Cleanliness

Prior to assembly, a final check of all components should be made, paying particular attention to the cleanliness of all items. Assembling of the engine should be carried out on a clean work surface free from foreign objects and debris.

The presence of foreign debris such as abrasive residue, dirt, carbon, old gasket material, etc. on either of the gasket sealing surfaces can greatly reduce the ability of the gasket to create an effective seal. Foreign material can prevent the gasket from establishing good contact with the sealing surfaces creating a path through which leakage can occur, and debris that becomes embedded in the surfaces of the gasket can cause damage to the gasket, or, in extreme cases, to the sealing surfaces.

A build up of carbon deposits in the combustion chamber and on the crown of the pistons is a common cause of detonation. A thick layer of carbon can also have an insulating effect that inhibits the transfer of heat from the combustion chamber to the cylinder head and into the cooling system causing combustion temperatures to rise. This rise in the combustion temperature can lead to the condition known as pre-ignition.

Special care should be taken when removing old gasket residue so as not to damage gasket mating surfaces. Do not use sanding discs, abrasive pads or bristle devices of any kind! Their use can remove enough material from the mating surface to destroy its flatness - leading to gasket failure. Also, these items produce fine particles of grit that can enter the cylinder block causing premature failure of the engine bearings, piston rings and other components.

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