



Service Bulletin

Bulletin No.: 00-06-01-026N

Date: April, 2021

INFORMATION

Subject: Engine Replacement After Severe Internal Engine Damage – Replace Intake Manifold

Models: 2021 and Prior GM Passenger Cars and Trucks (including Medium Duty)
Equipped with Gasoline, CNG or LPG Engine

Attention: This bulletin also applies to any of the above models that may be Export from North America vehicles.

This bulletin has been revised to add the 2021 Model Year. Please discard Corporate Bulletin Numbers 00-06-01-026M.

General Information

- When replacing an engine due to internal damage, extreme care should be taken when transferring the intake manifold to the new Genuine GM Part service engine long block. The internal engine damage may have resulted in the potential discharge of internal engine component debris into the intake manifold via broken pistons and/or bent, broken, or missing intake valves.
- After removing the intake manifold from the engine, the technician **MUST** carefully inspect all of the cylinder head intake ports to see if the valve heads are still present and not bent. Usually when the valve heads are missing or sufficiently bent, internal engine component debris will be present to varying degrees in the intake port of the cylinder head. If this debris is present in **ANY** of the cylinder head intake ports, the intake manifold should be replaced.
- This replacement is required due to the complex inlet runner and plenum configuration of most of the intake manifolds, making thorough and complete component cleaning difficult and nearly impossible to verify the complete removal of debris. Reinstallation of an intake manifold removed from an engine with deposits of internal engine component debris may result in the ingestion of any remaining debris into the new Genuine GM Part service engine. This will cause damage or potential failure of the new Genuine GM Part service engine long block.

Broken Valves, Broken Pistons and Piston to Cylinder Head Damage – Catalytic Converter Failures

Broken Valves, Broken Pistons and Piston to Cylinder Head Damage

Broken valves, broken pistons and piston to cylinder head damage all create material debris that scatters throughout the induction system.

- ⇒ If **ANY** of the above were to occur, the intake manifold **MUST** be replaced and the catalytic converters must be inspected or subsequent severe engine damage will occur. This replacement is required due to the complex inlet runner and plenum configuration of most of the intake manifolds, making thorough and complete component cleaning difficult and impossible to verify the complete removal of all debris.

Catalytic Converter Failures

When catalytic converter failures occur and the inner brick becomes plugged and breaks apart, the catalytic converter material or metal left from the engine can be sucked back into the engine during valve overlap and transfer throughout the intake manifold and into the cylinder. Any such material transfer can cause heavy wear to piston rings and cylinder walls. Misfires and oil consumption are the by products of ingested catalytic converter material into the combustion chamber and cylinder bores.

Certain 2019 and prior General Motors products may be equipped with a new style of catalytic converter, technically known as the close-coupled catalytic converter, providing quick catalyst warm-up, resulting in lower tail pipe emissions earlier in the vehicle operating cycle.

If an engine breakdown or non-function were to occur (such as broken intake/exhaust valve or piston), debris may be deposited in the converter through engine exhaust ports. If the engine is non-functioning due to a severe overheat event, damage to the ceramic "brick" internal to the catalytic converter may occur. This may result in ceramic debris being drawn into the engine through the cylinder head exhaust ports.

If a replacement engine is installed in either of these instances, the replacement engine may fail due to the debris being introduced into the combustion chambers when started.

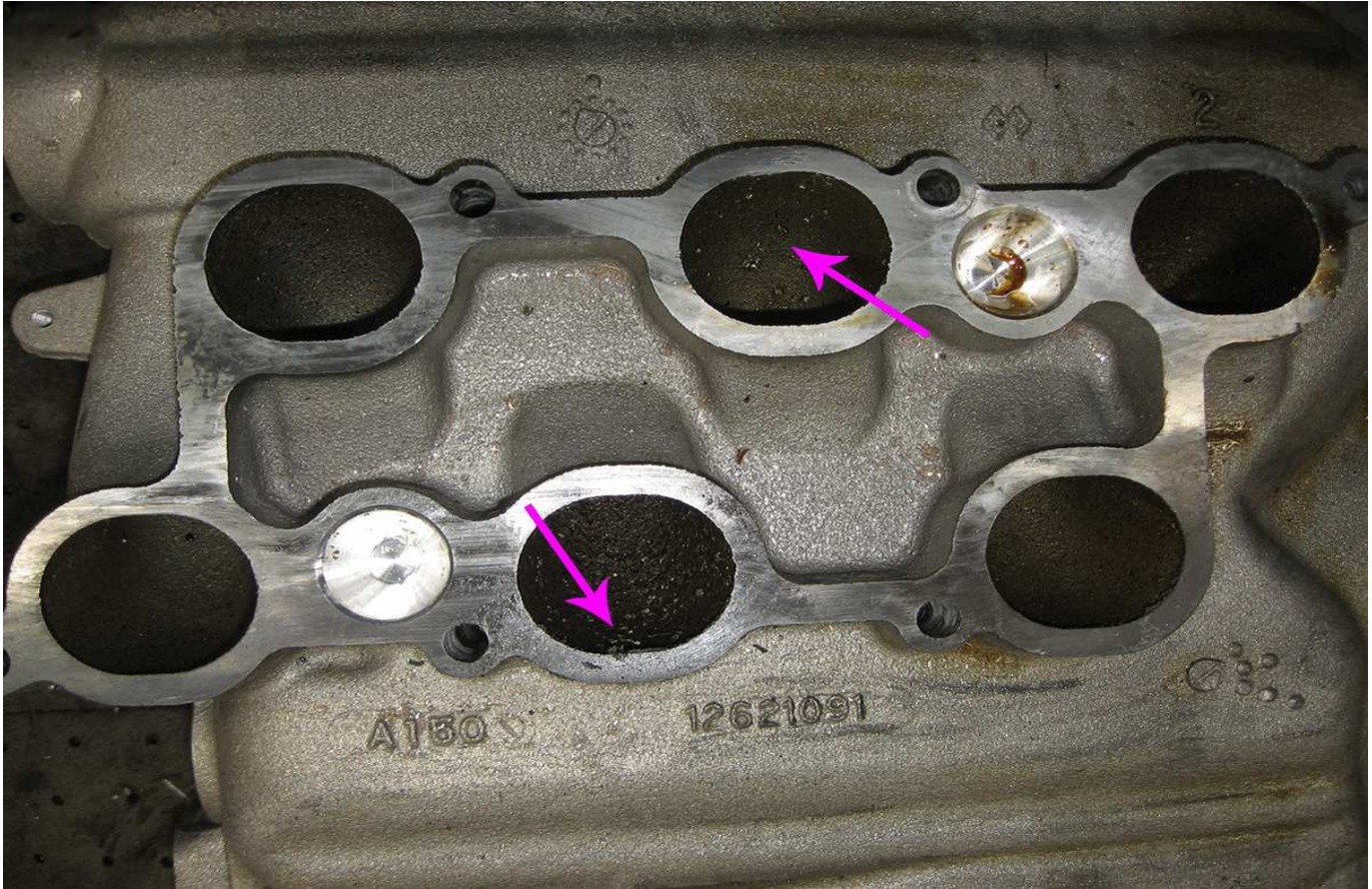
When replacing an engine for a breakdown or non-function, an inspection of the catalytic converters and ALL transferred components (such as exhaust/intake manifolds) should be performed. Any debris found should be removed. In cases of engine failure due to severe overheat, dealers should also inspect each catalytic converter for signs of melting or cracking of the ceramic "brick." If damage is observed, the converter should be replaced.

Typical Intake Manifold Debris Views After Internal Engine Damage

View of Debris in Aluminum Intake Manifold –
Throttle Body Opening



View of Debris in Aluminum Intake Manifold – Ports to Cylinder Heads



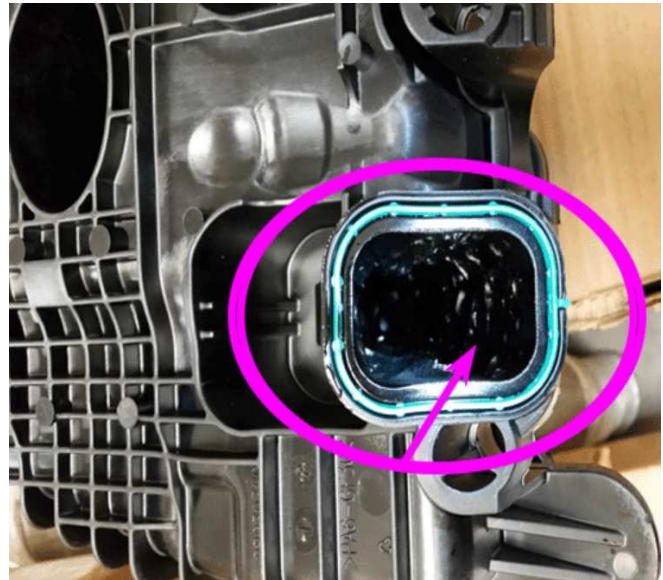
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View of Debris in Plastic Intake Manifold – Throttle Body Opening



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View of Broken Valve that Blew Debris Back into the Intake from the Combustion Chamber



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View of Intake from GEN 5 V8 that Experienced Lifter Collapse and/or Broken Valve Spring



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Internal View of Plastic Intake Manifold Lower Half – Plenum and Runner Complexity

Notice: The plastic intake manifold CANNOT be disassembled.

Internal View of Plastic Intake Manifold Lower Half – Plenum and Runner Complexity



This internal view shows the plenum and runner complexity and is the reason why the intake manifold CANNOT be completely cleaned of debris.

1. Intake port to cylinder head opening.
2. Areas where debris can collect.
3. Areas where debris can collect.
4. Areas where debris can collect.

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 Ultrasonic welding is an industrial technique whereby high-frequency ultrasonic acoustic vibrations are locally applied to workpieces, (in this case the plastic intake manifold) that are being held together under pressure to create a solid-state weld. It is commonly used for plastics and for joining dissimilar materials. In ultrasonic welding, there are no connective bolts, nails, soldering materials, or adhesives necessary to bind the materials together.