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**Precision  
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## *C & R Series Squaremax Engine Mount Kit*

*'73-'87 C Series & '88-'91 R Series*

*Revision 00 ( 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*
- *(9) M10x1.5x25mm Flat Head Cap Screws*
- *(1) M10x1.5x20mm Flange Head Bolts*
- *(5) M10x1.5x25mm Flange Head Bolts*
- *(6) M10x1.5x35mm Flange Head Bolts*
- *(6) 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. 9/16" box end wrench / 9/16" socket*
- 2. 5/8" box end wrench / 5/8" socket*
- 3. 11/16" box end wrench / 11/16" socket*
- 4. 15mm box end wrench / 15mm socket*
- 5. 3/8" or 1/2" drive ratchet*
- 6. Torque wrench*
- 7. Cherry picker, forklift, or suitable engine lifting method*
- 8. 3/4" ton or higher rated engine lifting sling*
- 9. Safety glasses*
- 10. 1/4" drift punch*
- 11. Air compressor & air hose*
- 12. Air nozzle*
- 13. 1/4" straight die grinder*
- 14. 1/4" 90 degree die grinder*
- 15. 1/4" cut-off wheel mandrel*
- 16. 1/4" abrasive cut-off wheels*
- 17. 2" disc sander mandrel*
- 18. 2" 60 grit sanding discs*
- 19. 2" red Scotch-Brite pads*
- 20. Duct or masking tape*
- 21. Straight edge*
- 22. Sharpie*
- 23. 110-220 volt MIG or TIG welder*
- 24. Welding gloves, coat & helmet*

## *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. 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*

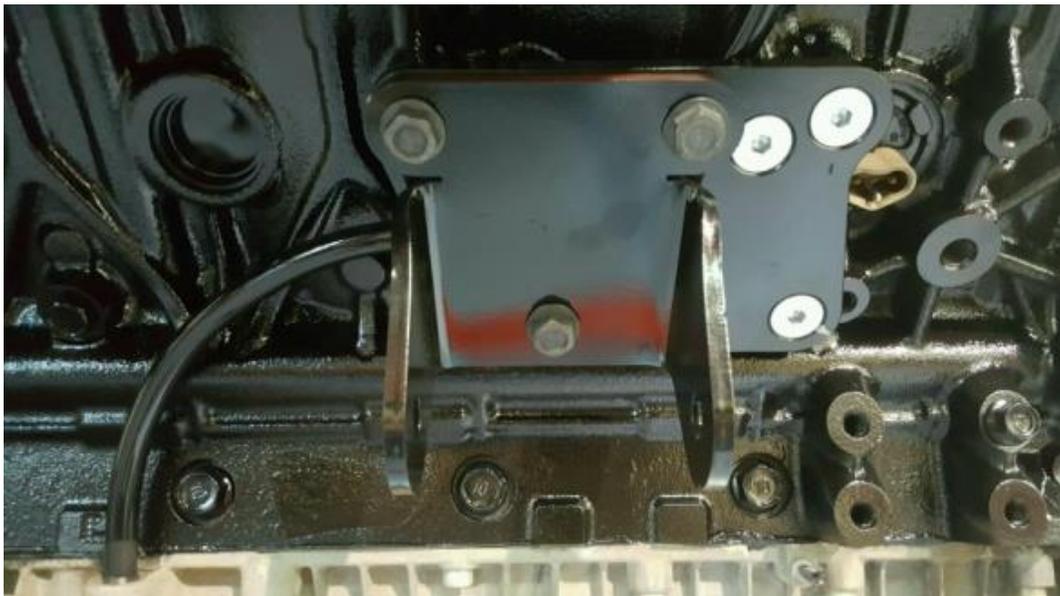
*cases to be used. If you decide to utilize this engine mounting position you will need our D/S Allison 1000 Series Transmission Dipstick assembly. It is available for purchase in our online store. Position #2 moves the engine forward to help clearance issues with the Allison input speed sensor and larger 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.*

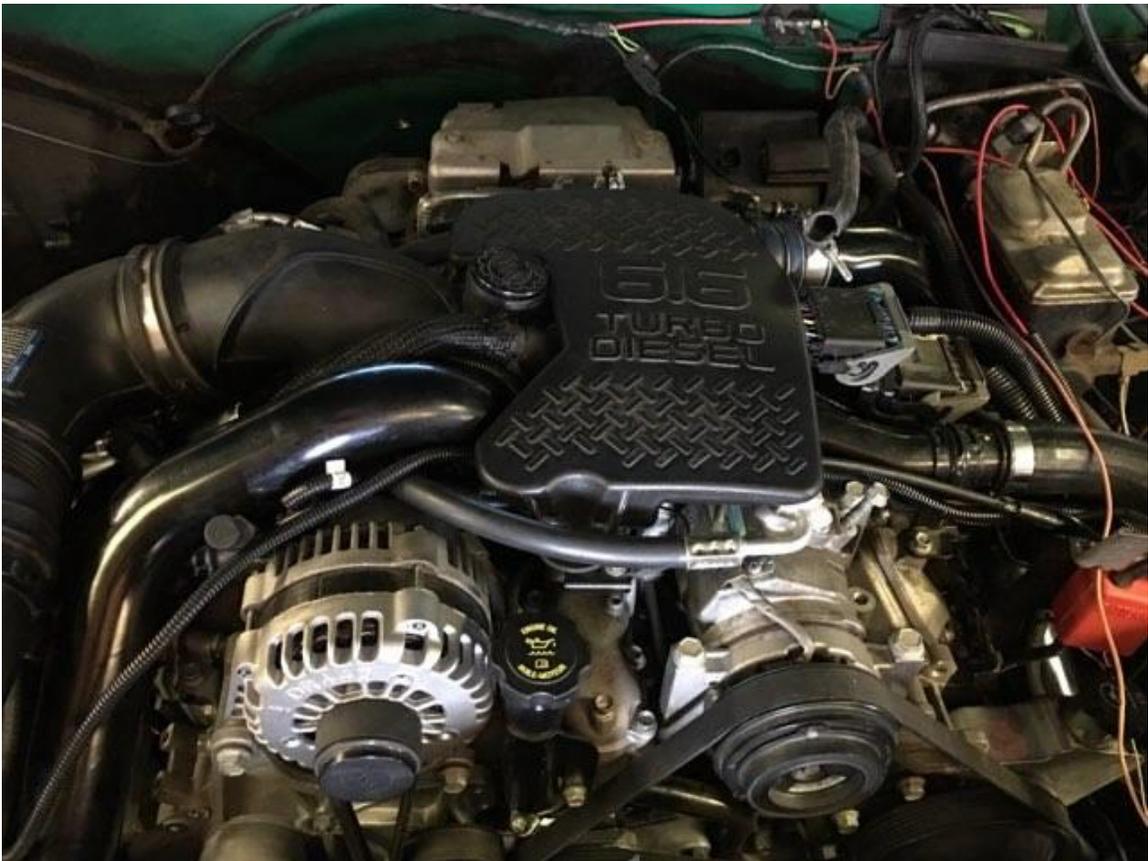


- 3. Install P/S upper engine mount bracket to engine mount plate and fasten using the provided (1) one M10 x1.5 x 20mm Flange Head Bolt and (2) two M10 x1.5 x 25mm Flange Head Bolts. Install the (1) one M10 x1.5 x 20mm Flange Head Bolt in the forward most hole. This placement is critical! If a 25mm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





## *Transmission Tunnel Modifications*

*If your C or R Series Truck, Blazer or Suburban was factory equipped with the SM465 4-speed manual transmission then you are in the clear! The factory equipped SM465 Trucks, Blazer's and Suburban's had a 4WD transmission tunnel and clears the Allison 1000 Series Transmission without any modifications.*

*If your C or R Series Truck, Blazer and Suburban was factory equipped with the Turbo-Hydromatic 350, 400 or 700R-4 automatic transmissions the transmission tunnel will **not** clear the Allison 1000 Series Transmission. The transmission tunnel is much lower than an OEM 4WD transmission tunnel. With that stated, you will need to locate and purchase a 4WD transmission tunnel to continue with your installation.*

## *Transmission Tunnel Removal & Installation*

- 1. Remove carpet or rubber floor mat and insulation.*
- 2. Using compressed air, leaf blower or vacuum remove any debris from flooring.*
- 3. Carefully layout your cut lines with duct or masking tape before cutting.*
- 4. Test fit 4WD transmission tunnel over 2WD low tunnel to double check your cut lines prior to cutting. Make sure the donor 4WD tunnel overlaps the cut line by 1"-1 1/2"*
- 5. Using a pneumatic die grinder with cut-off wheel, cut and remove the low transmission tunnel.*
- 6. Deburr sharp edges by using a 2" pneumatic disc sander, small round file and/or sandpaper.*
- 7. Install a factory 4WD transmission tunnel and spot weld into position.*
- 8. Apply seam sealer to overlapped edges to prevent water from entering seam.*
- 9. Clean modified transmission tunnel and all surrounding areas with a wax & grease remover.*
- 10. Mask areas to prevent overspray.*
- 11. Prime & paint bare metal surfaces.*
- 12. Allow to cool*
- 13. Re-install insulation, carpet or rubber floor mat.*

*The attached photographs are of a '80 Chevrolet Silverado C30 Crew Cab Long Bed Dual Rear Wheel truck. It has a '07 LBZ with an Allison 1000 Series Transmission. The transmission tunnel has been cut-out and replaced K Series Transmission tunnel. ( Photos courtesy of Ben Dollar in Panhandle, TX ).*



