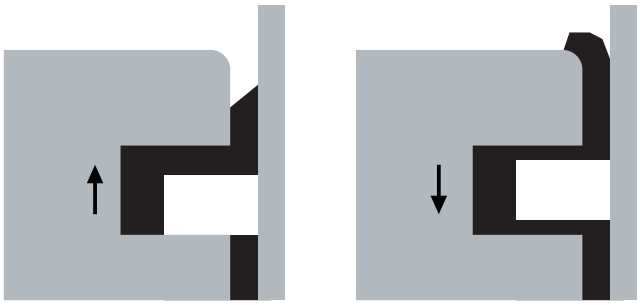
FAILURE INFORMATION

EXCESSIVE OIL CONSUMPTION IN THE ENGINE

General Information about Oil Consumption

In internal combustion engines, the oil put into the oil sump is transferred by a pump to the crankcase and piston conrod bearings, camshaft and system, turbo bushing bearings and compressor, if any. After the engine oil fulfills its function in the areas where it is pumped to, it returns to the engine crankcase. The amount of oil burnt in the combustion chamber of the engine varies depending on the engine power and engine temperature. Oil consumption in an engine operating under normal conditions is minimum 0.2 and maximum 1.5 gram/kilowatt hours. There are several causes of excessive oil consumption.



Defective fuel burning, defective fuel mixture, corrosive dirt in the engine, failures in the cooling system, corruption in lubricating in the engine, utilization of inappropriate oil in the engine are the main causes to increase oil consumption. These failures result in wearing and failures of piston, piston ring and liner.

Causes of the Failure

- There are bearing clearances in the turbo-charging system. Oil is transferred from the turbo-charging system to the combustion chamber.

- Oil recycling pipe in the turbo-charge is blocked or melted due to high temperature. Oil goes to inlet manifold and exhaust and increases oil consumption.

- Due to a worn injection pump, oil goes into the combustion chamber together with the fuel. If the injection pump is lubricated by the lubrication system, the worn pump may increase the oil consumption.

- Dirt and dust going inside the engine through the air inlet filter of the engine increase the wearing on surfaces of the piston ring and the liner. Oil consumption increases due to corrosive impact of excessive soot and dirt.

- If oil replacement is not performed on time, it causes blockage and explosion of the oil filter. Unfiltered engine oil gets into the lubrication system.

- Inclinations and distortions occurring in the connecting rods cause the pistons and the rings to operate in inclined position and as a result, oil to get into the combustion chamber.

- The piston rings are assembled inaccurately to the piston ring grooves. If oil scraping is not adequate, oil gets into the combustion chamber.

- Studs are assembled inaccurately. Oil leakages occur.

- The blow caused by worn piston ring, piston ring grooves and liners increases the pressure in the engine's crankcase and results in oil leakages.

- Due to high oil level or poor quality oil, the lubricating oil goes into the inlet manifold through the crankcase ventilation and from there, into the combustion chamber.

- Fuel spillage causes piston ring and liner surfaces to wear away and as a result, the oil to get into the engine's combustion chamber.

- The oil quality is poor and the oil viscosity is not at the values specified by the engine's manufacturer. It increases wearing and oil consumption.

- Poor quality honing on the liner surface reduces the oil retaining capability and amount of the surfaces. Piston, piston ring and liner surfaces wear away faster. And oil consumption increases due to the high pressure occurring in the crankcase due to worn parts and leakage of the fuel into the combustion chamber.

- There are spaces in the engine valve keepers and their guides as a result of wearing. Oil gets into the combustion chamber from these areas and the oil consumption increases.

- Utilization of inappropriate valve seal and inaccurate assembly of the seal to the valve guide can increase the oil consumption.

- The cylinder head is assembled inaccurately.

- The oil pump should be checked. Low oil pressure causes piston, piston ring and cylinder surfaces to wear away and the oil consumption to increase.

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Recommendations

- The engine parts should be cleaned carefully during the engine overhauling operation.

- During the engine overhauling operation, all the engine parts, where the oil circulates, should be cleaned. There are corrosive dirt in the oil that remains inside the engine. The oil inside the engine should be completely discharged. Otherwise, when the oil starts to circulate inside the engine, all these corrosive dirt can reach the engine's crankcase. It may cause the engine parts to wear away and the oil consumption to increase.

- An oil at the quality specified by the engine's manufacturer should be used.

In accordance with the communiqué published by EPDK, fuels containing 7000 ppm sulfur shall be taken out of the market as of 1 July 2008 and diesel fuel at the TSE EN590 standard, which contains max. 50 ppm sulfur, shall be offered instead.

Up to the present, 10W/30 engine oil (WSS-M2C921-A), which was resistant to low fuel quality, had been used in diesel engines. After the year 2008, due to the standard imposed with regard to the fuel quality, utilization of 5W/30 oil shall provide the following benefits;

a- Inner resistances of the engine shall be reduced. Accordingly;

b- The abrasive (corrosive) effect on the moving engine parts shall be reduced.

c- Fuel economy shall be ensured. (2%-3%)

d- Cold operation performance shall be improved.

e- Lifecycle of accumulator/starter motor/flywheel ring gear shall be extended.

- Turbo-charge bearings shall be lubricated better and the lifecycle of turbo-charge shall be extended.

- Assembly of the pistons and the piston rings should be made in accordance with the instructions of the manufacturer.

- After the engine overhauling operation, the first oil replacement should be performed as early as possible.

- A detailed examination should be made with regard to the excessive oil consumption in the engine and the actual source of the problem should be determined.

- It should be considered that the pistons and the piston rings cannot fulfill their functions due to the failures causing the pistons and the piston rings to wear away.

- While performing the engine's oil replacement, "Engine lubrication system cleaning equipment" should be used. Thanks to these cleaning equipment,

- The lubrication system shall be cleaned better (even after the oil replacement, approximately 500 cc dirty oil remains inside the engine)

- Recurring repairs due to turbo-charger problems shall be avoided to a great extent.

- Possible engine failures shall be avoided.