Quayworks – Intermediate Engine Control Panel – Product Code QWCP1

Thank-you for purchasing your control panel from Quayworks. Please contact direct should you need to:

Small Craft Services Ltd
17 Stratford Rd
Alcester
Warks
B49 5AU

info@quayworks.com - www.quayworks.com

About

Your QWCP1 panel is custom made for ISUZU marine engines supplied by HM ISUZU throughout the late 1990s and into the 2000s. The QWCP1 is a direct plug-and-play replacement panel for the 'Intermediate' panel supplied with ISUZU engines.

The panel consists of three component areas:

Fascia

High durability laminate; corrosion resistant, with UV resistant top layer. The fascias are precision made in Worcestershire, England, to a design drawn by Quayworks. The fascias feature engraved detail designed to resist the harsh marine environment.

Wiring Loom

The wiring loom is professionally made in Worcestershire, England, using automated crimping machines to ensure high quality cabling connections. The loom has the same layout as the OEM part, including the blocking diodes and capacitors required to ensure the full functionality of the OEM part is retained.

Controls and lights

The controls and lights have been selected to ensure long life, durability and easy off-the-shelf replacement over the years. The panels are assembled by hand in Warwickshire, England.

The following replacement parts can be obtained through a Durite parts distributor:

WARNING LAMP, RED	0-607-35
WARNING LAMP, AMBER	0-607-40
TACHO / HR METER	0-523-78
BUZZER	0-562-62
IGNITION BARREL	0-351-56
STOP BUTTON	0-485-50

NOTE: The lights are single use LEDs – if they fail, they must be replaced. If replacing, apply a thin line of sealant the replacement prior to fitting. An example of a suitable sealant would be Loctite 595.

NOTE: the rev counter is calibrated for ISUZU engines. Note some adjustment might be necessary to get this exactly right, for example if you have replaced your alternator with a non-OEM part. The adjustment tool is included, along with instructions.

Installation Instructions

The panel has the same functionality as the OEM Isuzu part. It connects to the engine wiring loom through the same multi-plug as the original panel.

NOTE: There are two additional cables that bypass the multi-plug (as with the OEM part):

Blue / black = rev counter sender
Black / yellow = auxiliary alternator charge lamp cable

Full wiring colour codes are included at the end of this guide.

IMPORTANT: Before commencing replacement, ensure your boat is isolated from the shore AC and inverters, generators, or any other power source. Ensure the DC isolators are switched off.

1. Your new QWCP1 panel is splashproof. Ensure when selecting a location for installation the following must be considered:

    - The panel should be installed on a vertical bulkhead or surface, such as the aft bulkhead, so that any rain water can roll off the panel
    - The location should have a degree of shelter such as a roof overhang or deflector above the top edge of the panel
    - The panel should not be installed horizontally so that water can pool on the panel, and therefore not drain off

2. Verify the presence of an inline fuse in the panel supply from the starter motor main positive. Older wiring looms do not always have an inline fuse, and you are advised to ensure that the supply to the control panel is fused to protect cabling and components from damage.

3. To install your replacement panel, unscrew the original, pull gently away from the boat (you might have to run a scraper around the edges to release sealant or paint). Pull the panel gently away from the boat until you have access to the multi-plug connector. Disconnect the multi-plug and the two additional cable connections that bypass the connector as described above. You can then remove the panel and its loom.

4. Offer the replacement panel up to the aperture and ensure there are no obstructions behind that will affect or impact the wiring or dials. The holes in the panel will match the originals. If the fit is OK, put the panel to one side.

5. If necessary, clean and dirt or old sealant off the boat from around the panel aperture. Ensure it is clean and dry.

6. Take the replacement panel and connect the multi-plug connection. Ensure the connection is pushed tightly on. Some users like to add a cable tie to the plug to prevent any accidental disconnection – this is optional. Once the connection is made, ensure the rubber boot on is pulled firmly over the connection. If the rubber boot is missing, or damaged, you should replace it.

7. Connect the x 2 cables that bypass the multi-plug.

8. Turn on the engine or main DC battery isolator, and carry out the following preliminary checks:

    - Turn the ignition key to “1”
    - The warning alarm should now sound, intermittently
    - The oil light and both alternator lights should be on.

If the above conditions are met, proceed to the next step. If the above conditions are not met, check the DC supply and the multi-plug connections and the bypassed connections are correctly made.

9. Ensure all terminals and connectors are clear of the structure of the vessel, to avoid short circuits during a full operating test, as below:

   A. Insert the key, at position "0"
   B. Turn the key clockwise to position "1"

      Observe that the oil warning light, and the two-alternator charge lights come on. The warning alarm will sound intermittently. NOTE the overheat light should not illuminate at this time.

   C. Turn clockwise and hold the key in the 'GLOW' position, for the required period of time for your engine. You may hear a slight change in the tone of the warning alarm, and the yellow 'GLOW' light will illuminate.

   D. After allowing suitable time on 'GLOW', turn the key further clockwise to engage the starter motor. As soon as the engine starts, release the key, which will return to position "1" automatically.

   E. Ensure all warning lights are extinguished and that the rev counter is reading. If the rev counter is not working, or is reading incorrectly, refer to the Durite instructions included herein and adjust as required. Note that depending on your alternator you might need to adjust the settings on the rev counter.

   F. Once calibration is completed, STOP the engine. The key must remain in position "1", and push and hold the button marked "STOP" until the engine stops running. You will usually need to keep this pressed for a minimum of 2 seconds.

10. Apply a bead of non-setting sealant (e.g. mastic) around the edge of the replacement panel, ensuring the sealant is applied around the parts of the panel that will be flush against the boat.

11. Push the panel up into place and add the fixings to each corner. Do not over-tighten. Ensure the panel is sealed and remove excess sealant.

12. Conduct a full operating test, following the instructions and guidance detailed in 'User Instructions'

User Instructions

IMPORTANT: At all times when the engine is running, the key must be in position 1. Never remove the key while the engine is running. Stop the engine before removing the key.

IMPORTANT: Do not leave the key in position 1 without the engine running – this will damage the capacitors and other components.

IMPORTANT: The stop button will not work if the key is not in position 1.

IMPORTANT: In the event of an electrical problem on board, that affects the operation of the control panel, you can use the on-engine emergency manual stop lever. Refer to your engine manual for guidance on this.

Your new QWCP1 panel will work in the same way as your original ISUZU panel, however, the below guidance should be followed.

To start the engine:

A. Insert the key, at position "0"
B. Turn the key clockwise to position "1"

Observe that the oil warning light, and the two-alternator charge lights come on. The warning alarm will sound intermittently. NOTE the 'TEMP' light should not illuminate at this time.

C. Turn clockwise and hold the key in the "GLOW" position, for the required period of time for your engine. You may hear a slight change in the tone of the warning alarm, and the yellow 'GLOW' light will illuminate.

D. After allowing suitable time on "GLOW", turn the key further clockwise to engage the starter motor. As soon as the engine starts, release the key, which will return to position "1" automatically. DO NOT TURN TO "0" WHILE THE ENGINE IS RUNNING.

E. Ensure all warning lights are extinguished and that the rev counter is reading.

F. To STOP the engine, the key must remain in position "1", and push and hold the button marked "STOP" until the engine stops running. You will usually need to keep this pressed for a minimum of 2 seconds. Once the engine has stopped, turn the key to position "0".

Guidance on Warning Lights and Alarm

LIGHT LABEL, COLOUR	FUNCTION	ACTION
'TEMP' - Red	Warns user that engine is close to overheating due to engine coolant temperature being too high. The warning alarm will sound.	SWITCH OFF ENGINE IMMEDIATELY. Establish the reasons for overheating and repair as necessary.
'OIL' - Red	Warns user that the oil pressure is low. This could be due to low oil levels or an oil leak. The warning alarm will sound	SWITCH OFF ENGINE IMMEDIATELY. Establish reasons for low oil pressure and repair.
'ALT 1' - Red	Warns the user that there is no charge output from the left hand (usually starter battery) alternator. This could be due to a broken drive belt or cable. The warning alarm will sound. Be aware this belt also drives the coolant pump. If this light and the overheat light both come on, the likelihood is a broken or loose belt.	SWITCH OFF ENGINE IMMEDIATELY Establish the reasons for no alternator output and repair.
'ALT 2' - Red	Warns the user that there is no charge output from the right hand (usually leisure battery) alternator. This could be due to a broken drive belt or cable. The warning alarm will NOT sound.	SWITCH OFF ENGINE IMMEDIATELY Establish the reasons for no alternator output and repair.
'GLOW' – Amber	Informs the user that the key position for the engine glow plugs has been satisfactorily engaged.	None

QUAYWORKS - QWCP1 PANEL WIRING			VER 1.1
PURPOSE	**COLOUR**	**CONNECTOR REQUIRED**	**NOTES**
TEMP LAMP	WHITE	4.8mm female spade	
	GREEN / YELLOW	4.8mm female spade	
OIL PRESSURE LAMP	WHITE	4.8mm female spade	
	BROWN / PURPLE	4.8mm female spade	
CHARGE LAMP 1 (ENGINE STARTER BATTERY ALTERNATOR)	WHITE	4.8mm female spade	REQUIRES RESISTOR
	BROWN / YELLOW	4.8mm female spade	
CHARGE LAMP 2 (DOMESTIC BATTERY ALTERNATOR)	WHITE	4.8mm female spade	REQUIRES RESISTOR
	BLACK / YELLOW	4.8mm female spade	(BYPASSES MULTIPLUG)
IGNITION BARREL TERMINAL 17	RED / WHITE	9.5mm female spade	
IGNITION BARREL TERMINAL 19	RED	6.3mm female spade	SHARES CONNECTOR
IGNITION BARREL TERMINAL 19	RED		
IGNITION BARREL TERMINAL 15/54	WHITE	6.3mm female spade	SHARES CONNECTOR
IGNITION BARREL TERMINAL 15/54	WHITE		
IGNITION BARREL TERMINAL 15/54	WHITE	6.3mm female spade	
IGNITION BARREL TERMINAL 30	BROWN / YELLOW	9.5mm female spade	
WARNING BUZZER	WHITE	6.3mm female spade	
	PURPLE	6.3mm female spade	
STOP BUTTON	WHITE	Ferrule	
	WHITE / BLACK	Ferrule	
REV COUNTER - NEGATIVE	BLACK	4mm ring	
REV COUNTER - IGNTION FEED POSITIVE	WHITE	4mm ring	
REV COUNTER - W TERMINAL FROM ALTERNATOR	BLACK / BLUE	4mm ring	(BYPASSES MULTIPLUG)
REV COUNTER - BULB POSITIVE	WHITE	4mm ring	
REV COUNTER SPARE POSITIVE	BLACK	NONE	
REV COUNTER SPARE NEGATIVE	WHITE	NONE	
BLOCKING DIODE - SUPPLY	PURPLE		
BLOCKING DIODE - OUTPUT 1	BROWN / YELLOW		SHARES CONNECTOR
	BROWN / YELLOW		
BLOCKING DIODE OUTPUT 2	GREEN / YELLOW		SHARES CONNECTOR
	GREEN / YELLOW		
BLOCKING DIODE OUTPUT 3	PURPLE / BROWN		SHARES CONNECTOR
	PURPLE / BROWN		

Tachometers 0 - 4,000 rpm
Part 0-523-70
Part 0-523-78

Installation instructions

1. Select the system voltage on the back of the gauge via the voltage selector switch. The gauge is fitted with a 12 volt bulb for illumination, but a spare 24 volt bulb is supplied. Find a suitable position to mount the meter, with 100mm clearance behind, and cut a 89mm hole to suit.

2. Connect the terminal 'LT' to the panel light circuit, terminal 'G' to ground (negative), terminal 'I' to an ignition feed (positive) and terminal 'S' to the alternator sender terminal 'W'.

3. Calibrate the frequence in 'Hz' by the following formula:-

$$\text{Hz} = \frac{\text{Number of poles}}{2} \times \frac{\text{Crankshaft pulley}}{\text{Alternator pulley}} \times \frac{\text{Full scale R.P.M.}}{60}$$

e.g. Alternator poles: 12 Crankshaft pulley: 9.5" Alternator pulley: 4"

$$\frac{\frac{12}{2} \times \frac{9.5}{4} \times 4000}{60} = 950 \text{ Hz} = \text{Switch position '8'}$$

Switch position	Frequency Hz
4	350 - 500
6	501 - 750
8	751 - 1000
A	1001 - 1500
B	1501 - 2200

4. When you have calculated the frequency in Hz, set the calibration switch to the corresponding position, then start engine to check operation. (NB. The tachometer needle may rest in any position in transit or storage, but will zero itself when connected).

5. For fine calibration, rev the engine to its off load governed limit and make final adjustments with adjusting tool provided to the screw under the red seal marked 'Cal'. Now fit meter into the dashboard using the clamp provided.

Tachometers 0 - 4,000 rpm
Part 0-523-70
Part 0-523-78

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(12 / 2 x 9.5 / 4 x 4000) / 60 = 950 Hz = Switch position '8'

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Gordon Equipments Limited 0-523-70 LEAFL