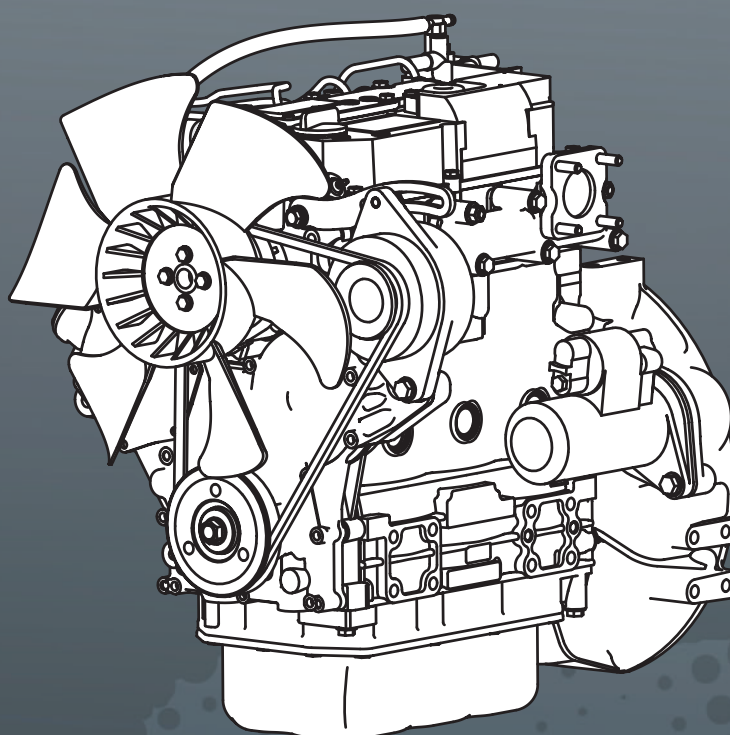


MOTOR 4TNE92 - 4TNE98

45 - 63 hp

Repair manual



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15 / 09 / 2011	- 1 st ISSUE

***TNE* series**

SERVICE MANUAL

4TNE92-NMH • 4TNE92-NMHA
4TNE98-NMH

P/N: 0B2991-U0001

**INDUSTRIAL
ENGINES**

English Language Manual Available

If you would like a copy of this manual in the English language, please contact your local authorized Yanmar industrial engine dealer or distributor. A list of authorized Yanmar industrial engine dealers and distributors can be found at <http://www.yanmar.co.jp/english/index-network.htm>. Note that authorized Yanmar industrial engine dealers and distributors are indicated as “Land” under the “Sales Network” menu.

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Section 1

INTRODUCTION

This manual describes the service procedures for the TNE series indirect injection engines. These engines are certified by the U.S. EPA, California ARB and/or the 97/68/EC Directive for industrial use.

Please use this manual for accurate, quick and safe servicing of the engine. Since the directions in this manual are for a typical engine, some specifications and components may be different from your engine. Refer to the documentation supplied by the optional equipment manufacturer for specific service instructions.

Yanmar products are continuously undergoing improvement. This *Service Manual* might not address possible field modifications to the equipment. Contact an authorized Yanmar industrial engine dealer or distributor for answers to any questions relating to field modifications.

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Section 2

YANMAR WARRANTIES

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YANMAR LIMITED WARRANTY

What is Covered by this Warranty?

Yanmar warrants to the original retail purchaser that your new Yanmar TNE Series Industrial Engine will be free from defects in material and / or workmanship for the duration of the warranty period.

How Long is the Warranty Period?

The Yanmar standard limited warranty period begins on the date of the delivery of the new Yanmar TNE Series Industrial Engine to the first retail purchaser and extends for a period of **twenty-four (24) months or two-thousand (2000) engine operation hours**, whichever occurs first.

What the Engine Owner Must Do:

If you believe your Yanmar engine has experienced a failure due to a defect in material and / or workmanship, you must contact an authorized Yanmar industrial engine dealer or distributor within thirty (30) days of discovering the failure. You must provide proof of ownership of the engine, proof of the date of the engine purchase and delivery, and documentation of the engine operation hours. You are responsible for the transportation of the engine to and from the repair location as designated by Yanmar.

Yanmar strongly recommends you register your engine as soon as possible after purchase in order to facilitate any future warranty matters.

To Locate an Authorized Yanmar Industrial Engine Dealer or Distributor:

You can locate your nearest authorized Yanmar industrial engine dealer or distributor by visiting the Yanmar Corp., Ltd. web site at:

<http://www.yanmar.co.jp>

- The Japanese language page will be displayed. For English language “click” on “English Page.”
- “Click” on “Network” in the web site heading to view the “Yanmar Worldwide Network.”
- Choose and “Click” on the desired product group.
- “Click” on the Icon closest to your region.
- “Click” on the desired country or Associate company to locate your nearest authorized Yanmar industrial engine dealer or distributor.
- You may also contact Yanmar by clicking on “Inquiry” in the web site heading.

What Yanmar Will Do:

Yanmar warrants to the original retail purchaser of a new Yanmar engine that Yanmar will make such repairs and / or replacements necessary to correct any defects in materials and / or workmanship discovered during the warranty period. Such repairs and / or replacements will be made at a location designated by Yanmar.

YANMAR WARRANTIES

Yanmar Limited Warranty - Continued

What is Not Covered by this Warranty?

This Warranty does not cover parts affected by or damaged by, but not limited to, accident, misuse, abuse, "Acts of God," neglect, improper installation, improper maintenance, improper storage, the use of unsuitable attachments or parts, the use of contaminated fuels, the use of fuels, oils, lubricants, or fluids other than those recommended in your Yanmar Operation Manual, unauthorized alterations or modifications, ordinary wear and tear, and rust or corrosion. This Warranty does not cover the cost of parts and / or labor required to perform normal / scheduled maintenance on your Yanmar engine. This Warranty does not cover consumable parts such as, but not limited to filters, belts, hoses, fuel injector nozzles, lubricants and cleaning fluids.

Warranty Limitations:

The foregoing is Yanmar's only obligation to you and your exclusive remedy for breach of warranty. Failure to follow the requirements for submitting a claim under this Warranty may result in a waiver of all claims for damages and other relief. **In no event shall Yanmar or any authorized industrial engine dealer or distributor be liable for incidental, special or consequential damages.** Such consequential damages may include, but not be limited to, loss of revenue, loan payments, cost of rental of substitute equipment, insurance coverage, storage, lodging, transportation, fuel, mileage and telephone costs. The limitations in this Warranty apply regardless of whether your claims are based on breach of contract, tort (including negligence and strict liability) or any other theory. Any action arising hereunder must be brought within one (1) year after the cause of action accrues or it shall be barred. Some states and countries do not allow certain limitations on warranties or for breach of warranties. **This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.** Limitations set forth in this paragraph shall not apply to the extent that they are prohibited by law.

Warranty Modifications:

Except as modified in writing and signed by the parties, this Warranty is and shall remain the complete and exclusive agreement between the parties with respect to warranties, superseding all prior agreements, written and oral, and all other communications between the parties relating to warranties. **No person or entity is authorized to give any other warranty or to assume any other obligation on behalf of Yanmar, either orally or in writing.**

Questions:

If you have any questions or concerns regarding this Warranty, please call or write to the nearest authorized Yanmar industrial engine dealer or distributor or other authorized facility.

Customer Registration

Customer registration is very important for the original retail purchaser to enable Yanmar to provide the best support for your engine.

At the time of purchase, Yanmar highly recommends registering the customer's information through website <http://www.yanmar.co.jp> as soon as possible.

If it is not possible to access the website, please contact the nearest authorized Yanmar industrial engine dealer or distributor.

YANMAR CO., LTD. LIMITED EMISSION CONTROL SYSTEM WARRANTY - USA ONLY

Your Warranty Rights and Obligations:

California

The California Air Resources Board (CARB) then Environmental Protection Agency (EPA) and Yanmar Co., Ltd. hereafter referred to as Yanmar, are pleased to explain the **emission control system warranty** on your industrial compression-ignition engine. In California, model year 2000 or later off-road compression-ignition engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In all states, 1998 and later non-road compression-ignition engines must be designed, built and equipped to meet the United States EPA emissions standards. Yanmar warrants the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Yanmar will repair your non-road compression-ignition engine at no charge to you including diagnosis, parts and labor.

Manufacturer's Warranty Period:

The model year 1998 or later certified and labeled non-road compression-ignition engines are warranted for the periods listed below. If any emission-related part on your engine is found to be defective during the applicable warranty period, the part will be replaced by Yanmar.

Engine Type	Warranty Period by Number of Years or Hours of Operation
Constant speed engines rated at or above 50 hp (37 kW)	Warranty period is five (5) years or 3,000 hours of use, whichever occurs first. In the absence of a device to measure hours of use, the engine has a warranty period of five (5) years.
Constant speed engines rated under 50 hp SAE (37 kW) with rated speeds greater than or equal to 3,000 rpm	Warranty period is two (2) years or 3,000 hours of use, whichever occurs first. In the absence of a device to measure hours of use, the engine has a warranty period of two (2) years.
Engines rated at or above 26 hp (19 kW)	Warranty period is five (5) years or 3,000 hours of use, whichever occurs first. In the absence of a device to measure hours of use, the engine has a warranty period of five (5) years.
Engines rated under 26 hp (19 kW)	Warranty period is two (2) years or 3,000 hours of use, whichever occurs first. In the absence of a device to measure hours of use, the engine has a warranty period of two (2) years.

YANMAR WARRANTIES

Limited Emission Control System Warranty - USA Only - Continued

Warranty Coverage:

This warranty is transferable to each subsequent purchaser for the duration of the warranty period. Repair or replacement of any warranted part will be performed at an authorized Yanmar dealer.

Warranted parts not scheduled for replacement as required maintenance in the Operation Manual shall be warranted for the warranty period. Warranted parts scheduled for replacement as required maintenance in the owner's manual are warranted for the period of time prior to the first scheduled replacement. Any part repaired or replaced under warranty shall be warranted for the remaining warranty period.

During the warranty period, Yanmar is liable for damages to other engine components caused by the failure of any warranted part during the warranty period.

Any replacement part which is functionally identical to the original equipment part in all respects may be used in the maintenance or repair of your engine, and shall not reduce Yanmar's warranty obligations. Add-on or modified parts that are not exempted may not be used. The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty.

Warranted Parts:

This warranty covers engine components that are a part of the emission control system of the engine as delivered by Yanmar to the original retail purchaser. Such components may include the following:

- Fuel Injection System
- Cold Start Enrichment System
- Intake Manifold
- Turbocharger Systems
- Exhaust Manifold
- Positive Crankcase Ventilation System
- Hoses, belts, connectors and assemblies associated with emission control systems

Since emissions related parts may vary slightly between models, certain models may not contain all of these parts and other models may contain the functional equivalents.

Limited Emission Control System Warranty - USA Only - Continued

Exclusions:

Failures other than those arising from defects in material and / or workmanship are not covered by this warranty. The warranty does not extend to the following: malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance or use of non-recommended fuels and lubricating oils; accident-caused damage, and replacement of expendable items made in connection with scheduled maintenance. Yanmar disclaims any responsibility for incidental or consequential damages such as loss of time, inconvenience, loss of use of equipment / engine or commercial loss.

Owner's Warranty Responsibilities:

As the engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Yanmar recommends that you retain all documentation, including receipts, covering maintenance on your non-road compression-ignition engine, but Yanmar cannot deny warranty solely for the lack of receipts, or for your failure to ensure the performance of all scheduled maintenance.

Yanmar may deny your warranty coverage if your non-road compression-ignition engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with applicable emissions requirements.

You are responsible for initiating the warranty process. You must present your engine to a Yanmar dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible. If you have any questions regarding your warranty rights and responsibilities, or would like information on the nearest Yanmar dealer or authorized service center, you should contact Yanmar America Corporation at 1-800-872-2867.

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Section 3

SAFETY

SAFETY STATEMENTS

Yanmar is concerned for your safety and your machine's condition. Safety statements are one of the primary ways to call your attention to the potential hazards associated with Yanmar TNE engine operation. Follow the precautions listed throughout the manual before operation, during operation and during periodic maintenance procedures for your safety, the safety of others and to protect the performance of your engine. 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

Danger (the word "DANGER" is in white letters with a red rectangle behind it) – indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Danger is limited to the most extreme situations.

0000001en

WARNING

Warning (the word "WARNING" is in black letters with an orange rectangle behind it) – indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

0000001en

CAUTION

Caution (the word "CAUTION" is in black letters with a yellow rectangle behind it) – indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

0000001en

CAUTION

Caution *without the safety alert symbol* indicates a potentially hazardous situation that can cause damage to the machine, personal property and / or the environment or cause the machine to operate improperly.

0000001en

SAFETY

SAFETY PRECAUTIONS

Before You Operate

CAUTION




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

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

000002en

During Operation and Maintenance

⚠ DANGER




SCALD HAZARD!

- **NEVER** remove the radiator cap if the engine is hot. Steam and hot engine coolant will spurt out and seriously burn you. Allow the engine to cool down before you attempt to remove the radiator cap.
- Securely tighten the radiator cap after you check the radiator. Steam can spurt out during engine operation if the cap is loose.
- **ALWAYS** check the level of engine coolant by observing the reserve tank.
- Failure to comply will result in death or serious injury.

000002en

⚠ DANGER



EXPLOSION HAZARD!

- Keep the area around the battery well ventilated. While the engine is running or the battery is charging, hydrogen gas is produced which can be easily ignited.
- Keep sparks, open flame and any other form of ignition away.
- Failure to comply will result in death or serious injury.

000003en

! DANGER**FIRE AND EXPLOSION HAZARD!**

- Diesel fuel is extremely flammable and explosive under certain conditions.
- When you remove any fuel system component to perform maintenance (such as changing the fuel filter) place an approved container under the opening to catch the fuel.
- NEVER use a shop rag to catch the fuel. Vapors from the rag are extremely flammable and explosive.
- Wipe up any spills immediately.
- Wear eye protection. The fuel system is under pressure and fuel could spray out when you remove any fuel system component.
- Failure to comply will result in death or serious injury.

000009en

! DANGER**FIRE AND EXPLOSION HAZARD!**

- Diesel fuel is extremely flammable and explosive under certain conditions.
- NEVER remove the fuel cap with engine running.
- Failure to comply will result in death or serious injury.

000011en

! DANGER**FIRE AND EXPLOSION HAZARD!**

- Diesel fuel is extremely flammable and explosive under certain conditions.
- NEVER use diesel fuel as a cleaning agent.
- Failure to comply will result in death or serious injury.

000012en

SAFETY**⚠ DANGER****FIRE AND EXPLOSION HAZARD!**

- Diesel fuel is extremely flammable and explosive under certain conditions.
- Place an approved container under the air bleed port when you prime the fuel system. Never use a shop rag to catch the fuel. Wipe up any spills immediately. **ALWAYS** close the air bleed port after you complete priming the system.
- Wear eye protection. The fuel system is under pressure and fuel could spray out when you open the air bleed port.
- If the unit has an electric fuel pump, turn the key switch to the ON position for 10 to 15 seconds, or until the fuel coming out of the air bleed port is free of bubbles, to allow the electric fuel pump to prime the system.
- If the unit has a mechanical fuel pump, operate the fuel priming pump several times until the fuel coming out of the air bleed port is free of bubbles.
- Failure to comply will result in death or serious injury.

000006en

⚠ DANGER**FIRE AND EXPLOSION HAZARD!**

- Only use the key switch to start the engine.
- **NEVER** jump start the engine. Sparks caused by jumping the battery to the starter terminals may cause a fire or explosion.
- Failure to comply will result in death or serious injury.

000004en

⚠ DANGER**FIRE AND EXPLOSION HAZARD!**

- Diesel fuel is extremely flammable and explosive under certain conditions.
- Only fill fuel tank with diesel fuel. Filling fuel tank with gasoline may result in a fire.
- **NEVER** refuel with engine running.
- Wipe up all spills immediately.
- Keep sparks, open flames or any other form of ignition (match, cigarette, static electric source) away when fueling / refueling.
- **NEVER** overfill the fuel tank.
- Fill fuel tank and store fuel in a well-ventilated area only.
- Failure to comply will result in death or serious injury.

000005en