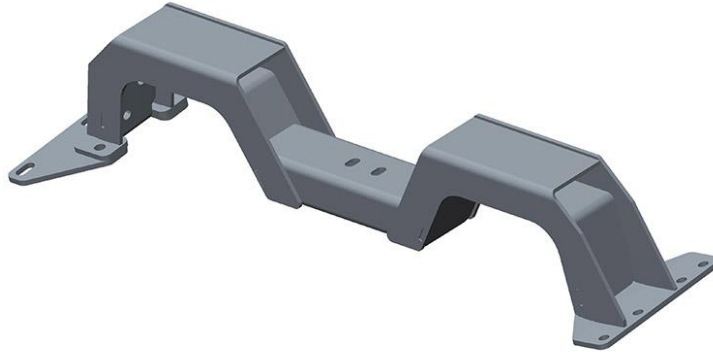




1973-87 GM C10/C20 2WD Truck LS Swap Transmission Crossmember
For 2004R, TH350*, TH400, 700R4*, 4L60-4L75, 4L80-4L85, T56* and T56 Magnum* Transmission Installations
P/N 12646HKR
Installation Instructions

* Installation requires the purchase/use of additional components referenced within these instructions.



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 1973-87 GM C10/C20 trucks. It has been CAD designed 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 for the installation of a 4L60-4L75, 4L80/4L85, TH400 or 2004R automatic transmission as packaged, or a TH350 700R4, 4th-gen F-body/GTO T56 or aftermarket Tremec T56 Magnum transmission through the additional use of a Hooker **12645HKR** transmission crossmember adapter bracket kit. TH350 and 700R4 installations will also require user supplied spacer(s) to be placed between the adapter bracket and the transmission isolator by the thickness amount indicated later in the body of this text.

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.

A minimum of two different frame attachment hole locations/patterns was utilized by GM to attach the factory crossmember to the frames in these trucks. The attachment holes present in this Hooker crossmember directly correspond with the attachment hole location/pattern observed in the frames of two different 1984 model year C10 short bed trucks (a original 4.3L V6/TH375 truck and an original SB V8/700R4 truck) used for develop of this component. Verification of fitment in a third 1984 model year truck, originally equipped with a SB V8/TH350 powertrain, provided validation that the hole location/pattern in the frame of the TH350 equipped truck was different from that of the 700R4 and TH375 trucks. By the nature of these discoveries, some users will be able to install this crossmember into their truck in a bolt-on fashion while others will need to utilize the drilling templates included with this crossmember and created new mounting holes in the frame of the truck beforehand.

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™ **12621HKR** engine mounting bracket kit, this CAD designed transmission crossmember will provide engine/transmission inclination angles appropriate for use on vehicles configured with moderate suspension drop kits (4" front /6" rear). Stock ride height vehicles or vehicles lowered beyond a 4"/6" drop may need to have their rear axle/pinion shimmed to achieve desirable U-joint working angles when using this crossmember.

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® 302-1 or 302-2 LS oil pans; compatibility with other aftermarket/OE engine oil pans is unknown.

Hooker™ LS swap manifolds (8501HKR) and long-tube headers (2334HKR & 2335HKR) are compatible with the stock A/C evaporator case when installed using this Hooker LS engine swap transmission crossmember and the related Hooker 12621HKR 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.

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 12621HKR 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:

Qty	Description	Qty	Description	Qty	Description
1	Passenger's side foot bracket	1	4L80/4L85 compensation spacer (3/16")	1	TH400 compensation spacer (1/16")
6	7/16" flanged head lock nuts	6	7/16 x 1-1/4" button head Grade 8 bolts	1	Passenger's side drilling template
2	1/2" flanged head lock nuts	2	1/2 x 1" button head Grade 8 bolts	1	Driver's side drilling template

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

2. Raise the tail shaft of the transmission to its maximum height against the vehicle floor.
3. Manuever the crossmember up into the vehicle frame behind the transmission. Place the left/driver's side foot into the frame first and then swing the crossmember up above the bottom right/passenger's side frame flange.
4. Position the supplied right/passenger's side crossmember foot bracket between the crossmember and the vehicle frame and attach the foot to the crossmember using the supplied 7/16" and 1/2" bolts and nuts as indicated below in **Figure 1**. Install the 1/2" bolts from the bottom of the crossmember with the bolt heads facing the ground.

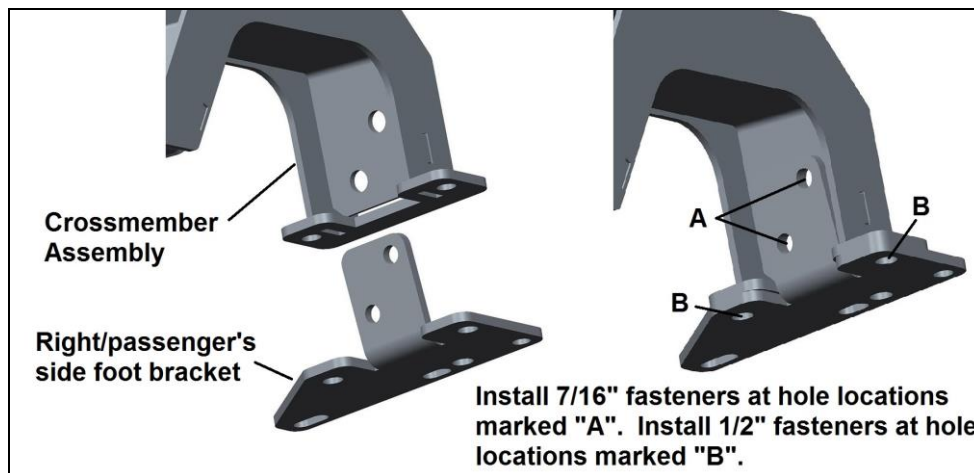


Figure 1

5. If installing a 4L60-4L75, 4L80/4L85, TH400 or 2004R transmission (if not, skip to step 6 or 7 below), attach the transmission mount (Prothane 7-1604 or equivalent) to the transmission case and then slide the crossmember forward and under the mount. Insert the appropriate height spacer between the crossmember and transmission mount, if needed, as described below. Now, lower the transmission and attach the mount to the crossmember with the fasteners supplied with the transmission mount.
 - **4L60-4L75** – no spacer
 - **4L80/4L85** – 3/16" supplied spacer
 - **TH400** – 1/16" supplied spacer
 - **2004R** – no spacer
6. If installing a 4th-gen F-body/GTO T56 or aftermarket T56 Magnum transmission (if not, skip to step 7 below), attach the available 12645HKR Hooker transmission crossmember adapter bracket to the crossmember, as shown in **Figure 2** below, with the bolts/nuts supplied with the adapter bracket. The bolts should be installed from the top of the adapter followed by the nuts being installed through the holes in the bottom of the crossmember center beam. Tighten the bolts/nuts to approximately 70 ft./lbs.

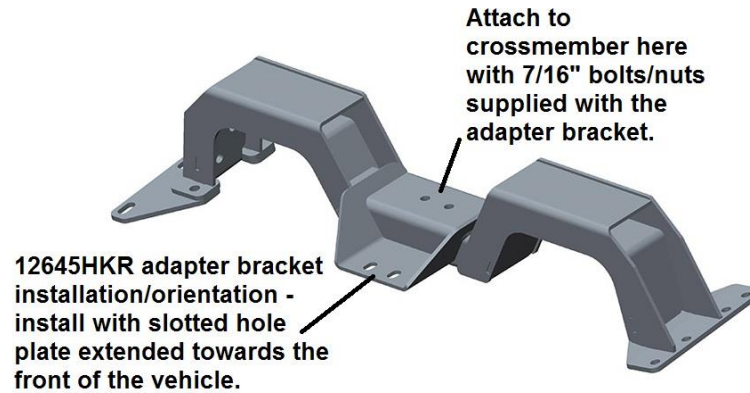


Figure 2

Next, attach the transmission mount (Prothane 7-1604 or equivalent) to the transmission case and then slide the crossmember and attached adapter bracket forward and under the mount. Lower the transmission and attach the mount to the adapter bracket for a 4th-gen F-body/GTO T56 install, or do so after inserting the 5/16" spacer included with the adapter bracket kit between the mount and the adapter bracket for an aftermarket T56 Magnum install.

7. If you are executing a custom TH350 or 700R4 transmission installation with this Hooker crossmember and the 12645HKR adapter bracket, you will follow step 6 above and substitute a custom height spacer for the 5/16" spacer mentioned for the T56 Magnum transmission. These spacers (1-1/16" thick spacer for TH350, 3/4" thick spacer for 700R4) are needed to compensate for the case mount height differences of these transmissions relative to the same dimensions of the primary transmission applications the crossmember was designed to be compatible with. You will need to measure for and obtain longer 7/16-14 Grade 8 bolts than what was supplied with your transmission mount to accomplish attachment of the mount to the crossmember.
8. With both of the transmission mount fasteners installed in the crossmember center beam, square up the crossmember to the vertical inside wall of the frame with a combination or framing square and inspect for a hole pattern match between the crossmember and the frame. This will be likely if your truck was originally equipped with a 700R4 and unlikely if it was originally equipped with a TH350. If a matching pattern is found that allows two bolts per side of the crossmember to be installed, attach the crossmember in that location using the remaining four supplied 7/16" bolts and nuts (if not see step 9 below). Install the bolts with the heads facing the ground and tighten the nuts to approximately 70 ft./lbs.

9. If a matching pattern can not be found, new holes must be drilled. Start this operation by measuring the distance from the inside verticle wall of each frame rail to the center of the transmission output shaft and nudge the transmission in the direction needed to offset the measurement 1/16" off-center towards the passenger's side of the vehicle. This amount of offset translates to the driver's side measurement being 1/8" longer than the measurement taken from the passenger's side frame rail. With the crossmember resting in this offset position and square to the frame, clamp the crossmember and included drilling templates to the frame as shown below in **Figure 3**. Drill four 3/16" pilot holes in the locations indicated by the drilling templates, and then remove the templates and enlarge the holes to 7/16" diameter or slightly larger. Install the bolts with the heads facing the ground and tighten the nuts to approximately 70 ft./lbs.

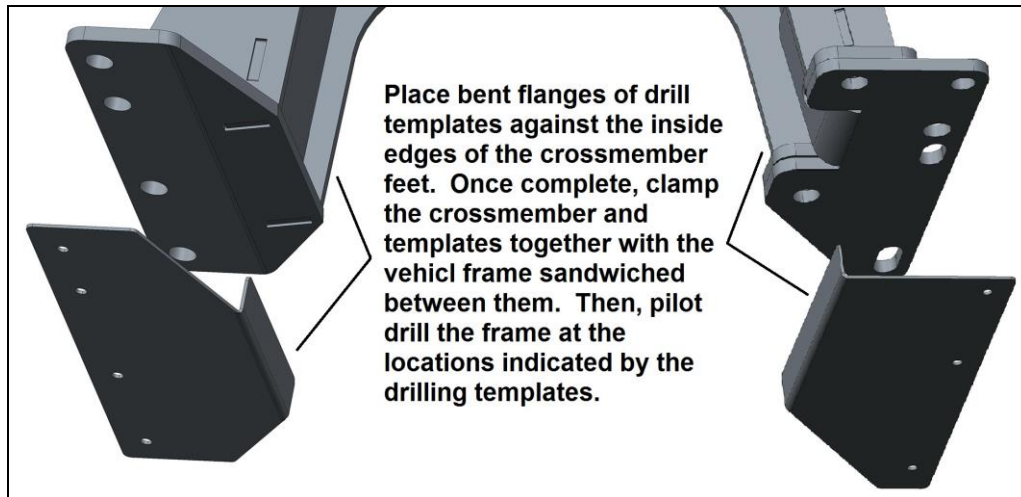


Figure 3

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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