILOT is in wind mode) (see section 8-1).

4   When sailing a straight course, the boat drifts off course:

a   Change to a profile suitable for boat speed and sea conditions (see section 8-2).

b   Adjust response, ratio, counter rudder gain, GPS gain (if G-PILOT is in GPS mode) or wind gain (if G-PILOT is in wind mode) (see section 8-1).

5   When making a large course change, boat does not follow the expected course:

a   Change to a profile suitable for boat speed and sea conditions (see section 8-2).

b   Check turn rate is not too low (see section 6-3).

c   Adjust counter rudder gain (see section 8-1).

6   Boat turns too sharply:

Reduce turn rate (see section 6-3).

7   The word SIMULATE flashes on the display, values displayed are unexpected:

Unit is in simulate mode (see section 3-14).

8   The display fogs:

a   Moist air has entered the breathing tube at the rear of the unit. Air the boat or run unit with backlight fully on.

b   Water has entered the breathing tube. Return unit for service.

10 Specifications

Electrical

Supply voltage: 10.5 to 30.5 V DC.
Supply current (at 13.8 V):
  Without backlighting: 160 mA.
  With full backlighting: up to 410 mA.
Other optional instruments: refer to the instrument's operation manual.

Interfaces

NavBus: connection to MCU and other Navman instruments.

Standards compliance

EMC compliance:

USA (FCC): Part 15 Class B

Europe (CE): IEC 60945:2002 Clause 9 & 10.
New Zealand and Australia (C Tick):
IEC 60945:2002 Clause 9.

Environment:

IPx6 and IPx7 - completely waterproof.

AP3380 Display unit power/data cable wires:		
Black connector - Power		
Pin	**Wire color**	**Signal**
5	Red	Power positive, 10.5 to 30.5 V DC
1	Black	Power negative
6	Orange	NavBus +
4	Blue	NavBus -
7	Yellow	Factory use (isolate, do not cut)
3	White	Factory use (isolate, do not cut)
8	Green	External alarm, switched to ground, 30 V DC and 250 mA max.
2	Brown	+9V out
Green connector - NavBus expansion		
Pin	**Wire color**	**Signal**
5	Red	Factory use (isolate, do not cut)
1	Black	Power negative
6	Orange	NavBus +
4	Blue	NavBus -
7	Yellow	Factory use (isolate, do not cut)
3	White	Factory use (isolate, do not cut)
8	Green	Factory use (isolate, do not cut)
2	Brown	+9V out

Lon 174° 44.535'E

Lat 36° 48.404'S

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