MERCURY Diesel

Service Bulletin

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Mercury Diesel Fuel System Recommendations and Fuel Quality Specifications

Models Affected

Models Covered
Mercury SDI, TDI and QSD Diesel Engines

Scope

Worldwide

Situation

With the introduction of biodiesel fuel blends into the market the requirements and standards for fuel system construction have been affected. Review the information contained in this bulletin for biodiesel fuel compatibility, and general fuel system construction guidelines.

Explanation of Fuel Grades and Ratings

Low sulfur diesel (LSD) fuel is a grade of diesel fuel containing 500 part per million (PPM) or less sulfur. Ultra low sulfur diesel (ULSD) is a grade of diesel fuel containing 15 PPM or less sulfur. Regulatory bodies have reduced the sulfur content of diesel fuels to control particulate emissions from diesel engines. Specific engine design may dictate use of specific grades or blends of diesel fuel.

Grade No. 1-D diesel fuel is blended for improved cold weather performance, and enhanced performance in stop and go diesel engines. The disadvantages to No. 1-D diesel fuel are reduced energy content compared to No. 2-D diesel fuel (about 95%) and decreased lubricity for fuel system components. Grade No. 2-D diesel fuel is blended to meet the needs of most engines and will perform well in most environments. Grade No. 2-D diesel fuel will also provide the best fuel economy and performance. Areas of the world that experience colder climates will generally have No. 2-D diesel fuel that has an amount of No. 1-D diesel fuel blended in to provide cold weather performance. These winter blended fuels will contain about 97% of the energy of standard No. 2-D diesel fuel.

Fuel Requirements

All QSD, SDI, and TDI diesel engines are required to use Grade No. 2-D ULSD diesel fuel meeting ASTM Standards D975 S15 (or fuel rated Diesel DIN EN 590) and have a minimum cetane rating of 40. The blend of diesel fuel used may not contain more than 7% biodiesel.

NOTE: *Use of LSD or blends of ULSD fuel containing more than 7% biodiesel or cetane ratings below 40 may result in fuel system degradation, injection nozzle clogging, hard starting, increased oil change intervals, or excessive exhaust smoke.*

Fuel System Guidelines

Mercury Diesel does not recommend the use of nonferrous metals in the construction of the fuel system. Materials that should not be used are copper, brass, tin, lead, or galvanized fittings. The preferred metal to be used in the fuel system is stainless steel. Use of nonferrous metals in the fuel system can result in injection nozzle clogging, lack of engine performance, or engine failure.

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Mercury Diesel recommends the use of primary water separating fuel filter with a micron rating of 10–25 microns, and a flow rate of 265 liters or 70 gallons per hour. This filter is recommended in addition to any fuel filters that are installed on the engine.

Qty.	Description		Part Number
1	Racor Model 500® fuel filter or equivalent	SAE threads	850481A1
1		Metric threads	809867

Once the fuel system is installed and the vessel is able to be sea trailed, fuel system restriction should be checked. The inlet and return restrictions are measured at the inlet and return fittings.

Description	Specification
Maximum fuel inlet restriction at maximum fuel flow measured at the inlet of the engine-mounted filter	17 kPa (5.0 in. Hg)
Maximum fuel return restriction at maximum fuel flow measured at the engine's fuel return connection	14 kPa (4.1 in. Hg)
Minimum internal inlet fuel line diameter (TDI)	10 mm (3/8 in.)
Minimum internal return fuel line diameter (TDI)	10 mm (3/8 in.)
Minimum internal return fuel line diameter (2.0L Mercury Diesel)	8 mm (5/16 in.)

Proper Diesel Fuel Storage

Proper maintenance of stored fuel is very important. Diesel fuel is seldom entirely free of water, and blends of fuel containing biodiesel generally have higher water content. Fuel containing water may develop a bacteria, slime or algae that can restrict and clog fuel systems. Monthly draining of water separating fuel filters, or storage tanks can help control organic growth in the fuel systems.

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