



SHIRE CANAL, WORK AND RIVER BOAT ENGINE MANUAL

For the following engine models:

Shire 15 15 CB / WB / RB

SHIRE 15 20 CB / WB / RB

Please read in conjunction with the PRM Gearbox Manual



Enter your engine identification details in the spaces provided above.

Declaration of Conformity for Recreational Craft Propulsion Engines to the Directive No 2013/53/EU

Name of Engine Manufacturer: E.P.Barrus LTD	
Name of Authorised Representative: E.P.Barrus LTD	
Address: E.P.Barrus LTD, Launton Road, Bicester, Oxon, OX26 4UR, England	
Name of Notified Body for <u>exhaust emission assessment</u> : HPi Verification Services Ltd	
Address: The Manor House, Howbery Park	
Town: Wallingford	Post Code: OX10 8BA
Country: United Kingdom	ID Number: 1521
Conformity assessment module used for exhaust emissions: B+C B+D B+E B+F G H	
Or engine type-approved according to: Directive 2013/53/EU	
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 Family code	Type Approval Certificate Number
Shire 15 15 CB/RB/WB	2M78	M78	HPiVS/R1105-002-I-02
Shire 15 20 CB/RB/WB	3M78	M78	HPiVS/R1105-002-I-02

Essential Requirements	Standards	Other normative document/method.	Technical file	Specify in more detail * = Mandatory standard.
Annex 1.B- Exhaust Emissions				
B.1 Engine Identification		<input checked="" type="checkbox"/> RCD (II)	<input checked="" type="checkbox"/>	2013/53/EU
B.2 Exhaust emission requirements	<input checked="" type="checkbox"/> *			* EN ISO 8178- 1:1996
B.3 Durability		<input checked="" type="checkbox"/>		2013/53/EU
B.4 Owners Manual	<input checked="" type="checkbox"/>		<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]¹ will meet the exhaust emission requirements of Directive 2013/53/EU 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: 18/01/2016

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:

- Leisure Applications: Two (2) years from the date of warranty registration.
- Commercial Applications: One (1) year or a maximum of 1000 hour from the date of warranty registration (whichever occurs first).

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 two (2) year warranty.

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 GASES / 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**):

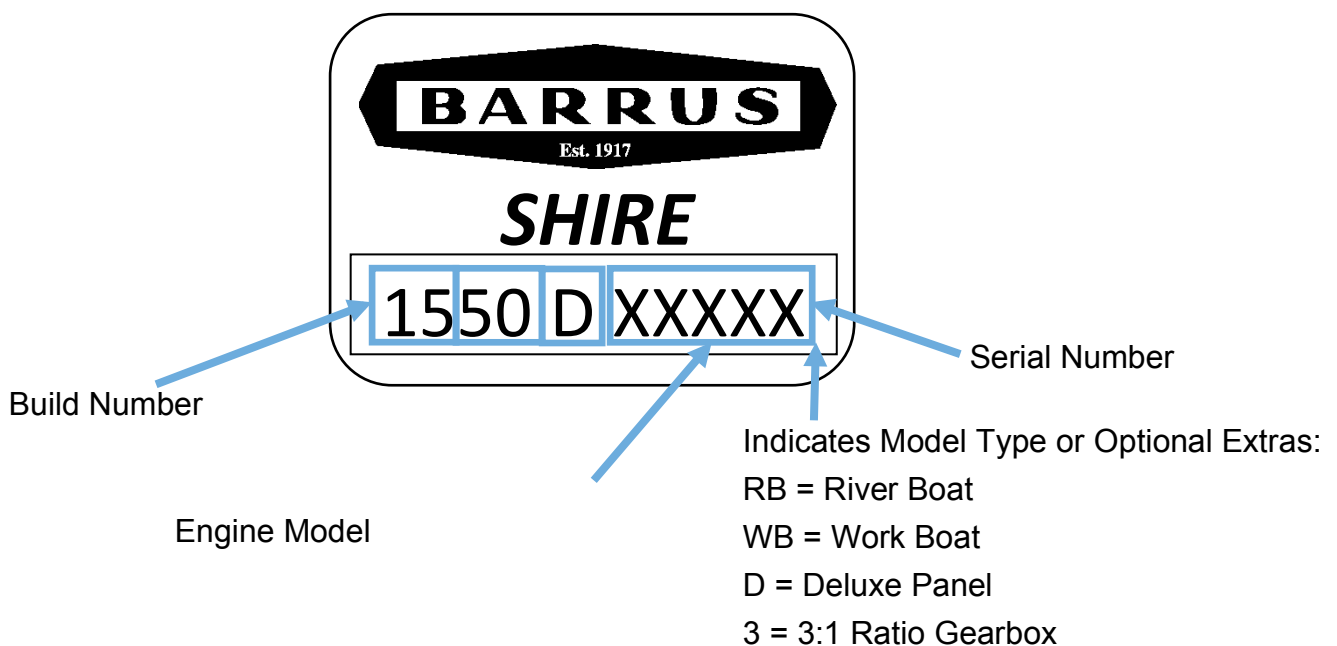


Figure 1: Engine Identification Badge

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 10,000mm² each (16in²).

An allowance must be made for any rills, 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 (Canal Boats with Skin Tanks)

- Ensure pipe work to and from the skin tanks is of sufficient bore. A minimum of 28mm (1¹/₆“) is recommended Ensure tight bends and elbows are avoided or kept to a minimum.

4. Skin Tanks (Canal Boats)

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.

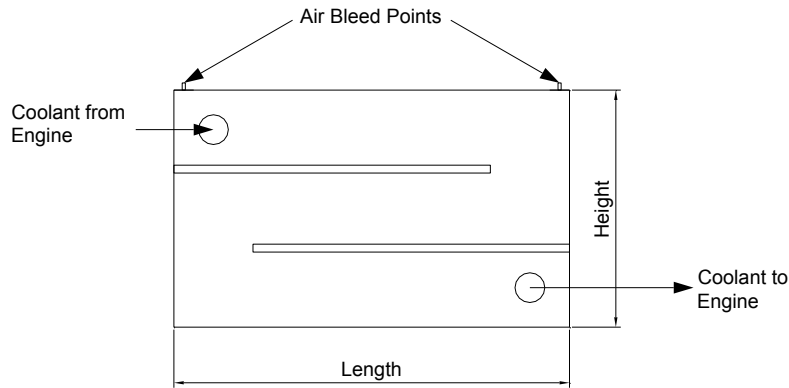


Figure 2: Skin Tank Flow Diagram

Recommended Skin Tank Size					
Engine	HP	KW	Skin tank surface area m ²	Suggested Height mm	Suggested Length mm
15	15	11	0.75m	600	1000
20	20	15	0.75	600	1250

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

5. Engine Cooling Water Connections

For Canal Boats:

These are on the Left hand (Port) side of the engine:

- Shire 15 and 20 28mm (1 1/6") OD
- The hose must be capable of taking water at temperatures in excess of 90°C. The hose should also be non-collapsible.

For River Boats & Workboats:

- Seawater inlet hose size: 19mm (3/4")
- Water cooled exhaust hose size: 50mm (2")

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.
- The two hosetails on the plastic header tank have different hole diameters. Please

make sure they are connected the correct way around as per **Figure 3** and **Figure 4**.

Note: Not fitted to RB engines

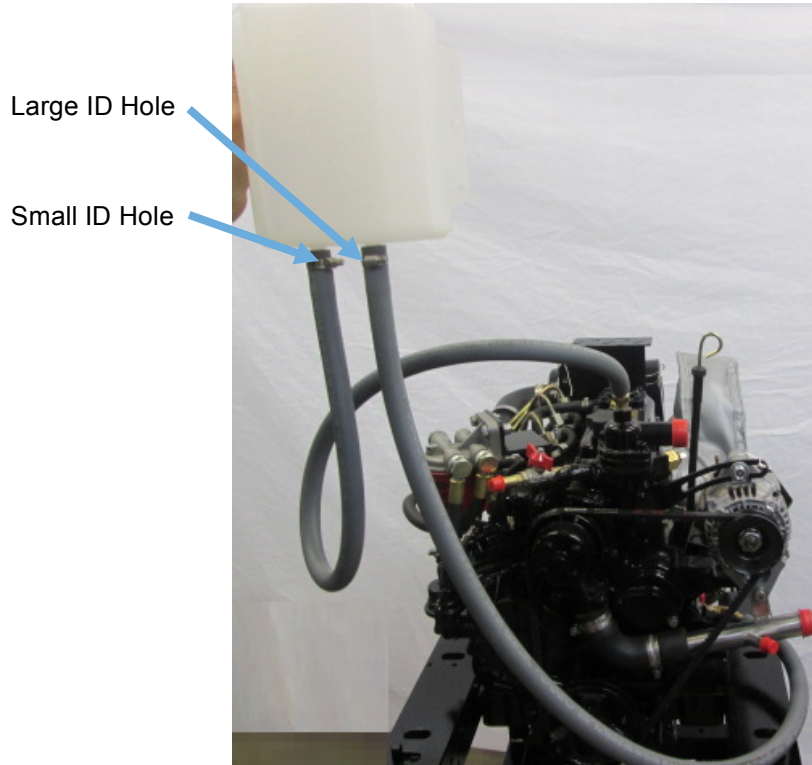


Figure 3: Shire 15 20 Canal Boat Header Tank Connections

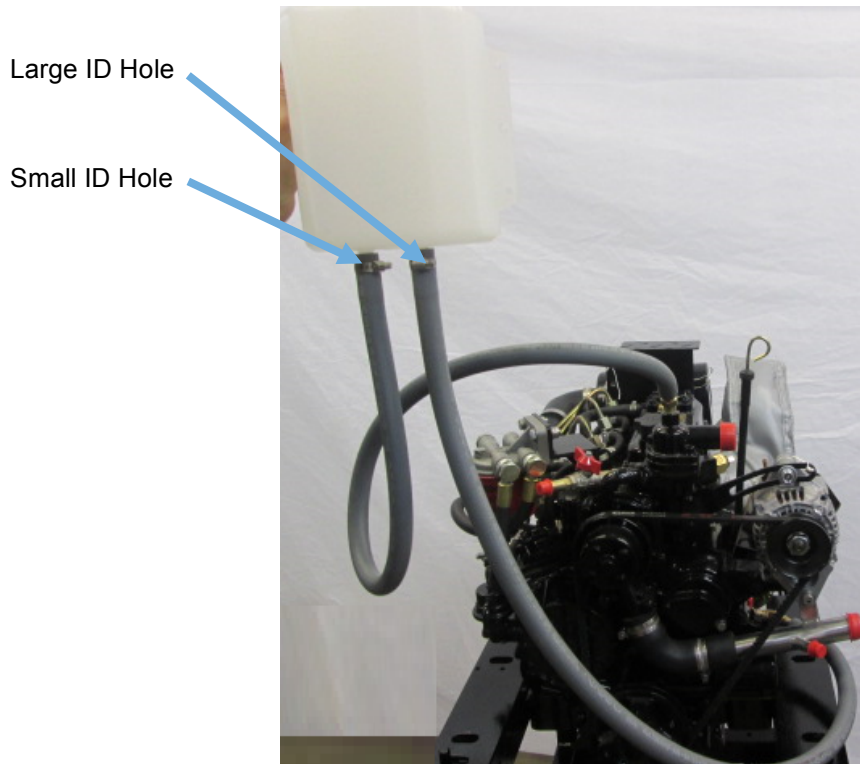


Figure 4: Shire 15/20 Work Boat Header Tank Connections

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.
- 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.
- Alternative mounting holes for the anti-vibration mounts are available. Your new engine maybe replacing an old engine so suitable holes may align with your existing mounting holes
- For the best results, the mounting screw for the front mount should go into the most forward hole in the bracket. The mounting screw for the rear mount should go into the most rearward hole in the bracket.

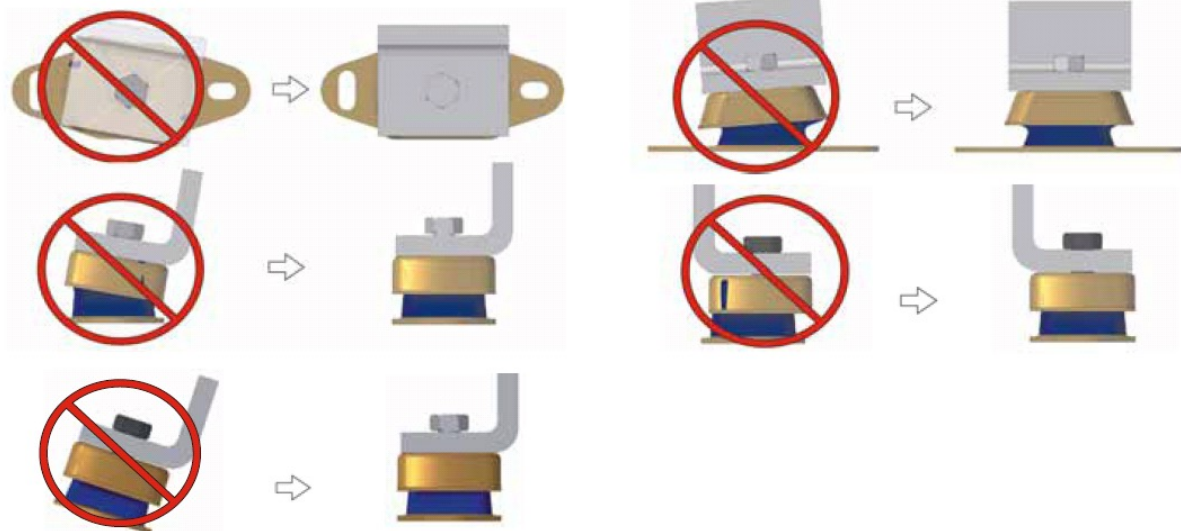


Figure 5: Correct Anti-Vibration Mount Installation

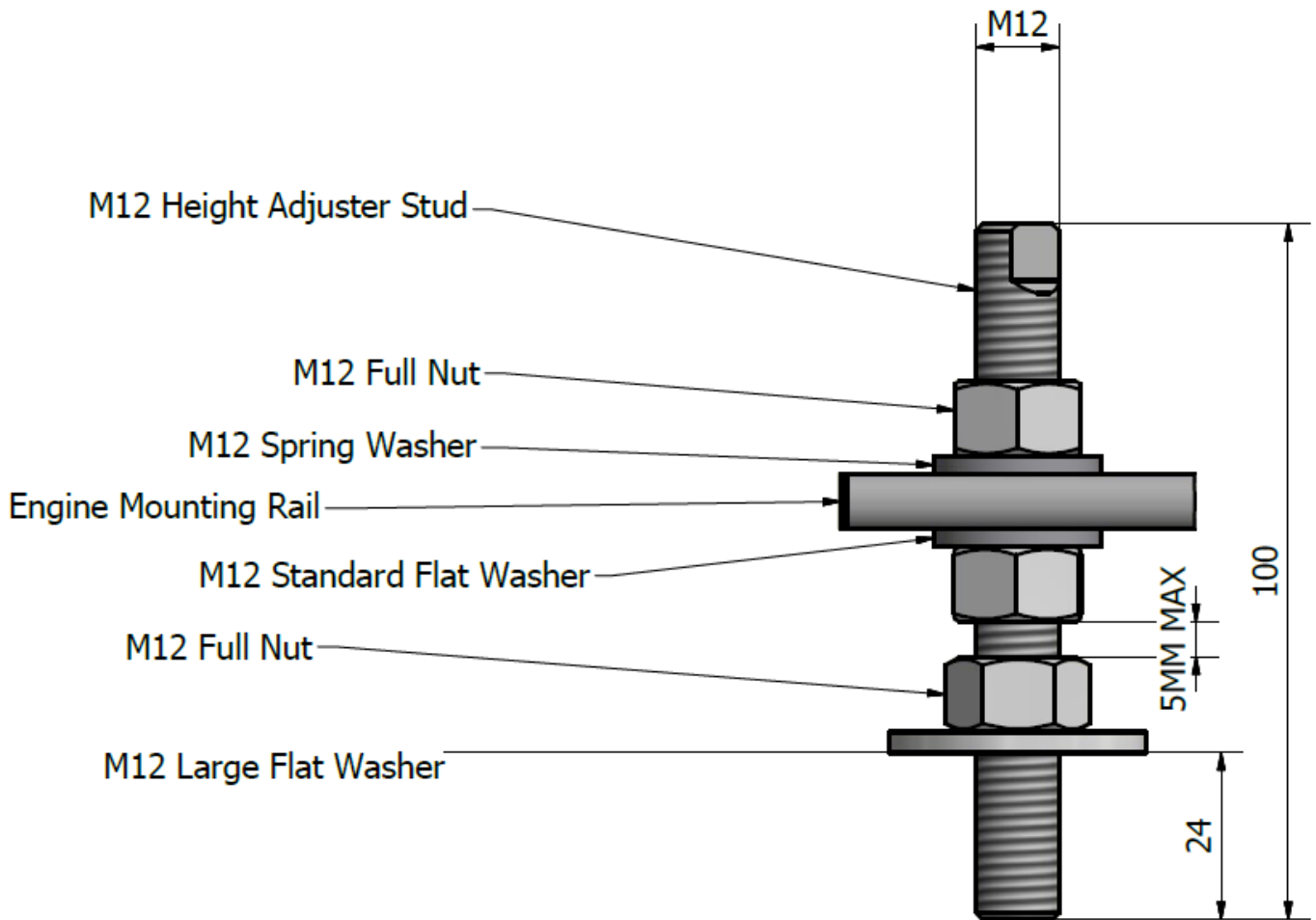
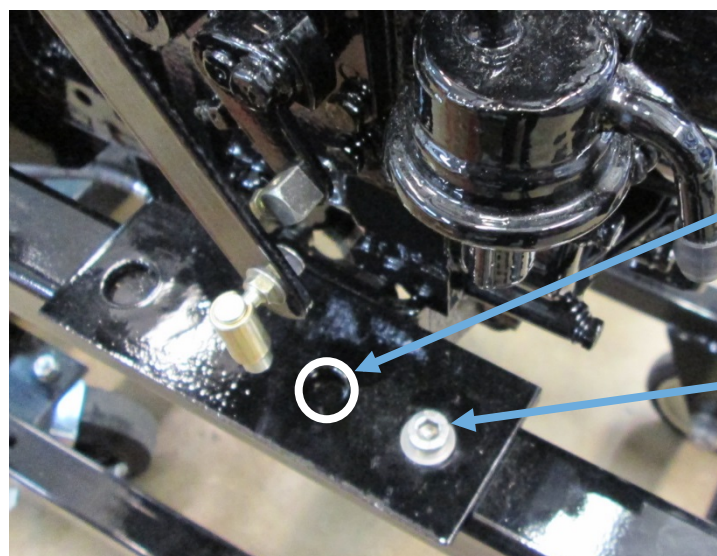


Figure 6: Correct Anti-Vibration Mount Installation



Alternative mounting position if engine compartment space is

Normal mounting position

Figure 7: 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 rechecked 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 50mm².
- For twin alternator engines, connect the domestic battery positive cable to the 70A alternator B+ terminal (see wiring diagram). This ensures that the 50A alternator charges the start battery and the 70A alternator charges the domestic battery, removing the requirement for a split charging system or relay.
- Negative battery terminal must be connected to a common earth point.

11. Electrical Options

- Standard engine is a single 50A Alternator.
- Option 1, is a single 70A Alternator. (SS1491)
- Option 2, is Twin Alternators 50A and 70A (CB engine only)
- Electrically operated stop solenoid (energise to run). (SS1553 or SS1554)
- Deluxe Control Panel. (SS1551)

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.
- 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 fuel pump is the inlet.
- The engine hoses are supplied with 5/16" (8mm) OD metal hose tails 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.
- Loosen the bleed screw on the top of the primary fuel filter/water trap. Depress and pump the spring loaded plunger on top of the fuel filter assembly. Close when fuel begins to flow clearly (no bubbles). 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. Please make sure that the antifreeze used is suitable for the silicone hoses fitted to the engine.
- Open the calorifier taps (if fitted) to fill the calorifier system and displace air.

Canal Boats: To fill the cooling system for the first time, fill the skin tank via the inlet hose connection or filler plug if fitted.

- Fill the engine through white plastic expansion tank.

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

Workboats: Dry Manifold, fill the engine through the white expansion tank.

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

Riverboats with Water Cooled Manifold: Remove filler cap on top of water cooled exhaust manifold and fill cooling system through here. Run engine at idle for a few minutes with cap removed to ensure air is removed and allow a 13mm (1/2") air gap in top of manifold to allow for expansion.

Note: Water Tap (CB & WB engines only) on side of engine must be opened to fill engine and must be closed to the off position to run the engine. (**Figure 8**)

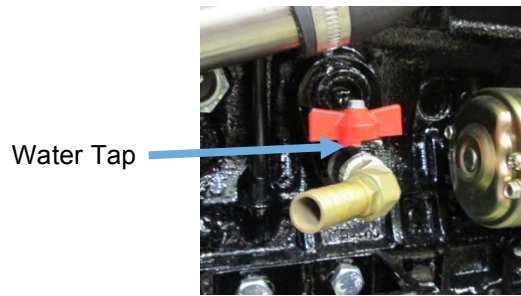


Figure 8: Water Tap on CB & WB Engines

15. Calorifier

For Canal Boats:

- The calorifiers are positioned as per (**Figure 9**)

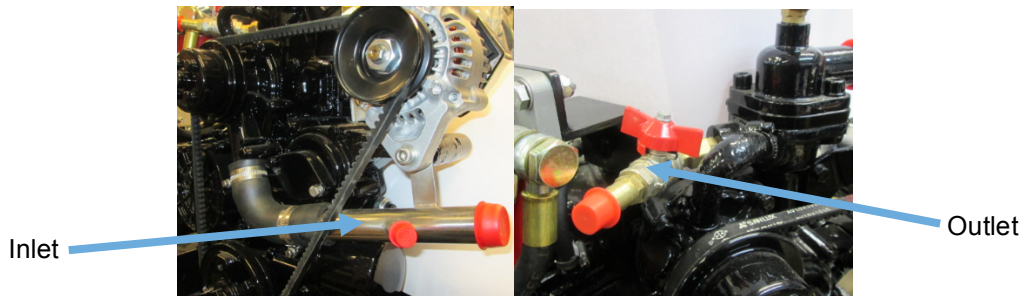


Figure 9: Position of Calorifiers on a Canal Boat

For Work Boats:

- The calorifiers are positioned as per (**Figure 10**)

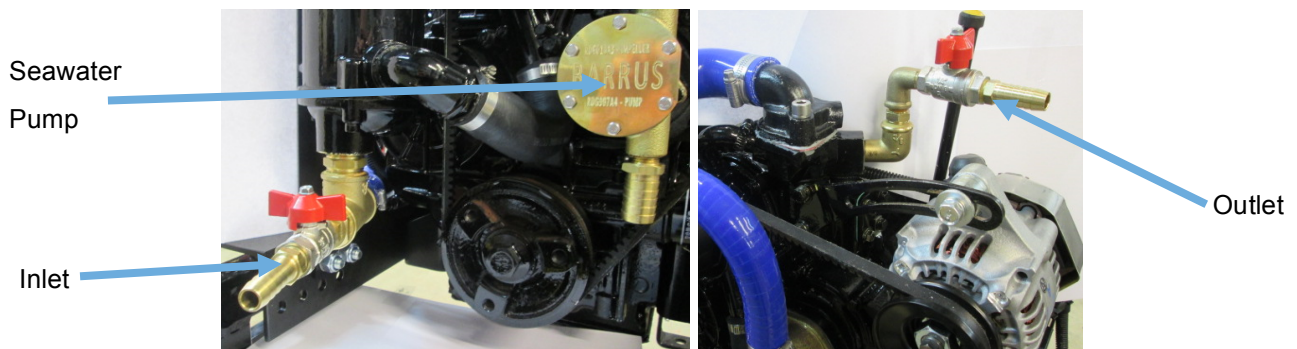


Figure 10: Position of Calorifiers on a Work Boat

For River Boats:

- The calorifiers are positioned as per (**Figure 11**)

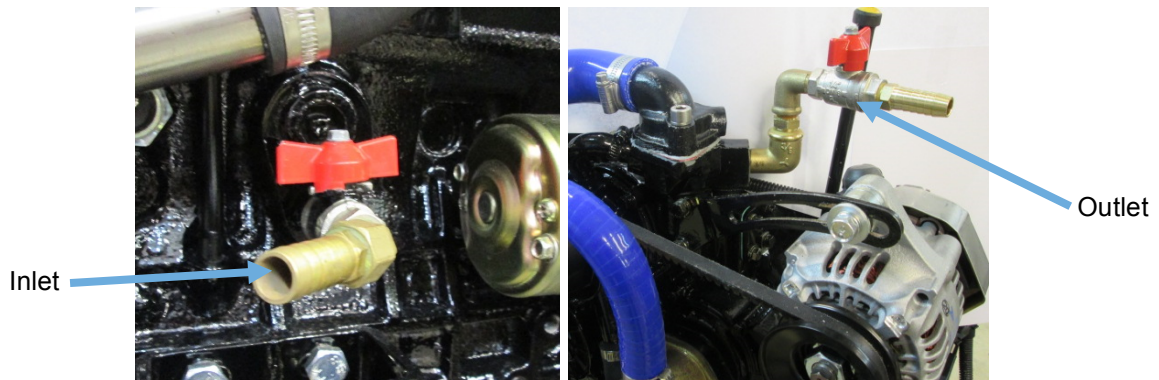


Figure 11: Position of Calorifiers on a River Boat

WARNING:

- 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 dealer.

- 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 70amp domestic alternator

$$3 \times 70 = 210 \text{ ampere/hour maximum battery bank size}$$

Example 2:

Weekend cruising or hire fleet application fitted with 50amp domestic alternator

$$3.5 \times 50 = 175 \text{ ampere/hour maximum battery bank size.}$$

Note: For boats with single alternators and using domestic batteries, it is strongly advised to use a split charge relay system and separate batteries. This will ensure that the start battery does not become discharged.

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.

Barrus Alternator (Amps)	Barrus Tacho reading
50	10.50 – 11.00
70	15.00
50 & 70 (Twin Alts)	Only the 50 Amp alternator requires calibration

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.

19. Exhaust System (Canal Boat)

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

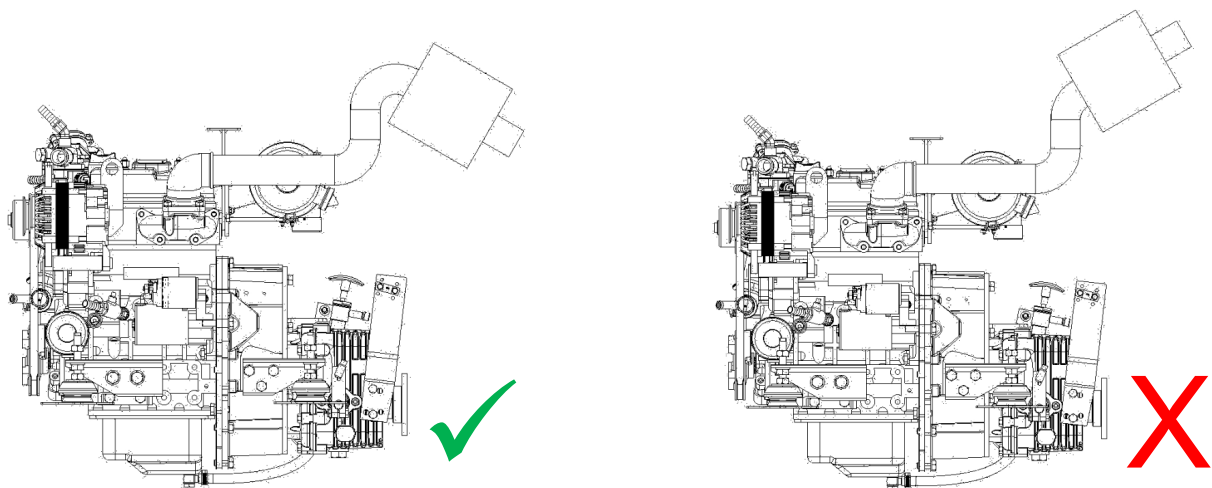


Figure 12: Correct Installation of Exhaust

- Make sure the exhaust increases then decreases in height as shown in (Figure 12).

20. Exhaust System (Work Boat / River Boat)

Use 50mm ID suitable marine flexible exhaust hose on the 20 Work Boat model engine. The exhaust system must not be restricted in any way.

Note: If the engine is installed low down in the boat, below the outside water level, a system such as a Lift Silencer with a siphon break system, must be used to prevent sea water from flowing back down the exhaust and into the engine.

- **Lift Silencer**

The correct installation of the lift silencer is vital to safety, and to avoid back flooding of the engine. **Figure 13** shows how to install the lift silencer correctly (Note: Halyard (M&I) Limited have given Barrus permission to use the diagram).

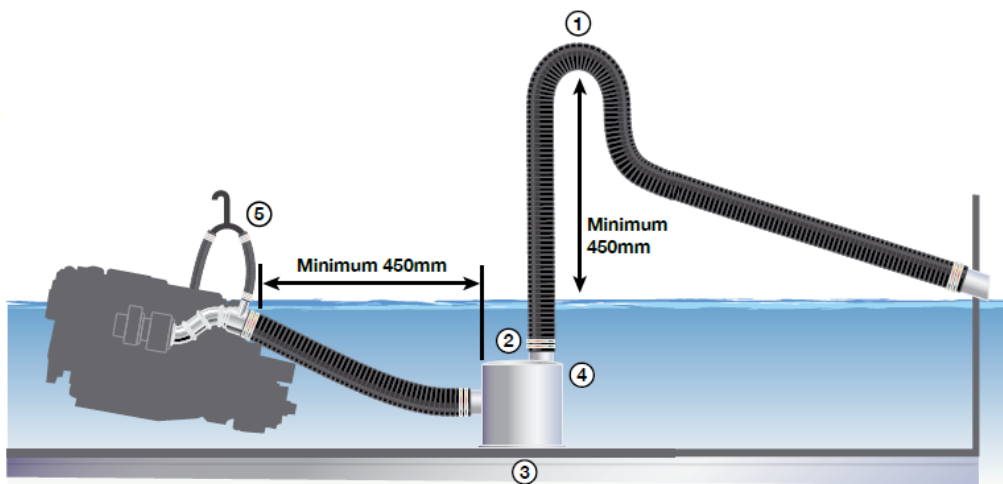


Figure 13: Correct Installation of the Lift Silencer

1. The swan neck must reach at least 450mm (18") above the waterline, when installed on hull centreline.
2. The top of the silencer should be at least 300mm (12") below the water injection point.
3. The silencer must be installed as near as possible to the centreline of the hull, particularly where severe angles of heel are expected. The swan neck must be 450mm above heeled water line.
4. Remember that 15% of the volume of the exhaust hose may be water. The size of the silencer selected must be such that water draining into it will fit it by no more than one third.
5. A siphon break must be used.

The silencer may only be used in a Water Injected marine exhaust system. The overall design of the system, and choice of components, will have a result on the back pressure in

the exhaust which is vital to the performance and life of the engine. **Barrus recommend that Halyard (M&I) Limited are used for the Lift Silencer, Siphon Break and other components. Contact Halyard (M&I) Limited for further information.**

The silencer must be drained before the boat is craned or transported and during the winter.

There must be at least 450mm distance between the water injection point and the position of the silencer to allow adequate cooling of the exhaust gases. Maximum temperature during continuous operation of the silencer is limited to 85 degrees centigrade. Normally in a well-designed system, the temperature of the silencer should be between 50-70 degrees centigrade. Such operation will result in longer exhaust life.

Connections to the silencer should be made using suitable exhaust hose, which is type approved by Lloyds and DNV. Do not use oil or grease to lubricate hoses when installing, wetting the inside of the hoses with water will help them slip more easily over the silencer spigots. A minimum of 2 hose clips must be used. Securely tighten all hose clamps, but be careful not to overtighten.

The silencer should be positioned within 300mm of the centre line of the vessel, or to the engine on which it is installed. This is particularly important on sailing vessels where a substantial angle of heel can be encountered. On systems where the exhaust manifold is near or below the water line. A siphon break should be used to prevent the water flow continuing after the engine shut down.

In all installations the silencer should be at the lowest point of the entire exhaust system. The top of the silencer should be at least below the exhaust manifold outlet for the best performance. If a distance less than is allowed, the margin of safety for preventing reverse flow of water toward the manifold will decrease.

- **Siphon Breaker Fitting Instructions**

1. The unit must be positioned upright, well above waterline. The height above waterline will vary from vessel to vessel but will be between 150mm and 2 metres. Please seek guidance on this if you are unsure, or if you are not familiar with the correct way to incorporate a siphon breaker into your particular exhaust system.
2. The inverted “U” bend at the top must be connected to a hose draining into the bilge, or over the side of the vessel. In no circumstances must this drain into a

sealed container, such as a bottle due to the risk of back siphoning. After fitting, run the engine and check the unions for leaks. Check again after 5 running hours.

3. The siphon break is equally suitable for use with a marine toilet water inlet.
4. The ½" unit may also be used with 5/8" systems. The 3/4" and 1" units may only be used with the correct hose.

- **Siphon Breaker Maintenance**

1. On commercial vessels achieving in excess of 150 engine hours per year, the unit should have the small valve removed from the top and this should be thoroughly washed in warm soapy water to remove salt encrustation.
2. On a pleasure vessel this should be done twice a year.
3. On reassembly the engine should be run and the unit checked for leaks. The hose junctions should also be checked for leaks as part of the daily inspection procedure for sea cocks, water pipes, oil levels, etc.

21. Hydraulic Drive Transmissions

If an engine is to have a hydraulic drive transmission attached to it, 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 in the seawater cooling system after the engine, not before.

Coolers that are installed before the engine will invalidate the engine warranty.

22. 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)	
Anti-Vibration mounts correct height, spacers if necessary. Make sure all nuts are tight	
Exhaust system as specified	
Battery leads are of correct size, tightened and start battery is charged	
Check tension of alternator belts & wiring connected	
Belt alignment checked and corrected if necessary	
Check fuel system is connected correctly and primed	
Fuel line water trap installed and water drained off	
Check header tank and skin tank connections are correct way round, 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	
Suitable specification of hose between seacock and seawater pump with no restrictions is fitted	
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		
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.
- For standard engines ensure the fuel stop knob is pushed into the run position.
- Turn key to on position.
- Observe warning lights (and gauges on deluxe panel).
- Listen for warning buzzer.
- The cold starter glow plug light will illuminate.
- When the glow plug light extinguishes, turn key to second position, start, and hold to crank.
- Crank the engine for no more than 15 seconds.
- On engine start, immediately release key.
- Key will return to first position, on.
- The warning buzzer will stop and on the deluxe panel the oil pressure gauge will show an oil pressure of 3.1-4.1 bar (45-60 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 immediately 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: The engine must be stopped and ignition key removed to carry out this check.

3. Stopping Procedure

For Standard Engine:

- Move speed control lever to the idle position.
- Pull manual stop control knob on control panel.
- Turn ignition key to off position.

For Engine with Optional Electric Stop:

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

4. Refuelling

- All Shire engines run on diesel fuel. **DO NOT USE BIODIESEL**
- 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.

5. 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. This 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)

6. Exhaust Back Pressure

- The back pressure falls within the manufacturers recommended range when using the exhaust system recommended for the engine.
- The maximum allowable back pressure is 0.35 Bar (4 PSI)

7. 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:

REMOVE THE IGNITION KEY BEFORE WORKING IN ENGINE COMPARTMENT.

1. Daily Maintenance

- Check the oil level in the sump. Make sure it lies between the upper and lower mark lines on the dipstick.
- For Shire 15 15/20 Canal Boat/Work Boat, check the coolant level in the water bottle. It must be between the level indicators.
- For Shire 15 15/20 River Boat, check the level in the exhaust heat exchanger.
- Check the oil level inside the governor of the fuel injection pump. Refill it if insufficient.
- Check for leakage of oil, water and air.
- Check the installation of the engine. Make sure all mounting bolts are tightened, as well as other components.

2. 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).
- 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, 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 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.

3. Air Filter Check and Change

- Release the three 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. Note: Only the single outer element is used for Marine engines.

4. Gearbox Oil Change

Note: Some engines will have an optional 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 5 litres.
- 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 (the PRM 80 only has one mark which is the max level mark. The PRM 60 and PRM 150 have two marks, the top one is the max level and the bottom one is the minimum level). Refer to the PRM owner's manual for more details. Section 6 contains details of oil specifications.
- Do not overfill the gearbox as this can damage the internal components.

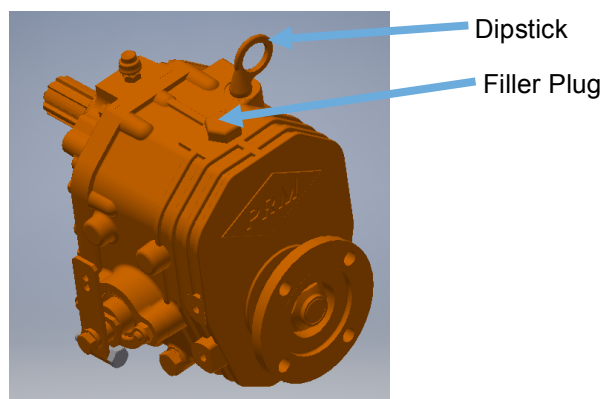


Figure 14: PRM 60

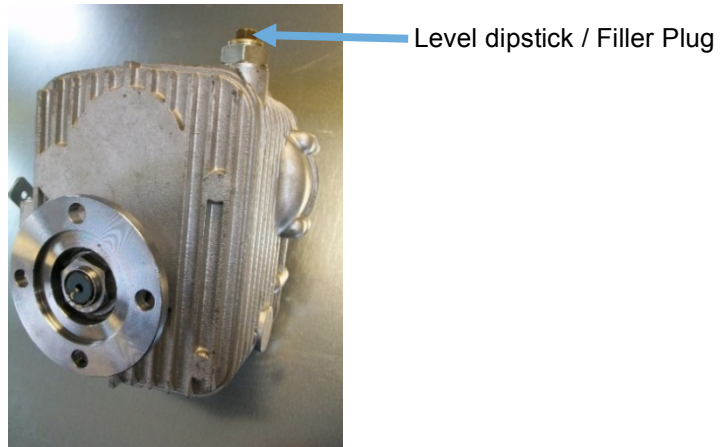


Figure 15: PRM 80

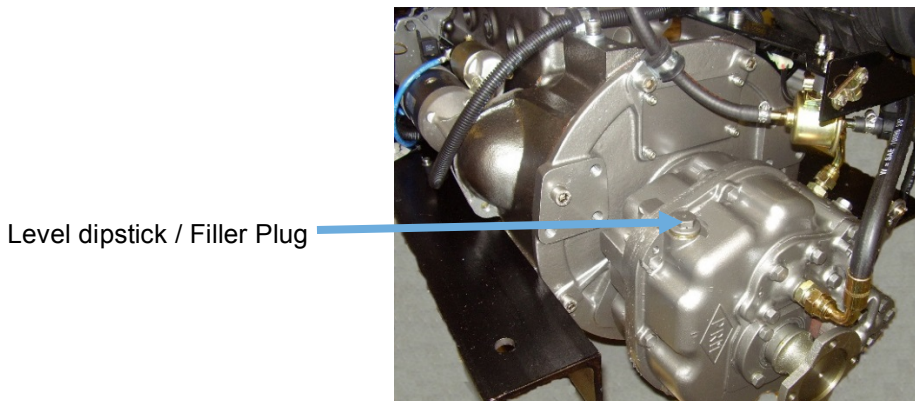


Figure 16: PRM150 Gearbox (Optional)

5. 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.

6. Fuel Filter Drain – Shire 15 15/20

- 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 17**)
- Drain off any water.
- Once the water has been drained, retighten the drain screw.
- It is unlikely the complete fuel system will require bleeding.
- Ensure the fuel tank is full prior to bleeding the fuel system.
- 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 must have fitted an additional water trap in the fuel system. Ensure that this is drained regularly.



Figure 17: Fuel Filter Drain Screw

7. 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 filter in the same way as the oil filter in Part 1 of Section 5.
- 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.

8. Fuel System Bleeding

- Ensure the fuel tank is at least $\frac{3}{4}$ full prior to undertaking this procedure.
- Open the bleed screw on top of the engine fuel filter.
- Operate the fuel lift pump by hand or if there is an electric fuel pump, turn the ignition keys on.
- After the fuel filter has been purged of air, close the bleed screw.
- Undo **ALL** the injector pipe connections.
- Crank the engine over with the starter motor. When fuel can be seen, stop cranking.
- Tighten the injector pipe connections.
- Wipe off any excess fuel.
- Crank the engine.
- The engine should now start. If it does not start, repeat the above procedure.
- Check for any leaks and clean up any spilt fuel.

9. Cooling System

**CAUTION:**

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

For All Models

- To check the coolant level, ensure that the engine has been shut down for at least half an hour.

For Canal Boats & Work Boats

- 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.

For River Boats

- Remove the lid from the water cooled exhaust manifold/heat exchanger. The level should be ½" (13mm) below the filler neck.

For All Models

- 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.

10. 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 a small plastic/wooden lever.
- 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.

11. 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.

12. 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.

13. 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.

14. Sacrificial Anode Change

For Work Boats

- The anode is located in the “T” fitting on top of the engine at the front facing forward (**Figure 18**).



Figure 18: Work Boat Anode Location

For River Boats

- The anode is located on the water cooled manifold (**Figure 19**).



Figure 19: River Boat Anode Location

15. Raw Water Pump Impellor Change (Work Boat & River Boat)

- The pump is located on the front of the engine.
- Remove the pump cover plate.
- Remove the pump impeller (special tools are available from chandleries to assist with this task).

- Note: Do not lever against the front of the pulley housing as it is easily damaged.
- Inspect the pump housing and front housing for damage or wear.
- Replace the impellor.
- Replace the cover plate gasket if damaged.
- Replace any other worn components as necessary.

16. Engine Heat Exchanger Tube Stack Flushing

For Work Boats

- When the engine is cold, drain the water from the engine block. Remove the hose from the tap and drain.
- Drain water from the heat exchanger. The drain plug is in the bottom of the heat exchanger end cap.
- Disconnect the pipes and hoses from the engine heat exchanger.
- Remove the heat exchanger from the engine.
- Mark the position and remove the end caps from the heat exchanger. When refitting the end caps please ensure that they are in the same orientation as they were previously.
- Carefully remove the tube stack from the centre of the heat exchanger.
- Fully flush between the tubes to remove any dirt or scum build up.
- Inspect the tube stack and replace if damaged.
- Reassemble and refit, checking the end cap “O” rings are in good condition.
- Refill the engine with coolant as described earlier.

For River Boats

- When the engine is cold, drain the water from the engine block. Remove the plug from the engine block by the starter motor.
- Drain water from the heat exchanger. The drain plug is in the bottom of the heat exchanger / water cooled manifold.
- Mark the position and remove the end caps from the heat exchanger along with the “O” rings. When refitting the end caps please ensure that they are in the same orientation as they were previously.
- Carefully remove the tube stack from the centre of the heat exchanger.
- Fully flush between the tubes to remove any dirt or scum build up.
- Inspect the tube stack and replace if damaged.
- Clean out the manifold if required.
- Reassemble and refit, checking the end cap “O” rings are in good condition.
- Refill the engine with coolant as described earlier.

17. Winterization of Seawater Cooling System (Work Boat & River Boat)

- To prevent frost damage to the seawater cooling circuit components due to water freezing, ensure all seawater or raw water is drained from the system.
- Alternatively, run neat antifreeze through the seawater pump inlet to protect the system.
- Ensure that the antifreeze is drained before starting the engine during the next season. This is to ensure that it does not get into the marine environment. Dispose of the antifreeze correctly.

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 60 Gearbox	ATF (Automatic Transmission Fluid) Oil
PRM 80 Gearbox	ATF (Automatic Transmission Fluid) Oil
PRM 150 Gearbox	Engine Oil

Engine Oil Capacity (with Filter):

Engine	Capacity (Litres)	Capacity (Pints)
15	1.73	3
20	2.6	4.5

Gearbox Oil Capacity (Excluding Cooler where fitted):

Gearbox	Capacity (Litres)	Capacity (Pints)
PRM 60	0.3	0.52
PRM 80	0.57	1.0
PRM150	1.4	2.5

2. Service Intervals

	Check	Change	Notes
Engine Oil & Filter	Daily (Level)	Every 150 Hours OR 12 Months*	First change after 25 hours
Gearbox Oil	Weekly (Level)	Every 300 Hours OR 12 Months*	First change after 25 hours
Coolant Level	Daily (Level)	Every 24 Months	-
Diesel Fuel Filter	50 hours	Every 300 hours OR 12 Months*	Drain water every 50 hours OR Monthly**
Air Filter Element	150 Hours	Every 300 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

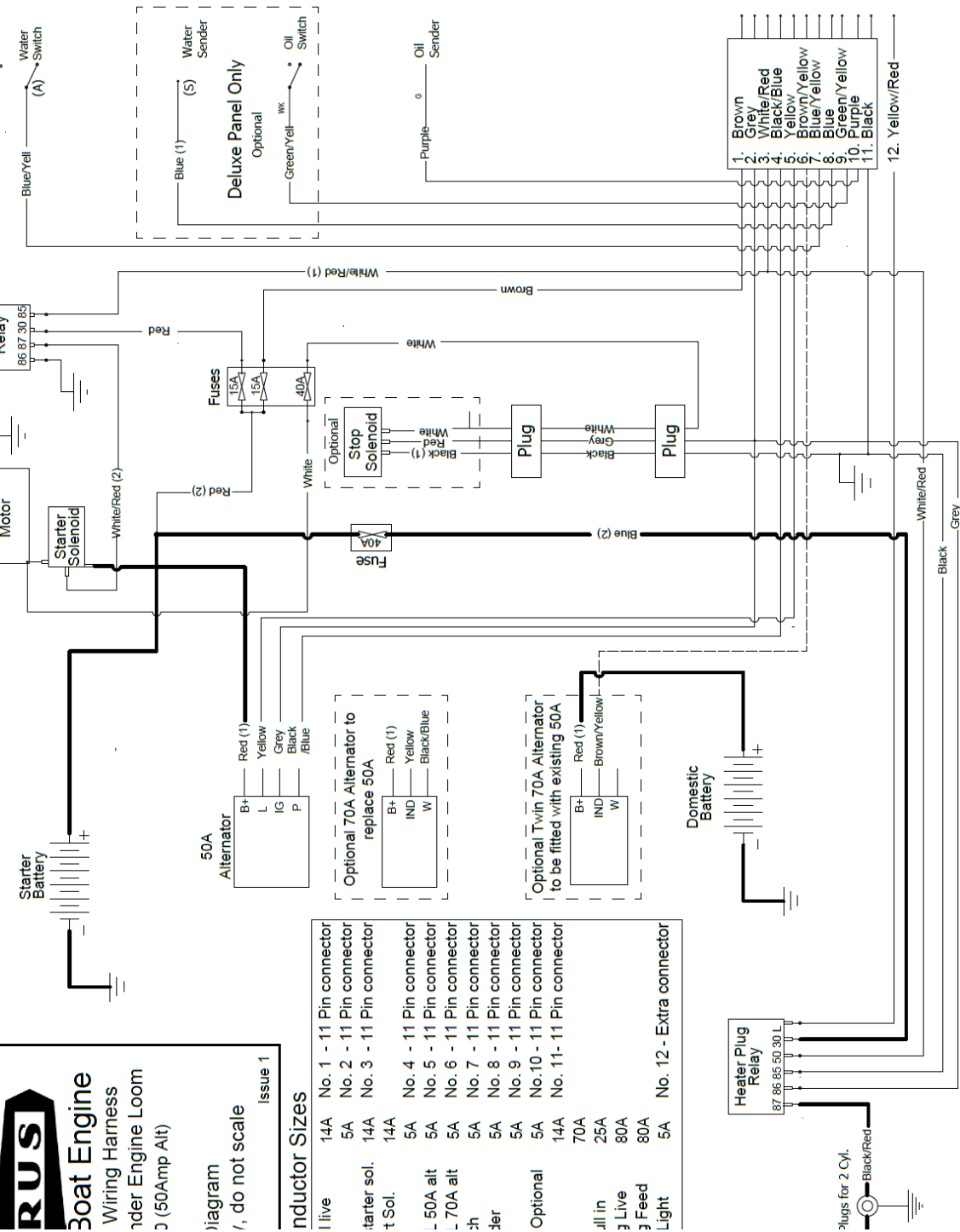
Sea Water Pump Impellor (WB/RB Only)	150 Hours	Every 300 hours OR 24 Months*	Sooner if required
Sacrificial Anodes	150 Hours	Every 450 hours OR 12 Months*	Check and change more frequently if local conditions require it
Main Heat Exchanger	450 Hours		Or check more frequently if local conditions require it. Remove & clean as per instructions in Section 5

* Whichever occurs first.

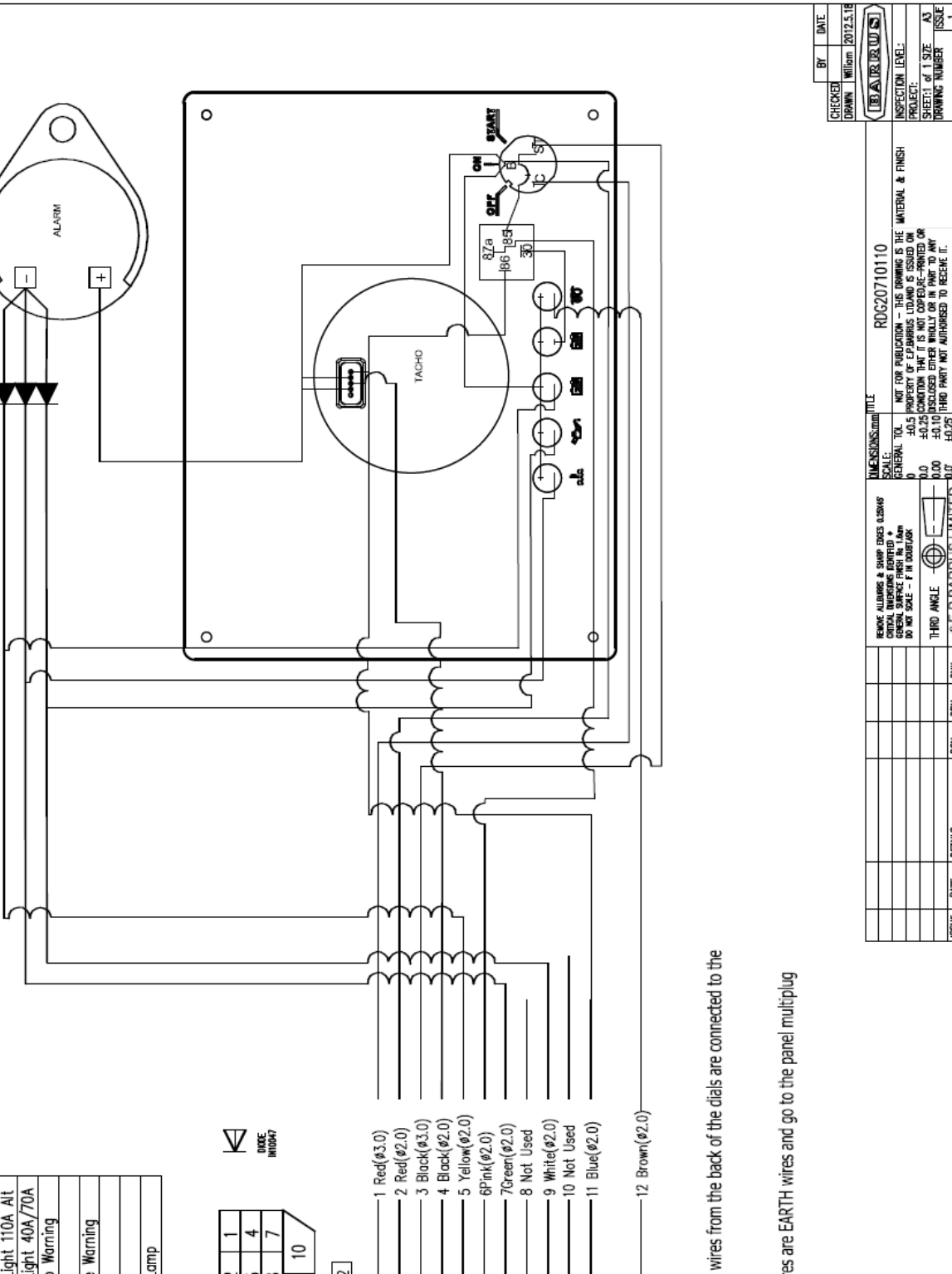
** If large quantities of water are found in the fuel when the filter is drained, increase the frequency of draining.

SECTION 7 – Wiring Diagrams

1. Engine Wiring Diagram Shire 15 15/20



2. Standard Control Panel Wiring Diagram



CHECKED	BY	DATE
DRAWN	William	2012.5.18

BARRUS		
INSPECTION LEVEL:		
PROJECT:		
SHEET: 1 of 1	SIZE:	A3
DRAWING NUMBER:	1	

ISSUE	DATE	DETAILS	DCN	DRN.	CHK.

Dimensions: RDG20710110

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REMOVE ALUMINUM & SHARP EDGES 0.20469
CRITICAL DIMENSIONS IDENTIFIED *
GREEN SURFACE FINISH IN 1.5μm
DO NOT SCALE - FT IN DIMENSIONS

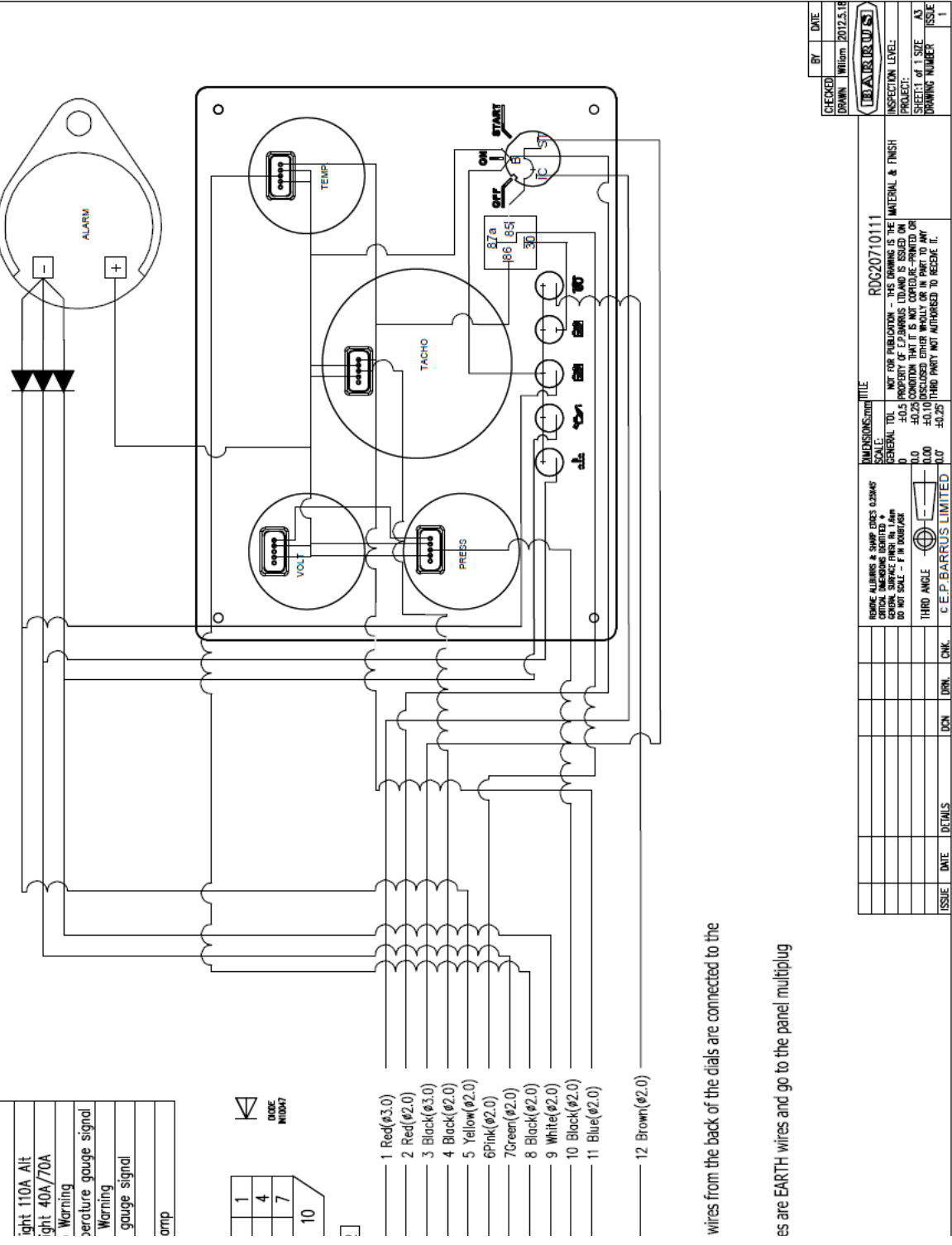
SCALE:

GENERAL TOL.	MATERIAL & FINISH
0	AS PER DIMENSIONS
±0.1	AS PER DIMENSIONS
±0.2	AS PER DIMENSIONS
±0.3	AS PER DIMENSIONS

THIRD ANGLE

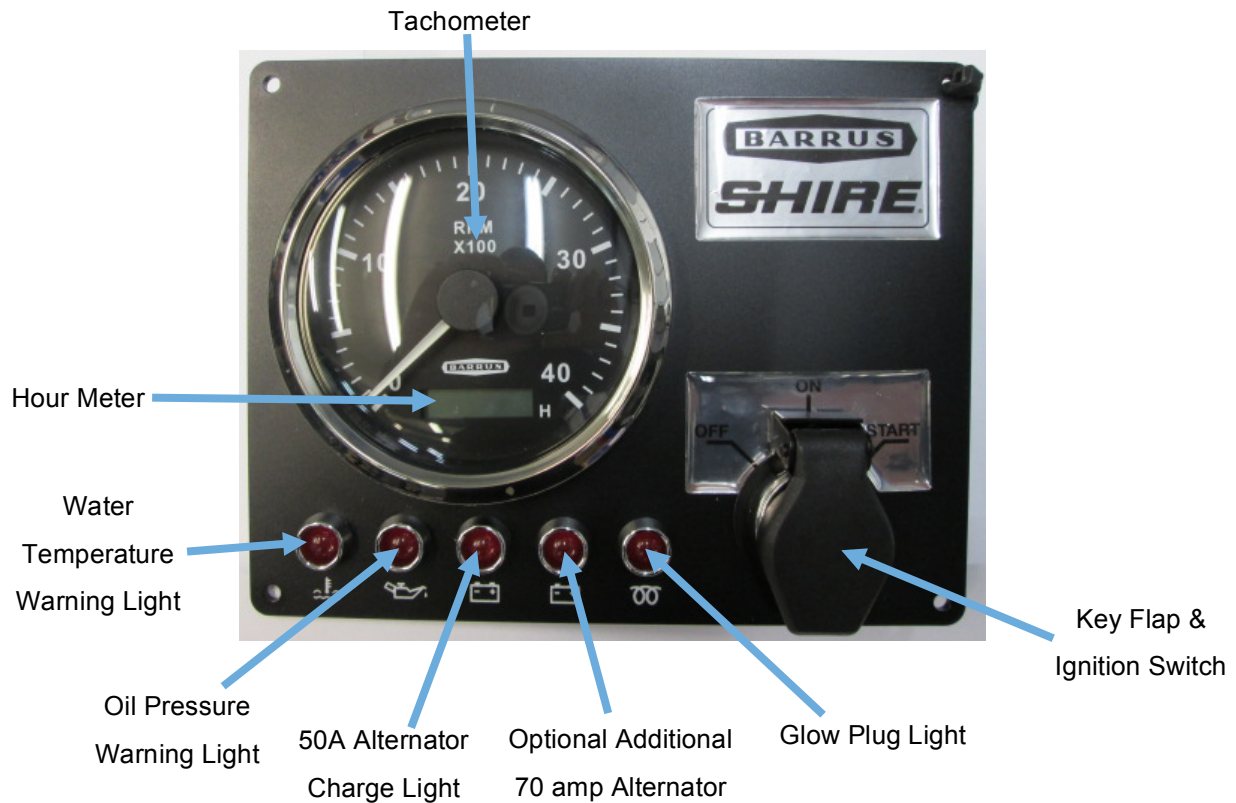
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3. Deluxe Control Panel Wiring Diagram (Additional Option – SS1551)

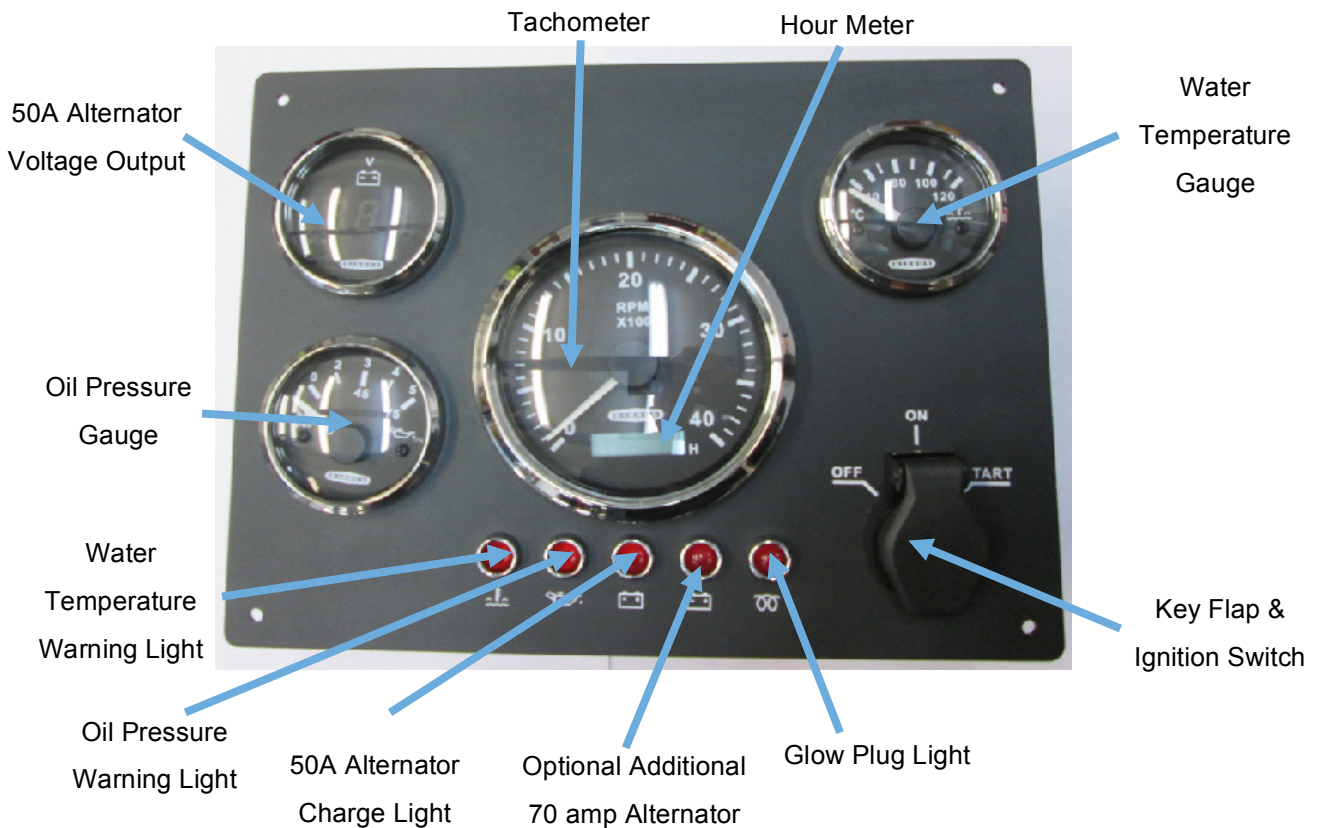


wires from the back of the dials are connected to the
as are EARTH wires and go to the panel multiplug

4. RDG20710110 – Standard Control Panel

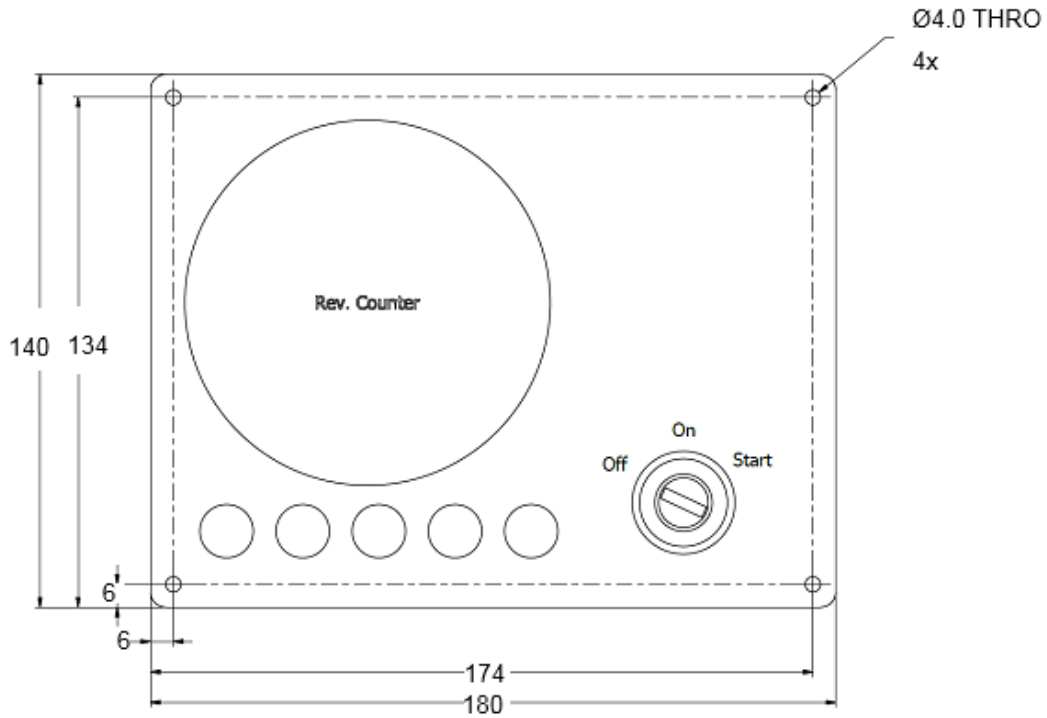


5. RDG20710111 – Deluxe Control Panel (Additional Option – SS1551)

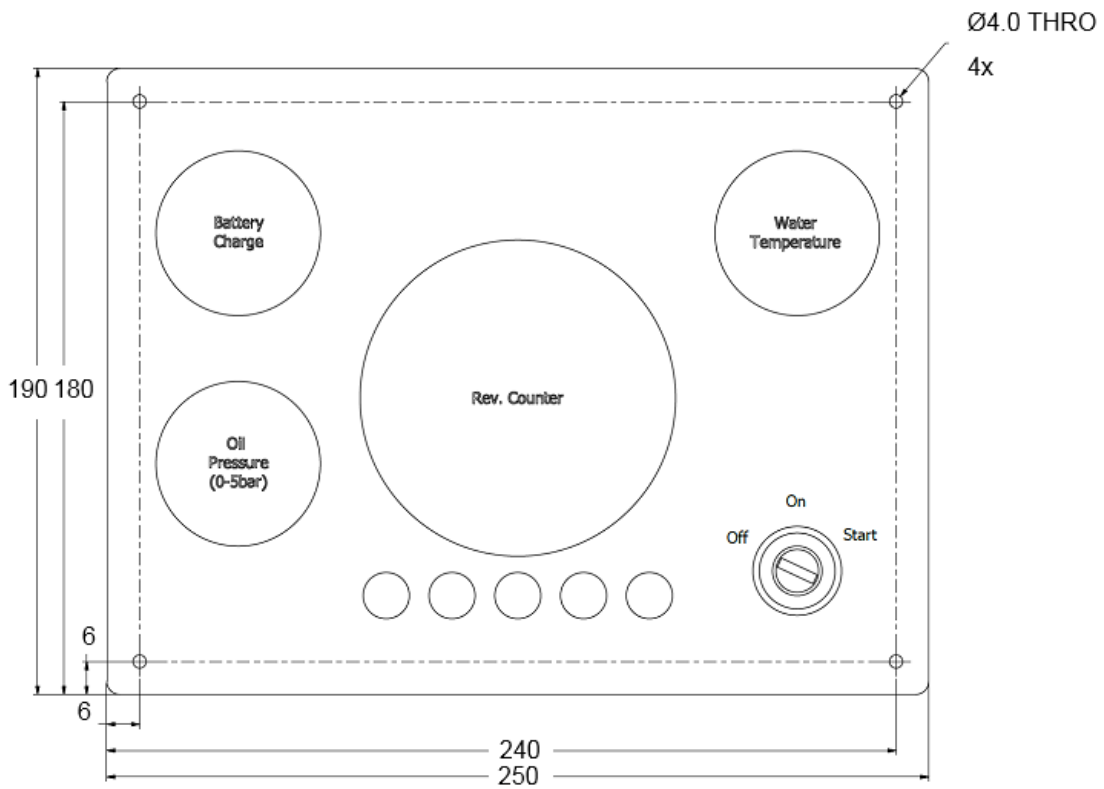


6. Overall Dimensions of the Control Panels

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



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



SECTION 8 – Technical Data

Model	Shire 15 15	Shire 15 20
Type	In Line, Water Cooled, 4 Stroke	In Line, Water Cooled, 4 Stroke
Combustion Chamber	Swirl Chamber	Swirl Chamber
Type of Cylinder Liner	Dry	Dry
Number of Cylinders	2	3
Bore (mm)	78	78
Stroke (mm)	78.4	78.4
Displacement (L)	0.749	1.123
Compression Ratio	22.1	22:1
Firing Order	1-2	1-2-3
Rated Output/Speed (kw/r/min)	11/3000	15/3000
Max Torque/Speed (Nm/r/min)	37.4/1820	59.2/1960
Min Fuel Consumption (g/kw.h)	≤ 272	≤ 280
Lube Oil Consumption (g/kw.h)	0.272	0.272
Direction of Rotation of Crankshaft	Counter Clockwise (View from Flywheel End)	Counter Clockwise (View from Flywheel End)
Lubrication System	Combination of Pressure and Splash	Combination of Pressure and Splash
Cooling System	Forced Water Cooled	Forced Water Cooled

Valve Timing	Intake Valve opens	8° Before T.D.C
	Intake Valve closes	42° After B.D.C
	Exhaust Valve opens	42° Before B.D.C
	Exhaust Valve closes	14° After T.D.C
Valve Clearance (cold)	Intake Valve (mm)	0.15~0.20
	Exhaust Valve (mm)	0.15~0.20
Max Speed (r/min)		≤ 3200
Idle Speed (r/min)		850~875
Fuel Injection Timing (°)		14~17°
Injection Pressure (MPa / PSI)		16~17 / 2320~2465
Max Exhaust Temperature (°C)		≤ 550
Max Oil Temperature (°C)		≤ 105
Normal Outlet Water Temperature (°C)		80~90
Oil Pressure	At Rated Speed (kPa) / (PSI)	310~413 / 45~60
	At Idle Speed (kPa) / (PSI)	≥ 50 / ≥ 7.25

Fuel Injector	Model	Axis Needle Type
Fuel Injection Pump	Type	Plunger Type
	Plunger Diameter (mm)	6.0
Lube Oil Pump	Type	Inner and Outer Rotors
Cooling Water Pump	Type	Centrifugal Type
	Speed (r/min)	4000
	Flow (L/min)	100
	Lift (mW.G)	6
Starting Motor	Type	QDY1257A
	Power (kW)	1.2
	Voltage (V)	12
Alternator	Output (A)	50
	Voltage (V)	14
Recommended Start Battery Size	Capacity (A.h)	≥ 65
	Voltage (V)	12

Torques for Main Bolts

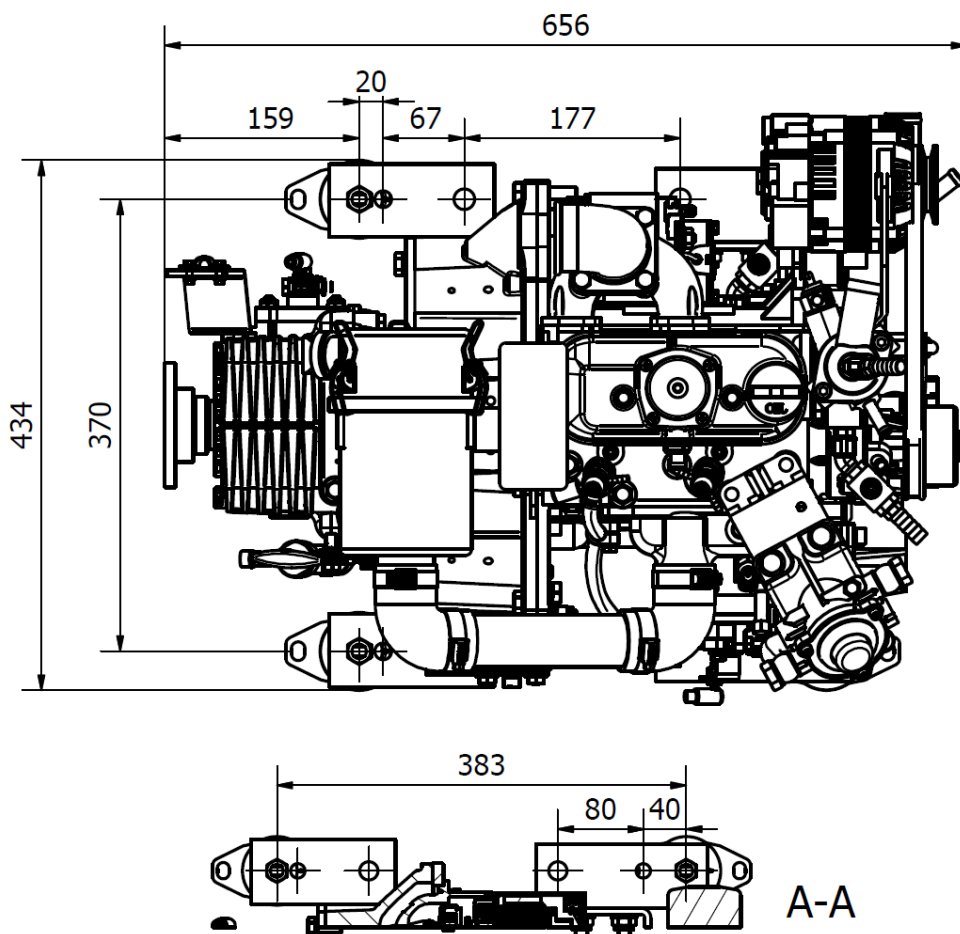
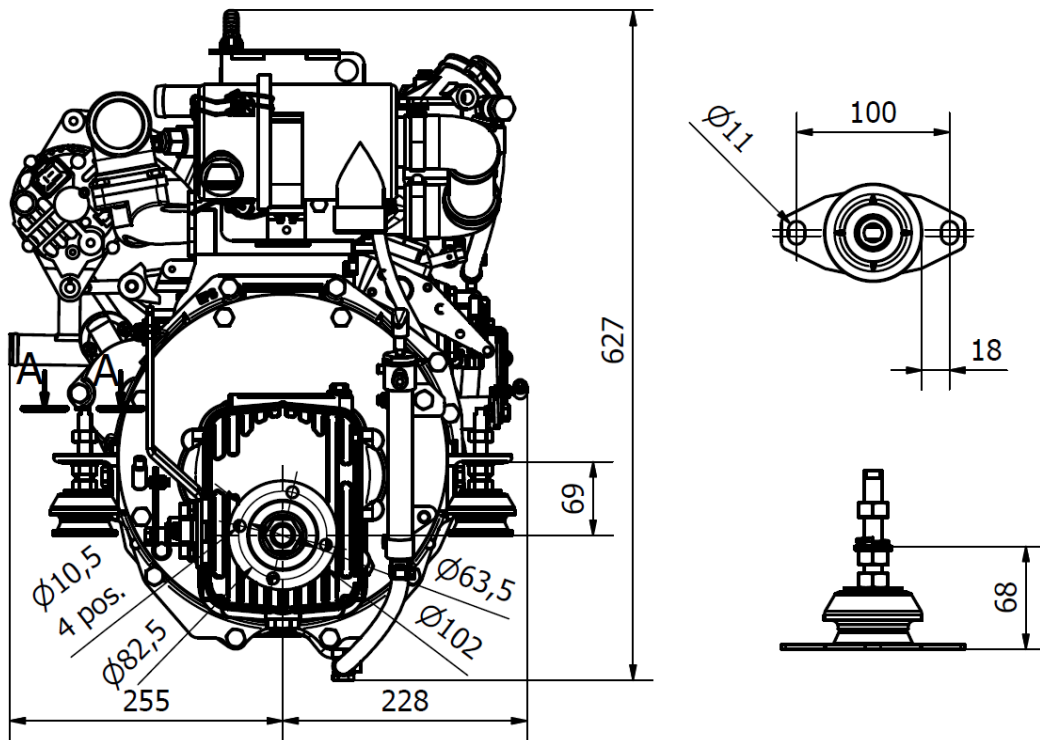
Cylinder Head bolts (Nm)	80~90
Main Bearing Cap (Nm)	50~60
Connecting Rod Bolts (Nm)	50~55
Flywheel Bolts (Nm)	80~90
Main Crank Pulley Bolt (Nm)	110~130
Main Bearing Seat Bolts (Nm)	60~70

Servicing Period

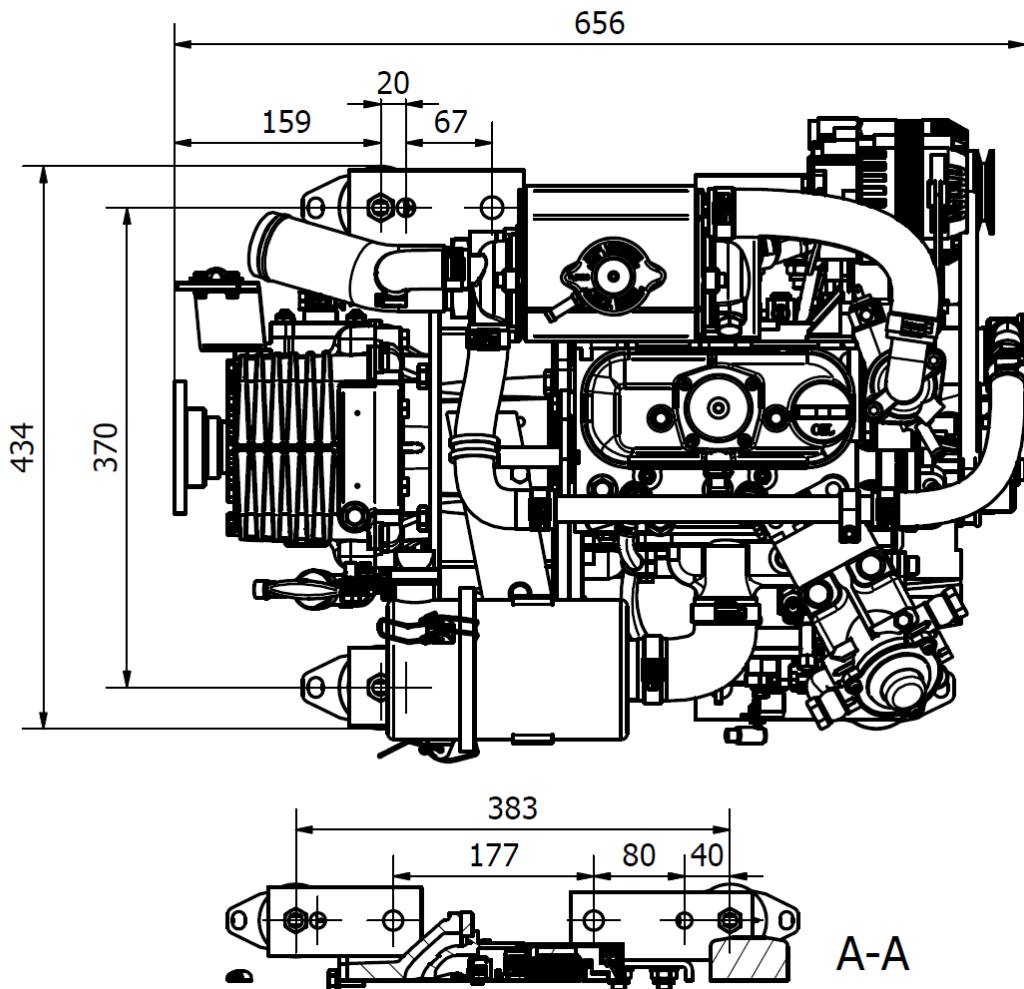
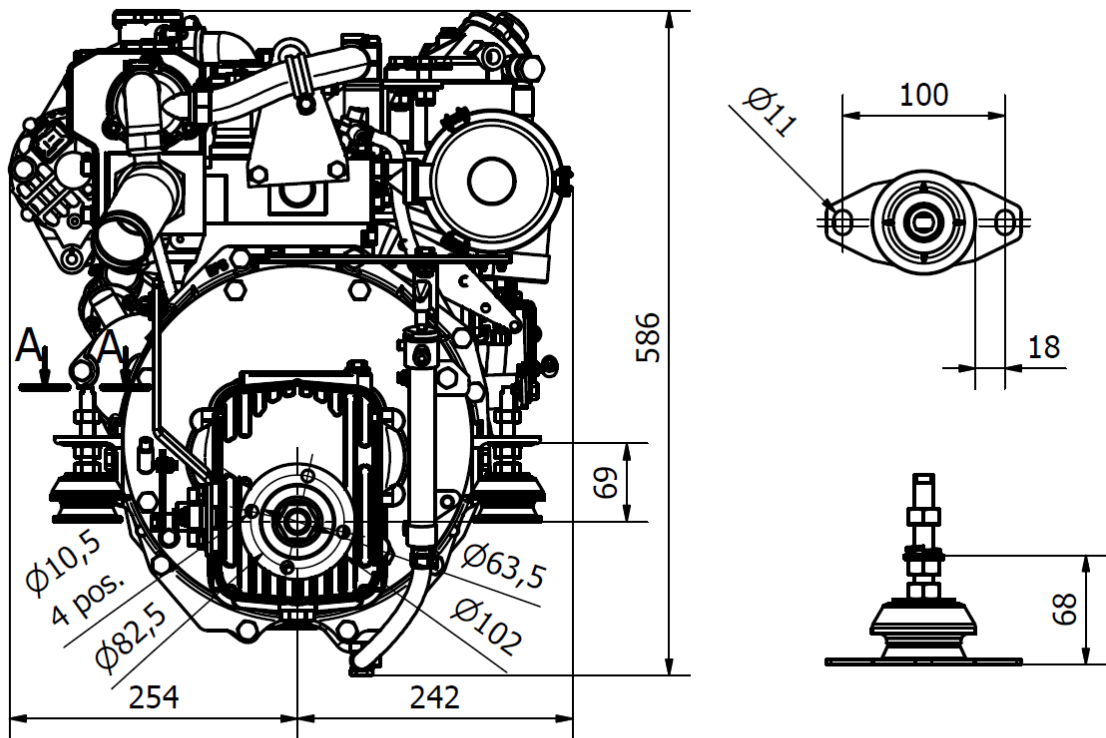
Fuel Injector Test/Replace	500 Hours
Engine Valve Clearances	500 Hours

SECTION 9 – General Arrangement Drawings

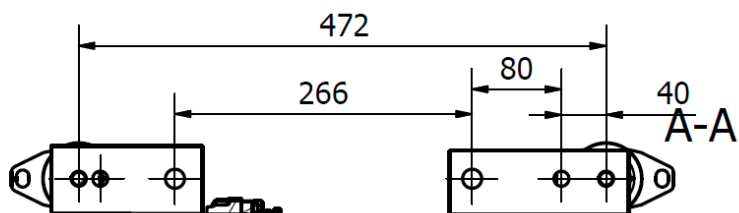
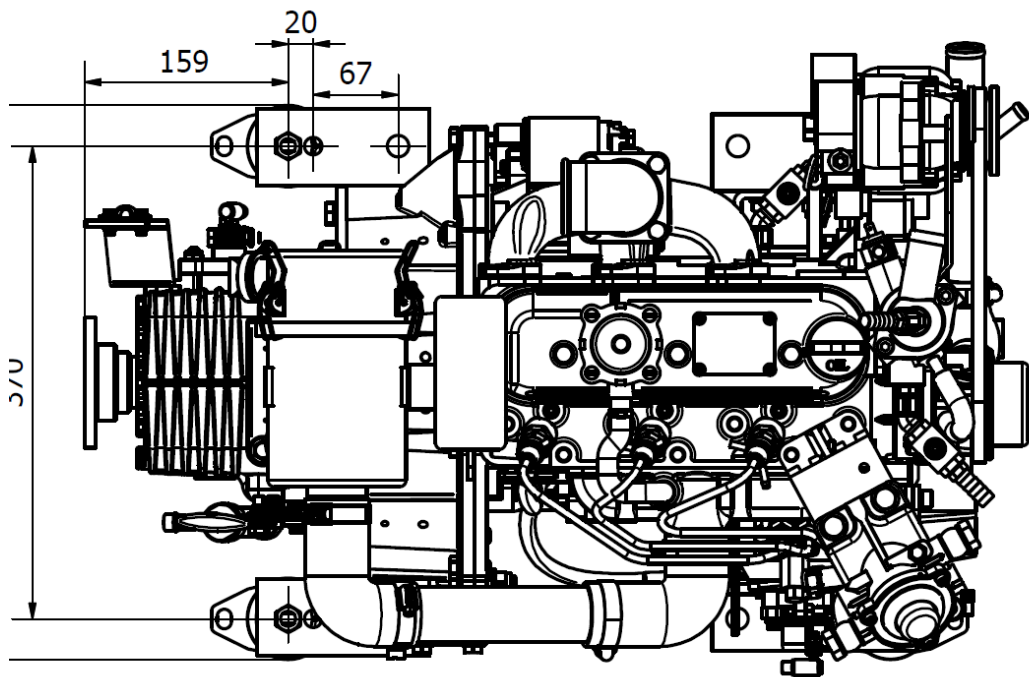
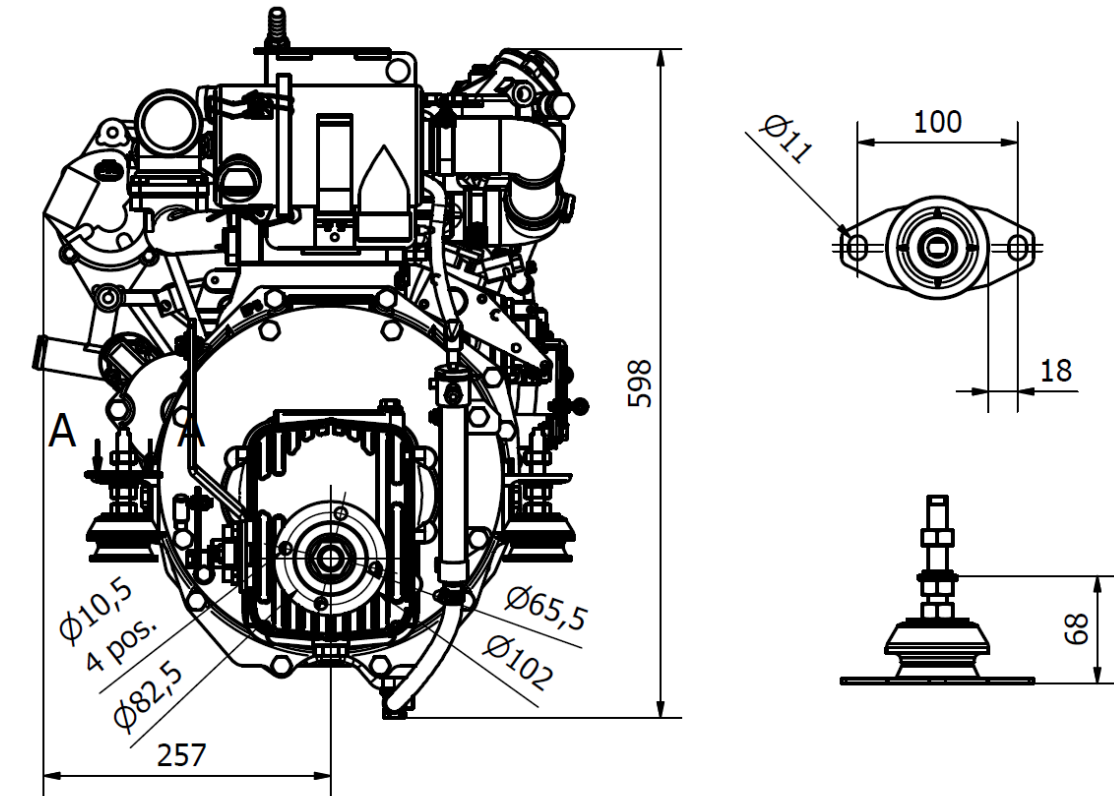
1. General Arrangement Shire 15 15 Canal Boat



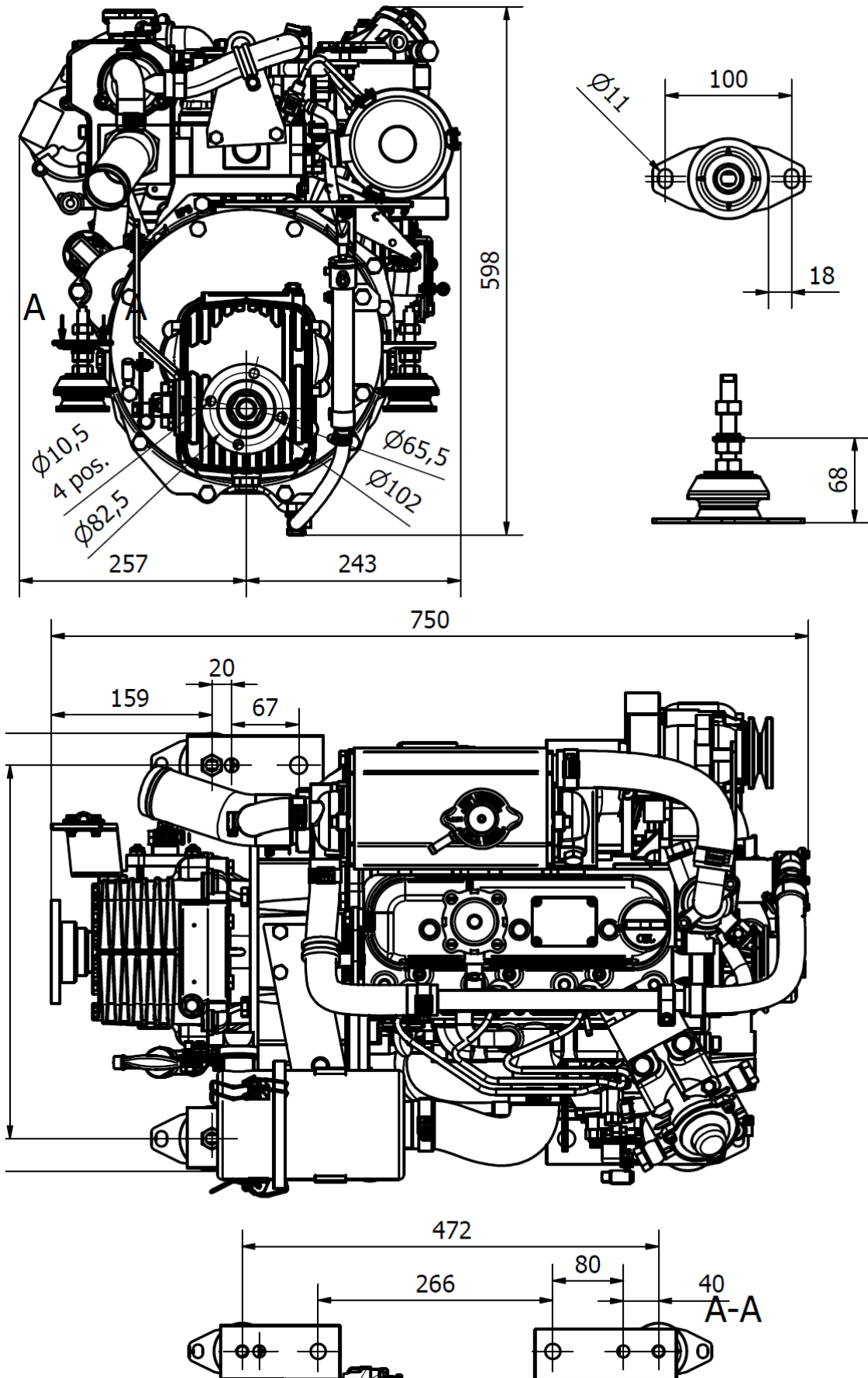
2. General Arrangement Shire 15 15 River Boat



3. General Arrangement Shire 15 20 Canal Boat



4. General Arrangement Shire 15 20 River Boat



SECTION 10 – 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 11 – Shire Service Parts

Model	15/20 CB	15/20 WB	15/20 RB
Fuel Filter	RDG906A3	RDG906A3	RDG906A3
50A Alt Belt	GB/T12732-2008	GB/T12732-2008	GB/T12732-2008
70A Alt Belt (Single Alt Engine)	GB/T12732-2008	GB/T12732-2008	GB/T12732-2008
70A Alt Belt (Twin Alt Engine)	-	-	-
Air Filter Element	3011-T3-0004	3011-T3-0004	3011-T3-0004
Oil Filter	119305-35151	119305-35151	119305-35151
Sea Water Pump Impeller	N/A	RDG010A3	RDG010A3
Sea Water Pump	N/A	RDG907A4	RDG907A4
Zinc Anti Corrosive Anode	N/A	119574-44150	80162
Zinc Sticker	N/A	124220-09340	124220-09340

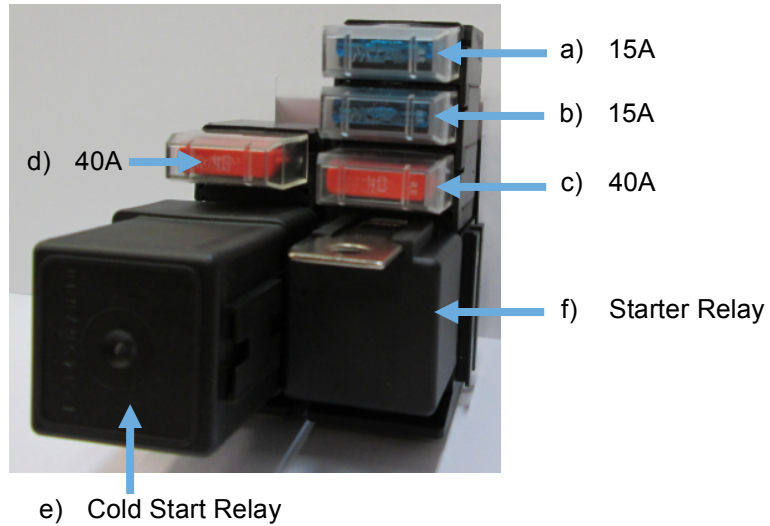
Fuses:

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

- a) Control Panel supply: 15amp (RDG3245)
- b) Engine start control system: 15amp (RDG3245)
- c) Engine stop control system: 40amp (RDG3246)
- d) Glow Plug Fuse: 40amp (RDG3246)

Relays:

- e) Cold Start Relay: (RDG1396)
- f) 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 12 – 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