

I've always had a thing for 68-70 US Chargers; they personify the big, bad US Muscle Car; that's why they've been used as the car of choice for the bad guys in movies from Bullitt to Deathproof. Having decided that I needed another "special" car and that this time round I didn't want something collectable (in other words something I could modify with-out feeling guilty), I decided that a 1970 base model Charger would fit the bill.



My other intention for this project was to have a car that was reliable, easy to drive, practicable and of course quick. To achieve this a modern fuel injected motor was the obvious way to go (no overheating, no tuning issues, easy horsepower, fuel efficient). I don't believe I'm alone in seeing the benefits of putting late model engines in older cars, a late model gen III 6.1 Hemi puts out the same horsepower as a gen II 426 hemi but without the accompanying overheating, weight and driveability issues of the old motor.

Anyway, enough of the justifying, the following is a rundown on what it takes to put a late model hemi in a 70's vintage B body, there is a lot of misleading information out there on the 'net and even a number of parts suppliers will give you false information (or wrong parts), so hopefully the information here can be of assistance to anyone contemplating the swap.

The Motor: I utilised a 6.1 Hemi crate motor from Mopar performance (PN: P5155067). The motor came complete with large bore fuel rails, harness, engine management system and cable operated throttle body (a BBS part). The cable operated throttle body saves a lot of hassle over adapting the fly by wire unit that is standard on these motors in a modern application. I also used the standard (modern) Chrysler passenger car front drive accessories (alternator, AC compressor and PS pump). A conversion to front sump was required, a Charlies Oil Pans front sump pan was used for this (oil pick

up relocation kit comes with the pan). On standard 5.7/6.1 motors in passenger car applications, the stock oil filter location will foul the K frame, to get around this problem a 45 degree oil filter adaptor can be used (along with a shorter filter), these are readily available as they are a production car part (note that a number of these kits appear to be sold without the back-up ring for the outer O-ring, something to check or you will have a serious oil leak on first start up as I did).



Crate Motor



45 Degree Oil Filter Adaptor



Throttle Body



Fuel Rails and Regulator

Engine Management: The crate motor was supplied with an AEM engine management system, this was meant to be a special Mopar Performance part, however I was to find later this was not the case. The MP AEM EMS has facility to control the alternator voltage output (the alternator plugs into the supplied harness), however we could not figure out how to get the alternator voltage under control; after much mucking around and calls to MP and AEM (who have been helpful) it was discovered the unit did not have voltage control facility as it was just a standard unit, not the special MP unit which is now obsolete. The AEM unit is quite a complex unit to set up and finding people that know anything about them in Perth is difficult, the guys who tuned the motor had to learn as

they went, one good thing however was the motor fired and ran on the base tune first up (the tune was so rich however it ruined a set of plugs just from a short period running moving the car around; note a new set of 16 plugs are \$400!) The EMS was fitted under the carpet at the front of the passenger side footwell; you wouldn't know it was there.

Transmission: The ubiquitous 727 was used (must be a small block unit), it bolts straight to the new motor (all bolts align bar one at the top which was left out). A Mopar Performance adaptor flex plate P5153753 was used to mate with the torque converter, which in turn was ordered from PTC for the application (starter ring gear is fitted to the torque converter), ARP bolts for flex plate to crank and flex plate to TC were used. You don't need to space the transmission from the motor, the MP conversion flexplate and PTC converter take care of this alignment issue.



727 Auto



Transcooler

Exhaust: On the exhaust side I used TTI headers, they make a set of 1 3/4" 4 into one units specifically for this swap and with the headers come adaptor plates for the engine mounts (Schumacher poly locks were used). The headers will foul the AC compressor, an unused mounting tab on the rear of the compressor will have to be cut off and one header tube will require a "dent" otherwise the headers were a perfect though close fit (note a Mopar Performance mini starter will have to be used). A 3" mandrel bent twin system was fitted with 3" Magnaflow mufflers, the system drops to 2.5" over the rear axle exiting in OEM style stainless tips.

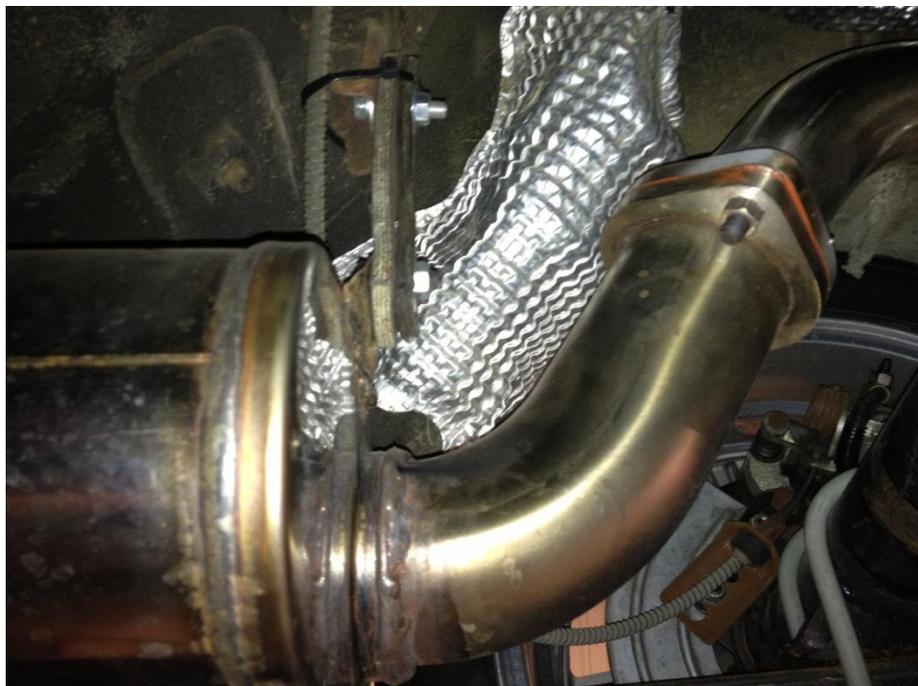


Polylock Engine Mounts



Exhaust System

Fuel System: Converting to fuel injection requires a high pressure fuel supply, the best way to achieve this is with an in-tank fuel pump just like a modern production car (rather than a frame mounted external pump); from what I hear frame mounted pumps are noisy and can overheat. I sourced a new OEM style fuel tank for the Charger fitted with an in-tank 255 L/Hr Walbro pump from Rock Valley Auto in the US. A new 3/8" fuel line was fitted to the car to deliver the fuel to the motor, the original (smaller) line was utilised as the return. A filter was fitted in the new line on the frame rail, just ahead of the rear axle.



Fuel Filter

Bolting it in: The motor trans combination is a straight bolt in, no cutting is required, just a tiny bit of clearancing on the K frame for the AC compressor. The adaptor plates supplied with the headers fit perfectly and were used with Schumacher poly lock engine mounts off the original small block k-

frame. The cable operated throttle body was linked to the accelerator pedal with a Bouchillon throttle cable and kick down assy, this worked well.

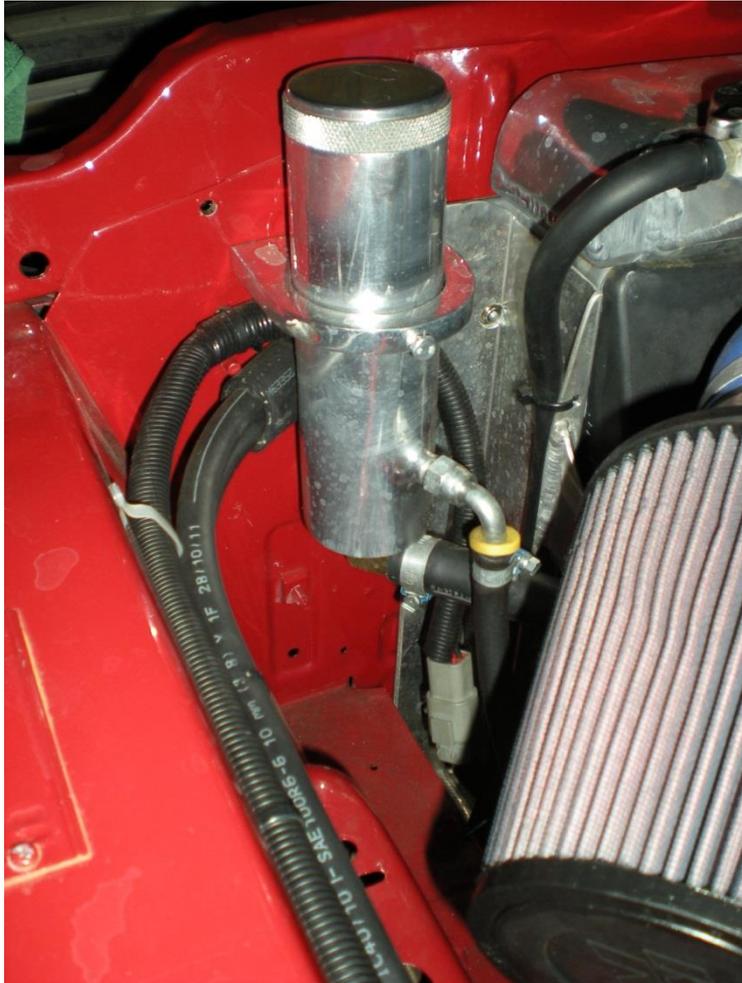
Electrics: Auto electrics are not my strong point, however the harness supplied with the motor made for a relatively painless integration of old and new electrics although there was quite a bit of work involved. The original ammeter must be bypassed as the new 140amp alternator will fry it (and possibly cause an under dash fire). The battery was moved to the boot. The old temperature and oil pressure senders can be used with the new motor; Bouchillon adaptors make it a simple swap.

Cooling: A custom aluminium radiator was fabricated, hose locations on the new motor are different to the old (LA). Twin thermo fans were used (controlled by the EMS). Transmission oil cooling is taken care of by a B&M cooler and fan combination fitted behind the grill.



Radiator and Fans

Power steering: The modern power steering pump operates at much higher pressures than the old (around 1,400psi vs 950psi). A GM pump conversion (that operates at 950psi) is available from S&P, however as max PSI is only reached at bypass, I am going to give the high pressure pump a go and see if any oil leaks develop on the box, so far so good.



Power Steering Reservoir

The car is now on the road (after almost 12 months) and has lived up to expectations. With the suspension and brakes upgraded and modern 17" rims and tyres it handles well and the motor performs as expected in all ways. Now I just have to get the air-conditioning working for summer and figure out why the windscreen washer squirts when I accelerate hard around a right hand corner...



Before



After

Suppliers

Motor	Shophemi
Engine Mount Adaptors	TTI
Front Drive Accessories	Shophemi
Engine Mounts (Polylocks)	Schumacher
Headers	TTI
Transmission	Cope Racing Transmissions
Torque Converter (PTC)	Cope Racing Transmissions
Conversion Flex Plate (Mopar Performance)	Shophemi
Gauge Adaptors	Bouchillon
Power Steering Reservoir	Street + Performance
Throttle/Kickdown cable kit	Bouchillon
Fuel Tank and Pump	Rock Valley Auto