



## 1968-1972 GM A-Body LS Swap Engine Mounting Brackets 71221006HKR & 71221007HKR 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 Blackheart polyurethane motor mounts – 71221018HKR clamshell housings and 71221016HKR (black) or 71221017HKR (red) 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 a stock 68-72 Chevelle transmission crossmember, or the Hooker Blackheart **71222007HKR** 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** oil pans and have been validated to be compatible with the following engine accessory drive systems and vehicle components:

**71221006HKR Forward-Bias Engine Brackets** – **Holley** or stock **Corvette** (excluding the A/C compressor/bracket, which must be relocated), **Truck** (must use smaller 5" diameter power steering pump pulley and stock Denso A/C compressor without rear pressure sensor), **F-body/GTO** (excluding the alternator, which must be relocated) FEAD systems. These brackets **ARE** compatible for use with the stock vehicle A/C evaporator case.

**71221007HKR Rear-Bias Engine Brackets** – **Holley** or stock **F-body/GTO** (GTO alternator not compatible, must be relocated or replaced with an F-body alternator), **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. These engine brackets **ARE NOT** compatible for use with the stock vehicle A/C evaporator case.

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](http://www.holley.com).

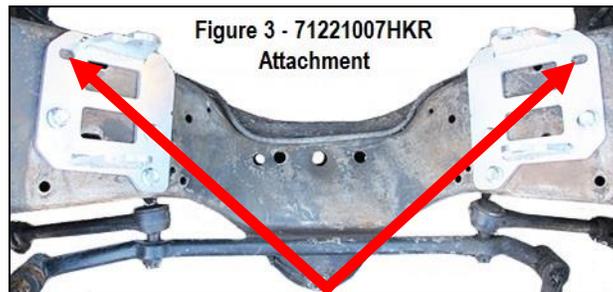
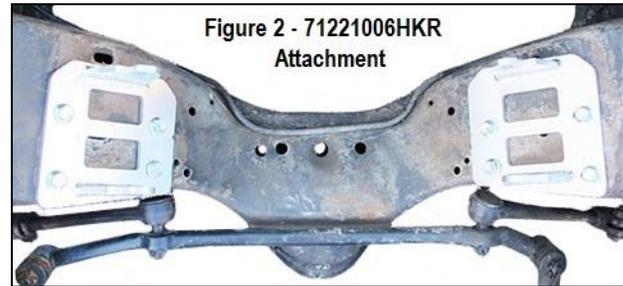
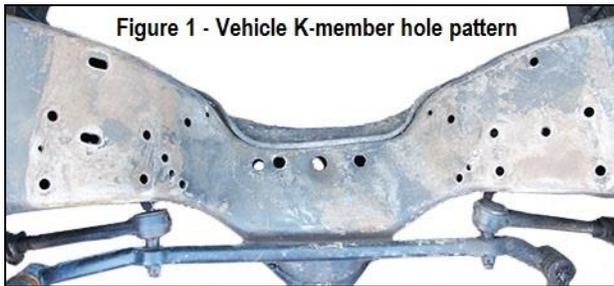
### **BEFORE BEGINNING...**

Check that the hardware package includes the following:

Qty.	Description	Qty.	Description
8	3/8 x 1" Bolts	1	3/16 Trans Mount Spacer
8	M10 x 1.5 x 25mm Bolts	2	Crossmember Spacers
8	3/8 Nylon Lock Nuts		

## **INSTALLATION:**

1. Remove the factory engine mounts 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. 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.



**NOTE: Drill two holes here with a 3/8" drill bit. Drill them in-line with the forward top holes so that the brackets maintain the adjustability provided for by the slots.**

3. Install new motor mounts onto the LS engine to be installed.
4. Install the engine/transmission assembly onto the Hooker Blackheart engine brackets and couple the engine mounts to the engine brackets using the user-sourced bolts/nuts.
5. Raise the rear of the transmission as high as it will go and install a stock 1967-72 Chevelle or Hooker Blackheart **71222007HKR** transmission crossmember, depending on your transmission application. If you are using a stock Chevelle crossmember, the supplied 3/8" and 3/16" thick spacers must be installed with the crossmember to maximize exhaust clearance under the crossmember and provide the intended optimized drivetrain geometry designed into the Hooker Blackheart engine brackets.

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 type and amount of work to be expected when installing either set of engine brackets with a particular transmission is condensed as follows:

### **71221006HKR Forward Bias Engine Brackets:**

#### **4L60-4L70 installations -**

- No floor cutting required, but slight, focused impact clearancing (hammering) of the floor may be required around the upper left bolt boss at the bellhousing/transmission case interface, at the top left corner of the transmission extension housing where it attaches to the transmission case and above the U-joint yoke, depending on the size of the U-joint/yoke used.
- Install using a stock 1968-72 Chevelle transmission crossmember, which will bolt right onto the vehicle frame using pre-existing holes in the frame rails.
- Install the included 3/8" spacers between the ends of the crossmember and vehicle frame. Install the included 3/16" spacer between the crossmember center pad and transmission mount if you are using a stock rubber or Hooker Blackheart **71223029HKR** (black) or **71223030HKR** transmission mount.

#### **TH350, TH400 and 2004R installations -**

- No floor cutting or floor modifications are required to install these transmissions, except for possible U-joint/yoke clearance, which can be accomplished through focused impact (hammer) clearancing of the floor just above the yoke.

- Install using a stock 1968-72 Chevelle transmission crossmember – this will require 2 new **13/32**” holes be drilled in-line with the existing holes in each frame rail to attach the crossmember to the frame. Drill one hole **1/2” REARWARD** from the center of the hole with the arrow pointing to it in **Figure 4** and a second hole **2-1/4” REARWARD** from the first drilled hole.



**Figure 4**

- Install the included **3/8**” spacers between the ends of the crossmember and vehicle frame. Install the included **3/16**” spacer between the crossmember center pad and transmission mount if you are using a stock rubber or Hooker Blackheart **71223029HKR** (black) or **71223030HKR** 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 Blackheart 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. Any additional U-joint/yoke clearance needed can be obtained through focused impact clearancing of the floor just above the yoke.
- Install using a Hooker Blackheart **71222007HKR** transmission crossmember, per the instructions included in its packaging.

#### **4L80/4L85 installations -**

- No floor cutting required, but slight, focused impact clearancing (hammering) of the floor may be required around the output speed sensor and electrical plug on the left side of the transmission, around the cooler fittings/lines on the right side of the transmission and above the U-joint yoke, depending on the size of the U-joint/yoke used.
- Install using a stock 1968-72 Chevelle transmission crossmember, or Hooker Blackheart **71222007HKR** transmission crossmember. The use of a stock 1968-72 Chevelle crossmember will require drilling new holes in the frame rails and will not be compatible with bolt-in installation of related Hooker Blackheart 2.5” or 3” A-body exhaust systems.
- Install the included **3/8**” spacers between the ends of the crossmember and vehicle frame and Install the included **3/16**” spacer between the crossmember center pad and transmission mount if you are using a stock rubber or Hooker Blackheart **71223029HKR** (black) or **71223030HKR** transmission mount.

### **71221007HKR Rear-Bias Engine Brackets:**

#### **4L60-4L70 installations -**

- **Extensive** floor cutting/modification is required. The area of the sheet metal that will need to be removed will extend from the tail end of the transmission all the way up into the base of the firewall. Remove enough sheet metal covering the transmission to enable the installation of a stock Chevelle transmission crossmember.
- Install using a stock 1968-72 Chevelle transmission crossmember attached to the frame using the frame holes indicated in **Figure 5**. Once done, use a rat-tail file or rotary file to elongate the two center slots on the crossmember towards the front of the vehicle, as needed, to be able to attach the transmission mount to the crossmember.



Figure 5

- Install the included 3/8" spacers between the ends of the crossmember and vehicle frame and Install the included 3/16" spacer between the crossmember center pad and transmission mount if you are using a stock rubber or Hooker Blackheart **71223029HKR** (black) or **71223030HKR** transmission mount.
- Rebuild the floor over the transmission as needed to close up the floor.

**TH350, TH400, & 2004R installations -**

- No floor cutting or floor modifications are required to install these transmissions, except for possible U-joint/yoke clearance, which can be accomplished through focused impact (hammer) clearancing of the floor just above the yoke.
- Install using a stock 1968-72 Chevelle transmission crossmember attached to the frame in the stock location for a TH350 or TH400 transmission. Use the TH400 attachment position for 2004R installations.
- Install the included 3/8" spacers between the ends of the crossmember and vehicle frame and Install the included 3/16" spacer between the crossmember center pad and transmission mount if you are using a stock rubber or Hooker Blackheart **71223029HKR** (black) or **71223030HKR** transmission mount.

**T56/T56 Magnum installations -**

- **Extensive** floor cutting/modification is required. The area of the sheet metal that will need to be removed will extend from the tail end of the transmission all the way up into the base of the firewall. Remove enough sheet metal to allow the transmission to be installed using the Hooker Blackheart **71222007HKR** transmission crossmember, per the instructions included in its packaging.
- Rebuild the floor over the transmission as needed to close up the floor.

**4L80/4L85 installations -**

- **Moderate** floor cutting/modification is required. The section of the tunnel immediately above the transmission case extension housing will have to be removed/rebuilt. Any additional U-joint/yoke clearance needed can be obtained through focused impact clearancing of the floor just above the yoke.
- Install using a Hooker Blackheart **71222007HKR** transmission crossmember, per the instructions included in its packaging.

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 eight 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 1967-72 A-body LS swap headers and exhaust systems are specifically designed for use with these engine mounting brackets.

**LIMITATION OF LIABILITY – DISCLAIMER:**

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**199R10933**

**Revision Date: 4-24-20**