



GM LS/LT Engine Mount Components

71221016HKR, 71221017HKR, 71221018HKR, 71221019HKR, 71223015HKR, & 71223016HKR Installation Instructions



71221016HKR



71221019HKR



71223015HKR



71223016HKR

Thank you for choosing to use Hooker Blackheart LS/LT engine mount components as part of your performance vehicle project. These mounts may be used as direct replacement parts on any 1998-02 V8 equipped GM F-body vehicle (with 71221018HKR), or to perform an LT engine swap in a 1998-02 V8 equipped GM F-body vehicle (with 71221019HKR) using the factory frame stands. Additionally, they may be used to mount an LS or LT engine into a GM 1983-93 F-body or 1964-72 A-body vehicle using specific Hooker LS engine swap brackets developed for those applications. Please read these instructions thoroughly before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

These components were designed in conjunction with one another to eliminate the rivet-drilling operation typically required to install polyurethane inserts in 1998-2002 GM F-body vehicles.

Hooker Blackheart LS and LT clamshell housings are both stamped from thicker gauge steel than is typically used to manufacture clamshell housings of stock replacement LS engine mounts, which means they provide a stronger mounting foundation for high horsepower applications.

While easy to install, careful attention should be paid to the installation steps within this document to ensure the insert is not installed into the clamshell upside-down or backwards, which would cause in-car installation issues.

COMPATIBILITY INFORMATION:

Although Hooker Blackheart clamshell housings (LS and LT versions) were CAD designed specifically for use with Hooker Blackheart polyurethane inserts, they will physically accept GM 1998-02 F-body LS polyurethane inserts from Energy Suspension™ and Prothane™ also.

BEFORE BEGINNING...

Check that the hardware package includes the following:

71221016HKR- (1) **black** LS/LT polyurethane insert

71221017HKR- (1) **red** LS/LT polyurethane insert

71221018HKR- (1) **LS** engine mount clamshell (upper and lower halves), (4) 5/16 bolts, (4) 5/16 washers and (4) 5/16 lock nuts

71221019HKR- (1) **LT** engine mount clamshell (upper and lower halves), (4) 5/16 bolts, (4) 5/16 washers and (4) 5/16 lock nuts

71223015HKR- (2) M12 x 150mm flanged head, Grade 10.9, LS/LT engine mount/bracket couple-bolts, (2) M12 flanged nuts

71223016HKR- (4) 5/16 bolts, (4) 5/16 washers, and (4) 5/16 lock nuts (this is a replacement hardware kit for the fasteners included with the 71221018HKR and 71221019HKR engine mount clamshell kits).

INSTALLATION:

1. Install the insert between the upper and lower clamshell halves while ensuring that the following conditions of orientation are met:
 - A. The metal tangs protruding from the ends of the insert are offset towards the top of the clamshell halves (the side with a straight edge compared to the slight "V" shaped edge of the bottom side).
 - B. The longer end of the insert protrudes from the right side of the clamshell housing. This is the case with both mounts to be installed on an engine, which means when installed on the engine, the longer end of the inserts will point towards the front of the car on the passenger's side of the engine, and towards the rear of the car on the driver's side of the engine.
2. With the above conditions met, fasten the upper and lower clamshell halves together using the 5/16" hardware included with each clamshell housing. Install the fasteners in the orientation shown in **Figure 1** on the next page (LT clamshell shown, LS clamshell similar).

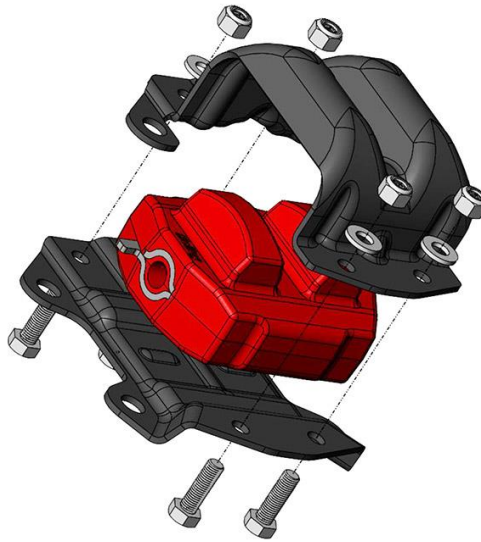


Figure 1

3. Ensure the two large holes in the bottom of the upper and lower halves are aligned to allow unobstructed insertion of M10 bolts through each of them and then torque the 5/16 bolt/washer/nut assemblies to approximately 29 ft./lbs.
4. Attach the clamshell/insert assemblies to the intended engine with user-supplied M10 fasteners with the straight edge of the clamshells facing up as depicted in **Figure 2**.

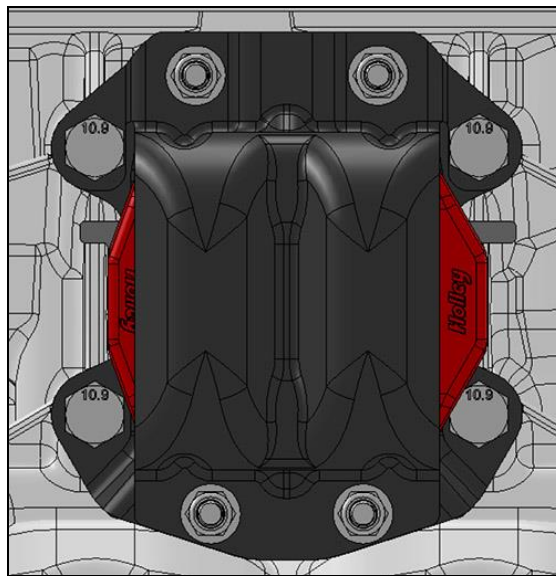


Figure 2

5. Lower the engine onto the vehicle engine mounting brackets and couple the engine mounts to the brackets using the M12 bolts and nuts included in the Hooker Blackheart 71223015HKR hardware kit, or with similar fasteners. Tighten bolt/nut assemblies

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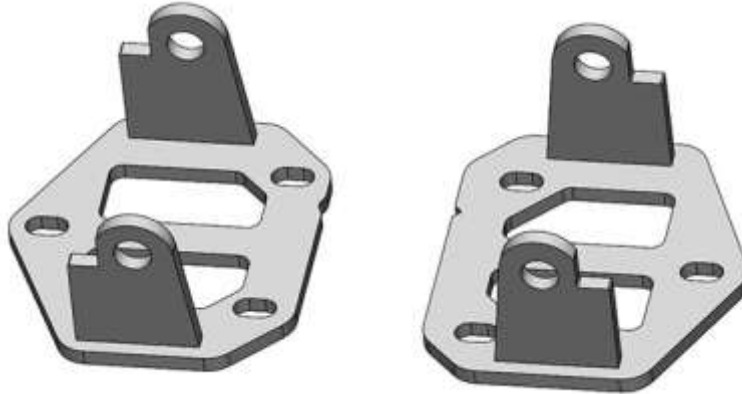
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Revision Date: 8-2-19



1982-2004 GM S10 LS Swap Engine Mounting Brackets 71221029HKR Installation Instructions



Thank you for choosing to use HOOKER™ engine swap mounting brackets as part of your LS swap project. These mounting brackets are part of the most comprehensively engineered system of mounting components, headers and exhaust systems available for this application. Please read these instructions thoroughly before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

Installation of these brackets requires the use of OE style 4th-gen F-Body LS engine mounts, such as the Hooker Blackheart Heavy Duty LS Clamshell Engine Mounts (71221018HKR) and Hooker Blackheart Polyurethane Mount Inserts (71221016HKR – Black or 71221017HKR – Red). If unavailable, polyurethane inserts from Prothane® (7-512) or Energy Suspension® (3-1151) will also work with the Hooker Blackheart clamshell mounts. GM 22179268 or Anchor® 3064 can be used as a substitute if needed, but will not be as stable.

In addition, a pair of metric motor mount through-bolts and a pair of locking flange nuts will need to be sourced for connecting the Hooker engine brackets to the motor mounts (see Hooker Blackheart Bolt Hardware Kit – P/N 71223015HKR). Specification requirements are 10.9 M12 x 1.75 x 140mm for the bolts and M12 x 1.75 class 8 for the nuts.

When installing swap mounts in 1994-2004 S10, you may have to use a 10mm x 1.5 thread tap to create threads in the unused holes, or drill and add nuts to the bottom side.

COMPATIBILITY INFORMATION:

When used with the related Hooker Blackheart transmission crossmember, these engine swap mounting brackets will replicate the factory engine/transmission inclination angle used in 1982-2004 GM S10 2-wheel drive applications.

These LS swap brackets will only work on 2-wheel drive applications.

This engine swap mounting bracket kit requires the use of a Holley LS Engine Swap Oil pan 302-1. The other variations do not fit and will interfere with the crossmember slightly.

More LS 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.

BEFORE BEGINNING:

Check that the hardware package includes the following:

Qty.	Description
6	M10 x 1.5 x 30 Bolts
6	M10 x 1.5 Flange Nuts

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

INSTALLATION:

1. Detach the stock brake line hold-down clips that are attached to the frame directly behind the engine mount cradle and reposition the brake line as low on the cradle as possible.
2. Remove the factory engine mounts from the frame and clean the bracket mounting surfaces.
3. Attach the Hooker engine mounting brackets to the frame, leaving the (x6) mounting bolts loose so you can slide the mounts, as oriented in **Figure 1**, using the supplied M10 bolts/nuts.



Figure 1

4. Install new OE rubber or aftermarket polyurethane mounts on the LS engine to be installed.
5. Install the engine/transmission assembly onto the Hooker engine brackets and couple the engine mounts to the engine brackets using the user-sourced metric cap screws and flanged locking nuts.
6. Once the engine is sitting in the engine bay as it should, use a wrench to tighten the (x6) mounting bolts.
7. Raise the rear of the transmission as high as it will go and install the Hooker LS swap S10 transmission crossmember per the instructions included with its packaging.
8. Your LS swap engine and transmission are now mounted and ready to be outfitted with headers and an exhaust system. Hooker Blackheart LS S10 swap headers and dual exhaust systems are specifically designed for use with these engine mounting brackets.

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Revision Date: 1-9-24



**GM S10 1982-2004 4L80E
Installation Instructions
71222020HKR**



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.

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 LS oil pans; compatibility with other aftermarket/OE engine oil pans is unknown.

Hooker™ LS swap manifolds (71223026HKR) and mid-length headers (70201317-RHKR and 70201316-RHKR) are compatible when installed using this Hooker LS engine swap transmission crossmember and the related Hooker 71221029HKR 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.

Hooker recommends using a Prothane 7-1604 or Anchor 2268 transmission mount.

BEFORE STARTING:

Your vehicle must be raised a minimum of 36 inches. A floor hoist is ideal. If no hoist is available, we strongly urge the use of axle stands as a safety measure. Please read these instructions in their entirety before attempting installation.

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.

NOTE: These instructions have been written with the assumption that you have already installed an LS engine into your vehicle using the Hooker 71221029HKR engine swap bracket kit. Satisfactory engine and transmission installation with any other type or brand of engine mounts is not intended with this crossmember.

INCLUDED HARDWARE:

Qty.	Description
1	Center Crossmember
1	Left Side Mounting Bracket
1	Right Side Mounting Bracket

Qty.	Description
11	3/8" x 1" Bolts
11	3/8" Nuts
3	3/8 x 2.5" Bolts
1	4L80E Adapter Bracket

Check the hardware package. If anything is missing, please contact Technical Service at 1-866-464-6553 or 270-781-9741.

INSTALLATION:

1. Raise the tail shaft of the transmission to its maximum height against the vehicle floor.
2. Install the left side bracket as it shows in the photo. On 1982-1993, you will use 3- 3/8" x 1" bolts. On later 1995-2004 years, will use the longer 3/8" x 2.5" bolts. Install the correct (x3) bolts and tighten.
3. Install the right side bracket as shown in the photo. 1982-1993 years will mount with two of the forward mounting holes as shown in **Figure 1**. The rear 2 holes will need to be drilled with a 3/8" drill bit for installation. On later years, no drilling will be required. You will use two front holes and two rear holes to attach. Install hardware and tighten.
4. You are now ready to install the center section of your crossmember. Install so that the center transmission mounting pad is going uphill toward the front of the vehicle.
5. The 4L80E will mount in the rearward mounting holes using the supplied adapter bracket as in **Figure 1**.
6. Once the center section has been installed, use (x4) of the 3/8" x 1" bolts to attach and tighten for final assembly.



Figure 1

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Revision Date: 9-30-19



1982-1993 (71223027HKR) & 1994-2004 (71223028HKR) Chevrolet S-10 A/C Cover

Installation Instructions



71223027HKR



71223028HKR

Thank you for choosing to use HOOKER™ exhaust components as part of your S10 LS swap project. These components are part of the most comprehensively engineered collection of LS swap 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. These A/C covers were developed for use with Hooker S10 swap components but may work with other swap components or just as a factory replacement cover.

NOTE: Developed to be used with Hooker S10 swap mounts and crossmember.

NOTE: Removal of Freon is not needed for install.

NOTE: These instructions are based on the engine being installed. If installing the engine later, less steps will be needed.

NOTE: Do not use hardware to compress the seal. Use your hand to squeeze the cover to the box compressing the seal.

INSTALLATION INSTRUCTIONS:

1. Start by making sure the battery has been disconnected.
2. Remove right side coil pack assembly and valve cover. After removing valve cover, use a clean towel to cover the valvetrain.
3. Remove the bolts/screws outlining the A/C cover to the evaporator box and firewall. Save for re-install.
4. Once all bolts are removed, you will need to use light force to remove the old cover from the evaporator box.
5. With the cover removed, you will need to remove any of the old seal from the evaporator box and firewall.
6. On 1994-2004 S-10's, you will need to use a hacksaw or equivalent to cut the studs flush that are attached to the OE evaporator box. When removed, the area cut will be flush with the sealing point of the box. A file or sandpaper may be needed for a flush finish (Figures 1 & 2).



Figure 1

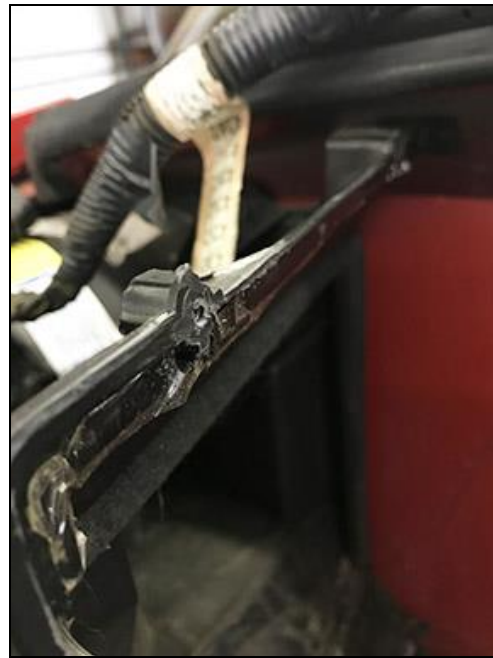


Figure 2

7. Before installing the new Hooker cover, you will need to clean all sealing surfaces with something similar to wax and grease remover so that the seal will adhere.
8. Using the supplied seal, attach it to the Hooker cover being sure that it sticks to the cover and isn't too thick. You can thin out the seal by stretching it out.
9. Once the seal has been attached to the Hooker cover, start the install process.
10. During the install process, it will be very difficult not to damage some of the seal. This is ok. You can add more seal once the box is in place.
11. 1994-2004 cover should go in smoothly. The 1982-1993 cover is more difficult to get in place. You may have to twist the cover to get in place.
12. Once cover is loosely in place, inspect the seal and repair as needed. Once seal is ready, install the cover.
13. Do not use the hardware to compress the seal as this could cause damage to the cover. Using your hand, squeeze the cover to the evaporator box and press to the firewall compressing the seal.
14. Install all bolts or screws as they were originally, the 1994-2004 will still use the same screws where the studs were removed. Slight force may be needed to restart the screws in those areas.
15. Be sure not to overtighten the hardware and crack or damage the new cover.
16. Once all hardware has been installed, use the remaining seal to cover any areas that could leak cold air.
17. Using the supplied phillips head screws, install the blower motor relay at this time.
18. 1982-1994 S-10 – Use the supplied phillips head screws and install the bracket for the accumulator.
19. You are now ready to run the fan on high speed and check for leaks. If any leaks are found, use the leftover seal to repair those areas.



1982-1993



1994-2004

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Technical Service: 1-866-464-6553

Phone: 1-270-781-9741

For online help, please refer to the Tech Service section of our website: www.holley.com

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Date: 9-24-18



Transmission Polyurethane Mount - GM
71223029HKR & 71223030HKR
Installation Instructions



Thank you for choosing to use the Hooker BlackHeart™ transmission mount as part of your performance vehicle project. Please read thoroughly and understand these instructions before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

These polyurethane transmission mounts may be used as a direct replacement for stock GM rubber mounts that measure 1.75" in height. Replacement of mounts with a greater height than 1.75" can be accommodated with the use of shim washers between the crossmember and the mount.

The polyurethane construction is capable of high horsepower applications while preserving vibration dampening and the safety interlock design of the inner components ensures that even if the polyurethane fails the mount will not separate. These polyurethane mounts are capable of fitting either a one or two stud type of crossmember interface.

BEFORE BEGINNING:

Check that the package contains the following hardware:

71223029HKR	
Qty.	Description
1	Black Polyurethane Transmission Mount
2	7/16"-14 x 1.5" Studs
2	7/16"-14 Hex Nuts
2	Flat Washers
2	Lock Washers

71223030HKR	
Qty.	Description
1	Red Polyurethane Transmission Mount
2	7/16"-14 x 1.5" Studs
2	7/16"-14 Hex Nuts
2	Flat Washers
2	Lock Washers

INSTALLATION:

1. Determine if your application requires a one or two stud crossmember interface. Install the supplied stud(s) (7/16"-14 x 1.5") into the appropriate threaded holes in the polyurethane mount with a 7/32" hex key. If no hex key is available, the studs can also be installed into the mount by "double nutting" the end of the stud with the supplied hex nuts. Install the stud(s) until firmly seated in place.
2. Install the mount onto the crossmember with hardware provided (shown in **Figure 1**). Do not tighten the hex nuts at this time.
3. Install the factory transmission bolts (user supplied). Do not tighten the bolts at this time.
4. Confirm alignment of the polyurethane mount with the transmission and crossmember. Tighten and torque the transmission bolts to factory torque specifications. Also tighten and torque the crossmember hex nut(s) to 49 ft./lbs.

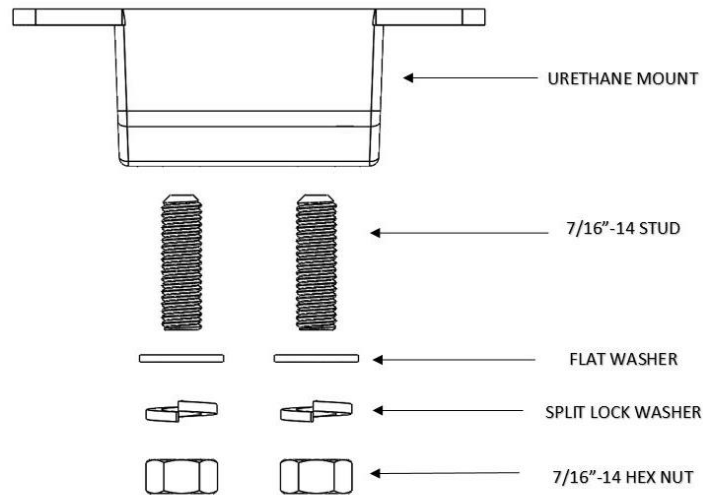


Figure 1

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