

Chapter 1. ST60 Wind instrument

Disassembly/reassembly

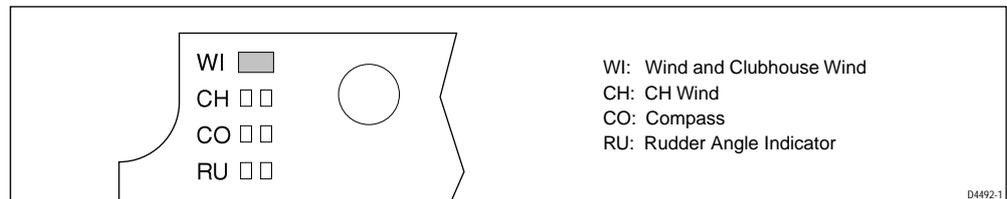
On reassembly (refer to Figure 1), it is important that the PCB assembly module is fixed to the facia (3) using a torque of 0.22Nm (2lb in). Similarly, fixing the rear case (13) to the facia (3) must also be torqued to 0.22Nm (2lb in).

Note: Failure to practice using the recommended torques may result in damage to the facia inserts.

It is also recommended a new case seal (12) is fitted on reassembly.

PCB identification

To aid identification of PCBs an identifying component has been included in the top left hand corner of the populated PCB.



Self-test procedure

The ST60 Wind instrument has built-in self-test functions to aid fault diagnosis.

To access self-test mode, press Key 1 and Key 4 together for 4 seconds. When the unit beeps, immediately press Key 3 and Key 4 together momentarily. The unit will enter self-test stage 1.

Self-test stage 1

- A. The unit should display **5 1** followed by **1 1**.
- B. There will be a SeaTalk transmission to check the transmit/receive circuits.
- C. The EEPROM is tested.

The following failure codes may be generated:

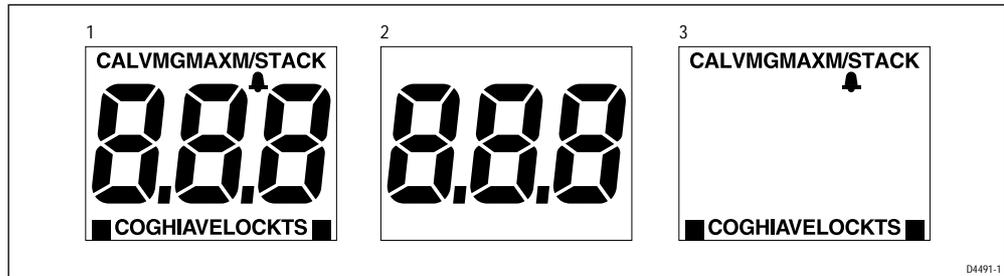
Message	Failure Mode	Action
F01	SeaTalk Rx/Tx	Check for damaged bucket connectors/rear-case pins. Check SeaTalk interface components around TR3 and TR5.
F02	EEPROM failure	Replace EEPROM (IC8)

If there is no audible beep, generated by the key presses, check around TR2 and TR6 and the buzzer for damage. If the beep is quiet, check R79.

If all tests pass, **P** is shown on the display. Press Key 1 and Key 2 together momentarily to progress to self-test stage 2.

Self-test stage 2

- A. The unit should display **⌘** for 1 second.
- B. Illumination will change between level 0 and level 3 every second.
- C. Any key press will cause audible beep.
- D. The pointer will rotate continuously. This will highlight a problem if the pointer makes contact with the dial or window.
- E. LCD segments will cycle through the following sequence:



No fail codes are generated since stage 2 is an audio/visual check. The following can, however, be used as a guide to isolate a problem:

Failure Mode	Action
Keypad illumination failure (Dial illumination will also be degraded).	Check TR9, TR11, R78 and R91a. Check LEDs 1, 4, 7 and 8 for open circuit.
Keypad illumination OK but degraded Dial illumination.	Check TR10, TR11, R75 and R91b. Check LEDs 13 - 16 for open circuit.
No beep when key pressed.	Replace keyswitch.
LCD segment(s) missing completely.	Check LCD solder pins for poor/dry joints. Check IC3 for unsoldered pins.
Faint LCD segments.	Check LCD pins for shorts. Check IC3 for shorts.
Pointer not rotating or erratic movement.	Check motor winding continuity. Approximately 150 ohms between TP135 and TP136 and between TP142 and TP143.

When the pointer has completed at least one rotation, press Key 1 and Key 2 together momentarily to progress to self-test stage 3.

Self-test stage 3

This stage is to set up pointer offset and corrections. On entry the LCD will show **⌘** and then indicate the position to which the pointer should be positioned to adjust for pointer offset.

Momentary presses of Key 1 will rotate the pointer clockwise to align with the major graduations.

Should there be any misalignment repeatedly press Key 3 for anti-clockwise or Key 4 for clockwise adjustment until correct alignment is obtained on all major graduations.

On completion of correction adjustments press Key 1 and Key 2 together momentarily to progress to self-test stage 4.

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Self-test stage 4

Note: This stage can be completed with either a Rotavecta transducer or Windvane transducer connected.

- A. The unit should display **F4**.
- B. Perform transducer operation as described below.

Rotavecta. Spin the rotavecta buckets. The display will show **P** for a pass or **F5** for a failure.

Windvane. Spin the anemometer, then turn the vane in a complete circle. The display will show **P** for a pass, **F3** for a failed windvane test or **F4** for a failed anemometer test.

If the test fails, check the following ensuring the transducer is connected:

Check	Action
Rotavecta signal: Turn rotavecta cups and check voltage at P13 switches between approximately 3V and 8V.	<ul style="list-style-type: none"> • Constant current supply at P13 present. Check around TR1 and IC4c. • 0V supply at P14 present. Check L11 open circuit. • Check ROTAPRES (IC4 pin 14) is low.
Anemometer signal: Turn anemometer and check voltage at P13 switches between approximately 2V and 8V.	<ul style="list-style-type: none"> • Check L7 and R13 for open circuit. • 8V supply at P7. Check L4, R84 for open circuit. • 0V supply at P11 present. Check L8 for open circuit. • Check around IC4b.
Wind vane signal: Slowly turn vane through 360°. Signal at SIN (P8) and COS (P4) should vary between approximately 2.2V and 5.8V.	<ul style="list-style-type: none"> • 8V supply at P7 present. Check L4, R84 for open circuit. • 0V supply at P11 present. Check L8 for open circuit.
If the above is OK then the problem probably lies within the ADC circuit.	<ul style="list-style-type: none"> • Check L5,L6, R52, R82 for open circuit. • Check ADC circuit around IC5 and IC6.

To exit self-test and store pointer corrections press Key 1 and Key 2 together for 2 seconds.

If storage of pointer corrections is not required press Key 1 and Key 2 together momentarily to exit.