



## **SHIRE** CANAL ENGINE MANUAL

For the following engine models:

**SHIRE 30**

**SHIRE 32**

**SHIRE 33**

**SHIRE 35**

**SHIRE 38**

**SHIRE 40**

**SHIRE 45**

**SHIRE 50**

Please read in conjunction with  
Yanmar & the PRM Gearbox Manual

Optional:  
Travel Power Manual, Hybrid Manual



Enter your engine identification details in the spaces provided above.

E. P. BARRUS LIMITED, Launton Road, Bicester, Oxfordshire. OX26 4UR  
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## Declaration of Conformity for Recreational Craft Propulsion Engine with the requirements of Directive 2013/53/EU.

Name of Engine Manufacturer: <b>Yanmar Co., LTD.</b>
Name of Authorised Representative: <b>E.P.Barrus LTD</b> Address: <b>E.P.Barrus LTD, Launton Road, Bicester, Oxon, OX26 4UR, England</b>
Engine type approved according to: Stage IIIB of Directive 97/68/EC, 88/77/EC
Name of Notified Body for <u>exhaust emission assessment</u> : United States Environmental Protection Agency Address: Office of Transportation and Air Quality Town: Michigan Post Code: 48105 Country: USA ID Number: BCHCL1.12AAA-002
Conformity assessment module used for exhaust emissions: B+C B+D B+E B+F G H Or engine type-approved according to: <input checked="" type="checkbox"/> stage II of Directive 97/68/EC <input checked="" type="checkbox"/> Directive 88/77/EC Other Community Directives applied:

### Description of Engine(s) and Essential Requirements

**Engine Type:** Inboard Engine      **Fuel Type:** Diesel      **Combustion Cycle:** 4 Stroke  
**Identification of Engine(s) covered by this Declaration of Conformity**

Engine Model	Engine Type	Engine code	Family	Type Approval Certificate Number
Shire 30 / 32 / 33 / 35				
Shire 38 / 40 / 45 50	4TNV 88 BDYE	G2YDXCL0164N3N		e13*97/68DA*2012/46KA*0574*24

Essential Requirements	Standards	Other normative document/method.	Technical file	Specify in more detail * = Mandatory standard.
Annex 1.B- Exhaust Emissions				
B.1 Engine Identification				
B.2 Exhaust emission requirements	*	<input checked="" type="checkbox"/>		* EN ISO 8178
B.3 Durability				
B.4 Owners Manual	<input checked="" type="checkbox"/>			ISO10240
Annex 1. C- Noise Emissions	See Declaration of Conformity of the craft in which the engine(s) has(have) been installed			

This declaration of conformity is issued under the sole responsibility of the manufacturer. I declare on behalf of the engine manufacturer that the engine(s) [is (are) in conformity with the type(s) for which above mentioned EC type-examination or type approval certificate(s) has (have) been issued and]<sup>1</sup> will meet the exhaust emission requirements of Directive 94/25/EC as amended by Directive 2003/44/EC when installed in a recreational craft, in accordance with the engine manufacturer's supplied instructions and that this (these) engine(s) must not be put into service until the recreational craft which it is (they are) to be installed has been declared in conformity with the relevant provisions of the above mentioned Directives.



Tim Hart  
Sales Director  
Signed: Bicester, UK  
Date: 16/01/2016

## PLEASE NOTE:

This manual has been compiled to help you to operate your engine and its associated parts with safety and pleasure. Please read it carefully and familiarise yourself with the engine and its parts before operation.

E.P.Barrus reserve the right to change the specification of its products and manuals without prior notice.

Depending upon the equipment specification of the engine and accessories fitted, there may be discrepancies with the information presented in this handbook. No claims may be pursued in this respect.



### **WARNING:**

THIS MANUAL FORMS AN INTEGRAL PART OF THE ENGINE IT ACCOMPANIES, IF A TRANSFER OF TITLE OCCURS, IT MUST ALWAYS BE HANDED OVER TO THE NEW OWNER.

## WARRANTY

This Limited Warranty provides coverage for five (5) years (or 2000 hours whichever occurs first) for recreational users and three (3) years (or 2000 hours whichever occurs first) for commercial users from the date of warranty registration. The repair or replacement of parts, or the performance of service under this warranty, does not extend the life of this warranty beyond its original expiry date.

To ensure that you have been registered for your warranty, please ask your Boat Builder or Engine Supplier to provide your portion of the registration form.

The Warranty will only apply if the following have been carried out:

- 1/ The Installation Check List in the Installation Section has been fully completed.
- 2/ The boat builder or engine installer has completed the Boat Builder Section on the Service Record Card (located at the back of this manual) regarding hand over and commissioning of boat.
- 3/ The registration form has been completed and returned to E.P Barrus.

PRM Gearboxes are covered by a three (3) year warranty for recreation users and two (2)

years for commercial users.

Engine alternator, starter motor and electrical components are only covered by a one (1) year warranty.

### **CONDITIONS THAT MUST BE MET IN ORDER TO OBTAIN WARRANTY COVERAGE**

Warranty coverage is only available from an authorised dealer in the country in which the sale occurred. Routing maintenance outlined in the Owner's Manual must be performed using genuine parts in order to maintain warranty coverage. If the customer performs maintenance, Barrus reserves the right to make future warranty coverage possible only with proof of proper maintenance.

### **WARRANTY CLAIMS**

Warranty claims shall be made by an authorised dealer or boat builder.

The dealer or boat builder will then arrange for the inspection and any necessary repairs. If the repairs carried out are not covered by the warranty, the purchaser shall pay for all related labour and material, and any other expenses associated with that service.

### **WHAT IS NOT COVERED**

This limited warranty does not cover routine maintenance items, adjustments, normal wear and tear, damage caused by abnormal use, operation of the product in a manner inconsistent with the recommended operation/duty cycle section of the Owner's Manual, accident, submersion, improper installation (proper installation specification and techniques are set forth in the Operations and First time running sections in this manual), use of an accessory or part not manufactured or sold by us, or alteration or removal of parts. Expenses related to crane-out, launch, towing, storage, telephone, rental, inconvenience, slip fees, insurance coverage, loan payments, loss of time, loss of income, or any other types of accidental or consequential damages are not covered by this warranty.

Engine electrical systems fitted with alternator boost charge systems or any other electrical management systems are not covered by warranty.

Engine and fuel equipment is not covered by warranty if bio-diesel is used in the fuel system. Also if no type of water trap is incorporated into fuel system.

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## SECTION 1 – Safety Precautions

### 1. General

It is the responsibility of the installer/operator to ensure that the finished installation complies with the relevant Health & Safety requirements and the recreational craft directive before commissioning.

Ensure that the engine battery isolator switch is in the off position and the key removed from the control panel before carrying out any maintenance or repairs.

### 2. Lifting

The Lifting points supplied with the engine are for lifting the engine/gearbox only. A suitable spreader bar must be employed to prevent over-stressing either bracket during any lift.

### 3. Rotating Shafts and Belts

The engine and its accessories are not intended to be put into operation until they are integrated into the boat as a whole. No person should be in the engine compartment and the engine cover or deck hatches should be closed whilst the engine is running.

### 4. Exhaust System

Exhaust gases may have temperatures as high as 650°C and contain elements which are harmful if ingested.

It is therefore essential that exhaust systems are gas tight and lagged to prevent accidental burning.

### 5. Launching and Lifting Boats

Care must be taken when launching or craning new boats into or out of the waterway, so that water does not enter the engine via the exhaust system or air vents. It is recommended that these are blocked temporarily whilst undertaking this procedure.

### 6. Batteries



**WARNING:**  
EXPLOSIVE GASSES / SULPHURIC ACID

- Batteries can produce explosive gases; keep sparks and flames away from the battery.

#### **NO SMOKING**

- Batteries contain sulphuric acid; if splashed on skin or eyes, flush well with water and



seek medical advice.

- Keep battery tops and battery compartment ventilated at all times
- If disconnecting the battery; remove the earth lead **FIRST**; and re-connect it last.
- If charging the battery; ensure that the charger is switched off before connecting and disconnecting.
- Do not tip the battery on its side.
- Please see label on battery or manufacturer's instructions for specific information.

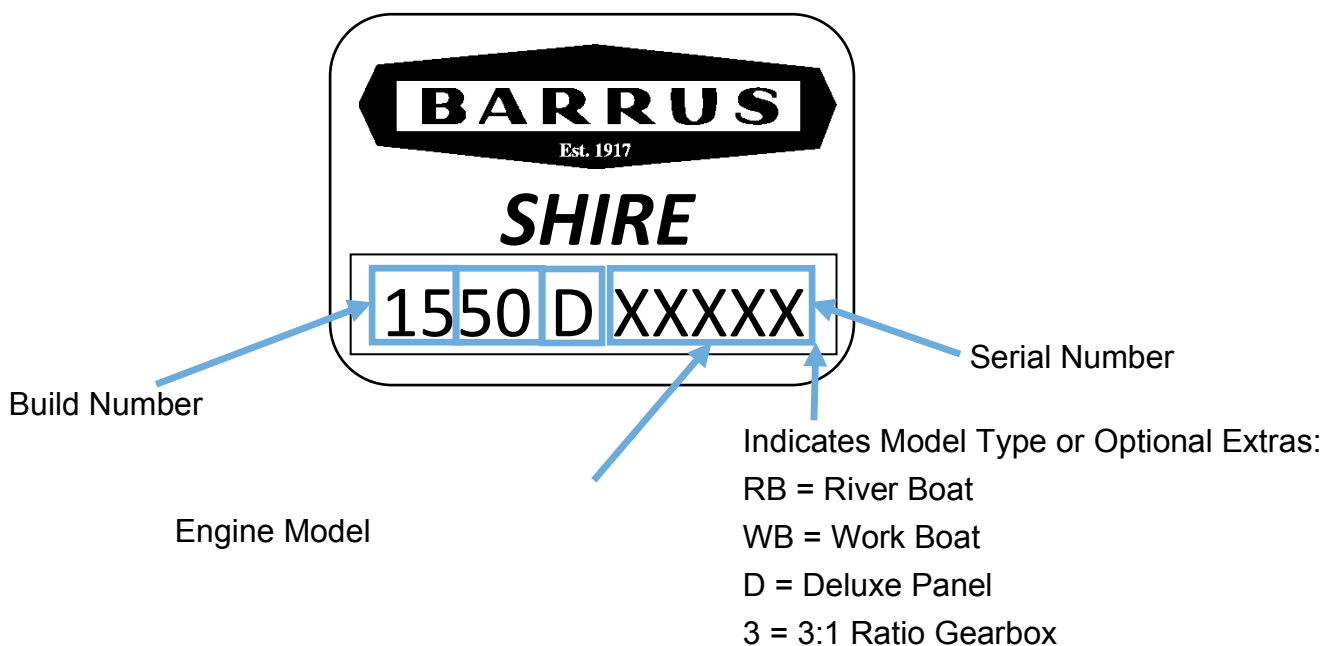
## SECTION 2 – Engine Identification

Please quote the engine identification number during any enquiry or when ordering spare parts. Use the space below to record these details.

This can be found engraved into the brass plate on the top of the engine rocker cover and stamped to the crankcase next to the starter motor.

Note: Canal Boat Engines (CB) do not have identification initials on the engraved plate.

An example of the engine identification plate is shown below (**Figure 1**):



**Figure 1: Engine Identification Badge**

Description of Models:

CB: Canal Boat Engine: Keel cooled dry exhaust manifold.

WB: Work Boat Engine: Seawater / Heat Exchanger cooled, dry exhaust manifold with either dry exhaust system (same as a Canal Boat) or water injected exhaust system.

RB: River Boat Engine: Can also be used for sea going applications. Seawater / Integral exhaust manifold, heat exchanger cooled. Water injected exhaust system.

Note: There are a number of optional extras that may be fitted to an engine that are not listed here.

A list of common item service part numbers can be found in Section 11, Shire service parts.

## **SECTION 3 – Installation**

### **1. Ventilation**

- All internal combustion engines radiate heat and require cool, clean air to aid complete combustion.
- Please Ensure that adequate engine room ventilation is provided, by fitting at least two vents of an aperture of not less than 10,000mm<sup>2</sup> each (16in<sup>2</sup>).

**An allowance must be made for any grills, louvres or bends placed in the airflows and generally an increase of 25% in area is sufficient to overcome any restriction problems.**

### **2. Engine Beds**

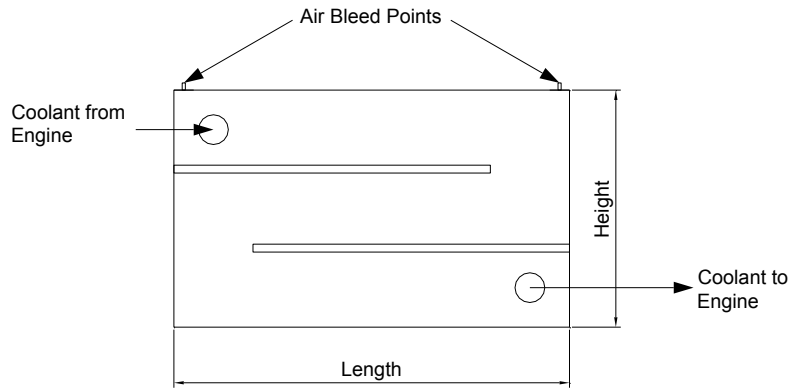
- These should be a minimum of 10mm thick, extended rearward and be welded to the hull and forward to the bulkhead. Webs or gussets must be welded in place midway to prevent flexing.

### **3. Cooling System**

- Ensure pipe work to and from the skin tanks is of sufficient bore. Ensure tight bends and elbows are avoided or kept to a minimum (sizes are listed overleaf).

### **4. Skin Tanks**

The ideal skin tank internal thickness is between 50 and 75mm, the table below will indicate a suitable tank size. However, volume will not compensate for lack of surface area. It should be recognised that fitting a large calorifier will increase the theoretical cooling capacity only until it is up to temperature. It is unlikely that a boat on the inland waterways will operate at full power for long periods of time. The engine cooling water outlets are on the right hand (starboard) side of the engine.



**Figure 2: Skin Tank Flow Diagram**

Recommended Skin Tank Size					
Engine	HP	KW	Skin tank surface area m <sup>2</sup>	Suggested Height mm	Suggested Length mm
50	50	37	1.1250	750	1500
45	45	34	1.0	721	1442
38-40	38-40	30-38	1.0	721	1442
30-35	30-35	22-26	0.85	652	1304

**Note:** Skin tank size must be increased by approx. 10% if a hydraulic drive transmission is fitted.

### 5. Engine Cooling Water Inlet and Outlet Hose Connections

These are on the right hand (starboard) side of the engine:

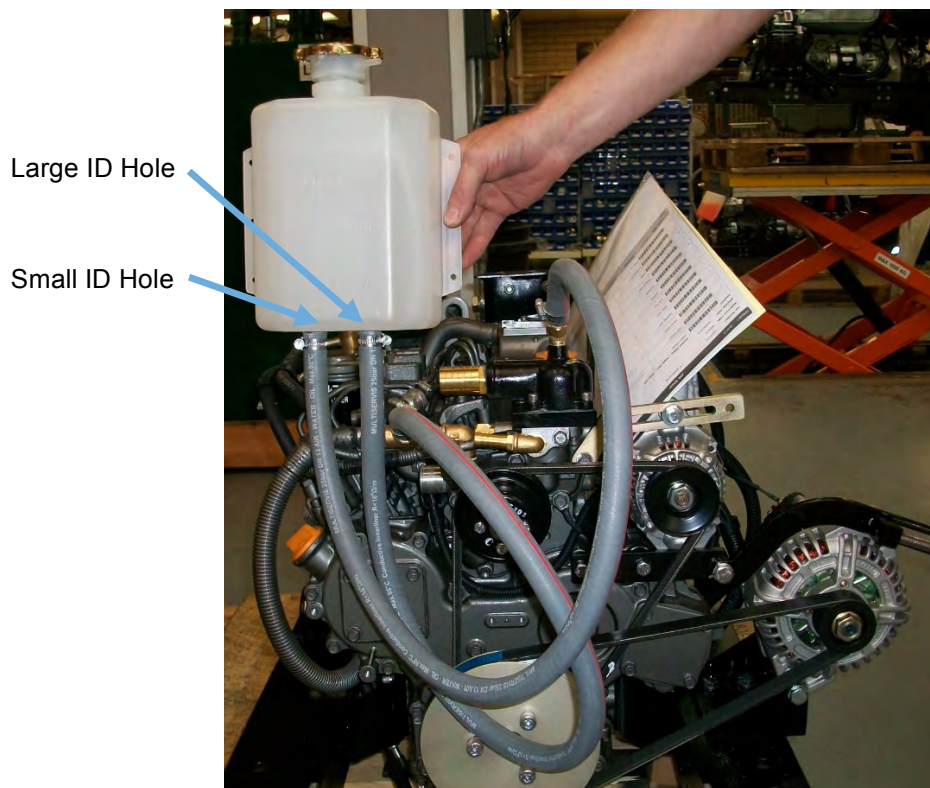
- Shire 30, 32, 33, 38            28mm OD, Inlet and Outlet
- Shire 35, 40                    28mm OD, Inlet and Outlet
- Shire 45, 50                    28mm OD, inlet and 35mm OD, Outlet

Use a good quality hose that cannot collapse or kink and is capable of working at temperature in excess of 100°C.

### 6. Pressurised Water Header Tank

- The pressurised header tank should be mounted higher than the level of the engine, no less than 300mm, and no more than 1m from the engine, to prevent cooling system air locks.
- Shire 50: A single hose connects the tank to the vertical hosetail fitted into the port side of the twin thermostat housing. Shire 50 Connections are shown on (**Figure 7**).

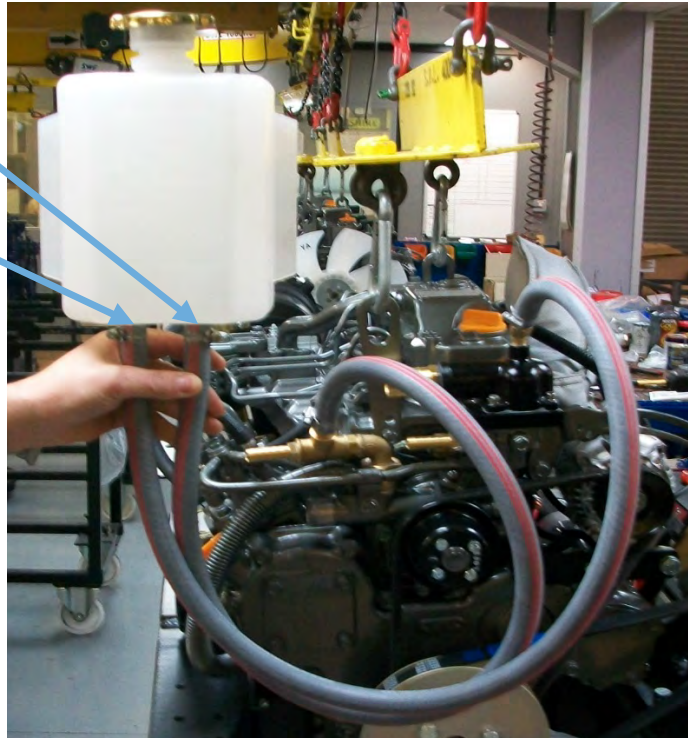
- Shire 30, 32, 33, 35, 38, 40 and 45: Two hoses are used on these engines. One is fitted between the smaller internal diameter (3mm) outlet (on the left hand side of the tank) and the connection on the port side of the top of the thermostat housing (on 45 the side of the twin thermostat housing). The second hose is connected between the larger internal diameter outlet on the right hand side of the tank and the ½" hose tail connection on the engine pipe facing forwards and upwards at 45°. Shire 30, 32, 33, 35 Connections are shown on **(Figure 3)**. Shire 38 Connections are shown on **(Figure 4)**. Shire 40 Connections are shown on **(Figure 5)**. Shire 45 Connections are shown on **(Figure 6)**.
- A constant rise on pipework is required to prevent air locks



**Figure 3: Shire 30/32/33/35 Header Tank Connections**

Large ID Hole

Small ID Hole



**Figure 4: Shire 38 Header Tank Connections**

Large ID Hole

Small ID Hole



**Figure 5: Shire 40 Header Tank Connections**

Large ID Hole

Small ID Hole

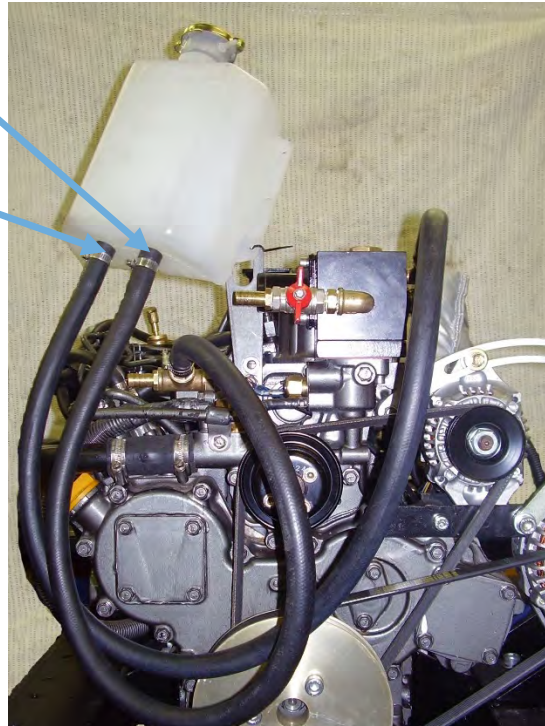


Figure 6: Shire 45 Header Tank Connections

Single Hole (3mm Outlet)



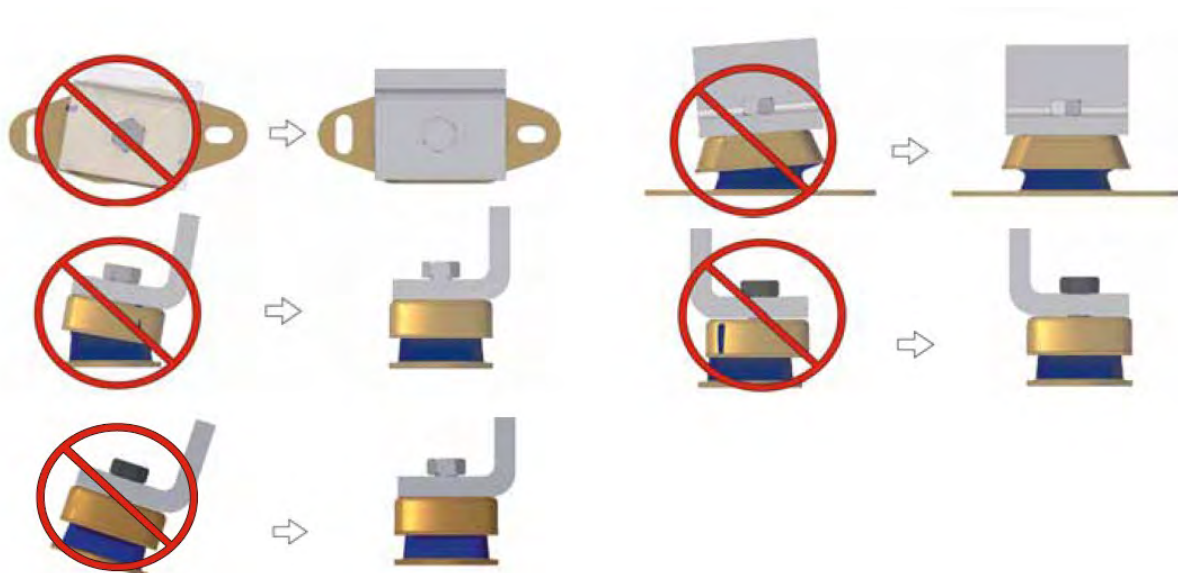
Figure 7: Shire 50 Header Tank Connections

## 7. Shaft Connection and Propeller Selection

- Some type of flexible coupling must be used to connect the gearbox output flange to the propeller shaft flange.
- Please note, underperforming engines will not be covered under warranty if the cause of the poor performance is found to be the use of an inappropriate propeller.

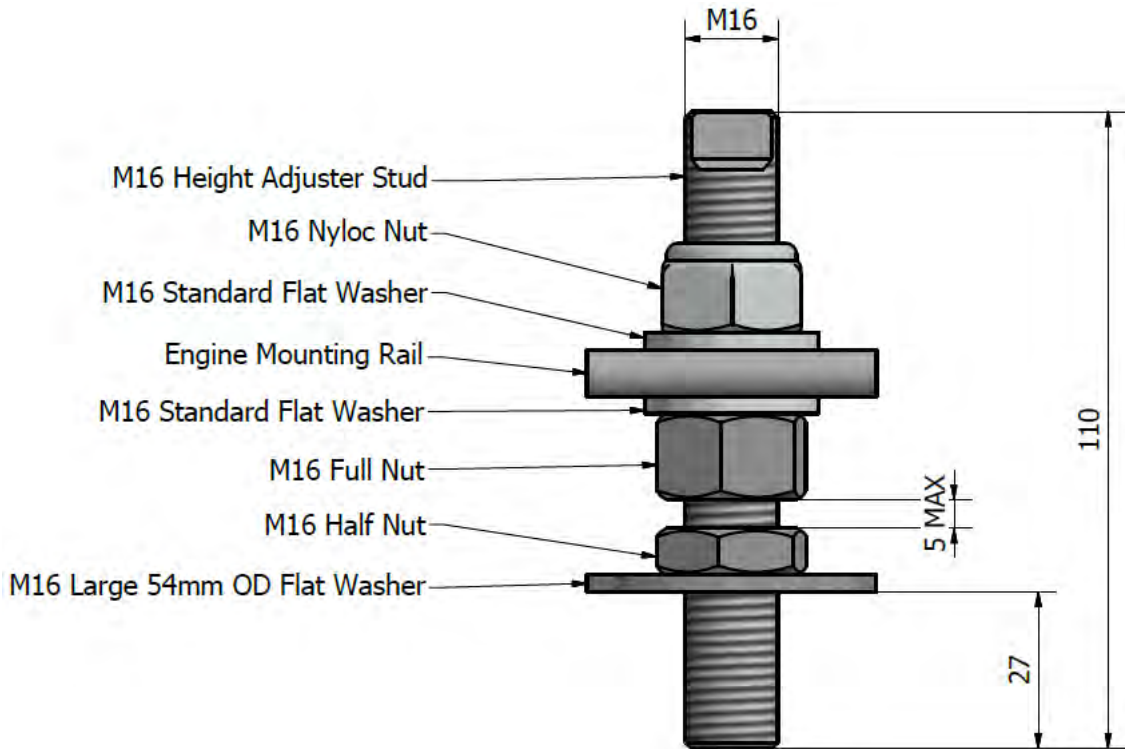
## 8. Engine Anti-Vibration Mounts

- Ensure that the engine feet do not end up at the top of the thread on the engine mounts, this puts undue pressure on them and can result in excessive engine movement and premature mount failure. If this is a problem put steel packing plates under the mounts. Packing plates 25mm thick are available: Order RDG3906 Engine mount spacer. Alternatively they can be manufactured locally.
- On the Shire 30, 32, 33, 35 there are two different sizes of Anti-Vibration Mounts used. The small mounts are used at the front of the engine along with spacer blocks. The large mounts are used on the back of the engine.
- Ensure that the engine has been installed for at least 24 hours before shaft alignment is checked, to allow the mounts time to settle under the engine weight.
- Ensure that the anti-vibration mount centre screw is sufficiently raised so as not to touch the engine bed. If this occurs, excessive engine vibration will be experienced through the hull.
- For best results, fit the front AV mounts into the front holes in the engine rails. If the engine room space is a problem the mounts can be fitted slightly further back in the alternative holes and the front of the rail cut off – leaving 50mm of material to retain strength (measuring from the centre of the mount hole to the front end of the rail). Note: This procedure is only possible on non VDO Travel Power engines, and may result in a very slight increase in vibration. AV mount installation points are shown on **(Figure 10)**

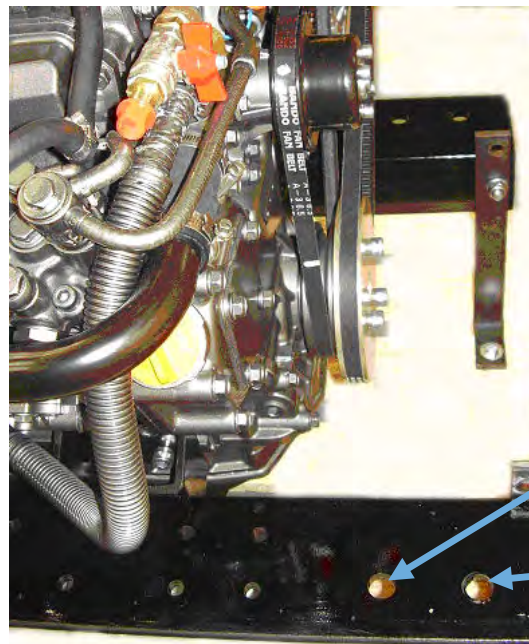


**Figure 8: Correct Anti-Vibration Mount Installation**





**Figure 9: Correct Anti-Vibration Mount Installation**



**Figure 10: Anti-Vibration Mount Installation Points**

**9. Engine Alignment**

- The gearbox output shaft flange and propeller shaft input flange must be almost perfectly aligned. A maximum of 0.05mm (0.002”) misalignment in any plane is acceptable. Ensure alignment is recheck after the first 4 hours of running, after the

first month and thereafter annually.

- If the engine is out of alignment it will result in excessive vibration and possible damage to the stern tube and propeller shaft.
- Boats that are fitted with fully flexible drive couplings should still have the engine and shaft alignment as close as possible. A dummy shaft may be required for this purpose. Note: Some types of flexible shaft couplings require the input and output to be misaligned, check with the coupling manufacturer's installation instructions.
- Minimum clearance of 25mm between rails and engine beds.

## 10. Electrics

- Do not attach any part, hose or cable to the engine wiring harness. There is a warning label attached to the harness to remind you of this.
- Connect the wiring extension harness multi plug to the panel plug and the other end to the engine.
- Connect the start battery positive cable to the engine starter motor solenoid terminal.
- The starter motor battery cable must have a cross sectional area of at least 50mm<sup>2</sup>.
- Shire 32 is a single alternator engine.
- For twin alternator engines, connect the domestic battery positive cable to the 140A or 240A Alternator. The 140A alternator has a B+ terminal and the 240A alternator has a "pos out" terminal (see wiring diagram). This ensures that the 50A alternator charges the start battery and the 140A or 240A alternator charges the domestic battery. This removes the requirement for a split charging system or relay.
- The engine is supplied with the domestic alternator belt not fitted. This is so that domestic alternator damage does not occur if the engine is run without the domestic battery back connected. The belt should only be fitted when the domestic battery bank has been connected to the domestic alternator. Belt fitting and tensioning instructions are in **Section 5 – Service Procedure**. Make sure the alignment is correct.
- A cable will need to be manufactured locally and fitted between the lower 140A or 240A alternator and domestic battery positive terminal. The cable should have a minimum cross sectional area of:

40mm<sup>2</sup> for Shire 30, 33, 35, 38 and 40.

70mm<sup>2</sup> for Shire 45 and 50.

- Both negative battery terminals can be connected to a common earth point.

Note: The 240A alternator is of the insulated earth design and requires a heavy duty earth cable installed at all times.

## 11. Electrical Options

- If the engine is fitted with the optional 230V Travel Power System, refer to the

manual supplied with it for correct wiring, control box installation and operation.

- The Shire range can be supplied with other optional additional 12V or 24V alternators. This will be supplied fitted but not wired. It is the responsibility of the boat builder to ensure that this is correctly wired to the boats electrical system.

## 12. Engine Oil

- All Shire engines are supplied fully run in.
- Check oil levels in engine and gearbox before starting
- Use good quality engine oil SAE 10W / 40 API class CD.



### **WARNING:**

ENGINE OIL WITH A HIGHER API CLASS THAN CD IS UNSUITABLE FOR CANAL BOAT OPERATION AND WILL CAUSE ENGINE DAMAGE IF USED.

## 13. Fuel

- Ensure the main fuel tank is clear of dirt and water.
- A separate water trap must be fitted to all engine installations. The Shire 30, 33, 35, 40, 45 and 50 engines are supplied with an additional fuel pre-filter water trap as standard.
- Connect fuel feed return hoses from engine to main supply and return lines to main fuel tank, ensuring they are connected the correct way around. The hose to the electric fuel pump is the inlet.
- The engine hoses are supplied with 5/16" (8mm) OD metal hometails and should be securely fitted to the main supply and return pipes with compression fittings.
- The engine hoses should have sufficient slack to absorb engine movement without placing strain on the hoses and be securely clipped to prevent accidental damage and chafing.
- Initially fill the fuel system by turning the ignition on to operate the electric fuel pump. Loosen the bleed screw on the top of the primary fuel filter / water trap and close when fuel begins to flow clearly (no bubbles). The rest of the process is done automatically by the engine. It is rarely necessary to bleed the injection pump or injectors upon installation as the engine will already have fuel in it from the engine run in and test procedure.

## 14. Coolant

- Prepare coolant mix of 50% clean tap water and 50% antifreeze.

- Open the calorifier taps (if fitted) to fill the calorifier system and displace air.
- To fill the cooling system for the first time, fill the boat skin via the inlet hose connection or filler plug if fitted.
- Shire 30, 32, 33, 35, 38, 40: Fill the engine through the white plastic expansion tank.
- Shire 45: Fill the engine through the twin thermostat housing filler, then top up the white plastic expansion tank.
- Shire 50: Fill the engine through the water-cooled exhaust manifold filler, then through the twin thermostat housing. Top up through the white plastic expansion tank.
- Bleed skin tank.

Note: After running the engine for the first time, stop the engine and monitor the water level frequently as trapped air bubbles may be expelled. Top up the system as necessary.

### **15. Calorifier**

- The temperature of coolant flowing to the calorifier from the engine can be between 85 and 90°C. A blender valve must be incorporated in the calorifier / hot water system outlet to lower the hot water temperature for domestic use.

### **16. Control Cables**

- Connect engine speed control cable. With the engine off, ensure that the engine speed control lever achieves full travel from idle to full speed. Adjust if necessary.
- Check the gearbox shift lever selects positively and that the drive direction corresponds with the gearshift control lever. Ensure that the gearbox control lever and the gearshift lever are both in neutral before connection. Adjust if necessary.

### **17. Domestic Battery Bank**

Domestic battery banks that are too large create excessive loads on the domestic alternator. Alternators running at maximum output for prolonged periods of time will eventually fail prematurely; alternators that fail due to the battery bank being over the maximum recommended size will not be covered by warranty.

Higher output additional alternators, or travel power kits are available: if larger battery banks are required discuss your individual power requirements with the boat builder or engine supplier.

- The maximum domestic battery bank is calculated using the following:
  - Live aboard, three times domestic alternator, maximum output current.
  - Weekend cruising or hire fleet use, three and a half times domestic alternator, maximum output current.

Example 1:

Live aboard application fitted with a 140amp domestic alternator  
 $3 \times 140 = 420$  ampere/hour maximum battery bank size

Example 2:

Weekend cruising or hire fleet application fitted with a 240amp domestic alternator  
 $3.5 \times 240 = 840$  ampere/hour maximum battery bank size.

**18. Control Panel**

All Shire engines are supplied with high quality engine control panel that all show RPM and hours run and include warning lights and a warning buzzer. The deluxe panels also have additional gauges for the water temp, oil pressure and battery charging. The panels are designed to be splash proof and are correctly installed with the gauges vertical. Do not install so that they remain out in the open, or cover up when not on use.

The control panel engine tachometer is supplied already calibrated to measure correct engine speed. If a new control panel, tachometer or alternative alternator is fitted, the tacho will require re-calibrating.

Control Panel Calibration Procedure:

- Connect control panel plug to engine wiring loom plug.
- Turn ignition on (do not start engine).
- Press and hold black button on rear of tacho until "H-" appears on the digital display at the bottom of the tacho (on the front).
- When pressing and holding the black button on rear of tacho, the value displayed will increase / decrease until the button is released. Then when pressing again it will increase / decrease in the other direction. Keep doing this until the digitally displayed value on the bottom of tacho reaches the correct value, according to the type of alternator (see below table). This must be set to the alternator with blue and black wire connected to it.
- Confirm settings to tacho meter reader.
- An optical tachometer is required to check the reading.

<b>Barrus Alternator (Amps)</b>	<b>Barrus Tacho reading</b>
50	10.50 – 11.00
70	15.00
110	18.00
140	19.50 – 20.00
240	22.00

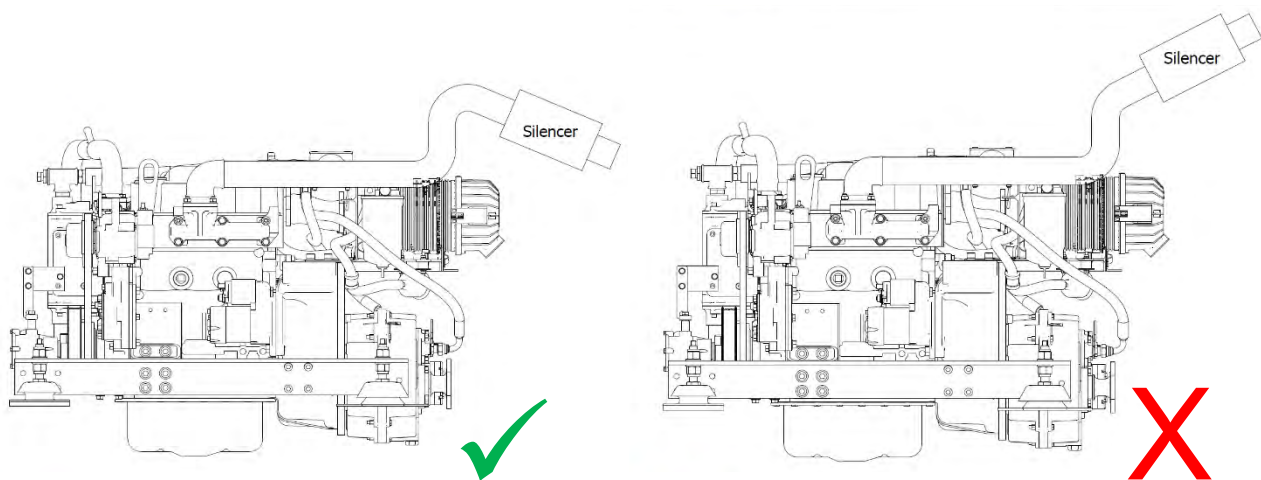
Alternative or non-standard alternators will require calibrating and checking by trial and error, with a hand held tacho until the engine speed and indicated tachometer speed are the same.

Engine energise to stop systems are available as an optional extra.

### 19. Exhaust System

The exhaust outlet size on the engine is 1½” BSP female. There must be a flexible exhaust hose of suitable exhaust grade between the engine and the silencer or hull outlet. The outlet must be above the waterline at all times. The exhaust fittings and silencer (if fitted), must not be smaller than 1½” BSP. Exhaust silencers, flexible exhaust hose connections and lagging blanket are all available as optional extras:

Part Description	Part Number
Exhaust Coupling 1½” x 1½” BSP	RDG1916
Exhaust Silencer DSA-38	RDG1911
Flexible Exhaust Hose (18”)	RDG1879
Blanket 18” Flexy Exhaust	RDG2477



- Make sure the exhaust increases then decreases in height as shown above.

### 20. Hydraulic Drive Transmissions

If an engine is to have a hydraulic drive transmission attached to it instead of a conventional marine gearbox, a number of points must be observed.

Bobtail engines (i.e. Engines supplied without a marine gearbox), normally do not have a gearbox oil cooler fitted. However if a cooler is supplied, this will only be suitable to cool a

conventional marine gearbox.

Hydraulic drive transmissions generate far more heat than a conventional marine gearbox. Therefore the size of the oil cooler installed must be calculated by the hydraulic drive transmission supplier: to ensure it has sufficient cooling capacity and is sized appropriately taking into account:

- Maximum engine power.
- High ambient summer air temperature.
- Summer River/Canal/Sea temperature.
- No additional restriction to engine coolant flow is present.

Skin tanks will also need to be increased by approx. 10% to dissipate the additional heat generated.

Oil coolers should be installed after the engine, not before. Coolers that are installed before the engine will invalidate the engine warranty.

## **21. Hydraulic Pump Drive Option (Shire 38, 40, 45, 50)**

For SAE pump (9T)

If a hydraulic pump is required to drive items such as bow thrusters or hydraulic winches then the following parts are required to enable drive to be taken from the engine power take off:

Part No 129484-26200 incorporates:

- Packing (on gear case side): 171353-26081
- Cover: 121023-26070
- Cover packing: 121023-26061

Ratio: 0.90:1

## **22. Centa Coupling CF-M-160 (RDG2779)**

Centa have given Barrus permission to use the following instruction on how to fit the coupling:

When assembling the coupling all the bolts and nuts must be tightened to the correct torque using a torque wrench. Tightening by “feel” will not give a satisfactory result.

- Remove the clamping bush from the coupling.
- Degrease the propeller shaft and the bore of the clamping hub. Leave the special grease only in the tapered bore of the coupling hub, and on the outside of the clamping hub. **DO NOT USE SOLVENTS.**
- Mount the coupling onto the gearbox output flange. Note: The M10 tapped holes in

the coupling are 15/17mm, so care must be taken to use screws or studs of the correct length. Centa recommend the use of M10 x 25 screws or M10 x 40 studs. If using studs the shorter (10mm) screwed portion should be inserted into the coupling.

**TIGHTENING TORQUE IS 45Nm**

- Push the clamping hub fully onto propeller shaft.
- Connect the clamping hub/propeller shaft onto the coupling. The connecting screws of the clamping bush must be tightened alternately in several steps until the required tightening torque is reached. Finally, the tightening torque of all fasteners must be checked all round. **TIGHTENING TORQUE (M12x40) is 79Nm**

**CAUTION:** The tightening of the connecting screws between the clamping bush and the hub means that the clamping hub/propeller shaft will be dragged into the coupling by a few millimetre’s, thereby effectively shortening the installation length. Sufficient free space (minimum 10mm) should be available between the outer bearing and the propeller hub.

The propeller-thrust (or propeller-pull in reverse drive) is safely transmitted via the coupling from the propeller shaft to the gearbox, but the design of the coupling is such that the rubber must be compressed when sailing in the forward direction. The coupling is not suitable for use with vee-drive gearboxes having outputs of the quill-shaft arrangement where the coupling would be subject to a pulling force when sailing forward.

The coupling uses a bonded rubber element, and care should be taken not to contaminate the rubber by indiscriminate use of solvents or anaerobic liquids.

**23. Installation Check List**

	Please tick box ✓
Engine alignment correct, clearance all round, check propeller turns by hand (Ensure ignition is off battery and battery master switch is off)	<input type="checkbox"/>
Anti-Vibration mounts correct height, spacers if necessary. Make sure all nuts are tight	<input type="checkbox"/>
Exhaust system as specified	<input type="checkbox"/>
Battery leads are of correct size, tightened and start battery is charged	<input type="checkbox"/>
Check tension of alternator belts, wiring connected and belt alignment checked if removed	<input type="checkbox"/>
Check fuel system is connected correctly and primed	<input type="checkbox"/>
Fuel line water trap installed and water drained off	<input type="checkbox"/>
Check header tank and skin tank connections are correct way round,	<input type="checkbox"/>



constant pipework rise to header tank	
Check level of coolant in header tank and correct ratio of antifreeze to water	
All air has been bled from skin tank, calorifier and pipework	
Engine and gearbox oil levels are as specified	
Throttle and gear cables correctly adjusted and operating smoothly	
All pipework and cabling supported and not chaffing, slack to allow movement of engine	
Confirm engine control panel, gauges and warning lights are all operational	
Run the engine for 20 minutes with the boat tied up and in gear (at ½ speed). Check for leaks and that all systems operate correctly	
Check & Set the Engine Idle Speed to 850-875 rpm	
Check for leaks	
Explain/Demonstrate daily/weekly/periodic maintenance checks	
Explain/Demonstrate off season storage and maintenance	
Travel Power 230v AC systems installed by qualified electrician and to BMEA code of practice for Electrical and Electronic installation in Boats: BS EN ISO 13297 (ac)	
Installer's signature	
Installer name/company	

## SECTION 4 – Operation

### 1. Starting the engine for the first time

- Remove ignition key.
- Ensure all oil and coolant levels are checked.

- Ensure both the engine and domestic batteries are connected. Both battery master switches must be turned on. Failure to do so may damage the domestic alternator.

## **2. Starting Procedure**

- Ensure the gearshift control level is set to neutral and that persons are clear of any moving parts.
- Insert ignition key.
- Turn key to on position. The glow plug light will illuminate.
- Observe warning lights (and gauges on deluxe panel). Note: The engine overheat light will only illuminate when the water temperature exceeds the safe level. The buzzer will also come on.
- Wait for the glow plug warning light to go out.
- Turn key to start and hold to crank.
- Crank the engine for no more than 15 seconds.
- Upon engine start, immediately release the key.
- Key will return to on position.
- The warning buzzer will stop and on the deluxe panel, the oil pressure gauge will show an oil pressure of 3.5 - 4.5 bar (51 – 61 psi).
- Should any warning light not go out, or if there is no reading on the oil pressure gauge, the buzzer will continue sounding. In this case, stop the engine immediately and check the relevant system (Note: If the charge light does not go out, briefly increase the engine speed).
- Stop engine if any abnormal noises are detected.
- Visually check the engine for oil, fuel and coolant leaks, after initial start-up and at regular intervals. Note: Engine must be stopped to carry out this check).

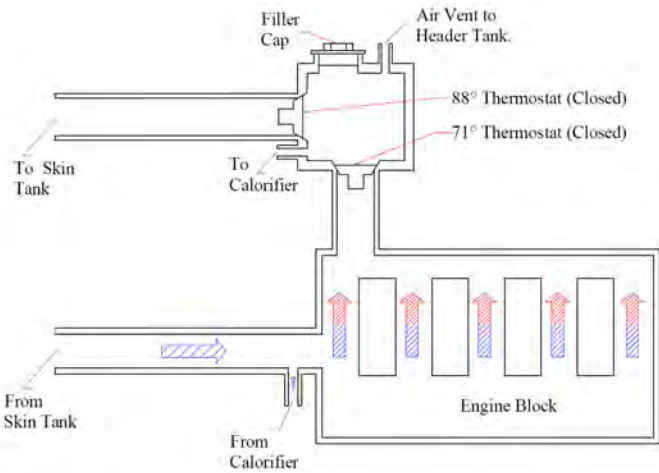
## **3. Stopping Procedure**

- Move speed control lever to idle position.
- Turn key to off position.

## **4. Full Load Running**

- Running diesel engines near their rated output (maximum load) regularly will disperse accumulated carbon and condensation, enhancing engine life and reducing emissions.
- Running the engine at, or near maximum speed whilst in gear may not be possible on inland waterways with speed limits in place. This will have to be carried out whilst moored up. Ensure that the mooring ropes and posts are strong enough to allow this and that the water is deep enough not to damage the propeller. It is recommended that the engine is run at or near full load for 15 minutes (maximum revs, in gear)

With the engine quickly up to operating temperature, the first 71° thermostat opens. The water now flows to the domestic hot water tank, resulting in hot water being rapidly available.



every 50 hours.

## 5. Refuelling

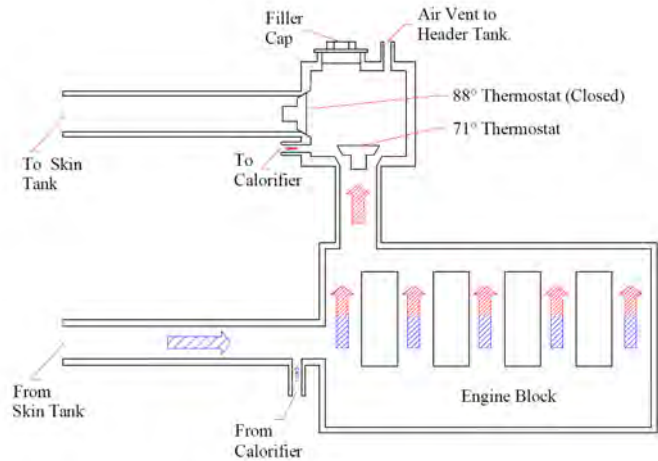
- All Shire canal boat engines run on diesel fuel.
- Please note that when the vessel is to be left for any period of time, the fuel tank should be left full to eliminate the build-up of condensation and formation of water in the fuel tank.
- Engine to be turned off while refuelling
- The fuel type for all Shire canal boat engines is diesel. **DO NOT USE BIODIESEL.**

## 6. Twin Thermostats – Shire 45 and 50

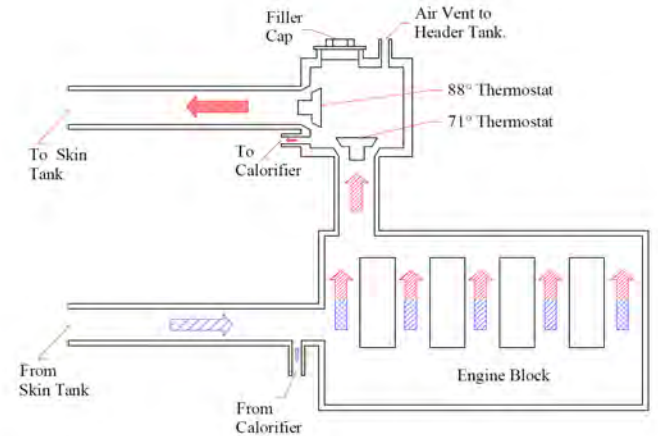
The twin thermostat design is a feature unique to the Shire canal boat engine range. It ensures that the engine warms up very quickly due to the first thermostat being closed so that cooling water is routed through the specially designed cast iron exhaust manifold (Shire 50 only). The waste heat from the exhaust is recycled to bring the engine up to operating temperature even quicker than normal. This ensures efficient engine operation with reduced fuel consumption and even cleaner exhaust emissions. It also helps in keeping engine wear to a minimum.

**Figure 11** shows the operation of the cooling system. Note: Shire 30, 32, 33, 35, 38 and 40 have a single thermostat only.

When the water stored in the hot water tank has reached full temperature, the second 88° thermostat opens and water can then flow to the skin tank and correctly control engine cooling. The exhaust manifold that earlier helped to heat engine water is now cooled to ensure safe operation and reduce engine compartment temperatures.



If the load on the engine reduces and the demand for domestic hot water increases then the system will automatically compensate and re-direct water to ensure that a plentiful supply of hot water is always available.



**7. Diesel Fuel Additive**

The use of diesel fuel additive is strongly recommended on Shire engines. The quality of the fuel available when cruising is often unknown. Also the fuel may have been in storage for long periods of time. The use of additives will ensure that your engine fuel injection system is in top condition which should result in many years of smooth reliable operation, without the cost and inconvenience of expensive breakdowns due to poor quality fuel. It has also been found that improvements in fuel consumption and start ability are an added benefit of using this product. Diesel fuel additive is available from your Shire dealer in a handy 375ml container, Part Number RDG80210219.

**8. Exhaust Back Pressure**

The back pressure falls within the manufacturers recommended range when using the optional exhaust system (see **Figure 11: Twin Thermostat Operation** “19. Exhaust System” from “Section 3 – Installation”) with the

engine.

### **9. Hybrid System (For engine with Hybrid System fitted)**

Refer to the separate Hybrid Operation Manual for more details on the system.

### **10. Single Lever Side Mount Operation - Optional (RDG9210055)**

To engage forward or reverse gear:

- Lift the safety latch under the handle before shifting.

To rev the engine in neutral:

- Pull the lever out sideways from the main body.
- Lift the safety latch under the handle then shift.

## **SECTION 5 – Service Procedure**



### **CAUTION:**

WEAR DISPOSABLE GLOVES AND BEWARE OF HOT OIL AND ENGINE BLOCK.  
REMOVE THE IGNITION KEY BEFORE WORKING IN ENGINE COMPARTMENT.

### **1. Engine Oil and Filter Change**

- Change the engine oil while the engine is still hot.
- Remove the blanking plug in the sump pump spout (6mm Allen key). Note: Shire 50 has two oil drain pumps, it is the pump mounted up higher on the engine.

- Place a plastic tube over the spout and into a container. Operate the pump handle to empty the sump. Note: Remember to refit the blanking plug afterwards.
- Place a drip tray under the engine to catch the small amount of oil that will escape from the oil filter. Using the strap type oil filter removal tool supplied with the engine (except the Shire 38), slacken the filter from the engine block in an anti-clockwise direction. Remove the tool and spin off the filter.
- Lightly oil the new filter O ring seal and install the filter onto the engine. Spin it on in a clockwise direction and finally tighten by hand only as firmly as you can.
- Refill the sump using the yellow oil filler cap in the rocker cover on top of the engine.
- Oil level should be to the top mark on the dipstick.
- Run the engine for 5 minutes before checking the oil level with the dipstick and top up if required.
- Do not exceed the maximum oil level marker as this may cause damage to the internal components of the engine.

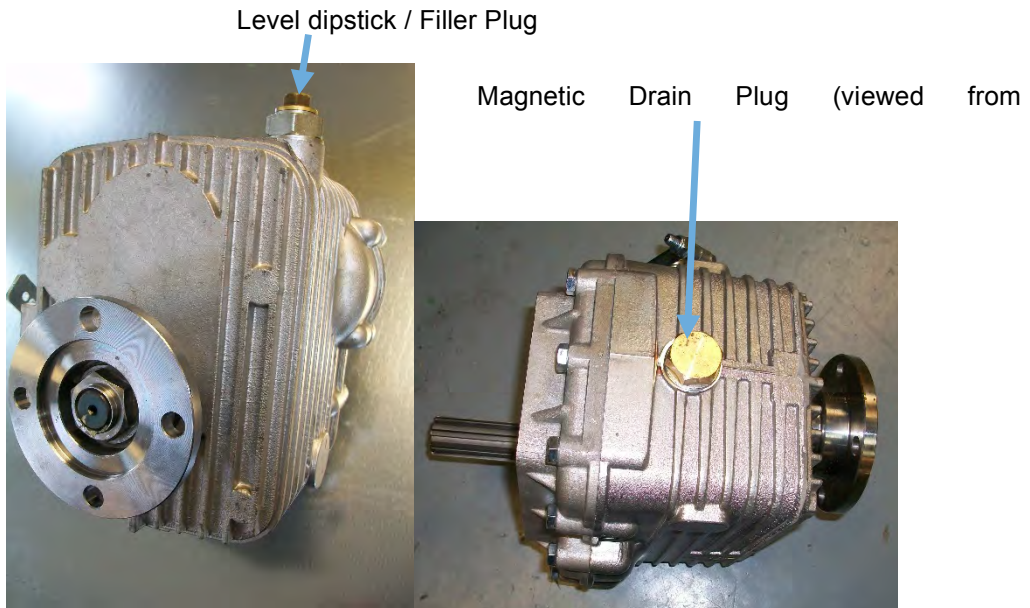
## 2. Air Filter Check and Change

- Release the two spring clips. Pull off the end cover to reveal the filter element. The element simply pulls out.
- To fit the new element, slide the open end of the filter element into the main body. Gently push the element until fully seated. Refit the end cover.
- The air filter is constructed from pleated paper. Inspect it closely for dust or dirt. The air filter cannot be cleaned and must be replaced when dirty. The engine requires clean unrestricted air to run efficiently. Failure to maintain the air filter could result in smoke, increased fuel consumption and ultimately engine damage.

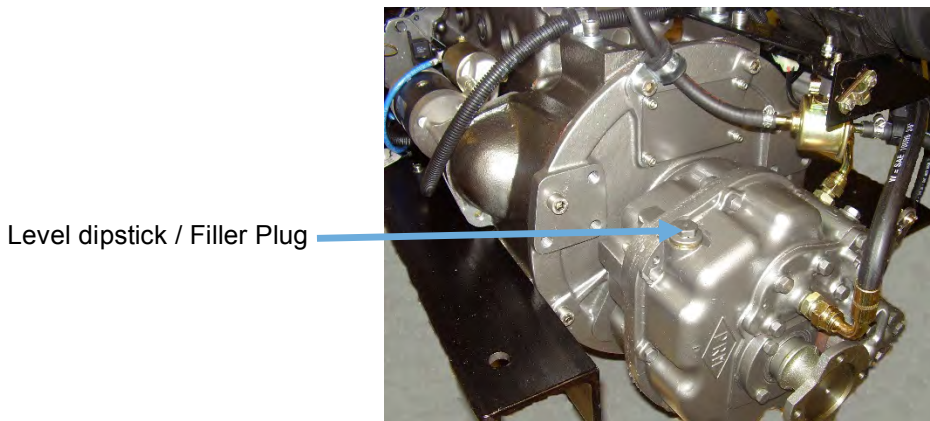
## 3. Gearbox Oil Change

Note: Some engines will have a gearbox sump pump fitted. To change the oil in this circumstance, follow the same procedures as were outlined for changing the engine oil. For engines without a gearbox sump pump follow the procedure below.

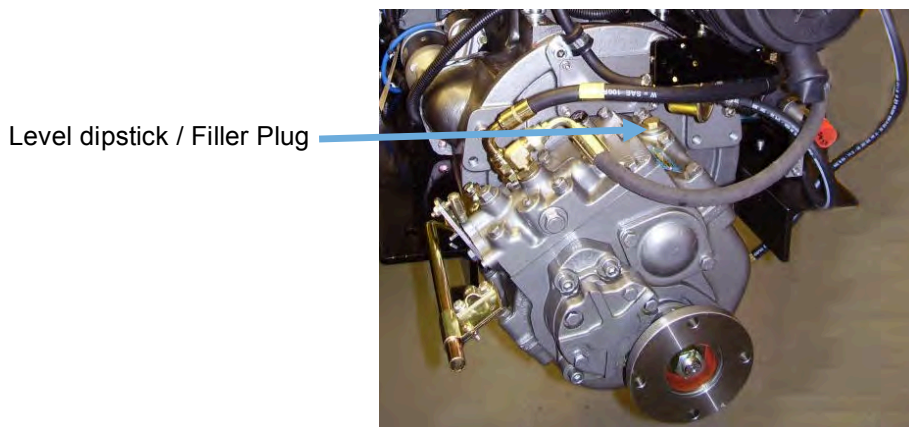
- Change the gearbox oil while it is still hot (Please refer to the gearbox manual for more information).
- Place a tray beneath the gearbox that will hold at least 2 litres.
- Remove the drain plug and allow 5 minutes for the oil to drain thoroughly.
- Replace the drain plug. Ensure that the sealing washer (if used) is still in place and in good condition before tightening. Fit a new washer if required.
- Refill the gearbox with oil to the upper mark on the dipstick. Screw the dipstick in fully, to establish level. Refer to the PRM owner manual for more details. **Section 6** in this manual contains details of oil specifications.
- Do not overfill the gearbox as this can damage the internal components.



**Figure 12: PRM 80 and 120 Gearbox**



**Figure 13: PRM150 Gearbox**



**Figure 14: PRM260 Gearbox**

#### 4. Disposal of Oil and Related Items

- Please dispose of used oil and oil filters safely with due regard for the environment and take to your local waste oil disposal point.
- Do not allow oil or contaminated parts to enter the inland water way system.

#### 5. Primary Fuel Filter Drain – Shire 30, 33, 35, 40, 45 & 50

Note: Shire 32 and 38 are not fitted with a primary fuel filter / water trap.

- Place a small drain bowl under the primary fuel filter / water trap.
- Loosen the drain screw located in the bottom of the fuel filter / water trap (**Figure 15**)
- Drain off any water.
- Once the water has been drained, retighten the drain screw.
- It is unlikely the complete fuel system will require bleeding.
- Run for 5 minutes.
- Check that the drain union is tight and that there are no leaks.
- Do not over tighten the drain screw.

Note: The boat builder should have fitted an additional water trap in the fuel system. Ensure that this is drained regularly.



Figure 15: Primary Fuel Filter Drain Screw

#### 6. Primary and Secondary Fuel Filter Change

- Ensure the fuel tank is at least  $\frac{3}{4}$  full prior to undertaking this procedure.
- Turn off the main boat fuel supply tap. This is located on or near the fuel tank.
- Place a small drip tray under the filter body.
- Remove the fuel filters using the filter strap wrench supplied (not supplied with the Shire 38). Unscrew them until loose then remove by hand.
- Primary fuel filter only: Retain the metal fuel filter drain screw from the old filter and reuse in the new filter (Shire 30, 33, 35, 40, 45 and 50 only). The part number for the drain screw is RDG9189022.
- Smear a small amount of clean fuel on all of the O ring seals that are supplied with



the new filter element.

- Screw the new element back into the filter head. Tighten by hand only.
- Turn the main boat fuel supply tap back on.
- Ensure the system is correctly bled before attempting to start up.

Note: The same procedure is used for both the primary and secondary fuel filter changes.

## 7. Fuel System Bleeding

- Ensure the fuel tank is at least  $\frac{3}{4}$  full prior to undertaking this procedure.
- See the fuel paragraph in Section 3 of the Yanmar engine operation manual.

## 8. Cooling System



### **CAUTION:**

DO NOT CHECK THE COOLANT LEVEL WHEN THE ENGINE IS HOT. REMOVE THE IGNITION KEY BEFORE WORKING IN ENGINE COMPARTMENT.

- To check the coolant level, ensure that the engine has been shut down for at least half an hour.
- The coolant level can be checked visually and should be between the two level marks formed on the front of the white plastic expansion tank.
- If required, top up the level with coolant (50% clean tap water and 50% ethylene glycol based anti-freeze) through the expansion tank filler cap.
- Do not use water only to top up as this weakens the coolant mix, reducing the level of frost protection and anti-corrosion protection of the coolant.

## 9. Belt Adjustment



### **CAUTION:**

REMOVE THE IGNITION KEY BEFORE WORKING IN ENGINE COMPARTMENT.

- Depress the longest run of the drive belt to be checked. If the travel exceeds 15-20mm using hard finger pressure, the belt needs re-tensioning.
- Loosen the upper adjuster on the alternator. Loosen the lower mounting pivot nut

and bolt. Pull out either using hand pressure or using the tensioning screw, depending on which alternator belt is to be tensioned.

- Pull the alternator away from the engine to tighten the belt.
- Hold the alternator in position and retighten all the bolts

Note: If the belts are over tightened, alternator bearing failure will occur.

### 10. Belt Maintenance

- Do not allow oil to contact the belt. Oil attacks the construction of the belt. This reduces the drive efficiency and ultimately cause it to fail prematurely.
- Replace the belt if it cracks or splits and as the adjustment nears the limit of travel.

Note: Some boat builders may remove one or more of the alternators during the installation of the engine. It is essential that when the alternators are refitted that the alignment is perfect or premature belt wear will occur.

### 11. Belt Replacement



**CAUTION:**

REMOVE THE IGNITION KEY BEFORE WORKING IN ENGINE COMPARTMENT.

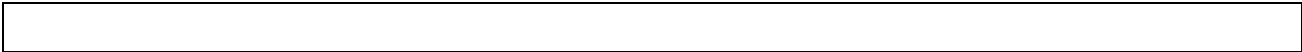
- Ensure that you have the correct replacement belts before starting this procedure. Some engines may have been fitted with non-standard optional alternators which may not use the belt sizes listed. Make a note of these belt sizes upon delivery.
- Loosen the top adjuster bolts and the lower mounting pivot nut and bolt.
- Push the alternator towards the engine to loosen the belt.
- Remove the belt.
- Hold the belt in position over the top alternator pulley. Rotate the engine if required by hand, to guide the new belt into the “vee”.
- Re-tension the belt as above.

### 12. Control Panel Maintenance



**CAUTION:**

REMOVE THE IGNITION KEY BEFORE WORKING IN ENGINE COMPARTMENT.  
TURN BATTERY ISOLATION SWITCHES OFF.



- **To replace an illumination bulb:** Release the panel from its mounting. The bulbs are accessible from the rear of the panel. Remove the wires, unscrew the nut and pull out the bulb housing from the panel. Remove the bulb and replace. Refit bulb housing, screw the nut back up and refit the wires.
- **To replace any gauge:** Release the panel from its mounting. The gauges are accessible from the rear of the panel. Unplug the wire connectors, unscrew and pull the gauge out of the panel. Replace the gauge and refit. Reattach the wiring connectors.

Note: Periodically squirt a lubricant into the key switch slot when the key has been removed. A lubricant such as WD40 – with silicon, would be suitable. Other lubricants are available. Then with the battery master switch turned off, operate the key switch a couple of times. This will ensure the lubricant works into the mechanism.

## SECTION 6 – Service Schedule

### 1. Specifications and Capacities

Specification of Coolants and Lubricants to use:

Component	Lubricant
Engine	SAE 10W 40 API Class CD Oil
Coolant	50% Clean Water + 50% Ethylene Glycol Antifreeze
PRM 80 and 120 Gearbox	ATF (Automatic Transmission Fluid) Oil
PRM 150 and 260 Gearbox	Engine Oil

Engine Oil Capacity (with Filter):

Engine	Capacity (Litres)	Capacity (Pints)

30, 32, 33, 35	5.5	9.6
38, 40, 45, 50	7.4	13

**Gearbox Oil Capacity (Excluding Cooler):**

<b>Gearbox</b>	<b>Capacity (Litres)</b>	<b>Capacity (Pints)</b>
PRM 80	0.57	1.0
PRM 120	0.8	1.4
PRM150	1.4	2.5
PRM260	1.5	2.7

**2. Service Intervals**

	<b>Check</b>	<b>Change</b>	<b>Notes</b>
Engine Oil & Filter	Daily (Level)	Every 250 Hours OR 12 Months*	First change after 50 hours
Gearbox Oil	Weekly (Level)	Every 250 Hours OR 12 Months*	First change after 25 hours
Coolant Level	Daily (Level)	Every 24 Months	-
Diesel Fuel Filter – Primary & Engine	50 hours	Every 500 hours OR 12 Months*	Drain water every 50 hours OR Monthly**
Air Filter Element	250 Hours	Every 500 hours OR 24 Months*	Sooner if required
Drive Belts	Daily	As required	Adjust as necessary
Key Switch	Lubricate	Every 150 hours OR 12 Months*	As per instructions in Section 12 - Control Maintenance

\* Whichever occurs first.

\*\* If large quantities of water are found in the fuel when the filter is drained, increase the frequency of draining.



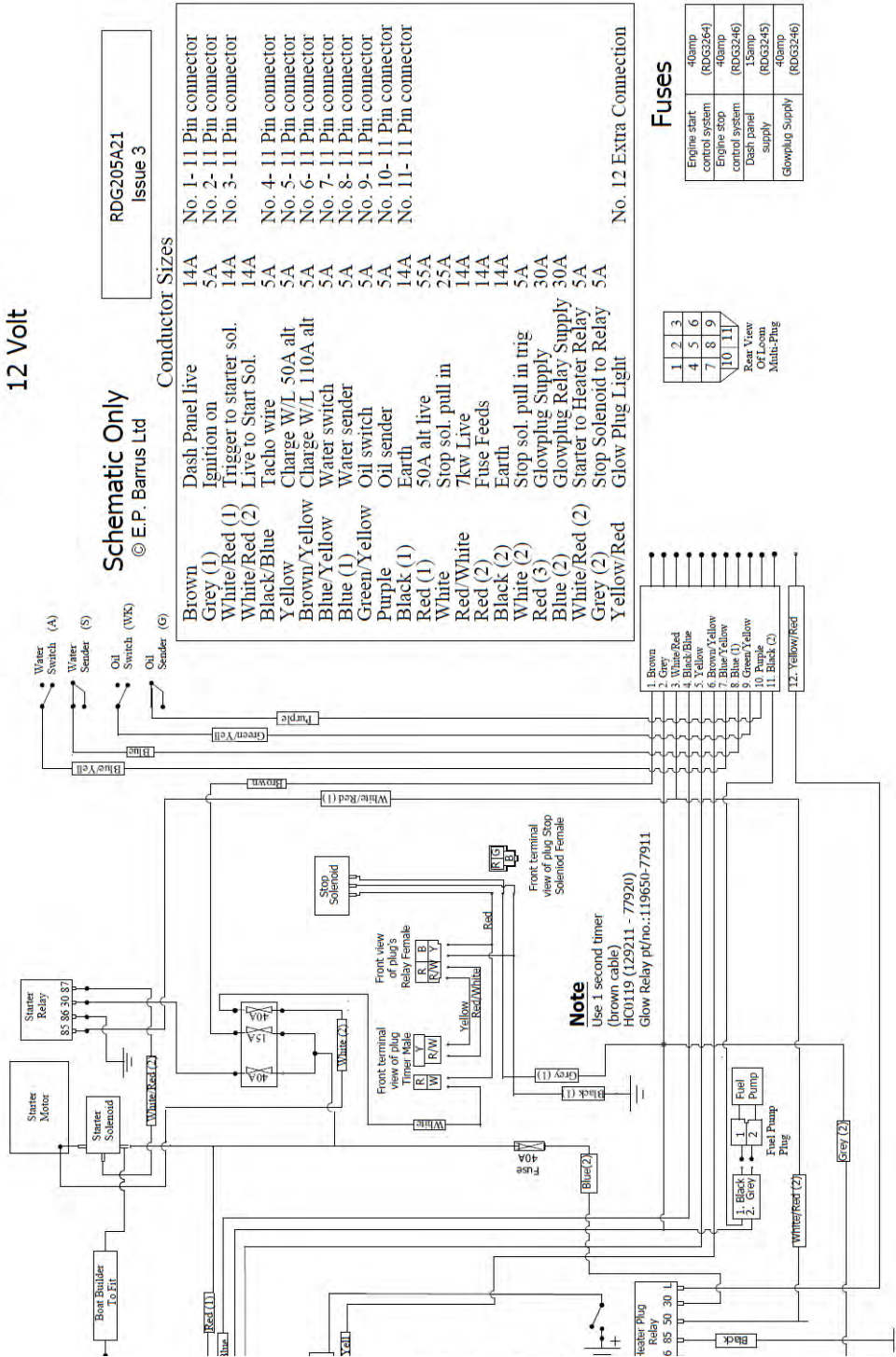
# SECTION 7 – Wiring Diagrams

## 1. Engine Wiring Diagram Shire 30, 32, 33, 35, 38, 40, 45 & 50

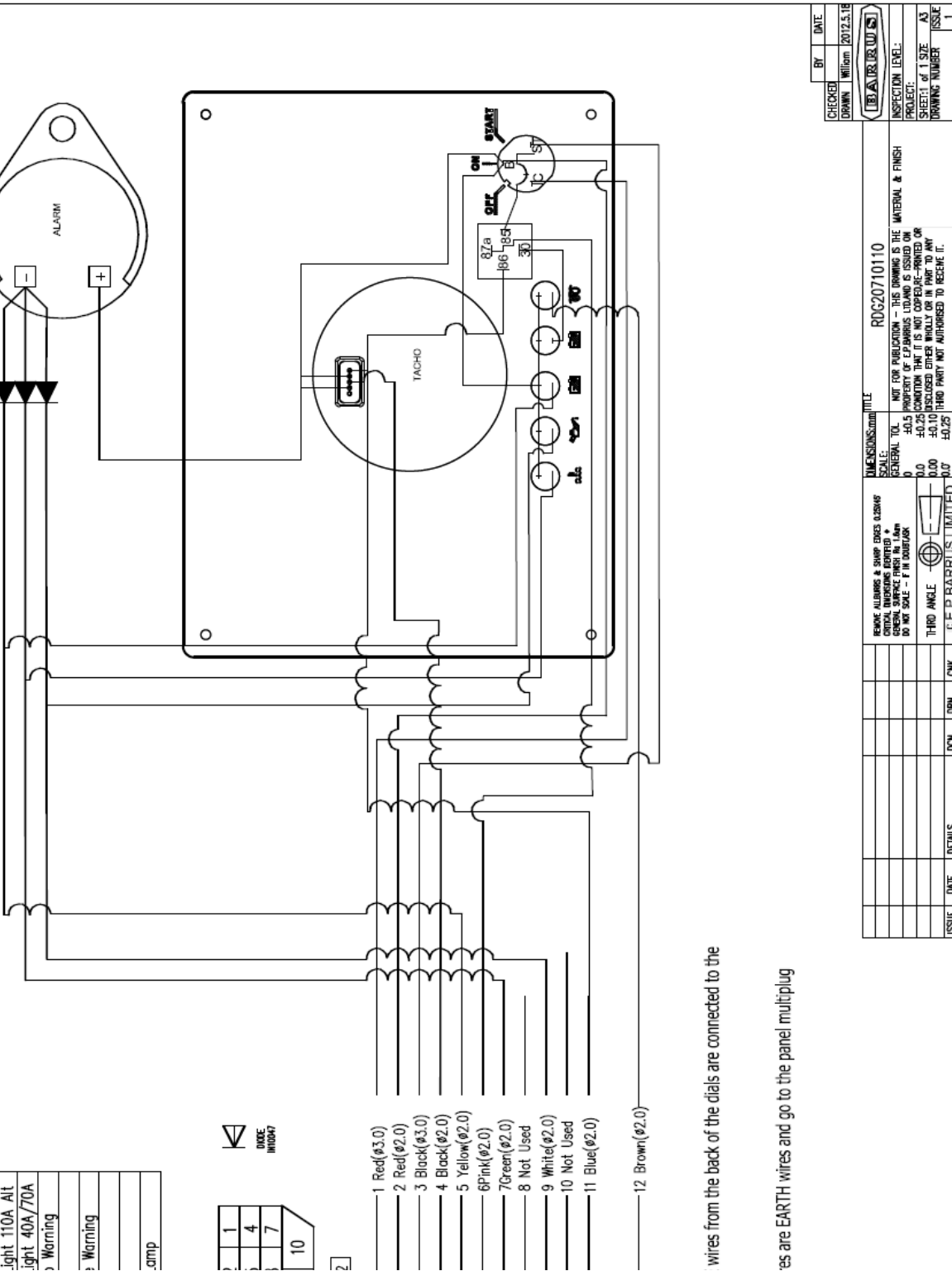
(Also work boat engines with either single or twin alternators)

Wiring Diagram  
30 / 35 / 38 / 40 / 45 / 50

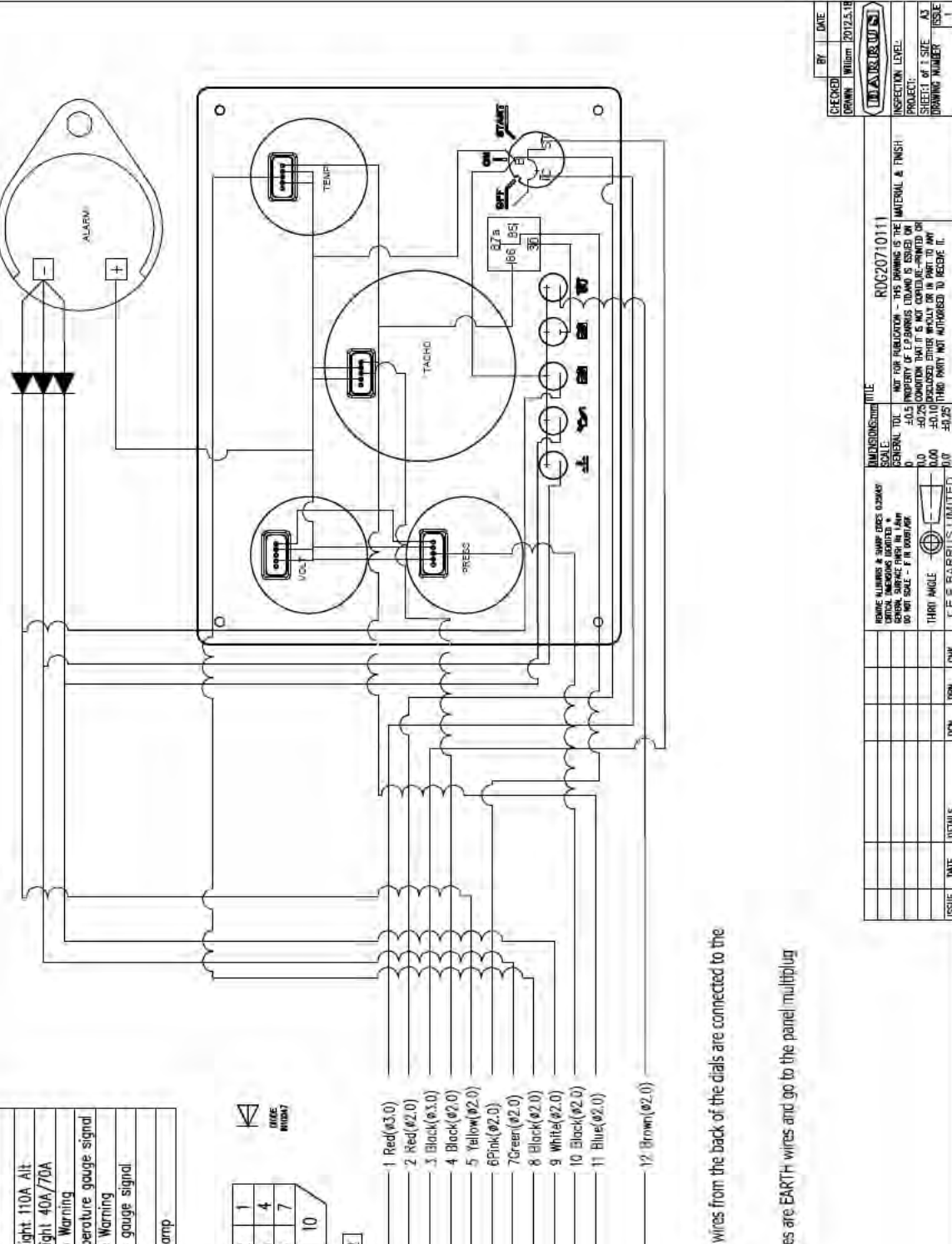
12 Volt



2. Standard Control Panel Wiring Diagram

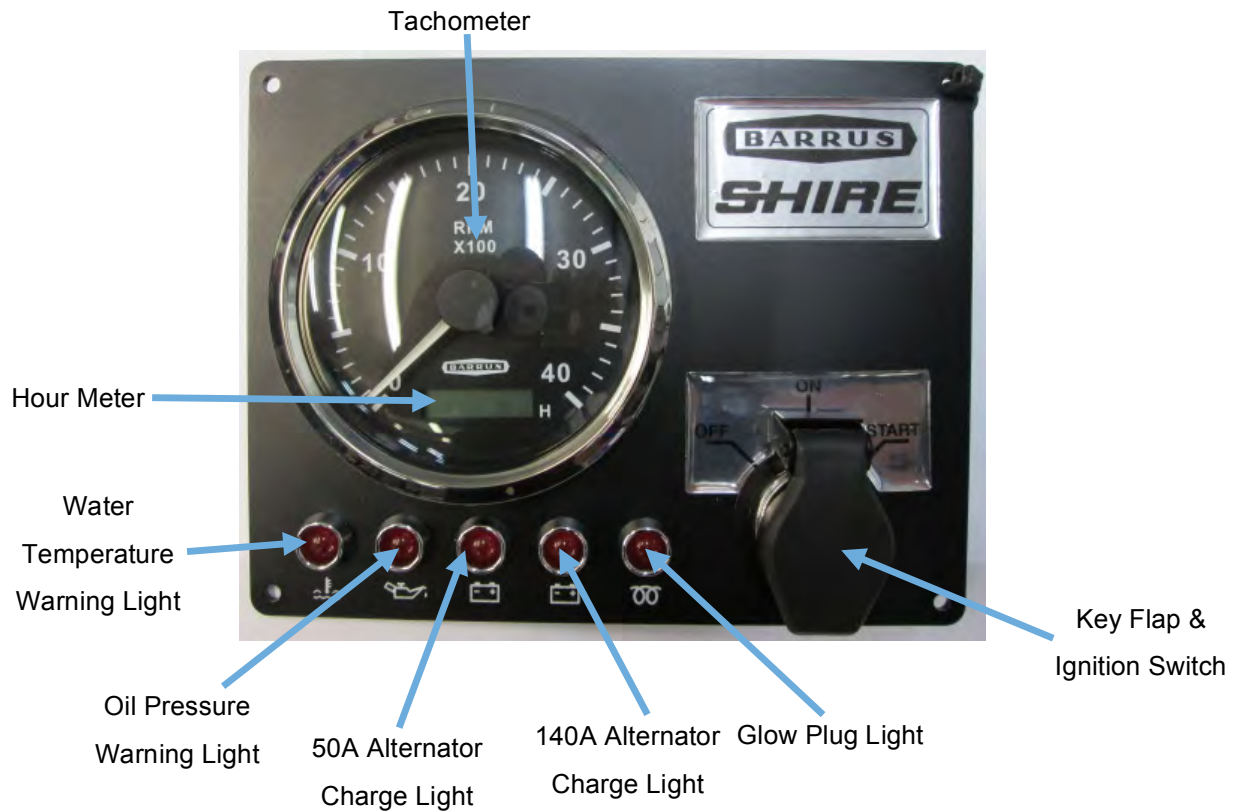


### 3. Deluxe Control Panel Wiring Diagram





**4. RDG20710110 – Standard Control Panel**

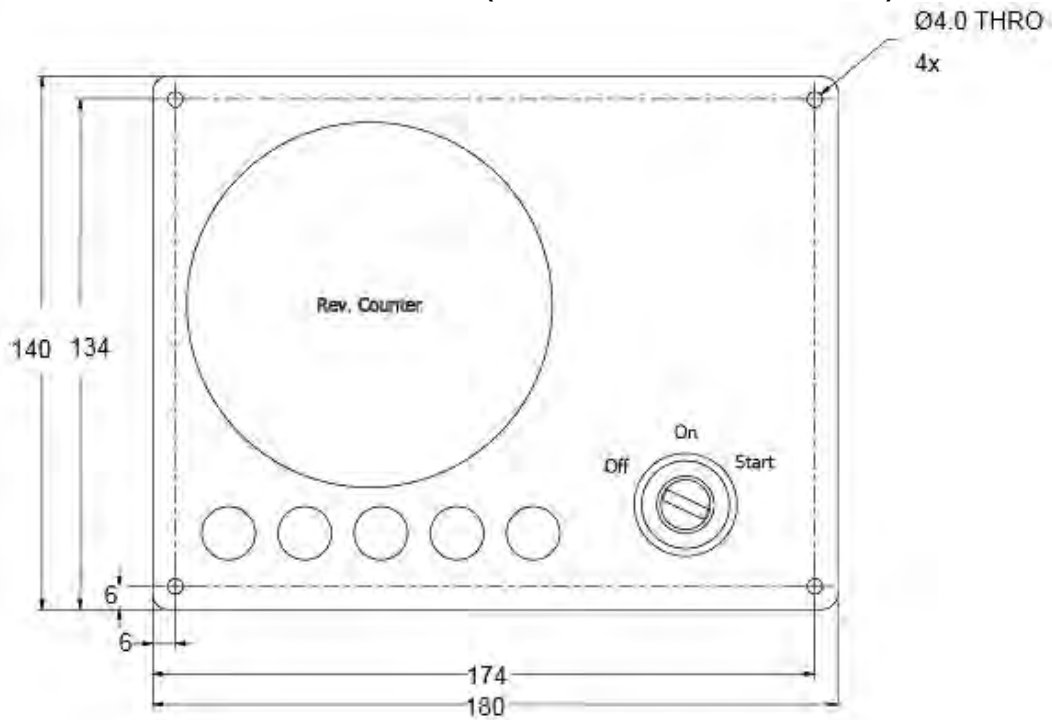


**5. RDG20710111 – Deluxe Control Panel**

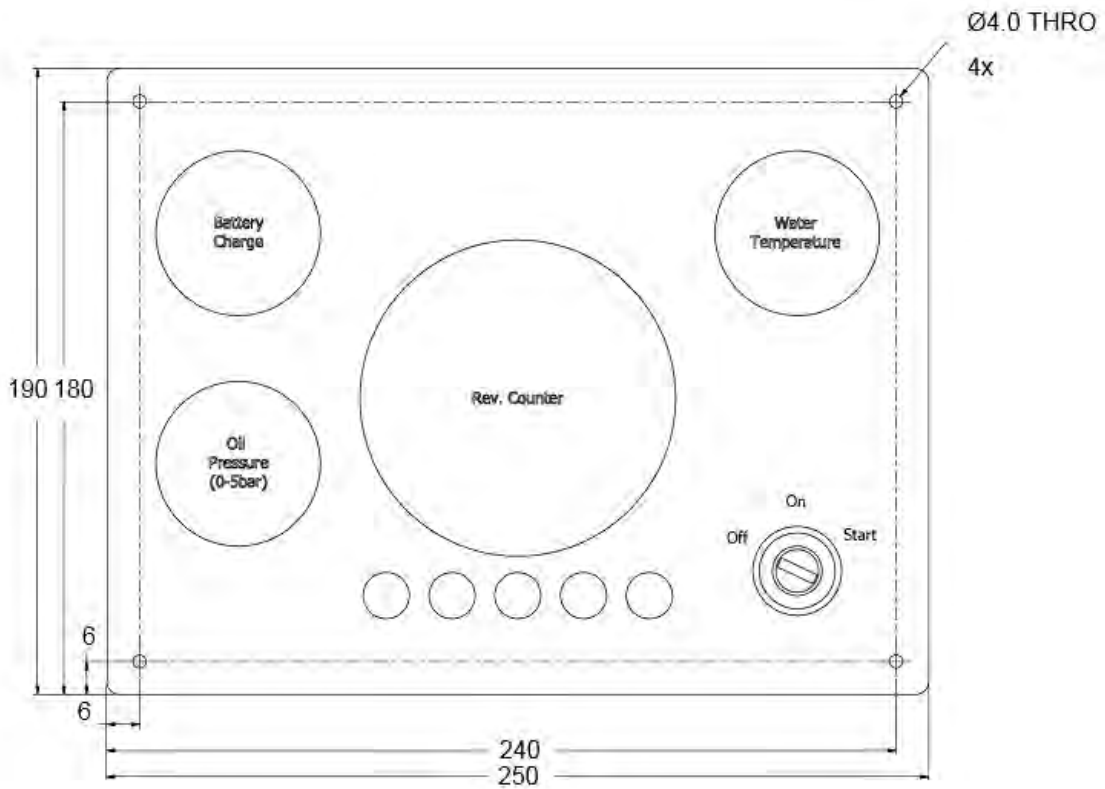


**6. Overall Dimensions of the Control Panels**

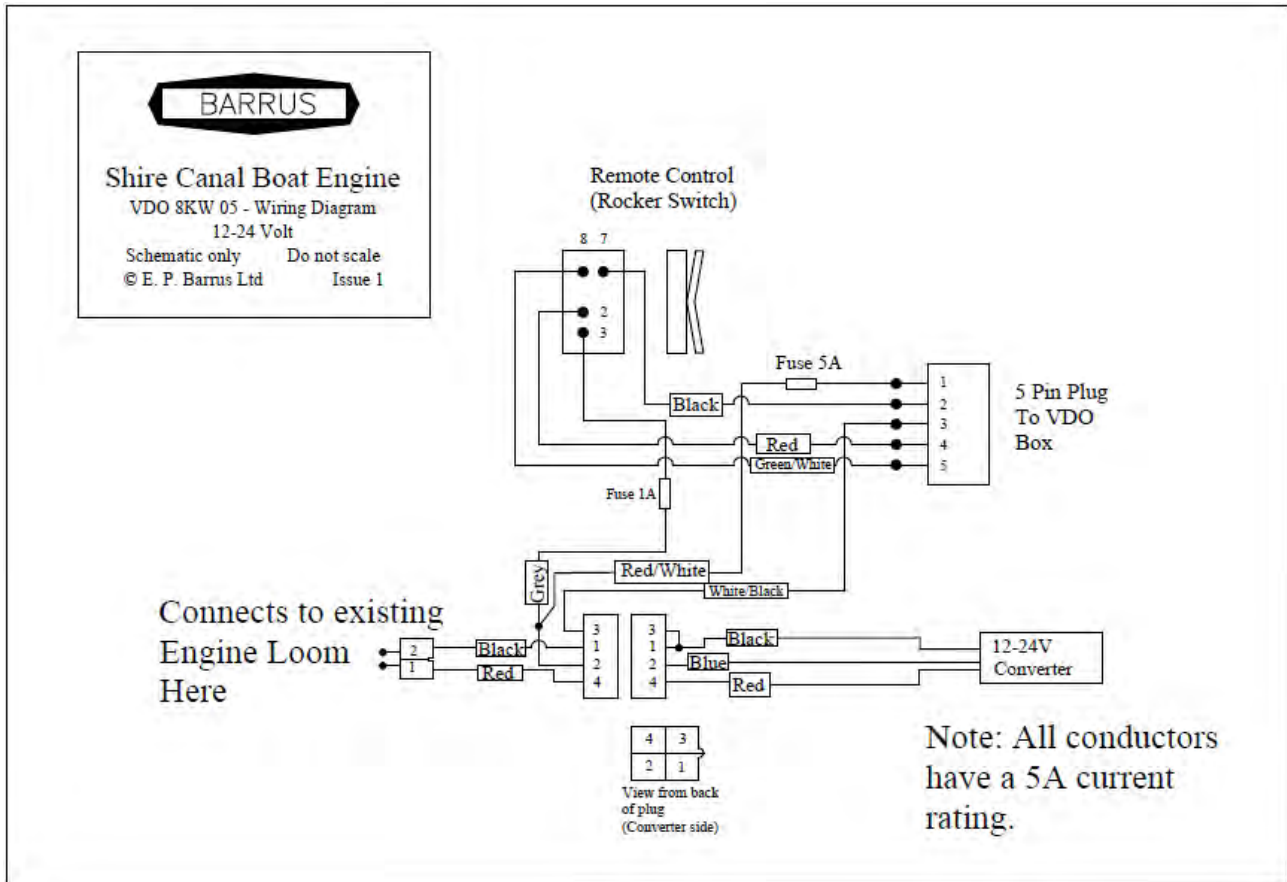
**RDG20710110 - Standard Control Panel (All Dimensions are in mm)**



**RDG20710111 – Deluxe Control Panel (All Dimensions are in mm)**



**7. 8kW Travel Power Wiring Diagram and Overall Dimensions**



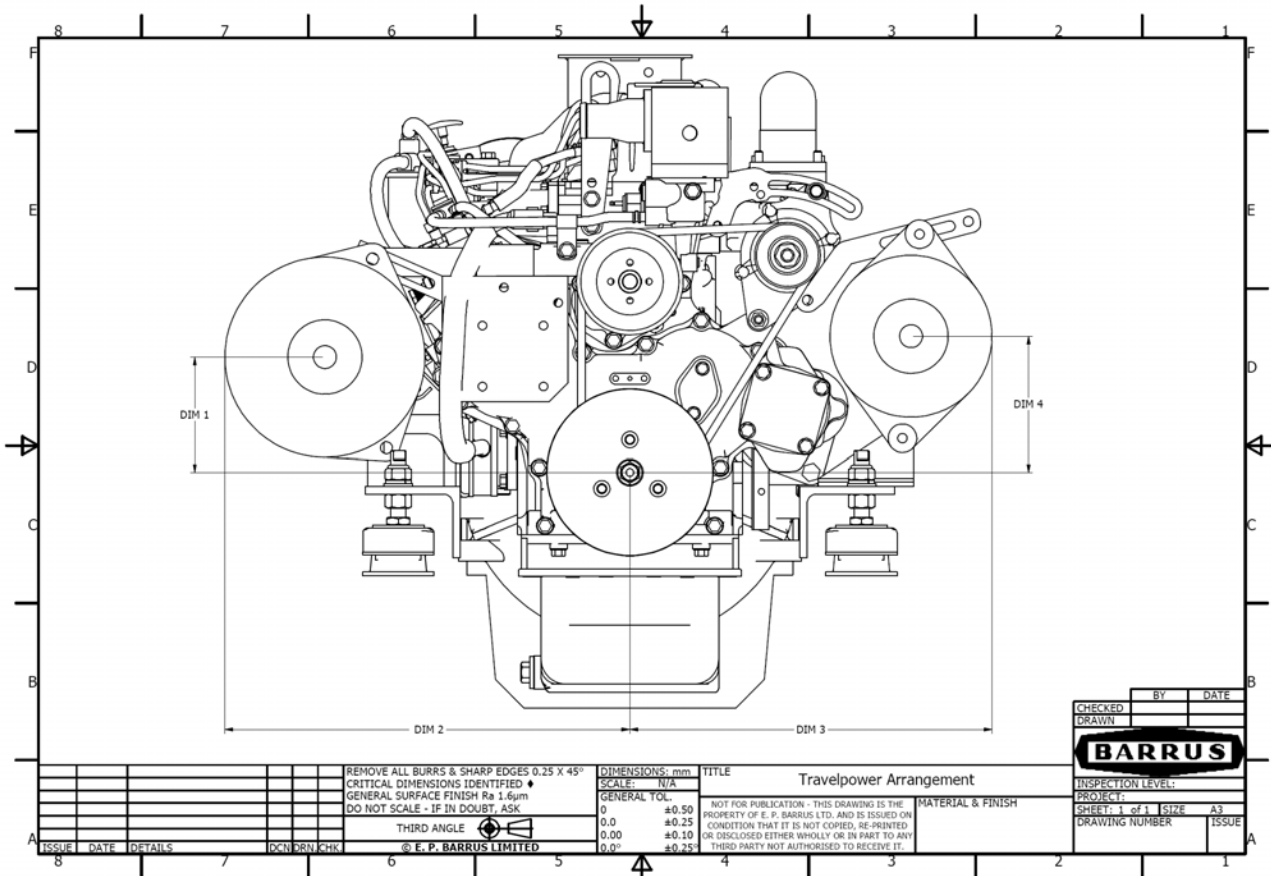
**Figure 16: Travel Power wiring diagram**

**Figure 16** shows the 12/24 volt part of the wiring for the 8kW Travel Power system. For the 230 volt wiring diagram please refer to the Travel Power manual.



**WARNING:**

ALL HIGH VOLTAGE WIRING SYSTEMS SHOULD BE INSTALLED BY A QUALIFIED ELECTRICIAN.



**Figure 17: Travel Power dimensions**

These are the dimensions for **Figure 17**:

	<b>3.5kW</b>	<b>5kW</b>	<b>7/8kW</b>
Dimension 1	65mm	65mm	55mm
Dimension 2	390mm	390mm	470mm
Dimension 3 (140A Alt)		420mm	
Dimension 3 (240A Alt)		445mm	
Dimension 4 (140A Alt)		135mm	
Dimension 4 (240A Alt)		150mm	

## SECTION 8 – Technical Data

Engine Model	3TNV82A	4TNV88 BDYED SH
Type	Vertical In-Line Diesel Engine	Vertical In-Line Diesel Engine
Combustion System	Indirect Injection	Indirect Injection
Aspiration	Natural	Natural
Number of Cylinders	3	4
Bore x Stoke	82 x 84mm	88 x 90mm
Displacement	1.331L	2.190L
Low Idling	850 - 875 rpm	850 - 875 rpm
High Idling	3180 ±25 rpm	3210 ±25 rpm
Direction of Rotation	Counter clockwise Viewed from Flywheel End	Counter clockwise Viewed from Flywheel End
Lubricating System	Forced Lubrication with Trochoid Pump	Forced Lubrication with Trochoid Pump
Normal Oil Pressure at Rated Engine Speed	0.34 – 0.54 MPa / 3.4 – 5.4 bar / 49 – 78 psi	0.39 – 0.54 MPa / 3.9 – 5.4 bar / 56 – 78 psi
Normal Oil Pressure at Low Idle Speed	0.068 MPa / 0.68 bar / 10 psi	0.068 MPa / 0.68 bar / 10 psi
Electric Starting System	Starter Motor: DC12V	Starter Motor: DC12V
	Starter Capacity: 1.7kW	Starter Capacity: 2.3kW
	Recommended Start Battery Capacity: 12V 55Ah	Recommended Start Battery Capacity: 12V 65Ah
Top Clearance (Piston to Head Clearance at tdc)	0.64 ± 0.06mm	0.73 ± 0.06mm
Valve Clearances (Exhaust and Inlet)	0.15 – 0.25mm	0.15 – 0.25mm

## SECTION 9 – Dealer List

Area	Company	Telephone	Email
BERKSHIRE	Bluenine Marine	01189 406482	bluenine@marine7957.fsnet.co.uk
	Aquatec Marine	07880793686	sales@aquatecmarine.com
	Driveline Marine	0118 942 3877	tam@drivelinemarine.com
CESHIRE	Nantwich Canal Centre	01270 625122	info@nantwichcc.com
CORNWALL	Black Dog Marine	01503 265898	blackdogmarine@googlemail.com
	Cellar Marine	01326 280214	john@cellarmarine.com
	G B Smith & Son	01208 862815	info@gbsmithandson.co.uk
CUMBRIA	Windermere Aquatic Ltd	01539 442121	service@aquaticboatcentres.com
DERBYSHIRE	Midland Canal Centre	01283 701933	info@mccboats.co.uk
DEVON	Sleeman & Hawkin Ltd	01626 778266	keith@sleeman-hawkin.co.uk
	Tonto Marine	01803 844399	enquiries@tontomarine.co.uk
	Mobile Marine	01297 631821	mobilemarine@btconnect.com
	Darthaven Marina	01803 752242	admin@darthaven.co.uk
ESSEX	French Marine Motors Ltd	01206 305233 01255 850303	info@frenchmarine.com
HAMPSHIRE	Marine Power Ltd	0238 0403918	info@marine-power.co.uk
HEREFORDSHIRE	Starline Marine	01684 593443	narrowboats@starline.demon.co.uk
HERTFORDSHIRE	P & S Marine	01923 248372	pandsmarinellp@gmail.com
LANCASHIRE	British Waterways	01257 481054	@emmalene.foster@bwml.co.uk
LEICESTERSHIRE	Foxton Boat Services Ltd	01162 792285	tony@foxton-boats.freeseve.co.uk
LONDON	De La Hunty Marine	02089 792121	delahuntymarine@btinternet.com
NORFOLK	French Marine Motors Ltd	01603 722079	info@frenchmarine.com
NORTHAMPTON	Grand Junction Boat Co.	01604 858043	grandjunco@talk21.com
NOTTINGHAM	Farndon Marina	01636 705483	info@farndonmarina.co.uk
OXFORDSHIRE	Service Engine UK	01993 835157	info@serviceenginesuk.co.uk
SHROPSHIRE	Maestermyn (Marine) Ltd	01691 662424	enquiries@maestermyn.co.uk
STAFFORDSHIRE	JD Boat Services Ltd	01902 791811	jdboats@btinternet.com
	Stone Boatbuilding Company	01785 812688	sales@stonebuilding.co.uk
	Streethay Warf	01543 414770	pat@streethaywarf.freeseve.co.uk
WARWICKSHIRE	Barry Hawkins Narrowboats	01827 711762	boats@hawkinsyard.freeseve.co.uk

	Onboard Energy	02476 393333	sales@onboardenergy.com
	Springwood Haven Leisure Ltd	0845 4566572	enquiries@springwoodhaven.co.uk
	Valley Boat Services Ltd	07990528123	enquiries@valleycruises.co.uk
WEST MIDLANDS	Stephen Goldsbrough Boats	01564 778210	andy@sgboats.com
WILTSHIRE	Foxhangers Marine	01380 828795	info@foxhangers.co.uk
WORCESTERSHIRE	J L Pinder & Son	01527 876438	sales@jlpinderandsons.co.uk
	Starline Narrowboats	01684 874774	narrowboats@starline.demon.co.uk
YORKSHIRE	Rodley Boat Centre	01132 576132	John.snowdenz@ntlworld.com
MONMOUTHSHIRE	Castle Narrowboats	01873 830001	castlenarrowboats@btinternet.com
EIRE	Dun Laoghaire Marine Services	00353 12104776	info@dlms.ie
	O'Sullivans Marine	003536 67124524	brian@sulliansmarine.com

## SECTION 10 – Shire Service Parts

Model	32	30/33/35	38	40	45/50
Primary Fuel Filter	Not standard fitment	RDG9188346	Not standard fitment	RDG9188346	RDG9188346
Engine Fuel Filter	119802-55801	119802-55801	119802-55801	119802-55801	119802-55801
50A Alt Belt	25132-003700	25132-003700	RDG6079	RDG6079	RDG6079
140A Alt Belt	-	RDG6076	RDG6076	RDG6076	-
240A Alt Belt	-	-	-	-	RDG0047498
Air Filter Element	RDG906A8	RDG5795	RDG5795	RDG5795	RDG5795
Pre Air Filter Cover	3011-B1-0026	-	-	-	-
Oil Filter	129150-35153	129150-35153	129150-35153	129150-35153	129150-35153

### Travel Power:

3.5kw Travel Power alternator belt is RDG0047511.

5kW Travel Power alternator belt is RDG0047511.

7/8kW Travel Power alternator belt is RDG6082.

### Fuses:

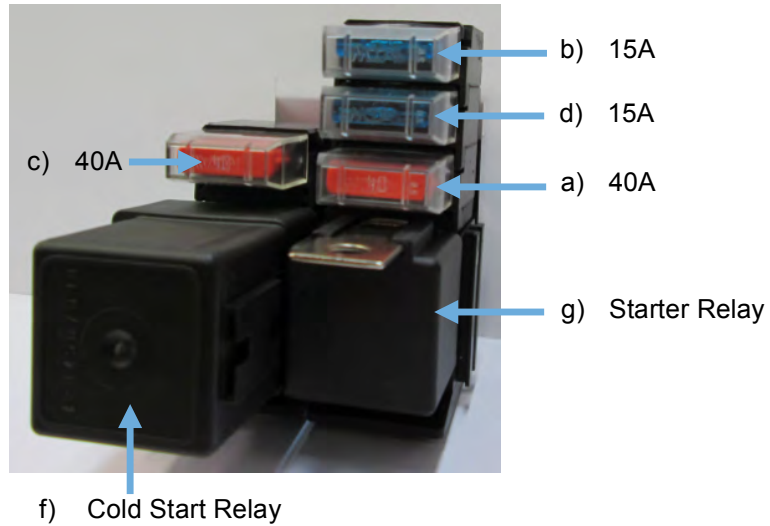
The electrical system is fitted with three or four blade type fuses:

- a) Engine stop control system: 40amp (RDG3246)
- b) Control Panel supply: 15amp (RDG3245)
- c) Engine start control system: 40amp (RDG3246)
- d) Glow Plug Fuse: 40amp (RDG3246)
- e) 7/8kw Alternator sub-system: 15amp (RDG3245) - Optional

### Relays:

- f) Cold Start Relay: (RDG1396)
- g) Starter Relay: (RDG5279)





**Engine Oil:**

Engine Oil is available from your Shire Dealer in convenient 5 litre containers (Part Number RDG6110).

**Diesel Fuel Additive:**

Diesel fuel additive is available from your Shire Dealer in a handy 375ml container (Part No RDG80210219).

**SECTION 11 – Shire Service Record Card**

# SHIRE®

## SERVICE RECORD CARD

Model: .....

Engine No: .....

Carried out by E.P.Barrus

Print Name:

PDI

Actual Hours:

Signed:

Boat Builder Stamp:

Commission of Boat and Hand Over to Customer.  
(Refer to the Installation Check List Page in this Manual).

Date:

Signed:

Dealer Stamp:

Actual Hours:

1st

Signed:

Dealer Stamp:

Actual Hours:

2nd

Signed:

Dealer Stamp:

Actual Hours:

3rd

Signed:

Dealer Stamp:

Actual Hours:

4th

Signed:

Dealer Stamp:

Actual Hours:

5th

Signed:

Dealer Stamp:

Actual Hours:

6th

Signed:

Please refer to Owner's Manual for service intervals