



1964-67 GM A-Body LS Swap Engine Mounting Brackets 71221008HKR & 71221009HKR Installation Instructions



Thank you for choosing to use Hooker Blackheart engine swap mounting brackets as part of your LS swap project. These mounting brackets are part of the most comprehensively engineered system of mounting components, headers and exhaust systems available for this application. Please read these instructions thoroughly before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

Successful installation of an LS engine using these components is more highly ensured by installing new body bushings prior to installation of these components.

Installation of these engine mounting brackets requires the use of 1998-2002 GM Camaro/Firebird LS1 engine motor mounts. GM replacement rubber mounts (part number 22179268) or Hooker/Holley polyurethane motor mounts (71221018HKR clamshell housings and 71221016HKR or 71221017HKR inserts) are recommended. Aftermarket poly motor mount inserts from other sources have been found to deviate from factory design specifications and will cause installation issues.

The long horizontally installed through bolts/nuts that couple the engine mounts to the Hooker Blackheart engine brackets are to be user supplied. Stock GM bolts/nuts or the Hooker Blackheart 71223015HKR hardware kit are recommended to be used.

COMPATIBILITY INFORMATION:

When used with the related Hooker Blackheart **71222008HKR** transmission crossmember, each of these engine swap mounting bracket sets will provide the most geometrically optimized LS engine/transmission mounting solution available for this vehicle platform.

These engine swap mounting bracket kits are designed for use with a Holley® **302-2** or **302-3** (302-3 recommended as the only pan to use with the 71221008HKR brackets) oil pans and have been validated to be compatible with the following engine accessory drive systems and vehicle components:

Accessory Drive Systems – Both engine bracket kits are compatible with the **Holley** or stock **Corvette** (excluding the A/C compressor/bracket, which must be relocated) or **Truck** (must use smaller 5" diameter power steering pump pulley and stock Denso A/C compressor without rear pressure sensor) FEAD systems.

Air Conditioning/Heater – Both engine bracket kits are compatible for use with the stock vehicle A/C evaporator case (relocation of the rear coil on the passenger side valve cover is required) and low-mounted A/C compressors. The 71221008HKR forward-bias engine bracket kit provides more desirable clearance for the stock heater core inlet/outlet stubs and the heater hoses.

Steering Boxes/Linkage – Both engine bracket kits are compatible with the stock Saginaw power steering box or Delphi 600 series power steering box. Pro Forged brand tie rod ends and center link and Moog brand tie rod ends have been validated to be compatible for use with either of these engine bracket kits and the Holley 302-2 or 302-3 oil pans.

Exhaust Headers/Manifolds – Both engine bracket kits are compatible with Hooker Blackheart LS swap headers developed for this application and Hooker LS cast iron manifolds. Compatibility with any other brand/type of headers or exhaust manifolds has not been validated.

Additional LS engine swap/performance components, such as accessory drive brackets, EFI fuel control systems, fuel filters, fuel pumps, plumbing hose/fittings, and valve covers can be found at www.holley.com.

BEFORE BEGINNING...

Check that the hardware package includes the following:

Qty.	Description	Qty.	Description
4	3/8 x 1" Bolts	8	M10 x 1.5 x 25mm Bolts
2	3/8 Carriage Bolts	6	3/8 Nuts

INSTALLATION:

1. Remove the factory engine stands from the K-member and clean the bracket mounting surfaces.
2. **Loosely** attach the Hooker Blackheart engine mounting brackets to the K-member, as depicted in **Figures 1, 2, and 3**, using the supplied 3/8" bolts/nuts. Install the carriage bolts into the rectangular slot position on each bracket. The driver's side bracket is identifiable by the triangular shaped notch located on its outer profile. The passenger's side bracket has a semi-circle shaped notch located along its outer profile.

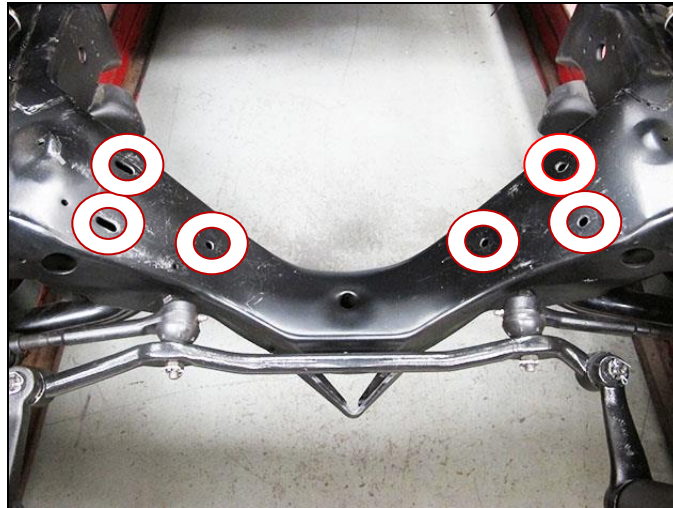


Figure 1 – Attach engine mounting brackets using the stock holes in vehicle frame that are circled above.

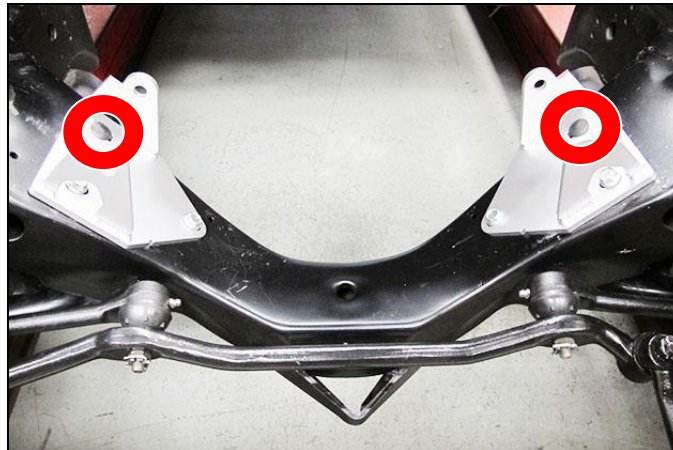


Figure 2 – Install carriage bolts into **top rear** hole of each bracket when installing 71221009HKR rear biased brackets.

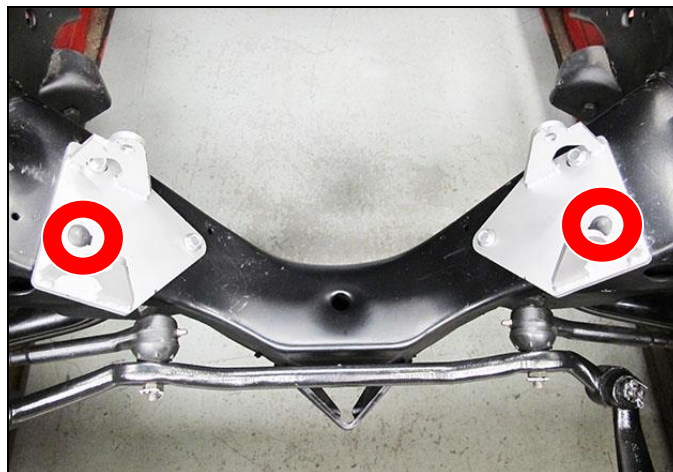


Figure 3 – Install carriage bolts into **top front** hole of each bracket when installing 71221008HKR forward biased brackets.

3. Install new motor mounts onto the LS engine using the supplied (x8) M10 bolts.

4. Install the engine and transmission into the car and couple the engine to the Hooker Blackheart engine brackets using the user-sourced bolts/nuts. Use of the **71221008HKR** forward-bias engine bracket kit may require the engine and transmission to be installed separately due to the close clearance between the Holley oil pans (302-3 recommended to be with these brackets) and the back of the engine crossmember.
5. Raise the rear of the transmission as high as it will go and install the stock or Hooker Blackheart **71222008HKR** transmission crossmember as detailed below for the particular Hooker engine bracket kit/transmission combination you are installing.

NOTE: Each set of Hooker Blackheart A-body engine swap brackets provides the user with unique fitment/compatibility advantages that determine the amount of effort required to install a particular transmission and/ or engine accessory drive system in the swap vehicle. The amount of work to be expected when installing either set of engine brackets with a particular transmission is listed below. You may need to install the transmission multiple times (depending on the transmission) to obtain proper clearance with the floor, so be sure to use suitable lifting equipment to avoid injury.

71221008HKR Forward-Bias Engine Brackets:

4L60-4L70 Installations -

- No floor cutting required, but slight impact clearancing (hammering) of the floor **MAY** be required around the location of the upper left bolt boss at the bellhousing/transmission case interface and **WILL** be required around the area of the 2-4 servo piston bore/cap on the right side of the transmission case.
- Install using a Hooker Blackheart **71222008HKR** transmission crossmember, per the instructions included in its packaging.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

TH350, TH400, and 2004R Installations -

- No floor cutting or floor modifications are required to install these transmissions.
- Install using a Hooker Blackheart **71222008HKR** transmission crossmember (TH400 or 2004R transmissions) per the instructions included in its packaging or by using the stock vehicle transmission crossmember (TH350 transmissions) and sliding it 1" forward on the frame rails. You will need to drill new mounting holes in the frame rails for the purpose of attachment.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

T56/T56 Magnum Installations -

- **Moderate** floor cutting/modification is required. Cut a long slit down the center top of the tunnel and remove all of the tunnel sheet metal directly above the transmission extension housing. After slitting/cutting of the floor, install the transmission per the instructions included with the Hooker crossmember and pry open the tunnel on either side of the slit until sufficient clearance above the transmission is obtained. Close up the slit with a narrow patch panel and rebuild the tunnel surrounding the extension housing once the transmission is solidly mounted to the crossmember.
- Install using a Hooker Blackheart **71222008HKR** transmission crossmember, per the instructions included in its packaging.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

4L80/4L85 Installations -

- No floor cutting required – slight heating (oxy/acetylene torch) and/or focused impact clearancing (hammering) of the floor will be required around the output speed sensor and electrical plug on the left side of the transmission, the cooler fittings/lines on the right side of the transmission, and the two rear band anchor lugs that protrude from the top right side of the case near the rear of the transmission.
- Install using the Hooker Blackheart **71222008HKR** transmission crossmember, per the instructions included in its packaging.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

71221009HKR Rear-Bias Engine Brackets:

4L60-4L70 Installations -

- **Moderate** floor cutting/modification is required. The areas of sheet metal that will need to be modified will be directly above the upper bolts at the transmission bellhousing/case interface and the area adjacent to the 2-4 servo piston bore/cap on the right side of the transmission case.

- Install using a Hooker Blackheart **71222008HKR** transmission crossmember, per the instructions included in its packaging.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

TH350, TH400, & 2004R Installations -

- No floor cutting or floor modifications are required to install these transmissions.
- Install using a Hooker Blackheart **71222008HKR** transmission crossmember (TH400 or 2004R transmissions) per the instructions included in its packaging or by using the stock vehicle transmission crossmember (TH350 transmissions).
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

T56/T56 Magnum Installations -

- **Extensive** floor cutting/modification is required. Cut a long slit centered on top of the tunnel that extends from the top of the hump in the firewall all the way to the front edge of the center body brace that is located behind the transmission. Pull/push both sides of the cut firewall/tunnel upward as far as possible by hand (the use of gloves is highly recommended). Install the transmission per the instructions included with the Hooker crossmember. Reform/trim the sheet metal around the installed transmission/shifter housing and close up the remaining opening with a suitable patch panel.
- Install using a Hooker Blackheart **71222008HKR** transmission crossmember, per the instructions included in its packaging.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

4L80/4L85 Installations –

- **Moderate** floor cutting/modification is required. Cut and remove the choked-down area of the tunnel that resides between the rear of the transmission and the front edge of the center body brace behind the transmission then install the transmission per the instructions included with the Hooker Blackheart **71222008HKR** transmission crossmember. Close up the exposed opening over the transmission extension housing with a suitable patch panel.
- Installation requires the use of a stock OE rubber replacement or Prothane 7-1604 poly transmission mount.

6. With the engine and transmission in place on the engine brackets and transmission crossmember, sight across the bottom of the engine K-member and use a pry bar to level the engine oil pan and transmission crossmember with the bottom of the engine K-member. Once level, tighten all six bolts attaching the engine brackets to the engine K-member.
7. Your LS swap engine and transmission are now mounted and ready to be outfitted with headers and an exhaust system. Hooker Blackheart 1964-67 A-body LS swap headers and exhaust systems are specifically designed for use with these engine mounting brackets.

LIMITATION OF LIABILITY – DISCLAIMER:

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.

Technical Support: 1-866-464-6553

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