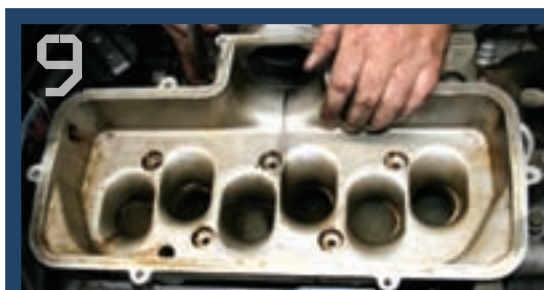
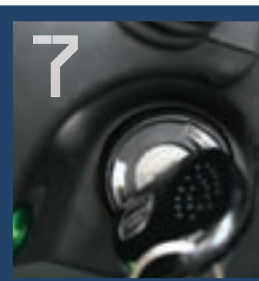
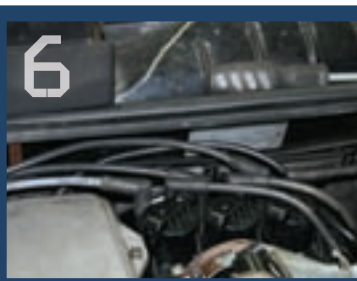
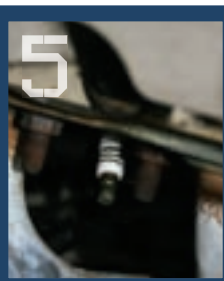
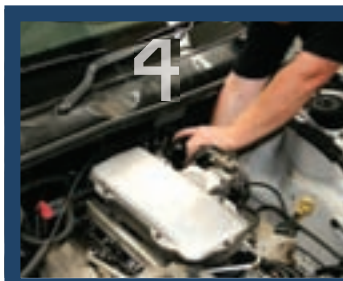
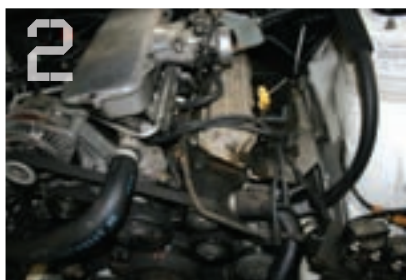


MAKING THE SEAGULL FLY

PROJECT SEAGULL SCORES A SHINY NEW RAPTOR CENTRIFUGAL SUPERCHARGER KIT. SEE HOW WE INSTALL THE KIT TO THE ECOTEC V6
STORY BY CHRIS SORGSEPP PICS BY SCOTT STONEMAN AND CHRIS SORGSEPP



So, what's with the name you ask? Well, to put it quite simply, it's white, very common and hopefully by the end of it all it will fly. So now that is out of the way, it's time to give this Ecotec a little more poke thanks to the installation of a Raptor V supercharger.

This supercharger is available in kit form for most Holden V6s and is designed to be a complete DIY job that can be finished in about five hours. Take a look as we dive into the ins and outs of fitting a Raptor ProStreet kit into the engine bay of The Seagull.

1. When performing any work in the engine bay of your car, play it safe. Disconnect the battery to avoid electrical sparks and possible fire hazards.

2. The next step is to remove the plastic engine cover and all of the intake piping from the back of the throttle body. There are four 12mm bolts holding the engine cover on, and three 10mm bolts hold the lower air box to the body.

3. Next, the coil packs must be moved to make way for the blower bracket. A new relocated coil-pack mounting bracket is supplied, so the coil packs need to be bolted to the new bracket next.

4. With the coil packs bolted to their new bracket, secure the lot to the two holes on the rear of the passenger-side cylinder head with the bolts and spacers provided in the kit.

5. Included in the kit are six NGK Iridium spark plugs. These are included because of the difficulty in changing plugs once the blower is fully installed. With these high-end plugs fitted, they shouldn't need touching within 80,000km of driving.

6. With the spark plugs now installed, it's time to link the coil packs with the plugs. A new longer 600mm spark-plug lead is supplied to reach the number-two cylinder.

7. It's a good idea to start the car at this point to ensure everything is all working as it should. To do this, just reconnect the intake pipe work and the AFM (Air Flow Meter)... and of course the battery!

8. With the supercharged engine's new-found thirst for fuel, the standard injectors need to be replaced with 36lb/h units. This is the same flow rate as Holden fits on the Eaton M90 blown V6s. The first stage in fitting these new supplied injectors is to remove the plenum cover by undoing the eight allen bolts.

9. Once the plenum cover is off, it's time to remove the actual plenum itself from the intake runners. This is done by removing the five 13mm bolts. It's a handy idea before you remove these bolts to place an old T-shirt over the intake-runner entries. This stops any bolts from accidentally finding their way inside the manifold, which as you might guess is bad.

10. Now it comes time to remove and unclip the old injectors. Pull the plenum upwards. This will pull the injectors out of the manifold allowing for their removal. Unplug each injector power-feed connection by pushing down on the metal tab while pulling the connection off. Now remove the small metal clip at the top of the injectors holding them to the fuel rail. Be sure to check inside the fuel rails for any O-rings that have come off the injectors.

11. With all the old injectors removed, it's time to install the new higher flowing units supplied in the kit. Lubricate each O-ring on the new injectors using diesel oil and then fit them into the top of the manifold.

12. Push the manifold with the fuel rails still attached onto the injectors, guiding each injector into its spot on the fuel rail. Then, replace the metal locking clips that you removed earlier and reconnect the injector power-feed connection.

13. The plenum can now be bolted back onto the intake runners. Remember, be extra careful you don't drop any bolts or tools down into the manifold. Once this is done, the plenum cover can be bolted back on. Check the rubber seal on the bottom for any damage or dislodgement.

14. To make way for the supercharger bracket, the factory idler pulley must be removed from the pulley system. Before doing this, remove the serpentine belt from the pulleys. Use a breaker bar and socket to move the tensioner pulley to the furthestmost down position. Doing this will remove all tension off the belt and allow it to be removed easily.

Now, remove the idler pulley and pulley bracket. This is done by unscrewing the three bolts holding it in place. Take off the idler pulley on the supercharger bracket exposing the third bolthole that the pulley hides. Use the three bolts with the triangular shaped spacer in the kit to fix the supercharger and supercharger bracket to the cylinder head.



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TECH STUFF



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15. Using the supplied silicone hose bent 90° and aluminium U-bend, fit the right-angle silicone hose to the intake manifold and attach the aluminium U-bend to the other end of the hose. This should allow it to finish near the output of the Raptor V. The plumb-back Bosch blow-off valve that is fitted onto the aluminium U-bend is then attached to the Raptor V intake pipe via the supplied length of hose.

16. Now fit the vacuum-pressure actuation line from the boost-return valve to the small vacuum hose exiting the driver's side rear of the intake plenum. Use the supplied T-piece. This is also where the boost gauge gets its feed from, but we'll leave that for another day.

17. Disconnect the engine breather hose from the bottom of the throttle body and fit the blanking plug in the kit. A new length of hose is now installed that goes from the manifold to the Raptor V intake pipe. The hose supplied is a little long, but the trusty knife is all that is needed to fix that.

18. Now the intake system needs to be installed. First, fix the air temperature sensor to the end of the intake pipe on the Raptor V. Then, fit the AFM into the 75mm silicone hose of the same intake pipe. The air filter now is secured to the other side of the AFM and then is hose clamped in place. Plug in the AFM and air-temperature sensor connections.

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19. The next step is to fit the blower cooling system. This is a high-CFM-flowing electric fan that directs air into the blower's transmission. The fan unit is mounted near the front bar to draw in cool air, and the power wires are then spliced into the thermo-fan power source located at the relay and fuse box. Run the supplied convoluted hose from the fan cooler to the blower's upper air fitting.

20



20. It's now time to refit the longer serpentine belt. Locate the 6PK3032 belt provided in the kit and route in the same manner as before. However, now go under the new idler and then over the blower pulley finishing down on the AC pump pulley. Obviously, the belt tensional pulley will need to be placed in its most downward position so that the belt will fit on.

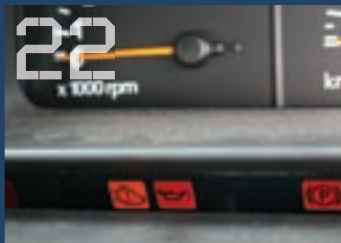
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21. All underbonnet stages are now complete, so it's time to fit the MEMCAL. The MEMCAL is the plug-in chip that stores all of the engine's fuel maps and even controls gearbox behaviour. The Raptor kit comes with a pre-programmed MEMCAL that Electronic Automotive tuned to take into account the extra air that will be forced into the engine.

Remove the passenger kick panel and locate the ECU where the MEMCAL will be installed. Remove the ECU from its holding cradle and undo the two torx screws holding the MEMCAL cover in place. Now, simply swap the factory MEMCAL with the Raptor-supplied MEMCAL.

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22. Refit the battery lead and key the car onto 'reds' position for about two minutes. This gives the ECU time to interact with the new MEMCAL and acknowledge its existence. Once this is done, key the car into the 'off' position and wait for a further 60 seconds.

23



23. It's time now to kick it in the guts. Once you have started the car, be ready to turn it off quickly in case something has been forgotten.

With the turn of the key, the VS's new supercharger whine becomes immediately apparent. The fitting advice supplied by Raptor specifies a minimum of a 200km running-in period to make sure all the bearings and transmission get their appropriate lubrication. As the Raptor V sits there idling away, I can't help but wish that running-in period never existed, as I could already feel the right foot getting a little twitchy.

After a few days of easy driving, I could now start to give the blower a bit of a hiding. Let me tell you, it gets very addictive to see that boost gauge needle fly up to just below the 10psi mark. The high-RPM rush that this budget blower kit gives the Ecotec is quite impressive.

You almost forget you're behind the wheel of a V6 when this thing comes on boost. The sound? Well, the sound of this kit is nothing that I would ever get

sick of hearing. You get the supercharger whine at idle and low-RPM driving. Then, when that pedal says G'day to the floor, the high-pitch rush of the impellor spinning is something that sounds more at home coming from an S15 Silvia than from a VS Commodore.

A quick trip up to Silverwater Automotive Services gave us an idea on the sort of numbers the 'Gull was putting to the ground. With a 'play-it-safe' rich tune supplied with the kit, the VS managed to put down an impressive 188rwkW with a power curve showing a very steady increase over the entire rev range.

Due to recent bad weather, the Seagull hasn't had a chance to put down any quarter-mile numbers. However, I'd say the Raptor V has what it takes to drop those times down from its previous best of a 15.6sec into the low-14 territory. A diff gear swap should see high 13s. *SC*

