



# BOLT-IN DRY SUMP OIL SYSTEM ENHANCEMENTS FOR THE LS7

**Retrofit Kits for 2006-present Corvette Z06 and other applications using LS7 engines!**

- 100% compatible with OEM components
- Provides oil control the factory left unfinished
- Retain use of factory air conditioning, power steering, alternator, oil filter, oil cooler, oil tank and all plumbing
- Helps prevent oil from being vented into intake
- Easily installed —welding required only in Step 3
- Improves engine reliability and performance

The Z06 Corvette is an awesome machine. However, it does have shortcomings in the lubrication system. Given the lack of oil control in the pan and sump tank, starvation can easily occur as a result of aggressive cornering, rapid acceleration, and hard braking. This can result in damage to the bearings, crankshaft and connecting rods — leading to engine failure.

Aviaid, the company that introduced dry sump technology to motorsports over 40 years ago, and most recently supplied the oil systems employed on the GT-III Manufacturers Championship-winning Callaway Corvettes, has developed an elegant 3-step solution for Z06 owners.



## STEP 1 – DRY SUMP TANK INSERT

There are two inherent problems with the OEM Corvette dry sump tank. First and foremost, in its OEM unbaffled state kinetic forces can keep oil away from the tank pickup, causing starvation. Secondly, the aerated oil frequently gets vented back into the intake manifold, contaminating the intake charge and hampering performance.

Aviaid's tank insert features baffles that serve to control the oil inside the tank, while a stamped aluminum screen and foam breather element serve as an effective air/oil separator.

The insert is easily installed, requiring only hand tools and a marking device.



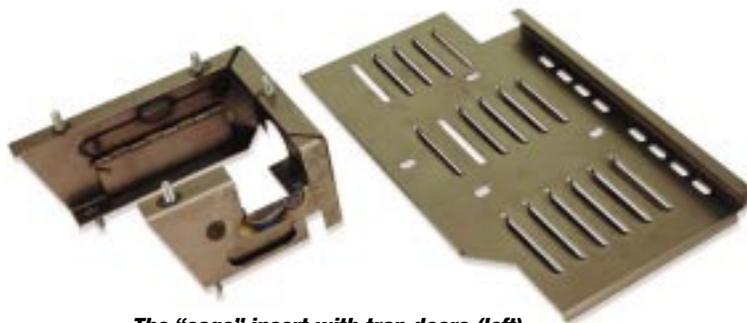
*Aviaid's baffled tank insert can easily be installed in the factory Z06 sump tank (right)*

## STEP 2 – OIL PAN INSERT & WINDAGE TRAY

The stock LS7 oil pan also suffers from a severe shortcoming. There's no internal baffling to keep lubricant around the pickup during sustained hard driving, hampering evacuation, while the uncontrolled oil also makes its way into the rotating crank assembly, creating power-robbing windage.

To combat this, Aviaid has developed a special cage-like pan insert with one-way trap doors that traps the oil around the pickup. A louvered windage tray allows the crank assembly to rotate freely, allowing the oil to escape the "tornado" surrounding the reciprocating assembly, while keeping the oil down in the sump.

Again, this is a quick and simple installation. Three holes are drilled in the floor of the pan (stamped steel template furnished with kit), the insert is affixed to the pan and the windage tray bolted to the insert.



*The "cage" insert with trap doors (left) and windage tray provide much-needed oil control for stock LS7 oil pans*



*From an overhead perspective you can see how the insert "cage" traps the oil around the factory pickup.*

## STEP 3 – EXTERNAL DRY SUMP PUMP

To bring the Z06's lubrication system to competition caliber, Aviaid has designed a compact single-stage pump that, in combination with the OEM scavenge pump, more than doubles the stock scavenge capacity, as well as enhances the evacuation of crankcase pressure and ensures that once oil accumulates on the floor of the pan it is removed efficiently.

The pump attaches to the passenger side cylinder head and is driven by a timing belt. An adjustable Katech idler assembly featuring a custom combination drive pulley replaces the stock spring-loaded idler and pulley assembly. It is driven by the factory serpentine belt and subsequently drives the pump. The kit includes an auxiliary pickup for scavenging, while a companion pickup replaces the OEM unit. To feed the pump a -10 line is routed from the oil pan to the pump. A tank bung kit that provides connection points for the auxiliary scavenge pump return, an additional vent/breather connection, and a breather tank return are also included.

Other than drilling a hole into the pan for the pickup bung, drilling 3 holes and welding 3 fittings in the tank, and running a line to the sump tank, no additional fabrication is required. And the most important thing to remember is that everything has been designed to work in concert with the OEM air conditioner, power steering, alternator, etc. What's more, it does not require relocating the oil filter, or replacing/modifying any oil tank or oil cooler lines. It's as straightforward and clean an installation as you'll find anywhere.



*Kit includes pump, idler/drive, belt, 2 pickups and 3 bungs (not shown).*



*Dual pickups are employed when the external dry sump pump is utilized*

## LS7 ENGINES IN OTHER VEHICLES

There are an increasing number of performance enthusiasts using LS7 "crate motors" in older Camaros and Firebirds, Tri-5 Chevys, and earlier Corvettes. And for any that are to be aggressively driven, Aviaid's LS7 lubrication system upgrades should be employed.

While a factory Z06 tank (which mounts where the battery is located on ordinary C6 Vettes) can certainly be used here, one of Aviaid's custom dry sump tanks is a better solution. Aviaid offers several different-sized tanks that can be mounted in the trunk, engine compartment, or wherever the builder sees fit.



*A variety of dry sump tanks are available for other applications. For C5 Vettes a trunk-mounted tank works great.*