



## GM F-Body LS Swap Engine Mounting Brackets P/N 12512HKR (1970-74) & P/N 12613HKR (1975-81)

Thank you for choosing to HOOKER™ engine swap mounting brackets as part of your engine/transmission swap project. These HOOKER™ mounting brackets are part of the most comprehensively engineered system of mounting components, headers and exhaust systems available for this application. The entire HOOKER™ 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.



### **IMPORTANT DESIGN AND INSTALLATION INFORMATION:**

These brackets are designed to be used in conjunction with stock OE clamshell style engine mounts, as installed on all 1972-81 Camaro vehicles (aftermarket 2292 mounts from Anchor, Westar etc.) Installation of the 12512HKR brackets into early model 2<sup>nd</sup>-gen F-body vehicles that were not factory equipped with clamshell mounts requires drilling holes into your vehicle's sub-frame and may require the engine to be hoisted into and out of the vehicle a few of times to verify parts fitment before final installation of the engine.

A drilling template is provided with P/N 12512HKR to properly install the clamshell mounts on 1970-1972 pre-clamshell Camaro vehicles. Installation of 12512HKR brackets on early pre-clamshell Firebird applications will also require drilling, but will use the clamshell mounts themselves as a drilling template to locate one new hole for each mount. The clamshell mounts themselves, and the long coupler bolts (7/16"x 5-1/4") and nuts (7/16") used to secure them to the HOOKER™ brackets are not included with these kits and will need to be purchased separately. In order to achieve the intended fitment and clearances of these components, it is highly recommended that new clamshell mounts be installed at the time of installation on 1975-81 cars and is REQUIRED on 1970 and 1972 model year vehicles that were not originally equipped with clamshell mounts.

The combined use of these mounting brackets and related HOOKER™ transmission swap crossmembers will allow installation of an LS engine with an 4L60/4L65/4L70/4L70 automatic or TREMEC® LS F-body/GTO T56 transmission into this application without requiring any cutting or hammering to the vehicle body with the exception of the hole for a manual shifter. Installation of a TREMEC® aftermarket T56 Magnum transmission may require floor modifications due to its larger physical size.

Unlike the stock small-block and big-block engine mounting brackets used by GM on 2<sup>nd</sup>-gen F-bodies, the designed geometry of these engine swap mounting brackets align the engine crankshaft and transmission output shaft axis just off the center-line of the chassis like stock small-block equipped 1<sup>st</sup>-gen F-body/1968-74 Nova (3<sup>rd</sup> Gen X-body) vehicles.

Related HOOKER™ transmission swap crossmembers share the same chassis-centered geometry of these engine mounting brackets to provide an optimized 3° to 3.5° engine/transmission inclination angle, which is the key to providing minimized U-joint working angles that are desired for lowered, performance/competition vehicles.

With these components installed, your driveline will be purposely configured with compound U-joint angles due to the close-to-center engine/transmission and the stock pinion offset of your rear differential (just like the previously mentioned stock 1<sup>st</sup>-gen Camaro/68-74 Nova). If you wish to check your U-joint working angles, you merely need to sum together the calculated horizontal angular offset of your driveline (half a degree as designed by HOOKER™) and the typical measured vertical angles of your driveline components. Detailed information on how to measure and calculate single plane and compound U-joint working angles is available from Spicer by going to [www.spicerparts.com](http://www.spicerparts.com) and search for publication number J3311-1-DSSP.

Due to the exclusive geometry designed into these HOOKER™ engine swap mounting brackets, attempts to install headers and/or transmission crossmembers other than those developed by HOOKER™ will not be successful.

An engine hoist will be required to position the engine/trans into the vehicle in its proper orientation. Use of an angle-adjustable 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 /JACKSTANDS OF SUFFICIENT CAPACITY TO LIFT AND SUPPORT YOUR VEHICLE. NEVER WORK UNDER A VEHICLE SUPPORTED BY A FLOOR OR BUMPER JACK.**

## **COMPATIBILITY:**

These engine swap mounting brackets were specifically designed for bolt-in compatibility with HOOKER™ transmission swap crossmembers, cast iron LS exhaust manifolds, headers and exhaust systems, and Holley® LS oil pan and accessory drive components for this application.

Oil pans that are directly installable with these mounts include the Holley® **302-1** LS retrofit pan, the stock F-body, and various aftermarket fabricated steel pans.

The F-body, GTO and Corvette accessory drives are compatible with these mounts with the following exclusions:

- The stock plastic shroud on rear of the F-body alternator will have to be heavily modified or removed completely. GTO alternators will need to be swapped to an F-body unit to clear the steering box Pitman arm.
- 1970-74 vehicles will need to adopt the use of an offset Pitman arm, center link and inner tie rod ends from a 1979 Trans Am to allow installation and use of a low-mount F-body alternator.
- Corvette power steering pump pulley will likely need to be swapped for a smaller diameter pulley/pump to clear the upper control arm.
- Stock low-mount A/C compressors are not compatible with these mounts. The compressor must be upper-mounted to the right cylinder head with the use of a Holley® **20-133** (GM R4), **20-134** (Sanden SD508 or SD7), or similar bracket assembly.

If desired, a Holley® **20-135** upper-mounted Corvette style alternator/power steering bracket can be installed (swap to smaller diameter power steering pump pulley recommended for upper A-arm clearance) and is compatible with all F-body/GTO, Corvette and truck balancer/water pump offsets with the use of the following Holley® bracket spacer kits: Corvette - **21-1**, F-body/GTO - **21-2**, and Chevy/GMC truck/2010-up Camaro - **21-3**.

Two additional complete accessory drive bracket kits are available that include both the A/C and alternator/power steering brackets listed above. These kits are part numbers **20-131** (GM R4 compressor) and **20-132** (Sanden SD508 or SD7 compressor).

Hooker™ LS swap manifolds (**8501HKR**), mid-length headers (**70101309-RHKR/70101509HKR & 70101310-RHKR/70101510HKR**), and long-tube headers (**70201307-RHKR/70201507HKR & 70201308-RHKR/70201508HKR**) will all allow the use of the stock A/C evaporator case on the firewall when installed with these HOOKER™ LS engine swap mounting brackets.

The engine position obtained with these brackets is compatible with both the standard and optional hide-away windshield wiper motors mounted on the firewall.

More LS engine performance components, such as EFI fuel control systems, fuel filters, fuel pumps, plumbing hose/fittings and valve covers can be found at [www.holley.com](http://www.holley.com).

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

1. Check that the hardware package includes the following: (8) M10 x 1.5 x 30 Bolts, (8) 3/8"-16 x 1" bolts (**12512HKR only**), and (8) 3/8-16 flanged nuts (**12512HKR only**). If these are missing, please contact Technical Service at 1-866-464-6553 or 270-781-9741.
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 and related 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 motor mounts.
2. Clean and paint parts to be re-used, if desired.
3. Secure engine/trans assembly to lifting sling and engine hoist.

### **ENGINE INSTALL:**

#### **FOR INSTALLING 12512HKR BRACKETS ON PRE-CLAMSHELL VEHICLES:**

##### **Camaro applications-**

1. Remove the factory engine frame stands (brackets to which engine mounts are attached) from the sub-frame. Next, align the included drilling template with the existing holes in either side of the sub-frame following **Figure 1** on the next page and pilot drill two 3/16" diameter holes in each side of the sub-frame in the positions indicated by the template. Use 3/8" bolts as guide pins in the template "align" holes to keep it in position as you drill.
2. Rotate and flip the template to align it with the opposite side of the sub-frame as shown in the diagram and repeat the pilot drilling process. Next, use a 25/64" drill bit and enlarge all the piloted holes to their final size.
3. Using the holes you just drilled and the top holes used for aligning the template (4 bolts total each side), attach the clamshells to the sub-frame with the included 3/8" fasteners.

**Firebird applications** – Remove the factory engine frame stands (brackets to which the engine mounts are attached) and align the top two holes of each clamshell mount with the top two holes that were used to attach the frame stands you just removed to the sub-frame. Insert 3/8" bolts into the holes for use as guide pins to hold the alignment. Next, mark the position of the bottom rearward hole of each clamshell onto the sub-frame and drill them out to a final diameter of 25/64".

**NOTE:** The end of the clamshell mounts with the two wider spaced holes should be at the top of the sub-frame.

#### **FOR INSTALLING 12512HKR AND 12613HKR BRACKETS ON FACTORY EQUIPPED CLAMSHELL VEHICLES:**

1. Remove existing clamshell mounts from the sub-frame and replace with factory rubber replacement mounts (2292 Anchor, Westar, etc.) or aftermarket polyurethane mounts.

##### **FOR ALL MODELS:**

1. Raise and maneuver the engine hoist into position for installing the engine/transmission. In order to be able to lower the assembly into its proper position in the vehicle, the initial position of the sling should provide at least a 45° tilt angle of the engine/transmission.
2. Using the supplied M10 bolts, attach the Hooker left and right engine mounting brackets. The large holes in the base plates install towards the rear of the motor.
3. Lift the assembly high enough to clear the radiator support at the front of the car. If your hoist will not go high enough to clear the support, have an assistant lift the end of the transmission up to clear it as you move the hoist under the vehicle.
4. Lower the assembly into the engine compartment, level off, and place onto the clamshell mounts (new mounts recommended).
5. Prop up and support the transmission tail shaft and then install the long coupler bolts through engine bracket ears and mounts. Install purchased nuts onto the bolts and tighten them.
6. If purchased, proceed to installing your Hooker transmission swap crossmember and headers per the instructions included with their packaging.

Any questions? Please contact Technical Service: 1-866-464-6553 or 270-781-9741. For online help, please refer to: [www.holley.com](http://www.holley.com).

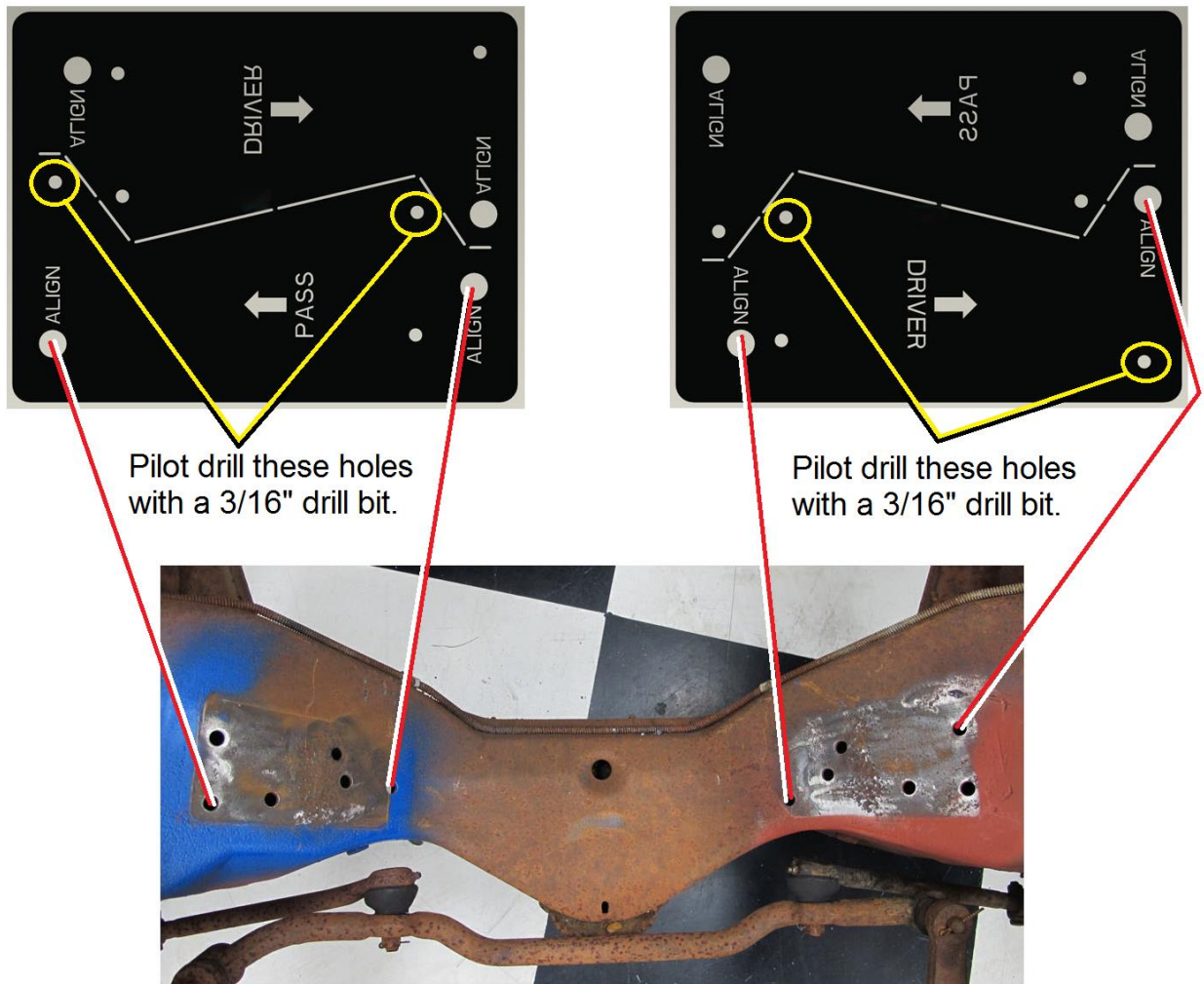


Figure 1

**LIMITATION OF LIABILITY – DISCLAIMER:**

The regulation of emissions production, noise levels, and safety standards is undertaken by the federal government, each of the fifty state legislatures, and by many local municipalities, towns, and counties.

HOOKER™ makes no warranties of merchantability, of fitness for particular purpose, or that its products are approved for general use, or that its products comply with laws, regulations, or ordinances in the state where they may be sold to the ultimate purchaser, the consumer.

Unless expressly stated to the contrary in the catalog, instruction sheet; or price list, the entire risk as to the conformity of any company product in any such state and as to repair should the product prove to be defective or non-conforming, is on the retail purchaser, the buyer, the ultimate consumer, of such product and it is not upon the seller, distributor, or manufacturer.

In this connection, the retail purchaser, the buyer, the ultimate consumer assumes the burden of the entire cost of any and all necessary service, alterations, or repair.

**THE FOREGOING STATEMENT LIMITS THE LIABILITY OF THE MANUFACTURER.**

California vehicle code, sections 27156 and 38391, prohibits the advertising, offering for sale, or installation of any device, which modifies a vehicle's emission control system, unless exempted, unless otherwise noted. HOOKER™ Headers that have not received an Executive Order (E.O.) exemption from these code sections are not legal for sale or use in California on vehicles originally equipped with catalytic converters, except for racing vehicles, which may never be driven upon a highway. Check with your local authorities to determine if these headers are legal for use in your particular area.

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