



## ENGINE DRIVEN COMPRESSOR --- 2007-2019 Duramax Engines (Vertical)

**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:** 2020+ models will require hood intake plenum patch provisions to be performed by the installer.

**NOTE:** Determine your proper belt length on **Step 19** before beginning the installation.



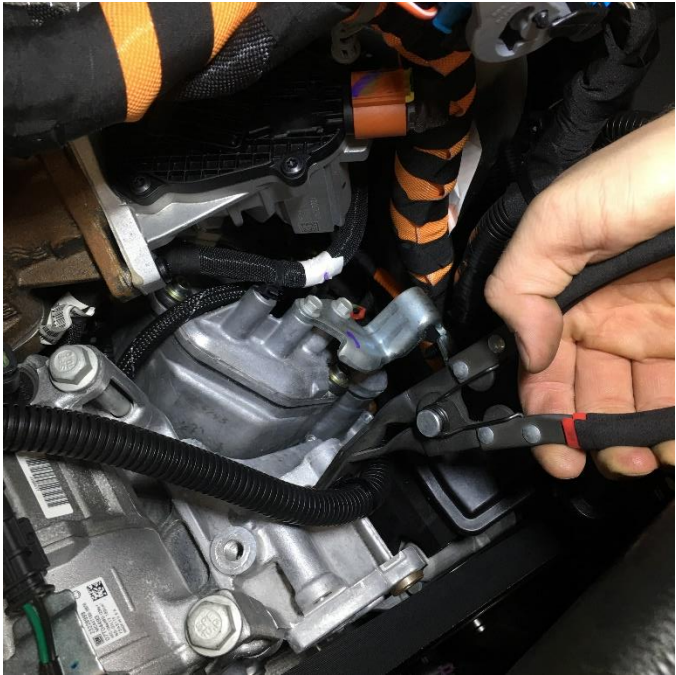
There are multiple positions in which the compressor can be mounted based on your application. If space allows, vertical mounting is preferred for the least amount of oil bypass. **SLM compressors can only be mounted vertically.** Please refer to the chart below to determine which position is to be used. These instructions describe the vertical mounting. Please refer to the 2000-2007 Classic instructions for horizontal 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

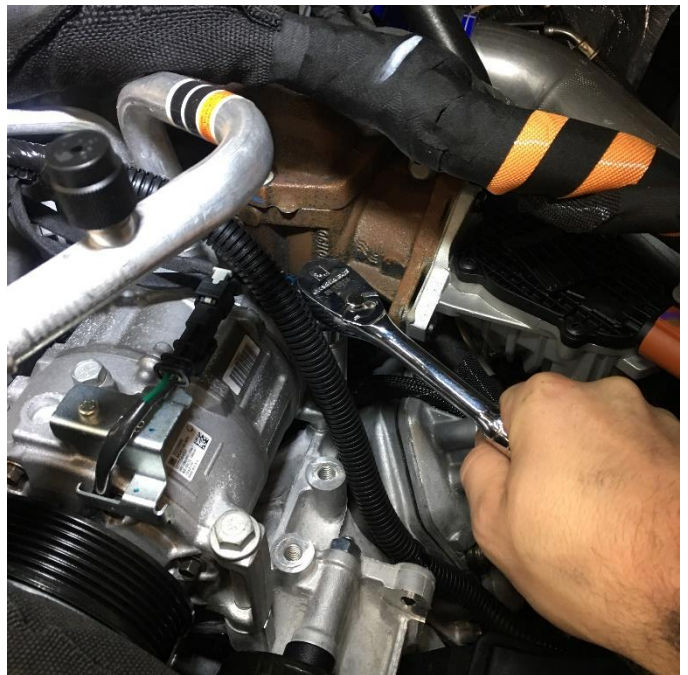
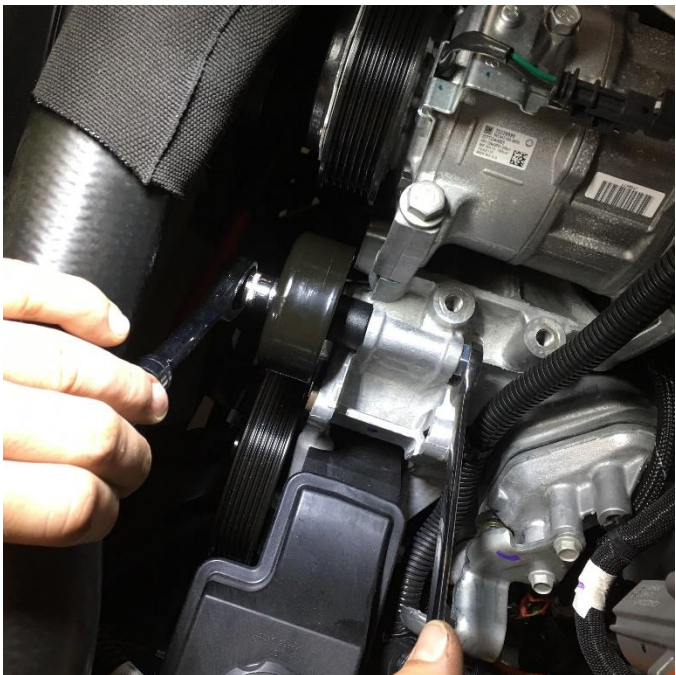
### Notes for C4500/Kodiak/Topkick

- 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 at **Step 31 & 32**.



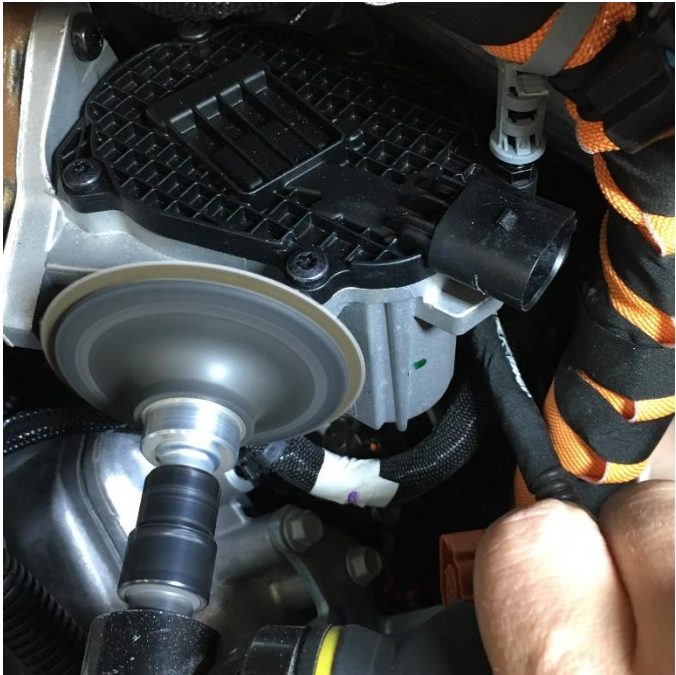


Remove the factory wiring loom from the front of the cast mounting ear and reinstall it into the rear of the same location as shown. Remove the factory belt.

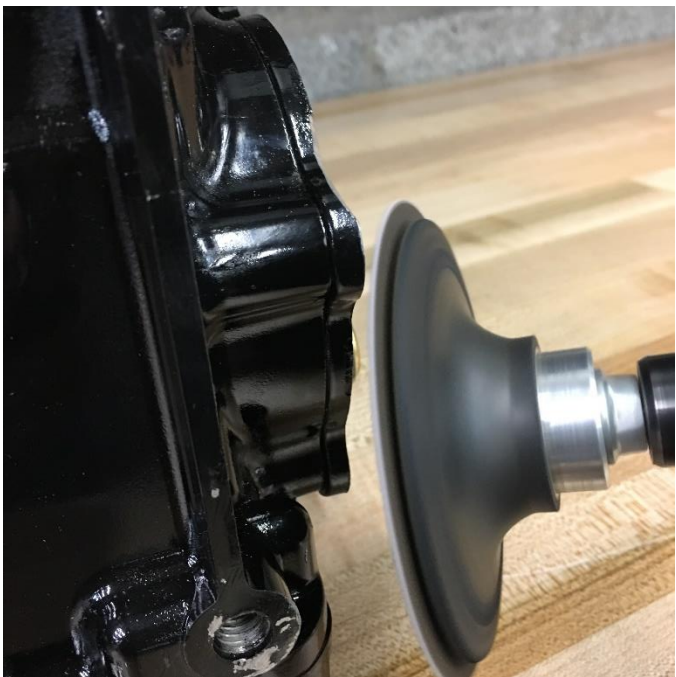


Install the supplied M10x1.5 x 100mm bolt through the idler pulley and machined spacer, then through the factory accessory bracket and secure with the included compression nut. Remove the two factory AC bolts on the driver side.

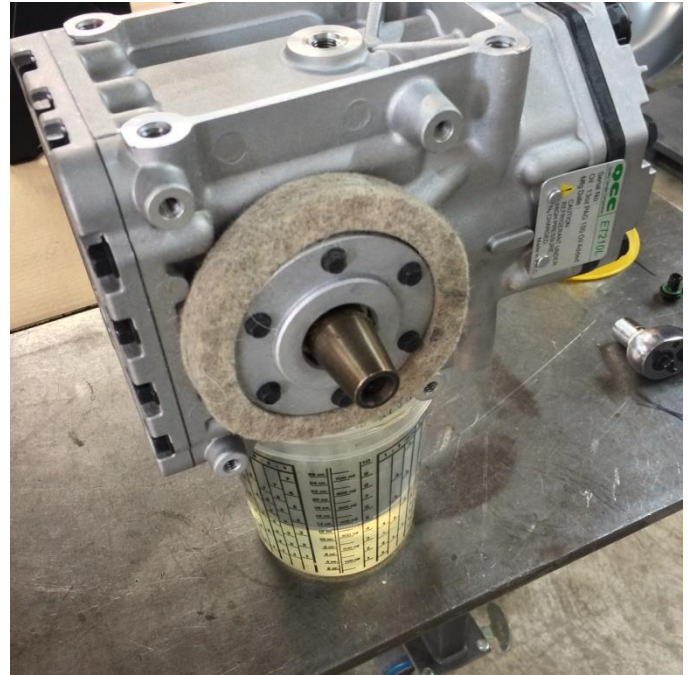
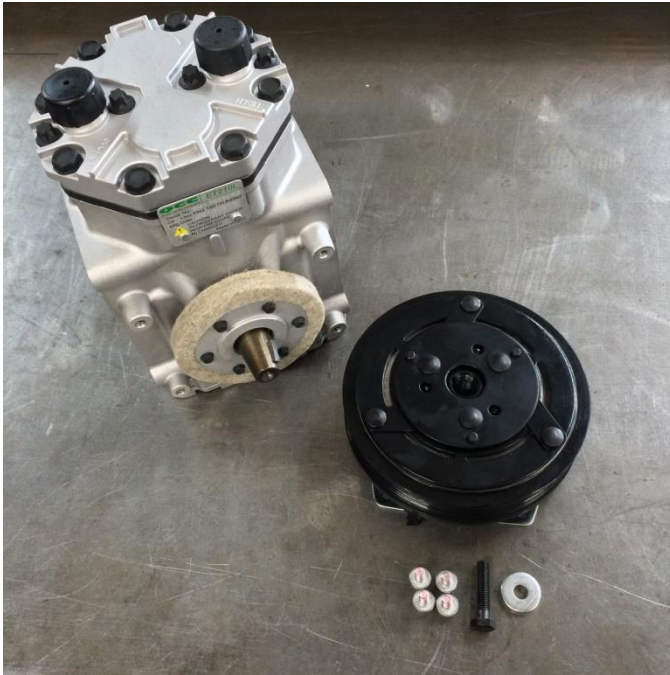




For 2011-2016 models with the factory EGR intact, use a 50-grit sanding pad to flatten the EGR mounting boss as shown.

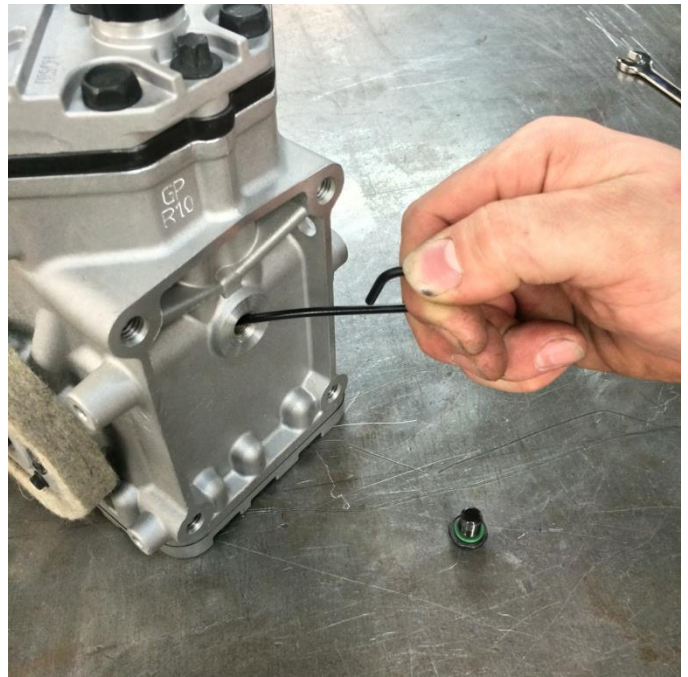


On the compressor body, lightly sand the corner of the rear cover plate as shown. This is to make clearance to the orange EGR electrical plug.



**Standard and SLM compressors:** Verify the new compressor has the half-moon shaped woodruff key installed in the crankshaft. **Standard Compressors only:** 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 only:** 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)**. **SLM compressors:** These are prepackaged with the proper synthetic compressor oil and should only require an oil level check using the supplied dipstick, however you should always confirm before installation. It is recommended to add **Amsoil PCK or Royal Purple Synfilm Recip 100 (PN 01513)** as needed. Your oil level can be checked, and oil can be added using the side port. Refer to SLM compressor owner's manual for more information.

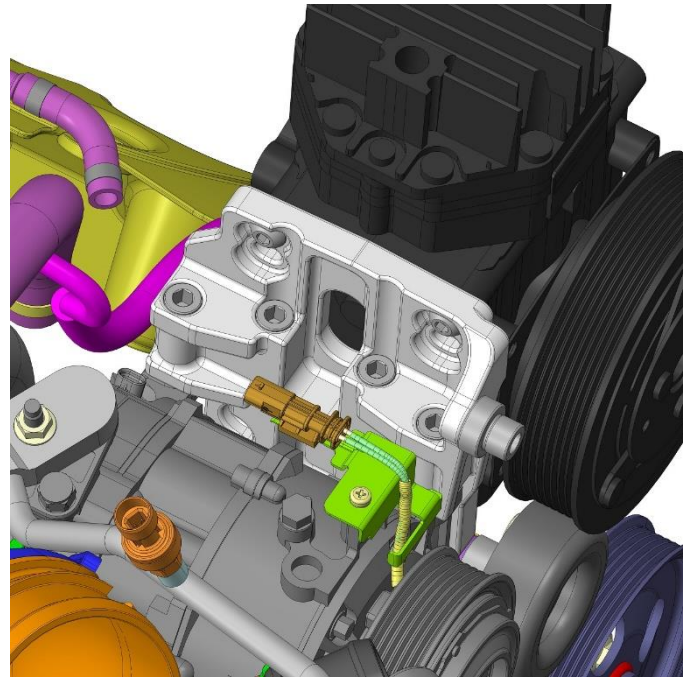
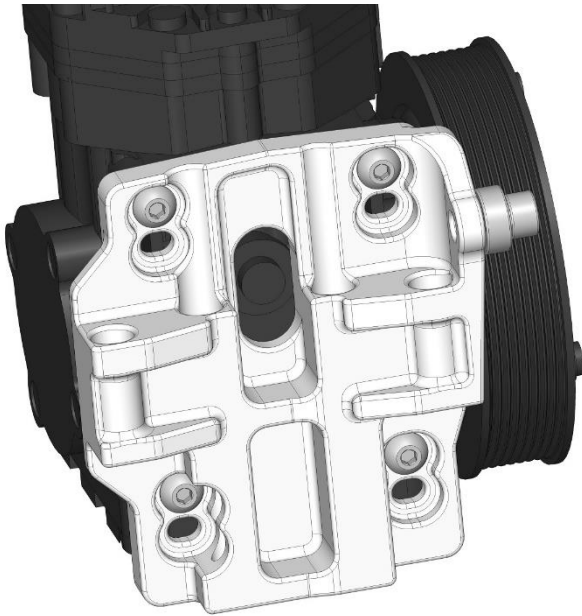
### **IMPORTANT:**

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.**

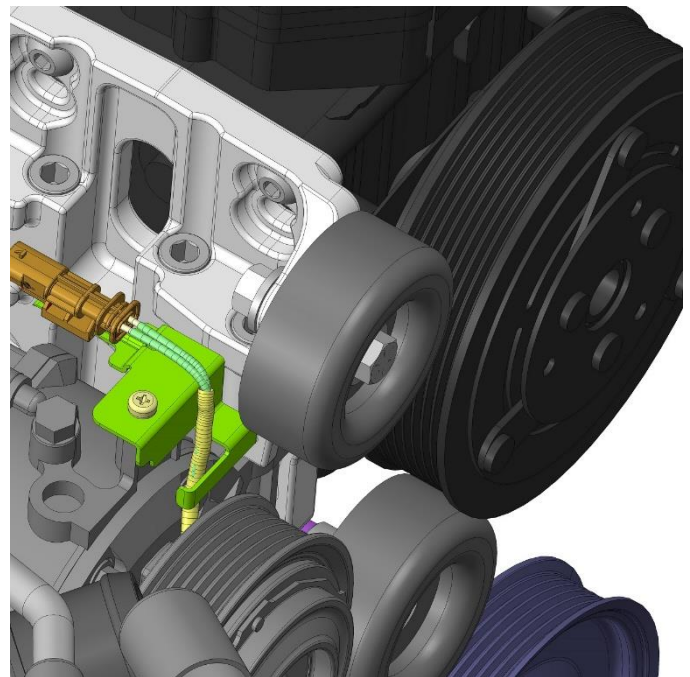
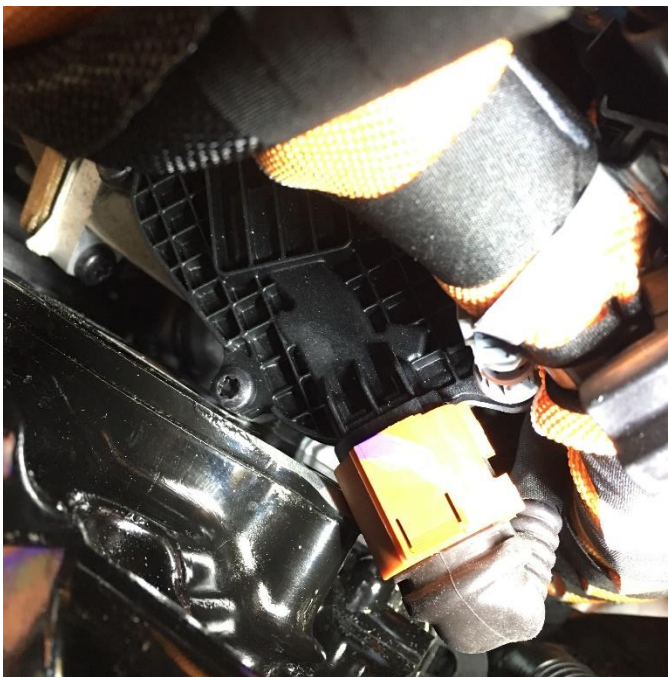


Install and tighten the 4 screws that attach the clutch. You can choose if you want the clutch wiring oriented to the top or bottom. For 8-groove clutches, the white wire is your ground, and the green wire is 12V. Install the clutch retainer bolt and torque to **20-25ft lbs**. (An AC clutch tool such as Mastercool 90499 is best for holding it during installation). Never hammer the clutch onto the snout. Let the screw pull it up until it seats.





Bolt the compressor to the bracket using **(4) 3/8 x .875 bolts** and medium strength threadlocker into the **TOP** 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.



Once the compressor is secured, confirm clearance from the back of the compressor to the EGR body and plug (2011-2016 models only). If it is touching, unbolt the compressor and remove material where necessary to make adequate clearance. The second idler pulley can now be bolted on using the supplied 3/8 bolt, washers, and locknut.

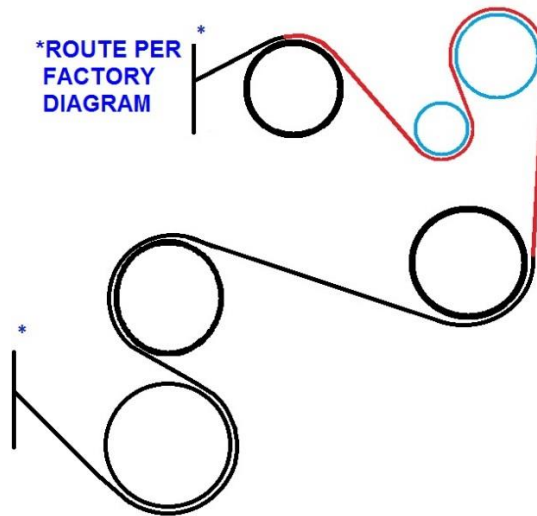


Your specific belt length will depend on your stock belt length and is based off the chart below (if you're removing a factory second alternator, you will need to find out the stock length for the single alternator version of your year model and accessories at a parts store or online). Route the belt 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 your new belt to fit towards the mark showing higher tension. However, they can run at the lower mark without adverse effects.

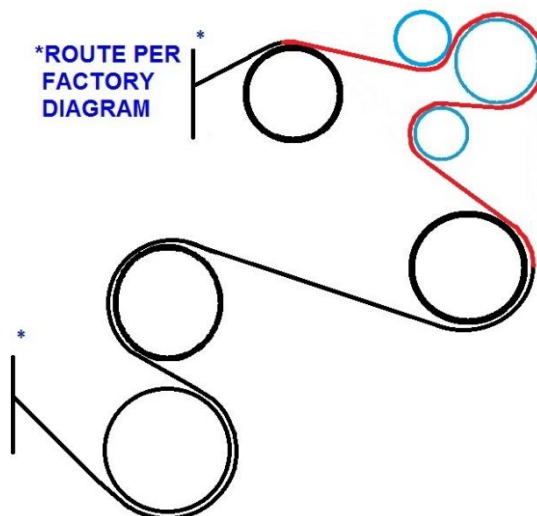
**NOTE:** Continental Elite belts are preferred. **Please let us know if your application varies from the chart below. [CONTACT US](#) with your year/make/model, factory belt length/new belt length, and routing.**

<u>Stock Length</u>	<u>New Length</u>	<u>Belt Part Number</u>	<u>Notes</u>
111.29	131.732	<a href="#">401967</a>	
112.37	132.441	<a href="#">402065</a>	
117.72	137.875	Gates K061373	
118.74	138.625	Gates K061380	Using Diagram 1 or 2
119.53	138.625	Gates K061380	Using Diagram 2
	139.58	<a href="#">50-62000-61*</a>	Using Diagram 1
120.125	138.625	Gates K061380	Using Diagram 2

**Diagram 1**



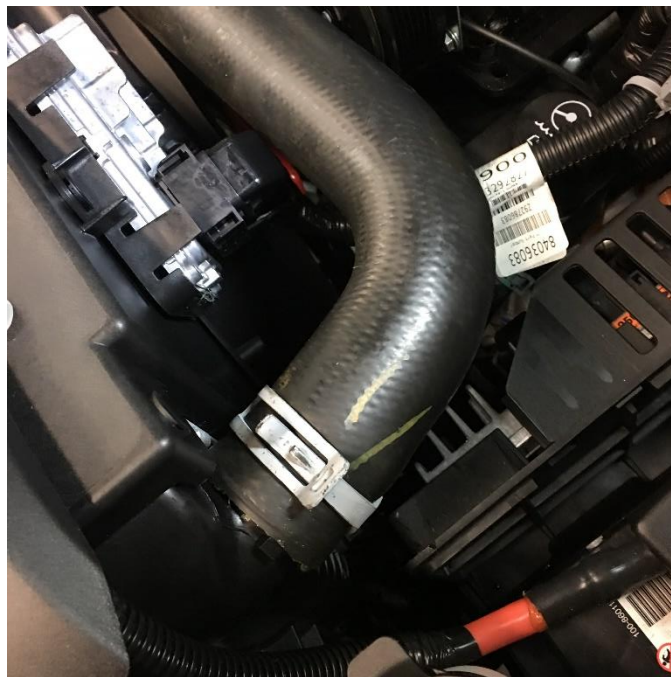
**Diagram 2** - Alternate belt routing for 2011-present models that need clearance around the power steering reservoir. This routing is slightly longer than Diagram 1, so the same belt length will be effectively looser.



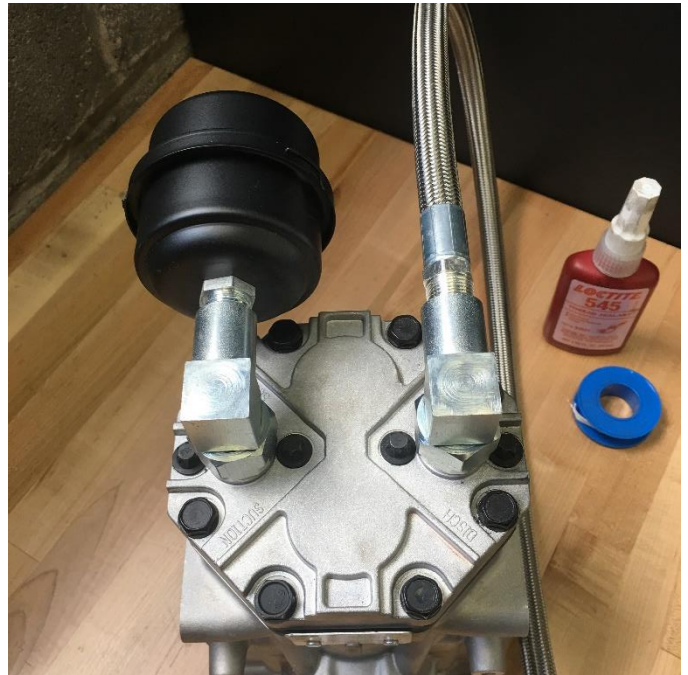




On 2011-Present models, remove tension from the upper radiator hose clamp and slide it to the end of the radiator neck underneath. Using the clamp as a guide, split the hose perpendicularly, then trace the circumference. You'll be removing approximately 1.25" of the hose end.



After it is separated, the hose can be pushed back against the radiator and the clamp returned to its normal position. Check the backside of the hose for clearance to the clutch. If necessary, create more clearance in this way as needed.



**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”.

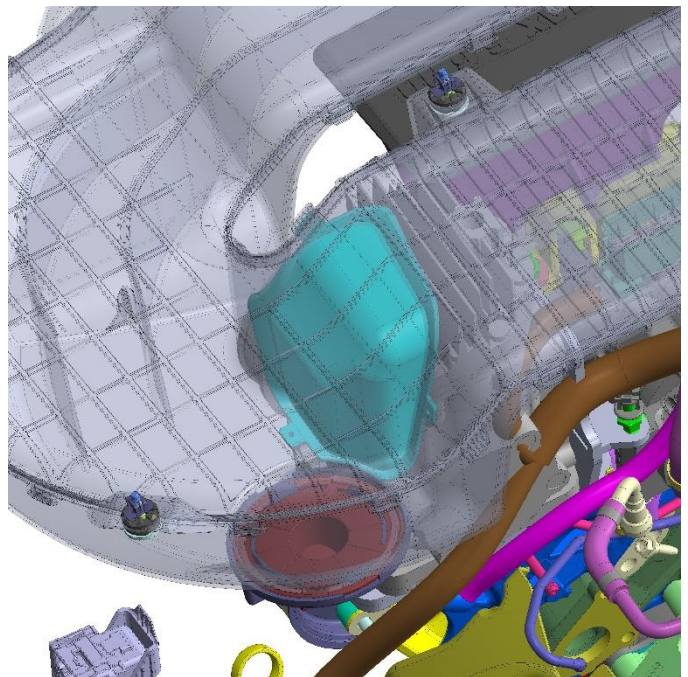
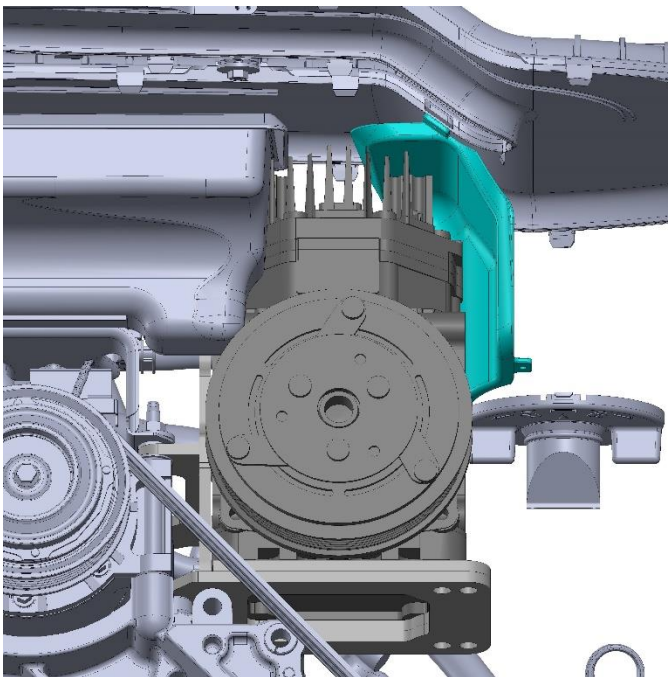


**SLM compressors:** Both ports will get the included 3/8 NPT elbows using PTFE tape or Loctite 545 sealant. The suction port (labeled with an “S” on top of the passenger side) will get an additional 3/8 adapter and then the included filter/silencer. The discharge port (driver side) will get the included leader hose threaded into the elbow. For heads that have been milled for flush fittings, the top will not be labeled. In this case, the same orientation described above should be used.

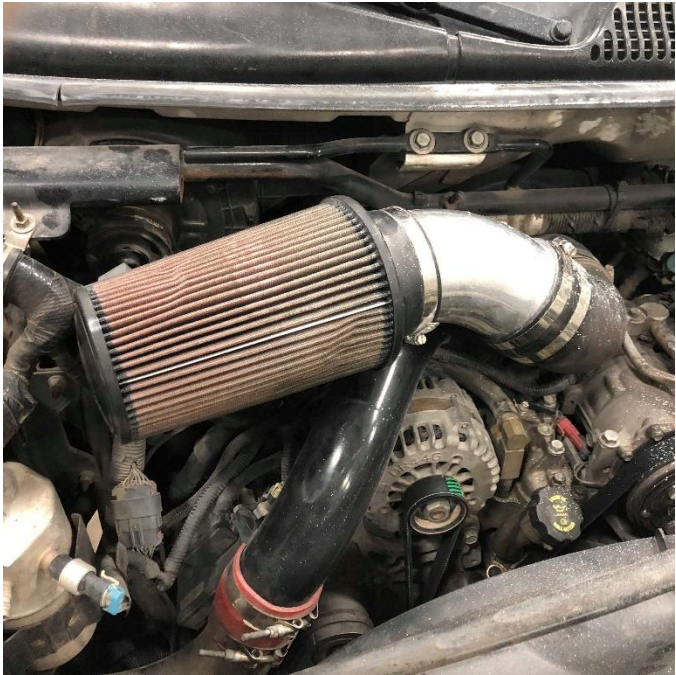




**2017-2019 Models only:** The hood intake plenum will need to be notched for the patch panel included with the kit. This will require an air saw or die grinder to trim a hole to fit the patch panel. Trim the cut until the piece fits freely, without bending or twisting it. Once the patch fits, it can be screwed onto the intake. Silicone sealant can be used to provide a water tight seal. Do not put too much pressure on the patch when screwing it in place, for the plastic material is 3D printed and may crack or break.



**2017-2019 continued:** Examples of how the included plenum patch part fits with the compressor. In the case of the SLM compressor, the head be milled to provide extra clearance for the filter and hose. Be sure to install the fittings and hoses facing the rear, as shown in **Steps 25 and 26**.



**C4500/Kodiak/Topkick Only:** This kit bolts onto the engine of a Kodiak but requires modifications to the airbox and other components around it to work. We cannot recommend the exact steps for this. However, shown here is one example of a K&N intake and elbow used to eliminate the factory airbox and allow for installation of the compressor. Vertical mounting is preferred with both compressors and is mandatory for the SLM compressor.

**Note:** A wiring junction relocation bracket may be included in the kit but will not be used for 2007+ applications.

## 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.

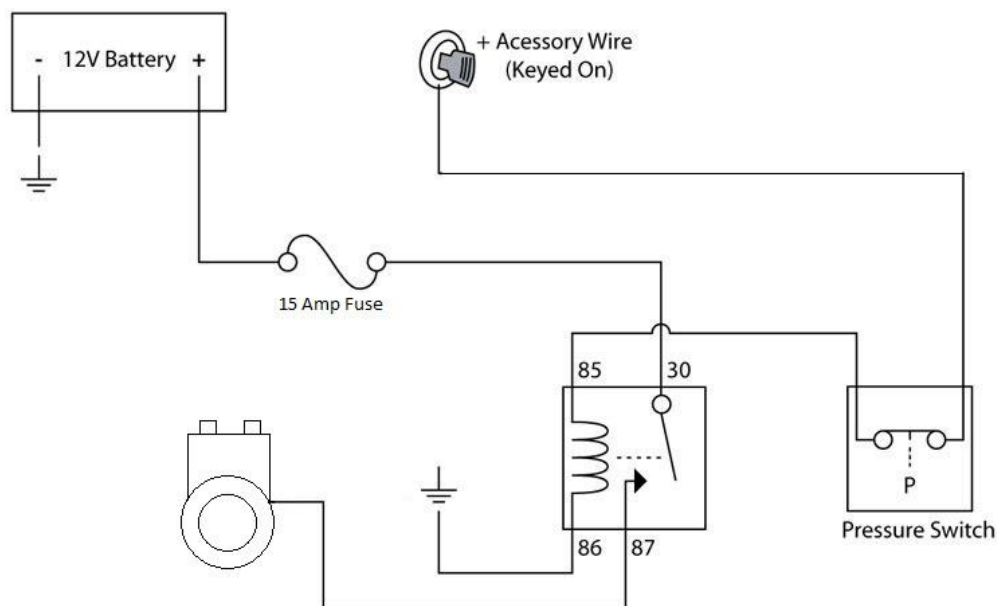


## Additional Information and Recommendations (continued)

- 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](#).
- 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-groove clutch, the GREEN wire is POSITIVE and the WHITE wire is GROUND.**



For any questions or suggestions please [CONTACT US](#)

