



**P/N 12616HKR-1**  
**1970-81 GM F-Body T56/T56 Magnum/4L80E\*/4L85E\*/TH400\*/2004R\***  
**Transmission Crossmember**

\*Requires the use of a separately available Hooker Blackheart adapter or spacer referenced in the text below to install.

**Installation Instructions**

Thank you for choosing to use this Hooker Blackheart transmission crossmember as part of your engine/transmission swap project. This crossmember is part of the most comprehensively engineered system of mounting components, headers and exhaust systems available for this vehicle application. The entire Hooker Blackheart LS swap system for this application 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:**

This crossmember is designed as part of a fully-engineered LS swap mounting system for GM 2<sup>nd</sup>-gen F-body vehicles. It has been CAD designed and FEA validated to provide maximized strength and stiffness along with high-clearance arches for exhaust system routing.

In addition to providing for direct installation of a GM 4<sup>th</sup>-gen F-Body/GTO T56, or T56 Magnum manual transmission, this crossmember can also be used to install a GM 4L80E, 4L85E, TH400, or 2004R transmission with the use of an available Hooker Blackheart **71223013HKR** adapter (4L80E/4L85E transmissions), or **12650HKR** spacer block kit (TH400 or 2004R transmissions).

Installation of this crossmember, with any of the above-mentioned transmissions, requires the use of a Hooker 71223029HKR, 71223030HKR, or Anchor Industries **2268** (rubber) transmission mount.

Due to its unique design geometry, this crossmember must be installed in conjunction with Hooker Blackheart **12512HKR** or **12613HKR** engine mounting brackets to provide correct engine offset geometry and U-joint working angles. This crossmember will provide for installation of a LS engine and Tremec™ LS F-body/GTO T56 transmission into this application without requiring any cutting or hammering of the vehicle body, with the exception of shifter hole that must be cut and the required clearance that must be provided for the reverse lockout solenoid. The location of the shifter hole dictates that it is necessary to cut into the floor mid-brace on some model year cars and will therefore require minor fabrication and/or welding to re-box the brace, if so desired. Installation of a Tremec™ aftermarket T56 Magnum transmission will require additional floor clearance modifications due to its physically larger size.

The installed geometry provided by this crossmember and the Hooker Blackheart 12512HKR and 12613HKR engine mounting brackets aligns the engine crankshaft and transmission output shaft axis with the center line of the chassis, like is the case with most pro-built cars and aftermarket subframes for 2<sup>nd</sup>-gen F-bodies (like DSE for example).

With these components installed, your driveline will be purposely configured with compound U-joint angles, due to the centered engine/transmission and the stock pinion offset of your rear differential. If you wish to check your U-joint working angles, detailed information on how to do so can be found at [www.spicerparts.com](http://www.spicerparts.com) (search for publication number J3311-1-DSSP).

A suitable lifting jack or stand will be required to install this crossmember with any of the transmissions listed in this document.

## **COMPATIBILITY:**

This crossmember was specifically designed for compatibility with Hooker Blackheart engine mounting brackets, cast iron LS exhaust manifolds, headers and exhaust systems and Holley® LS oil pans and accessory drive components for this application.

Oil pans that are directly installable with this crossmember include the Holley® **302-1, 302-2, and 302-3** LS oil pans, the stock F-body, and various aftermarket fabricated steel pans.

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

- GTO alternators will need to be swapped to an F-body unit to clear the steering box pitman arm.
- 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 installable with these mounts; compressor must be upper-mounted to 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 & 8502HKR**), and Hooker Blackheart mid-length headers (**2471HKR, 2472HKR, 70201307-RHKR, and 70201308-RHKR**) and long-tube headers (**2295HKR, 2296HKR, 2297HKR, 2298HKR, 70101309-RHKR, 70101310-RHKR, 70101311-RHKR and 70101312-RHKR**) are all compatible with most stock A/C evaporator cases on the firewall, when installed with this Hooker Blackheart LS engine swap transmission crossmember.

More LS swap/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).

Use of this crossmember with half-height body bushings is only possible if relief pockets are fabricated into the floor to clear the arched humps of the crossmember and may require further floor clearance operations to clear the transmission bellhousing/case.

## **INSTALLATION:**

This crossmember is designed to provide an exhaust routing path with maximized ground clearance. Be aware that 1970-74 models have floor pans which are lower to the top of the subframe than those of 1975-81 models and require more careful maneuvering of the crossmember into position to reduce the possibility of marring of the underside finish of the floor. Worn or collapsed body bushings will further diminish the available installation space and may require increased force or leverage to be applied to the crossmember to persuade it into proper position. It is highly recommended that new body bushings be installed prior to performing your engine/trans swap.

## **INCLUDED HARDWARE:**

- 3/8 x 1 Flanged Bolts – QTY 8
- 3/8 Flanged Nuts – QTY 8

1. Raise the tail shaft of the transmission to its highest possible point of lift.
2. Install one side bracket to the crossmember using the supplied 3/8 hardware and Insert the crossmember between the subframe and floor sheet metal. The correct side bracket will match the contour of the frame rail.
3. Once you have the crossmember in place, attach the remaining side bracket to the crossmember. Using the 3/8 hardware, install the bolts through the frame rail of the subframe and tighten.
4. Attach your chosen transmission mount to the transmission in the following manner:
5. Lower the transmission on to the crossmember while performing the following:
  - A. For T56 Transmissions, install directly to the crossmember using one of the mentioned rubber mounts.
  - B. For TH400 or 2004R installations, place the optional Hooker Blackheart **12650HKR** spacer block between the crossmember and the mentioned rubber mount.
  - C. For 4L80E/4L85E installations, lower directly onto the crossmember using the mentioned rubber mount.

6. Loosely attach the rubber mount to the crossmember with the hardware supplied with the mount chosen

7. Tighten all hardware and inspect install before driving the vehicle.

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).

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