

STORY AND PICS BY BEN HOSKING

SPIT AND

WITH PROJECT XXX'S ALLOYTEC 190 STILL AWAITING ITS TRANSPLANT INTO THE VP'S ENGINE BAY, WE THOUGHT WE'D PUT OUR SPARE TIME TO GOOD USE

POLISH

It's hard having a brand spanking new crate motor at your disposal with unavoidable issues in front of you preventing it from entering your engine bay. So, instead of wasting too much valuable time we decided – after a very generous offer from ex-feature car owner Bruce Vanes – that the one-piece Alloytec manifold plenum would look extremely sexy smoothed and polished.

Bruce put considerable hours into grinding, sanding and adding a few touches of polishing. Sadly, we

then found that the casting quality of the manifold wasn't up to the task of getting a high-quality polishing job, due to heavy porosity throughout the entire item. This meant we had to consider a few alternative options, some more complicated and costly than others.

Firstly, we could finish smoothing it out and have it wiped over with hot alloy to fill in the porosity. Second, we could finish smoothing it and have it powdercoated or paint it with some high-temperature paint (VHT now offers

more colours than ever before, plus it sells high-temperature clear coat to give it a professional finish). Or lastly, we could get it nice and smooth and have the item ceramic coated.

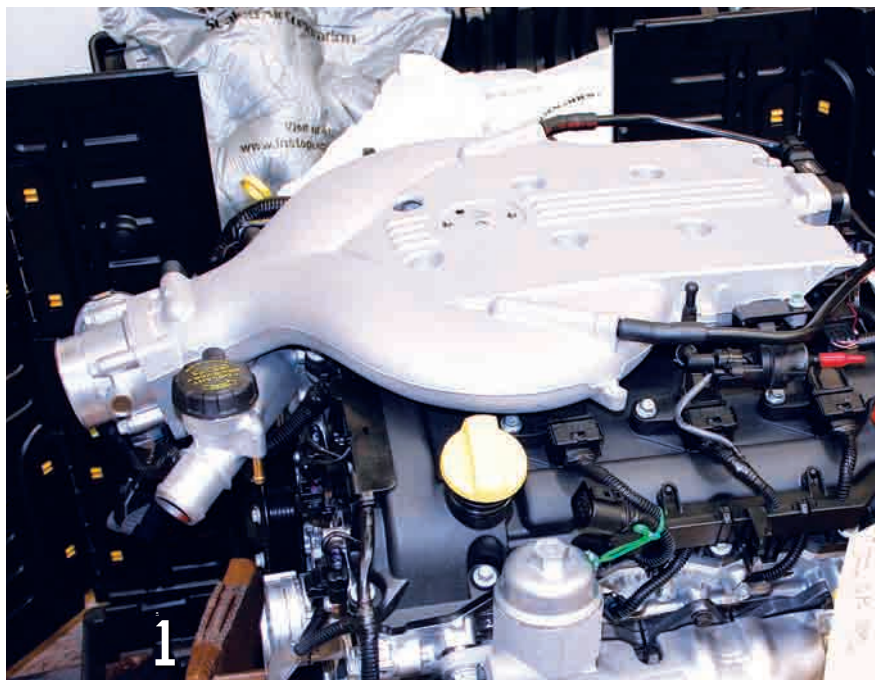
After making a call to the guys at Competition Coatings, we decided to go with option three and have it ceramic coated. This process has a few benefits over normal paint, polish or powdercoating. It doesn't tarnish like a regular polished alloy surface, meaning you won't need to regularly get the Autosol out. Plus, the coating

process causes the finish to bond permanently with the metal, effectively making it part of the alloy, which means it won't chip or flake off. It also displays certain thermal benefits as we discussed in the Project Phoenix article last month.

So, without further ado, watch as we grind down and sand smooth the intake from the Alloytec 190.

NOTE: Competition Coatings was unwilling to let us photograph its coating process, which means we can't show you how it's done.





Step 1

Here's the engine as we received it, late in 2005. As you can see, like most factory alloy bits, the manifold features a heavy sand-cast finish and thick mould marks along the sides where it is joined together.

is pretty soft and grinding/sanding them smooth is much less painful than trying to grind, say, an iron engine-block smooth. Having said that though, make sure your calendar is empty for the next few days before starting.

Step 2

You can see the porosity of the finish here, where Bruce has attempted to polish a few different areas. When you polish porous alloy, the pitting tends to drag in the direction of the polishing making it look even worse.

Step 4

You can use a combination of grinding tools to smooth the mould marks. I used a file on much of the manifold, but also took to it with a Dremel and orbital sander. Like sanding your car's body, be sure not to grind too much off and create low spots. You're aiming for a level finish.

Step 3

Here's a close-up of the moulding marks on the side of the manifold. Luckily, alloy

Step 5

Once you have the moulding marks smooth, grab a few sheets of garnet



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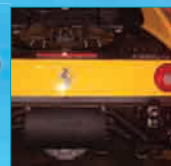
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paper and rip some of it into 30-40mm strips. Garnet paper is better for this, as opposed to normal sandpaper, since it won't fall to pieces when working against the harder alloy.

Step 6

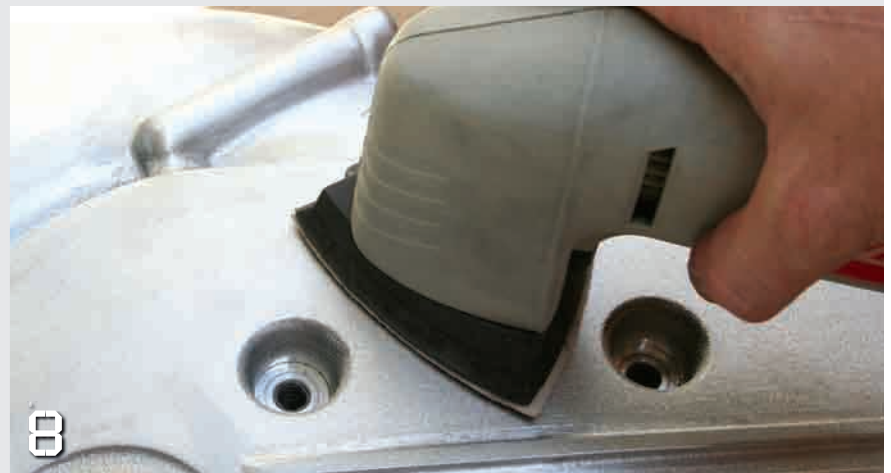
This is what you want to see after hours of work and a chronically sore back from leaning over for too long. I used a side to side motion primarily, holding the strip of paper at each end and working across the edge of the manifold as opposed to along the sides. Once I was satisfied with the finish, I then changed direction and went against the sanding marks to find the low spots.

Step 7

This shot is of the start of the manifold, directly behind where the throttle bolts on. It clearly shows the porosity and the depth of the sand-casting pattern that you need to sand/grind through to establish a baby's arse-smooth surface.

Step 8

The large flat areas of the plenum will piss you off as you use a combination of things to sand it down flat. I started with a coarse pad on a sander, to cut the top off most of the sand casting. Then I moved on to a sanding block and ever-finer grades of garnet paper, before giving it a good going over of hand sanding using fine paper.



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TECH STUFF



Step 9

This is the kind of thing you should end up with. You will start to see some light at the end of a very long tunnel once the larger areas are all smooth. However, the worst and most painful aspect of the job is yet to come.

Step 10

You can put your trusty Dremel or 'rotary tool' to use when tackling the tighter areas that are harder to get to, like corners and channels. Once you grind the sand casting down, however, you'll invariably have to do a bit of hand sanding in those areas to get them as smooth as possible. Trust me, this kills your hands!

Step 11

There are a lot of different attachments available for rotary tools that can handle almost every nook and cranny on anything you should want to sand, cut or grind. I found the garnet wheel useful for the areas between the ribs.

Step 12

The ceramic coating process leaves a very thin coating on the alloy that will still show up a lot of the imperfections, if any exist. So, you have to be sure to get the surface smooth and scratch free before handing it over to be coated. Our manifold had a couple

of scratches and low spots that showed up in the final piece, but they were minor and will only annoy me. No one else will even notice.

Step 13

After the manifold came back, I decided to clean up the ports that feed into the intake runners a little using the trusty Dremel. It may or may not have any effect on overall horsepower, but it won't hurt to knock off some of the casting roughness.

Conclusion

Here is the finished manifold back on the engine, complete with Holden badge and looking dead sexy. It completely transforms the feel of the relatively odd-looking Alloytec, and negates the need for the ugly plastic engine cover that normally comes as standard. When used in conjunction with a pair of matching ceramic-coated headers, turbo manifolds or the like, any Commodore engine bay is sure to come alive.

As far as the ceramic coating process goes, John at Competition Coatings, in Guildford NSW, told us that the process starts with a bead blasting. This removes any grease, oil or anything else from the 'pores' of the aluminium, prior to application of the compound to be bonded to it.



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Once this is completed, the ceramic compound is applied like a kind of mud which is then bonded and cured to the metal in an oven, much like powdercoating or even like firing ceramic pottery or artwork in a kiln. This permanently bonds the coating to the alloy (or most other metal surfaces, for that matter) for a rock hard, long-lasting finish.

In terms of price, the process is quite affordable with the retail price for the work done on our Alloytec manifold coming in at only \$180. Ob-

viously larger items would cost more and smaller ones a bit less.

For a job like this, the largest cost is your time and fingerprints. The best results are going to come from the amount of time and effort you put in when it comes to the prep work. For this manifold, I put a guesstimate at around 10-12 hours of work over a couple of weeks to get the intake smooth.

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