



Raptor Superchargers

Installation instructions



Commodore VT “~245Kw+ Stage 1 SC kit install instructions

Congratulations on your purchase of a performance enhancing Raptor supercharger kit or kit parts for your Commodore. The following will assist you with installing the components you have purchased. Always wear personal protection equipment whilst working, work safely and observe all environmental requirements.

Disclaimer:

You should not expressly rely on this information without making your own enquiry.

RAPTOR HELPLINE: 0409 897 081 8:00am - 6:30pm Mon – Frid

Some tools needed for SC kit only, other tools will be required to fit injectors etc:

- 1) 15mm socket and breaker bar
- 2) 13mm socket
- 3) Flat style screw driver
- 4) 6mm Allen key
- 5) 7mm socket ¼ drive
- 6) Black electrical tape
- 7) Also fit new O2 sensors
- 8) Knife to cut some hoses to correct length

Install steps

1. Remove the original drive belt
2. Remove idler (nearest coil pack) and also coil pack
3. Remove the idler mounting bracket
4. Remove air filter ducting and air filter assembly

Your engine should now look like this except no belt should be sitting on the pulleys and air box should be gone. You should mark which spark lead goes to which coil pole before disconnecting leads.



See following picture for pieces that you should definitely have removed at this point. Air box should also be removed, take care to also remove air temp sensor from air box for reinstall into suction line to SC.



5. Fit coil to coil mount, the wide plug with 7mm fastener on it will face the engine radiator and the bracket will mount to upper side of coil. Coil spark poles will face pax side mudguard. Use the supplied bolts. Then replace front most screw in plenum cover with the longer screw/s you will find already inserted into coil mount, then also replace next plenum screw back from front on pax side of plenum, then bring coil mount up from underneath onto screws (which are of sufficient length) and then fit washers and nut to both, tighten properly. **BEFORE YOU ACTUALLY remount coil, remove the small hose which goes from under the throttle body to the lower manifold. Fit blanking plug (supplied) to outlet on throttle body and fit length of 3/8 hose to lower manifold hose outlet, secure with clamp. If you miss this little step this hose can be extremely difficult to fit. CHECK COIL DOES NOT RUB BONNET, IF IT DOES, SPACE THE BRACKET DOWN WITH THE EXTRA WASHERS PROVIDED**

6. Red arrow indicates the side facing passenger inner mudguard.



Next image shows the coil correctly mounted for VT model



7. Now test fire the engine for a few moments checking that the motor is running correctly before going further, you will need the air intake with AFM (Air Flow Meter) fitted so engine will run well. If engine does not run normally then rectify the ignition issue/s. If engine will not fire at all it is likely there is too much PAINT on spacers between coil bracket and cyl head. Clean and refit to ensure best possible earth.
8. Now fit the supplied 6 fuel injectors, refer to your vehicles appropriate (Haynes) or other manual for correct procedure and bolt tensions (all bolts/fasteners). Use 2 stroke oil to lube the ORINGS on the injectors before fitting them to the fuel rail, this prevents damage to the O-RING's and makes the injectors fit in without rolling the orgings and damaging them.

9. Next, gap your stock spark plugs to .85mm using a feeler gauge

10. Fitting the SC bracket. You have three bolts and three spacers + the supercharger mounting bracket itself. Fit supercharger UNIT to the bracket, you will find the supercharger has 3 possible line up positions when you place it against the bracket, fit it at the middle position, then take the charger and bracket assembly and bolt to the front of the cylinder head using the bolts and spacers.

11. Now fit ducting (U shaped piece) to SC and engine T/B. Position this piece so it JUST clears the inner guard, this will allow max clearance between this pipe and exhaust extractor system, make sure it clears or you will hear a rattle at times



12. Next fit the BOV, the valve is needs to be bolted on; you just need to cut the rubber 32mm hose right angle hose so it reaches the 32mm tube fitted to SC intake pipe. Tighten all clamps once this is done. Now fit the vacuum pressure actuation line from the boost return valve to small vacuum hose that exits the drivers side rear of the intake plenum chamber. Cut hose to length and fit using the supplied barbed T. Fit boost gauge at any later time. Picture below depicts how it goes together

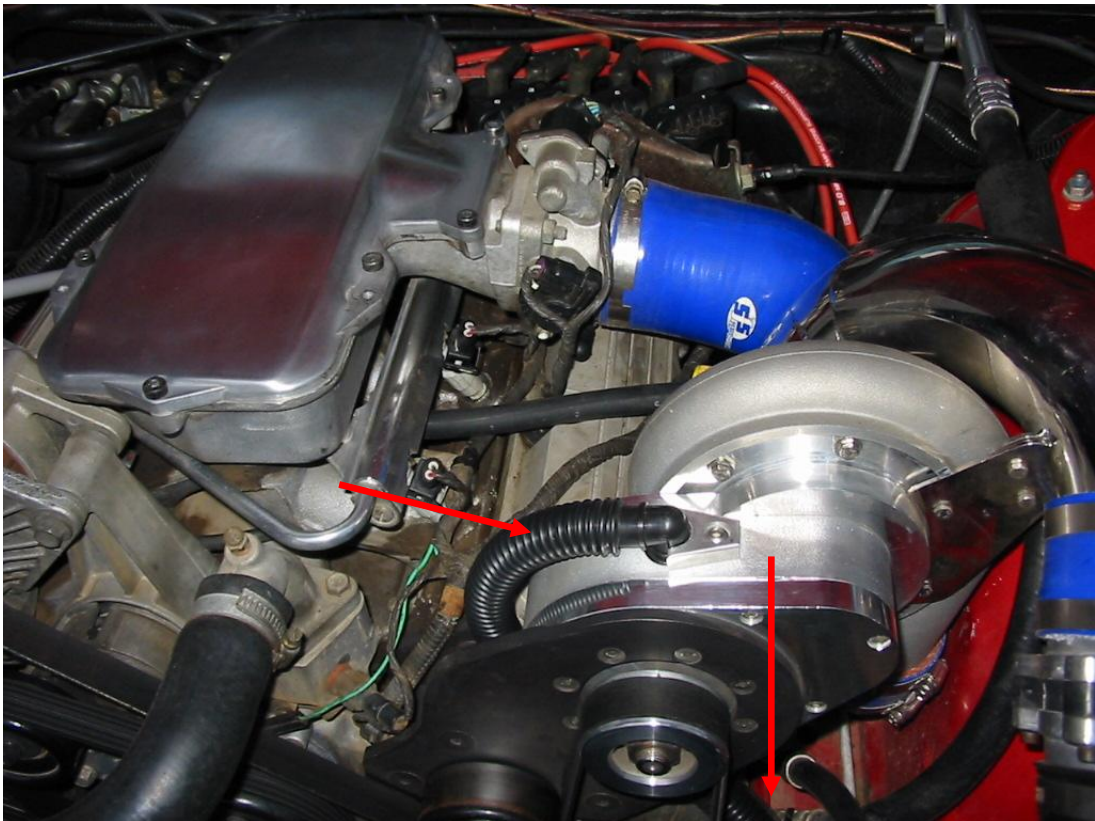


13. Now fit the air temp sensor into hole (16mm) provided (not shown), you will have to first remove the air temp sensor from the original air box. Shown below inside of white circle is air temp sensor. It is retained from the inside with a circular spring clip



14. Now fit the airflow meter into the alloy intake pipe using the supplied rubber grommet, this is quite difficult to install and again silicon spray is needed
15. Fit air filter onto intake side of AFM

16. Fit SC cooling system. Push the 19mm convoluted hose onto the LOWER air fitting on SC transmission, not upper (as shown) for VS model. Then run hose along, down, under and back towards passenger side inner guard. Zip tie to the radiator hose and finally end up behind front bumper in area of number plate. Zip tie the fan unit to any suitable location behind number plate, be sure the push the convoluted hose into the hole of fan unit body approx 10mm. Take care this newly installed hose DOES not rub against the drive belt, doing so will rub hole through hose and result in less cooling air reaching the SC. Silicon lubricant is excellent, spray a little onto the fitting on the charger and you will find the hose slips right on



17. Wiring for the fan unit, power should be key switched so anytime the key is turned to the ON position fan should be running. Power supply wiring for the fan unit contains a fuse and an earth lug is taped to the wiring for purpose of earthing. NEVER PUT YOUR FINGERS ANYWAY NEAR THE RUNNING FAN, IF YOU CAN HEAR IT RUNNING THAT IS SUFFICIENT. If fan does not run check you have polarity of wires correct.
18. Time to refit the main drive belt to engine. Locate the 6PK3055 belt provided and route in same manner as stock except go under the new idler (should have been refitted) and then up and over the SC pulley then down the AC pump pulley, otherwise its all the same. Obviously the belt tensioner will need to be placed into its most downward position so that belt will fit on. Carefully check that all the ribs are correctly engaged on all pulleys before releasing the tensioner. Check that belt has 12mm of clearance past bottom radiator hose, this is essential lest the belt rub through the hose. To gain clearance loosen hose clamps and adjust hose for best clearance. Tighten radiator hose clamps. Zip tie hose away from belt if clearance is still an issue

19. At this point all the under the bonnet jobs should be completed. Continue until they are 😊. Test close the bonnet CAREFULLY, who knows something could touch the bonnet and damage it!
20. Now, locate the new MEMCAL which has been carefully calibrated to give safe maximum power from your new kit. Locate the ECU inside of left hand side kick panel. Once you have the ECU out where you can work on it remove small cover plate which is held by just one screw. You will see the original MEMCAL right in front of your eyes. Carefully remove memcal and insert the memcal supplied with kit. Do not mix them up as they will look identical. Replace computer to original position and refit kick panel.
21. NOW TURN THE KEY TO ON SO DASH LIGHTS ARE ALL ON AND
 - WAIT FOR 4 minutes exactly
 - Then, turn key OFF for 1 minute
 - Now turn key ON then crank the engine into life
22. Sometimes you may need to crank it a couple of times so the fuel pump will fully purge the air from the fuel system
23. When engine starts be ready to stop it immediately, listen for any ominous sounds but if you have everything correct THEN there is likely to be no problems. Run engine for 1 minute then shut down, check for fuel leaks and that no stationary parts are being rubbed or touching moving/hot parts.
24. If everything checks out ok its time for you to begin the running in process, this consists of VERY easy driving for 200kms. **This is absolutely crucial so the supercharger will have a long and trouble free life. This initial 200km of use will allow the supercharger bearings to adjust their lubricant level and run at a significantly lower temperature than what they otherwise will.** Failure to abide by this is likely to bring problems. Limit your max engine rpm to 3500 during this period and short run driving is best if it happens that way. The many cooling and heating cycles of short intermittent runs are ideal. This period also gives you the owner a chance to rectify any other issues before going for full power.
25. After you have covered the initial 200km we advise you to call us (0409 897 081) to discuss how vehicle is now performing, at this point if all is OK you will be ready to experience the FULL power of your vehicle modifications in the knowledge everything is correctly adjusted, fitted and run in.
26. Take plenty of care while you get a feel for what can happen at full throttle in the first few gears, your vehicle has a new personality!!

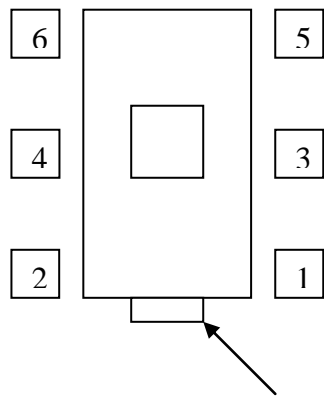
HOLDEN V6 3.8 ECOTEC cylinder/spark lead order

When the coil pack mount is shifted essentially all that happens is that the coils (on their alloy mount) are lifted up from the front and moved backwards to the rear of the left side cylinder head and then bolted to the new bracket. Generally all the leads fit except for cylinder 1 lead which is supplied in the kit. This lead is 595mm in length.

The following is helpful you mix up your sparkplug leads after reinstalling the coil-packs on their mount. Coil packs are generally numbered, see image for correct cylinder numbering.



Below is cylinder layout numbering, coil layout different on VT.

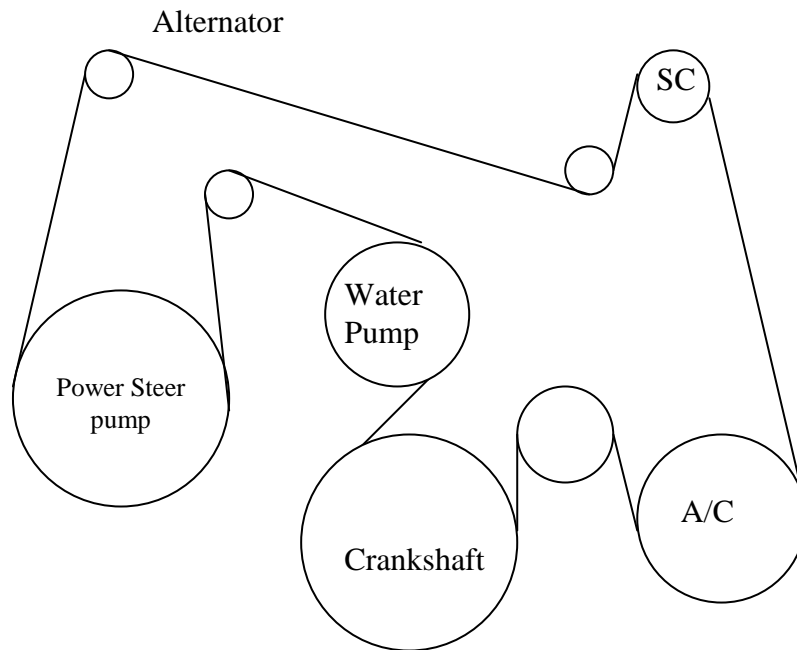


Water

A kit as shipped, VS Kit shown (VT coil bracket mount different)



The image below shows the belt run routing



Fitment of kits and systems.

No liability whatsoever (including liability in negligence) is accepted by Raptor Superchargers for the fitment of incorrect tuning or incorrect fitment of kits and systems. The onus is clearly with the fitter to ensure the kit supplied is correct for the particular system. Any damage to parts or consequential damage or cost resulting from the fitment of the incorrect parts or incorrect fitment of parts is totally the responsibility of the fitter

Fuel systems

All Raptor Supercharger systems are fashioned to give adequate fuel enrichment on unmodified vehicles. If vehicle engine is modified (ie extractors, air filter pod, fuel pumps, manifolds, etc) most kits will require additional enrichment not provided with kit/s. Raptor superchargers is in no way liable for engine damage arising due to incorrect tuning, un-maintained fuel systems and the like.

FITTING HOTLINE IN CASED YOU MISSED IT A THE TOP IS 0409 897 081

