

SB034

'Pre-lubing' Rebuilt Engines

'Dry-running' pistons, rings, bearings, gears etc. is at any time clearly detrimental to the life of the engine. It will cause either unnecessary, premature wear and damage and if prolonged, engine seizure and failure. Rebuilt engines and engines that stand for extended periods between starts are most susceptible to dry-run when they are first started. After an engine is rebuilt, all oil feed pipes and galleries are dry of lubricant. When the engine is first started, if the oil system has not been 'pre-lubed'/pressurised, there is a significant period before oil is pumped through the engine's oil system, thrown onto cylinder walls and reached other critical areas. This delay is the result of the time it takes for the oil pump to prime itself, pressurise the oil galleries and remove air from the system. This process can take from several seconds to several minutes, depending on the capacity and condition of the oil pump, the volume of the lubrication system, the ambient temperature, oil viscosity, etc.

While the use of a good quality engine assembly grease (not just oil) will help protect engine components on initial start-up, it is best to 'pre-lube' the engine before the oil pan is fitted. This is best done using a commercially available oil pressure tank, although many engine reconditioners have made their own. The tank should hold in excess of 30% of the normal engine oil capacity and be capable of safely holding 40 - 50 psi pressure, although pressurising the engine should be done at normal engine operating pressures. The oil feed from the pressure tank is connected to the engine by a threaded connection that opens directly into the oil pressure system and as close to the oil pump as is practical. The oil is pumped into the engine until it flows freely (i.e. no bubbles or frothing) from the furthestmost lubrication points from the oil pump e.g. rockers or overhead camshafts. It is imperative that the oil level in the pressure tank does not drop too low, such that air is pumped into the oil system. If this does occur, the whole process must be repeated. This is also a good time to check that the oil flow rate past the crankshaft bearings is correct and for engines fitted with piston spray cooling nozzles, that these nozzles are operating correctly.

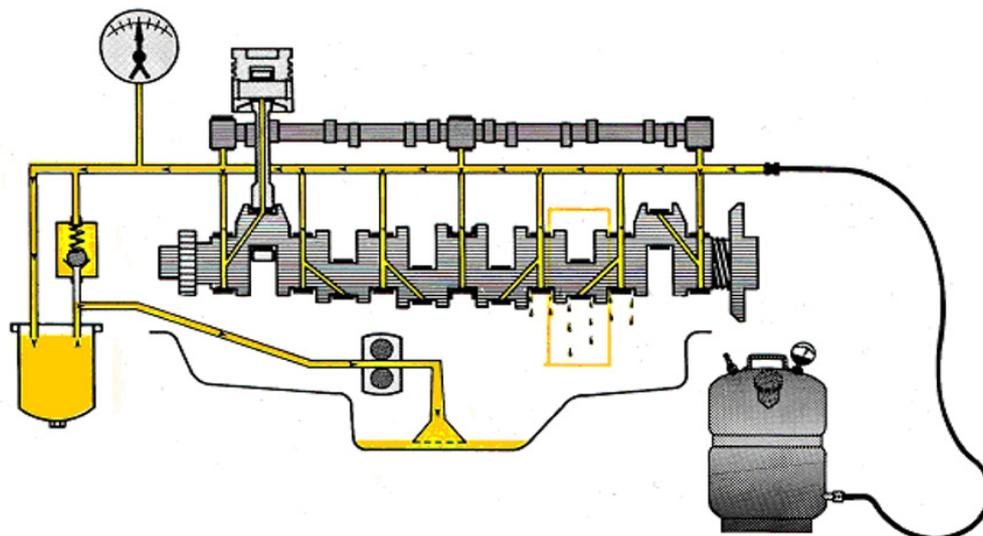


Diagram of the oil pressure tank process for 'pre-lubing' an engine. (Diagram by Miba)