



YANMAR
®

JH4 **series**

OPERATION MANUAL

3JH4E
4JH4AE
4JH4-TE
4JH4-HTE

P/N: 0AJH4-G00102

MARINE
ENGINES

TABLE OF CONTENTS

	Page
Introduction	1
Record of Ownership	2
Safety	3
Safety Precautions	4
General Information	4
Before You Operate	4
During Operation and Maintenance	4
Location of Safety Decals	8
Product Overview	13
Yanmar JH4 Features and Applications	13
New Engine Break-In	13
Component Identification	15
Service Side - 3JH4E	15
Non-Service Side - 3JH4E	15
Service Side - 4JH4AE	16
Non-Service Side - 4JH4AE	16
Service Side - 4JH4-TE	17
Non-Service Side - 4JH4-TE	17
Service Side - 4JH4-HTE	18
Non-Service Side - 4JH4-HTE	18
Location of Nameplates	19
Function of Major Components	20
Control Equipment	21
Instrument Panel (Optional)	21
Single Lever Remote Control Handle	26
Before You Operate	27
Diesel Fuel	27
Diesel Fuel Specifications	27

TABLE OF CONTENTS

Filling the Fuel Tank	30
Bleeding the Fuel System	30
Engine Oil	32
Engine Oil Specifications	32
Engine Oil Viscosity	33
Checking the Engine Oil	33
Adding Engine Oil	33
Marine Gear or Sail Drive Oil	34
Marine Gear Oil Specifications	34
Sail Drive Oil Specifications - SD50	34
Checking Marine Gear Oil	35
Adding Marine Gear Oil	35
Checking and Adding Sail Drive Oil	35
Engine Coolant	36
Engine Coolant Specifications	36
Coolant (Closed Cooling System)	36
Checking and Adding Coolant	36
Cranking the Engine	39
Daily Checks	40
Visual Checks	40
Checking Diesel Fuel, Engine Oil and Engine Coolant Levels	41
Checking and Refilling Marine Gear Oil	41
Checking the Battery Electrolyte Level	41
Checking the Alternator Belt	41
Checking the Remote Control Handle	41
Checking the Alarm Indicators	41
Preparing Fuel, Oil and Coolant in Reserve	41
Engine Operation	43
Starting the Engine	44
Restarting After Starting Failure	45
Starting at Low Temperatures	45
After the Engine Has Started	46
Remote Control Handle Operation	46
Acceleration and Deceleration	46
Shifting the Engine	46
Switching to Trolling (KMH4A only)	47
Shutting Down the Engine	48
Emergency Shutdown	48
Checking the Engine After Operation	49
Periodic Maintenance	51
Safety Precautions	51

Precautions	53
The Importance of Periodic Maintenance	53
Performing Periodic Maintenance	53
The Importance of Daily Checks	53
Keep a Log of Engine Hours and Daily Checks	53
Yanmar Replacement Parts	53
Tools Required	53
Ask Your Authorized Yanmar Marine Dealer or Distributor For Help	53
Tightening Fasteners	54
EPA Maintenance Requirements	55
EPA Requirements for USA and Other Applicable Countries	55
EPA Requirements	55
Conditions to Ensure Compliance with EPA Emission Standards	55
Inspection and Maintenance	56
Periodic Maintenance Schedule	57
Inspection and Maintenance of EPA Emission- Related Parts	60
Periodic Maintenance Procedures	61
After Initial 50 Hours of Operation	61
Every 50 Hours of Operation	65
Every 250 Hours of Operation	67
Every 500 Hours of Operation	73
Every 1000 Hours of Operation	74
Troubleshooting	77
Troubleshooting After Starting	77
Troubleshooting Chart	79
Troubleshooting Information	82
Long-Term Storage	83
Prepare Engine for Long-Term Storage	83
Drain Seawater Cooling System	84
Specifications	87
Principal Engine Specifications	87
3JH4E Engine Specifications	87
3JH4E Marine Gear Specifications	89
4JH4AE Engine Specifications	90
4JH4AE Marine Gear or Sail Drive Specifications	94
4JH4-TE Engine Specifications	96
4JH4-HTE Engine Specifications	98

TABLE OF CONTENTS

4JH4-TE and 4JH4-HTE Marine Gear or Sail Drive Specifications	100
System Diagrams	101
Piping Diagrams	101
Wiring Diagrams	116
EPA Warranty USA Only	129
Yanmar Co., Ltd. Limited Emission Control System Warranty - USA Only	129
Your Warranty Rights and Obligations:	130
Warranty Period:	130
Warranty Coverage:	131
Exclusions:	131
Owner's Responsibility:	131
Customer Assistance:	132
Emission System Warranty	133
Non-Road Emission System Warranty	133
Yanmar Co., Ltd. Limited Emission Control System Warranty - USA Only	133

INTRODUCTION

Welcome to the world of Yanmar Marine! Yanmar Marine offers engines, drive systems and accessories for all types of boats, from runabouts to sailboats, and from cruisers to mega yachts. In marine leisure boating, the worldwide reputation of Yanmar Marine is second to none. We design our engines to respect nature. This means quieter engines, with minimal vibrations, cleaner than ever. All of our engines meet applicable regulations, including emissions, at the time of manufacture.

To help you enjoy your Yanmar JH4 series engine for many years to come, please follow these recommendations:

- Read and understand this *Operation Manual* before you operate the machine to ensure that you follow safe operating practices and maintenance procedures.
- Keep this *Operation Manual* in a convenient place for easy access.
- If this *Operation Manual* is lost or damaged, order a new one from your authorized Yanmar marine dealer or distributor.
- Make sure this manual is transferred to subsequent owners. This manual should be considered a permanent part of the engine and remain with it.
- Constant efforts are made to improve the quality and performance of Yanmar products, so some details included in this *Operation Manual* may differ slightly from your engine. If you have any questions about these differences, please contact your authorized Yanmar marine dealer or distributor.
- The specifications and components (instrument panel, fuel tank, etc.) described in this manual may differ from ones installed on your vessel. Please refer to the manual provided by the manufacturer of these components.

INTRODUCTION

RECORD OF OWNERSHIP

Take a few moments to record the information you need when you contact Yanmar for service, parts or literature.

Engine Model: _____

Engine Serial No.: _____

Date Purchased: _____

Dealer: _____

Dealer Phone: _____

SAFETY

Yanmar considers safety of great importance and recommends that anyone that comes into close contact with its products, such as those who install, operate, maintain or service Yanmar products exercise care, common sense and comply with the safety information in this manual and on the machine's safety decals. Keep the labels from becoming dirty or torn and replace them if they are lost or damaged. Also, if you need to replace a part that has a label attached to it, make sure you order the new part and label at the same time.



This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

DANGER

Indicates a hazardous situation which, if not avoided, *will* result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, *could* result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, *could* result in minor or moderate injury.

NOTICE

Indicates a situation which can cause damage to the machine, personal property and / or the environment or cause the equipment to operate improperly.

SAFETY PRECAUTIONS

General Information

There is no substitute for common sense and careful practices. Improper practices or carelessness can cause burns, cuts, mutilation, asphyxiation, other bodily injury or death. This information contains general safety precautions and guidelines that must be followed to reduce risk to personal safety. Special safety precautions are listed in specific procedures. Read and understand all of the safety precautions before operation or performing repairs or maintenance.

Before You Operate

DANGER

The safety messages that follow have **WARNING** level hazards.



NEVER permit anyone to install or operate the engine without proper training.

- Read and understand this Operation Manual before you operate or service the engine to ensure that you follow safe operating practices and maintenance procedures.
- Safety signs and labels are additional reminders for safe operating and maintenance techniques.
- See your authorized Yanmar marine dealer or distributor for additional training.

During Operation and Maintenance

DANGER

The safety message that follows has **DANGER** level hazards.

Crush Hazard



NEVER stand under hoisted engine. If the hoist mechanism fails, the engine will fall on you.

⚠ WARNING

The safety messages that follow have **WARNING** level hazards.

Explosion Hazard

Avoid serious personal injury or equipment damage. While the engine is running or the battery is charging, hydrogen gas is being produced and can be easily ignited. Keep the area around the battery well-ventilated and keep sparks, open flames and any other form of ignition out of the area.

Fire and Explosion Hazard

Diesel fuel is flammable and explosive under certain conditions.

NEVER use a shop rag to catch the fuel.

Wipe up all spills immediately.

NEVER refuel with the engine running.

Store any containers containing fuel in a well-ventilated area, away from any combustibles or sources of ignition.

NEVER place diesel fuel or other flammable material such as oil, hay or dried grass close to the engine during engine operation or shortly after shut down.

Fire Hazard

Avoid injury or equipment damage from fire. Undersized wiring systems can cause an electrical fire.

Sever Hazard

Rotating parts can cause severe injury or death. NEVER wear jewelry, unbuttoned cuffs, ties or loose fitting clothing and ALWAYS tie long hair back when working near moving / rotating parts such as the flywheel or PTO shaft. Keep hands, feet and tools away from all moving parts.

Alcohol and Drug Hazard

NEVER operate the engine while under the influence of alcohol or drugs or feeling ill.

Exposure Hazard

To avoid injury, ALWAYS wear personal protective equipment including appropriate clothing, gloves, work shoes, eye and hearing protection as required by the task at hand.

Entanglement Hazard

NEVER leave the key in the key switch when you are servicing the engine. Someone may accidentally start the engine and not realize you are servicing it.

Avoid personal injury. NEVER operate the engine while wearing a headset to listen to music or radio because it will be difficult to hear the warning signals.

Stop the engine before you begin to service it.

If you must service the engine while it is operating, remove all jewelry, tie back long hair, and keep your hands, other body parts and clothing away from moving / rotating parts.

WARNING

Piercing Hazard



Avoid skin contact with high-pressure diesel fuel spray caused by a fuel system leak such as a broken fuel injection line. High-pressure fuel can penetrate your skin and result in serious injury. If you are exposed to high-pressure fuel spray, obtain prompt medical treatment.

NEVER check for a fuel leak with your hands. ALWAYS use a piece of wood or cardboard. Have your authorized Yanmar marine dealer or distributor repair the damage.

Burn Hazard



Avoid serious injury. Some of the engine surfaces become very hot during operation and shortly after shut-down. Keep hands and other body parts away from hot engine

surfaces.

Sudden Movement Hazard

Avoid personal injury. ALWAYS stop the engine before beginning service.

Exhaust Hazard



Avoid serious injury or death. NEVER block windows, vents or other means of ventilation if the engine is operating in an enclosed area. All internal combustion engines create carbon monoxide gas during operation and special precautions are required to avoid carbon monoxide poisoning.

CAUTION

The safety messages that follow have CAUTION level hazards.

Poor Lighting Hazard

Avoid personal injury or equipment damage. Ensure that the work area is adequately illuminated. ALWAYS install wire cages on portable safety lamps.

Tool Hazard

Avoid personal injury or equipment damage. ALWAYS use tools appropriate for the task at hand and use the correct size tool for loosening or tightening machine parts.

Flying Object Hazard

Avoid personal injury. ALWAYS wear eye protection when servicing the engine or when using compressed air or high-pressure water. Dust, flying debris, compressed air, pressurized water or steam may injure your eyes.

Coolant Hazard



Wear eye protection and rubber gloves when you handle Long Life engine coolant. If contact with the eyes or skin should occur, flush eyes and wash immediately with clean water.

NOTICE**The safety messages that follow have NOTICE level hazards.**

It is important to perform daily checks as listed in the *Operation Manual*.

Periodic maintenance prevents unexpected downtime, reduces the number of accidents due to poor engine performance and helps extend the life of the engine.

See your authorized Yanmar marine dealer or distributor if you need to operate the engine at high altitudes. At high altitudes the engine will lose power, run rough and produce exhaust gases that exceed the design specifications.



ALWAYS be environmentally responsible.

Follow the guidelines of the EPA or other governmental agencies for the proper disposal of hazardous materials such as engine oil, diesel fuel and engine coolant. Consult the local authorities or reclamation facility.

NEVER dispose of hazardous materials by dumping them into a sewer, on the ground or into ground water or waterways.

If a Yanmar Marine Engine is installed at an angle that exceeds the specifications stated in the Yanmar Marine Installation manuals, engine oil may enter the combustion chamber causing excessive engine speed, white exhaust smoke and serious engine damage. This applies to engines that run continuously or those that run for short periods of time.

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 rpm, 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.

LOCATION OF SAFETY DECALS

Figure 1, Figure 2, Figure 3 and Figure 4 show the location of safety decals on Yanmar JH4 series marine engines.

3JH4E Engines

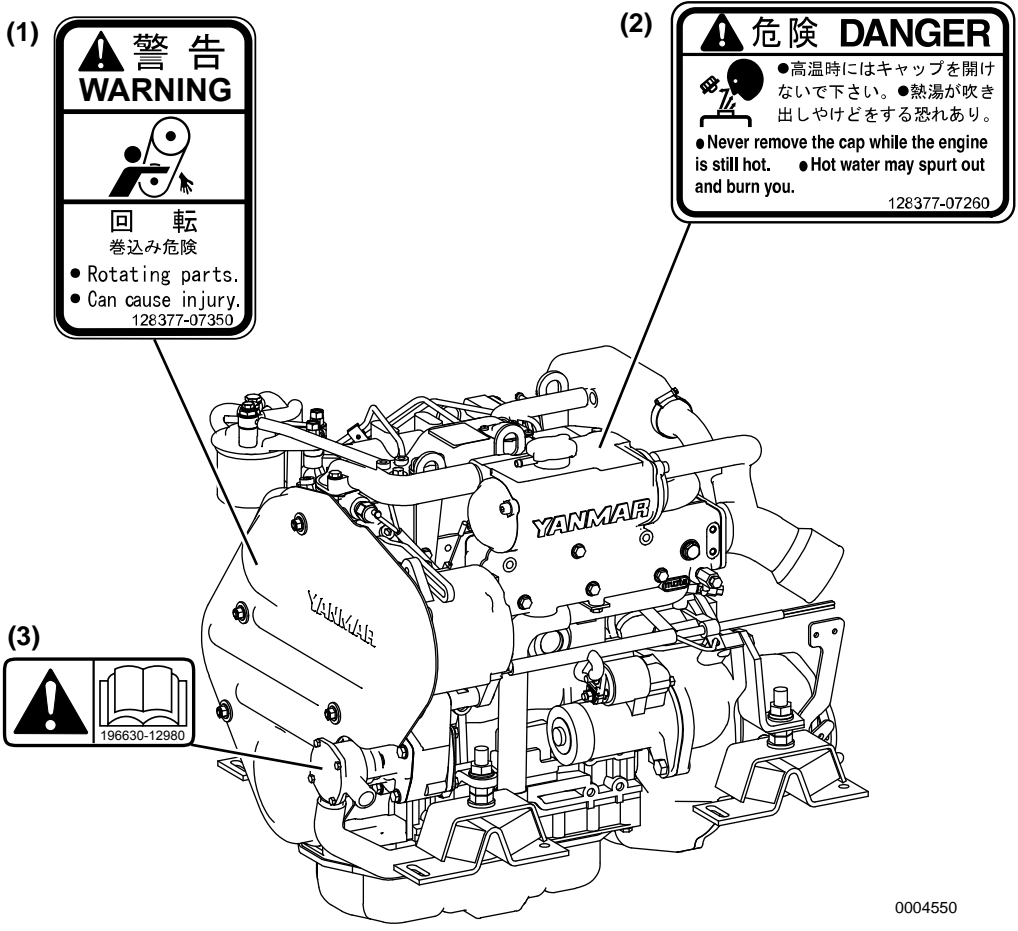


Figure 1

- 1 – Part Number: 128377-07350
- 2 – Part Number: 128377-07260
- 3 – Part Number: 196630-12980

0004550

4JH4AE Engines

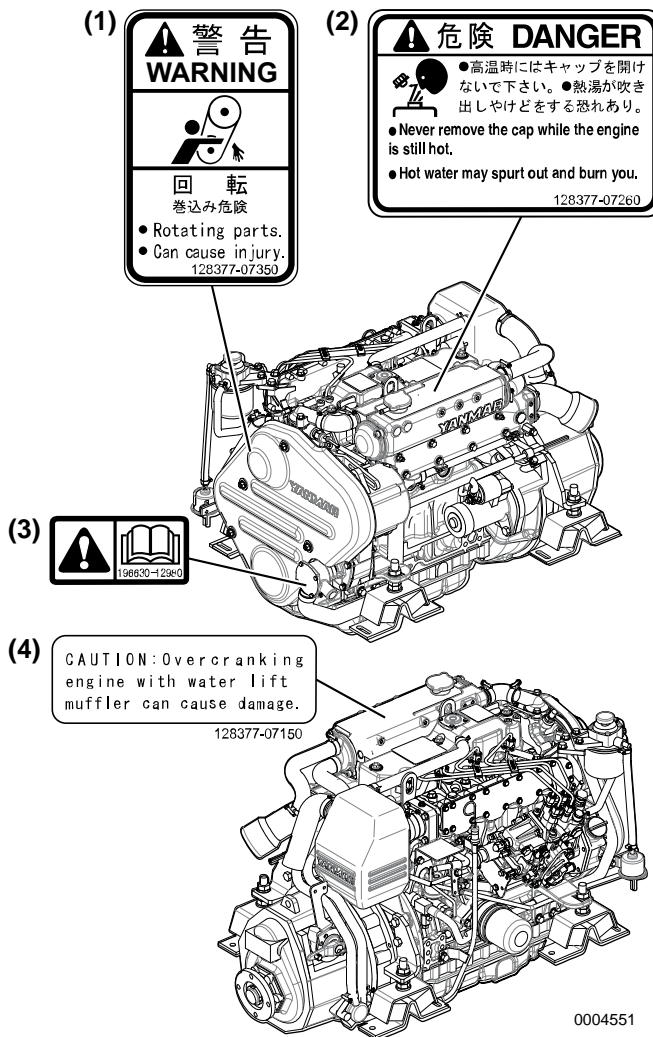


Figure 2

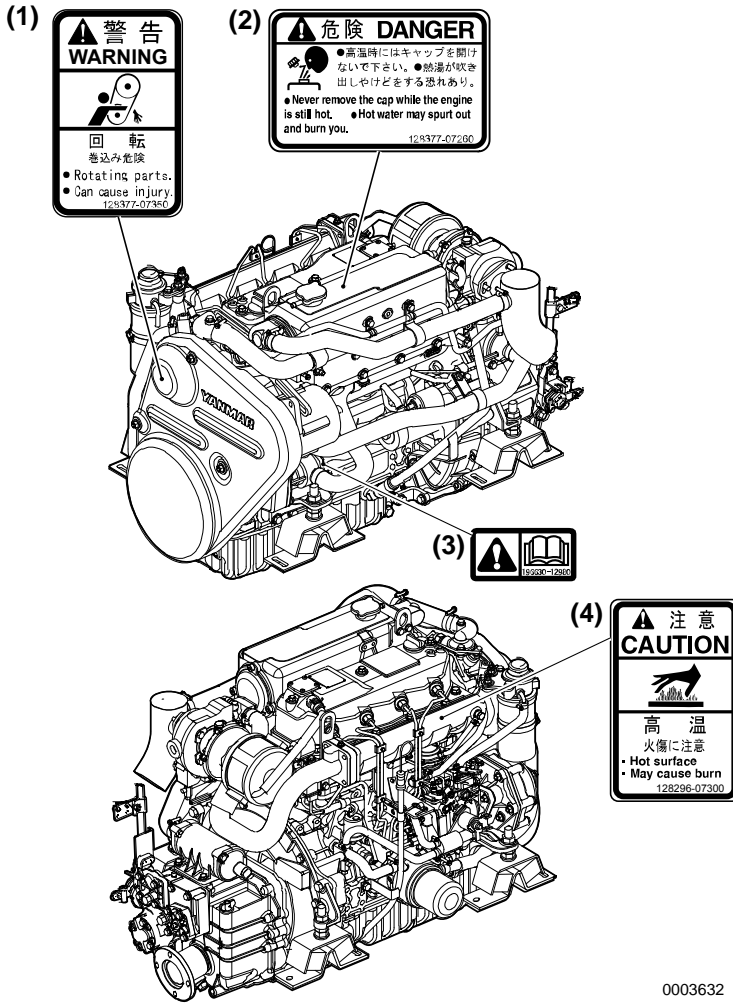
1 – Part Number: 128377-07350

2 – Part Number: 128377-07260

3 – Part Number: 196630-12980

4 – Part Number: 128377-07150

4JH4-TE Engines



0003632

Figure 3

- 1 – Part No.: 128377-07350
- 2 – Part No.: 128377-07260
- 3 – Part No.: 196630-12980
- 4 – Part No.: 128296-07300

4JH4-HTE Engines

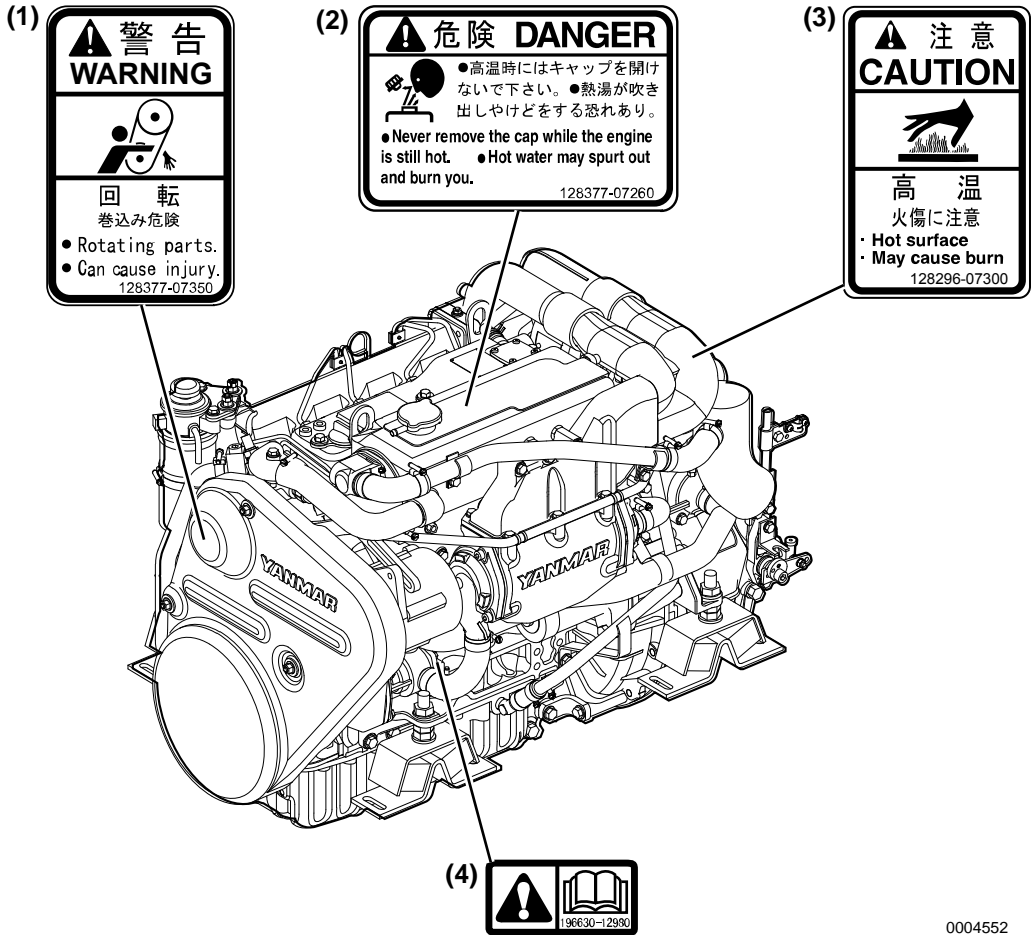


Figure 4

- 1 – Part No.: 128377-07350
 2 – Part No.: 128377-07260
 3 – Part No.: 128296-07300
 4 – Part No.: 196630-12980

0004552

Thank you so much for reading.
Please click the “Buy Now!”
button below to download the
complete manual.



After you pay.

You can download the most
perfect and complete manual in
the world immediately.

Our support email:

ebooklibonline@outlook.com