FIGURE 22.1 Gaskets are used in many locations in the engine.

FIGURE 22.2 Gaskets help prevent leaks between two surfaces.
FIGURE 22.3 A typical perforated steel core head gasket with a graphite or composite facing material.

FIGURE 22.4 A solid steel core head gasket with a nonstick coating, which allows some movement between the block and the head, which is especially important on engines that use cast iron blocks with aluminum cylinder heads.

FIGURE 22.5 The armor ring can be made from steel or copper.
Multilayer steel (MLS) gaskets are used on many newer all-aluminum engines as well as engines that use a cast block with aluminum cylinder heads. This type of gasket allows the aluminum to expand without losing the sealing ability of the gasket.

Left to right: Cork-rubber, paper, composite, and synthetic rubber (elastomer) gaskets.

Rubber-coated steel gaskets have replaced many oil pan gaskets that once had separate side rail gaskets and end seals.
FIGURE 22.9 Formed-in-place gaskets often use silicone rubber and are applied at the factory using a robot. Check gasket manufacturers for the correct gasket replacement.

FIGURE 22.10 A typical intake manifold gasket showing the metal washer at each fastener location which keeps the gasket from being compressed too much.

FIGURE 22.11 This intake manifold gasket was damaged due to fretting. Newer designs allow for more movement between the intake manifold and the cylinder head.
A rear main seal has to be designed to seal oil from leaking around the crankshaft under all temperature conditions.

Room-temperature vulcanization (RTV) is designed to be a gasket substitute on nonmachined surfaces. Be sure to follow the instructions as printed on the tube for best results.

Anaerobic sealer is used to seal machined surfaces. Always follow the instructions on the tube for best results.
The strength of the thread locker depends on whether the fastener is to be removed by hand (blue). High-strength thread locker (red) can only be removed if heated.

Applying antiseize compound to the threads of a bolt helps prevent the threads from galling or rusting.

Summary chart showing where sealants are used and their common trade names.