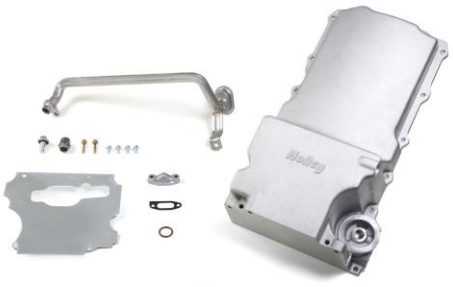
OIL PANS
P/N 302-1 & 302-2



Instruction Sheet 199R10566

CONGRATULATIONS on your purchase of a Holley® **LS Retro-fit Oil Pan**! We feel that you have purchased the finest performance oil pan manufactured today. Should you need information or parts assistance, please contact our Technical Service Department at 1-866-464-6553 or 1-270-781-9741, Monday through Friday, 8 a.m. to 6 p.m. CST. Please have the part number of the product you purchased on hand when you call.

WARNING! These instructions must be read and fully understood before beginning installation. Failure to follow these instructions may result in poor performance, vehicle damage, personal injury, or death. If these instructions are not fully understood, installation should not be attempted.

Requires use of Holley 302-15 Dipstick and Tube Kit or LS3 dipstick (GM P/N 12669528) and tube (GM P/N 12625031).

INTRODUCTION:

Holley® Performance Products has written this instruction sheet for the installation of the **LS Retro-fit Oil Pan**. This instruction sheet contains all the information needed to install the oil pan. Please read all the **WARNINGS** and **NOTES**, as they contain valuable information that can save you time and money. Holley® Performance Products cannot and will not be responsible for any alleged or actual engine or other damage, or other conditions resulting from misapplication of the oil pan described herein. However, it is our intent to provide the best possible products for our customer; products that perform properly and satisfy your expectations.

APPLICATIONS:

302-1 – The Holley® P/N 302-1 LS Retro-fit oil pan is designed for LS engine retrofit installation in a wide range of popular GM muscle/classic car and truck chassis.

302-2 – The Holley® P/N 302-2 LS Gen 1 F-Body Retro-fit oil pan is designed specifically for LS engine retrofit installation in 1967-69 Camaro/Firebird (Gen 1 F-body), 1968-1974 Nova/Apollo/Omega/Ventura (Gen 1 X-body) vehicles. The 302-2 oil pan may also service other popular muscle/classic car and truck chassis where more engine-to-chassis clearance is required near the front half of the oil pan.

IMPORTANT APPLICATION NOTES:

- Both oil pans provide OEM fitment and oil filter mounting provisions.
- 302-1 & 302-2 are not intended to be used with engines that originally utilized a dry sump system.
- 302-1 is designed to use a GM full length windage tray. Depending on which full-length windage tray is used, some modification to the tray may be required. See the instructions showing the modification which may be required.
- 302-2 is designed to use a GM “F-body” windage tray, GM P/N 12558253. A modification to the windage tray is required to provide clearance to the pick-up tube. A full-length windage tray may be used if the front quarter of the tray is removed. See the instructions showing the windage tray modifications required.
- 302-2 may not be used on LS7 engines or engines with a stroke longer than 3.62”. The internal rotating assembly to oil pan clearance provided in the front half of the oil pan is patterned after a GM 98-02 LS1 oil pan.

The Holley® LS Swap oil pans are designed to work with an LS3 dipstick and tube (if desired). Below are the part numbers:

- LS Dipstick – GM P/N 12669528
- LS tube – GM P/N 12625031

NOTE: There are LS engine applications that have a plug installed in the dipstick hole location to be used with this oil pan. This plug will need to be removed before the oil pan is installed on the engine to allow the installation of the proper dipstick tube.

PAN CAPACITIES:

	302-1	302-2
Sump Oil Capacity –	5.5 Qts	5.7 Qts
Total Oil Capacity w/ stock filter –	6 Qts	6.2 Qts

PARTS NEEDED:

- Oil Pan Gasket (Mr. Gasket P/N 6665G, GM® 12612350, or equivalent)
- High Quality RTV sealer
- Oil
- Oil Filter (AC Delco® PF48 or PF48E, Mobile M1-113, Wix 57060, K&N HP-1017, or equivalent)

REMOVAL:

1. Drain the engine oil. Remove oil filter.
2. Remove the starter motor.
3. Disconnect the oil level sensor electrical connector (if equipped).
4. Remove the oil level sensor from the oil pan and set aside. The sensor will not be utilized in the Holley® pan.
5. Remove the RH transmission cover and bolt.
6. Remove the LH transmission cover and bolt.
7. Remove the bottom two transmission bellhousing bolts.
8. Remove the oil pan bolts.
9. Rotate the oil pan until it can be removed from around the oil pump pickup screen. Removal of the oil pan may not be possible with the engine in the vehicle).

NOTE: Holley® does not recommend or condone the use of the old pan gasket. A new gasket is highly recommended.

WARNING! Use extreme care when drilling the oil pan rivets to not gouge, score or damage the oil pan gasket.

10. If reusing the oil pan gasket, carefully drill out the oil pan gasket rivets (x2) if necessary (**Figure 1**).

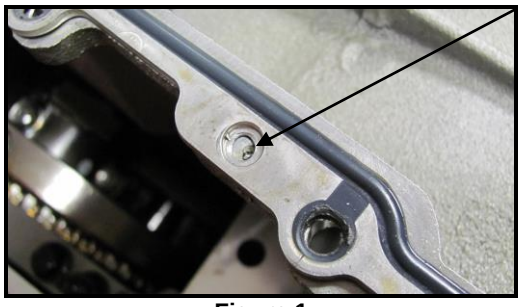


Figure 1

11. Remove oil pan gasket.
12. Remove the oil pump pickup screen retaining bolt and nut.
13. Remove the oil pump pickup screen and O-ring, discard O-ring and set the pickup aside as it will not be re-used.
14. While the oil pan is removed, check the dipstick hole on the right side of the engine below cylinder #6 to assure that there is no plug installed and that the dipstick tube will fit in the hole.

IMPORTANT: All gasket surfaces should be free of oil or other foreign material during assembly. Inspect the engine block oil gallery passages to make sure they are free from any debris or restrictions.

IMPORTANT: The oil pan on LS engines is a structural member. The alignment of the pan is critical to provide the proper mounting points for the transmission bellhousing. The rear of the oil pan must never protrude from the rear of the block. The rear of the block and oil pan are to be flush (Figure 2).

IMPORTANT: Ensure that a helicoil has been installed in your pan by installing the drain plug.

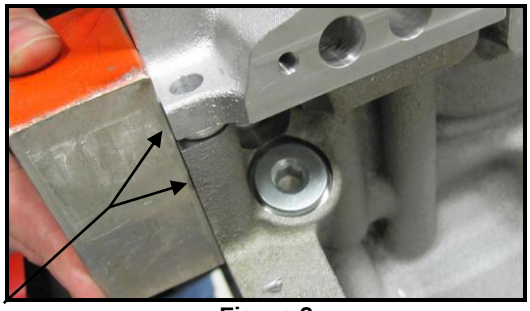


Figure 2

IMPORTANT: It is advisable to wash all of the new parts well before installing to remove any dirt or debris from the packing and shipping process.

IMPORTANT: It is advisable to test-fit the oil pan to the engine before installation to ensure that the crankshaft and connecting rods clear the windage tray, oil pump pick-up screen, and the oil pan, making a full revolution of the rotating assembly by hand.

IMPORTANT: It is advisable to mock up the engine and oil pan in the intended vehicle to ensure there is no contact of the pan to the frame or cross-members.

INSTALLATION:

1. Remove the new Holley® oil pan, parts kit, pickup screen and baffle from the box.

IMPORTANT: Ensure that a helicoil has been installed in your pan by installing the drain plug.

2. Install the supplied O-ring onto the oil pump pickup screen assembly and lubricate with clean engine oil (**Figure 3**).

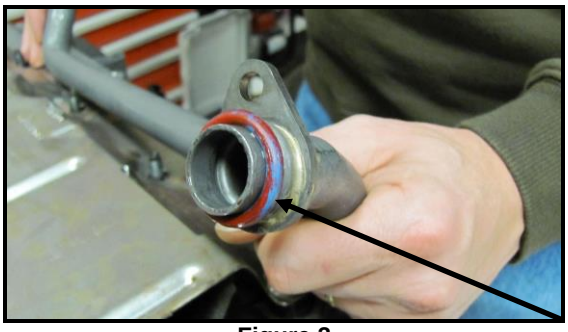


Figure 3

WINDAGE TRAY INSTALLATION AND MODIFICATIONS:

P/N 302-1 OIL PAN:

WARNING! Due to the design of the Holley® oil pump pickup screen, slight modifications may have to be made to the oil deflector before the pickup screen will sit flush (**Figures 4** & **5**). Be sure to inspect this area before bolting the pickup screen into place as modifications may have to be made. GM offers an oil deflector that has the necessary clearance for the mounting bracket of the pickup screen. The GM P/N is 12611129, if modifications to the oil deflector are not desired.

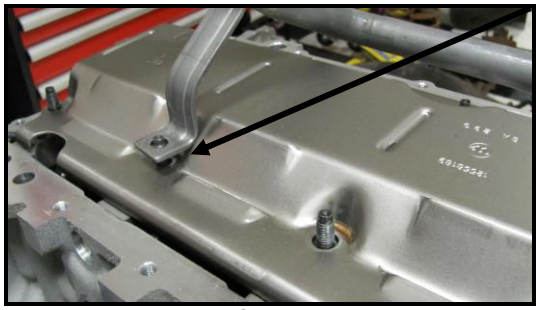


Figure 4

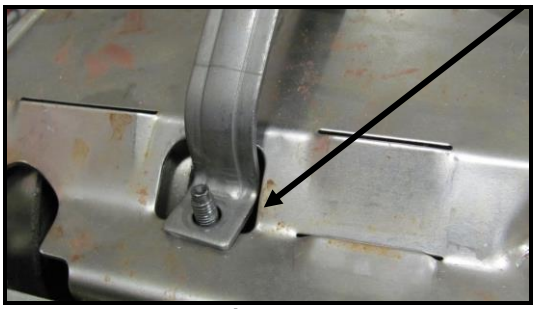
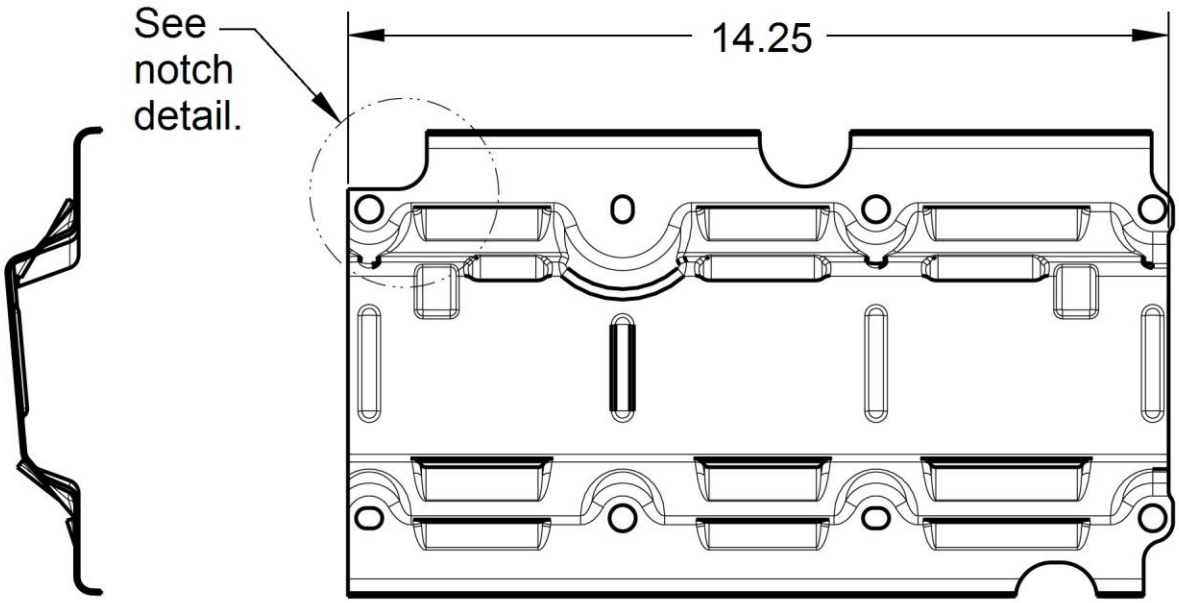


Figure 5

P/N 302-2 OIL PAN:

WARNING! The 302-2 oil pan is design to use a GM LS “F-Body” windage tray, GM P/N 12558253. Due to the design of the Holley® oil pump pickup screen, a modification to the windage tray must be made. A cut to provide clearance to the oil pick-up tube must be made as shown in **Figure 6**. The cut-out below may be used as a template for the cut.

A full-length windage tray may be used if it is modified to remove the front quarter of the tray and the required cut is made to provide clearance to the pick-up tube (**Figure 6**). A very careful check should be made to ensure that the oil pick-up tube has clearance to the windage tray and that the oil pick-up tube mounting bracket seats down properly on the mounting stud and windage tray without interference.



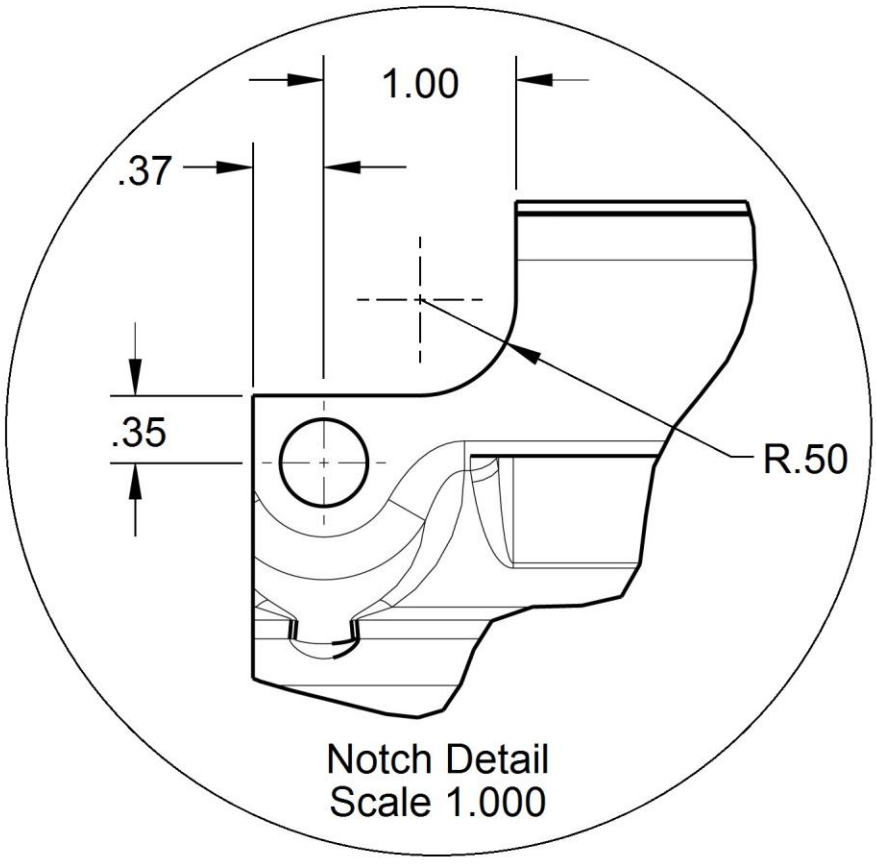


Figure 6

3. Install the new Holley® oil pump pickup screen assembly ensuring that oil pump pickup screen tube is pushed completely into the oil pump before tightening the bolt (**Figure 7**). Do not allow the bolt to pull the tube into the pump.

NOTE: Ensure the O-ring has not been pinched during installation.

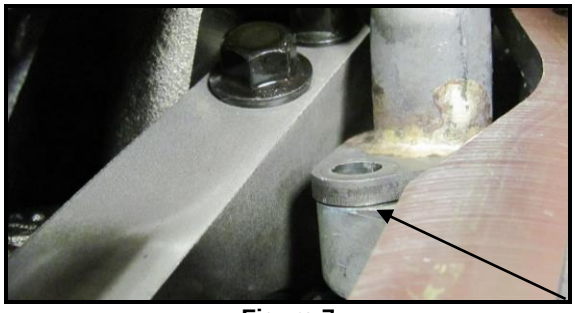


Figure 7

4. Rotate the crankshaft by hand to ensure there is adequate clearance between the pickup tube brace, oil deflector, and the crankshaft counterweights.

5. Install the oil pump screen nut and bolt(s). You may need to slightly bend the tab to provide precise alignment of the hole in the tab to the mounting stud.

NOTE: The 302-2 oil pump screen/pick-up tube features a two bolt oil pump mounting flange. There are two M6 x 16mm long flanged socket head capscrews included in the installation parts kit. Use one or both of these cap screws when installing the 302-2 pickup screen. One screw is sufficient to retain the pickup screen, the second screw is optional.

6. Tighten the oil pump pickup screen bolt(s) to 106 in./lbs. and the nut to 18 ft./lbs**.**

7. Pre-assemble the oil pan.

8. Apply a drop of blue Loctite® to the threads of the (x4) supplied 1/4-20 x 1/2 long cap screws and use them to install the baffle into the oil pan. Torque the (x4) baffle bolts to 8-10 ft./lbs.

9. Install the supplied oil passage cover, gasket and M6 x 1.0 x 30mm long bolts to the oil pan just above the oil filter. Tighten the oil passage cover bolts to 106 in./lbs.

10. Install the new oil pan gasket to the oil pan and install the oil pan bolts to the pan through the gasket. The gasket is designed to hold the bolts in place.

11. Apply a 5mm bead of RTV sealant 20mm long to the engine block (**Figure 8**) directly onto the tabs of the front cover gasket that protrude into the oil pan surface.

Figure 8

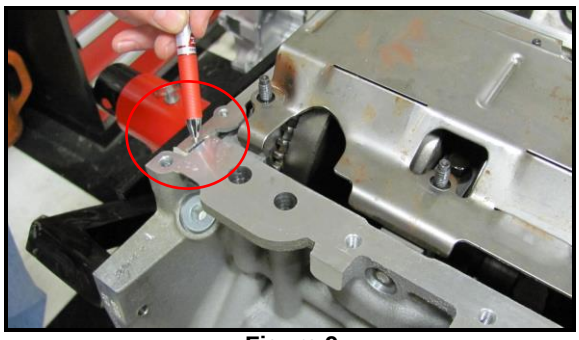


Figure 9

12. Apply a 5mm bead of RTV sealant 20mm long to the engine block (**Figure 9**) directly onto the tabs of the rear cover gasket that protrude into the oil pan surface.

13. Install the oil pan assembly to the engine block.

14. Snug all the oil pan bolts by hand (do not overtighten).

15. Install the two lower transmission bellhousing bolts until snug (do not overtighten).

16. Tighten the oil pan to block and oil pan to front cover bolts to 18 ft./lbs. (work from the center out).

17. Tighten the oil pan to rear cover bolts to 106 in./lbs.

18. Tighten the two transmission bellhousing-to-oil pan bolts to 37 ft./lbs. for either a manual or an automatic transmission.

19. Install the LH side transmission cover and bolt. Torque to 106 in./lbs. Install the RH side transmission cover and bolt. Torque to 106 in./lbs.

20. Install the supplied oil pan drain plug and tighten to 18 ft./lbs.

21. Install the supplied oil filter adapter and tighten to 40 ft./lbs.

22. Before installing the new oil filter, apply a thin film of oil to the filter gasket. Install the new engine oil filter and follow the manufacturer's recommendation for tightening procedures.

23. Fill the crankcase with the proper quantity and grade of oil.

24. Be careful not to overfill with oil.

25. Start the vehicle and check for leaks and adequate oil pressure. Use the original dipstick to verify the oil level. This should read full after 6 quarts of oil with a new filter.

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199R10566
Revision Date: 8-28-20

P/N 12628HKR
GM 1967-69 F-Body/1968-72 X-Body LS Swap Powerglide*/TH350*/7004R* Transmission Adapter Kit
*Requires the use of a Hooker 12625HKR 4L60-4L75 transmission crossmember

P/N 12650HKR
TH400 / 2004R Transmission Mount Adapter Kit

Installation Instructions 199R10685

Thank you for choosing to use Hooker Blackheart products as part of your engine/transmission swap project. These products are designed as part of the most comprehensively engineered systems of mounting components, headers, and exhaust systems available for LS engine swaps. Hooker Blackheart LS swap systems are 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 PRE-INSTALLATION INFORMATION:

These components have been designed for use in multiple Hooker Blackheart LS engine swap system applications. They have been CAD designed and FEA validated to provide optimized strength and fitment geometry for each application they are called out to be used with.

Installation of these products requires the use of a **Prothane™ 7-1604** poly mount, or an **Anchor™ 2268** rubber transmission mount for as-designed installation geometry to be achieved.

Use of the 12628HKR adapter kit with a 12625HKR 4L60-4L70 crossmember to install a Powerglide, TH350 or 700R4 transmission into an LS swapped GM 1st-gen F-body/3rd-gen F-body (using Hooker Blackheart 12618HKR LS swap engine brackets only) requires modifications (cutting and welding) be performed on the 12625HKR crossmember to complete the installation. The increased exhaust passage and ground clearance gained by using the 12625HKR crossmember as part of your LS swap project will more than justify the extra effort required for this operation.

Use of the 12650HKR spacer block kit with a 12626HKR T56 crossmember to install a 2004R transmission into an LS swapped GM 1st-gen F-body/3rd-gen X-body (using Hooker Blackheart 12618HKR LS swap engine brackets only) requires slight modification/welding to be done to the 12626HKR crossmember to fit around the case and pan of a 2004R transmission. The steel gusset bracket included within the 12650HKR kit is intended for this purpose and its use is outlined in these instructions. The increased exhaust passage and ground clearance gained by using the 12626HKR crossmember as part of your LS swap project will more than justify the extra effort required for this operation.

Use of the 12650HKR spacer block kit with any other Hooker Blackheart transmission crossmember to install a 2004R or TH400 transmission will not require any modifications to be done to the crossmember, or the use of the steel gusset bracket included in the 12650HKR adapter kit. Discard the gusset bracket in such cases.

These instructions are intended to supplement the basic installation steps outlined in various Hooker Blackheart transmission crossmember instruction sheets that call out the use of these parts. The drawings below can be seen in color by going to www.holley.com and searching for either 12628HKR or 12650HKR.

INSTALLATION OF 12628HKR

1. Check that the hardware package includes the following**:**

Qty.	Description	Qty.	Description
1	Adapter Bracket Assembly	2	7/16” Nuts
2	7/16” Bolts		

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

2. Cut a notch as wide as the 12628HKR bracket into the front of the 12625HKR crossmember. Place the notch in the center of the crossmember and cut it back 1-1/8” from the face of the crossbeam front flange (**Figure 1**).
3. Attach the bracket to the crossmember placing the supplied bolts and nuts in the holes that pass through both the bracket and crossmember (**Figure 2**).
4. If you are using this kit to install a 700R4 transmission, trim the front of the bracket off so that it is even with the front edge of the bracket gusset plate (**Figure 2**) and slightly notch the top edges of the upright crossmember gussets to clear the isolator mount base plate (**Figure 3**). If you are using this kit to install a Powerglide or TH350, leave the bracket length as-is, as you will be attaching the transmission mount to the forward set of holes in the bracket.
5. Once notching/clearancing is complete, clean parts and weld them together using either a MIG or TIG welder (**Figure 2**) and spot-paint as desired to match.

6. Install the crossmember per the instructions contained in its packaging.

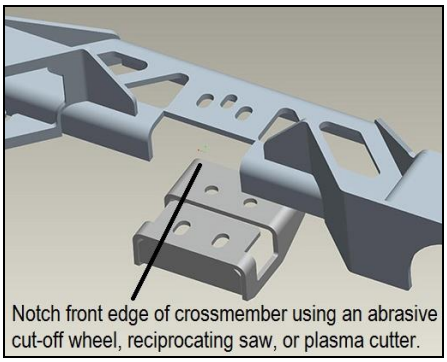

Figure 1

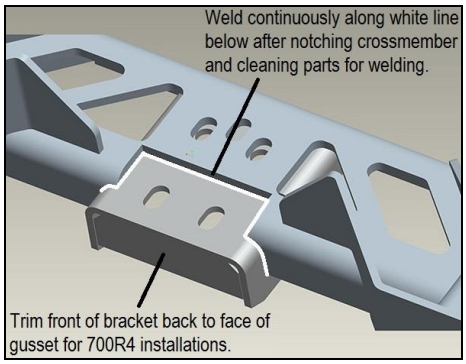

Figure 2

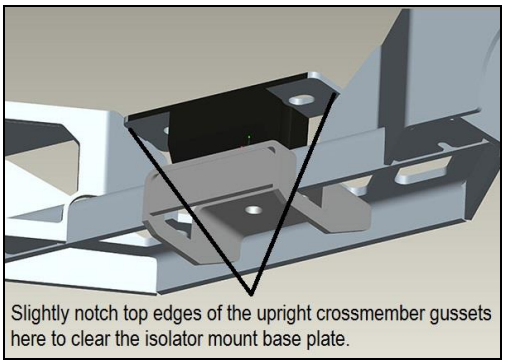

Figure 3

INSTALLATION OF 12650HKR

1. Check that the hardware package includes the following**:**

Qty.	Description	Qty.	Description
1	Aluminum Spacer Block	2	7/16” Bolts
1	Steel Gusset Bracket	2	7/16” Washers

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

2. If you are using this spacer block kit to install a 2004R into a GM 1st-gen F-body or 3rd-gen X-body using the Hooker Blackheart 12626HKR T56 crossmember, modify/cut the inside left upright wall of the crossmember to match what is shown in **Figures 4** and **5** below. Once modifications are complete, clean parts and weld them together using either a MIG or TIG welder, as indicated in **Figure 6** below and spot-paint as desired to match. Install the crossmember per the instructions contained in its packaging while installing the spacer block included in this kit between the crossmember and transmission isolator. Use the included long fasteners to attach the transmission mount to the crossmember.

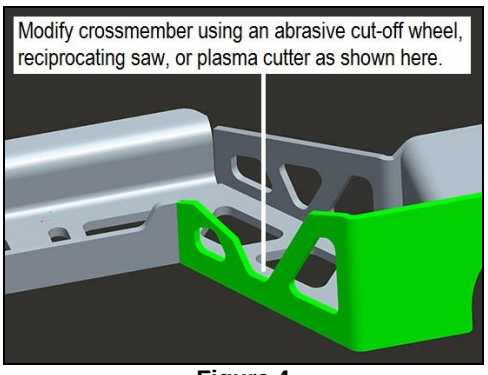

Figure 4

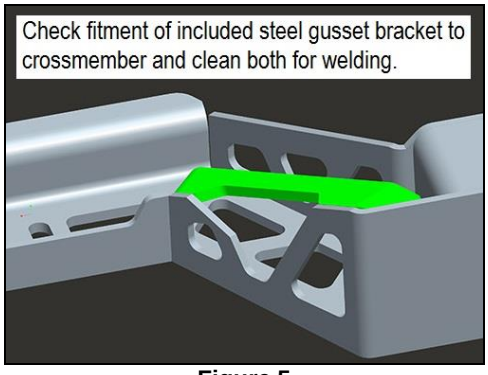

Figure 5

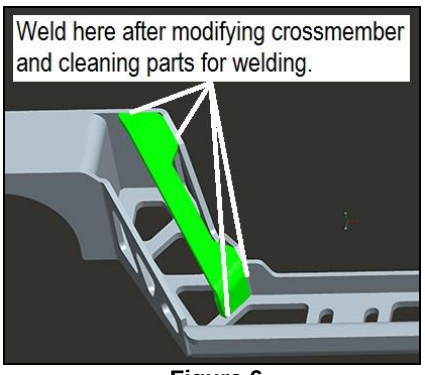

Figure 6

3. If you are using this spacer block kit and a Hooker Blackheart transmission crossmember to install a 2004R or TH400 transmission into any other vehicle besides a GM 1st-gen F-body or 3rd-gen X-body, do not modify the crossmember in any way. Install the crossmember per the instructions contained in its packaging while installing the spacer block included in this kit between the crossmember and transmission mount. Use the included long fasteners to attach the transmission mount to the crossmember. Discard the included gusset bracket as it is not needed in these applications.

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

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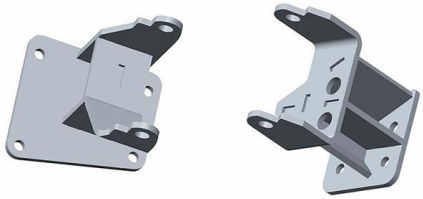
199R10685
Revision Date: 8-22-18

1993-2002 GM F-Body LS Swap Engine Mounting Brackets
3.4/3.8L V6 and LT1/LT4 V8 Equipped Vehicles
Installation Instructions

71221001HKR (V6)



71221002HKR (LT1/LT4-V8)

Thank you for choosing to use Hooker Blackheart 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 engine mounting brackets requires the use of 1998-2002 GM Camaro/Firebird LS1 engine motor mounts. GM replacement rubber mounts (part number 22179268) or Hooker/Holley polyurethane motor mounts (71221016HKR clamshell housings and 71221016HKR or 71221017HKR inserts) are recommended. Aftermarket poly motor mount inserts from other sources have been found to deviate from factory design specifications and will cause installation issues.

The long horizontally installed through bolts/nuts that couple the engine mounts to the Hooker Blackheart engine brackets are to be user supplied. Stock GM bolts/nuts or the Hooker Blackheart 71223015HKR hardware kit are recommended to be used.

Installation of these brackets requires removal of the entire engine/cradle/front suspension/transmission assembly from the vehicle and its subsequent replacement. This operation is inherently dangerous and should be only performed by properly skilled individuals using the proper tools and dedicated automotive lifting equipment.

COMPATIBILITY INFORMATION:

When used with the related Hooker Blackheart **71222001HKR or 71222002HKR** transmission crossmembers, these engine swap mounting brackets will replicate the factory engine/transmission location and inclination angle used in 1998-2002 LS applications.

These engine swap mounting bracket kits have been developed for compatibility with the Holley® **302-2 and 302-3,** or stock 4th-gen F-body LS oil pans. The stock 4th-gen F-body accessory drive system is intended to be used in this swap application.

Hooker Blackheart 4th-gen F-body LS exhaust components are compatible with these engine brackets under the following guidelines:

- Installation of Hooker Blackheart headers requires the installation of an LS application steering rack and intermediate shaft as well as a front end alignment following the completion of the swap.
- Installation of the Hooker 4th-gen dual exhaust system on 1993-97 cars requires installation of a Hooker Blackheart **71223002HKR** notch panel on the driver side floor brace to clear the left inlet tube of the exhaust system.

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.

INSTALLATION:

1. Raise, support and lock the vehicle in position.

2. Remove the engine/cradle/suspension/transmission assembly from the vehicle; use the appropriate factory service manual for the specific vehicle you are working on for step-by-step instructions on how to carry out this task and pay close attention to all listed safety precautions.

3. If installing an LS application steering rack on the cradle to provide exhaust header clearance, do so now; use the appropriate factory service manual for the specific vehicle you are working on for step-by-step instructions on how to carry out this task and pay close attention to all listed safety precautions.

4. Remove the engine and transmission from the cradle and set them aside.

5. Remove the existing engine mounting brackets from the cradle and clean the bracket mounting surfaces on the cradle.

6. Using the stock bolts, install the Hooker Blackheart engine brackets onto the cradle, as shown in **Figures 1** and **2** for V6 applications and **Figure 3** for LT1/LT4-V8 applications. The additional base plate holes (**marked B**) can be scribed, drilled and fitted with fasteners, if desired, for higher HP applications. Leaving these holes undrilled will have no effect on the strength/integrity of a typical swap installation.

7. Install new motor mounts on the LS engine to be installed and install the engine/transmission assembly onto the Hooker Blackheart engine brackets; fasten the engine brackets to the mounts using the user-sourced metric cap screws and flanged locking nuts.

8. Reinstall the engine/cradle/suspension/transmission assembly into the vehicle in the reverse order of steps that was used for removal. Attach the rear of the transmission to the vehicle by installing a Hooker Blackheart **71222001HKR or 71222002HKR** transmission crossmember, or a stock model-year appropriate 4th-gen T56 or 4L60 transmission crossmember.

9. The LS engine/transmission drivetrain is now mounted and ready for attachment of the exhaust system components.

Hole Use Legend	
A	Install bolt in matching factory hole.
A1	Install bolt in 3.4L applications – disregard in 3.8L applications.
A2	Install bolt in 3.8L applications – disregard in 3.4L applications
B	Mark, drill, and install bolt/nut in hole, if desired.

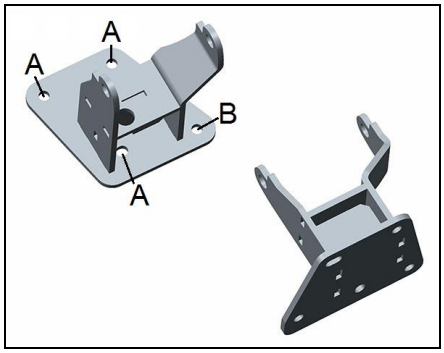


Figure 1 – V6 Driver's Side

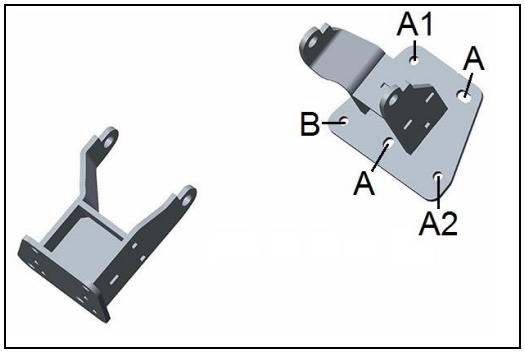


Figure 2 – V6 Passenger's Side

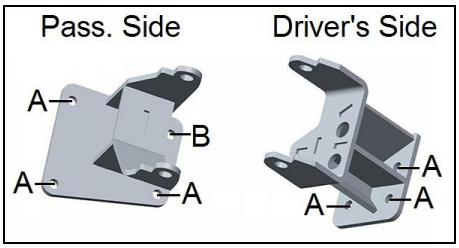


Figure 3 – LT1/LT4-V8

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199R10846
Revision Date: 6-13-19

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).

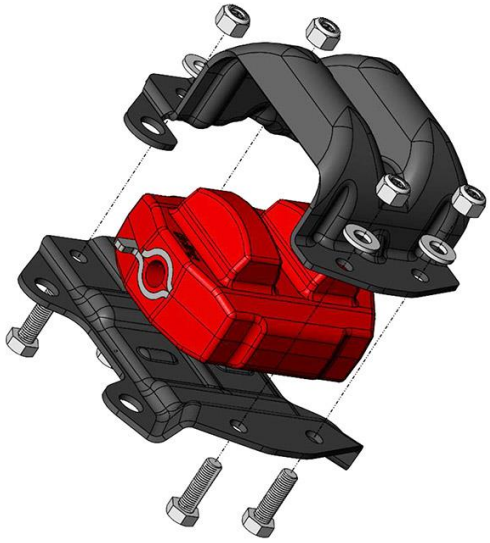

Figure 1

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**.

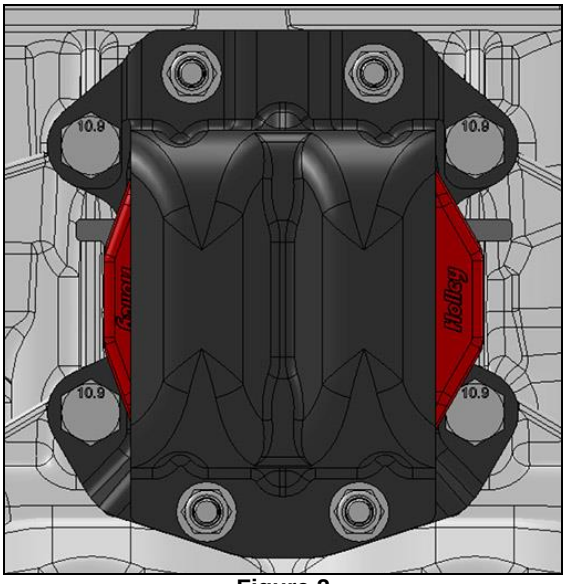

Figure 2

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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199R11359
Revision Date: 8-2-19

1993-2002 GM F-BodyT56/T56 Magnum/4L60-4L70*/4L80-4L85*/TH400*/2004R* Transmission Crossmembers 71222001HKR & 71222002HKR Installation Instructions

*** Installation requires the use of a separately available Hooker transmission adapter kit. 4L80-4L85 installations will require notching/modifications to the body bracing on the driver's side of the transmission tunnel.**

Thank you for choosing to use a Hooker™ transmission crossmember as part of your performance project. These crossmembers were designed for use as part of a 4th-gen F-body LS engine swap project, or as part of a non-stock transmission swap into a 1998-2002 LS equipped 4th-gen F-body vehicle. Please read these instructions in their entirety before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

These crossmembers have been CAD designed to provide an optimized balance of weight, stiffness and strength and the means by which to anchor the stock rear suspension torque arm in installations where that capability is desired (requires the use of the optional **71223005HKR** adjustable torque arm mounting bracket kit). Direct installation capability for 4th-gen F-body and aftermarket Tremec T56 Magnum transmissions is provided by these crossmembers; installation of a 4L60-4L70, 4L80/4L85, TH400 or 2004R automatic transmission can also be accomplished using this crossmember and the Hooker **12650HKR**, **71223003HKR** or **71223004HKR** adapter kits referenced later in this document.

Installation of these crossmembers, with any of the above mentioned transmissions, requires the use of an aftermarket 71223029HKR or 71223030HKR polyurethane mount or the stock/aftermarket rubber mount of which it is a replacement for.

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:

NOTE: These instructions have been written with the assumption that there is an LS engine present in your car that is mounted to the engine cradle with either stock GM or Hooker 4th-gen F-body LS swap engine brackets. Successful installation of these crossmembers with any other type or brand of engine brackets is questionable.

1. Check that the hardware package includes the following:

Qty.	Description
1	Crossmember Assembly
1*	T56 Magnum Spacer

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 T56. Leaving this spacer out will increase the engine inclination angle beyond that intended by Hooker™ and decrease the ground clearance of Hooker™ headers and/or exhaust systems designed for this application.

2. Raise and support the vehicle on a jack stands or an automotive lift.

3. Support the rear of the transmission with a floor jack or other suitable lifting device and remove the existing transmission crossmember from the vehicle, if present.

4. Install the Hooker crossmember to the car in the following manner:

   4th-gen F-body T56 /T56 Magnum installations – Install a 71223029HKR or 71223030HKR polyurethane isolator, or its stock/aftermarket rubber equivelant onto the bottom of the transmission, then attach the Hooker crossmember to the car using the removed factory fasteners. Lower the transmission onto the crossmember and attach the transmission isolator to the crossmember using the fasteners included with the isolator. If the installation is an aftermarket T56 Magnum application, insert the included 2-hole spacer between the isolator and the crossmember as the transmission is being lowered onto the crossmember.

   4L60-4L70 installations – Install a 71223029HKR or 71223030HKR polyurethane isolator, or its stock/aftermarket rubber equivelant onto the bottom of the transmission. Attach the available **71223003HKR** adapter bracket to the center of the Hooker crossmember, as shown in **Images 1&2**, then attach the crossmember to the car using the removed factory fasteners. Lower the transmission onto the crossmember adapter and attach the transmission isolator to the adapter using the fasteners included with the isolator.

   4L80-4L85 installations – Install a 71223029HKR or 71223030HKR polyurethane isolator, or its stock/aftermarket rubber equivelant onto the bottom of the transmission. Attach the available **71223004HKR** adapter bracket to the center of the Hooker crossmember, as shown in **Images 3** & **4**, then attach the crossmember to the car using the removed factory fasteners. Lower the transmission onto the crossmember adapter and attach the transmission isolator to the adapter using the fasteners included with the isolator.

Image 1

Image 2

Image 3

Image 4

   TH400/2004R installations- Install a 71223029HKR or 71223030HKR polyurethane isolator, or its stock/aftermarket rubber equivelant onto the bottom of the transmission, then attach the crossmember to the car using the removed factory fasteners. Place the available **12650HKR** adapter block between the crossmember and isolator and lower the transmission onto the adapter block. Attach the transmission adapter block and isolator to the crossmember using the fasters included with the adapter block.

   NOTE: The optional Hooker **71223005HKR** adjustable torque arm bracket can be used with any of the above transmission installations for those wanting or needing a torque arm anchor mechanism that is compatible with these crossmembers.

COMPATIBILITY INFORMATION:

These transmission crossmembers were specifically designed for bolt-in compatibility with the HOOKER™ LS swap engine mounting bracket kits, headers and exhaust systems also developed for this vehicle application, or for use in swapping various non-stock transmissions into a 1998-2002 F-body vehicle.

Hooker™ **70201301-RHKR** and **70201302-RHKR** 1998-2002 F-body mid-length headers and dual exhaust systems are installation compatible with these crossembers; installation of Hooker dual exhaust systems on a 1993-97 F-body will require the installation of a Hooker 71223002HKR body notch panel, or similar clearancing action to the driver side body brace to obtain the needed clearance.

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.

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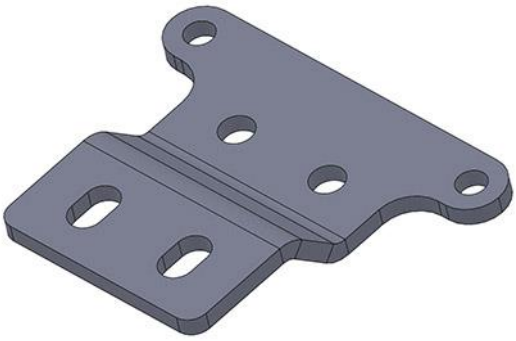
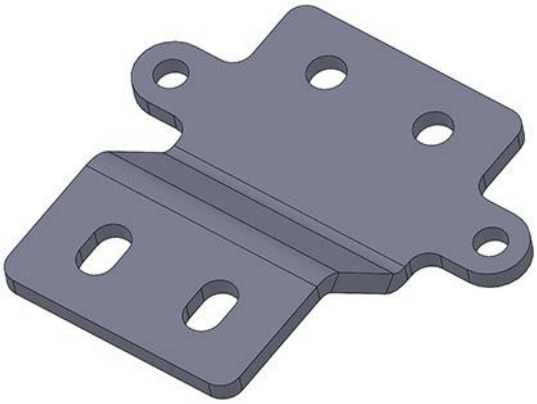
199R10877
Revision Date: 7-7-20

Hooker Transmission Crossmember Adapter Bracket Kits
71223003HKR (4L60-4L70) & 71223004HKR (4L80-4L85)
Installation Instructions



4L60-4L70



4L80-4L85

Thank you for choosing to use a Hooker™ transmission crossmember as part of your LS swap project. The components contained in this package are designed and intended for installation only with specific Hooker LS swap transmission crossmembers. Please refer to the instructions included with the compatible Hooker crossmember you are using for proper installation of these parts.

1. Check that the hardware package includes the following**:**

Qty.	Description	Qty.	Description
1	Bracket Assembly	2	7/16 x 1 Bolts
2	3/8 x 1” Bolts	2	7/16 Nuts
2	3/8 Nuts		

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

No other use of these components is intended, implied or recommended by Holley Performance Products.

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199R10879
Revision Date: 12-15-17

Hooker 1993-2002 GM F-Body Adjustable Torque Arm Bracket
71223005HKR
Installation Instructions

Thank you for choosing to use this Hooker™ component as part of your performance project. This bracket is compatible for use with Hooker **71222001HKR and 71222002HKR** 4th-gen F-body transmission crossmembers only. Please read these instructions in their entirety before attempting installation.

PRE-INSTALLATION CONSIDERATIONS:

This adapter is designed to provide the user of a Hooker **71222001HKR or 71222002HKR** 4th-gen F-body transmission crossmember with a bolt-on adjustable torque arm mounting solution, which can be used to divorce the torque arm from any stock 4th-gen T56 or 4L60 transmission, or to provide torque arm anchorage for non-stock T56 Magnum, 4L60-4L70, TH400, 2004R and 4L80-4L85 transmission swaps. Installation/use of this bracket will allow the torque arm to be installed in the factory stock position, or in a modified position to affect the instant center of the rear suspension.

Installation of this bracket will require the use of an Energy Suspension® **3-1111R** or **31111G** torque arm bushing.

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.**

INSTALLATION:

NOTE: These instructions have been written with the assumption that a Hooker **71222001HKR or 71222002HKR** 4th-gen F-body transmission crossmember has been installed into the vehicle and the stock torque arm bushing/bracket has been removed from the vehicle.

1. Check that the hardware package includes the following**:**

Qty.	Description	Qty.	Description
1	Main Bracket Assembly	4	5/16 Nylock Nuts
1	Isolator Saddle Bracket	2	7/16 x 1” Bolts
4	5/16 x 3/4” Bolts	2	7/16 Nuts

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

1. Raise and support the vehicle on a jack stands or an automotive lift.

2. Apply a light spray penetrating oil to the end of the torque arm and install the Energy Suspension® bushing onto the torque arm as depicted in **Figure 1**. When properly installed, the square-most corner of the bushing will be positioned at the top left corner of the assembly (viewed from the represented angle of the photo).

Figure 1

3. Place the main bracket assembly foot directly over the two far-left side holes in the center beam of the Hooker crossmember. Bend in foot pointing to the center of the car and install the (x2) supplied 7/16" bolts into the holes in the foot and through the crossmember.

4. Loosely install the (x2) supplied 7/16" nuts onto the bolts through the access holes in the bottom of the center beam. Do not tight the bolts/nuts at this time.

5. Pull/push the torque arm downward and/or sideways to allow installation of the (x1) supplied isolator saddle bracket over the isolator.

6. Move the isolator and attached saddle bracket back and forth as needed to line up the mounting holes in the saddle bracket with the mounting holes in the torque arm bracket.

7. Attach the saddle bracket to the torque arm with the (x4) supplied 5/16" bolts and nuts. Installing the top two bolts/nuts in the 3rd set of holes down from the top of the torque arm bracket will provide attachment of the torque arm in the factory stock position.

8. Tighten the bolts/nuts attaching the saddle bracket to the torque arm bracket and also the 7/16" bolts/nuts attaching the torque arm bracket to the crossmember.

Adjustment - If you wish to adjust the mounting height of the torque are, simply remove the 5/16" bolts/nuts from the isolator saddle bracket and move the saddle to a different desired set of holes before reinstalling and tightening the hardware. Raising the torque arm mount will raise the instant center and increase the anti-squat characteristics of the vehicle.

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199R10880
Date: 8-21-15

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 accomodated 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.

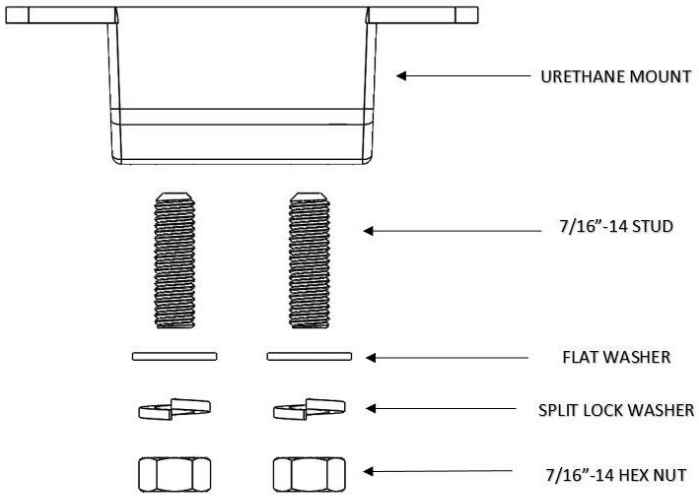

Figure 1

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199R11754
Date: 1-24-19