

Important Information

Section 1A - General Information

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Introduction

This comprehensive overhaul and repair manual is designed as a service guide for the MerCruiser and Cummins MerCruiser Diesel models listed earlier. It provides specific information, including procedures for disassembly, inspection, assembly and adjustment, to enable dealers and service mechanics to repair these products. Before attempting repairs, read through the procedures to understand the methods and tools used and the cautions and warnings required for safety.

How To Use This Manual

This manual is divided into sections, which represent major components and systems. Some sections are further divided into parts that more fully describe the component.

Refer to the **Service Manual Outline** following **Models Covered** in this manual for section titles.

Engine Serial Number and Decal Locations

Identification

The serial numbers are the manufacture's keys to numerous engineering details which apply to you Cummins MerCruiser Diesel power package. When contacting Cummins MerCruiser Diesel (CMD) about service, always specify model and serial numbers.

Serial Number Decal

The serial number decal is located on the engine and indicates the engine's CMD serial number, transom serial number, drive serial number, and the fill cap color codes for engine fluids.

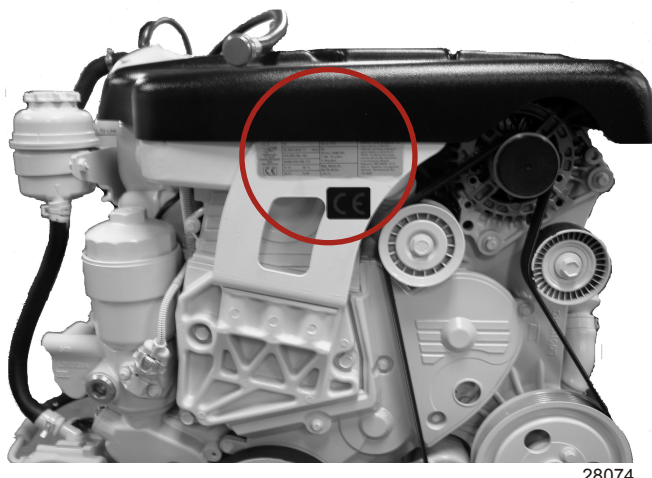


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Serial number decal

Engine Data Plate Location

The engine data plate is on the front of the engine. The data plate lists important identification and emissions certification information.



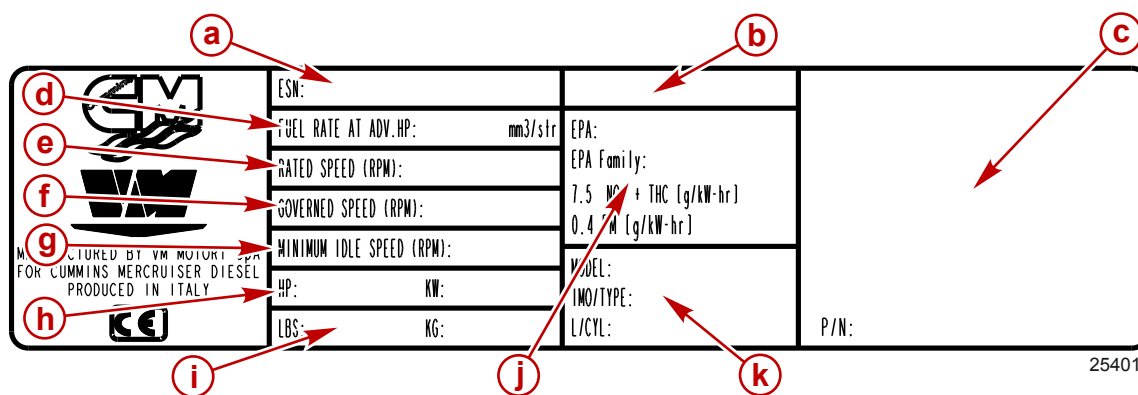
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Location of QSD 2.0 engine data plate

Engine Data Plate

A tamper-resistant engine data plate is affixed to the engine at the time of manufacture by Cummins MerCruiser Diesel. It contains important exhaust gas emissions information. Please note that the engine data plate will not affect the fit, function, or performance of the engine and neither boatbuilders nor dealers may remove the engine data plate or the engine component it is affixed to before sale. If modifications are necessary or the engine data plate is damaged contact Cummins MerCruiser Diesel about the availability of a replacement.

The owner or operator is not to modify the engine in any manner that would alter the horsepower or allow exhaust gas emission levels to exceed their predetermined factory specifications.



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Typical engine data plate

- | | |
|--|---|
| a - Engine serial number | g - Minimum idle speed |
| b - Cummins MerCruiser Diesel model information | h - Engine power rating |
| c - Emissions certification information | i - Engine weight |
| d - Fuel rate | j - Emissions data |
| e - Rated operation engine speed | k - Manufacturer model number, IMO type, liters per cylinder |
| f - Governed engine speed | |

Emissions Information

EXHAUST GAS EMISSIONS CERTIFICATE

A tamper-resistant exhaust gas emission label is affixed to the engine's integrated exhaust manifold and expansion tank assembly at the time of manufacture by Cummins MerCruiser Diesel. Please note that the exhaust gas emissions certification will not affect the fit, function, or performance of the engine. Neither boatbuilders nor dealers may remove the exhaust gas emission label or the part it is affixed to before sale. If modifications require the removal or cause damage to the exhaust gas emission label, contact Cummins MerCruiser Diesel about the availability of a replacement before proceeding.

IN THE UNITED STATES, THIS ENGINE IS CATEGORIZED
AS A RECREATIONAL ENGINE UNDER 40 CFR PART 94.

INSTALLATION OF THIS ENGINE IN ANY NON-RECREATIONAL
VESSEL IS A VIOLATION OF FEDERAL LAW SUBJECT TO
PENALTY

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Exhaust gas emission label

OWNER RESPONSIBILITY

Neither the owner nor operator is to modify the engine in any manner that would alter the horsepower or allow exhaust gas emission levels to exceed their predetermined factory specifications.

Operation—Duty Cycle

Duty Cycle Rating

IMPORTANT: Damage caused by improper application or failure to operate the power package within the specified operating parameters will not be covered by the Cummins MerCruiser Diesel Limited Warranty.

The boat manufacturer or the installing dealer is responsible for ensuring that the power package is applied in accordance with recommendations indicated in the appropriate Cummins MerCruiser Diesel applications manual. In all cases, the power package must be equipped with a gear ratio and propeller that allows the engine to operate at wide open throttle (WOT) at the rated engine RPM. The power package must also be applied Use of Cummins MerCruiser Diesel engines in applications other than those indicated by the following information or the appropriate application manual is not approved.

High Output Rating

High Output Rating applies to variable load applications where full power is limited to one (1) hour out of every eight (8) hours of operation. Reduced load operation occurs when engine RPM is at least 200 RPM below the engine's maximum rated RPM for applications rated at or below 3000 RPM and at least 400 RPM below the engine's maximum rated RPM for applications rated above 3000 RPM. This rating is for pleasure (non-revenue generating) applications that operate 500 hours or less per year.

Engine Break-In

20-Hour Break-In Period

IMPORTANT: The first 20 hours of operation are a break-in period for the engine. Correct break-in is essential to obtain minimum oil consumption and maximum engine performance. During this break-in period, observe the following rules:

- Do not operate below 1500 RPM for extended periods of time during the first 10 hours. Advance the throttle above 1500 RPM as soon as conditions permit safe operation.
- Do not consistently operate at one speed for extended periods.
- Do not exceed 3/4 throttle during the first 10 hours, during the next 10 hours do not operate at full throttle for more than five minutes at a time.
- Do not accelerate at full-throttle from idle speed.
- Do not operate at full throttle until the engine reaches normal operating temperature.
- High oil consumption is normal during the break-in period. Frequently check the engine oil level.

After the 20-Hour Break-In Period

To help extend the life of your power package, Cummins MerCruiser Diesel recommends:

- Changing the engine oil and filter, and the transmission fluid on inboard models, at the interval indicated in the **Maintenance Schedule**.
- Using a propeller that allows the engine to operate at the rated engine RPM when at full throttle with a maximum boat load.
- Operating at 3/4 throttle or lower. See the duty cycle information listed in **Section 1A: Operation—Duty Cycle**.

Notes: