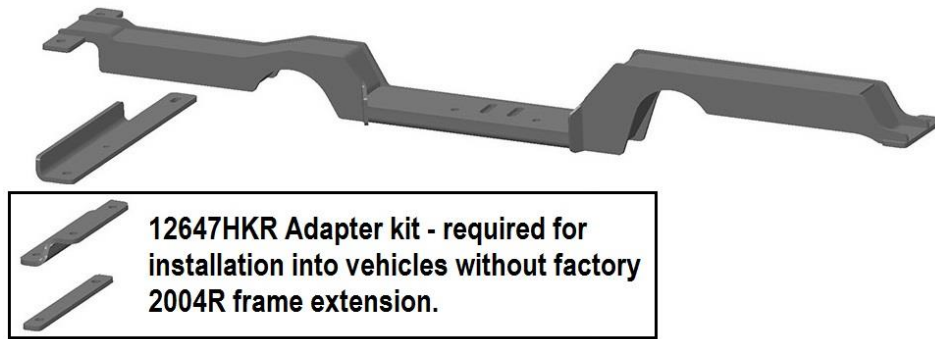




**1978-88 GM A/G-Body LS Swap T56/T56 Magnum/4L60-4L70*/4L80-4L85*/TH400*/2004R*
Transmission Crossmember
12644HKR
Installation Instructions**

* Installation requires the use of a separately available Hooker transmission adapter kit.



Thank you for choosing to use this Hooker™ transmission crossmember as part of your LS swap project. This crossmember is 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. Please read these instructions in their entirety before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

This crossmember is designed as part of a fully-engineered LS swap mounting system for 1978-88 GM A/G-body vehicles. It has been CAD designed and FEA validated to provide an optimized balance of weight, stiffness and strength. The dual-arch exhaust passages are provided for installation of available Hooker 2.5" and 3" exhaust systems for this application, or any custom system of your choice. This crossmember provides direct installation capability for 4th-gen F-body/GTO T56 and aftermarket Tremec T56 Magnum transmissions. Installation of a 4L60-4L70, 4L80/4L85, TH400 or 2004R automatic transmission can also be accomplished using this crossmember and the Hooker **12650HKR**, **12655HKR** or **12656HKR** adapter kits referenced later in this document.

Vehicles that were not originally factory configured with a left side 2004R frame extension will require the use of a **12647HKR** frame adapter kit to enable installation of this crossmember into them.

Due to the approximate 1/4" forward re-positioning of the transmission required for proper fitment of this crossmember, it may be necessary to lengthen any driveshaft intended to be re-used from a previous stock transmission location installation. This presents an opportunity to increase the size of your driveshaft to 3" or 3.5" diameter for increased strength and RPM capabilities.

Installation of this crossmember, with any of the above mentioned transmissions, requires the use of an aftermarket Prothane™ 7-1604 polyurethane mount or stock/aftermarket rubber mount of equivalent installed height.

Due to the unique design geometry of this transmission crossmember, attempts to install it with headers and/or engine mounting plates/brackets other than those developed by HOOKER™ for this application will more than likely not be successful.

When used with the related Hooker™ **12643HKR** engine mounting bracket kit, this CAD designed transmission crossmember will replicate the stock small block Chevy engine/transmission inclination angle and eliminate or minimize the need to adjust the rear pinion angle in stock to moderately lowered chassis applications.

A suitable lifting jack will be required to install this crossmember with the appropriate transmissions for which it is intended. 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 INFORMATION:

This transmission crossmember was specifically designed for bolt-in compatibility with the HOOKER™ LS swap engine mounting bracket kit, cast iron LS exhaust manifolds, headers and exhaust systems also developed for this application. Various other Holley® and OE LS components have been designed and/or validated for use with this system of components, as follows:

The engine/transmission positioning provided by this crossmember was designed for compatibility with the Holley® **302-2** LS oil pan; compatibility with other aftermarket/OE engine oil pans is unknown. The Holley 302-1 LS engine oil pan is not bolt-in compatible with this transmission crossmember.

Hooker™ LS swap manifolds (**8501HKR**) and long-tube headers (**2332HKR & 2333HKR**) are all compatible with the stock A/C evaporator case when installed using this Hooker LS engine swap transmission crossmember and the related Hooker **12643HKR** engine mounting bracket kit.

This crossmember was intentionally designed with high-tuck geometry to optimize the ground and dual exhaust routing clearances of this application. As such, installation of new body/frame bushings may be required for successful installation. Worn body/frame bushings have been verified to decrease body-to-frame clearances by as much as ½”.

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.

INSTALLATION:

NOTE: These instructions have been written with the assumption that you have already installed an LS engine into your vehicle using the Hooker **12643HKR** engine swap bracket kit. Satisfactory engine and transmission installation with any other type or brand of engine mounts is not intended with this crossmember.

1. Check that the hardware package includes the following:

- (1) Crossmember Assembly
- (1) Frame Angle Bracket
- (1*) T56 Magnum Spacer
- (8) 3/8” Flat Washers
- (1) 3/8-16 x 3/4” Flanged Head Bolts
- (3) 3/8-16 x 1” Flanged Head Bolts
- (1) 3/8-16 x 1-1/4” Flanged Head Bolts
- (4) 3/8” Flanged Nuts

If any are missing, please contact Technical Service at 1-866-464-6553 or 270-781-9741.

*If you are installing a T56 Magnum transmission, the included two-hole spacer is to be installed between the crossmember and the isolator to compensate for the isolator mounting surface of the T56 Magnum being closer to the transmission output shaft centerline than the same surface on an LS 4th-gen F-Body/GTO T56. Leaving this spacer out will increase the engine inclination angle beyond that intended by Hooker™ and decrease the ground clearance of Hooker™ headers designed for this application.

2. Raise the tail shaft of the transmission to its maximum height against the vehicle floor.
3. Position the crossmember on top of the vehicle frame crossmember mounting perches and loosely attach it to the right side frame perch using two supplied 3/8 x 1” bolts and flanged nuts.
4. **1983-88 2004R chassis cars-** Position the frame angle bracket under the left mounting foot of the crossmember and attach them both to the left side frame perch using the supplied 3/8 bolts, washers and flanged nuts as shown in Figures 1 and 2. Once all brackets and fasteners have been configured and aligned as directed in **Figure 1**, tighten all the nuts and bolts across the entire crossmember assembly.

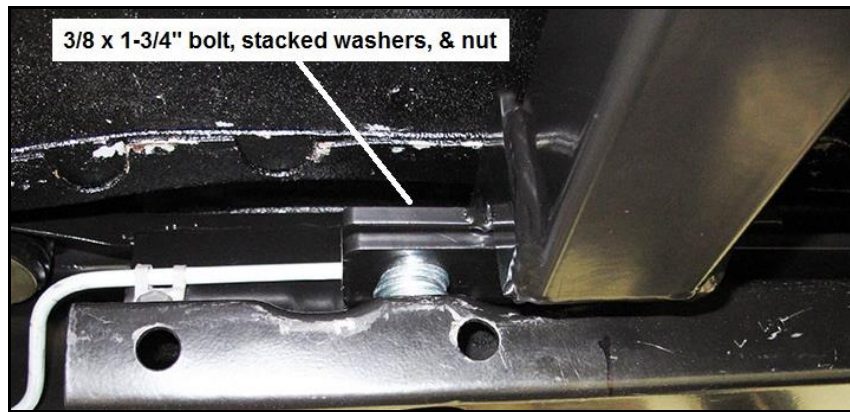


Figure 1 – 1983-87 2004R chassis cars only

- 4A. Attach the crossmember and angle bracket to left frame perch using the supplied 3/8 x 1-3/4" bolt and one flanged nut in the rear holes of both components (**Figure 1**). During installation of the bolt through the components, place the supplied 3/8 washers between the crossmember and frame perch, as needed, to level the angle bracket with the bottom of the vehicle floor. This leveling operation is needed to account for the broad production tolerances and road/collision damage that is common with the frames of these vehicles. Some vehicles will need more washers than others to achieve the same result. Notice that the rear-most hole in the vehicle frame perch is not used for attaching the crossmember.

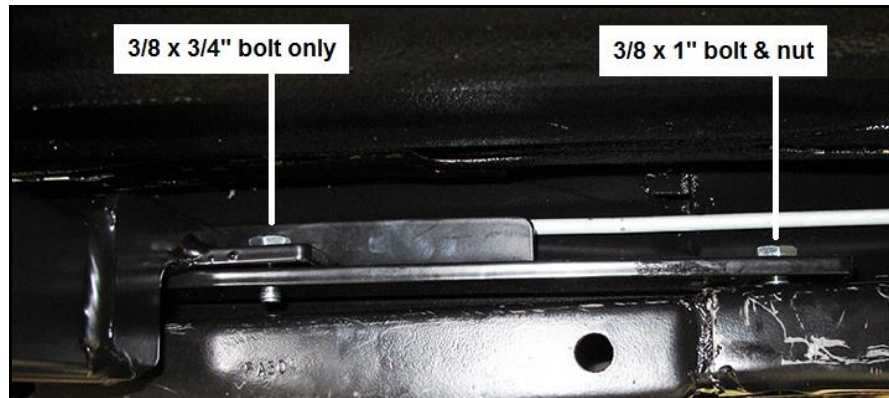


Figure 2 - 1983-87 2004R chassis cars only

- 4B. Attach the front of the angle bracket to the vehicle frame perch use a supplied 3/8 x 1" bolt and nut (**Figure 2**). Attach the crossmember to the mid-point of the angle bracket by installing the single supplied 3/8 x 3/4" bolt into the threaded hole at that position (**Figure 2**).
- 4C. **For vehicles without 2004R factory frame extension-** Position the frame angle bracket under the left mounting foot of the crossmember and loosely attach it to the rear-most hole in your left side frame perch using a supplied 3/8 x 1" bolt and flanged nut. Now, position the frame adapter Z-bracket supplied in the **12647HKR** (frame adapter kit) under the angle bracket and couple the crossmember, angle bracket, and frame adapter bracket together using the 3/8 x 1-1/4" bolts and nuts supplied with the adapter kit. Transfer and scribe the location of the lower holes in the frame adapter bracket onto the lower frame rail of the vehicle and drill the holes out with a 3/8" drill bit.

If the lower rail of your frame **does not** exhibit upward bending/damage in the area of the crossmember that is typical on these vehicles, install the two-hole spacer between the frame and the adapter bracket before installing the two 3/8 x 1-1/4" bolts (threaded ends pointed up) and nuts included with the adapter kit through the holes. If the lower rail of your frame **does** exhibit upward bending/damage, you can leave out the two-hole spacer and/or bend the lower frame rail, as needed, to enable the installed angle bracket to sit level with the floor panel with all the parts installed. Once completed, tighten all nuts and bolts across the entire crossmember assembly.

5. Attach the transmission mount (Prothane 7-1604 or equivalent) to the transmission and install the optional Hooker adapters listed below (if needed) between the transmission mount and crossmember with the nuts and bolts supplied with the adapters. With the adapter installed, lower the transmission and attach the mount to the crossmember with the fasteners supplied with the transmission mount.
- **4th-gen F-body/GTO LS T56** – no adapter needed, attach transmission mount directly to the crossmember
 - **Tremec aftermarket T56 Magnum** – no adapter needed, install T56 Magnum spacer between mount and crossmember
 - **4L60-4L70** – Install **12655HKR** cantilever bracket between mount and crossmember (cantilevered forward of the crossmember)
 - **4L80/4L85** – Install **12656HKR** cantilever bracket between mount and crossmember (cantilevered reward of the crossmember)
 - **TH400 and 2004R** – Install spacer block in Hooker **12650HKR** transmission adapter kit between mount and crossmember



4L60/4L70 Configuration
Short Cantilever Bracket



4L80/4L85 Configuration
Tall Cantilever Bracket

NOTE: INSTALLATION OF T56/T56 MAGNUM, TH 400, & TH 2004R REQUIRES NO CANTILEVER BRACKET.

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

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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