



WESTERBEKE

MARINE DIESEL GENERATOR

4.0KW BCD/4.0KW BCDA 612-60HZ

OPERATORS MANUAL

PUBLICATION NO.045305
SECOND EDITION
MARCH 2008



WESTERBEKE CORPORATION • MYLES STANDISH INDUSTRIAL PARK
150 JOHN HANCOCK ROAD • TAUNTON MA 02780-7319 • TEL. 1-508-823-7677
FAX 1-508-884-9688 • WEBSITE: WWW.WESTERBEKE.COM

**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.

⚠ WARNING:

Exhaust gasses contain Carbon Monoxide, an odorless and colorless gas. Carbon Monoxide is poisonous and can cause unconsciousness and death. Symptoms of Carbon Monoxide exposure can include:

- ***Dizziness***
- ***Throbbing In Temples***
- ***Nausea***
- ***Muscular Twitching***
- ***Headache***
- ***Vomiting***
- ***Weakness and Sleepiness***
- ***Inability to Think Coherently***

IF YOU OR ANYONE ELSE EXPERIENCE ANY OF THESE SYMPTOMS, GET OUT INTO THE FRESH AIR IMMEDIATELY. If symptoms persist, seek medical attention. Shut down the unit and do not restart until it has been inspected and repaired.



This WARNING DECAL is provided by WESTERBEKE and should be fixed to a bulkhead near your engine or generator.

WESTERBEKE also recommends installing CARBON MONOXIDE DETECTORS in the living/sleeping quarters of your vessel. They are inexpensive and easily obtainable at your local marine store.

SAFETY INSTRUCTIONS

ACCIDENTAL STARTING

⚠ WARNING: Accidental starting can cause injury or death!

- Disconnect the battery cables before servicing the engine/generator. Remove the negative lead first and reconnect it last.
- Make certain all personnel are clear of the engine before starting.
- Make certain all covers, guards, and hatches are re-installed before starting the engine.

BATTERY EXPLOSION

⚠ WARNING: Battery explosion can cause injury or death!

- Do not smoke or allow an open flame near the battery being serviced. Lead acid batteries emit hydrogen, a highly explosive gas, which can be ignited by electrical arcing or by lit tobacco products. Shut off all electrical equipment in the vicinity to prevent electrical arcing during servicing.
- Never connect the negative (–) battery cable to the positive (+) connection terminal of the starter solenoid. Do not test the battery condition by shorting the terminals together. Sparks could ignite battery gases or fuel vapors. Ventilate any compartment containing batteries to prevent accumulation of explosive gases. To avoid sparks, do not disturb the battery charger connections while the battery is being charged.
- Avoid contacting the terminals with tools, etc., to prevent burns or sparks that could cause an explosion. Remove wristwatch, rings, and any other jewelry before handling the battery.
- Always turn the battery charger off before disconnecting the battery connections. Remove the negative lead first and reconnect it last when servicing the battery.

BATTERY ACID

⚠ WARNING: Sulfuric acid in batteries can cause severe injury or death!

- When servicing the battery or checking the electrolyte level, wear rubber gloves, a rubber apron, and eye protection. Batteries contain sulfuric acid which is destructive. If it comes in contact with your skin, wash it off at once with water. Acid may splash on the skin or into the eyes inadvertently when removing electrolyte caps.

TOXIC EXHAUST GASES

⚠ WARNING: Carbon monoxide (CO) is a deadly gas!

- Ensure that the exhaust system is adequate to expel gases discharged from the engine. Check the exhaust system regularly for leaks and make sure the exhaust manifold/water-injected elbow is securely attached.
- Be sure the unit and its surroundings are well ventilated. Run blowers when running the generator set or engine.
- Don't run the generator set or engine unless the boat is equipped with a functioning marine carbon monoxide detector that complies with ABYCA-24. Consult your boat builder or dealer for installation of approved detectors.
- For additional information refer to ABYC T-22 (educational information on Carbon Monoxide).

⚠ WARNING: Carbon monoxide (CO) is an invisible odorless gas. Inhalation produces flu-like symptoms, nausea or death!

- Do not use copper tubing in diesel exhaust systems. Diesel fumes can rapidly destroy copper tubing in exhaust systems. Exhaust sulfur causes rapid deterioration of copper tubing resulting in exhaust/water leakage.
- Do not install exhaust outlet where exhaust can be drawn through portholes, vents, or air conditioners. If the engine exhaust discharge outlet is near the waterline, water could enter the exhaust discharge outlet and close or restrict the flow of exhaust. Avoid overloading the craft.
- Although diesel engine exhaust gases are not as toxic as exhaust fumes from gasoline engines, carbon monoxide gas is present in diesel exhaust fumes. Some of the symptoms or signs of carbon monoxide inhalation or poisoning are:

Vomiting	Inability to think coherently
Dizziness	Throbbing in temples
Headache	Muscular twitching
Nausea	Weakness and sleepiness

AVOID MOVING PARTS

⚠ WARNING: Rotating parts can cause injury or death!

- Do not service the engine while it is running. If a situation arises in which it is absolutely necessary to make operating adjustments, use extreme care to avoid touching moving parts and hot exhaust system components.

SAFETY INSTRUCTIONS

- Do not wear loose clothing or jewelry when servicing equipment; tie back long hair and avoid wearing loose jackets, shirts, sleeves, rings, necklaces or bracelets that could be caught in moving parts.
- Make sure all attaching hardware is properly tightened. Keep protective shields and guards in their respective places at all times.
- Do not check fluid levels or the drive belt's tension while the engine is operating.
- Stay clear of the drive shaft and the transmission coupling when the engine is running; hair and clothing can easily be caught in these rotating parts.

HAZARDOUS NOISE

 **WARNING: High noise levels can cause hearing loss!**

- Never operate an engine without its muffler installed.
- Do not run an engine with the air intake (silencer) removed.
- Do not run engines for long periods with their enclosures open.

 **WARNING: Do not work on machinery when you are mentally or physically incapacitated by fatigue!**

OPERATORS MANUAL

Many of the preceding safety tips and warnings are repeated in your Operators Manual along with other cautions and notes to highlight critical information. Read your manual carefully, maintain your equipment, and follow all safety procedures.

ENGINE INSTALLATIONS

Preparations to install an engine should begin with a thorough examination of the American Boat and Yacht Council's (ABYC) standards. These standards are a combination of sources including the USCG and the NFPA.

Sections of the ABYC standards of particular interest are:

- H-2 Ventilation
- P-1 Exhaust systems
- P-4 Inboard engines
- E-9 DC Electrical systems

All installations must comply with the Federal Code of Regulations (FCR).

ABYC, NFPA AND USCG PUBLICATIONS FOR INSTALLING DIESEL ENGINES

Read the following ABYC, NFPA and USCG publications for safety codes and standards. Follow their recommendations when installing your engine.

ABYC (American Boat and Yacht Council)
"Safety Standards for Small Craft"

Order from:

ABYC
15 East 26th Street
New York, NY 10010

NFPA (National Fire Protection Association)
"Fire Protection Standard for Motor Craft"

Order from:

National Fire Protection Association
11 Tracy Drive
Avon Industrial Park
Avon, MA 02322

USCG (United States Coast Guard)
"USCG 33CFR183"

Order from:

U.S. Government Printing Office
Washington, D.C. 20404

INSTALLATION

When installing WESTERBEKE engines and generators it is important that strict attention be paid to the following information:

CODES AND REGULATIONS

Strict federal regulations, ABYC guidelines, and safety codes must be complied with when installing engines and generators in a marine environment.

SIPHON-BREAK

For installations where the exhaust manifold/water injected exhaust elbow is close to or will be below the vessel's waterline, provisions must be made to install a siphon-break in the raw water supply hose to the exhaust elbow. This hose must be looped a minimum of 20" above the vessel's waterline. *Failure to use a siphon-break when the exhaust manifold injection port is at or below the load waterline will result in raw water damage to the engine and possible flooding of the boat.*

If you have any doubt about the position of the water-injected exhaust elbow relative to the vessel's waterline under the vessel's various operating conditions, *install a siphon-break.*

NOTE: *A siphon-break requires periodic inspection and cleaning to ensure proper operation. Failure to properly maintain a siphon-break can result in catastrophic engine damage. Consult the siphon-break manufacturer for proper maintenance.*

EXHAUST SYSTEM

The exhaust hose must be certified for marine use. The system must be designed to prevent water from entering the exhaust under any sea conditions and at any angle of the vessels hull.

A detailed 40 page Marine Installation Manual covering gasoline and diesel, engines and generators, is available from your WESTERBEKE dealer.