ENGINE DRIVEN COMPRESSOR --- 2001-2007 Classic Duramax Engines (Horizontal)

NOTE: If your model was equipped with dual alternators, the second will have to be removed for this installation. However, high output single alternators are available online and can take the place of a factory dual alternator setup.

NOTE: Determine your proper belt length on **Step 22** before beginning the installation.

There are multiple positions in which the compressor can be mounted based on your application. If space allows, vertical mounting is always preferred for the least amount of oil bypass. **SLM compressors can only be mounted vertically**. Please refer to the chart below to determine which position is to be used. These instructions describe the horizontal mounting. Please refer to the 2007-present instructions for vertical mounting.

Model	Compressor Position	Clutch	Notes
2001-2007 Classic	Horizontal	Use inside 6 grooves of 8-groove clutch	
2007-2016	Vertical	Use inside 6 grooves of 8-groove clutch	
2017-Present	Vertical	Use inside 6 grooves of 8-groove clutch	Requires modification to resonator and hood-side intake plenum
4500/Kodiak/Topkick	Vertical	Use inside 6 grooves of 8-groove clutch	See Notes

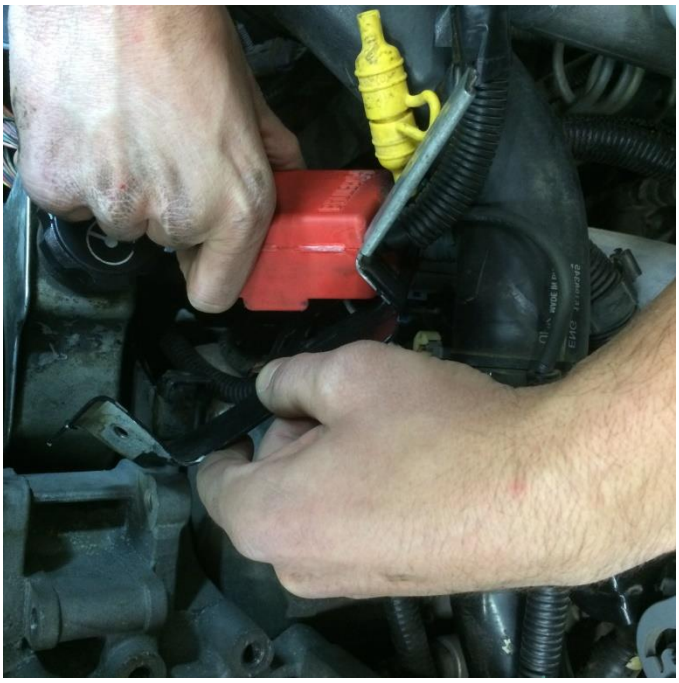
Notes for C4500/Kodiak/Topkick

- This kit bolts onto the engine of 4500 trucks but requires modifications to the airbox and other components around it to work. We cannot recommend the exact steps for this, however customers with the skills and resources do install them successfully.

- The Duramax compressor bracket allows for mounting the compressor both horizontally and vertically. Horizontal mounting is only suitable with Standard compressors. The SLM compressors **must** be mounted vertically although it will interfere with the 4500 airbox more. The SLM is recommended for most applications if it suits your budget, and you can perform the airbox modifications.

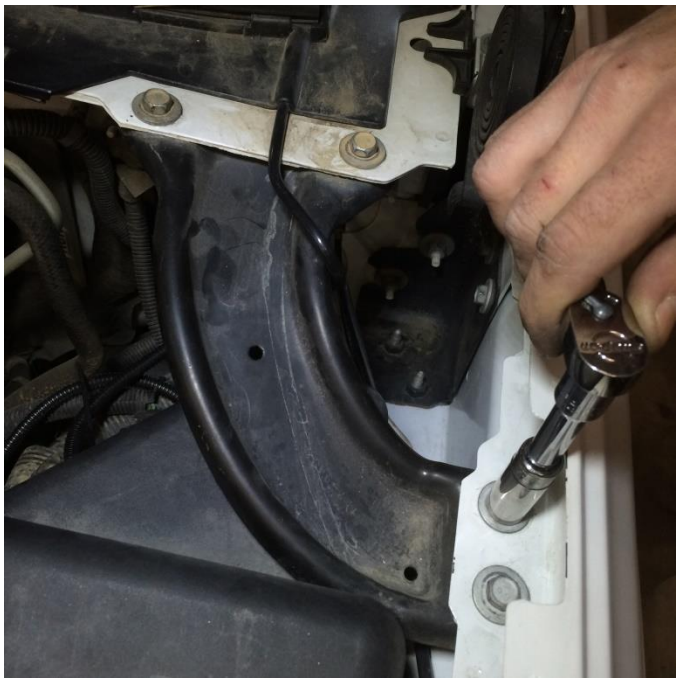
- Aftermarket filters such as K&N may be used and remove the factory airbox to make clearance above the compressor. This is shown in the Vertical mounting instructions **HERE**.

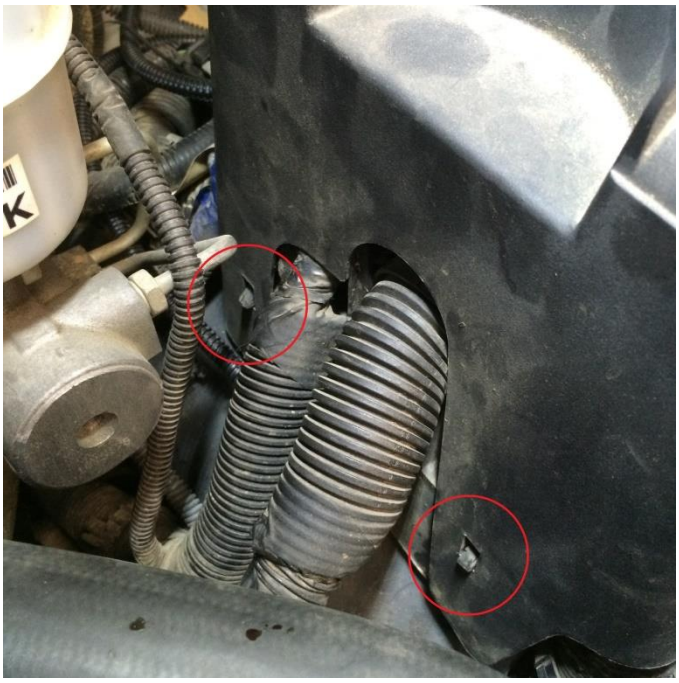
1 & 2



Installation of this system requires shifting the battery junction box into a new position with the supplied hardware. Remove the bolt holding the factory bracket and unclip the junction box from the bracket.

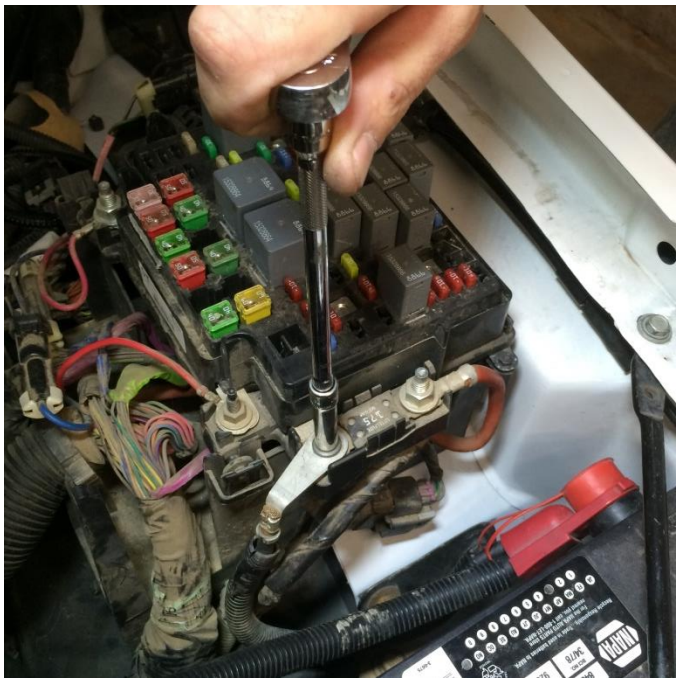
3 & 4

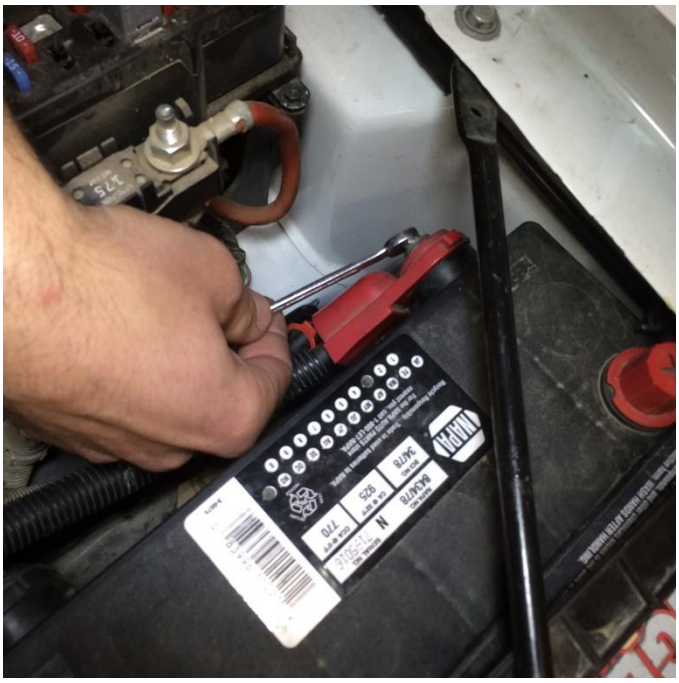




Remove the 4 bolts holding the fender brace and unclip the fusebox cover from the 2 retainers towards the bottom (circled).

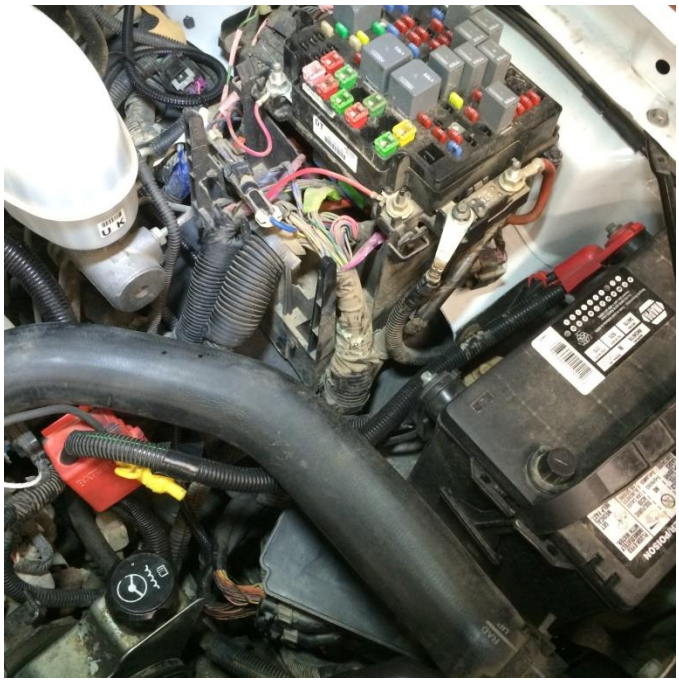
5 & 6

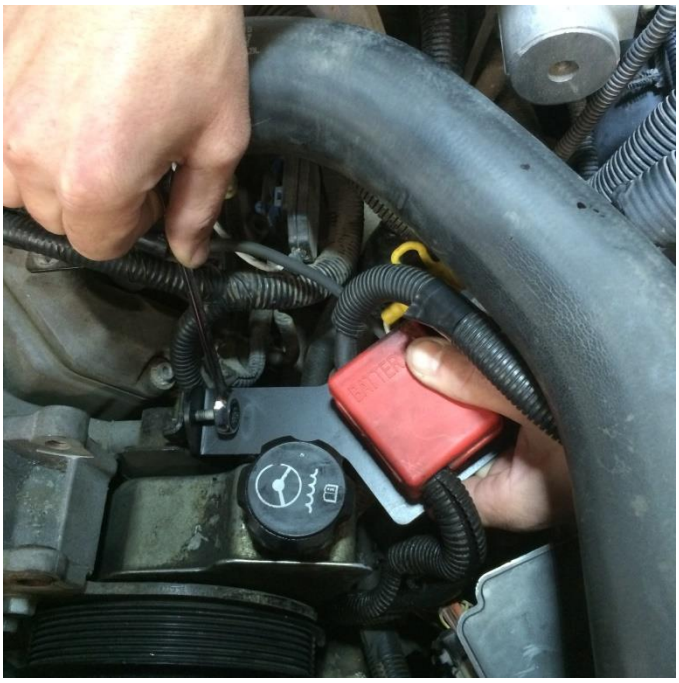




Disconnect the negative battery terminals on BOTH batteries (not shown), then remove the fusebox power wire and the positive terminal on the battery as shown.

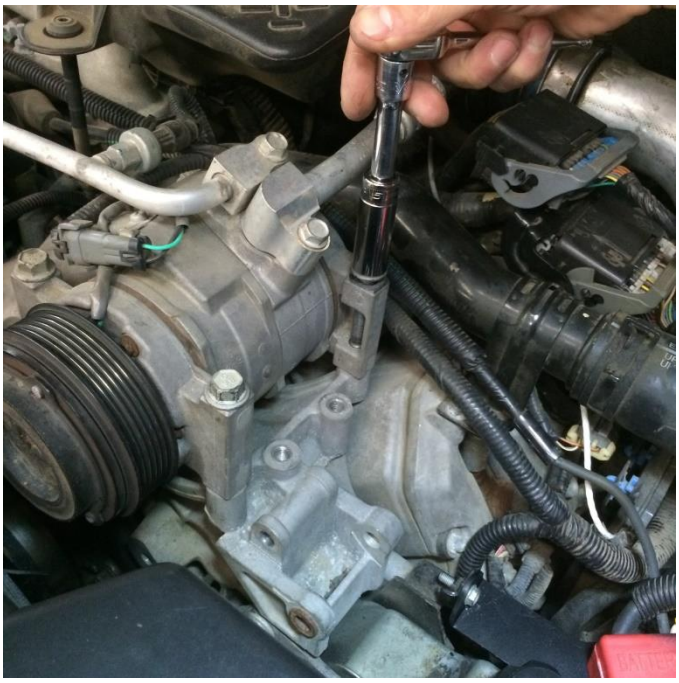
7 & 8





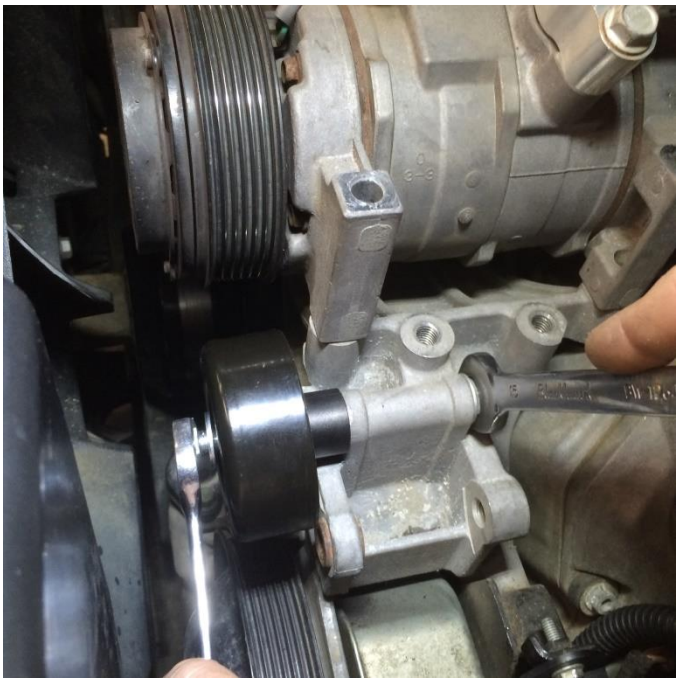
Route the positive battery cable lead underneath the upper radiator hose as shown and then reconnect to the battery and fusebox. The fusebox cover, lid, and fender brace can be reinstalled. The junction box will snap into the new supplied bracket and bolt on with the original bolt.

9 & 10

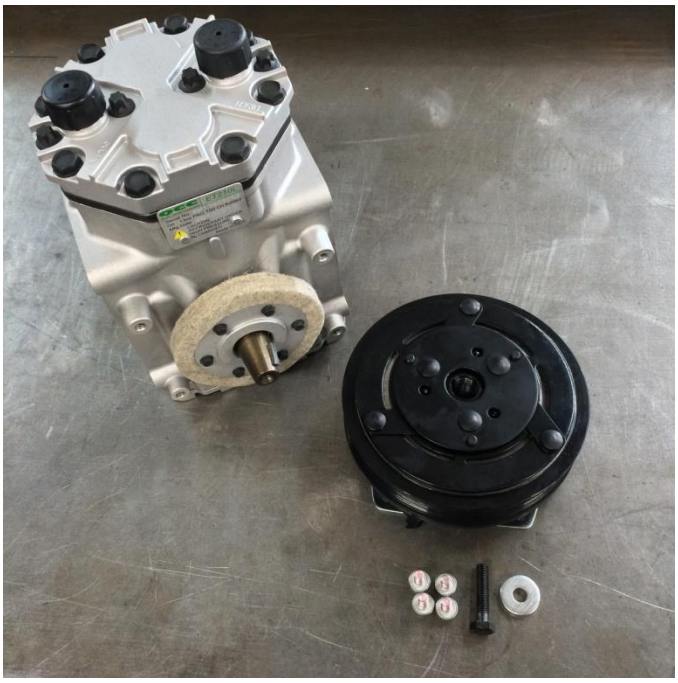


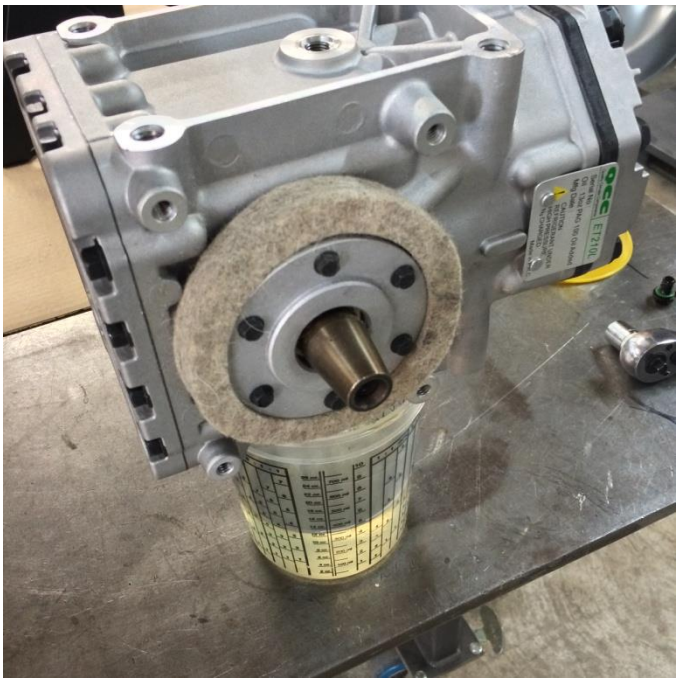
Rotate the tensioner pulley and remove the factory belt. A wrench or socket can be used for this, although a serpentine tool like the Gearwrench 3680d is very helpful. The belt can be measured at this time to determine your new belt length using the chart on **Step 22**. Remove the 2 bolts from the AC compressor. If your model was equipped with dual alternators, the second will have to be removed. High output single alternators are available online and can take the place of a factory dual alternator setup.

11

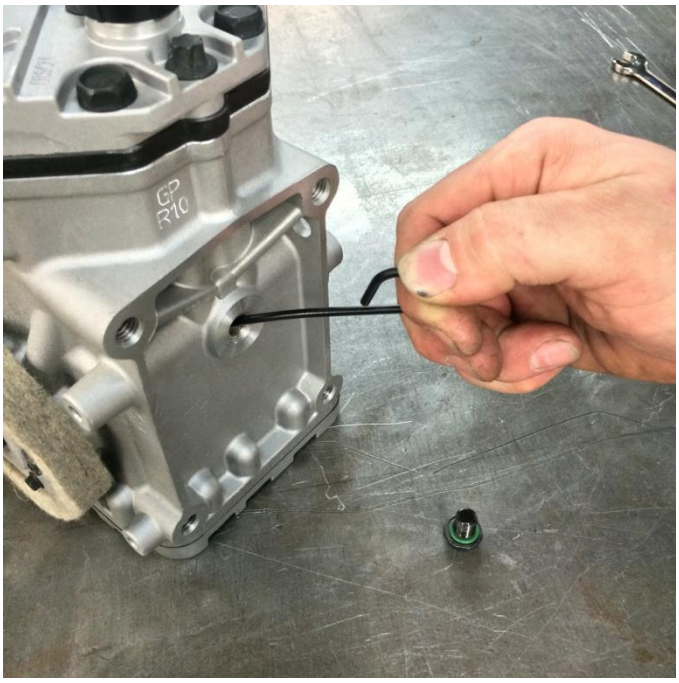


Install the idler pulley and spacer into the open boss of the factory bracket.





Standard Compressors: Verify the new compressor has the half-moon shaped woodruff key installed in the crankshaft. The compressors are shipped pre-filled with AC refrigerant oil, but it is recommended to run 12oz of SAE 30 non-detergent engine oil. Remove the bolts from each side of the compressor fill ports and drain the oil.



Standard compressors: Put one bolt back in and fill with new oil (SAE 30 non-detergent) through the opposite port. It is recommended to use **Valvoline non-detergent SAE 30** (PN 822382)**.**

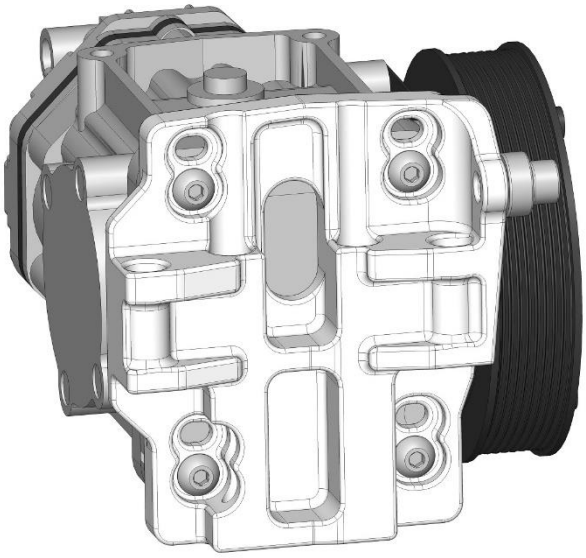
IMPORTANT:

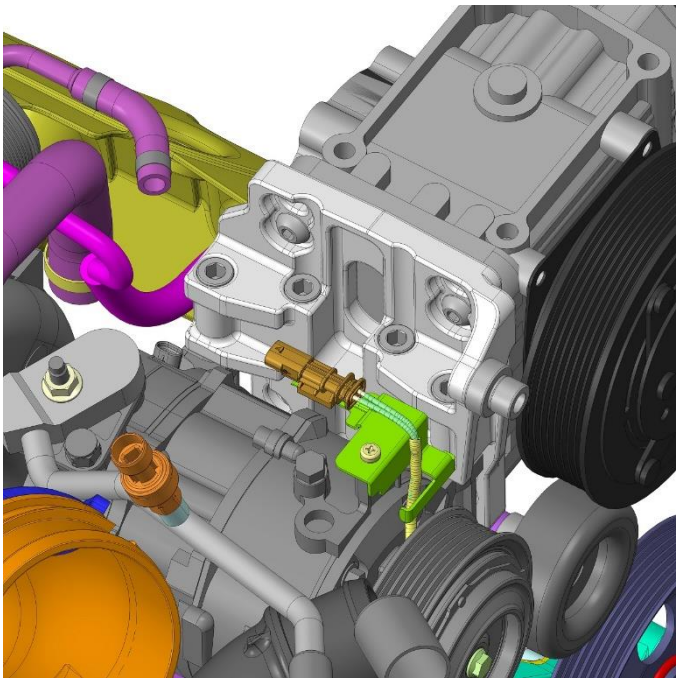
Check the oil level with your compressor on a level surface with the supplied dipstick touching the bottom "floor" of the compressor. Each mark on the dipstick represents 1oz of oil (sometimes it may be necessary to rotate the shaft on the compressor if the position of the crank assembly obstructs the path of the dipstick). **You should keep a maximum of 12oz and minimum of 8oz of oil in the compressor at all times. Once the compressor is installed, the oil level should be checked frequently to monitor consumption. This amount will depend on usage, and type of compressor. It should NEVER drop below 8oz. For standard compressors, check every week until you find your average use. For SLM compressors, check every month until you find your average use.**

16 & 17

Install and tighten the 4 screws that attach the clutch. You can choose if you want the clutch wire oriented to the top or bottom. Install the 5/16 clutch retainer bolt and torque to **20-25ft lbs**. Never hammer the center bolt onto the snout. Let the screw pull it up until it seats.

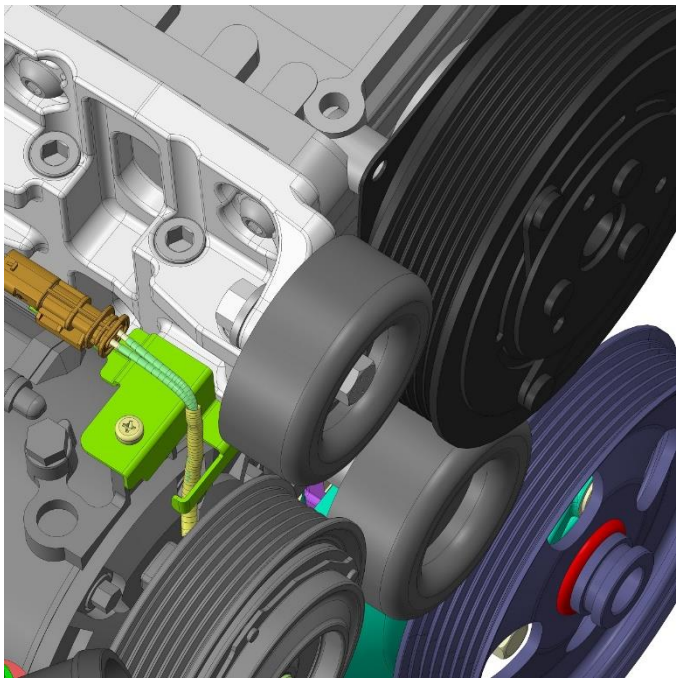
18 & 19

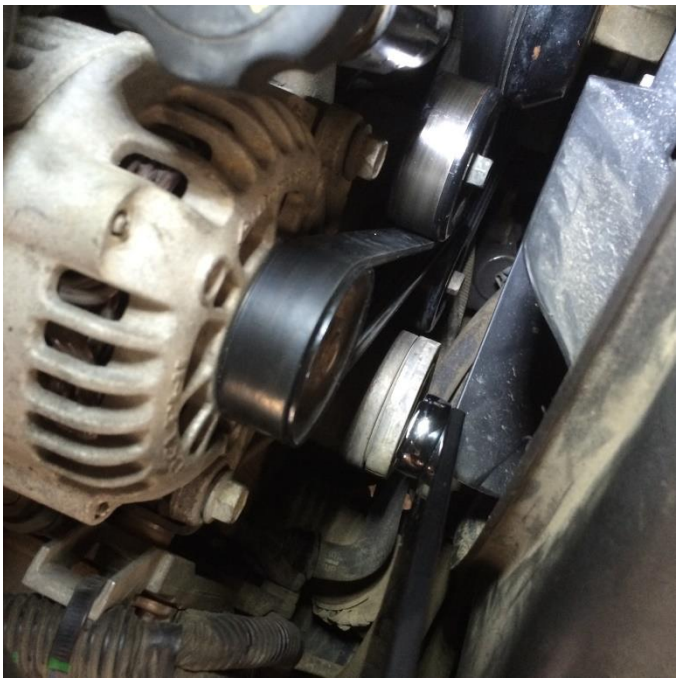




Bolt the compressor to the bracket using **(4) 3/8 x 1.5 bolts** and medium strength threadlocker into the **BOTTOM** set of holes. You will visually center the compressor front to rear in the slots. Its position can be adjusted later if fine-tuned belt alignment is required. The compressor can now be bolted onto the engine using **(4) M10x130mm** bolts with threadlocker.

20 & 21





The second idler pulley can now be bolted on using the supplied 3/8 bolt, washers, and locknut.

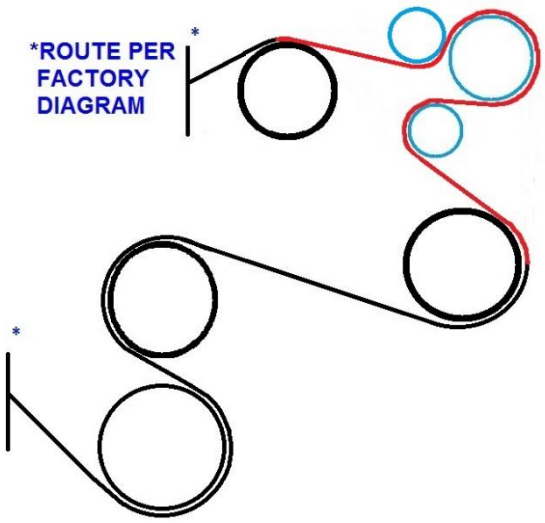
22

Your new belt length will depend on your stock belt length and is based off the chart below. (If you're removing a factory second alternator, you will need to find out the stock length for the single alternator version of your year model and accessories at a parts store or online). Route the belt per the chart and diagrams below. The factory tensioner arm has 2 tension marks to indicate the high and low range of the factory belt. Ideally, you will want a new belt to fit towards the mark showing higher tension. However, they can run at the lower mark without adverse effects. **NOTE:** Continental Elite belts are preferred. Please let us know if your application varies from the chart below. **CONTACT US** with your year/make/model, factory belt length/new belt length, and routing. If none of the belts below apply, you can consider using an 8-groove belt, but this will require splitting off the other 2 grooves using a utility knife.

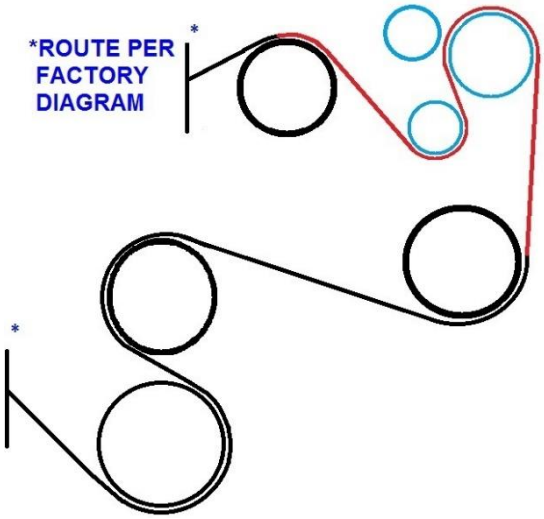
Stock Length	New Length	Belt Part Number	Notes
111.29	131.732	401967	
112.37	132.55	Gates K061325HD	
117.72	137.875	Gates K061373	
118.74	138.625	Gates K061380	Using Primary or Alternate Diagram
119.53	138.625	Gates K061380	Using Alternate Diagram
	139.58	50-62000-61 Goodyear A061395	Using Primary Diagram
120.125	138.625	Gates K061380	Using Alternate Diagram

Belt Routing Diagrams

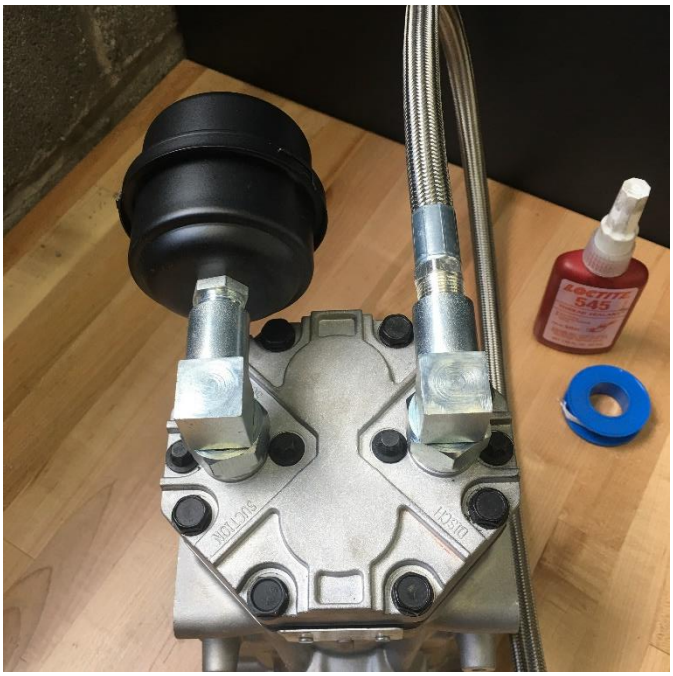
Primary Diagram - (Preferred routing for all years)



Alternate Diagram – Can be used if the primary routing is in between available belt sizes. The top idler pulley would be bypassed.

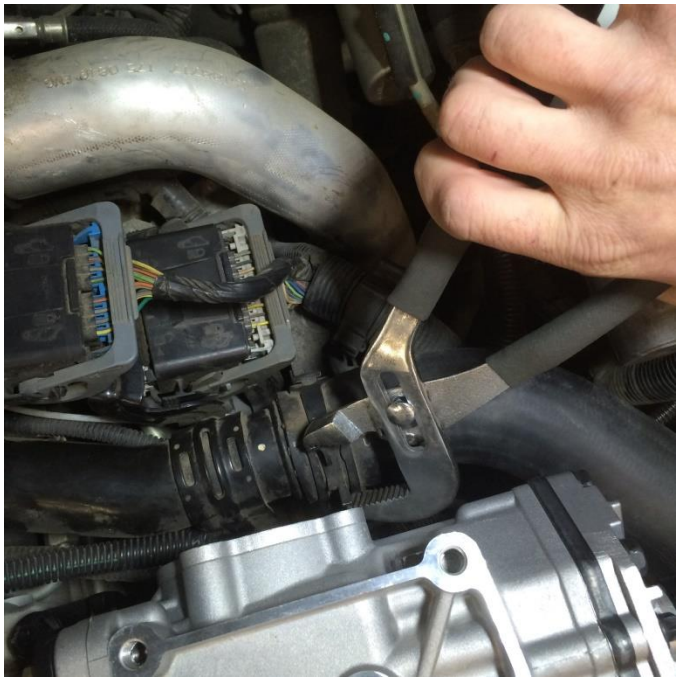


23 & 24

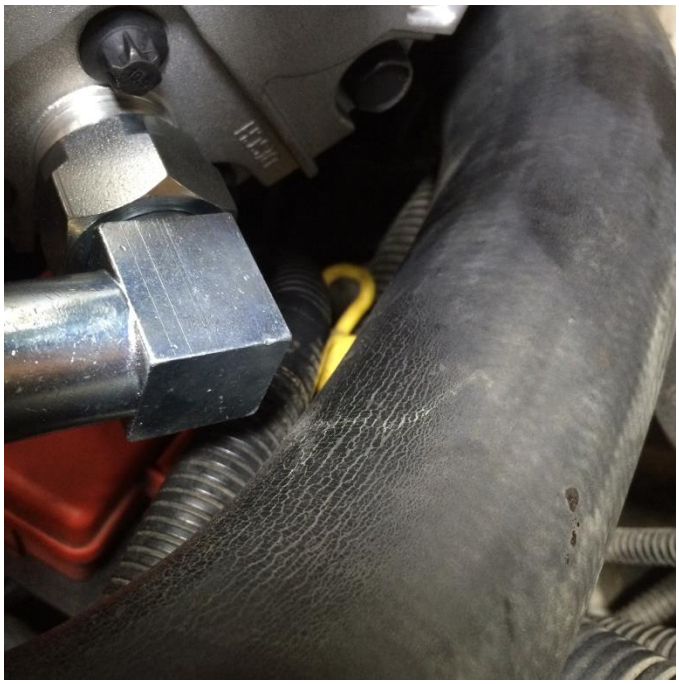


Standard compressors: Two 3/8 NPT head fittings are provided with the kit for direct connection to the intake filter and leader hose. Use a thread sealant such as Loctite 545 or Teflon tape to seal the connections to the filter and leader hose. Do not use sealant on the O-ring compressor threads. Verify the O-rings are present in the bottom of each of the head fittings and install on the compressor. The filter/silencer will go on the port labeled “Suction”.

25 & 26



Remove tension from the upper radiator hose clamps. They can be locked into themselves in the open position. Break the seals and slide the hose out approximately ¼” on each water neck



Check clearance at the head fittings and behind the hose to the master cylinder. The hose needs to be manipulated until it has the most average space to any object. Now is a good time to start the engine and verify there are no problems with the serpentine drive, and that the compressor is not visually out of line.

Additional Information and Recommendations

Since everyone has different goals for their system, we cannot make exact recommendations for other parts you wish to use along with the EDC. However, here are some parts that are used in most installations:

- Check valve – like the 3/8 SMC (SMCNAK4000-N03) or ½ SMC (SMCNAK4000-N04) should be used just before a moisture/oil/water trap and keeps tank pressure from leaking back through the compressor. We offer both sizes on our website **HERE**.

- Moisture/oil/water trap – like the 3/8 SMC (SMCAF30-N03-2Z) or ½ SMC (SMCAF40-N04-2Z) should be used to catch residual oil and moisture before it enters the tank. Mount this as far away from the compressor as possible. Then mount a second unit on the outgoing port of the system before it enters a valve assembly (if using for air ride). We offer a 3/8 version on our website **HERE**, and a ½ version **HERE**.

- Blow-off safety valve – like the 225PSI version we have on our website **HERE**. This will act as a safety backup in the event that the system becomes over pressurized.

- Pressure switch/relay - we typically use a pressure switch to trigger the compressor on and off. It is preferred to use the lowest range which will still get the job done so that it will build up less heat and extend compressor life. DO NOT exceed 200 psi or damage to the compressor can occur. We offer a 110-145PSI and 145-175PSI pressure switch on our website **HERE**.

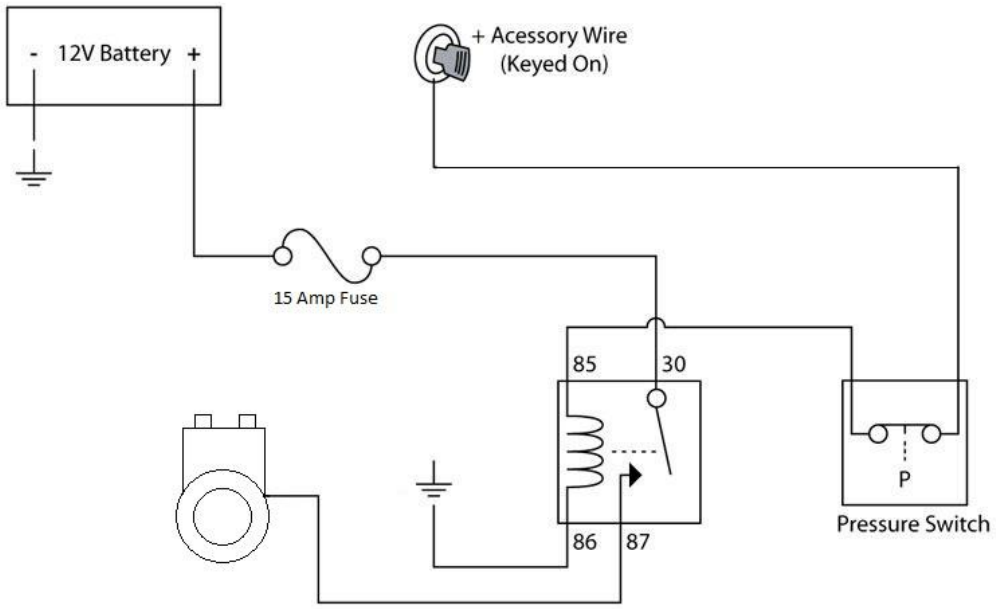
Additional Information and Recommendations (continued)

- Aluminum air tank – in a size suitable for your needs and space requirements. We typically use a 7–10-gallon tank which keeps up with most common air tools. We have 5–12-gallon tanks available on our website **HERE**.

- **CHECK THE OIL OFTEN** until you become accustomed to the average consumption of the compressor. If the compressor is maintained properly, it should easily outlive your ownership of the vehicle. But, if the oil level is run regularly under 8oz, then just like any piston driven engine, internal failure will likely occur. Our commitment to the customer is that this bracket system fits well and works properly. IN NO WAY do we warranty the life of the pump itself. They have been used successfully as on-board air compressors on semis and autos for decades so if there are problems, it is very likely it was improperly maintained.

Wiring Diagram for EDC Systems Using a Pressure Switch

Below is an example of a wiring diagram that can be used if you're integrating a pressure switch into your onboard air setup. The pressure switch listed in the diagram is available on our website using the link above in our "Additional Information and Recommendations" section. **PLEASE NOTE: For the 8-goove clutch, the GREEN wire is POSITIVE and the WHITE wire is GROUND.**



For any questions or suggestions please CONTACT US