COMPONENT IDENTIFICATION

Service Side - 3JH4E

Figure 1 and **Figure 2** illustrate a typical version of a 3JH4E engine. Your engine may have different equipment from that illustrated.

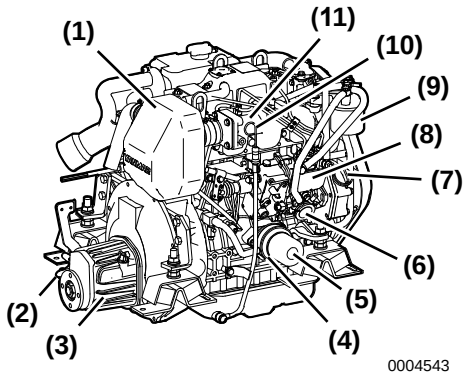


Figure 1

1 – Intake Silencer (Air Cleaner)
2 – Shift Lever
3 – Marine Gear
4 – Oil Cooler
5 – Engine Oil Filter
6 – Fuel Feed Pump
7 – Engine Oil Filler Cap
8 – Fuel Injection Pump
9 – Fuel Filter
10 – Engine Oil Dipstick
11 – Intake Manifold

Non-Service Side - 3JH4E

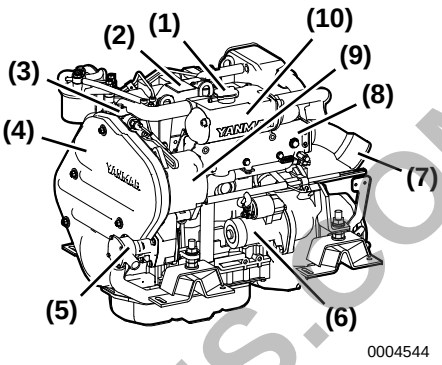


Figure 2

1 – Coolant Filler Cap
2 – Engine Nameplate (on rocker arm cover)
3 – Fresh Water Pump
4 – Belt Cover
5 – Seawater Pump
6 – Starter Motor
7 – Mixing Elbow
8 – Exhaust Manifold
9 – Alternator
10 – Coolant Tank / Heat Exchanger

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4JH4-HTE

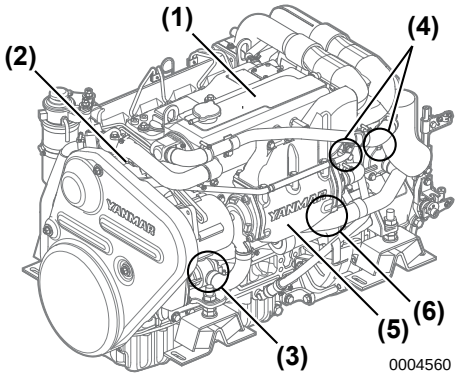


Figure 17

1 – Coolant Tank (Heat Exchanger)
2 – Coolant Pump (Fresh Water)
3 – Seawater Drain from Seawater Pump Cover
4 – Coolant Drain Cock
5 – Intercooler
6 – Seawater Drain Cock

4JH4-HTE

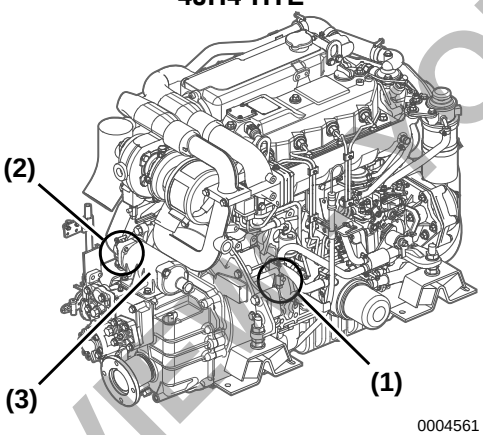


Figure 18

1 – Coolant Drain Cock
2 – Seawater Drain Cock
3 – Marine Gear Cooler

Note: The drain cocks are opened before shipping from the factory. Marine gear ZF25A does not have a drain cock on the clutch cooler.

1. Ensure all drain cocks are closed.
2. Loosen the filler cap of the coolant tank to relieve the pressure then remove the filler cap.

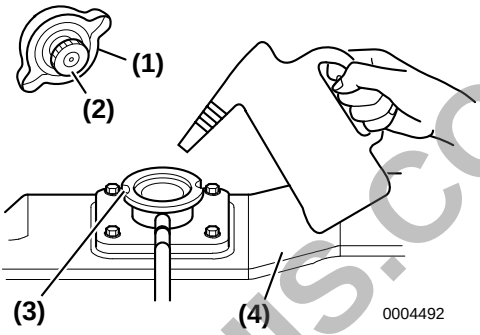


Figure 19

1 – Coolant Filler Cap
2 – Filler Cap Tabs
3 – Filler Port Notches
4 – Coolant Tank

3. Pour coolant slowly into the coolant tank **(Figure 19, (4))** to avoid air bubbles. Fill until coolant overflows from the filler port.
4. Align filler cap tabs **(Figure 19, (2))** with filler port notches **(Figure 19, (3))** and tighten filler cap **(Figure 19, (1))**.

Note: The coolant level rises in the coolant recovery tank during operation. After stopping the engine, the coolant will cool down and the extra coolant will return to the coolant tank.

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PERIODIC MAINTENANCE SCHEDULE

Daily and periodic maintenance is important to keep the engine in good operating condition. The following is a summary of maintenance items by periodic maintenance intervals. Periodic maintenance intervals vary depending on engine application, loads, diesel fuel and engine oil used and are hard to establish definitively. The following should be treated only as a general guideline. **CAUTION!** ***Establish a periodic maintenance plan according to the engine application and make sure you perform the required periodic maintenance at intervals indicated. Failure to follow these guidelines will impair the engine's safety and performance characteristics, shorten the engine's life and may affect the warranty coverage on your engine. See your authorized Yanmar marine dealer or distributor for assistance when checking items marked with a ●.***

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PERIODIC MAINTENANCE PROCEDURES

After Initial 50 Hours of Operation

Perform the following maintenance after the initial 50 hours of operation.

- **Draining the Fuel Tank**
- **Changing the Engine Oil and Replacing the Engine Oil Filter Element**
- **Changing the Marine Gear Oil and Replacing the Marine Gear Oil Filter (If Equipped)**
- **Adjusting the Alternator V-Belt Tension**
- **Adjusting Intake / Exhaust Valve Clearance**
- **Checking and Adjusting the Remote Control Cable**
- **Adjusting Propeller Shaft Alignment**

Draining the Fuel Tank

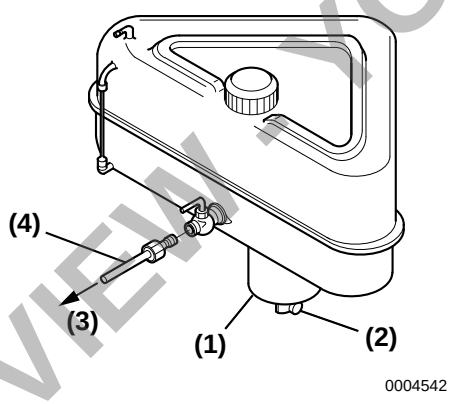


Figure 1

Note: Optional fuel tank shown. Actual equipment may differ.

1. Put a pan under the drain cock **(Figure 1, (2))** to catch fuel.
2. Open the drain cock and drain water and sediment. Close the drain cock when the fuel is clean and free of air bubbles.

Changing the Engine Oil and Replacing the Engine Oil Filter Element

The engine oil on a new engine becomes contaminated from the initial break-in of internal parts. It is very important that the initial oil replacement is performed as scheduled.

It is easiest and most effective to drain the engine oil after operation while the engine is still warm. **WARNING!** ***If you must drain the engine oil while it is still hot, stay clear of the hot engine oil to avoid being burned. ALWAYS wear eye protection.***

1. Turn the engine OFF.
2. NOTICE: *Prevent dirt and debris from contaminating engine oil. Carefully clean the dipstick and the surrounding area before you remove the dipstick.* Remove the engine oil dipstick. Attach the oil drain pump (if equipped) and pump out the oil.
   For easier draining, remove the engine oil fill cap.
3. Turn the engine oil filter **(Figure 2)** counterclockwise with a wrench.
4. Remove the engine oil filter.

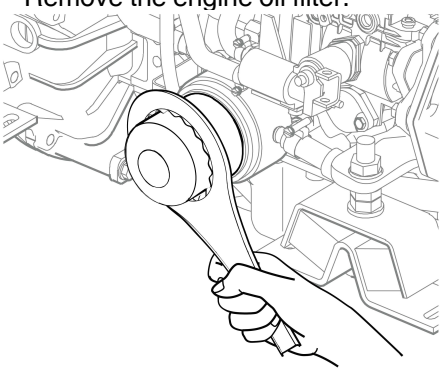


Figure 2

Note: 4JH4-TE shown.

5. Install a new filter element and tighten by hand until the seal touches the housing.

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TROUBLESHOOTING CHART

Symptom	Probable Cause	Measure	Reference
Indicators light on the instrument panel and alarm sounds during operation	Shift to low speed operation immediately, and check which indicator has come on. Stop the engine and inspect. If no abnormality is identified and there is no problem with operation, return to port at lowest speed and request repairs.		
• Engine oil low pressure alarm indicator comes on	Engine oil level is low.	Check engine oil level. Add or replace.	*See Checking the Engine Oil on page 33*
	Engine oil filter clogged.	Replace engine oil filter. Replace engine oil.	*See Changing the Engine Oil and Replacing the Engine Oil Filter Element on page 61*
• Water in sail drive seal indicator comes on	Rubber sail drive seal broken.	See your authorized Yanmar marine dealer or distributor.	-
• Coolant high temperature alarm comes on	Coolant / fresh water in coolant tank is low.	Check coolant level and refill.	*See Checking and Adding Coolant on page 36*
	Insufficient seawater causing temperature to rise.	Check seawater system.	-
	Contamination inside cooling system.	See your authorized Yanmar marine dealer or distributor.	-
Faulty Warning Devices	Do not operate the engine if alarm devices are not repaired. Serious accidents may result if abnormalities are not identified due to faulty indicators or alarm.		
Indicators Do Not Go On:			
• When key is turned ON • When any trouble occurs (oil pressure etc.)	No electrical current available. Circuit broken or lamp burned out.	See your authorized Yanmar marine dealer or distributor.	-
• One of the indicators does not go out	Sensor switch is faulty.	See your authorized Yanmar marine dealer or distributor.	-

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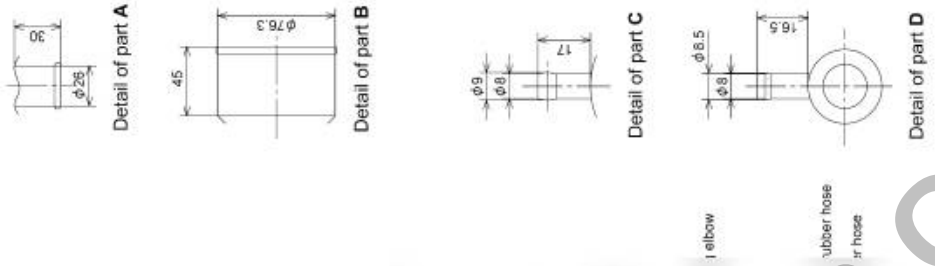
SPECIFICATIONS

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3JH4E with KM35P, KM35A Marine Gear



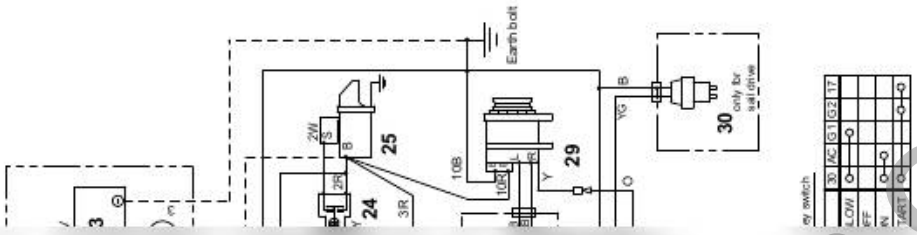
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WIRING DIAGRAMS

3JH4E - B-Type Instrument Panel



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CONTROL EQUIPMENT

The equipment in the control room makes remote control operation possible. It consists of the instrument panel, which is connected to the engine by a wire harness, and the remote control handle, which is connected by control cables to the engine control lever and marine gear.

Instrument Panel (Optional)

Equipment and Functions

The instrument panel is located in the cockpit. The following instruments enable you to start



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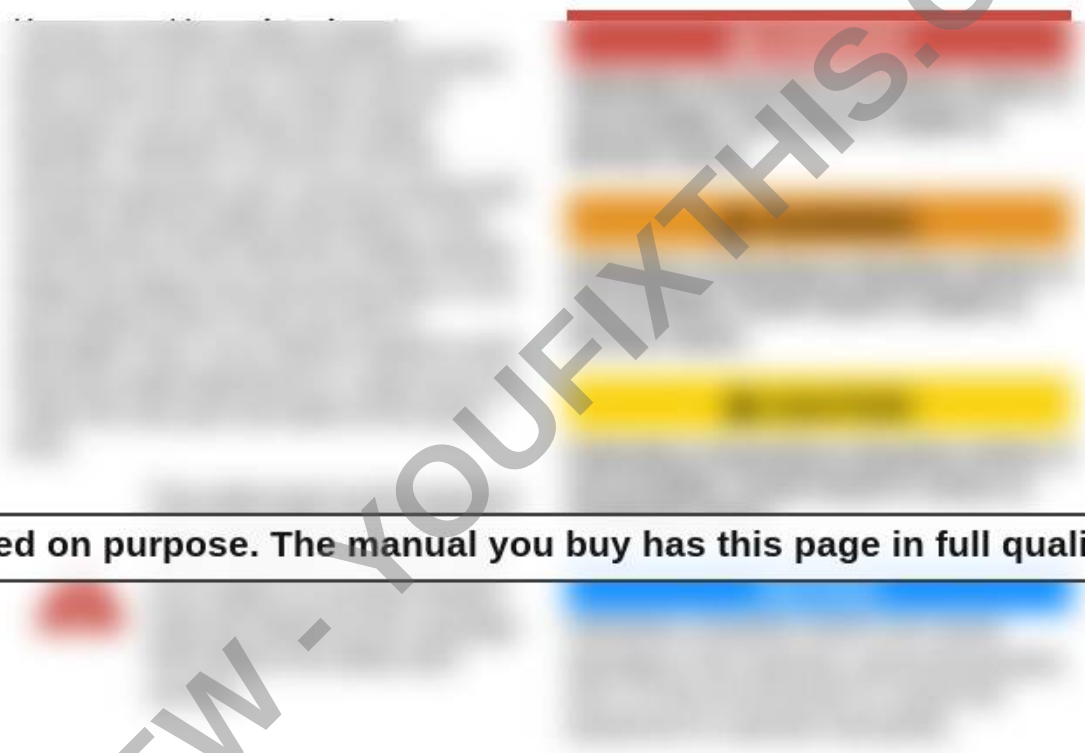
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