



K & V Series Squaremax Engine Mount Kit

'73-'87 K Series & '88-'91 V Series

Revision 05 (08/06/18)

Package Contents

- *(1) D/S Upper engine mount plate*
- *(1) P/S Upper engine mount plate*
- *(1) D/S Upper engine mount bracket*
- *(1) P/S Upper engine mount bracket*
- *(1) D/S Lower engine mount bracket*
- *(1) P/S Lower engine mount bracket*
- *(4) Polyurethane bushings*
- *(2) Bushing sleeves*
- *(1) Engine Xmember*
- *(1) D/S engine mount support bracket*
- *(1) P/S engine mount support bracket*
- *(9) M10x1.5x25mm Flat Head Cap Screws*
- *(1) M10x1.5x20mm Flange Head Bolts*
- *(5) M10x1.5x25mm Flange Head Bolts*
- *(14) M10x1.5x35mm Flange Head Bolts*
- *(14) M10x1.5mm Flange Head Lock Nuts*
- *(2) M14x2.0x130mm Hex Head Bolts*

- (2) *M14 SAE Washers*
- (2) *M14x2.0 Flange Head Lock Nuts*

Tools Required

1. *5/8" Box end wrench / 5/8" Socket*
2. *11/16" Box end wrench / 11/16" Socket*
3. *15mm Box end wrench / 15mm Socket*
4. *Ratchet*
5. *1/2" drive Impact*
6. *Torque wrench*
7. *4"- 4 1/2" Grinder with 60 grit flap disc*
8. *Ball Peen hammer*
9. *1/4" drift punch*
10. *Rubber mallet*
11. *(2) 5/8"-11 x 3' Threaded rod, USS washers & nuts (optional)*

Notice

First of all we would like to take a moment and thank you for your recent purchase and support! Thanks to you kind folks we have been successful following our dreams of creating this amazing powertrain conversion.

We cannot legally provide you with information regarding emission requirements. Please remember to check your local state and county emission laws before performing this engine conversion.

Please note that the '73-'80 OEM lower engine mounting brackets shown below need to be out of a truck that was originally equipped with a 454 CID Big Block engine. The Inline 6 cylinder, Small Blocks and 6.2 liter Diesel lower engine mounting brackets will not work. It will position the engine lower in the chassis and cause severe installation problems. If your chassis has the wrong lower

engine mounting brackets you will have to locate a pair out of a truck that was originally equipped with a 454 CID Big Block engine.

If you are utilizing the '06-'07 (LBZ), '08-'10 (LMM), or the '11-'16 (LML) Duramax Diesel engine you will have to purchase and install a 3" fabricated Y-Bridge kit, full EGR delete kit, '01 (LB7)-'05 (LLY) oil filler tube on the engine in order to gain the necessary clearance for the hood to close. If you need to retain the OEM plastic intake horn, EGR system and the cold side intercooler plenum then you will need to install a body lift or a steel / fiberglass cowl induction hood to allow the hood to close.

Chassis Preparation

- 1. Remove OEM rubber engine mounts and discard.*



- 2. Remove the (4) four 7/16"-14x1 1/4" hex head bolts that fasten the engine crossmember to the OEM engine mount brackets and discard.*
- 3. Remove the OEM engine mount brackets from the chassis and save for later installation. Please note the position and mark with a silver Sharpie (D/S, driver side & P/S, passenger side).*
- 4. Remove rivet heads on OEM engine cross member. The quickest and most efficient way to do this is from the underside. Using a 60 grit flap disc on an angle grinder, grind the head completely away until you hit the surface of the cross member.*
- 5. Using a 1/4" steel punch and a ball peen hammer, drive the rivets out of the holes.*

- 6. Remove the OEM engine crossmember and discard. You may notice the frame rails move slightly when removing the OEM engine crossmember; this is nothing to worry about. The provided Engine Xmember has the exact same hole pattern as the OEM engine crossmember and will place the frame rails back where they need to be.*



- 7. Re-install the OEM engine mount brackets and torque to manufactures specifications.*
- 8. Loosely install the D/S & P/S angle brackets to the OEM engine mount brackets using the provided (4) four M10 x 1.5 x 30mm Flange Head Bolts and (4) four M10 x 1.5mm Flange Head Lock Nuts.*
- 9. Position and install Engine Xmember in OEM hole pattern. As stated in step #6, you may have to manipulate the frame rails inward to align the hole pattern and install the Engine Xmember. If the frame rails need to be narrowed use two pieces of 5/8" threaded rod about 3' long. There are two slots in the frame rails. Slip the threaded rod through the slots and install heavy USS washers and nuts on the outside of the frame rails. Tighten slowly and evenly until the hole patterns align. In most applications the outer most holes only exist. Please note that the rear most holes coincide with the D/S & P/S angle brackets that were loosely installed in step #8. Fasten using the provided (4) four M10 x 1.5 x 30mm Flange Head bolts and (4) M10 x 1.5mm Flange Head Lock Nuts and torque. Use provided Torque-Tension chart to determine proper bolt torque.*



10. Loosely install D/S & P/S lower engine mounts using the provided (6) six M10 x 1.5 x 30mm Flange Head Bolts and (6) M10 x 1.5mm Flange Head Lock Nuts.



Engine Preparation

- 1. In this step you must decide what engine position you will be utilizing. Position #1 will place the engine in the OEM position and will allow earlier transmissions and transfer cases to be used. If you decide to utilize this engine mounting position you will need our D/S Allison 1000 Series Transmission Dipstick assembly. It is available for purchase in our online store. Position #2 moves the engine forward to help clearance issues with the Allison input speed sensor and larger diameter down pipes for high performance applications. Once decided, prepare the D/S & P/S upper engine mount plates by applying Anti-Seize to the countersinks in the plates,*

(this will allow disassembly in the future and prevent the socket drive from stripping due to excessive force during the removal process). The D/S upper engine mount plate will use (5) five M10 x 1.5 x 25mm Flat Head Cap Screws in the #1 position and (4) four M10 x1.5 x 25mm Flat Head Cap Screws in the #2 position. The P/S upper engine mount plate will use (4) four M10 x1.5 x 25mm Flat Head Cap Screws in positions #1 & #2. Desired position will dictate the placement of the floating cap screw. Install the D/S & P/S upper engine mount plates using the provided (9) nine M10 x1.5 x 25mm Flat Head Cap Screws. Torque using the provided Torque-Tension chart to determine proper bolt torque.



- 2. Install D/S upper engine mount bracket to engine mount plate and fasten using the provided (1) M10 x1.5 x 20mm Flange Head Bolt and (5) five M10 x1.5 x 25mm Flange Head Bolts. Torque using the provided Torque-Tension chart to determine proper bolt torque.*



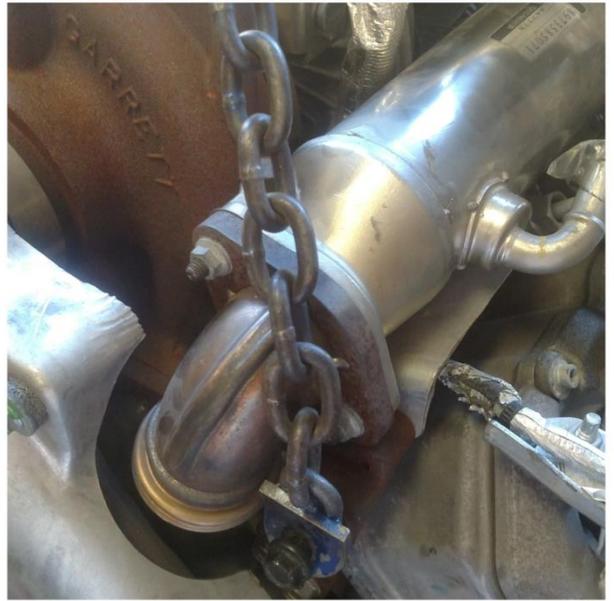
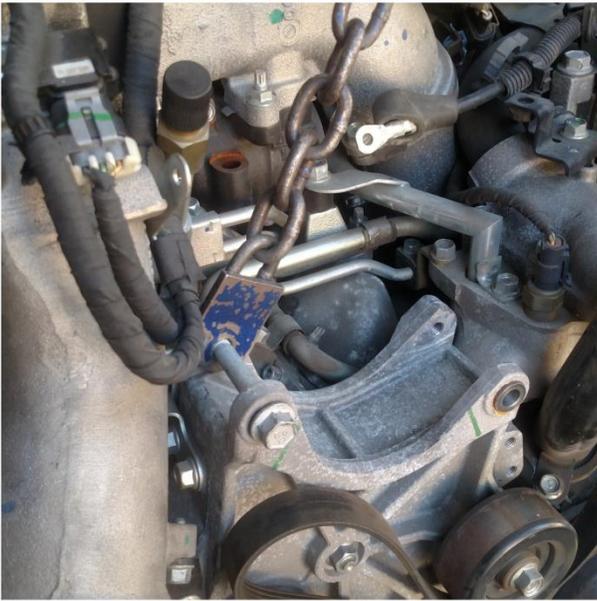
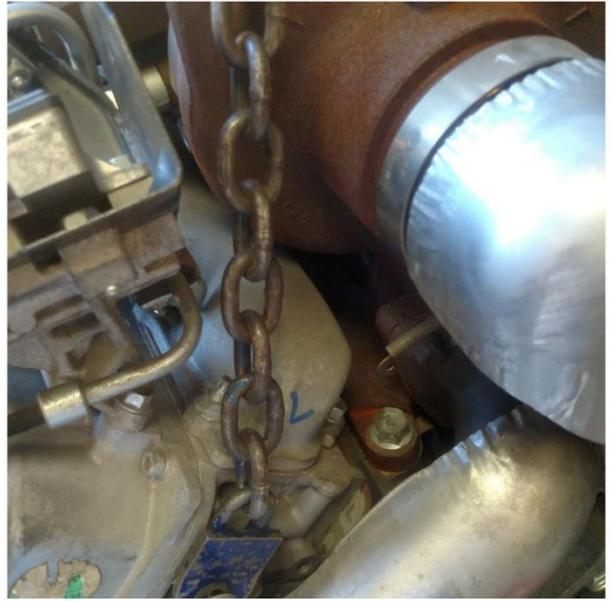
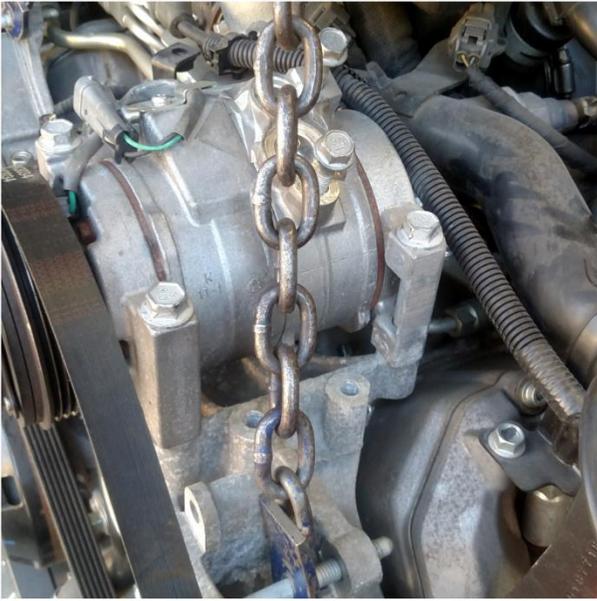
- 3. Install P/S upper engine mount bracket to engine mount plate and fasten using the provided (1) one M10 x1.5 x 20mm Flange Head Bolt and (2) two M10 x1.5 x 25mm Flange Head Bolts. Install the (1) one M10 x1.5 x 20mm Flange Head Bolt in the forward most hole. This placement is critical! If a 25mm long bolt is threaded into this hole it will come in contact and pinch*

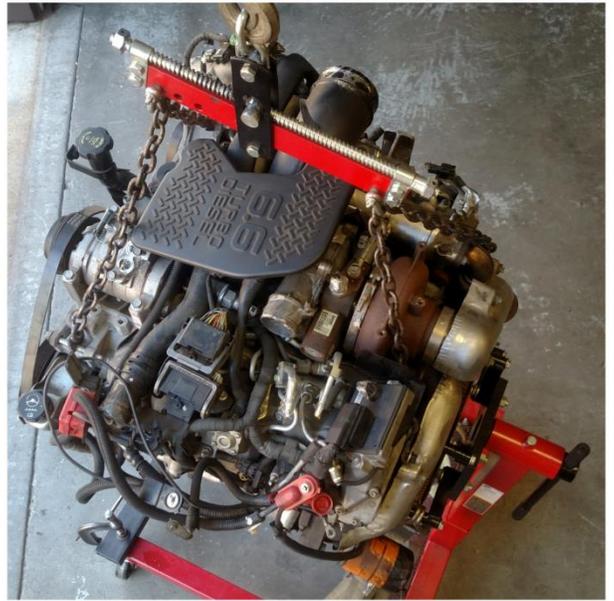
the dipstick tube closed. Use caution and make sure the 20mm bolt is properly placed. Torque using the provided Torque-Tension chart to determine proper bolt torque.



Engine Installation

- 1. The fastest and most efficient way to install the engine is by using a 3/4 Ton (minimum rated) Adjustable Engine Sling. On the front side of the engine remove belt and alternator. Attach one leg of the chain through the furthest alternator mounting point to the passenger side and secure using the OEM Flanged Headed Bolt. Attach the opposite side of the chain to the optional second alternator mounting point and secure using the other OEM Flanged Headed Bolt. On the rear side of the engine carefully route the chains and attach them to the cylinder head accessory bolt holes. There are two attachment points that work well and safely support the engine during the lifting process. DO NOT try to cut corners on this step! If this step is not followed properly serious injury and or death may occur if the engine falls on you.*





- 2. Attach the Adjustable Engine Sling to a heavy duty chain swivel link and attach to cherry picker or forklift. Lift engine and adjust Engine Sling to tilt the front of the engine upward. Carefully lower engine into chassis and pay attention to the downpipe clearance and oil filter housing! Once the engine is nestled in its new home adjust the Engine Sling to align the upper engine mount brackets with the lower engine mount brackets and install the (2) two M14 x 2.0 x 130mm bolts and fasten with the (2) two M14 x 2.0 Flange Head Nuts. Torque to 35 ft./lbs.*



Troubleshooting

Our Squaremax engine conversion could possibly have only three variables that would affect the distance between the lower side of the transmission tunnel and the input speed sensor on the driver side bellhousing on the Allison transmission:

The first factor would be engine position. Placing the engine in the #2 position will move the entire powertrain forward almost 2". By doing this the input speed sensor moves along with it and creates even more clearance between the lower side of the transmission tunnel and the input speed sensor.

The second factor is deteriorating rubber on the cab mounts. If the rubber is cracked and squished on the cab mounts this will allow the body to sit lower than it should. Replacing the cab mounts will help resolve this problem and also keep body lines straight.

The third factor is the OEM application for the cab itself. If your cab is an OEM 2WD with any one of the factory equipped automatic transmissions the transmission tunnel is much lower than an OEM 4WD transmission tunnel. If you have a cab that falls under this category, you have three options. Option #1 would be to install a body lift. Option #2 is to cut and remove the transmission tunnel and install a factory 4WD transmission tunnel. Option #3 is to cut and remove the transmission tunnel and fabricate a custom transmission tunnel.

The attached photographs are of our '86 Chevrolet Silverado K30 Crew Cab Long Bed Dual Rear Wheel truck. It has a '03 LB7 with an Allison transmission and a Circular Pattern GM NP205 transfer case. The transmission tunnel has NOT been modified in any way and there's plenty of clearance between the lower

side of the transmission tunnel and the input speed sensor. If your clearances do not look like the photos shown below then please review the three possible scenarios mentioned above.

