Turbocharger Failure Diagnosis Guidelines

Impact damage

- Foreign object damage to impeller
- Foreign object damage to turbine wheel

Insufficient oil supply

- Effects of using silicone sealants
- Insufficient lubrication oil

Dirt in oil

- Dirt scored shaft
- Dirt scored bearing

Carbon build-up

- Bearing damage due to hot shutdown
- Carbon build-up on shaft

Failure from excessive exhaust temperatures or hot shutdown of engine results in carbon build-up. It is recommended that you idle the engine for two to three minutes to cool the bearing system before shutting down. Turbine end heat soak into the bearing housing results in oil carbonisation and corrosion of the bearing system. The main damage occurs to the shaft seal ring and grooves, turbine end bearing and bearing housing oil drain cavity blockage.

Carbon build-up can be caused by:
- Hot shutdown of engine
- Degraded oil quality carbonising in service
- Infrequent oil change intervals causing oil breakdown in service
- Air and gas leaks
- Faulty fuel injector pump/injectors.

Before changing your turbocharger, please make sure that you have correctly identified the cause of the fault.

Excess smoke

- Engine lacks power

Caused by:
- Dirty air cleaner
- Air intake system restriction
- Cracked mounting flange/gasket missing
- Fuel pump/injectors/valve timing incorrectly set
- Waste gate mechanism set incorrectly
- Turbocharger damaged.

Worn/Excessive clearance

A turbocharger has specific axial and radial rotor clearances. These are sometimes mis-diagnosed as 'worn bearings' (See engine manual or nearest authorised Holset distributor). If the clearances are out of specification the cause could be attributed to a lubricating oil problem, i.e. insufficient oil, dirt ingress, oil contamination with coolant.

Remember, if the root cause of the problem is not identified and corrected, your problem will remain!

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