IMPORTANT SERVICE INFORMATION FOR:

- ✓ SERVICE MANAGER
- ✓ SERVICE ADVISOR
- ✓ TECHNICIAN
- ✓ PARTS DEPARTMENT
- ✓ WARRANTY

BULLETIN NUMBER:
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ISSUE DATE:
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GROUP:
FUEL AND EXHAUST

GASOLINE CONTAMINATION

AFFECTED VEHICLES

- 2020.5MY to current Isuzu Vehicles equipped with:
  6.6L gasoline engines

INFORMATION

Isuzu Dealership personnel should encourage Isuzu customers to follow the fuel system information outlined in the FUEL section of their vehicle's Owner's Manual. Isuzu has found many instances of gasoline contamination caused during the refueling process due to incorrect substances entering the gas tank. Additionally, during refueling, it is possible for water (and other contaminants) near the gasoline filler neck to enter the fuel tank along with the gasoline. This can also occur if the surrounding area is dirty and/or a service station does not regularly inspect and clean its storage tanks, or if a service station receives contaminated gasoline from its supplier(s). Running an engine with gasoline contamination may lead to damage to the fuel system and/or catastrophic engine damage. Protect your customer's engine from contaminated gasoline by recommending regular fuel system inspection and maintenance. This will help ensure continued engine performance of the Isuzu vehicle and provide the earliest detection of fuel contamination. Maintenance is the customer's responsibility. Discovering and correcting a contaminated fuel issue early can substantially reduce the likelihood of damage to fuel system and engine components.

Fuel contamination in the affected vehicles can be defined as the presence of diesel fuel, ethanol, water, rust, poor quality fuel, or any other substance other than regular unleaded gasoline with a posted octane rating of 87 or higher in the fuel system. It should meet ASTMD4814 in the U.S. and CGSB 3.5-M87 in Canada. Operating a vehicle's engine on fuels and additives that do not meet the vehicle manufacturer's specifications as outlined in the Owner's Manual for lubrication and cooling, or that have improper anti-corrosion properties, can cause drivability problems as well as component damage or even failure.

NOTE: Any repairs needed as a result of using incorrect or contaminated fuels are *not* warrantable.

Contamination of fuel system components may cause symptoms including, but not limited to, the following:

- Crank, but no start
- Long crank/Hard start
- Running rough
- Low power
- Fuel pressure-related DTCs
- Fouled spark plugs
- Excessive oil consumption
- Unburned liquids dripping from the exhaust system (not water from condensation)
- Loss of acceleration
- Engine knocking or detonation
- Exhaust smoke
- Catalytic converter overheating
- Fuel system slow to build pressure
- Speed fluctuation
- Engine seizing, broken pistons, scored cylinders
- Oil leaking, including possibly from the rear main seal due to excessive crankcase pressure

Most common sources of contamination:

- Fueling errors (e.g., introducing diesel into the fuel tank/s)
- Above and below ground fuel storage tanks
- Fuel stored for long periods of time
- Contaminated fuel source

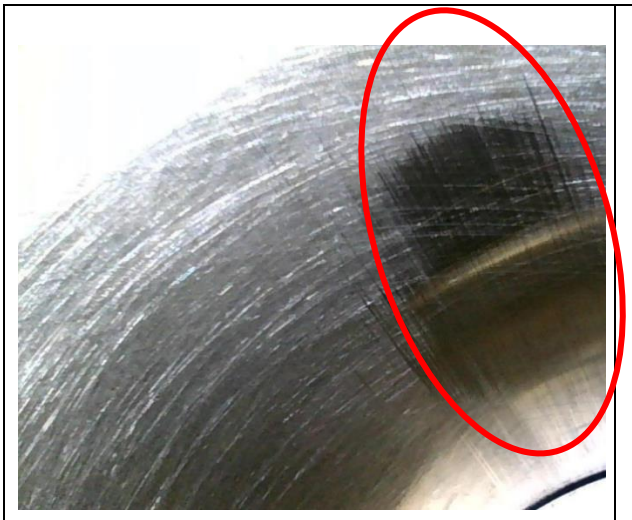
NOTE: Some of these are difficult to identify in the shop and may require external testing

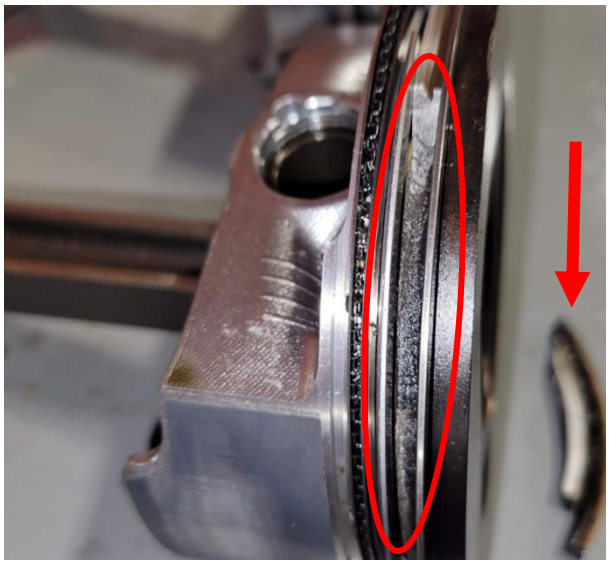
Some examples of fuel contamination:

- Water
- Ethanol content more than 10% (E-15 and E-85) gasoline
- Diesel fuel
- Aged/Oxidized fuel
- Unapproved fuel additives
- Alternative fuels (unapproved for 6.6L)
- Methanol content more than 5%

NOTE: If you are unable to identify the contaminant, it may be necessary to send a sample of fuel out to a fuel analysis lab for contamination identification.

Examples of possible damage



Cylinder wall scoring due to gasoline contamination	**Piston damage due to gasoline contamination**
	
Broken piston skirt due to gasoline contamination	**Piston land broken due to gasoline contamination**
	
Piston head broken/missing pieces due to gasoline contamination	**Overheated catalytic converter due to gasoline contamination**

FUEL TANK INSPECTION

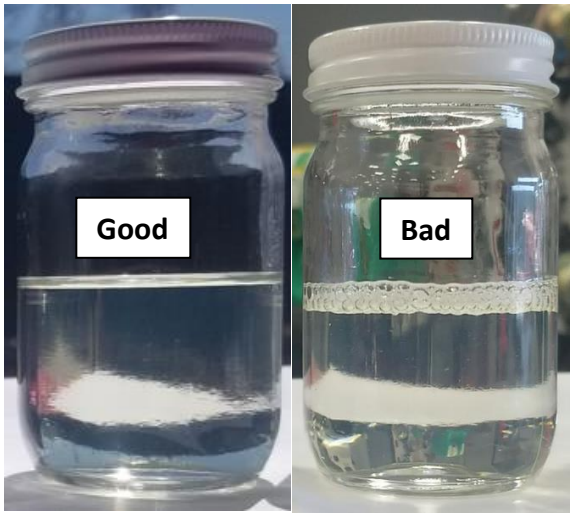
While certain contamination such as diesel fuel in gasoline is more difficult to identify, other types of contamination may be found more easily with a simple visual inspection of the inside of the fuel tank. Look for signs of water, rust, or other contamination that may have entered the fuel system from an outside source.

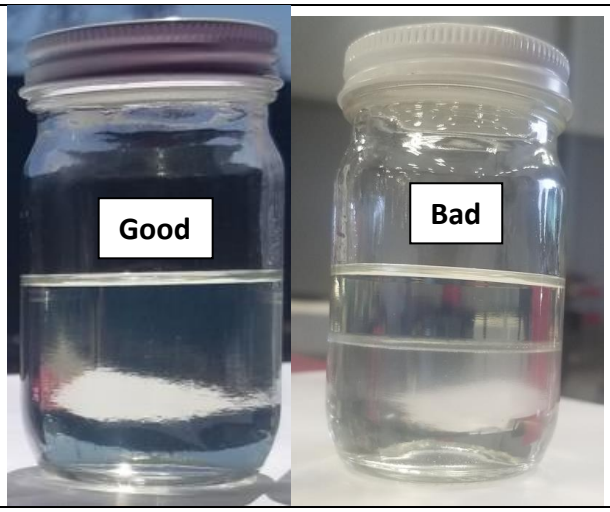
SERVICE PROCEDURE

CONTAMINATION DIAGNOSIS CHART

Step	Action	Value(s)	Yes	No
1	Using the J-45004-1 fuel siphon hose, obtain a fuel sample of approximately 50mL (1.7oz.) into a fuel sample container. • Feed siphon hose into, and down, the fuel filler neck, into the gas tank. • Allow the fuel sample to sit for approximately 2 minutes. • Compare the sample to the photos of contaminated fuel in Table 1 below. Does the fuel appear to be contaminated?	See photos in Table 1	Go to Step 2	Go to Step 3
2	Follow the recommended procedure based on the appearance of the fuel as compared to the photos in Table 1. Was a sample found to contain DEF or Ethanol?	—	Go to Procedure A	Go to Step 3
3	Does the sample appear to be contaminated by material, and/or smell like anything other than gasoline, other than DEF or Ethanol?	—	Go to Procedure B	Go to Step 4
4	1. Clear any DTCs with a scan tool. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine. Are there any DTCs or conditions that you have not diagnosed?	—	Go to Diagnostic Aides or Symptoms in the applicable Work Shop Manual (WSM)	System OK

TABLE 1
All bad samples in Table 1 are a 50/50 mixture.

Condition	Image	Procedure	Note
Diesel		B	Gasoline and Diesel fuel will not separate and visually there is very little, to no, difference. Depending on the percentage of contamination there may be a diesel smell, if the ratio (%) of diesel to gasoline is high. ***After shaking the container, mixtures with 50% and above diesel fuel will hold a layer of bubbles on the surface that will not immediately dissipate like gasoline.***
Water		B	Gasoline and Water will separate, and the sample will appear cloudy. Gasoline will float on top, and the gasoline smell will be present.

DEF		A	Gasoline and DEF will separate but DEF will be very difficult to see as there is very little, to no difference in color or a separation line. Perform DEF Contamination Check.

PROCEDURE A – DEF or ETHANOL (E-15 or E-85) CONTAMINATION

These fluids are very corrosive and require all components to be replaced.

IMPORTANT: To prevent contaminated fuel from re-entering the system, be sure to remove all contaminated fuel from the fuel tank.

IMPORTANT: Be sure to properly dispose of contaminated fuel in accordance with local laws and guidelines.

1. Clean the fuel system and replace all metal fuel system components. Refer to the applicable WSM section “Fuel System Cleaning” for procedure.
   - High pressure fuel pump
   - Fuel rail
   - Fuel injectors
   - Fuel tank
   - Fuel tank sender
   - Low pressure fuel lines
   - High pressure fuel lines
2. Fill fuel tank to ¼ full using clean, fresh, and good quality gasoline.
3. Start the engine.
   - Run for 15 minutes. Check for engine leaks and abnormal noises. Repair as necessary.
   - If the engine does not start, perform the Fuel System Diagnosis test from the applicable WSM. Re-attempt engine start.
4. Stop engine.
5. Clean any fuel spillage from engine.
6. Return to Step 4 of the Contamination Diagnosis Chart

PROCEDURE B - Organic, Rust, Water, Diesel Fuel Contamination

1. Clean the fuel system. Refer to applicable WSM section “Fuel System Cleaning” for procedure.
2. Fill fuel tank to ¼ full using clean, fresh, and good quality gasoline.
3. Start the engine.
    - Run for 15 minutes. Check for engine leaks and abnormal noises. Repair as necessary.
    - If the engine does not start, perform the Fuel System Diagnosis test from the WSM. Re-attempt engine start.
    - If internal damage to the engine is suspected, the use of an inspection camera to view inside the engine can be helpful. It may also be necessary to disassemble the engine to determine the extent of the damage.
4. Stop engine.
5. Clean any fuel spillage from engine.
6. Return to Step 4 of the Contamination Diagnosis Chart