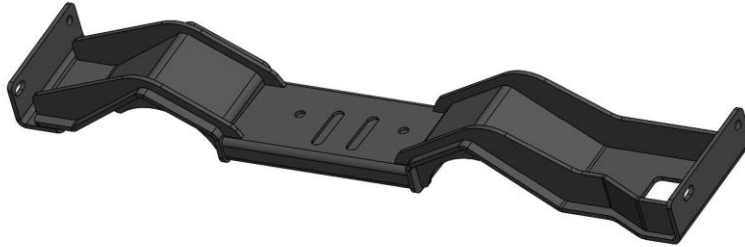




## 1979-1993 Ford Mustang Engine Swap Transmission Crossmember 71222016HKR Installation Instructions



Thank you for choosing to use this Hooker Blackheart transmission crossmember as part of your engine 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 swap system is designed to decrease your total swap installation effort 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 the Hooker Blackheart fully-engineered engine swap mounting systems for 1979-93 Ford Mustang vehicles. 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 Blackheart 2.5" and 3" exhaust systems for this application, or any custom system of your choice.

Installation of this crossmember also requires the use of a Hooker Blackheart spacer block or adapter bracket for the following transmissions:

**LS swaps** – TH400 or 2004R -**12650HKR**, 4L80/4L85 – **71223013HKR**, 4L60-4L70 – **71223003HKR**. Installation requires the use of a Hooker Blackheart 71223029HKR (black) or 71223030HKR (red) poly mount, or an **Anchor™ 2268** rubber transmission mount.

**Coyote Swaps** – 4R70W/T45 (1996-98 GT spec only) – **71223018HKR**, 6R80/MT82 – **71223019HKR**, TKO 500/600 (Ford spec, with Quicktime RM-6081 bellhousing) – **71223025HKR**. Powerglide (with PW Performance Ultra-bell), 6R80, MT82 or T56 Magnum (Ford spec, with Quicktime RM-8080 bellhousing) installations require the use of a Hooker Blackheart 71223029HKR (black) or 71223030HKR (red) poly mount, or an **Anchor™ 2268** rubber transmission mount. 4R70W, 4R75E or TR45 installations require the use of a **Prothane™ 6-1608** poly mount. TKO 500/600 (Ford spec with Quicktime RM-6081 Bellhousing) installations require the use of a **Prothane™ 6-1604** poly mount, or **Anchor™ 2784** rubber mount.

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 vehicle application will most likely be unsuccessful. When used with any of the Hooker Blackheart engine mounting brackets/adapter plates developed for this application, this CAD designed transmission crossmember will provide the ability to obtain desirable U-joint operating angles and component clearances.

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 /JACK STANDS OF SUFFICIENT CAPACITY TO LIFT AND SUPPORT YOUR VEHICLE. NEVER WORK UNDER A VEHICLE SUPPORTED BY A FLOOR OR BUMPER JACK.

### **INSTALLATION:**

1. Check that the hardware package includes the following:

Qty.	Description	Qty.	Description
1	Crossmember Assembly	2	Outer Frame Backing Plates
1	Transmission Spacer (5/16" thick)	4	M10 x 75mm Bolts
1	Transmission Spacer (3/16" thick)	2	M10 x 25mm Bolts
1	Passenger's Side Frame Angle Bracket	6	M10 Nuts

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

**NOTE:** These instructions have been written with the assumption that you have already installed an LS/Coyote engine into your vehicle using the Hooker Blackheart LS or Coyote engine mounting brackets listed for this application .

**NOTE:** Some hammer clearancing to the trans tunnel should be expected in the following areas: **T56/T56 Magnum** (LS/Coyote) - around and just forward of the shifter area, **TH400** (LS only) - around the transmission cooler lines, **2004R** (LS only)- around the servo cover on the right side of the case, **4L80/4L85** (LS only) - around the transmission cooler lines, low-reverse band case lugs and the electrical connector on the left side of the case, **6R80** (Coyote only) - around the top rear edge of case, **MT82** (Coyote only) - around entire top and rear of case and the shifter assembly and **TKO 500/600** (Coyote swap only, LS TKO swap uses the Hooker Blackheart 71222015HKR crossmember) - above/around the front and mid top covers of the main case, and above/around the shifter housing.

1. Raise vehicle to comfortable working height and support it by proper means.
2. If in place, remove the factory transmission crossmember from the vehicle.
3. Attach the transmission to the engine and then raise the tailshaft of the transmission as high as possible with a floor jack or screw-type jack.
4. Attach a Hooker Blackheart 71223029HKR (black) or 71223030HKR (red) poly mount, or an **Anchor™ 2268** rubber transmission mount to the transmission now for 2004R, TH400, 4L60-4L70, or T56/T56 Magnum installations (bolts for this purpose are user-supplied); LS 4L80/4L85 and Coyote 4R70W, T45, 6R80, MT82 and TKO mount attachment will be done later in step 6.
5. Attach the supplied angle bracket to the bottom of the right end of the crossmember using the (x2) supplied M10 x 25mm bolts and (x2) of the supplied M10 nuts installed loosely. Now, install the crossmember into the car by attaching it to the frame rails just behind the factory crossmember pockets. Couple the forward-most holes in the crossmember ends to the existing hole in each frame rail, using the supplied backing plates, (x2) supplied M10 x 75mm bolts, and (x2) supplied M10 nuts. The backing plates are to be positioned on the outside of the frame rails and the nuts are to be positioned on the inside of the frame rails against the crossmember. The rear mounting holes for the crossmember will need be drilled through the vehicle frame members, using a 25/64" bit, when called out for in step 6 below.
6. Maintain full support of the transmission tail with a jack/screw-type stand and complete installation of the crossmember in the following manner:

### **LS Swap Applications-**

**4<sup>th</sup>-gen F-body T56 Transmission** – Place the supplied 3/16" thick spacer between the crossmember beam and the mount and lower the transmission/mount down onto the crossmember. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember through the vehicle frame rails. Install the remaining M10 bolts/nuts, feeding them through the supplied backing plates outside the frame rails, and then tighten all fasteners in the assembly.

**T56 Magnum (GM spec with Quicktime bellhousing) Transmission** – Follow step above for 4<sup>th</sup>-gen F-body T56 transmission above and install supplied 5/16" spacer between the crossmember and mount along with the supplied 3/16" spacer.

**TH400 or 2004R Transmissions** – Follow step above for 4<sup>th</sup>-gen F-body T56 transmission and install available Hooker Blackheart **12650HKR** spacer block between the crossmember and mount along with the supplied 3/16" spacer.

**4L60-4L70 Transmissions** – Attach the available Hooker Blackheart **71223003HKR** adapter to the crossmember center beam (cantilevered forward) and then place the supplied 3/16" and 5/16" spacers between the adapter and the transmission mount. Lower the transmission/mount onto the crossmember and connect the crossmember and mount together using the hardware supplied with the mount. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember through the vehicle frame rails. Install the remaining M10 bolts/nuts, feeding them through the supplied backing plates outside the frame rails, and then tighten all fasteners in the assembly.

**4L80/4L85 Transmissions** – Attach the available Hooker Blackheart **71223013HKR** adapter bracket and a Hooker Blackheart 71223029HKR (black) or 71223030HKR (red) poly mount, or an **Anchor™ 2268** rubber mount to the extension housing of the transmission per the instructions included with the 71223013HKR adapter bracket and then place the supplied 3/16" thick spacer between the mount and the crossmember center beam. Lower the transmission/mount onto the crossmember and attach the mount to the crossmember using the hardware supplied with the mount. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember through the vehicle frame rails. Install the remaining M10 bolts/nuts, feeding them through the supplied backing plates outside the frame rails, and then tighten all fasteners in the assembly.

## **Coyote Swap Applications -**

**4R70W, 4R75E or T45 Transmissions** – Attach the available Hooker Blackheart **71223018HKR** adapter to the crossmember center beam (cantilevered forward) and then attach a **Prothane™ 6-1608** T56 conversion mount onto the transmission case. Lower the transmission/mount onto the adapter lightly and attach the mount to the adapter using the hardware included with the mount. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember through the vehicle frame rails. Install the remaining M10 bolts/nuts, feeding them through the supplied backing plates outside the frame rails, and then tighten all fasteners in the assembly.

**6R80 or M82 Transmissions** – Attach the available Hooker Blackheart **71223019HKR** adapter to the rear of the transmission case with the bracket extending rearward over the crossmember center beam and then attach a Hooker Blackheart 71223029HKR (black) or 71223030HKR (red) poly mount poly mount, or an **Anchor™ 2268** rubber transmission mount to the adapter. Place the supplied 3/16" thick spacer between the crossmember beam and the mount and lower the transmission/mount onto the crossmember center beam. Attach the mount to the crossmember using the hardware included with the mount. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember. Install the remaining M10 bolts/nuts in the rear holes and then tighten all fasteners in the assembly.

**TKO 500/600 (Ford spec, with Quicktime bellhousing) Transmission** – Attach the available Hooker Blackheart **71223025HKR** adapter to the crossmember center beam (cantilevered forward). Install a **Prothane™ 6-1604** poly mount, or **Anchor™ 2784** rubber mount between the transmission and adapter and lower the transmission down onto the mount and fasten the transmission, mount and crossmember together with user-supplied fasteners. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember through the vehicle frame rails. Install the remaining M10 bolts/nuts, feeding them through the supplied backing plates outside the frame rails, and then tighten all fasteners in the assembly.

**T56 Magnum (Ford spec, with Quicktime bellhousing) Transmission** – Place the supplied 3/16" and 5/16" thick spacers between the crossmember beam and the mount and lower the transmission/mount down onto the crossmember. Level out the crossmember ends along the frame rails and mark/drill the rear attachment holes for the crossmember through the vehicle frame rails. Install the remaining M10 bolts/nuts, feeding them through the supplied backing plates outside the frame rails, and then tighten all fasteners in the assembly.

**NOTE:** The 3/16" spacer included in the design/packaging of this crossmember is present to permit minor lowering of the transmission tailshaft, if needed, to assist adjust of U-joint operating angles on vehicles with rearends featuring low pinion heights (i.e. Ford 9 rearends). The 5/16" spacer is included to compensate for the variance in mount height between the 4<sup>th</sup>-gen F-body T56 and T56 Magnum transmissions. Install each spacer as directed and deviate from that configuration only if you determine your application requires it.

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).

## **COMPATIBILITY INFORMATION:**

This transmission crossmember was specifically designed for use with Hooker Blackheart LS/Coyote swap engine brackets, headers and exhaust systems also developed for this vehicle application. Various other Holley® components have been designed and/or validated for use in this vehicle application, as follows:

**LS engine swap** – Using this crossmember to perform an LS engine swap on the **stock OE**, or **Maximum Motorsports 5.0L** Fox Body Mustang K-members requires the use of a Holley® **302-3** LS oil pan and specific Hooker Blackheart engine mounting brackets designed for this purpose. Holley **302-1/ 302-2**, and Weiland **5026,5027,5028** and **5029** LS oil pans are also suitable for use with this transmission crossmember, when used with specific **AJE** or **Team Z Motorsports** K-members and specific Hooker Blackheart engine mounting brackets developed for them. The applicable Hooker Blackheart engine mounting brackets for these K-members can be found at [www.holley.com](http://www.holley.com). Compatibility with any other brand/type of K-member is not implied or expected due to the proprietary design geometry of the Hooker Blackheart/Holley components.

**Coyote engine swap** – Using this crossmember to perform a Coyote engine swap on the stock OE Fox Body Mustang K-member requires the use of the Holley **302-50** Coyote oil pan and specific Hooker Blackheart engine mounting brackets developed for this purpose. The stock OE 2011-14 Mustang Coyote and Holley **302-50** Coyote oil pans are both suitable for use with this transmission crossmember, when used with specific **AJE** or **Team Z Motorsports** K-members and specific Hooker Blackheart engine mounting brackets developed for them; other aftermarket oil pans may also be compatible but have not been validated by Holley Engineering. The applicable Hooker Blackheart engine mounting brackets for these K-members can be found at [www.holley.com](http://www.holley.com). Compatibility with any other brand/type of K-member is not implied or expected due to the proprietary design geometry of the Hooker Blackheart/Holley components.

More engine 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).

## **LIMITATION OF LIABILITY – DISCLAIMER:**

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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.

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