ORIGINAL INSTRUCTION

SHIRE WORK BOAT YM ENGINE MANUAL

For the following engine models*:

Shire 15,20,25,30 WB YM

Addendum to the Yanmar Marine Engines Manual & PRM Owners Handbook / Technodrive Operating Manual

(Corresponding to the condensed paper copy Manual – RDG603A24)

*Standard Model, there may be a number of optional extras, or alternative components, that might be fitted to an engine that are not shown in this book.

RDG603B11 – Issue 2

SAFETY

E.P. Barrus is concerned for your safety. We use safety statements throughout the manual to call your attention to the potential hazards associated with the operation of your Shire engine.

Follow the precautions listed throughout the manual before operation, during operation and during servicing/maintenance procedures for your safety, the safety of others and to protect the performance of your engine.

Safety alert symbol appears throughout the manual. It means attention, be alert as your safety is involved. Please read and follow the message that appears after the safety alert symbol.

 **NOTICE:**	This indicates a situation which can cause damage to the machine, personal property and/or the environment or cause the equipment to operate improperly
 **CAUTION:**	This indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
 **WARNING:**	This indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 **DANGER:**	This indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Engine Details

Engine Serial Number:	

Please enter your engine serial number in the space provided above. Please quote the engine identification number during any enquiry or when ordering spare parts. Information about the engine serial number and its location on the engine can be found in **SECTION 2** of the manual.

Shire Engine Manuals and Shire Parts Books

SCAN ME

To access the complete Shire Engine Manuals and Shire Parts Books on the internet type the following short links into your search engine or just scan the QR code above.

https://shireshop.co.uk/ - Shire Shop
https://www.barrus.co.uk/shire-manuals/ - Complete Shire Engine Manuals
https://www.barrus.co.uk/shire-parts/ - Shire Parts Books

NOTICE:

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.

Thank you for purchasing this Shire Work Boat YM Engine from E.P.Barrus. This manual has been compiled to help you to operate your engine and its associated parts with safety and pleasure. Please read it carefully in conjunction with the Yanmar and PRM Gearbox / Technodrive Gearbox Manuals and familiarise yourself with the engine and its parts before operation. The PRM Gearbox Manual is also available from the PRM website:

www.prm-newage.com

The information and recommendations given in this manual are based on the latest information available at the time of publication. 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.

WARRANTY

The Shire UK Limited Warranty provides coverage for up to five years or 2000 hours (whichever occurs first) for recreational users and three years or 2000 hours (whichever occurs first) for commercial users from the date of warranty commencement. This is dependent on the following conditions.

This covers the majority of Shire Engine components with the exception of the items as stated in this document.

To ensure that you have been registered for your warranty, please detach and fill in the form on the back of this manual.
Return it to the address given or email it to Richard.Cooke@barrus.co.uk
The Warranty will only apply if the following have been carried out and the registration form has been completed and returned to Barrus.

The warranty period begins when either the owner registers the engine or it is triggered automatically. A discretionary period of 6 months is given following the delivery of the engine (to allow for installation and commissioning), following this the warranty period will automatically start.

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.

TERMS
It is the responsibility of the boat builder or owner to ensure the Shire Engine is registered for warranty.

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

- The installation is in full compliance with the requirements defined in the manual and the checklist completed and signed by the engine installer.
- A copy of completed engine installation checklist accompanies the warranty registration form.
- The boat builder or engine installer has completed the Boat Builder Section on the Service Record Card (located at the back of the manual) regarding hand over and commissioning of boat.
- The engine and ancillary systems are installed in compliance with current and applicable national and international standards.
- The maintenance has been completed to the full requirements, using genuine parts and recorded in the manual.

SAFETY
E.P Barrus staff or their representatives can only carry out warranty repairs if there is suitable and safe access to the boat and engine room.

PRM GEARBOXES
PRM Gearboxes are covered by a three year warranty for recreation users and two years for commercial users.

ELECTRICAL SYSTEMS

Shire Engine alternator, starter motor and electrical components are subject to a limited one year warranty.

FUEL SYSTEMS

Fuel injection and supply equipment including the injectors and pump(s) are subject to a limited one year warranty.

It is a condition of the warranty that a separate water trap is fitted between the fuel tank and the engine fuel lines (in addition to the filters fitted to the engine). The fuel tank should always be kept clear of dirt, water and any other contamination. It is not recommended that the fuel tank be run completely empty as this will induce air into the fuel system and can cause fuel injection or starting system damage- which would not be covered by the warranty.

Upon installation the fuel system should be pressure or vacuum tested to ensure no leaks are present. Poor quality fuel systems can cause engine fuel injection system damage which is not covered by the warranty. The fuel system should be fully primed ahead of engine starting- failure to do so can cause damage to the engine starting system and fuel system- this damage is not covered by the warranty.

POOR QUALITY FUEL

Poor running (including smoking) engines that are being run (or have been run) on low quality or contaminated fuel are not covered by the warranty. Any replacement parts that are required as a consequence of using incorrect or low quality fuel are not covered by warranty.

Engine and fuel equipment is not covered by warranty if bio-diesel that does not comply with EN15940 is used (See 5. Refuelling of Section 6 – Operation).

Only fuel fully compliant with EN590 or EN15940 should be used in Shire Engines. Failure to comply with this may invalidate the warranty.

WATER PUMPS

Seawater and raw water pumps and their components are wearing parts. The pump body and bearings are covered for the duration of one year. Cover seals, shaft seals and impellors are not covered by warranty.

CONDITIONS THAT MUST BE MET IN ORDER TO OBTAIN WARRANTY COVERAGE

Warranty coverage is only available from EP Barrus Ltd. Routine maintenance outlined in the Owner's Manual must be performed using genuine parts in order to maintain warranty coverage. If the customer performs maintenance to an insufficient level, Barrus reserves the right to withdraw warranty coverage.

WARRANTY CLAIMS

Warranty claims must be made by either an authorised dealer or directly to EP Barrus.

The dealer or boat builder will 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.

Any claim should be made as soon as possible, and no later than two weeks after the initial discovery of the defect. No agent outside the EP Barrus Ltd network should be instructed before the defect has been reported and agreement made with EP Barrus Ltd.

WHAT IS NOT COVERED

This limited warranty does not cover the following:

- Routine maintenance and service items,
- Adjustments,
- Normal wear and tear,
- Damage caused by abnormal or incorrect use,
- Operation of the product in a manner inconsistent with the recommended operation/duty cycle,
- Accident, submersion,
- Improper installation (i.e. an installation not consistent with the requirements laid out),
- Systems using or affected by an accessory or part not manufactured or sold by EP Barrus Ltd,
- Systems that have been altered or modified (including addition of electrical systems such as charge boosters or other electrical management products),
- 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 loss or damages,

Engine and engine starting systems are not covered by warranty if it is found that the engine start battery or supply circuit/system is not of the correct specification. Or if the engine start battery is partially or fully discharged.

Damage due to rust or corrosion, submersion, or unreasonable exposure to the environment, such as exposure to high humidity, rain fall, or seawater, or conditions resulting in the freezing of cooling water are not covered.

Water ingression of any kind into the engine via any means (other than the cooling system) will void the warranty. It is the responsibility of the owner/installer to ensure that no water can enter the engine during use or storage.

The standard alternators fitted to Shire Engines are not suitable for charging lithium-ion batteries. If the standard alternators are used for charging lithium-ion batteries, they will not be covered under warranty. If lithium-ion batteries are to be used a specialist alternator will be required.

FREQUENT RUNNING

To ensure ongoing and reliable operation, Engines should not be left without running for periods of more than two weeks at any one time. If not required to run, every two weeks the engine should be started and run under load until correct operating temperature is reached- this should then be maintained for a minimum of 15 minutes.

TRANSFER OF WARRANTY

The warranty is valid for the first owner of the Shire engine and is transferrable only at the discretion of EP Barrus Ltd.

DELIVERY

Damage caused during transport (or before delivery) must be reported to the courier and the delivery signed for highlighting it. Failure to do so may result in the damage not being covered.

Any parts missing from a delivery should be reported to EP Barrus within 3 working days. Photographs of the shipment including packaging will be required.

Note. Engines and ancillary parts are photographed, recorded and stored prior to shipment to the customer.

River Canal Rescue Membership

RCR offer a number of support packages and services to give the inland boater peace of mind in the event of an incident, breakdown or emergency. They offer year round 24/7 national breakdown and recovery assistance for members on the inland waterways.

RCR
keeping you moving

Please see RCR leaflet included with the other engine documents for more details. The leaflet is stamped and RCR will offer a first year 20% discount to all new Shire engine owners. To gain this discount please call RCR on 01785785680. Please have ready to hand your Shire warranty registration date.

Note: This does not affect the Shire Engine warranty.

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SECTION 1 – Safety Precautions

1. General

NOTICE:

NEVER PERMIT ANYONE TO OPERATE THE ENGINE WITHOUT PROPER TRAINING.

It is the responsibility of the installer/operator to ensure that the finished installation complies with CE Marking, relevant Health & Safety requirements, the Recreational Craft Directive and or any other legislative requirements 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.

Ensure that all installations and boat alterations comply with any appropriate local, regional, national or international regulations. When installing new propulsion systems (that are not identical to the original ones) into existing craft, a new vessel Post Construction Assessment will be required, and carried out by an independent notified body.

2. Lifting

DANGER:

CRUSH HAZARD! NEVER STAND UNDER A HOISTED ENGINE. IF THE HOIST MECHANISM FAILS, THE ENGINE WILL FALL ON YOU, CAUSING SERIOUS INJURY OR DEATH.

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

WARNING:

SEVERE HAZARD! KEEP HANDS AND OTHER BODY PARTS AWAY FROM MOVING/ROTATING PARTS. WEAR TIGHT FITTING CLOTHING AND KEEP YOUR HAIR SHORT OR TIE BACK. REMOVE ALL JEWELLERY BEFORE COMMENCING WORK. CHECK BEFORE STARTING THE ENGINE THAT ANY TOOLS OR RAGS USED DURING MAINTENANCE HAVE BEEN REMOVED FROM THE AREA.

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

WARNING:

EXHAUST HAZARD! NEVER OPERATE ENGINE IN A BOATS ENGINE BAY WITHOUT PROPER VENTILATION. NEVER BLOCK VENTS OR OTHER MEANS OF VENTILATION. ALL COMBUSTION ENGINES CREATE CARBON MONOXIDE GAS DURING OPERATION. ACCUMULATION OF THIS GAS COULD CAUSE ILLNESS OR EVEN DEATH.

WARNING:

BURN HAZARD! WAIT UNTIL THE EXHAUST COOLS BEFORE YOU TOUCH IT.

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 and inhalation of exhaust gases when inside the boat cabin.

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

DANGER:

EXPLOSION HAZARD! NEVER SHORT OUT THE BATTERY TERMINALS, INCLUDING WHEN CHECKING THE REMAINING BATTERY CHARGE THIS WILL RESULT IN A SPARK AND MAY CAUSE AN EXPLOSION OR FIRE.

WARNING:

BURN HAZARD! BATTERIES CONTAIN SULPHURIC ACID. NEVER ALLOW BATTERY FLUID TO COME IN CONTACT WITH SKIN, EYES OR CLOTHING. SEVERE BURNS COULD RESULT. MAKE SURE THE CORRECT PERSONAL PROTECTION EQUIPMENT IS WORN.

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

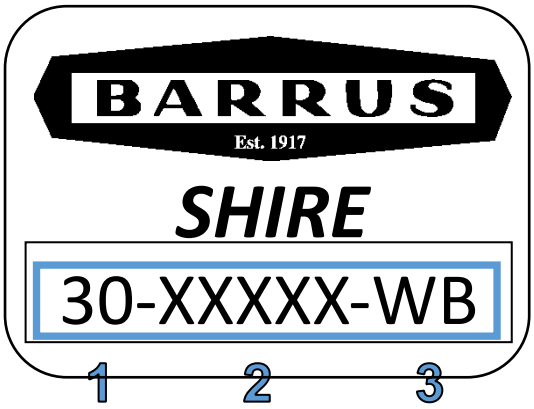
NO SMOKING

- 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

The engine serial number 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.

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



	Description
1	Engine Model
2	Serial Number
3	Indicates Model Type or Optional Extras: WB = Work Boat D = Deluxe Panel 3 = 3:1 Ratio Gearbox

Figure 1: Engine Identification Badge

Description of Models:

Abbreviation	Type of Engine	Description*
WB	Work Boat	Seawater/Heat Exchanger cooled, dry exhaust manifold with either a dry exhaust system (same as a Canal Boat) or water injected exhaust system. Can also be used for sea going applications

***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 Parts.

SECTION 3 – Component Identification

1. Shire 15 Work Boat YM

Figure 2: Shire 15 Left Side (Viewed from front)

	Description*
1	Water Pump

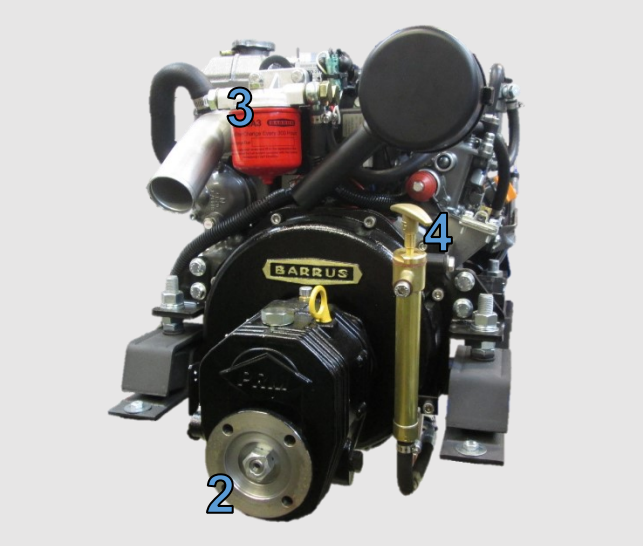


Figure 3: Shire 15 Right Side (Viewed from rear)

	Description*
2	Gearbox
3	Primary Fuel Filter
4	Engine Sump Pump

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

2. Shire 20 Work Boat YM

Figure 4: Shire 20 Left Side (Viewed from front)

	Description*
1	Water Pump

Figure 5: Shire 20 Right Side (Viewed from rear)

	Description*
2	Gearbox
3	Primary Fuel Filter
4	Engine Sump Pump

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

3. Shire 25 Work Boat YM

Figure 6: Shire 25 Left Side (Viewed from front)

	Description*
1	Water Pump

Figure 7: Shire 25 Right Side (Viewed from rear)

	Description*
2	Gearbox
3	Primary Fuel Filter
4	Engine Sump Pump

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

4. Shire 30 Work Boat YM

Figure 8: Shire 30 Left Side (Viewed from front)

	Description*
1	Water Pump

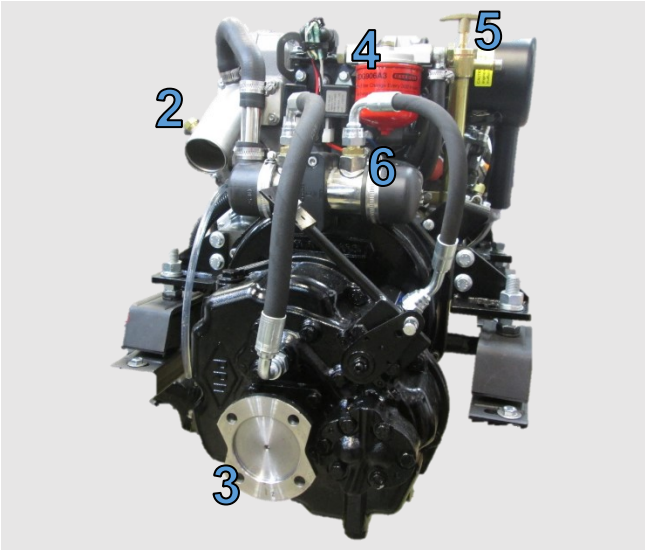


Figure 9: Shire 30 Right Side (Viewed from rear)

	Description*
2	Zinc Anode
3	Gearbox
4	Primary Fuel Filter
5	Engine Sump Pump
6	Oil Cooler

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

5. Shire 30 Work Boat M YM

Figure 10: Shire 30 M Left Side (Viewed from front)

	Description*
1	Water Pump

Figure 11: Shire 30 M Right Side (Viewed from rear)

	Description*
2	Gearbox
3	Primary Fuel Filter
4	Engine Sump Pump

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

6. Engine Mounts

There are two different types of engine mounts fitted to the engine. The engine mounts fitted to the front and the rear of the engine have different numbers stamped on them. The front mounts have a 100 stamped on them and the rear mounts have a 75 stamped on them. The mounts should not be changed front to rear or rear to front as they are designed to carry different loads.

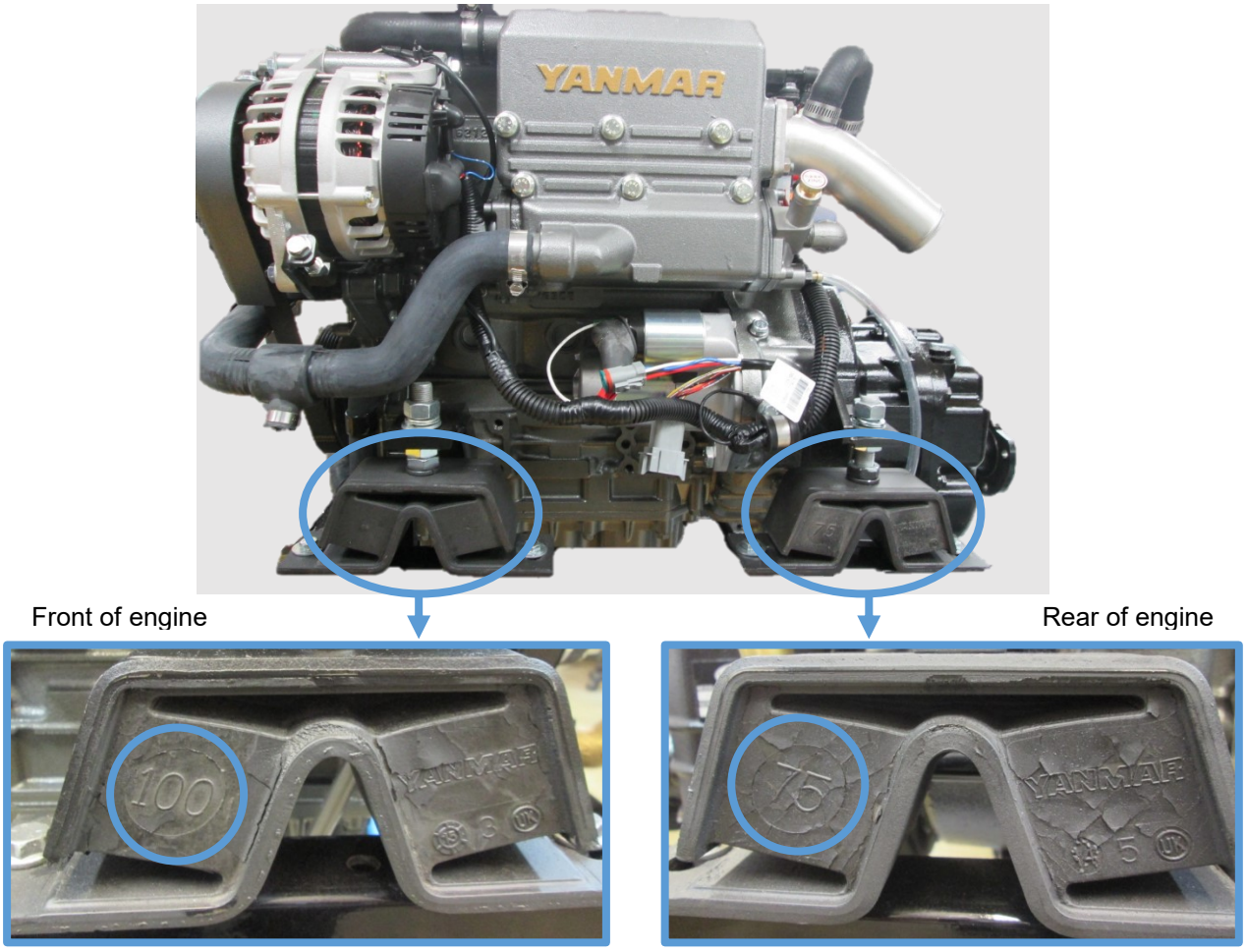


Figure 12: Engine Mounts

SECTION 4 – Control Panel

1. Basic Control Panel

Figure 13: Basic Control Panel (RDG207A209)

	Description
3	Water Temperature Warning Light
4	Oil Pressure Warning Light
5	Alternator Charge Warning Light
6	Glow Plug Light
7	Heat Start Button
8	Key Flap and Ignition Switch
9	Stop Button

2. Standard Control Panel

Figure 14: Standard Control Panel

	Description
1	Tachometer Gauge
2	Hour Meter
3	Water Temperature Warning Light
4	Oil Pressure Warning Light
5	Alternator Charge Warning Light
6	Glow Plug Light
7	Heat Start Button
8	Key Flap and Ignition Switch
9	Stop Button

3. Deluxe Control Panel

Figure 15: Deluxe Control Panel

	Description
1	Tachometer Gauge
2	Hour Meter
3	Water Temperature Warning Light
4	Oil Pressure Warning Light
5	50A Alternator Charge Warning Light
6	Glow Plug Light
7	Heat Start Button
8	Key Flap and Ignition Switch
9	Stop Button
10	50A Alternator Output Gauge
11	Oil Pressure Gauge
12	Water Temperature Gauge

4. Control Panel Overview

- The Shire Work Boat YM engine are supplied with a standard control panel. Please note that a deluxe control panel can be ordered as an option.
- The control panel is splash proof but is **NOT** fully water proof. The control panel needs to be installed in a position where it is protected from water.

5. Warning Light Procedure

- When the ignition is first turned on, the control panel warning lights will come on as a bulb check. When the engine is started the warning lights will go out. Please note that the water temperature warning light and glow plug light operate slightly differently.

- The water temperature warning light will only come on for a brief period of time when the ignition is first turned on as a bulb check. It will then only illuminate in the case of the engine coolant temperature exceeding the maximum safety level.

- The glow plug light will come on when the ignition is first turned on for 5 – 8 seconds to indicate the heating system is operational. When the light goes out the engine can be started.

- Whilst the control panel is in operation all the gauges are backlit. This does not indicate a fault and is a normal function for the control panel.

- If any of the warning lights on the control panel come on **whilst** the engine is running, please follow the correct procedure as shown in the following table.

In the event of a fault, only trained and qualified personnel should undertake repairs on the engine

	Description	Procedure for Warning Light
1	Tachometer Gauge	-
2	Hour Meter	-
3	Water Temperature Warning Light	Reduce the engine revs and stop the engine within one or two minutes. Check the coolant level (refer to Yanmar Marine Engine Manual). If the coolant level is incorrect, fill it to the correct level (refer to Yanmar Marine Engine Manual) and restart the engine. If the coolant level is correct and the fault is still present, or there is a coolant leak, please contact your local dealer.
4	Oil Pressure Warning Light	Stop the engine immediately. Contact your local dealer. Failure to stop the engine may result in permanent engine damage.
5	Alternator Charge Warning Light	This indicates that the alternator has stopped charging. The engine can still be operated for a short period of time. Contact your local dealer.
6	Glow Plug Light	This indicates that the cold start system is operating. If the light fails to illuminate during the starting procedure contact your local dealer.
7	Heat Start Button	When operated the button will cause the glow plug light to illuminate - This is a normal function of the panel.
8	Key Flap and Ignition Switch	-
9	Stop Button	-
10	Oil Pressure Gauge	-
11	Water Temperature Gauge	-

6. Overall Dimensions of the Basic Control Panel

(All Dimensions are in mm)

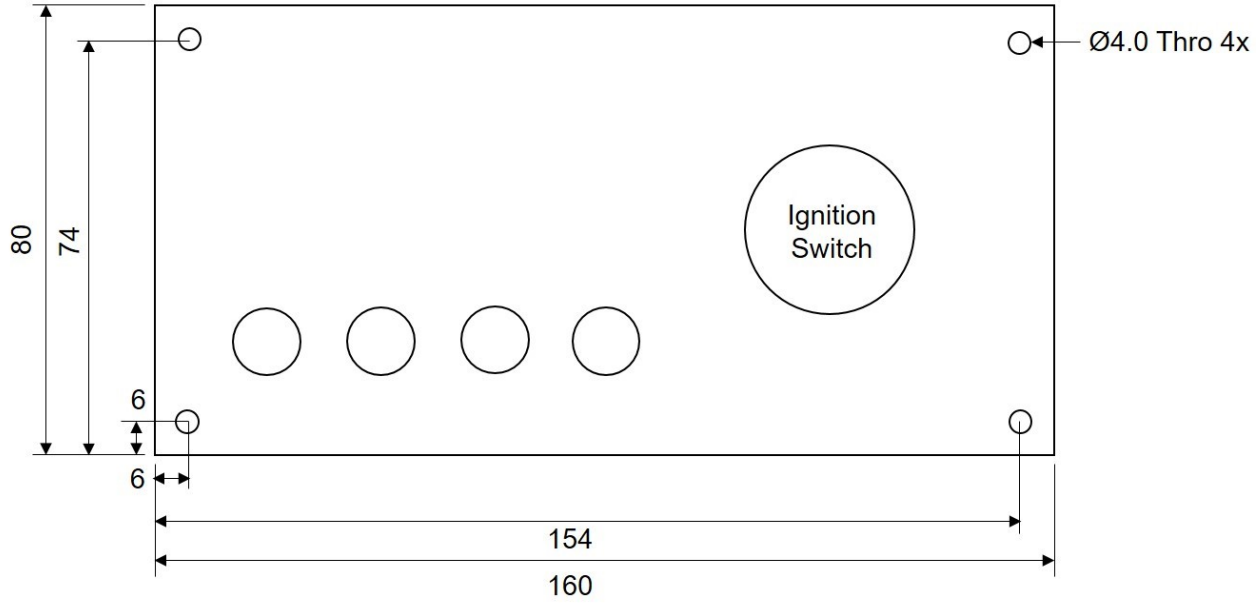


Figure 16: Basic Control Panel Dimensions

7. Overall Dimensions of the Standard Control Panel

(All Dimensions are in mm)

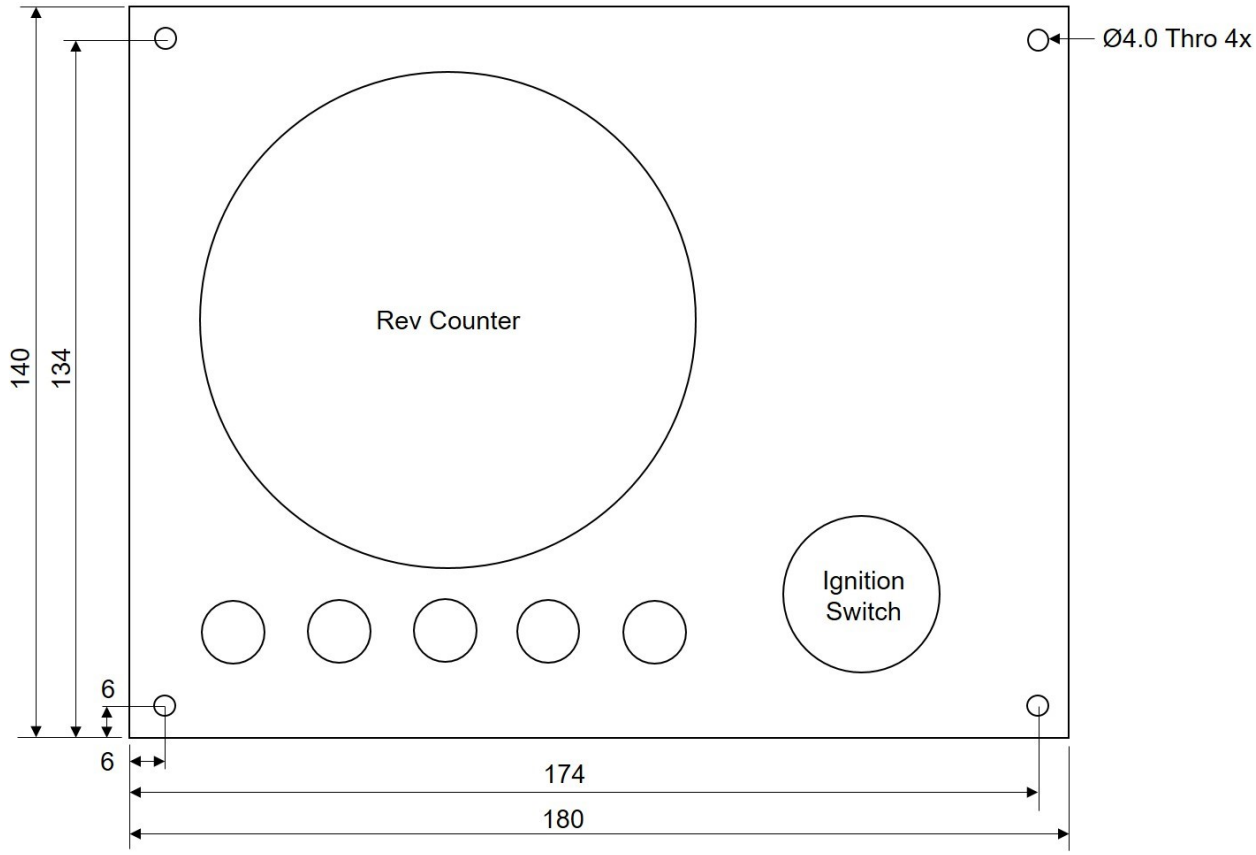


Figure 17: Standard Control Panel Dimensions

8. Overall Dimensions of the Deluxe Control Panel

(All Dimensions are in mm)

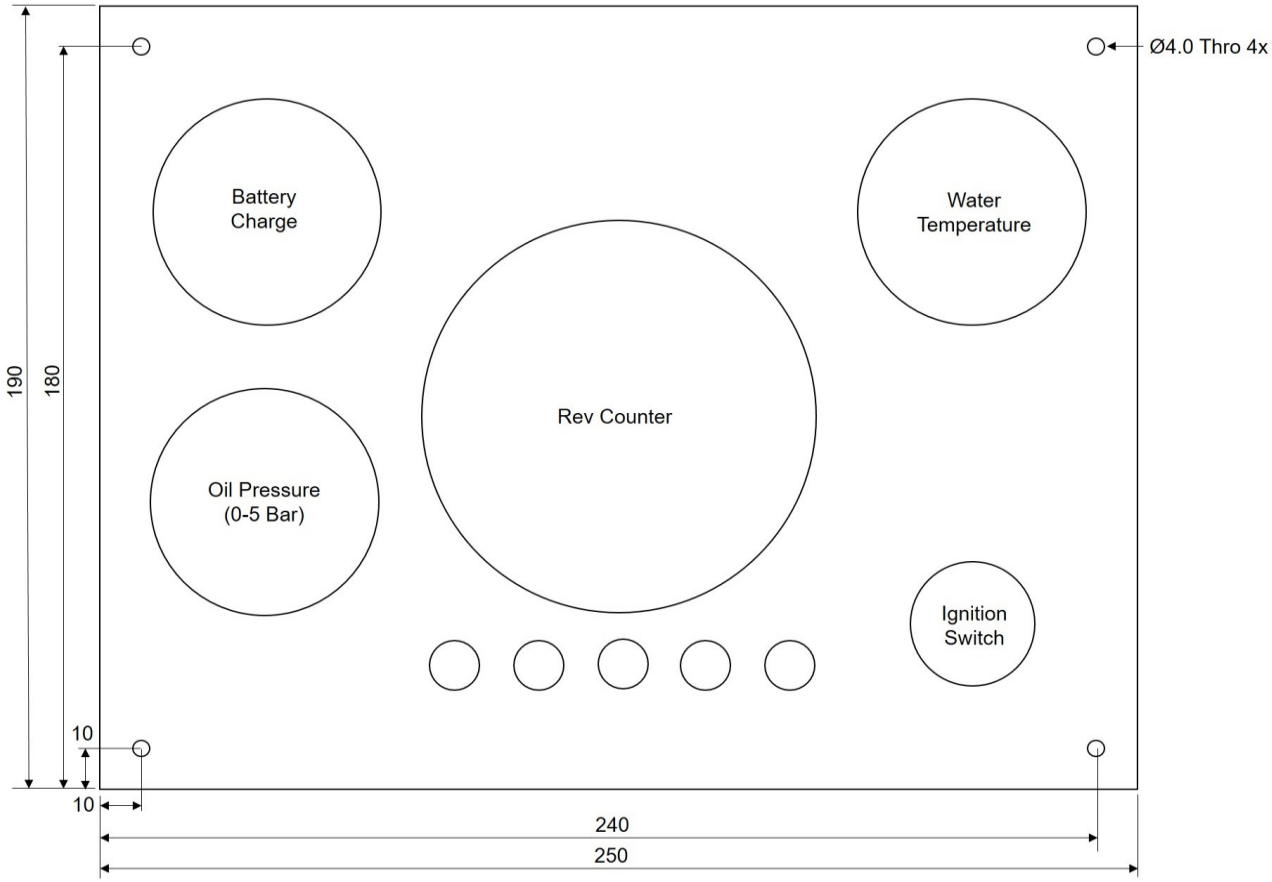


Figure 18: Deluxe Control Panel Dimensions

9. Installation & Calibration

CAUTION

Shire engines are supplied with an engine control panel that shows RPM and hours run (the Basic Panel does not have this fitted) 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 (not required if a Basic Panel is fitted):

- 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 and 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 handheld tacho until the engine speed and indicated tachometer speed are the same. For the majority of the engines, the tacho is driven by the 50A alternator.

SECTION 5 – Operation

NOTICE:

REFER TO THE YANMAR MANUAL PRIOR TO STARTING THE ENGINE.

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. All battery master switches must be turned on. Failure to do so may damage the domestic alternator.
- Ensure that the raw water seacock is turned on.

2. **Starting Procedure**

- Ensure there is no one in the engine compartment.
- Ensure the engine compartment door is closed.
- Ensure the gearshift control level is set to neutral and that all persons are clear of any moving parts.
- Insert ignition key.
- Turn key to on position.
- Press the heat start button for 10 seconds, the glow plug light will illuminate.
- Observe warning lights (and gauges on deluxe panel). Note: The engine water temperature overheat warning light will only come on for a brief period of time when the ignition is first turned on as a bulb check. It will then only illuminate in the case of the engine coolant temperature exceeding the maximum safety level.
- 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).
- Once started check that sea water is coming out of the water cooled exhaust outlet in the hull of the boat.

- 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.
- Press the stop button
- Turn key to off position.

4. 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 500ml container, Part Number RDG80210219.

5. Single Shift Control 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 6 – Service Procedure

NOTICE:

REFER TO THE YANMAR MANUAL PRIOR TO CARRYING OUT ANY SERVICE OR MAINTENANCE WORK.

WARNING:

PRIOR TO CARRYING OUT ANY SERVICE OR MAINTENANCE WORK MAKE SURE THE RELEVANT PERSONAL PROTECTION EQUIPMENT IS WORN.

1. Engine Oil and Filter Change

WARNING:

BURN HAZARD! WAIT UNTIL THE ENGINE COOLS SLIGHTLY BEFORE YOU DRAIN THE ENGINE OIL. HOT ENGINE OIL MAY SPLASH AND BURN YOU.

- Change the engine oil while the engine is still warm.
- 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.
- To replace the engine oil and filter please follow the procedure as specified in the Yanmar Marine Engine Manual.

2. Gearbox Oil Change

WARNING:

BURN HAZARD! WAIT UNTIL THE GEARBOX COOLS SLIGHTLY BEFORE YOU DRAIN THE GEARBOX OIL. HOT OIL MAY SPLASH AND BURN YOU.

- Change the gearbox oil while it is still warm (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. For a PRM Gearbox, refer to the PRM owner manual for more details. Page 6 in this manual contains details of oil specifications. For the Technodrive Gearbox, refer to the Technodrive operating manual for more details. Page 29 in this manual contains details of oil specifications.
- Do not overfill the gearbox as this can damage the internal components.

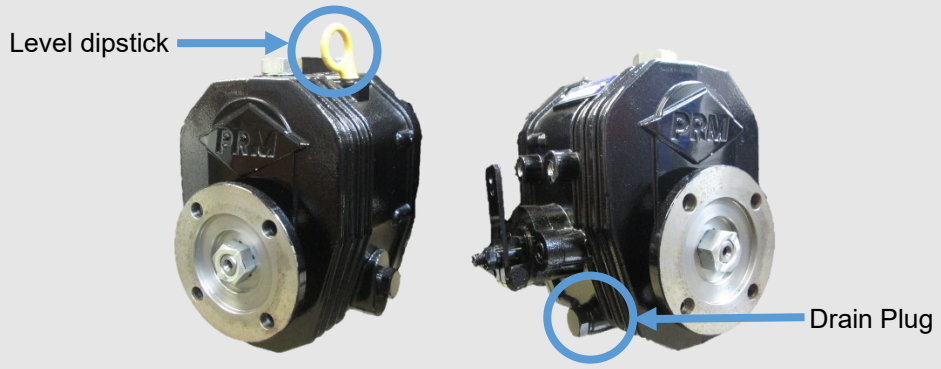
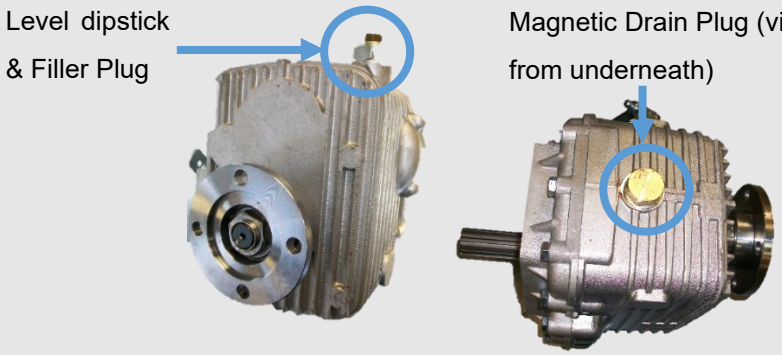
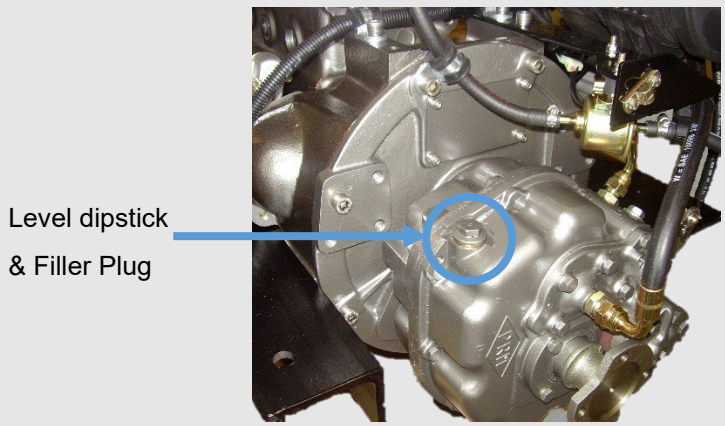
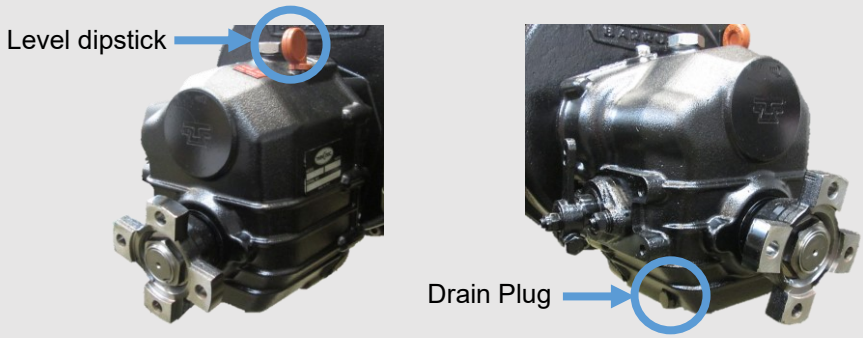
Gearbox Model	Location of Dipstick / Filler Plug / Drain Plug
PRM 60	
PRM 90	
PRM 150	
TMC 60A	

Figure 19: Location of Dipstick / Filler Plug / Drain Plug on Gearbox

3. Disposal of Oil and Related Items

NOTICE:

ALWAYS BE ENVIRONMENTALLY RESPONSIBLE.

- 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.

4. Primary Fuel Filter Drain

WARNING:

DIESEL FUEL IS FLAMMABLE AND EXPLOSIVE UNDER CERTAIN CONDITIONS.

WARNING:

DIESEL FUEL IS HARMFUL TO SKIN. MAKE SURE THE RELEVANT PERSONAL PROTECTION EQUIPMENT IS WORN.

- 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 20**)
- 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.

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

Figure 20: Primary Fuel Filter Drain Screw

5. Primary Fuel Filter Change

DANGER:

DIESEL FUEL IS FLAMMABLE AND EXPLOSIVE UNDER CERTAIN CONDITIONS.

WARNING:

DIESEL FUEL IS HARMFUL TO SKIN. MAKE SURE THE RELEVANT PERSONAL PROTECTION EQUIPMENT IS WORN.

- Ensure the fuel tank is at least ¾ 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 using a filter strap wrench. Unscrew the filter until loose then remove by hand.
- 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.
- Loosen the bleed screw on the top of the filter head. Pump the lift pump until air free fuel comes out. Retighten the bleed screw.
- Ensure the system is correctly bled before attempting to start up.

6. Control Panel Maintenance

WARNING:

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.

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 7 – Service Schedule

NOTICE:

REFER TO THE YANMAR MANUAL PRIOR TO CARRYING OUT ANY SERVICE OR MAINTENANCE WORK.

WARNING:

PRIOR TO CARRYING OUT ANY SERVICE OR MAINTENANCE WORK MAKE SURE THE RELEVANT PERSONAL PROTECTION EQUIPMENT IS WORN.

1. Specifications and Capacities

Specification of Coolants and Lubricants to use:

Component	Lubricant
PRM 60	ATF (Automatic Transmission Fluid) Oil
PRM 90	ATF (Automatic Transmission Fluid) Oil
PRM 150	Engine Oil
TMC 60A	ATF (Automatic Transmission Fluid) Oil

Gearbox Oil Capacity (Excluding Cooler):

Gearbox	Capacity (Litres)	Capacity (Pints)
PRM 60	0.3	0.52
PRM 90	0.57	1.0
PRM 150	1.4	2.5
TMC 60A	0.6	1.05

2. Service Intervals

	Check	Change	Notes
PRM Gearbox Oil	Weekly (Level)	Every 250 Hours OR 12 Months*	First change after 25 hours
Technodrive Gearbox Oil	Weekly (Level)	Every 500 Hours OR 12 Months*	First change after 30 hours
Diesel Fuel Filter – Primary**	50 hours	At first 50 hour service and then every 500 hours OR 12 Months*	Drain water every 50 hours OR Monthly***
Key Switch	Lubricate	Every 250 hours OR 12 Months*	As per instructions in Section 6 – Control Panel Maintenance
Water Pump Impeller	250 Hours	Every 500 hours OR 12 Months*	Change more frequently if operating in shallow or sandy waters

* Whichever occurs first.

** Only filters which meet the Recreational Craft Directive should be fitted to your engine

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

SECTION 8 – Wiring Diagrams

1. Shire to Yanmar Extension Loom

SHIRE TO YANMAR EXTENSION LOOM

RDG205A29 - ISSUE 2
LENGTH: 3M

Wiring key

BARRUS PLUG NO.	YANMAR PLUG NO.	WIRE COLOUR	CONNECTS TO
1	10	Red	Dash panel live
2	11	Blue	Ignition On
3	9	White	Start trigger
4	6	Orange	Tacho signal
5	7	Blue/Black	Alternator Warning lamp
6	NA		Domestic Alternator warning lamp
7	2	White/Blue	Temperature Warning lamp
8	3	White/Green	Temperature Sender
9	1	Yellow/White	Oil Pressure Warning lamp
10	5	Yellow/Green	Oil Pressure Sender
11	4	Black	Earth
12	12	White/Brown	Stop button
13	8	Red/Black	Glow plug warning lamp

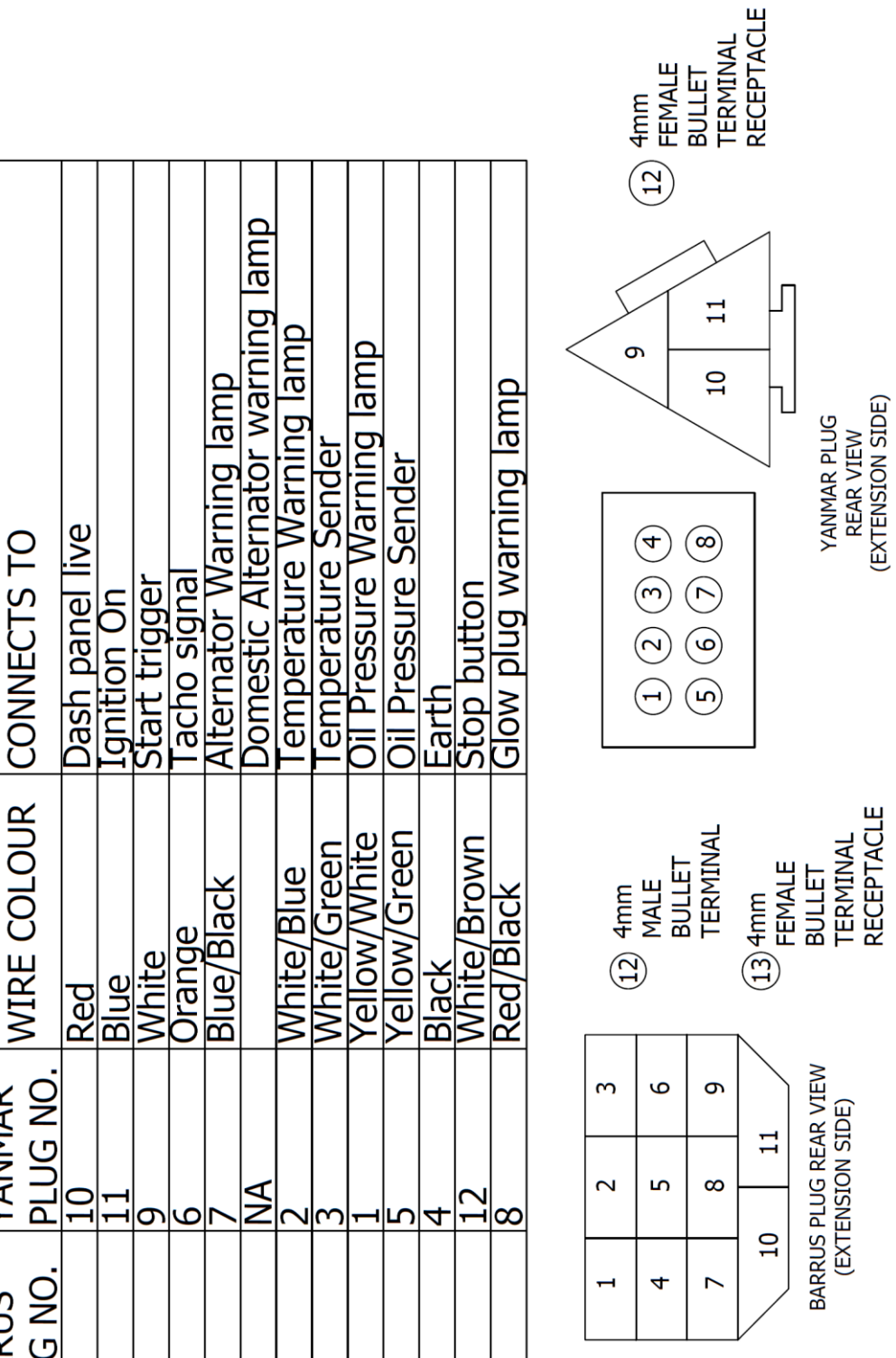


Figure 21: Shire to Yanmar Extension Loom

2. Basic Control Panel Wiring Diagram

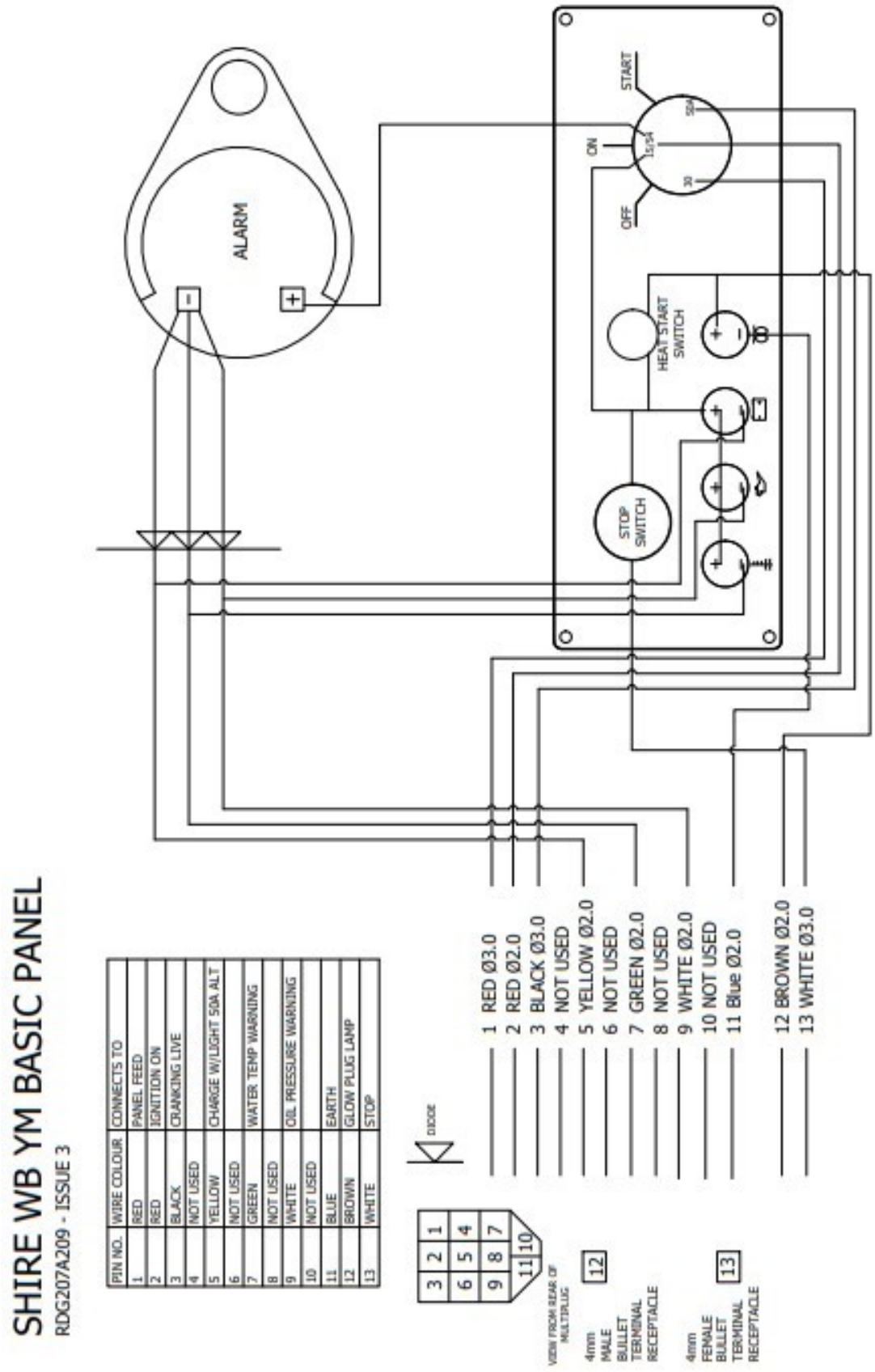
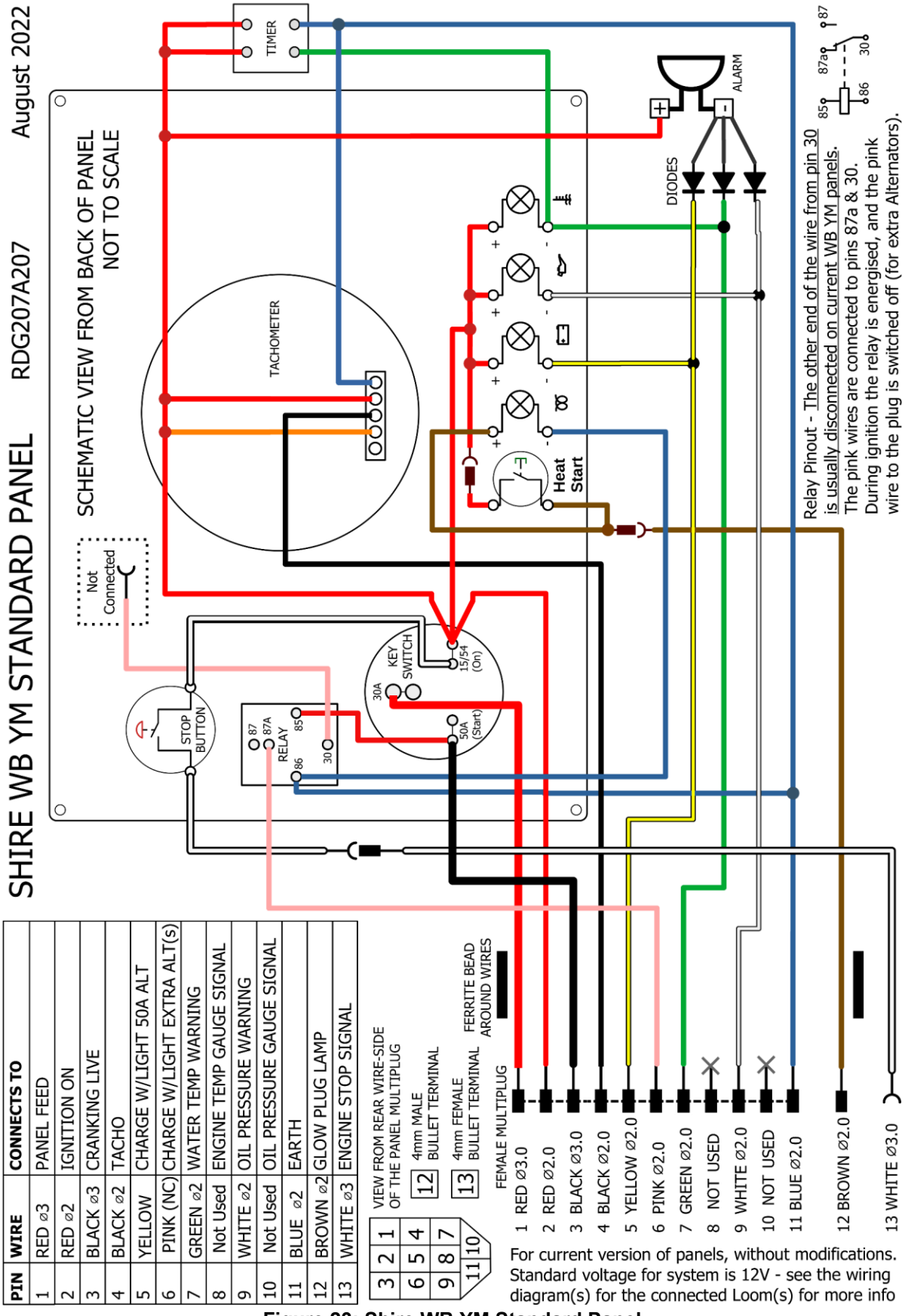


Figure 22: Shire WB YM Basic Panel

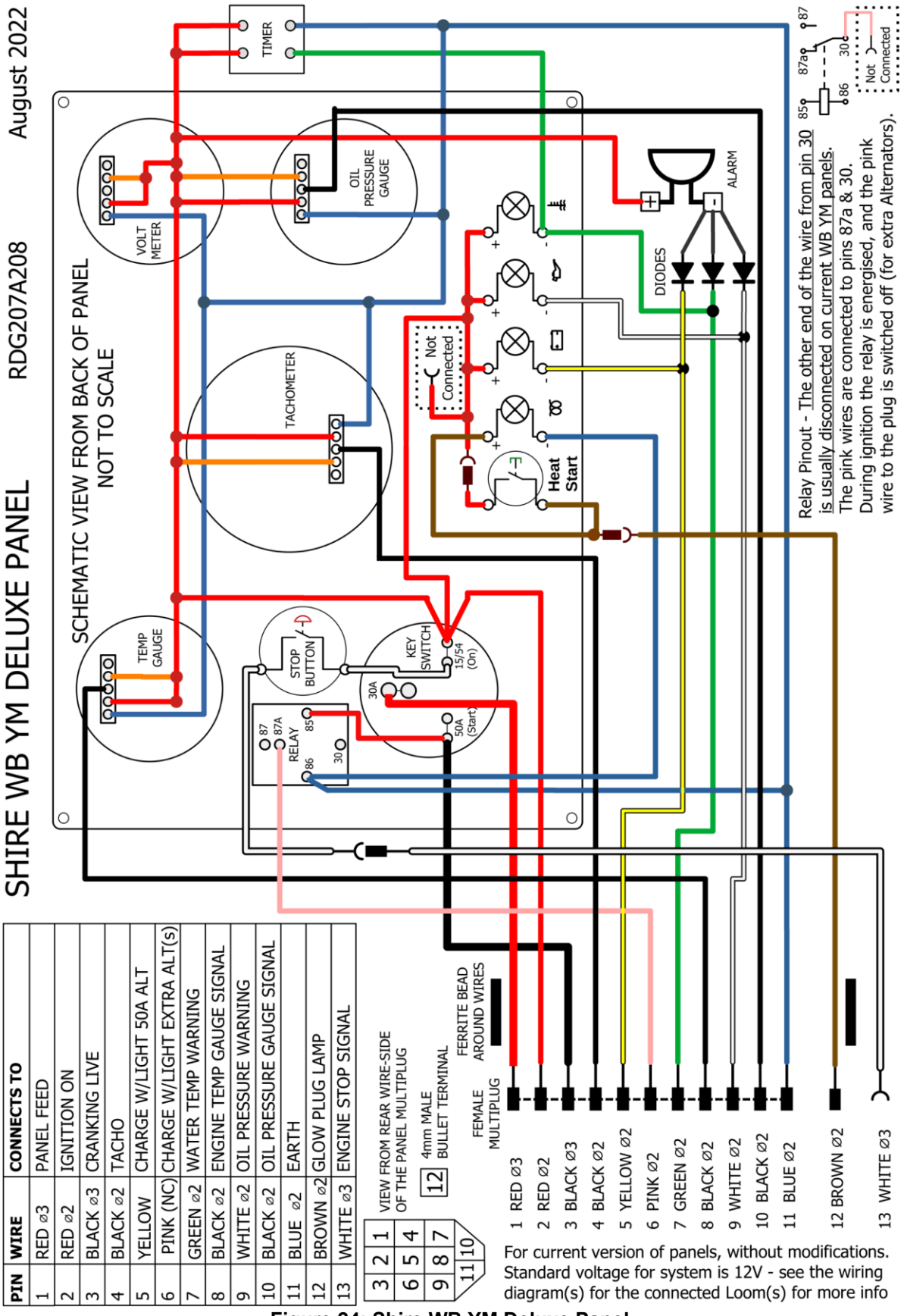
3. Standard Control Panel Wiring Diagram



PIN	WIRE	CONNECTS TO
1	RED ø3	PANEL FEED
2	RED ø2	IGNITION ON
3	BLACK ø3	CRANKING LIVE
4	BLACK ø2	TACHO
5	YELLOW	CHARGE W/LIGHT 50A ALT
6	PINK (NC)	CHARGE W/LIGHT EXTRA ALT(s)
7	GREEN ø2	WATER TEMP WARNING
8	Not Used	ENGINE TEMP GAUGE SIGNAL
9	WHITE ø2	OIL PRESSURE WARNING
10	Not Used	OIL PRESSURE GAUGE SIGNAL
11	BLUE ø2	EARTH
12	BROWN ø2	GLOW PLUG LAMP
13	WHITE ø3	ENGINE STOP SIGNAL

Figure 23: Shire WB YM Standard Panel

4. Deluxe Control Panel Wiring Diagram



PIN	WIRE	CONNECTS TO
1	RED Ø3	PANEL FEED
2	RED Ø2	IGNITION ON
3	BLACK Ø3	CRANKING LIVE
4	BLACK Ø2	TACHO
5	YELLOW	CHARGE W/LIGHT 50A ALT
6	PINK (NC)	CHARGE W/LIGHT EXTRA ALT(s)
7	GREEN Ø2	WATER TEMP WARNING
8	BLACK Ø2	ENGINE TEMP GAUGE SIGNAL
9	WHITE Ø2	OIL PRESSURE WARNING
10	BLACK Ø2	OIL PRESSURE GAUGE SIGNAL
11	BLUE Ø2	EARTH
12	BROWN Ø2	GLOW PLUG LAMP
13	WHITE Ø3	ENGINE STOP SIGNAL

Figure 24: Shire WB YM Deluxe Panel

SECTION 9 – Technical Data

1. Dry Weight of Engine Data

Dry Weight of Engine (Including Gearbox)*	
Model	**Dry Weight (kg)**
Shire 15 Work Boat YM	115kg
Shire 20 Work Boat YM	132kg
Shire 25 Work Boat YM	135kg
Shire 30 Work Boat YM	148kg
Shire 30 Work Boat M YM	135kg

* The dry weights stated are for the standard engine in each model range. If a different gearbox or additional alternators are ordered the weight will change accordingly.

2. Return Diesel System

All the flexible fuel lines used on the engine comply with ISO 7840.

SECTION 10 – Dealer List

Area	Company	Telephone	Email
BERKSHIRE	Driveline Marine	0118 942 3877	tam@drivelinemarine.com
	Marcus Marine Engineering Ltd (Servicing, Repairs & Breakdowns only)	07900890911	marcusmarine@icloud.com
CHESHIRE	Nantwich Canal Centre	01270 625122	info@nantwichcc.com
CORNWALL	Black Dog Marine	01503 265898	blackdogmarine@googlemail.com
	Cellar Marine	01326 280214	john@cellarmarine.com
	Smith's Boat Yard	01208 862815	info@smithsboatyard.co.uk
	Armada Engineering	01326 375566	sales@armadamh.co.uk
CUMBRIA	Windermere Aquatic Ltd	01539 442121	service@aquaticboatcentres.com
DERBYSHIRE	Midland Canal Centre	01283 701933	info@mccboats.co.uk
DEVON	Sleeman & Hawken Ltd	01626 778266	keith@sleeman-hawken.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
DORSET	Purbeck Marine	01202 686592	purbeckmarine@aol.com
	Rob Perry Marine	01297 631314	sales@robperrymarine.co.uk
EAST SUSSEX	Peter Leonard Marine	01273 515987	info@plmarine.com
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
LEICESTERSHIRE	Foxton Boat Services Ltd	01162 792285	tony@foxton-boats.freeserve.co.uk
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

	River Canal Rescue	01785 785680	enquiries@rivercanalrescue.co.uk
	Stone Boatbuilding Company	01785 812688	sales@stonebuilding.co.uk
	Streethay Wharf	01543 414808	office@streethaywharf.co.uk
WARWICKSHIRE	Barry Hawkins Narrowboats	01827 711762	boats@hawkinsyard.freeserve.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
	Starline Narrowboats	01531 632003	enquiries@starlinenarrowboats.co.uk
YORKSHIRE	Rodley Boat Centre	01132 576132	John.snowdenz@ntlworld.com
MONMOUTHSHIRE	Castle Narrowboats	01873 830001	castlenarrowboats@btinternet.com
SHETLAND	DH Marine (Shetland) Ltd	01595 690618	mail@dhmarine.co.uk
NORTHERN IRELAND	South Shore Marine	020 38341010	info@southshoremarine.co.uk
EIRE	Dun Laoghaire Marine Services	00353 12104776	info@dlms.ie
	O'Sullivans Marine	003536 67124524	brian@sulliansmarine.com
	Oysterhaven Boats	00353 214843626	sales@oysterhavenboats.com

SECTION 11 – Shire Parts

Model	15	20	25	30 M	30
Primary Fuel Filter	RDG906A3	RDG906A3	RDG906A3	RDG906A3	RDG906A3
Oil Filter	119305-35151	119305-35151	119305-35151	119305-35151	119305-35151
Secondary Filter	104500-55710	104500-55710	104500-55710	104500-55710	104500-55710
Zinc Anti Corrosive Anode	-	-	-	-	RDG504A70
Zinc Sticker	-	-	-	-	124220-09346
Water Pump End Plate	RDG501A28	RDG501A28	RDG501A28	RDG501A28	RDG501A28
Water Pump PTFE Lid Spacer	RDG001A4	RDG001A4	RDG001A4	RDG001A4	RDG001A4
Water Pump PTFE Disc	RDG001A3	RDG001A3	RDG001A3	RDG001A3	RDG001A3
Sea Water Pump Impellor	RDG010A7	RDG010A7	RDG010A7	RDG010A7	RDG010A7
Sea Water Pump O Ring	X02173476	X02173476	X02173476	X02173476	X02173476
120A Alternator Belt	128790-77580	128790-77580	128990-77580	128990-77580	128990-77580
Sea Water Pump Belt	104511-78780E	104511-78780E	25111-002100	25111-002100	25111-002100

Control Panel:

Control Panel	Part Number
Shire YM WB Basic Panel	RDG207A209
Shire YM WB Standard Panel	RDG207A207
Shire YM WB Deluxe Panel*	RDG207A208

* Not available on a Shire 15 Work Boat YM

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 500ml container (Part No

RDG80210219).

Front Power Take Stub Shaft Option:
If a front power take stub shaft is required, the part number RDG912A30 can be ordered as an option

The stub shaft has a 32mm diameter. The key way slot is 10mm wide with a 5mm depth.

3.3kW (4.4hp) at 3000rpm is the maximum power that can be taken from the front power take stub shaft. The maximum overhang is 50mm.

Crank Driven Water Pump Option (SS1716):
If a crank driven pump is required, the part number RDG9079564 and the relevant fitting kit can be ordered as an option. Please be aware that the front power take Stub option cannot be fitted to the engine if the crank driven water pump option is fitted.

SECTION 12 – Afterlife Recycling

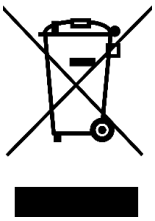
When it becomes necessary to dispose of your engine. This may be possible at recycling centre; however, it will likely require careful disassembly first before disposal. For further information please contact your local recycling centres for disposal advice to see what they will accept for disposal.

Engines are primarily made up of steel, cast iron and aluminium; and are recyclable after removal of other parts. Larger components such as the engine block may only be handleable by a few centres, unlike say smaller plastic components.
Most of the other parts require special disposal as they include hazardous waste, and must be separated and declared upon disposal, including:

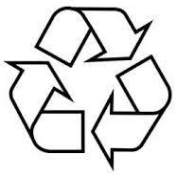
Fluid Disposal
You must make sure that all unused oil, fuel and coolant is drained out carefully and disposed of correctly at a local recycling centre. Under NO circumstance must any oil, fuel or coolant be put down any drains or leaked into waterways or the environment.

Contact local recycling centres or garages, or check their websites to find out whether they take or recycle engine fluids. If they don't, they may be able to direct you to your nearest drop-off point depending on the volume. Recycle your coolant/oil/fuel in distinct well-sealed containers that are clearly labelled.

Waste Electrical Electronic Equipment (WEEE) and Battery recycling
Parts contain WEEE waste or batteries should not be disposed of in your domestic waste. You should recycle WEEE or batteries in accordance with your local authority or recycling centre's directions. Batteries will need declaring separately for safety purposes.



Packaging materials that are unwanted should be sorted, with cardboard, wood, and paper recycled where possible. Some Local Authorities and recycling centres may accept plastic bags, films and bubble wrap for recycling. Polystyrene is very rarely recycled and may have to be disposed of in general rubbish, inside bags.



Reduce, Reuse, Recycle

For further information about disposal please contact your Local Authority. You can also get more advice and guidance about recycling in your area at the following website http://www.recycle-more.co.uk.

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.** **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