



**1967-69 GM F-Body/1968-74 GM X-body LS Swap
4L80E/4L85 Transmission Crossmember
P/N 12627HKR**

Installation Instructions



Thank you for choosing to use this Hooker™ 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 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.

IMPORTANT DESIGN AND INSTALLATION INFORMATION:

This crossmember is designed as part of a fully-engineered LS swap mounting system for GM 1st-gen F-body/ 3rd-gen X-body vehicles. It has been CAD designed and FEA validated to provide excellent structural strength and stiffness from its high-strength low-alloy steel construction. As a further benefit to the user, a maximized ground clearance pathway for routing 2.5" or 3" exhaust system tubing is included as a main design feature.

The design geometry of this crossmember provides direct installation of a GM 4L80/4L85 series automatic transmission.

Attachment of the transmission to this crossmember requires the use of an aftermarket Prothane™ 7-1604 polyurethane mount (or one of equivalent installed height), or the OE rubber mount which it is designed to be a substitution for the mount (common to all late 50's through 1970's GM cars).

Due to its unique design geometry, this crossmember must be installed in conjunction with Hooker™ 1967-69 GM F-body/1968-74 GM X-body LS swap engine mounting brackets (12618HKR) to provide proper driveline operation angles and allow installation of an LS engine and 4L80/4L85 transmission into this application without requiring any cutting or hammering to the vehicle body.

The related Hooker™ engine mounting brackets work in conjunction with this crossmember to provide an optimized 3° to 3.5° engine/transmission inclination angle that is critical to providing the minimized U-joint working angles that are desired for lowered performance and competition vehicles.

The installed geometry of this crossmember and the compatible Hooker™ engine mounting brackets are utilized to align the engine crankshaft and transmission output shaft axis with the center line of the chassis, which is slightly modified from the just-off-center stock alignment geometry used by GM.

A suitable lift or jack and jack stands will be required to install this crossmember with the appropriate transmissions for which it is intended.

COMPATIBILITY:

This crossmember was specifically designed for compatibility with Hooker™ engine swap mounts, Hooker™ headers, Hooker™ exhaust systems, Holley® LS oil pan, and Holley® accessory drive components for this application.

Oil pans that are directly installable with this crossmember include the Holley® 302-2 LS retrofit pan, a notched stock 4th-gen F-body, and various aftermarket fabricated steel pans.

Suitability of this crossmember for any application not described in this document is questionable due to the unique geometry of its design.

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:

PRE-INSTALLATION NOTES:

This crossmember is designed to provide an exhaust routing path with maximized ground clearance. 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.

These instructions were formatted with the assumption that you have already mounted your LS swap engine and attached transmission into position in your vehicle using the Hooker™ 12618HKR LS swap engine bracket kit, per the instructions included in its packaging.

1. Check that the hardware package includes the following:

Qty	Description	Qty	Description	Qty	Description
2	Upper anchor brackets (5/16" thickness)	2	Frame back-up plate	2	7/16-14 x 1" flanged head bolts
2	Lower anchor brackets (3/16" thickness)	1	Mount compensation bracket	4	7/16-14 x 1.5" flanged head bolts
4	3/8-16 x 1" flanged head bolts	8	3/8 flanged nuts	6	7/16-14 nut
4	3/8-16 x 3/4" flanged head bolts				

2. Raise the tail shaft of the transmission to its highest possible point of lift using a transmission jack, floor jack or screw type pole jack.
3. Remove the isolator/mount attached to the bottom of the transmission extension housing.
4. Remove the two lowest extension housing attachment bolts from the transmission then attach the supplied mount compensator bracket to the extension housing using the bolts just removed from the extension housing and the isolator/mount. See **Figure 1** for reference.
5. Attach a Prothane 7-1604 isolator/mount, or equivalent OE replacement rubber mount, to the bottom of the mount compensator bracket. Use two of the included 7/16" x 1" bolts and nuts for this purpose.
6. Loosely attach one of the included upper and lower anchor brackets to the right side of the crossmember by installing one of the supplied 7/16 x 1" bolts from the bottom side of the crossmember and two of the supplied 7/16 x 1.5" bolts from the top of the crossmember; install two supplied 7/16 nuts onto the bottom of the 7/16 x 1.5" bolts. Refer to **Figure 2** for clarification.
7. Position the crossmember with attached right side upper and lower anchor brackets up onto the right side subframe rail of the vehicle while keeping the remaining upper and lower anchor brackets and 7/16 fasteners within reach for installation on the left side of the crossmember.
8. Loosely attach the remaining upper and lower anchor brackets to the left side of the crossmember by installing the remaining 7/16 x 1" bolts from the bottom side of the crossmember and the remaining 7/16 x 1.5" bolts from the top of the crossmember; install two supplied 7/16 nuts onto the bottom of the 7/16 x 1.5" bolts. Refer to **Figure 2** for clarification.
9. Loosely attach the anchor brackets on both sides of the crossmember to the top of the subframe using the four supplied 3/8 x 1" bolts/nuts; the included frame back-up plates are to be installed between the nuts and the subframe in the interior of the subframe.

10. Measure the distance from the inside edge of each subframe rail to the center of the crossmember; nudge the crossmember left or right as needed to center the transmission isolator mounting holes between the frame rails.
11. Slide the lower anchor brackets downward until they make contact with the inside faces of the subframe; loosen the 7/16" fasteners slightly if they are not enabling movement of the brackets.
12. Re-measure to ensure the isolator mounting holes in the center of the crossmember are still centered between the subframe rails and readjust the assembly as needed before tightening the 3/8" bolts/nuts previously installed in step 9.
13. Scribe the position of the four holes in the lower anchor brackets into the inside faces of the subframe, then remove the crossmember from the vehicle.
14. Drill four 3/8" clearance holes into the subframe at the locations scribed in the previous step and reinstall the crossmember into the vehicle following steps 6 through 9 again.
15. Attach the lower anchor brackets to the subframe with the four supplied 3/8" x 3/4" bolts/nuts, which are to be installed in the holes drilled in the previous step.
16. Perform a final measure of the crossmember to ensure the isolator mount holes are again centered between the subframe rails and then tighten all fasteners in the crossmember assembly.
17. Lower the transmission onto the crossmember and attach the isolator to the crossmember with the 7/16 fasteners included with the aftermarket poly mount, or two user supplied 7/16" bolts if using the OE rubber replacement mount.



Figure 1

Mount compensation bracket attachment scheme

Attach bracket to transmission using the factory lower extension housing attachment bolts and the factory mount attachment bolts. Once completed, attach the transmission mount to the bottom of the compensation bracket with the supplied 7/16" bolts/nuts.

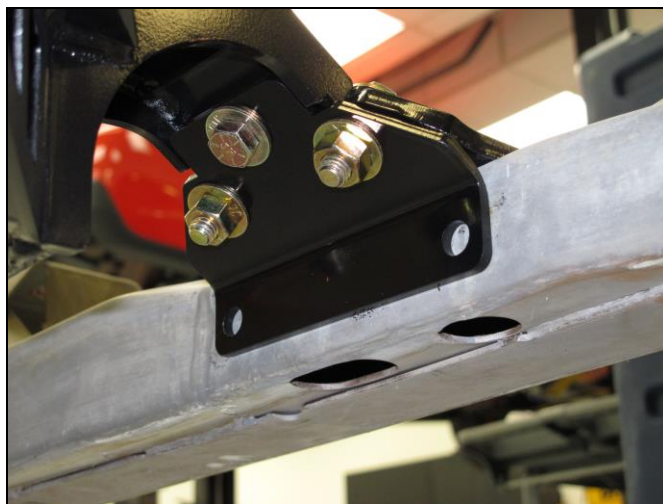


Figure 2

Anchor brackets attachment scheme

Install 7/16 x 1" bolt in the center position from the bottom with no nut on top (washer in photo supplied or used).

Install 7/16" x 1.5" bolts in the outer positions from the top and install nuts from the bottom (washers in photo not supplied or used).