

TECBLOG **THE REPAIR ENVIRONMENT**

WHEN YOU WORK ON AN ENGINE THAT HAS SOME MILES UNDER ITS BELT, YOU NEVER KNOW WHAT YOU'RE GOING TO FIND WHEN YOU TAKE THINGS APART.

Fortunately, Fel-Pro® engineers gaskets for these conditions.

WEAR AND TEAR

After an engine has idled hundreds of hours, experienced thousands of heat cycles and driven tens or even hundreds of thousands of miles, the pieces that come apart will not be in like-new condition. The finish of sealing surfaces or molded components can change due to corrosion or scrubbing (back-and-forth movement of components due to thermal cycling). If a gasket or seal has failed, combustion gasses, corrosive fluids and external contamination can further worsen the condition of these surfaces.

The gaskets and seals designed to seal new components are no longer ideal, and may not be able to seal reliably in the repair environment.

Fel-Pro accounts for this wear-and-tear in every gasket they make.

PROBLEM-SOLVING INNOVATION

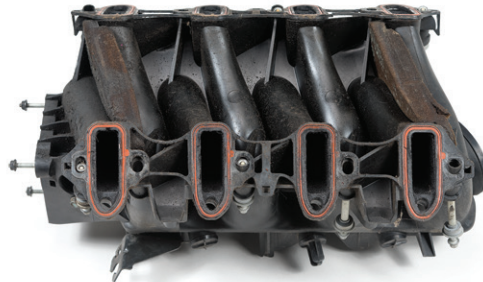
One way Fel-Pro solves problems in the repair environment is with PermaDryPlus® (PDP) gaskets, like intake manifold gasket set MS 98016 T (all PDP gasket sets use a T-suffix in the part number). This set fits 1999-2015 GM 4.8L / 5.3L / 6.0L / 6.2L LS-based truck engines with “cathedral” intake ports – engines that work hard, often in demanding environments and conditions.

These engines utilize a plastic intake manifold with plastic carrier-style intake manifold gaskets as original equipment. Over time, corrosive air-fuel mixtures break down the gasket carrier and the sealing beads of the OE gaskets, and the plastic manifold can warp from heat cycling. Any of these can result in a vacuum leak, CEL / MIL illumination – specifically P0171, P0174 and / or P0300 codes – and other drivability issues.

Let's look at each issue with the OE-style gaskets and manifold in the repair environment, and see how Fel-Pro addresses each.

LEAKING OE AND OE-STYLE GASKETS

The OE and OE-style plastic carrier can crack or degrade due to heat cycles and/or corrosive fuel mixtures. Fel-Pro PDP intake manifold gaskets utilize an aluminized steel carrier that will not crack or break down. Heat cycles will not make the metal brittle like the OE plastic, and the metal carrier is unaffected by air-fuel mixtures, even when highly corrosive ethanol-blended fuels are used. This metal carrier also incorporates locating tabs that hold the gasket in place on the cylinder head by slipping over the head bolts. This is a more durable solution than the OE plastic clips that hold the gaskets to the intake manifold and can break, especially if the gasket needs to be removed once clipped to the manifold.



Leaking OE intake gaskets on the OE intake manifold

Another issue with the OE and OE-style gasket is that this design can easily be over-compressed and can deteriorate due to exposure to fuel. The molded rubber sealing beads found on PDP intake gaskets are manufactured in-house using Fel-Pro's proprietary Fluoroelastomer (FKM) molded rubber compound. This FKM rubber resists all automotive fluids, including harsh fuels, preventing sealing bead breakdown. The enhanced bead design and superior material properties of the FKM molded rubber ensures a proper seal is maintained, even when the sealing surfaces are less-than-optimal. Remember, RTV silicone or other sealants should never be applied around ports or to sealing beads, as it will interfere with the proper compression of the sealing beads.



OE sealing beads have broken down due to fuel exposure

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WARPED OE INTAKE MANIFOLDS

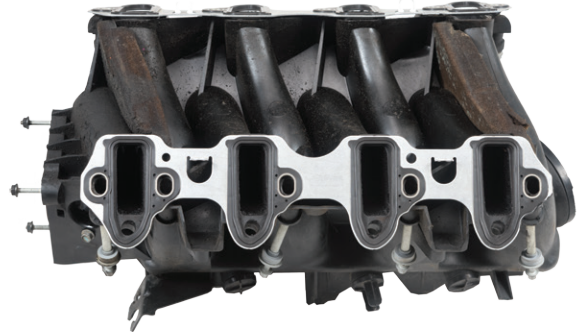
The OE intake manifold can warp due to thermal cycles. This is especially likely on higher-mileage or commercial-use engines. The MS 98016 T gaskets are engineered with this aftermarket condition in mind, and the molded rubber sealing beads are designed to accommodate a slightly warped manifold. FKM properties come into play again, allowing these gaskets to seal even when the manifold is slightly warped.



Light visible between straight-edge and port sealing surfaces indicates manifold warpage

DESIGNED FOR THE REPAIR ENVIRONMENT

This problem-solving philosophy can be found all throughout Fel-Pro's product offerings. You can trust Fel-Pro to provide gaskets with the technology needed to get the job done right, especially when the going gets tough.



Fel-Pro® PermaDryPlus® problem-solving intake gaskets

To find complete gasket and seal coverage for your application, visit www.fme-cat.com