

# SERVICE LETTER – MOSTER185EFI

Fuel and oil specifications



## Applicability

Engine model	Production period / Serial number
Moster185 EFI	All produced and forthcoming engines

This Service Letter has been issued to reinforce key guidelines already detailed in the User Manual and to alert all engine operators, dealers, and maintenance professionals to the severe technical risks associated with the use of non-approved fuels and lubricants. The document contains detailed explanations, verified technical findings, and clearly defined recommended actions that must be implemented immediately. We strongly urge all recipients to read this Service Letter in full and ensure that all information and actions are correctly understood and applied. Compliance is essential to protect both the user, the engine and its operator.

### 1. Subject

The Moster185 EFI is a high-performance engine engineered to deliver optimal power output and fuel efficiency under well-defined operating parameters. Strict adherence to the fuel and oil specifications outlined in the user manual is essential to ensure proper engine performance, safety, and warranty compliance. This Service Letter highlights the critical risks associated with the use of fuel containing ethanol levels exceeding 5% by volume. Ethanol concentrations beyond the specified threshold can cause severe degradation of fuel system components, chemical contamination, accelerated mechanical wear, compromised engine performance, and an increased risk of failure. These conditions pose significant safety hazards and result in the immediate voiding of the engine warranty, as stated in the official user documentation. Conversely, the exclusive use of fuels and lubricants recommended in the official manuals ensures proper engine operation, minimizes technical risks, and supports the long-term safety, reliability and durability of the system as originally designed and validated.

### 2. Reason

The purpose of this Service Bulletin is to formally reiterate and highlight the critical importance of strict compliance with the operational specifications described in the official User Manual, with particular reference to:

- Fuel composition requirements, specifically the maximum allowable ethanol content of 5% by volume.
- Use of officially recommended lubricating oils.

### 3. Background

This communication is issued following a limited number of reported malfunctions, all of which were conclusively traced to the use of fuel mixtures exceeding the ethanol content limit, in direct non-compliance with the user manual's instructions. During the development and validation of the Moster185 EFI engine, comprehensive internal bench and field testing conducted by Vittorazi Motors demonstrated that:

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- ethanol is chemically aggressive and causes progressive deterioration of the fuel system components (including gaskets, seals, hoses, filters, injectors and more).
- Ethanol significantly increases friction and wear on electromechanical elements, such as the fuel pump and injector nozzles.
- This degradation process occurs regardless of engine operating status, even during storage and inactivity.

As a further outcome of Vittorazi's internal testing campaigns, the use of non-compliant oils for fuel mixture has been identified as a contributing factor in system degradation. Accordingly, it is strongly reiterated that only oils officially listed and approved in the user manual shall be used.

These oils have been selected based on their technical performance and proven ability to:

- Ensure chemical compatibility with all components and materials of the fuel injection system.
- Provide optimal lubrication for both the engine and the high-precision fuel pump, under all operating conditions.
- Preserve, over time, the functional integrity of filters, injectors, and internal fuel circuit pathways.

The use of unapproved oils may compromise the long-term reliability of the entire engine and lead to premature component failure.

#### 4. *Identified risks*

The key risks and consequences include:

- Ethanol aggressively deteriorates rubber and plastic components within the fuel system, including fuel lines, hoses, seals, and filters. This degradation significantly increases the risk of fuel leaks, which may lead to pressure drops and air bubbles within the system, ultimately creating fire hazards.
- The use of non-approved fuels and oils can lead to chemical incompatibility with materials used in high-precision fuel system components. In particular, seals, bearings and sliding surfaces within fuel pumps are susceptible to deformation when exposed to aggressive or non-certified compounds. This deformation can impair the internal tolerances and mechanical operation of the pump, potentially causing increased friction, irregular flow, or even complete blockage. In the worst-case scenario, this can result in pump failure and engine shutdown, compromising system safety, performance, and long-term reliability.
- Fuel system contamination: use of fuels with ethanol content exceeding the 5% volume limit, combined with ethanol's hygroscopic nature, promotes moisture absorption, formation of aqueous emulsions, and accelerates harmful chemical reactions within the fuel system. When combined with non-approved oils, this leads to deposits, sludge, and foam accumulation in critical components such as fuel filters, calibrated nozzle, pumps and injectors. These contaminants cause partial or total blockages, reduce fuel pressure, disrupt flow, and promote microbial growth ("fuel fungus"), especially in humid conditions or during extended storage. Resulting fuel system degradation compromises engine stability, reduces power output, and, in extreme cases, engine failure.
- Performance deterioration: excess ethanol disrupts the optimal air-to-fuel mixture, resulting in lean combustion. This could lead to engine overheating, reduced power output, erratic operation, and, in extreme cases, engine failure. Consistently using fuel without ethanol or

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with the correct ethanol content is essential to maintaining stable air-to-fuel mixture and reliable engine performance.

- Warranty voidance: as written in the user manual, the use of fuel exceeding the specified ethanol threshold will immediately void the engine's warranty. Compliance with prescribed fuel specifications is mandatory to ensure warranty coverage and protect the long-term integrity of the engine.

#### **5. Recommended actions**

All operators, service personnel, and maintenance providers are required to:

- Carefully review and strictly comply with the fuel and oil specifications stated in the Moster185 EFI User Manual.
- Strictly prohibit the use of fuel containing more than 5% ethanol by volume, even for a single refueling. Immediately discontinue use of any non-compliant fuels or lubricants and promptly notify your authorized dealer or Vittorazi Motors factory.
- Strictly adhere to all refueling, ground handling, and storage procedures as outlined in the manual, ensuring the entire fuel system (including the fuel tank, filters, and refueling funnel) is kept meticulously clean to prevent contamination by particles or residues that may affect EFI system performance.
- Avoid any water contamination. Use only clean, high-quality fuel and verify that storage containers and refueling equipment are free from dirt and moisture. Employ a funnel equipped with a water separator (e.g. product Mr. Funnel) to minimize the risk of introducing water and impurities during refueling.
- Perform regular inspection and replacement of all fuel filters (tank filter, Fuel Injection Unit filter) according to the maintenance schedule to ensure proper fuel flow and system pressure.
- In case of any doubts regarding fuel quality or lubricant compatibility, contact your authorized dealer or Vittorazi Motors factory prior to continuing operation.

#### **6. Inquires**

Inquiries regarding this Service Letter should be sent to the VITTORAZI authorized Distributors, Service Centre, Aircraft manufacture of your area. A list of all VITTORAZI representatives is provided on the Vittorazi website ([vittorazi.com](http://vittorazi.com)).