

Diesel Fuel

Diesel Fuel Requirement and Fuel System

Fuel Requirements

Use of fuels other than ultra low-sulfur fuel may not conform to emission regulations.



ADVICE

- The fuel supply pump, injector or other parts of the fuel system and engine can be damaged if you use any fuel or fuel additive other than those specifically recommended by Isuzu.
To help avoid fuel system or engine damage, pay attention to the following:
 - Some service stations mix used engine oil with diesel fuel. Some manufacturers of large diesel engines allow this; however, for your diesel engine, do not use diesel fuel which has been contaminated with engine oil. Besides causing engine damage, such fuel can also affect emission control. Before using any diesel fuel, check with the service station operator to see if the fuel has been mixed with engine oil.
 - Do not use any fuel additive (other than as recommended under "Biocides" in this section). At the time this manual was printed, no other fuel additive was recommended. (See your authorized dealer to find out if this has changed.)
 - Take care not to run out of diesel fuel. If you do run out of fuel, you may need to bleed air out of the supply pump to re-start the engine after fuel has been filled.

Your vehicle is designed to use either Number 1-D or Number 2-D diesel fuel. However, for better fuel economy, use Number 2-D diesel fuel whenever possible. At temperatures below 20°F (-7°C), Number 2-D fuel may pose operating problems (see "Cold Weather Operation" which follows). At colder temperatures, use Number 1-D fuel (if available) or use a "winterized" Number 2-D (a blend of Number 1-D and Number 2-D). This blended fuel is usually called Number 2-D also, but can be used in colder temperatures than Number 2-D fuel which has not been "winterized". Check with the service station operator to be sure you get the properly blended fuel.



ADVICE

- Do not use fuels other than those recommended in this manual. Doing so may adversely affect the engine.

DIESEL FUEL/APPLICABLE STANDARD (Sulfur content below 15ppm)	
JIS (JAPANESE INDUSTRIAL STANDARD)	Based on K2204 Diesel Fuel Type 2 or Type 3 (SPL)
DIN (DEUTSCHE INDUSTRIE NORMEN)	Based on EN590
ASTM (AMERICAN SOCIETY FOR TESTING and MATERIALS)	Based on D975 NO.1-D S15 or NO.2-D S15 (below 15 ppm)
BS (BRITISH STANDARD)	Based on EN590

It is acceptable to use diesel fuel containing up to 5% biodiesel (B5), but the final blended fuel must meet the same specification, ASTM D 975 (Grade Ultra Low Sulfur Diesel), as other fuels used in your vehicle, and the biodiesel used for making this fuel must meet the latest version of ASTM specification D 6751. Biodiesel is produced from vegetable oils or animal fat that have been esterified to reduce the possibility of damage to your fuel system and engine. The use of unesterified bio-oils blended into diesel fuel at any concentration is not approved by Isuzu and could damage your fuel system and engine.

Biodiesel blends between B6 and B20 could cause damage to your engine and fuel system if these fuels do not meet strict quality standards. ASTM D7467 has been established to specify the properties of B6 to B20 biodiesel blends. However, field quality surveys have shown that many commercially available B6 to B20 blends do not meet this standard and in fact can be very damaging to your engine. If you plan to use biodiesel grades between B6 and B20, please contact your Isuzu dealer.

Cold Weather Operation

Diesel fuel is sensitive to temperature. All diesel fuel has a certain amount of paraffin components, which are high in energy value and help improve fuel economy. But, when temperatures are below 20°F (-7°C), the paraffin components begin turning into wax flakes. If temperatures are low enough, these flakes can obstruct the fuel filters and stop fuel from reaching the engine.

At low temperatures, wax flakes are more likely to form in Number 2-D fuel than in Number 1-D (or "winterized" Number 2-D) fuel. For best operation at temperatures below 20°F (-7°C), use Number 1-D, or Number 2-D which has been blended with Number 1-D for winter use. When temperatures are consistently below (or near) 0°F (-18°C), use Number 1-D if at all possible. Bear in mind, however, that even Number 1-D fuel will form wax flakes when temperatures are extremely low.



ADVICE

- Do not use home heating oil or gasoline in your diesel engine; either may cause engine damage.

The addition of kerosene will not unplug a filter plugged with wax. Warming a "waxed" filter to a temperature of 32°F to 50°F (0°C to 10°C) will return the wax to solution. Filter replacement is not normally required.

Water in Fuel

During refueling, it is possible for water (and other contaminants) to be pumped into your fuel tank along with the diesel fuel. This can occur if a service station does not regularly inspect and clean its fuel tanks, or if a service station receives contaminated fuel from its supplier(s).

To protect your engine from contaminated fuel, there is a water separator system on the engine which allows you to drain excess water from the fuel.



CAUTION

- The drained water/diesel fuel mixture is flammable, and could be hot. To help avoid personal injury or death and/or property damage, do not touch the fuel coming from the water separator drain valve, and do not expose the fuel to open flames or sparks.

Be sure you do not overfill the drain pan. Heat (such as from the engine) can cause the fuel to expand. If the container is too full, fuel could be forced out of the pan. This could lead to a fire and the risk of personal injury and/or vehicle damage.

Water Separator (Fuel Filter) Warning Light

→ Refer to page 2-23

Draining Water from the Fuel Filter

→ Refer to page 5-64

Biocides

In warm or humid weather, fungus, and/or bacteria may form in diesel fuel if there is water in the fuel.



ADVICE

- Fungus or bacteria can cause fuel system damage by plugging the fuel lines, fuel filters or injector. They can also cause fuel system corrosion.

If fungus or bacteria has caused fuel system problems, you should have your authorized dealer correct these problems. Then, use a diesel fuel biocide to sterilize the fuel system (follow the biocide manufacturer's instructions). Biocides are available from your dealer, service stations, parts stores and other automotive places. See your authorized dealer for advice on using biocides in your area and for recommendations on which biocides you should use.

Smoke Suppressants

Because of extensive testing of treated fuel versus untreated fuel, the use of a smoke suppressant additive is not recommended because of the greater possibility of stuck rings and guttered valves, resulting from excessive ash deposits.

Filling the Tank

Be sure to obey the following instructions when refueling the vehicle

- Stop the engine and close the vehicle's doors and windows.
- Keep cigarettes and other flames away from the vehicle.
- Before opening the fuel tank filler cap, touch a metallic object to discharge static electricity from your body.
- When filling, place the nozzle deeply into the fuel tank. If you try to fill more fuel by pulling out the nozzle from the fuel tank, the fuel may spill out, thus causing danger.
- Be sure to wipe off the fuel that is spilled at refueling.

CAUTION

- Be careful not to inhale fuel vapor when refueling the vehicle.
- If you have a static charge buildup on your body while refueling the vehicle, a spark caused by its discharge could ignite the fuel, resulting in burns.
- All parts of the refueling procedure (from opening the fuel tank filler cap to completing the refueling and closing the fuel tank filler cap) must be performed by the same person.
Other people may be carrying static electricity. Do not allow them to approach the fuel filler.
The person performing the refueling procedure must not return to the seat in the cab part-way through the procedure. He/she could pick up another charge of static electricity by doing so.
- Obey all cautions posted in filling stations.

**Diesel Fuel Requirement and
Fuel System** → Refer to page 1-31

Fuel Tank Filler Cap

After refueling, make sure that the fuel tank filler cap is tightly closed.

Do not use any fuel tank filler cap that is not an Isuzu genuine part.

The use of an improper fuel tank filler cap could cause fuel spillage in the event of an accident. The use of an improper fuel tank filler cap could also affect the fuel system and the emission control system.

Be sure to wipe off the fuel that is spilled at refueling.

CAUTION

- Fuel may be under pressure. Be sure to slowly open the fuel tank filler cap. If you open it quickly, fuel may spurt out.

ADVICE

- Care must be taken when filling the fuel tank to prevent entry of dirt and water.

Filling the Tank → Refer to page 1-34