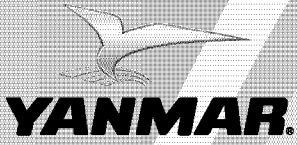


YAMAR

OPERATION MANUAL

8SY Series



OPERATION
MANUAL

8SY Marine Engines

8SY Series

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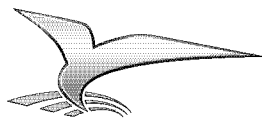
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8SY

OPERATION MANUAL

P/N: 0ASYM-G00201

YAMAHA ®

MARINE ENGINE

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 designed after 1996 meet most of the present and future emission regulations, such as BSO II, SAV, EPA II, IMO and RCD.

To help you enjoy your Yanmar 8SY 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: _____

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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 decals 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 decal attached to it, make sure you order the new part and decal 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 decals 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.

⚠ WARNING

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.

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.

Avoid skin contact with high pressure hydraulic fluid spray caused by a system leak. High pressure hydraulic fluid can penetrate your skin and result in serious injury. If you are exposed to high pressure hydraulic fluid spray, obtain prompt medical treatment.



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.

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 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.

SAFETY DECALS

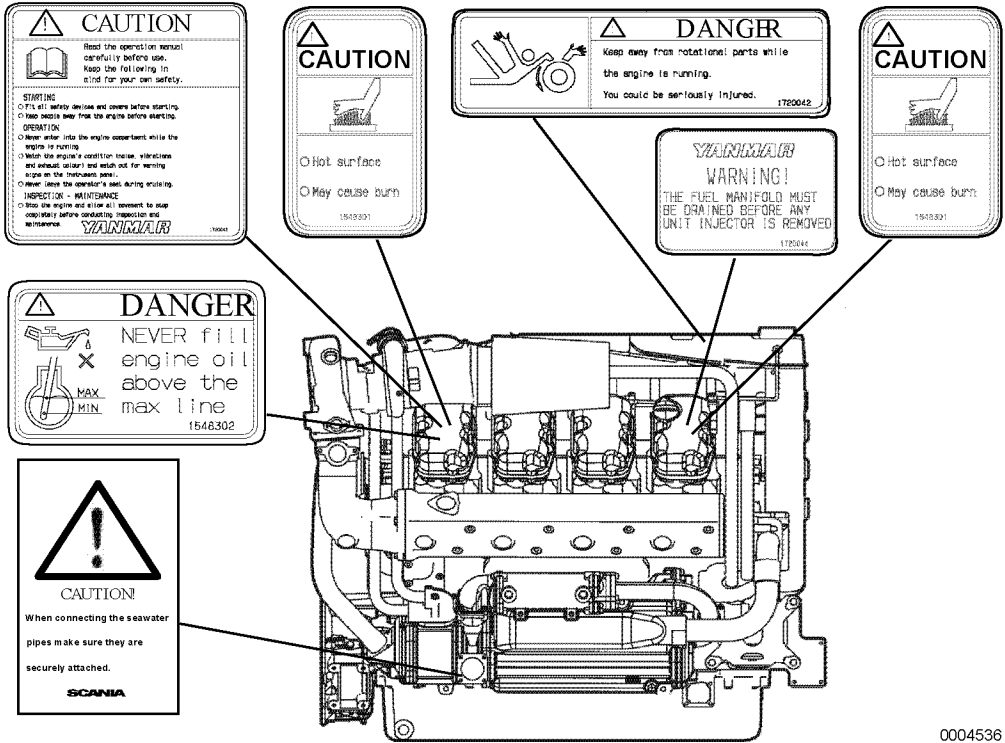


Figure 1

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PRODUCT OVERVIEW

YANMAR 8SY-STP FEATURES AND APPLICATIONS

The 8SY-STP is a four-stroke V8 direct-injection diesel engine. The engine is turbocharged and equipped with a charge air cooler containing a liquid coolant system.

The engine has a heat exchanger which is cooled by a seawater coolant system.

In order to obtain full performance from your engine, it is imperative that you check the size and structure of the hull and use a propeller of the appropriate size. As new boats are used, owners add additional equipment and completely fill the fuel and water tanks adding to the overall displacement (weight) of the vessel. Extra canvas enclosures, bottom paint, and bottom fouling can add additional hull resistance. It is recommended that a new vessel be propped so the engine can operate at 100 rpm above maximum rpm to allow for some added weight and hull resistance. Failure to do so can lead to reduced vessel performance, 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 on-board equipment, always observe the instructions and cautions given in the operation manuals supplied by the shipyard and equipment manufacturers.

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 Yanmar's local subsidiary in your region or your authorized Yanmar marine dealer or distributor.

NOTICE: The illustrations and descriptions of optional equipment in this manual, such as the operator's console, are for a typical engine installation. Refer to the documentation supplied by the optional equipment manufacturer for specific operation and maintenance instructions.

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