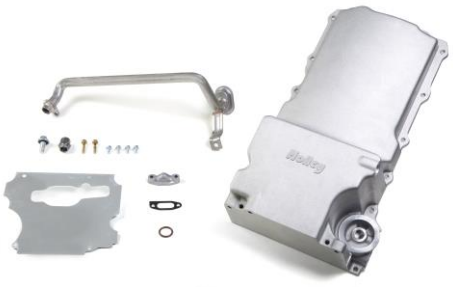
OIL PANS
P/N 302-1 & 302-2



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**).

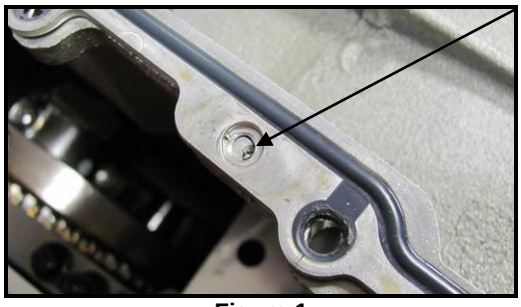


Figure 1

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.

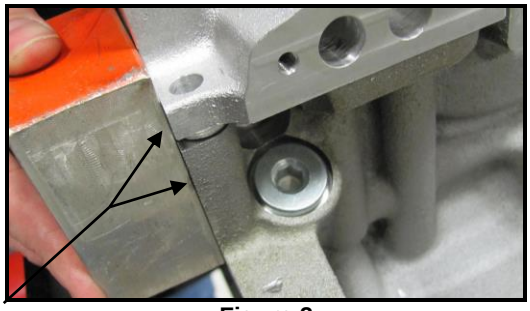


Figure 2

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**).

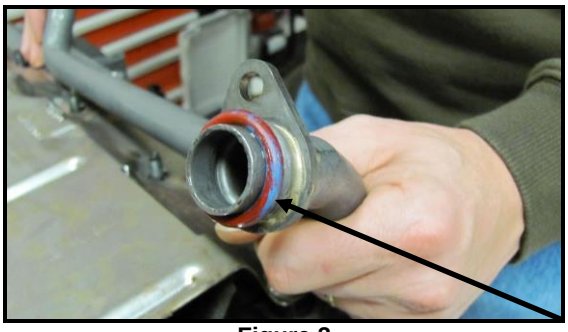


Figure 3

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.

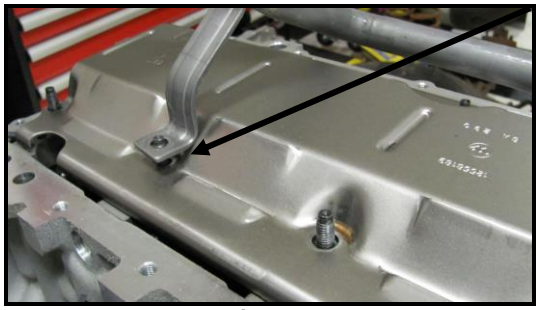


Figure 4

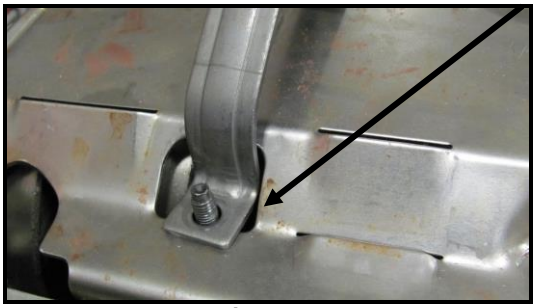
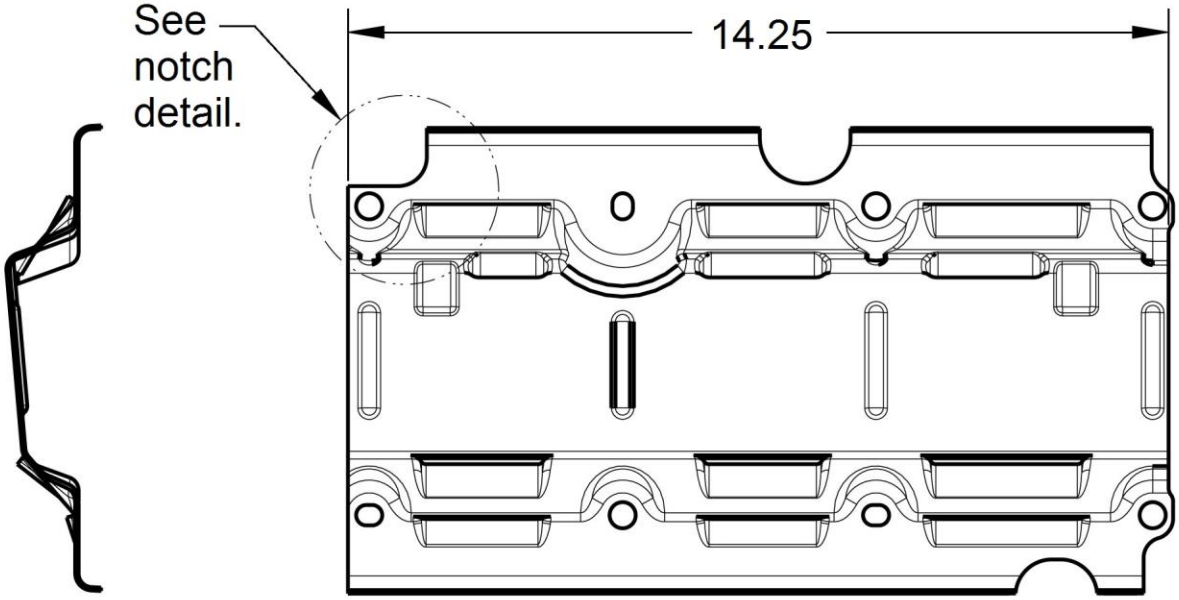


Figure 5

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.



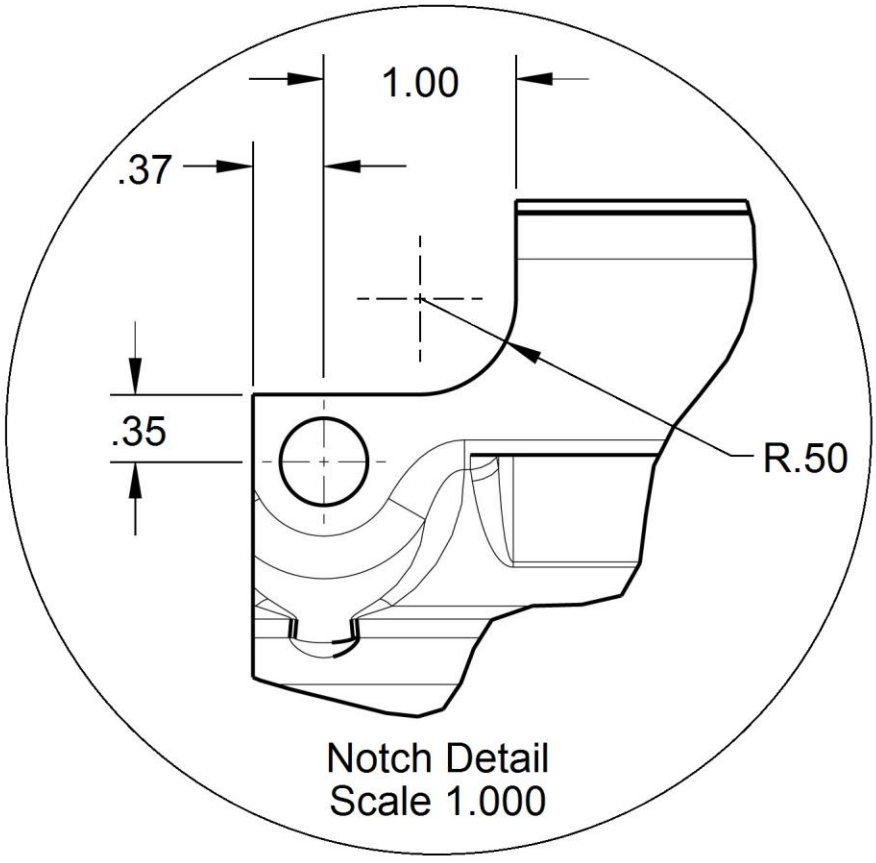


Figure 6

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.

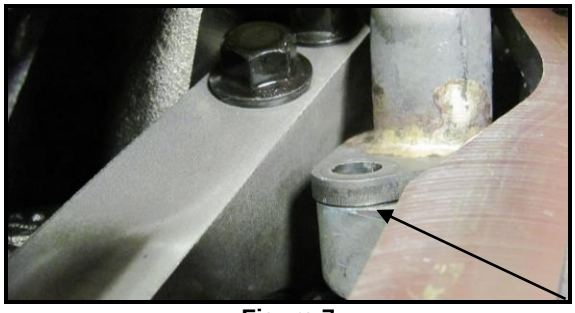


Figure 7

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

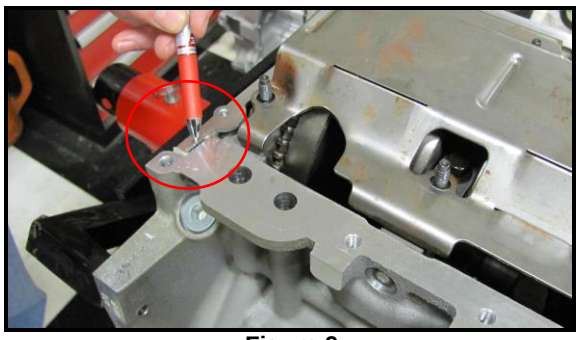


Figure 9

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

1967-69 GM F-BODY/1968-74 GM X-BODY LS SWAP ENGINE BRACKETS
P/N 12618HKR
Installation Instructions

Thank you for choosing to use Hooker Blackheart engine swap brackets as part of your engine/transmission swap project. These mounting brackets are part of the most comprehensively engineered system of mounting components, headers and exhaust systems available for this application. The entire Hooker Blackheart 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.

PRE-INSTALLATION CONSIDERATIONS:

Check that the hardware package includes the following**:**
(4) M10 x 1.5 Lock Nuts
(8) M10 x 1.5 x 30 Bolts
(4) M10 x 1.5 x 25 Flat Head Cap Screws
(4) 3/8”-16 x 1-1/2” Bolts
(4) 3/8”-16 x 1/2” Bolts
(4) 3/8-16 Lock Nuts

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

Required Hardware (not included)
(2) 7/16” -14 x 5-1/4” Bolts
(2) 7/16”-14 Lock Nuts

These brackets are designed to be used in conjunction with stock OE clamshell style engine mounts (as installed on all 1972-81 Camaro vehicles) that will be retrofitted into the swap vehicle through the use of the specially designed spacer plates included with this kit. The clamshell mounts and the long horizontally installed bolts used to secure them to the Hooker Blackheart brackets are not included with this kit and will need to be purchased separately. Anchor brand P/N 2292 stock rubber replacement clamshell mounts, or Hooker/Holley 71221004HKR clamshell mount cages and 712210014HKR / 71221015HKR poly inserts are recommended for use with these engine mounting brackets.

NOTE: 1973 and 1974 model year X-body cars that are factory equipped with clamshell mounts may have to the clamshell mounting holes re-drilled in the subframe to properly position the engine for correct fitment of Hooker Blackheart headers for this application (see more info under the INSTALLATION heading of this document).

The combined use of these mounting brackets and related Hooker Blackheart transmission swap crossmembers, will allow installation of an LS engine with a GM Powerglide, TH350, TH400, 700R4, 2004R or 4L60/4L65/4L70 automatic into any 1967-69 GM F-body vehicle without requiring any cutting or hammering to the vehicle body.

With the exception of the needed shifter hole, these components also permit no-cutting-required installation of a TREMEC® LS F-body/GTO T56 transmission into any 1967-69 F-body. TREMEC® aftermarket T56 Magnum transmission installations will require tunnel modifications for installation into a 1967-69 F-body.

Due to their considerably lower transmission tunnel height, 1968-74 X-body vehicles will require tunnel modifications to install either a TREMEC® LS F-body/GTO T56 transmission, or a TREMEC® aftermarket T56 Magnum transmission using the Hooker Blackheart system of engine mounts and transmission crossmembers.

For best fitment and overall component clearances, Hooker Blackheart headers and mounting components for this swap application are designed with a chassis-centered engine and transmission location, which varies only slightly from the original minor passenger’s side offset used by GM. The engine and transmission have also been positioned to enable hassle-free installation and to promote good vehicle handling performance. The unique design geometry of these engine brackets require the use of Hooker Blackheart transmission crossmembers and headers to achieved the designed fitment between all components in this swap application. Use of any non-Hooker brand transmission crossmember or headers will have adverse effects on the ease of installation, component

clearance, ground clearance and engine inclination angle (3°-3.5° with Hooker Blackheart engine mounts and transmission crossmembers) you can expect from your installation.

With these components installed, your driveline will be purposely configured with compound U-joint angles, due to the chassis-centered alignment of your engine/transmission and the stock pinion offset of your rear differential. If you wish to check your U-joint working angles, you merely need to sum together the calculated horizontal angular offset of your driveline (half a degree as designed by HOOKER™) and the typical measured vertical angles of your driveline components. Detailed information on how to measure and calculate single plane and compound U-joint working angles is available from Spicer. Go to www.spicerparts.com and search for publication number J3311-1-DSSP.

An engine hoist will be required to position the engine/trans into the vehicle in its proper orientation. Use of an angle-adjustable engine sling will greatly ease the hoisting/loading operation and negate the possible need to reposition the lifting chains mid-operation. 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.

COMPATIBILITY:

These engine swap mounting brackets were specifically designed for bolt-in compatibility with Hooker Blackheart transmission swap crossmembers, headers and exhaust systems, and Holley® LS oil pans and accessory drive components for this application.

OIL PANS that are bolt-in compatible with these mounts are:

- Holley® F-body LS retrofit pan (part number **302-2**), a notched stock F-body, and various aftermarket fabricated steel pans are also usable with these mounting brackets.
- Holley® oil pan number **302-1** is also installable with these mounts, but requires notching of the engine crossmember to allow installation, due to the stroker crank compatible dimensions at its front end.

ACCESSORY DRIVES (F-body, GTO and Corvette) are all installable with these mounts following these guidelines:

- Low-mount alternators will require notching/clearancing of the engine crossmember for installation
- The stock plastic shroud on rear of the F-body alternator may have to be modified or removed completely. GTO alternators may need to be swapped to an F-body alternator for maximum clearance.
- If swapping a Corvette LS engine with factory accessory drive components, the power steering pump pulley will likely need to be swapped for a smaller diameter pulley/pump to clear the upper control arm.
- Stock low-mount A/C compressors are not installable with these mounts; compressor must be upper-mounted to right cylinder head with the use of a Holley® **20-133** (GM R4), **20-134** (Sanden SD508 or SD7), or similar bracket assembly. A custom right side engine mounting bracket can be fabricated that attaches further back on the subframe if low-mount compressor location is an absolute requirement for your swap.

If desired, a Holley® **20-135** upper-mounted Corvette style alternator/power steering bracket can be installed and configured for compatibility with either stock truck or F-body water pump/balancer offsets. The additional spacer plate kit needed to achieve proper spacing is as follows: F-body/GTO - **21-2**, and Chevy/GMC truck/2010-up Camaro - **21-3**.

Two additional complete accessory drive bracket kits are available that include both the A/C and alternator/power steering brackets listed above. These kits are part numbers **20-131** (GM R4 compressor) and **20-132** (Sanden SD508 or SD7 compressor).

Hooker Blackheart LS swap mid-length headers **(70201305-RHKR/70201505HKR & 70201306-RHKR/70201506HKR),** and full-length headers **(70101307-RHKR/70101507HKR & 70101308-RHKR/70101508HKR)** will all allow the use of the stock A/C evaporator case on the firewall, when installed with these Hooker Blackheart LS engine swap mounting brackets. Round truck coils/brackets will clear the evaporator case, while others will require relocation of the rear passenger's side coil to clear the case.

The engine position obtained with these brackets is compatible with the factory installed wiper motor and power brake booster.

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.

TIPS FOR A SUCCESSFUL ENGINE SWAP:

1. Mark all hoses, wires, and vacuum lines, according to their function. Use masking tape and a pen to achieve this.

2. Whenever possible, utilize the existing wiring and lines.

3. Get a wiring diagram of your vehicle and one for the vehicle from which the new motor was removed. Make photocopies of both systems; add your modifications to these copies, so you will have accurate records for future reference.
4. Think carefully before removing or defeating any emissions device; a legal engine swap requires the emissions components to be intact, especially when you try to sell the vehicle.

5. Save as much hardware that is removed from the donor engine as possible. You may need some of these items later on.

6. Taking the time to do it right is cheaper than taking short-cuts and having to do it again. Make sure you pay close attention to critical areas like fuel systems and brake lines. Neglecting to double-check your work could have life or death consequences.

7. Do not overstress components that are designed for stock four or six cylinder torque by over-abuse with a motor of greater horsepower, i.e. drive shafts.

8. Don't forget to upgrade your radiator, fan(s), and hoses to accommodate the cooling requirements of your LS engine.

VEHICLE PREP:

1. Remove hood from vehicle.

2. Disconnect battery and fuel lines.

3. Remove existing wiring harness and set aside for later re-use of connectors, as needed, to complete electrical connections to the swap engine harness.

4. Drain and remove radiator/hoses from vehicle.

5. Remove the driveshaft, engine, engine frame stands, transmission, transmission crossmember, and related parts from the vehicle.

SWAP ENGINE/TRANS PREP:

1. Carefully remove the following components from the engine: spark plug wires, exhaust manifolds/O2 sensors, wiring harness/computer, MAF sensor, starter motor/plate and dust covers, A/C compressor and bracket, and the oil dipstick/tube and motor mounts.

2. Clean and paint parts to be re-used, if desired.

3. Secure engine or engine/trans assembly to lifting sling and engine hoist.

4. Attach the included left and right side Hooker Blackheart engine brackets to the engine. The proper indexing and left/right orientation of the brackets is achieved by ensuring the profiled clamshell **support ears** are positioned towards the front of the engine and the long **stepped jog** along the outer profile of the base plates are positioned up towards the top of the engine **(Figure 1)**.

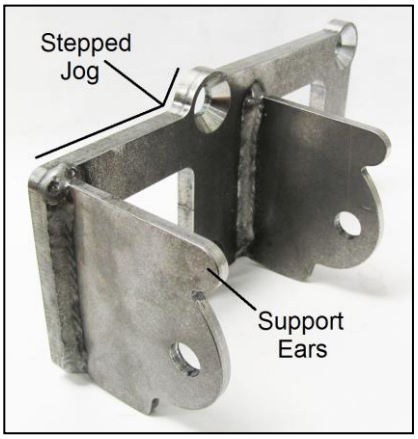

Figure 1 – Driver's Side Mount

ENGINE/TRANS INSTALL:

NOTE 1: Although it's possible to install Hooker Blackheart Headers for this application after installation of this mounting kit has been completed, it is most efficient to move the driver's side header assembly into position around the steering box as you lower the engine into place. Once the engine has been lowered into place, you can complete the installation of the headers as per the instructions included in their packaging. Use an assistant to lower the engine slowly while you hold the header in position; use caution to keep your fingers clear of any potential pinch points.

NOTE 2: Installation of these components into a 1973 or 1974 model year X-body vehicle will likely require new holes to be drilled into the subframe to accept the spacer plates in this kit that were designed to install into 1968-72 model year X-body cars that were factory equipped with engine frame stands. In such installations, it is recommended to remove your factory clamshells from the crossmember and perform a mock-up installation of your engine and transmission using your Hooker Blackheart engine mounts, transmission crossmember and headers. With the engine resting on the mounts and adapter plates against the subframe and the transmission supported by the Hooker Blackheart crossmember mounted in its intended position, move the engine and transmission forward and back as required to split the clearance evenly between the header tubes and steering box. Ensure that the included short 3/8" bolts can be installed into the rear threaded holes of the adapter plates without interference with the subframe. Now, mark the position of the motor mount holes to be drilled in the subframe and remove the engine and transmission for drilling. Drill the holes to accept 3/8 fasteners and continue the installation as outlined below.

1. Attach the included adapter plates to each side of the subframe. Drill two 3/8" holes through the subframe and prep the upper rear corner of the driver's side clamshell mount as indicated in **Figure 2** on the next page. Install nuts on all four countersunk bolts and tighten through the access openings you used to remove the stock frame stands; a 6" socket extension works well for this purpose.

   - If you are performing a **simultaneous engine and transmission installation**, it is recommended that you attach the clamshell mounts to the engine brackets (two wide-spaced holes positioned up) with the required long horizontal bolts and then move the entire assembly into position in the engine compartment and lower it down onto the subframe. Adjust the angle of the engine and transmission until the mounts are fairly flat against the crossmember and install the included 3/8" bolts into the four holes on each mount; the shortest bolts are to be installed in the threaded holes at the rear of the plates. Now, install the remaining supplied nuts onto the four bolts that protrude inside the crossmember and tighten all fasteners.

- If you are performing an **engine-only installation** at this time, it is recommended that you attach the clamshell mounts to the spacer plates attached to the subframe (two wide-spaced holes positioned up) with the supplied 3/8 bolts; the shortest bolts are to be installed in the threaded holes at the rear of the plates. Now, install the remaining supplied nuts onto the four bolts that protrude inside the crossmember and tighten all fasteners.

2. Move the engine into position in the engine compartment and lower it down onto the clamshell mounts. Adjust the angle of the engine so that the engine bracket ears are resting squarely on the clamshell mounts and install the long horizontally positioned bolts through each mount and install and tighten a nut on each.

3. Prop-up and support the transmission tail shaft and then proceed to install your Hooker Blackheart transmission crossmember and headers per the instructions included in their packaging.

4. If using, proceed to installing your Hooker Blackheart transmission swap crossmember and headers per the instructions included with their packaging.

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

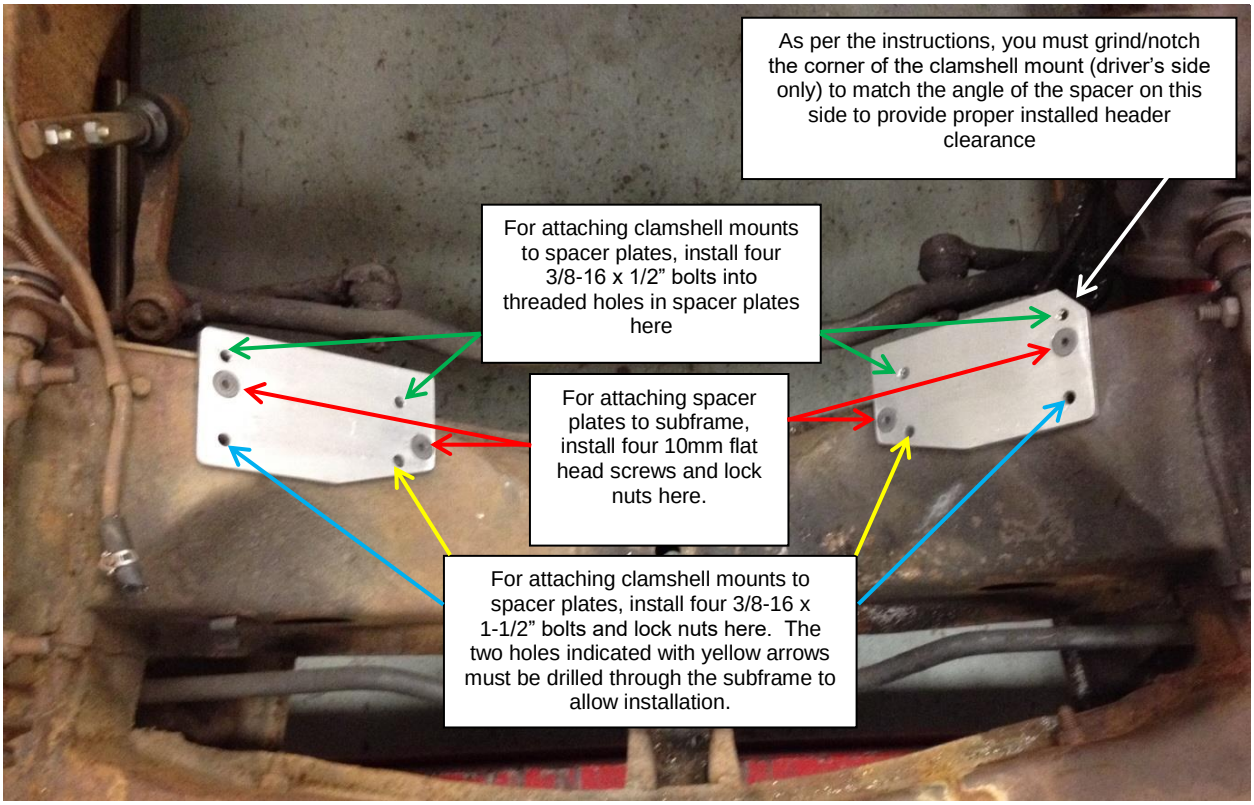

Figure 2 Adapter Plate/Clamshell Fastener Schedule

LIMITATION OF LIABILITY – DISCLAIMER:
The regulation of emissions production, noise levels, and safety standards is undertaken by the federal government, each of the fifty state legislatures, and by many local municipalities, towns, and counties.
Hooker Blackheart makes no warranties of merchantability, of fitness for particular purpose, or that its products are approved for general use, or that its products comply with laws, regulations, or ordinances in the state where they may be sold to the ultimate purchaser, the consumer.
Unless expressly stated to the contrary in the catalog, instruction sheet; or price list, the entire risk as to the conformity of any company product in any such state and as to repair should the product prove to be defective or non-conforming, is on the retail purchaser, the buyer, the ultimate consumer, of such product and it is not upon the seller, distributor, or manufacturer.
In this connection, the retail purchaser, the buyer, the ultimate consumer assumes the burden of the entire cost of any and all necessary service, alterations, or repair.
THE FOREGOING STATEMENT LIMITS THE LIABILITY OF THE MANUFACTURER.
California vehicle code, sections 27156 and 38391, prohibits the advertising, offering for sale, or installation of any device, which modifies a vehicle's emission control system, unless exempted, unless otherwise noted. Hooker Blackheart Headers that have not received an Executive Order (E.O.) exemption from these code sections are not legal for sale or use in California on vehicles originally equipped with catalytic converters, except for racing vehicles, which may never be driven upon a highway. Check with your local authorities to determine if these headers are legal for use in your particular area.

Technical Service: 1-866-464-6553 Phone: 1-270-781-9741 Website: www.holley.com

P/N 12625HKR
1967-69 GM F-Body/1968-74 GM X-body LS Swap
4L60/4L65/4L70/4L75 Automatic Transmission Crossmember

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 for direct installation of a GM 4L60, 4L65, 4L70 or 4L75 automatic transmission into this LS swap application. This crossmember can also be used to benefit from the same high ground clearance provision of the Hooker™ exhaust systems for this application when using a Powerglide, TH350 or 700R4 transmission and is done so through the use of an available Hooker™ weld-in adapter bracket, P/N 12628HKR.

Installation of GM 4L60/4L65/4L70 or 4L75 automatic transmission with this crossmember requires use of a stock 4L65 isolator mount from a 2003 Chevy/GMC truck or 2002 Camaro vehicle, or an aftermarket Prothane™ 7-1604 polyurethane mount or one of equivalent installed height.

Using this crossmember to install any transmission requiring the use of the optional Hooker™ weld-in adapter bracket mentioned above requires the use of a Prothane 7-1604 polyurethane mount or the OE rubber mount which it is designed to be substituted for (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 to allow installation of an LS engine and one of the above listed GM automatic transmissions 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 design geometry of this crossmember and of the compatible Hooker™ engine mounting brackets are configured 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, headers and exhaust systems and Holley® LS oil pan and 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.

Compatible direct-fit Hooker™ headers and exhaust systems have been designed for use with this crossmember and related Hooker™ engine mount bracket kit, P/N **12618HKR**. Both mid-length and long-tube headers are available as are 100% stainless steel constructed exhaust systems, which feature OE quality hardware and stamped crossover assemblies. A list of header options can be found at www.holley.com; the Hooker™ exhaust systems can be ordered as P/N **42804HKR** (2.5") or **42805HKR** (3").

Suitability of this crossmember for any application not described in this document is undetermined, 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.

More LS swap/engine performance components, such as EFI fuel control systems, fuel filters, fuel pumps, plumbing hose/fittings and valve covers can be found at www.holley.com.

INSTALLATION:

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.

This crossmember provides geometry that allows the use of two OE rubber isolators (2003 GM truck or 98-2002 Camaro 4L60 isolators) for reduced drivetrain vibration characteristics, or a Prothane™ 7-1604 polyurethane isolator for more positive drive train control. The center slot in the crossmember is sized to accept the smaller stud of the OE rubber truck isolator "as-is" and must be reamed slightly larger to accept the stud size of the Camaro isolator.

The slightly more forward outer slots in the crossmember are for attaching the Prothane™ isolator, which requires installation of the supplied two-hole plate spacer between the isolator and the crossmember to compensate for the difference in height between the OE rubber isolators and the Prothane™ polyurethane isolator. Leaving this spacer out, when using the Prothane™ isolator, will increase the engine inclination angle beyond that intended by Hooker™ and decrease the ground clearance of Hooker™ headers and exhaust systems designed for this application.

These instructions were formatted with the assumption that you have already installed your LS swap engine and attached transmission into your vehicle using the specific Hooker™ LS swap engine bracket kit for this application per the instructions included in its packaging.

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

   (1) Left Side Anchor Bracket
   (1) 3/8-16 x ¾" Flanged Head Bolt
   (6) 3/8-16 x 1" Flanged Head Bolts
   (6) 3/8-16 Flanged Nuts
   (1) Spacer Plate

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

2. Raise the tail shaft of the transmission to its highest possible point of lift using a transmission jack, floor jack or screw type pole jack.

3. Feed the fixed right attachment foot of the welded crossmember assembly onto the top of the right side rail of the vehicle subframe.

4. Push the left side of the crossmember up until you can insert the included left side anchor bracket under it and be able to rest its frame mating surface on the top of the left side rail of the vehicle subframe; you will need to insert the right rear corner of the transmission case and pan into the window designed into the right side of the crossmember while doing this. Install the included short flanged head bolt through the center hole in the bracket and into the corresponding threaded hole in the crossmember; do not fully tighten the bolt at this point.

5. Install two sets of included flanged head bolts and nuts into the two remaining holes in the anchor bracket and crossmember and tighten all three bolts and/or nuts at this connection point.

6. Attach the transmission isolator of your choice to the mounting pad on your transmission.

7. Attach the crossmember to the subframe with the remaining included flanged head bolts and nuts; do not fully tighten the fasteners at this time.

8. Lower the transmission onto the crossmember and attach the transmission isolator to the crossmember using the fastener(s) included with the isolator.

NOTE: It was discovered during development of this LS swap component that there can be sizable width variations in the rear rails of production 1st-gen F-body/3rd-gen X-body subframes due to OE subframe production tolerances and/or collision damage and wear occurring over many years of vehicle use. To account for this variation, compensated slots have been designed into the right side of this Hooker crossmember that require a simple one-time measuring/sizing operation to be carried out during its initial installation to precisely fit this crossmember to your vehicle. **This operation is incorporated into the final two installation steps of this crossmember as follows:**

1. Measure the distance from the inside edge of each subframe rail to the out edge(s) of each fastener(s) used to attach the crossmember to the isolator. If the distance is equal, tighten the crossmember-to-frame fasteners. If the transmission (i.e. isolator bolts) are not centered between the frame rails, remove the crossmember and use a rotary file in an air grinder or a rat-tail hand file to remove enough material from the bottom of the slotted mounting holes in the right side of the crossmember to allow the crossmember to be shifted in the direction needed to center the isolator studs in between the frame rails. If a sizeable amount of shifting is required to the passenger side, you may need to obtain/use bolts without flanged heads at the right side attachment points to permit enough shifting to that side. Ample left side shifting, if needed, is possible using the included fasteners.

2. Reinstall the crossmember, center the isolator mounting studs between the frame rails, and then tighten all the mounting hardware.

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

LIMITATION OF LIABILITY – DISCLAIMER:

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Unless expressly stated to the contrary in the catalog, instruction sheet; or price list, the entire risk as to the conformity of any company product in any such state and as to repair should the product prove to be defective or non-conforming, is on the retail purchaser, the buyer, the ultimate consumer, of such product and it is not upon the seller, distributor, or manufacturer.

In this connection, the retail purchaser, the buyer, the ultimate consumer assumes the burden of the entire cost of any and all necessary service, alterations, or repair.

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199R10686
Date: 12-9-13

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.

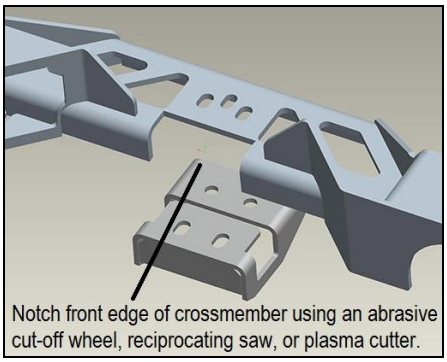


Figure 1

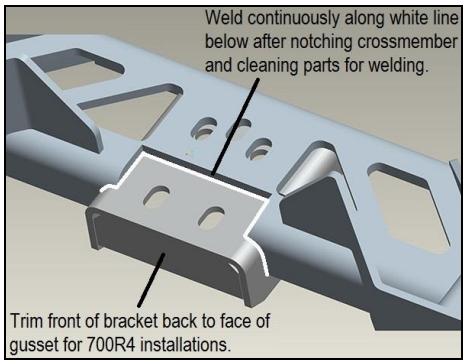


Figure 2

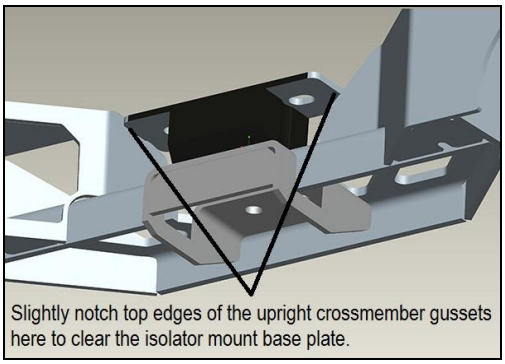


Figure 3

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.

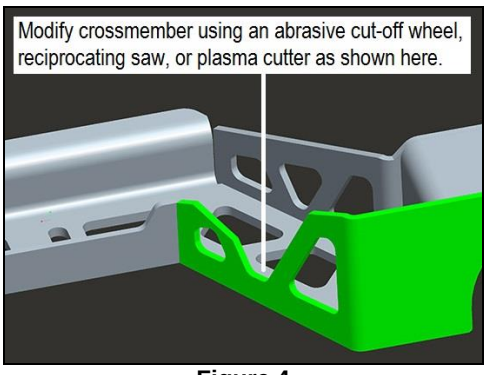


Figure 4

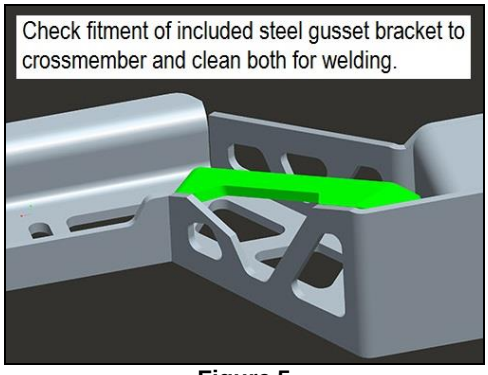


Figure 5

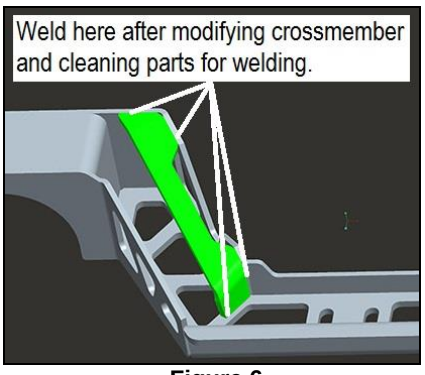


Figure 6

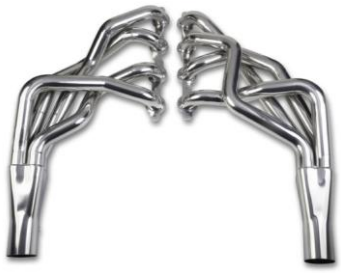
3. If you are using this spacer block kit and a Hooker Blackheart transmission crossmember to install a 2004R or TH400 transmission into any other vehicle besides a GM 1st-gen F-body or 3rd-gen X-body, do not modify the crossmember in any way. Install the crossmember per the instructions contained in 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.

199R10685
Revision Date: 8-22-18

1967-69 GM F-BODY/1968-74 GM X-BODY LS SWAP FULL-LENGTH HEADERS

304SS
70101307-RHKR (Raw) – 1 3/4”
70101308-RHKR (Raw) – 1 7/8”



Thank you for choosing to use HOOKER™ headers as part of your LS swap project. Hooker headers are designed with optimized components and geometry to ensure the highest level of fit and performance. Please read these instructions thoroughly before attempting installation of these components.

PRE-INSTALLATION CONSIDERATIONS:

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

Qty.	Description
12	M8 x 1.25 header bolts

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

These headers were specifically designed to be installed with HOOKER™ LS swap engine and transmission mounting components and exhaust systems for this same application. Attempts to install these headers with any other type or combination of engine and transmission mounting components will cause them to no longer be bolt-in compatible with the mentioned HOOKER™ exhaust systems.

"For best fitment and overall component clearances, HOOKER™ headers and mounting components for this LS swap application are designed with a chassis-centered engine and transmission location, which varies only slightly from the original minor passenger side offset used by GM. The engine and transmission have also been positioned to enable hassle-free installation and to promote good vehicle handling performance. The unique design geometry of these headers requires the use of a HOOKER™ 12618HKR clamshell-style engine mounting bracket kit and Anchor brand P/N 2292 (or equivalent) engine mounts to achieve as-designed vehicle component (stock steering box, steering linkage, etc.) and ground clearances. Use of the stock frame stands/mounts with typical swap plates will not provide the engine positioning necessary for achieving successful installation of these Hooker headers."

NOTE: Will not work with factory column shift linkage. Aftermarket column linkage or cable kits such as those offered by Lokar™ and others will have to be used if you wish to keep a column shifted set-up in your vehicle.

NOTE: These headers are installable with half-height body mounts but collector-to-floor clearances should be expected to be tight and roughly half of the intended 1” clearance designed into the headers if you intended to use a HOOKER™ transmission crossmember to provide transmission support, maximum exhaust routing clearance and an optimized engine inclination angle. Note that the use of a HOOKER™ transmission crossmember with half-height body mounts is not possible without raising the height of the stock floor pockets located above the exhaust-hump arches of the crossmember.

NOTE: Due to the ¾” to 1” forward re-positioning of the transmission required for proper fitment of these headers, it will be necessary to lengthen any driveshaft to be reinstalled from a previous stock transmission location installation. This presents an opportunity to increase the size of your driveshaft to 3” or 3.5” diameter for increased strength and RPM capabilities.

NOTE: These headers are designed for use with new, or used, stock GM LS/Vortec engine exhaust manifold gaskets.

The instructions contained in this document assume you have already installed the engine and transmission in the vehicle with the above mentioned HOOKER™ mounting components per their instructions.

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. Disconnect the negative cable from the vehicle battery, if connected.
2. Remove spark plugs wires from the spark plugs. Removing the spark plugs is also recommended as a precaution, but not required.
3. Remove the engine oil dipstick tube.
4. Using an automotive lift or floor jack, lift the entire vehicle or front of the vehicle a minimum of 12" to 15" off the ground.
5. Starting with the driver's side header assembly, maneuver it into place between the engine and subframe through the bottom of the vehicle. To accomplish this, you will need to raise the front of the engine with a hoist, or jack the engine over to the right side with a floor jack. If using the floor jack method, remove the right side valve cover to prevent damage to the A/C evaporator housing, if present.
6. Maneuver the passenger's side header into position between the engine and subframe through the bottom of the vehicle; no engine lifting or jacking is required for this step.
7. Reinstall engine oil dipstick tube, spark plugs and spark plug wires, as needed.
8. Reconnect battery if previously disconnected.

COMPATIBILITY INFORMATION:

These headers were designed and verified to produce the highest level of component compatibility of any currently available long-tube headers for this application. Compatibility with the following components is assured:

- **HOOKER™:** proprietary clamshell-style engine mounting brackets, transmission crossmembers and exhaust systems for this application. These headers are directly connectable to the HOOKER™ **70501319-RHKR** 3" exhaust system and can be installed with the **70501318-RHKR** 2.5" exhaust system by using a **70701325-RHKR** adapter tube kit, which is sold separately. The 42503HKR and 42504HKR exhaust kits are designed specifically to fit 1967-69 F-body vehicles and are not intended for installation on 1968-74 X-body cars, which have a higher floor pan contour and 3" longer wheelbase.
- **Holley®:** LS swap oil pans (only pan number 302-2 installs without having to notch the engine crossmember), accessory drive brackets, EFI fuel control systems, fuel filters, fuel pumps, plumbing hose/fittings and valve covers (www.holley.com).
- **Stock/Other:** Stock GM 1972-up clamshell engine mounts (when using HOOKER™ mounting brackets and Anchor brand P/N 2292 or equivalent), Quicktime™ T56 bellhousing (hydraulic clutch only), factory AC evaporator case, straight boot spark plug wires, OE power steering box, multiple GM/Tremec™ transmissions: Powerglide, TH350, TH400, 700R4, 2004R, 4L60-4L70 automatics and T56 (4^{th}-gen F-body)/ T56 Magnum manual transmissions. Installation with a 4L80/4L85 automatic transmission will require slight grinding/clearancing of the transmission bellhousing.

NOTE: These headers are not intended to fit with original frame stand and LS swap plate style mounts, or with any style of engine mounts that do not place the engine in the stock fore/aft position and move the transmission approximately ¾"-1" forward to mate up with it.

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Technical Service: 1-866-464-6553
For online help, please refer to the Tech Service section of our website: www.holley.com

199R10823
Revision Date: 5-11-17

1967-69 GM F-BODY (excluding convertibles) EXHAUST SYSTEMS

304SS – 70501318-RHKR (2.5”) & 70501319-RHKR (3”)

409SS – 70501418-RHKR (2.5”) & 70501419-RHKR (3”)

Installation Instructions

Thank you for choosing to install a HOOKER™ exhaust system on your 1967-69 GM F-body vehicle. Although these systems have been specifically developed for direct fitment with HOOKER™ LS swap components for this application, they will provide equally beneficial fitment, function and service life with other non-Hooker LS swap headers or non-LS engine equipped F-bodies through modification of the system inlet tubes, or construction of new ones, by a competent fabricator. Installation of these systems are 50-state legal.

PRE-INSTALLATION CONSIDERATIONS:

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

70501318-RHKR or 70501418-RHKR		70501319-RHKR or 70501419-RHKR	
Qty.	**Description**	**Qty.**	**Description**
2*****	Over-Axle Tube Hanger Brackets with Barbed Rods	2*****	Over-Axle Tube Hanger Brackets with Barbed Rods
2*	1/4-20 x 2.5” Bolts	2*	1/4-20 x 2.5” Bolts
2*	1/4-20 Nylock Nuts	2*	1/4-20 Nylock Nuts
4	1/2-13 x 1.75 Grade 8 Bolts	4	1/2-13 x 1.75 Grade 8 Bolts
4	1/2-13 Nylock Nuts	4	1/2-13 Nylock Nuts
2	U-channel Tailpipe Hanger Brackets	2	U-channel Tailpipe Hanger Brackets
2	Rectangular Back-up Washers	2	Rectangular Back-up Washers
4	Rubber Isolators	4	Rubber Isolators
8	2.5” Band Clamps	8	3” Band Clamps
2	2.5” Couplers	2	3” Couplers

***Items not shown in photo above**

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

NOTE: These systems are not compatible with 1968-74 GM X-body vehicles. Please go to www.holley.com to view part number information for these vehicles - HOOKER™ P/Ns 70501320-RHKR & 70501321-RHKR.

IMPORTANT! Position and support your vehicle on a suitable surface. **USE CAUTION AND WORK ONLY ON A LEVEL SURFACE USING JACKS AND JACKSTANDS OF SUFFICIENT CAPACITY TO LIFT AND SUPPORT YOUR VEHICLE. NEVER WORK UNDER A VEHICLE SUPPORTED BY A FLOOR OR BUMPER JACK.** Use of a two-post under arm lift or four-post drive-on lift will considerably reduce the time and effort required to complete the installation. **MAKE SURE LIFT LOCKS ARE ENGAGED BEFORE WORKING UNDER THE VEHICLE.**

NOTE: Your vehicle was designed to accommodate the routing of 2" exhaust tubing from the factory and therefore may require re-configuring the routing of your brake and/or fuel lines to achieve safe operating clearances between the components of this HOOKER™ exhaust system and those of your vehicle (this is extremely critical on 3" systems). Failure to provide sufficient clearance as mentioned here may result in an unexpected fire or loss of vehicle control.

NOTE: The vehicle-side over-axle tube hangers of this exhaust system are designed for attachment to the stock floor panel. These hanger brackets will more than likely require modifications to successfully install this exhaust system on vehicles that have had floor panel repairs/replacement done with aftermarket floor panels.

INSTALLATION:

NOTE: The following steps assume that you are installing this system using HOOKER™ LS swap mounting components and long-tube headers or mid-length headers already in place on the vehicle. If you are performing an installation of this system without utilizing these products, install all system components from the "X" crossover rearward. Then, align them for parallel alignment with the bottom of the rocker panels and sufficient clearances around all suspension, fuel, and brake components. Do all this before modifying the included HOOKER™ inlet tubes, or fabricating new inlet tubes to be compatible with the geometry of your headers and transmission crossmember.

1. Remove all existing exhaust system components from the vehicle, including any stock or previously added hangers along the entire length of the exhaust system. Spray all hanger fasteners with penetrating oil prior to removal and allow ample soak time before attempting to remove any fasteners.

2. Place a supplied band clamp over each inlet of the crossover assembly and insert the supplied inlet tube (tubes with a single bend in them) into the crossover assembly. The longest legs of the inlets go into the X-stamping.

3. Now, position the supplied couplers over the open end of each inlet tube and install the entire assembly onto the collectors of a previously installed set of HOOKER™ LS swap full-length headers, or the outlets of HOOKER™ adapter tubes already installed onto the collectors of a set of HOOKER™ mid-length headers.

4. According to your preference, the emergency brake cable may be routed either below or above the crossover assembly during installation. When correctly installed, the bends in the crossover assembly outlet legs will gradually angle up towards the floor of the vehicle, not down towards the ground. To ensure correct adjustment later, do not tighten the clamps more than what is required to hold basic component positions at this time.

5. Place a supplied clamp over the offset inlet of each muffler and install them onto the outlets of the crossover assembly. To ensure proper final adjustment, tighten the clamps only enough to maintain the general position of the mufflers at this time.

6. Using the included 1/2"-13 grade 8 bolts and/or nylock nuts, attach the included over-axle hanger brackets, barbed hanger rods pointing outward, to each rear seat belt bolt gusset bracket welded to the underside of the floor just in front of the rear axle. The bend in the base plate will wrap over the outer edge of each gusset to prevent rotation of the brackets once installed.

7. If your car is a competition vehicle that is no longer equipped with rear seat belts, you can attach the hanger brackets by installing only the supplied bolts from the underside of the car inward. If your rear seat belts are still installed, you will need to remove the rear seat and replace the factory seat belt bolts with the longer ones provided, so as to allow their protruding threads under the floor to be used with the supplied nuts to attach the hanger brackets to the gusset plates.

8. Feed the supplied over-axle tubes over the axle and place a supplied clamp over the inlet of each before engaging them into the muffler outlets. To ensure correct adjustment later, do not tighten the clamps more than what is required to hold basic component positions at this time.

9. Use a supplied rubber isolator to connect the barbed hanger rods of each hanger attached to the seat belt gusset brackets and the corresponding barbed hanger rods welded to the over-axle tubes.

10. Install a rear hanger bracket onto the rear un-barbed hanger of each over-axle tube. The large end of the bracket with the rubber isolator will be closest to the front of the vehicle when properly installed.

11. Now, attach the hanger brackets to the outside of the rear frame rails in the same holes that were used to attach the previously removed stock hangers. Re-use the stock sheet metal screws for this purpose or source new ones if they are no longer present.

12. If the driver's side rail of your vehicle does not have factory punched holes in it for the hanger, remove the left rear tire and drill two 1/4" holes completely through both walls of the frame member to allow attachment of the hanger with the included 1/4- 20 x 2-1/4" bolts and nuts.

13. Place the two remaining clamps over the inlets of the tips and install both onto the outlets of the over-axle tubes. To enable correct final adjustment, do not tighten the clamps more than what is required to hold basic component positions at this time.

14. Provide a means of support under both mufflers to keep their weight from working against your efforts to align the system components.

15. Align all system components for best fit and tighten all clamps fully. You will achieve best results by working from the front of the vehicle to the rear while repeatedly checking the alignment of the components against multiple reference points, i.e. the bottom edge of the rocker panels, the transmission crossmember exhaust passage humps and the rear end housing.

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

Left Side Muffler Hanger

Right Side Muffler Hanger

Square Washer on Hanger Bracket

COMPATIBILITY INFORMATION:

This exhaust system was designed for direct installation with various HOOKER™ LS swaps headers and engine and transmission mounting components listed for this vehicle application. If needed, additional compatible LS engine swap components, such as EFI fuel control systems, fuel filters, fuel pumps, plumbing hose/fittings, valve covers and accessory drive brackets can be found at www.holley.com.

As shipped, the bend geometry of this system's inlet tubes (forward of the crossover) is only directly compatible with HOOKER™ LS swap headers and transmission crossmembers for this application. As such, interference with factory GM, or aftermarket transmission crossmembers and/or poor line-up characteristics with other brands of headers should be expected. Such issues can be remedied through modification of the supplied HOOKER™ inlet tubes, or the fabrication of new inlet pipes, to provide compatibility with the components installed on your vehicle.

NOTE: These systems are not installable on any convertible model 1967-69 F-body vehicle.

LIMITATION OF LIABILITY – DISCLAIMER:
The regulation of emissions production, noise levels, and safety standards is undertaken by the federal government, each of the fifty state legislatures, and by many local municipalities, towns, and counties.
HOOKER™ makes no warranties of merchantability, of fitness for particular purpose, or that its products are approved for general use, or that its products comply with laws, regulations, or ordinances in the state where they may be sold to the ultimate purchaser, the consumer.
Unless expressly stated to the contrary in the catalog, instruction sheet; or price list, the entire risk as to the conformity of any company product in any such state and as to repair should the product prove to be defective or non-conforming, is on the retail purchaser, the buyer, the ultimate consumer, of such product and it is not upon the seller, distributor, or manufacturer.
In this connection, the retail purchaser, the buyer, the ultimate consumer assumes the burden of the entire cost of any and all necessary service, alterations, or repair.
THE FOREGOING STATEMENT LIMITS THE LIABILITY OF THE MANUFACTURER.
California vehicle code, sections 27156 and 38391, prohibits the advertising, offering for sale, or installation of any device, which modifies a vehicle's emission control system, unless exempted, unless otherwise noted. HOOKER™ Headers that have not received an Executive Order (E.O.) exemption from these code sections are not legal for sale or use in California on vehicles originally equipped with catalytic converters, except for racing vehicles, which may never be driven upon a highway. Check with your local authorities to determine if these headers are legal for use in your particular area.

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

199R10951
Revision Date: 8-6-20

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.

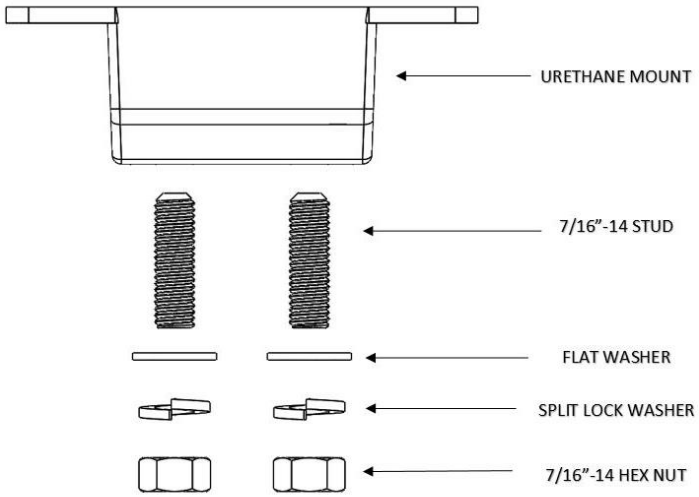

Figure 1

LIMITATION OF LIABLILITY – DISCLAIMER:

HOOKER™ BLACKHEART makes no warranties of merchantability, of fitness for particular purpose, or that its products are approved for general use, or that its products comply with laws, regulations, or ordinances in the state where they may be sold to the ultimate purchaser, the consumer.

Unless expressly stated to the contrary in the catalog, instruction sheet, or price list, the entire risk as to the conformity of any company product in any such state and as to repair should the product prove to be defective or non-conforming, is on the retail purchaser, the buyer, the ultimate consumer, of such product and it is not upon the seller, distributor, or manufacturer.

In this connection, the retail purchaser, the buyer, the ultimate consumer assumes the burden of the entire cost of any and all necessary service, alterations, or repair.

199R11754
Date: 1-24-19