

TO: ALL ISZAPT DISTRIBUTOR AND DEALER SERVICE AND WARRANTY PERSONNEL

SUBJECT: WARRANTY PROCEDURE – REQUIRED INFORMATION

In order to improve the efficiency of claim processing, this bulletin explains what information, components and fluid samples distributors/dealers need to collect during a service call for a possible warranty repair. This information should be gathered during the first inspection so that the distributor/dealer has the information on file. In the event ISZAPT requests a part, fluid sample, picture or other additional information, the distributor/dealer will have it on hand.

ISZAPT relies on the distributor/dealer technicians' knowledge and experience for troubleshooting, determining warranty and making repairs in the field as necessary. This bulletin is a general guide for most warranty situations; however, it is not an all-inclusive guide to every type of failure or every piece of information that should be recorded or obtained. Gathering the necessary information up front eliminates the need for additional trips or calls to the customer, lost information, etc. The goal is to have prompt action in making warranty settlements, equitable to each of the involved parties: the customer, the dealer, the distributor and ISZAPT.

Required Information – All Warranty Claims

- Engine serial number
- Engine model
- In service date: the customer is responsible for providing a copy of their purchase invoice for the equipment.
- Failure date
- Engine Hours
- Machine make, model and serial number
- Owner information, including the following: owner name, owner address, owner phone number and email address. If the customer has not registered their engine for warranty, the distributor or dealer will need to register the engine on their behalf. **A warranty claim cannot be filed if the engine has not been registered.**
- Document the customer's complaint with explicit details to assist with the diagnostic process and warranty claim. Ask questions regarding engine usage, temperature, atmospheric conditions, evaluation, noises, etc.
- Document the cause of the customer complaint. Explain the defect in material or workmanship in detail. The cause section must include a brief failure analysis. Refer to the Service Policies and Procedure Manual section 3.2 and section 4.6.
- Document the corrective actions with details explicitly outlining the repair.
- In the event pictures of failed components are requested by ISZAPT, it is highly recommended to take digital pictures at the time of inspection and repair to better explain the failure/repair and/or justify straight time. For any item that is found to have a defect in workmanship or material, take a picture of said item.
- Collect each failed part and tag it with the distributor/dealer name, claim number, engine model, engine serial number, part name and part number. Hold onto the parts until you receive a warranty reimbursement or credit. **All parts requested by ISZAPT must be received no later than 14 calendar days from the part request date.**

Additional Interim Tier 4 Engine Information Requirements For DPD Systems

- The requirements for Interim Tier 4 engines utilizing a DPD during a DPD system failure are the obtaining of E-IDSS data readings for DPD PM Storage Status and DPD Trip Status.
- During a DPD system inspection, an oil and fuel sample must be obtained as outlined in the following sections or warrantability of the repair can be denied.
- Information surrounding these processes is available through Isuzu's iT4 engine training.

Fluid Samples:

Depending on the type of failure, a fluid sample(s) may be required by ISZAPT. The distributor/dealer needs to collect and hold the necessary fluid samples in the appropriate containers. Samples do not need to be immediately sent to the laboratory for analysis – not all fluid samples will be requested for warranty claims. Any fluid sample testing requests from ISZAPT need to be completed by the distributor or dealer at an appropriate fluid sample test location – reimbursable on approved warranty claims when presented with a receipt of service.

ISZAPT does not pay to replace fluids that are not contaminated by the failure, or which are not the result of a warrantable failure. It is always recommended to collect fluids in a safe storage container for reuse when applicable.

Fuel System Failures:

For all fuel system related failures, obtain a one quart fuel sample. The following are examples of fuel system failures, while not all-inclusive: fuel injection pumps, fuel injector, etc. Store the fuel samples in an approved fuel sample container or a glass container to avoid reactions with some types of plastics. Refer to the Service Policies and Procedures Manual, section 4.1.

Coolant System Failures:

For all coolant system related failures, obtain a one quart coolant sample. The following are examples of cooling system failures, while not all-inclusive: water pumps, thermostats/gaskets, radiator, oil cooler, EGR cooler, etc.

Oil System Failures:

For all oil system/lubrication related failures, obtain a one quart oil sample. The following are examples of oil system failures, while not all-inclusive: bearings, pistons rings, piston, liners, oil pump, sludge, or suspected oil contamination.

Electrical Components:

Electrical components are parts most commonly misdiagnosed as the cause of failure. In many cases, the parts are tested by the factory or vendor and there are no troubles found. Before replacing any electrical component, verify the battery condition as well as all related wiring connections. Inspect the circuits for high resistance, corrosion, damage, damaged grounds, shorts, etc.

Alternator:

Document the battery voltage at rated engine speed with no electrical load. Document the battery voltage at rated engine speed with full electrical load applied.

Starter:

Document the cranking amps, cranking RPM and ambient temperature. The battery voltage and voltage drop during cranking should also be verified.

Solenoid:

For all internal fuel start/shutdown solenoids, measure and document the voltage of the pull-in and hold-in coil. If the solenoid is burnt, replace with a new unit and then verify the pull-in and hold-in voltages. Verify the pull-in coil is not energized while the key switch is in the run position.

Turbocharger:

For low power complaints, document the boost pressure at full load, RPM at full load and obtain an oil sample. Refer to the Service Policies and Procedures Manual, section 3.9 and 3.10. Please note that the two largest causes of turbocharger failures are contamination by dirt and dust from filtration by-passing or a lack of oil/lubrication due to oil condition, oil flow, or hot turbo shutdown.

Interim Tier 4 engines utilize a DPD that contains a Variable Geometry Turbo (VGT) with internal moving vanes to redirect exhaust flow. Sticking vanes due to carbon coking can occur during light engine load operation causing boost issues and Diagnostic Trouble Codes. The VGT system is operated by an air pressure solenoid system or a mechanical solenoid. Inspections of the components and proper movement should be verified to confirm proper VGT operation. Obstructions to moving components, damage to the solenoids, electrical components, vacuum line kinks or leaks, etc. should be identified.

Head Gaskets:

During an overheat inspection, document cooling system performance by measuring coolant temperatures into and out of the radiator under maximum load conditions and the ambient temperature. Visually check for possible coolant leaks, air flow obstructions or coolant flow obstructions. Document head bolt breakaway torque while removing the head, check the cylinder head warpage and cylinder block deck warpage. Circle the portion of the gasket where the leak occurred with a paint pen for later inspections. If oil or coolant leaks are visible on the outside of the engine, obtain pictures before disassembly. **NOTE: For head bolts or any other fasteners where ISZAPT requests breakaway torque, measure the breakaway torque during the loosening process.**

Major Failures:

Major failures occur when an engine has been damaged to the extent where it is not financially feasible to repair the engine. This is usually the case when combinations of the following components are damaged, while not all-inclusive: cylinder block, crankshaft, cylinder head or camshaft. For major engine failures, take oil, coolant and fuel samples.

Vibrations:

Document the components driven by the engine: generator, pumping unit, compressor, etc. while obtaining pictures of the unit for later documentation. If there is a failure of the external engine or machine components, such as weld cracking, document how the engine is mounted. Identify if the engine is solid mounted or on isolators. If isolators are used, identify the make, model and corresponding position of all the isolators. Note that front and rear isolators may differ. Identify the mounting angle between the engine and the driven unit, especially when a drive shaft is utilized.

Oil Consumption:

The customer must confirm the complaint of oil consumption by documenting both oil and fuel consumption in relation to the time (in hours) the engine is operated. If the customer's findings are excessive, the distributor/dealer should confirm the consumption rate. During the distributor/dealer investigation, the engine oil level should be filled to the full mark on the level gauge and sealed to confirm the customer complaint. **Note: The engine oil level must be checked daily per the engine instruction manual.**

Lack of Power:

A clear, complete explanation of the problem is needed on the claim. Statements such as "customer complained of low power", or "engine was not up to specifications" are not sufficient and will result in rejection of the claim. The claim must also list investigation results for all items that normally cause lack of power, including the setting found during the initial checks and the subsequent settings after adjustments were made or new parts were installed.

Best regards,

ISZAPT Service Team