

Engine emits excessive smoke (black/blue/white)	Clogged Air Cleaner (ACL) element Incorrect type or grade of oil Blocked or restricted turbocharger oil drain tubes Damaged/restricted or leaking turbocharger compressor air intake pipe Engine wear (piston rings, valve guides) Plugged crankcase ventilation system Turbocharger oil seals leaking	INSTALL a new Air Cleaner (ACL) element. TEST the system for normal operation. DRAIN and FILL with specified oil. INSPECT the turbocharger oil drain tube. REPAIR as necessary. REPAIR or INSTALL a new pipe as required. REPAIR as required. Visually INSPECT the crankcase ventilation system. REPAIR as necessary. REFER to Turbocharger Internal Oil Leak Test in Component Tests .
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Turbocharger Internal Oil Leak Test



NOTE: It is normal for a small amount of combustion gas to pass into the crankcase. This gas is scavenged into the air intake system through the PCV system, which incorporates an crankcase vent oil separator. Some engine oil, in the form of a vapor is carried into the air intake system with the blow-by gases (this engine oil also contributes to valve seat durability). This means that oil will collect inside the air intake components and the turbocharger. This is not an indication that the turbocharger oil seal has failed. The turbocharger oil seal will generally not fail unless the bearings fail first, which will cause the turbocharger to become noisy or seize. Do not install a new turbocharger due to oil inside the turbocharger or the air intake components. If a leak is detected in the oil supply or return tubes or connections, locate and rectify the source. Do not install a new turbocharger due to an oil leak.

Check the turbocharger compressor inlet for evidence of oil. If excessive oil is present, this indicates that the failure could be in the engine or turbocharger. REFER to: ENGINE Or see the following turbocharger check. If excessive oil is found in the turbocharger compressor outlet, check the CAC for oil contamination. If contamination is present, flush the CAC. REFER to: CHARGE AIR COOLER (CAC) CLEANING .

Check the turbocharger turbine outlet for evidence of oil. If excess liquid oil is present in the outlet, remove the turbocharger from the engine and examine the oil supply and return passages in the turbocharger, engine block and the turbocharger oil drain tube for restriction. If no restriction is found, install a new turbocharger. REFER to: Turbocharger LH . REFER to: Turbocharger RH .

Check for Free Rotation - Off Vehicle



NOTE: The turbocharger must be pre-oiled before carrying out this check.