



## Hooker 1973-87 2WD GM Truck LS Swap Tech Data

1973-87 GM trucks are a popular vehicle platform on which to base an LS engine swap project. Hooker/Holley has expended considerable effort and resources to design a new system of LS swap components for these vehicles, which allow the user/installer to achieve better final geometric/performance results than has previously been possible in this LS swap application. These components are designed for installation and use on 2WD trucks only.

Due to the comprehensive nature of this system of parts, the following information has been compiled as a guide to help potential users determine how they may benefit from the use of these components in achieving the goals of their GM truck LS swap project.

### Hooker/Holley Component Data

#### Engine mounting brackets-

The Hooker 12621HKR engine mounting brackets provide for engine positioning that is beneficial to obtaining desirable clearances between stock GM LS engine components and the stock OE components installed on these vehicles, when used in conjunction with the Hooker 12646HKR transmission crossmember. This position will also provide the ability to achieve desirable driveshaft/U-joint working angles on trucks configured with stock suspensions/ride height to ones that have been lowered with typical bolt-on suspension drop packages (up to 4" front/ 6" rear drop).

These brackets have been validated for bolt-in compatibility with any C10 or C20, 2WD, short bed or long bed truck equipped with the stock V8 frame brackets; V6 applications will have to have their OE frame brackets swapped out for the V8 brackets to permit the use of these brackets. The installed height of the engine will permit the use of almost any intake manifold without any modifications required to the stock hood.

Both the Holley 302-1 and 302-2 oil pans are installable with these engine brackets and the bottom of each will be above the bottom surface of the engine crossmember following installation. All Holley accessory drive brackets and components are compatible for installation with these engine brackets as well.

Installation of these mounting brackets requires the use of OE replacement 2292 clamshell mounts (Anchor, Westar or equivalent brand) or aftermarket poly clamshell inserts designed to replace the 2292 style mounts.

The Hooker 12621HKR engine mount brackets have been designed specifically for stock height and lowered 2WD applications only and may not be suitable for lifted 2WD applications or any 4WD application.

#### Transmission crossmember and optional adapter bracket-

The Hooker 12646HKR GM truck crossmember and optional 12645HKR adapter bracket have been CAD designed to provide bolt-in installation (drilling required; templates provided) of a TH400, 2004R, T56\*, T56 Magnum\*, 4L60 or 4L80/4L85 transmission behind any LS engine installed using the Hooker



12621HKR engine mounting brackets. These key components have been designed to provide a strong, stiff and relatively low-weight transmission mounting solution while providing dual arch passages to accommodate the tight-tucked tube routing of the Hooker 2.5" and 3" exhaust systems also developed for this vehicle application.

The angular engine/transmission position resulting from the use of these Hooker components will provide the ability to achieve desirable driveshaft/U-joint working angles on stock ride height vehicles to ones that have been lowered with typical bolt-on suspension drop packages (up to 4" front/ 6" rear drop). The bottom of all listed transmission cases and/or stock oil pans will reside above the bottom of the vehicle frame rails, which will be of great interest to those performing an LS swap in a lowered truck. Installation of this crossmember requires the use of a Prothane 7-1604 poly mount or one of equivalent geometry.

Installation of all mentioned automatic transmissions may require the use of aftermarket (Lokar or similar) or modified factory column shift/back-drive linkage to retain proper shift indicator and/or neutral safety switch functionality.

The 12646HKR crossmember and 12645HKR adapter bracket have been designed for compatibility with stock or lowered ride height 2WD trucks only and will produce unsuitable clearance and drivetrain angles for any 4WD or lifted 2WD applications.

\*Installation requires the use of the Hooker 12645HKR adapter bracket for intended installed transmission geometry to be achieved.

#### **Long-tube headers-**

Hooker long-tube headers for this application have been designed to provide the best possible ground clearance (headers will be completely above the bottom of the frame rails when installed) available with long-tube headers for this application and are available with 1-3/4" primaries/3" collectors, or 1-7/8" primaries/3" collectors. Due to the designed close tolerance of the driver side collector vehicle floor, body bushings will need to be inspected, and replaced if necessary, to ensure proper clearance is provided for installation/operation of these headers.

The collectors of these headers attach directly to the Hooker 3" exhaust systems developed for this vehicle application. If it is desired to install these headers with one of the Hooker 2.5" exhaust systems, the use of the Hooker 42107HKR reducing adapter kit will be required.

These headers are constructed with laser cut 3/8" thick, TIG welded, flat-finished flanges/ports. O2 sensor bungs are included in the collectors and indexed a minimum of 10 degrees past horizontal to ensure wide-band O2 sensor compatibility, if desired.

These headers are fitment compatible with the case of any GM automatic or Tremec manual transmission, including those not listed for compatibility with the Hooker 12646HKR crossmember and 12645HKR adapter bracket; this will be helpful to those doing custom swaps using transmissions not accommodated by the Hooker crossmember.

These headers are not legal for sale/use on pollution controlled motor vehicles.



Use of aftermarket (Lokar or similar) or modified factory column shift linkage will be required to clear the driver side header assembly and provide proper gear selector and/or shift indicator and neutral safety switch functionality on all installations.

#### **LS swap cast iron exhaust manifolds-**

Hooker 8501HKR LS swap cast iron manifolds have been verified to be compatible with the Hooker 12621HKR engine mounting brackets.

Specific adapters (70701403-RHKR) are available to provide direct connection of these manifolds to the Hooker 2.5" exhaust systems available for this vehicle application.

#### **Exhaust Systems-**

All new Hooker exhaust systems for this vehicle application (2.5" and 3") were developed as part of a complete system of LS swap components for this vehicle application. As such, they were designed with specific bend geometry to clear the high arch passages of the Hooker 12646HKR transmission crossmember and will experience interference with any stock GM or other aftermarket transmission crossmember if such an installation is attempted.

Custom installation of these systems on trucks equipped with original Chevy SB/BB engines and OE/other aftermarket transmission crossmembers can be accomplished through the fabrication of new system inlet pipes that drop the system inlet tubes down below the bottom of the crossmember as needed.

The bend geometry and crossover location of these exhaust systems make them fitment compatible with any 2WD GM automatic or Tremec manual transmission, but they are not compatible for installation with any aftermarket add-on under/overdrive transmission (Gearvender, US gear etc...). In addition, these exhaust systems are compatible with stock size/location spare tires and most aftermarket trailer hitches whose frame attachment side plates do not extend forward past the rear leaf spring perch.

These systems are designed for installation on 2WD short bed/wheelbase trucks only and can be used with any non-air bag rear suspension that is based on the use of stock type leaf springs and does not use a panhard bar; may not be compatible with relocated shock absorbers.

Multiple rear tailpipe hanger configurations/locations were used by GM on these trucks; drilling/removal of the stock rear hangers present on the vehicle may be required to permit the installation of the Hooker exhaust systems.

The use of an X-style crossover in these exhaust systems makes them compatible for use on 2WD trucks only.

These systems are not legal for sale/use on pollution controlled motor vehicles.



## **Transmission and Vehicle Component Compatibility**

### **Transmissions/shifters/linkage-**

All GM automatic transmissions supported by the Hooker 12646HKR crossmember can be installed without having to cut or dent the vehicle floor.

Installation of T56/T56 Magnum transmissions will require cutting and possibly sheet metal fabrication to be performed to the vehicle floor.

Use of aftermarket (Lokar or similar) or modified factory column shift/back-drive linkage will be required to provide proper gear selector (column shift applications), and/or shift indicator and neutral safety switch functionality.

### **Air conditioning-**

The easiest method of providing A/C system functionality is to use a Holley 20-140 (R4) compressor bracket or Holley 20-134 bracket (Sanden compressor) can be utilized in lieu of the R4 style bracket.

If desired, the stock late-style Denso Vortec truck engine compressor (one without the rear sensor) can be installed by notching the front lower lip of the stock right side frame bracket that the clamshell mount attaches to.

## **OE LS Engine Component Compatibility**

The design geometry of the Hooker headers and engine mounting brackets for this application provide installation compatibility of the following stock OE LS/Vortec truck engine components:

Intake manifolds (any)

Valve covers

Ignition coils and brackets

Spark plug wires

Starter motor

Gen IV block mounted knock sensors

Oil cooler lines

Denso Vortec truck A/C compressor (late style only without rear sensor)



## **Holley LS Engine Component Compatibility**

A multitude of LS engine performance and appearance upgrade products are available from the Holley family of brands, which enable the user to achieve their personal 1973-87 GM truck LS swap project goals. Included in this list of components are:

Holley carburetors, EFI systems, fuel pumps/regulators, injectors, ignition coils, valve covers and A/C compressor brackets

Weiand Intake manifolds

Earl's plumbing fittings/hoses

NOS nitrous oxide kits