



IPD TECH BULLETIN

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Indicators and possible causes of common engine problems for heavy duty diesel engines

COMMON INDICATORS AND CAUSES:

With all the variations in diesel engine designs running in equipment today it's almost impossible to make a complete list of the symptoms and causes you may encounter. This tech bulletin is not meant to be considered as a complete list of those indicators and/or their causes. But, hopefully will provide you with a general list of possible causes related to some of the more common complaints you may hear concerning diesel engines. Indicators and causes vary between engine models, applications and design. As you review the list below you will most likely be able to add additional information based from your own experiences

Problem Indicators:	Possible Causes (not in order of probability)
Excess black smoke during full load (un-burnt fuel)	<input checked="" type="checkbox"/> Faulty electronic sensor(s) <input checked="" type="checkbox"/> Fuel ratio control setting <input checked="" type="checkbox"/> Intake or exhaust restriction (plugged air cleaner?) <input checked="" type="checkbox"/> Lugging <input checked="" type="checkbox"/> Over fueling or Over loading <input checked="" type="checkbox"/> Valve adjustment <input checked="" type="checkbox"/> Failing turbocharger
Blue smoke (oil consumption)	<input type="checkbox"/> Oil Leaks <input checked="" type="checkbox"/> High oil level resulting from other problems General engine wear due hours of operation <ul style="list-style-type: none"><input type="checkbox"/> Worn piston rings & liners<input type="checkbox"/> Worn valve train components<input type="checkbox"/> Worn turbocharger
White Smoke (water in combustion chamber or un-burnt fuel at start up)	<input checked="" type="checkbox"/> Faulty electronic sensor(s) <input checked="" type="checkbox"/> Cold ambient air temperature <input checked="" type="checkbox"/> Leaking head gasket <input checked="" type="checkbox"/> Cracked head and/or liners <input checked="" type="checkbox"/> Faulty injector(s) <input checked="" type="checkbox"/> Incorrect starting procedure <input checked="" type="checkbox"/> Quality of the fuel
Increased oil consumption or Blow-by	<input type="checkbox"/> Oil leaks <input checked="" type="checkbox"/> Quality and type of oil <input checked="" type="checkbox"/> Air compressor <input checked="" type="checkbox"/> Normal engine wear <ul style="list-style-type: none"><input type="checkbox"/> Worn or broken rings/liners<input type="checkbox"/> Worn turbocharger seals<input type="checkbox"/> Worn valve guides <input type="checkbox"/> Over loading Prolonged idling
Unusual noises	<input checked="" type="checkbox"/> Malfunctioning fuel nozzle/injectors <input checked="" type="checkbox"/> Worn engine components <input checked="" type="checkbox"/> Turbocharger Too much valve lash



Lack of power	<input checked="" type="checkbox"/> Faulty electronic sensor(s) Intake or exhaust restriction (plugged air cleaner?) <input type="checkbox"/> Fuel restriction <input checked="" type="checkbox"/> Fuel components <input checked="" type="checkbox"/> Governor settings Transmission, Torque Converter, or other components <input type="checkbox"/> Fuel quality <input checked="" type="checkbox"/>
Increased fuel consumption	<input type="checkbox"/> Fuel leak Faulty electronic sensor(s) <input type="checkbox"/> Intake or exhaust restriction (plugged air cleaner?) <input checked="" type="checkbox"/> Turbocharger <input checked="" type="checkbox"/> Fuel components <input checked="" type="checkbox"/> Operator
Overheating	<input type="checkbox"/> Faulty electronic sensor(s) <input checked="" type="checkbox"/> Plugged radiator <input checked="" type="checkbox"/> Incorrect adjustment or worn belts/pulleys <input checked="" type="checkbox"/> Low coolant level <input checked="" type="checkbox"/> Malfunctioning temperature regulators <input checked="" type="checkbox"/> Failing water pump <input checked="" type="checkbox"/> Operator
Hard starting	<input type="checkbox"/> Worn fuel components <input checked="" type="checkbox"/> Faulty electronic sensor(s) <input checked="" type="checkbox"/> Improper starting technique <input checked="" type="checkbox"/> Fuel quality <input checked="" type="checkbox"/> Low cranking speed
Oil level over full	<input type="checkbox"/> Coolant or fuel dilution of oil Over filling <input checked="" type="checkbox"/>
Debris in oil filter	Never a good sign!

In most cases a good maintenance program will prevent or identify problems before they progress into something major. Qualified technicians, with the correct tools are essential in diagnosing and repairing problems correctly.

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