NOTICE

If you have an installation with two or three engines and only one engine is operating, the water pickup (thru-hull) of the non-running engine(s) should be closed. This will prevent water from being forced past the seawater pump and eventually finding its way into the engine. The result of water entering the engine could cause seizure or other serious problems.

If you have an installation with two or three engines, and only one engine is operating, please note that if the propeller shaft thru-hull (stuffing box) is lubricated by engine water pressure and the engines are interconnected, care must be taken that water from the running engine does not enter the exhaust of the non-running engine(s). This water could cause seizure of the non-running engine(s). See your authorized Yanmar Marine dealer or distributor for a complete explanation of this condition.

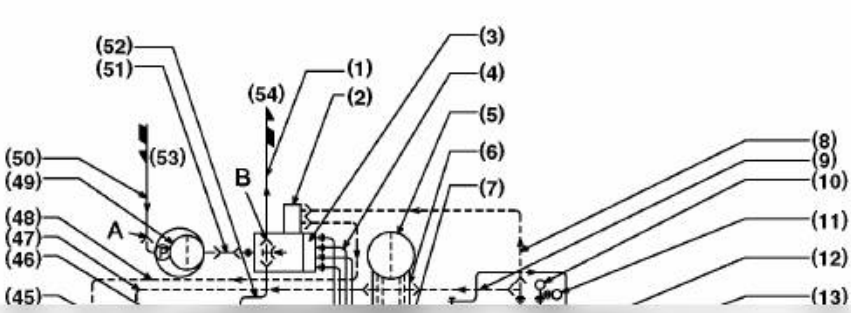
If you have an installation with two or three engines, and only one engine is operating, it is important to limit the amount of throttle applied to the running engine. If you observe black smoke or movement of the throttle does not increase engine speed, you are overloading the engine that is running. Immediately throttle back to approximately 2/3 throttle or to a setting where the engine performs normally. Failure to do so may cause the running engine to overheat or cause excess carbon buildup which may shorten the engine's life.

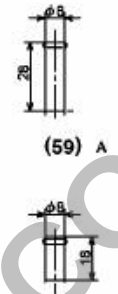
NEVER turn off the battery switch (if equipped) or short the battery cables during operation. Damage to the electrical system will result.

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4JH4-HTE1 / 4JH4-HTE with KM4A2

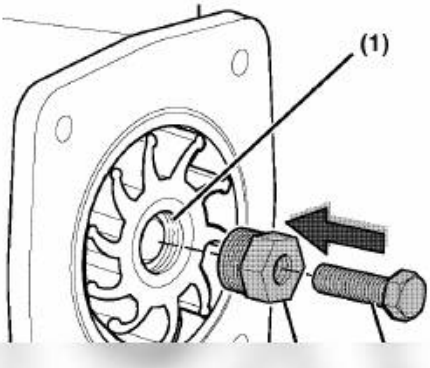




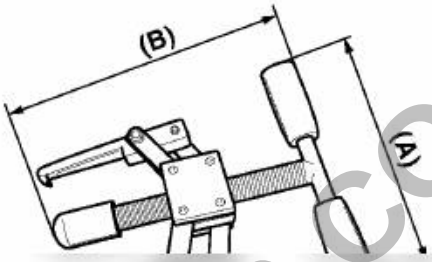
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Puller B (option)
Part No. 129671-92100



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Is there water, oil or fuel leakage? Are there any loose bolts or connections?

Check the engine room daily for any leaks or loose connections.

Is there sufficient fuel in the fuel tank?

Refill fuel in advance to avoid running out of fuel. If the tank runs out of fuel, bleed the fuel system. *See Bleeding the Fuel System on page 38.*

TROUBLESHOOTING INFORMATION

If the engine does not operate properly, refer to the *Troubleshooting Chart on page 91* or see your authorized Yanmar Marine dealer or distributor.

Supply the authorized Yanmar Marine dealer or distributor with the following information:

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PERIODIC MAINTENANCE

INTRODUCTION

This section of the *Operation Manual* describes the procedures for proper care and maintenance of the engine.

SAFETY PRECAUTIONS

Before performing any maintenance procedures within this section, read the following safety information and review the *Safety* section on page *5*.

⚠ WARNING

Crush Hazard



If the engine needs to be transported for repair, have a helper assist you attach it to a hoist and load it on a truck.

The engine lifting eyes are engineered to lift the weight of the marine engine only. ALWAYS use the engine lifting eyes when lifting the engine.

Additional equipment is necessary to lift the marine engine and marine gear together. ALWAYS use lifting equipment with sufficient capacity to lift the marine engine.

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Note: 4JH4-TE with KMH4A marine gear shown.

1. Make sure engine is level.
2. Remove the filler cap **(Figure 9, (1))** at the top of the housing.
3. Remove dipstick **(Figure 9, (2))** and wipe with clean cloth.
4. Fully reinsert dipstick.
5. Remove dipstick. The oil level should be between upper **(Figure 9, (3))** and lower **(Figure 9, (4))** lines on the dipstick.
6. Fully reinsert dipstick.

Adding Marine Gear Oil

1. Make sure the engine is level.
2. Remove the filler cap **(Figure 9, (1))** at the top of the housing.
3. Fill with oil to the upper limit on the dipstick **(Figure 9, (3))**. *See Marine Gear Oil Specifications on page 41.*

NOTICE

NEVER overfill the marine gear with oil.

4. Fully reinsert dipstick.
5. Tighten the filler port cap by hand.

Checking and Adding Sail Drive Oil

Refer to the operation manual for SD50-T for the procedure to check and fill the sail drive oil.

ENGINE COOLANT

Engine Coolant Specifications

Note: In the U.S., LLC is required for the warranty to be valid.

- Texaco Long Life Coolant (LLC), both standard and premixed, product code 7997 and 7998
- Havoline Extended Life Antifreeze / Coolant, product code 7994

Following the manufacturer's recommendations, use a proper LLC which will not have any adverse effects on the materials (cast iron, aluminum, copper, etc.) of the engine's cooling system.

ALWAYS use the mixing ratios specified by the antifreeze manufacturer for the temperature range.

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PRODUCT OVERVIEW

YANMAR JH SERIES FEATURES AND APPLICATIONS

The JH series are four-stroke direct injection diesel engines equipped with liquid coolant systems.

The 3JH5E is 3-cylinder and naturally aspirated.

The 4JH5E is 4-cylinder and naturally aspirated.

The 4JH4–TE is 4-cylinder and turbocharged.

The 4JH4–HTE1, 4JH4–HTE is 4-cylinder and turbocharged with an intercooler.

The engines are equipped with a marine gear or sail drive unit.

These engines are designed for pleasure craft use.

It is recommended that new vessels be propped so the engines can operate at 100 to 200 min^{-1} above the fuel stop power engine speed to allow for some added weight and hull resistance.

Failure to do so can lead to reduced vessel performance, lead to increased smoke levels and cause permanent damage to your engine.

The engine must be installed correctly with coolant lines, exhaust gas lines and electrical wiring. Any auxiliary equipment attached to the engine should be easy to use and accessible for service. To handle the drive equipment, propulsion systems (including the propeller) and other inboard equipment, always observe the instructions and cautions given in the operation manuals supplied by the shipyard and equipment manufacturers.

The JH series engines are designed to be operated at maximum throttle (3000 to 3200 min^{-1}) for less than 5% of total engine time (30 minutes out of every 10 hours) and cruising speed (2800 min^{-1} or less) for less than 90% of total engine time (9 hours out of every 10 hours).

The laws of some countries may require hull and engine inspections, depending on the use, size and cruising area of the boat. The installation, fitting and surveying of this engine all require specialized knowledge and engineering skills. See Yanmars local subsidiary in your region or your authorized Yanmar Marine dealer or distributor.

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California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.

California Proposition 65 Warning

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm.
Wash hands after handling.

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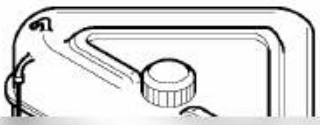
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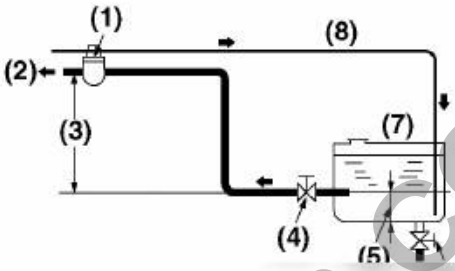
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2. Keep the fuel container stationary for several hours to allow any dirt or water to settle to the bottom of the container. Use a pump to extract the clear, filtered fuel from the top of the container.

Fuel Tank (Optional)



Fuel System - 4JH4-TE and 4JH4-HTE1, 4JH4-HTE



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1. Ensure that the trolling lever **(Figure 9, (2))** is in the high-speed **(Figure 9, (4))** position when the trolling remote control handle is in high-speed position **(Figure 9, (7))**.
2. Ensure that the trolling lever is in the low-speed **(Figure 9, (3))** position when the trolling remote control handle is in low-speed position **(Figure 9, (8))**.
3. To adjust, loosen the adjustment screw of the cable fitting **(Figure 9, (1))** and adjust the position of the cable.

Adjusting Propeller Shaft Alignment

The flexible engine mounts are compressed slightly during initial engine operation and may cause misalignment between the engine and the propeller shaft.

After the first 50 hours of operation, the alignment should be checked and readjusted if necessary. This is considered normal maintenance and the adjustment requires specialized knowledge and techniques. Consult your authorized Yanmar Marine dealer or distributor.

Check for any unusual noise and vibration in the engine / boat hull, while increasing and decreasing the engine speed gradually.

If there is unusual noise and / or vibration, this maintenance requires specialized knowledge and techniques. See your authorized Yanmar Marine dealer or distributor to adjust the propeller shaft alignment.

Every 50 Hours of Operation

Perform the following procedures every 50 hours thereafter or monthly, whichever comes first.

- **Draining Fuel Filter / Water Separator**
- **Checking Battery Electrolyte Level (Serviceable Batteries Only)**

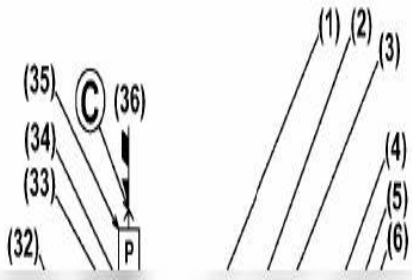
Draining Fuel Filter / Water Separator

⚠ WARNING

Fire and Explosion Hazard.
When removing any fuel system component to perform maintenance (such as changing the fuel filter), put an approved container under the opening to catch the fuel.
NEVER use a shop rag to catch the fuel. Vapors from the rag are flammable and explosive. Wipe up any spills immediately.

Exposure Hazard.
Wear eye protection. The fuel system is under pressure and fuel could spray out when removing any fuel system component.

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