



## 1973-87 GM C10/C20 Truck LS Swap Engine Mounting Brackets 12621HKR Installation Instructions



Thank you for choosing to use Hooker Blackheart engine swap mounting brackets as part of your LS swap project. This mounting bracket kit is part of the most comprehensively engineered system of mounting components, headers and exhaust systems available for this application. The entire Hooker Blackheart swap system is designed to decrease your total swap installation effort and cost, while increasing the engineered quality of your vehicle and compatibility of these components with other popular aftermarket components. Please read these instructions thoroughly before attempting installation.

### **PRE-INSTALLATION CONSIDERATIONS:**

Only the engine position obtained through the use of these engine brackets and the Hooker Blackheart 12646HKR crossmember will ensure complete bolt-in compatibility of all Hooker LS cast iron manifolds and Hooker Blackheart long-tube headers and exhaust systems available for this application.

When installed with a Hooker Blackheart 12646HKR transmission crossmember, this engine swap mounting bracket kit will provide an installed engine/transmission inclination angle that is optimized for use in trucks equipped with typical bolt-in suspension drop kits (up to 5" front/7" rear). Using these engine mounting brackets with the 12646HKR crossmember on a stock ride height 2WD truck may require shimming of the rear axle/pinion to obtain optimized U-joint working angles. Aftermarket shims are available for this purpose.

These engine brackets can also be used with other/custom transmission crossmembers for applications that require engine/transmission down-angles that are greater than what the Hooker Blackheart 12646HKR crossmember is designed to provide. Examples of such applications would be 4WD trucks or 2WD trucks that have been modified with a suspension lift.

Installation of these brackets requires the installation of new stock OE style clamshell engine mounts (Anchor brand P/N 2292 stock rubber replacement clamshell mounts, or Hooker/Holley 71221004HKR clamshell mount cages and 712210014HKR / 71221015HKR poly inserts are recommended). Do not reuse old clamshell mounts as part of this installation.

An engine hoist will be required to position the engine/trans into the vehicle in the proper orientation. Use of an adjustable-angle engine sling will greatly ease the hoisting/loading operation and negate the possible need to reposition the lifting chains mid-operation. An automotive lift or a jack and jack stands will be required to safely raise and support the vehicle.

**CAUTION! WORK ONLY ON A LEVEL SURFACE. USE JACKS /JACK STANDS OF SUFFICIENT CAPACITY TO LIFT AND SUPPORT YOUR VEHICLE. NEVER WORK UNDER A VEHICLE SUPPORTED BY A FLOOR OR BUMPER JACK.**

## **COMPATIBILITY INFORMATION:**

By using these brackets, an LS engine and 4L60 transmission (late model split-case only) can be swapped into a 2WD 1983-87 GM truck originally equipped with a Chevy SB V8 and 700R4 transmission without having to replace or modify the stock driveshaft or transmission shift linkage. A re-located stock 700R4 crossmember can be used to complete such an installation, but it will not provide engine inclination geometry and/or an exhaust routing path that is bolt-in compatible with the Hooker LS swap headers or exhaust systems for this application.

Use of this engine bracket kit with the Hooker Blackheart 12646HKR crossmember will provide bolt-in compatibility of a TH350, 700R4, TH400, 2004R, 4L60-4L70, 4L80/4L85, T56 (LS 4<sup>th</sup>-gen F-body or GTO only) or T56 Magnum transmission with all Hooker / Hooker Blackheart LS swap exhaust manifolds, headers and exhaust systems available for this application.

The following GM OE and Holley® brand LS components have been validated to be bolt-in compatible for use with this engine mounting bracket kit:

Holley® 302-1, 302-2, and 302-3 LS oil pans  
Holley LS valve covers  
Holley Accessory Drive Systems and brackets (all)

Stock GM Vortec truck accessory drive system, excluding low-mount A/C compressor/bracket; installation of stock low-mount truck A/C compressor (late style only without rear-mounted pressure switch) can be accomplished, if desired, by notching the front lip on the right side bracket that the engine mount is attached to, and the die-cast compressor bracket attached to the engine for clearance around the Hooker engine mount bracket. Use Holley 20-133(R4) or 20-134 (Sanden) top-mount relocation brackets to provide bolt-in A/C compressor installation.

Stock GM Corvette accessory drive system, excluding low-mount A/C compressor and bracket; use Holley 20-133(R4) or 20-134 (Sanden) top-mount relocation brackets for A/C compressor installation.

Stock GM 4<sup>th</sup>-gen F-body and GTO accessory drive systems, excluding low-mount A/C compressors and brackets; use Holley 20-133(R4) or 20-134 (Sanden) top-mount relocation brackets for A/C compressor installation.

Hooker™ LS swap manifolds (8501HKR) and Hooker Blackheart long-tube headers (70101303-RHKR/70101503HKR & 70101304-RHKR/70101504HKR) are all compatible with the stock A/C evaporator case when installed with this engine mounting bracket kit and related Hooker Blackheart 12646HKR transmission crossmember.

## **TIPS FOR A SUCCESSFUL ENGINE SWAP:**

1. Check that the hardware package includes the following: (8) M10 x 1.5 x 30 bolts
2. Mark all hoses, wires, and vacuum lines, according to their function. Use masking tape and a pen for this.
3. Whenever possible, utilize the existing wiring and lines.
4. Get a wiring diagram of your vehicle and one for the vehicle from which the new motor was removed. Make photocopies of both systems. Add your modifications to these copies, so you will have accurate records for future reference.
5. Think carefully before removing or defeating any emissions device. A legal engine swap requires the emissions components to be intact, especially when you try to sell the vehicle.
6. Save as much hardware that is removed from the donor engine as possible. You may need some of these items later.
7. Taking the time to do it right is cheaper than taking short cuts and having to do it again. Make sure you pay close attention to critical areas like fuel systems and brake lines. Neglecting to double-check your work could have life or death consequences.
8. Do not overstress components that are designed for stock four or six cylinder engine torque by over-abusing a motor of greater horsepower.

9. Don't forget to upgrade your radiator, fan(s), and hoses to accommodate the cooling requirements of your LS engine.

### **VEHICLE PREP:**

1. Remove the hood from the vehicle.
2. Disconnect the battery and fuel lines.
3. Remove the existing wiring harness and set aside for later re-use of connectors, as needed, to complete electrical connections to the swap engine harness.
4. Drain all coolant and remove the radiator/hoses from vehicle.
5. Remove the driveshaft, engine, transmission/crossmember and existing engine mounts from the vehicle.

### **SWAP ENGINE/TRANS PREP:**

1. Carefully remove the following components from the engine: spark plug wires exhaust manifolds/O2 sensors, wiring harness/computer, MAF sensor, starter motor/plate and dust covers, A/C compressor and bracket, the oil dipstick/tube, and engine mounts/brackets.
2. Clean and paint parts to be re-used, if desired.
3. Secure engine/trans assembly to lifting sling and engine hoist.
4. Attach the left and right side Hooker engine brackets to the engine using the supplied bolts.

### **ENGINE/TRANS INSTALL:**

1. Install a new set of clamshell engine mounts (aftermarket rubber replacement clamshell mounts, or the Hooker/Holley clamshell mount cages and poly inserts previously mentioned on page 1) onto the vehicle chassis in their original factory location.
2. Raise engine or engine/transmission assembly on engine hoist high enough to clear the vehicle body then carefully lower it/them down onto the clamshell mounts and install the engine mount through-bolts/nuts. If you are installing the engine and transmission together as an assembly, the use of an adjustable-angle engine sling is highly beneficial as it can ease the difficulty of getting the engine into proper position over the mounts and can greatly reduce the possibility of damage to vehicle components (i.e. the A/C evaporator case).
3. Install the transmission from under the vehicle, or position a floor jack under the transmission tail shaft and raise it up if you have installed the engine and transmission as an assembly.
4. To complete the installation of the engine/transmission assembly in your vehicle, install the Hooker Blackheart **12646HKR** crossmember per the instructions included with its packaging.