



Dr Roger Barker decided he wanted to drive his 65 Vette with the horse power and mileage of today's modern engine. Roger contacted S&P about the new LS-3 /430 H.P engine with a manual T-56 transmission while the Vette was being painted. By the time the Vette was delivered to Street & Performance, the new 480 HP version was out so needless to say, S&P got the 480 HP engine and T-56 transmission.



The first step is to test fit the LS3 Hot Cam. Larry drops the LS into the engine bay to check the motor mounts.



Larry bolts on the S&P engine plate with new original 65 Vette mounts. Note that a Camaro stock oil pan with windage tray and oil pickup tube can be used to clear the cross member.



With the engine sitting in the engine bay, we bolted up the water pump expecting the heater hose bibs would be a problem, and they were.



With a little effort, Larry uses a set of vise grips and removes the heater bib from the water pump. We will show you the fix for this later in this story.



The Camaro (98-02) T-56 transmission was used, so Larry installs a new internal hydraulic throw out bearing before bolting the tranny to the engine.



Next install the clutch & flywheel to the LS-3. We chose to use an LS-7 clutch flywheel & pressure plate since this engine makes almost as much horse power as the LS-7.



The test fitting of the transmission indicated that the center of the cross member will have to be removed and fabricate a removable, bolt in design.



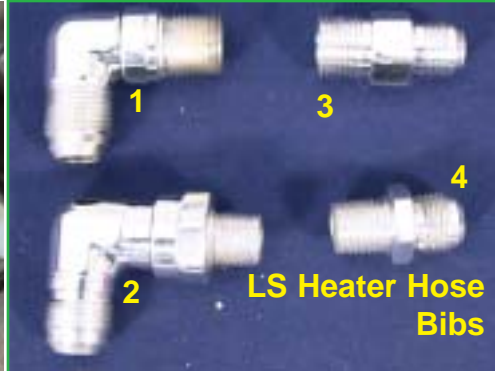
With the transmission back in place, Larry checks the angle with a degree finder. Drive shaft angle is important for strength and reliability. The transmission MUST be angled 1 to 5 degrees low on the yoke, but + or - 2 degrees is idea for performance applications. To check the drive line, hold the angle finder against the tail shaft and locate the transmission mount bracket to the cross member.



The new cross member is checked and ready to be bolted in place. S&P now offers this cross member.



With the drive train in place, it is time to get back to the water pump problem. Larry welds a block off plate over the horizontal holes and then drills new vertical holes. He then taps the holes to 3/8 NPT and 1/2 NPT for the new screw in hose bibs which are available from S&P.



1. 2. Are swivel 3/8 & 1/2 NPT to 90 degree and will work on early Vettes to clear A-Frame.
3. 4. Are 3/8 & 1/2 NPT to AN8 that can be used to replace the GEN III slip on heater straight fittings.



We used a Goodyear heater hose #60867. Just trim some off the end of the hose and attach to the new vertical hose bibs.



We connected the heater core hoses to the bibs at the pump. The bib closest to the firewall is the inlet to the heater and the one closest to the radiator is the return.



Larry bolted all of the accessories to the engine to check for clearance. The 10 O'clock CS130 140 amp alternator allowed for hood clearance.



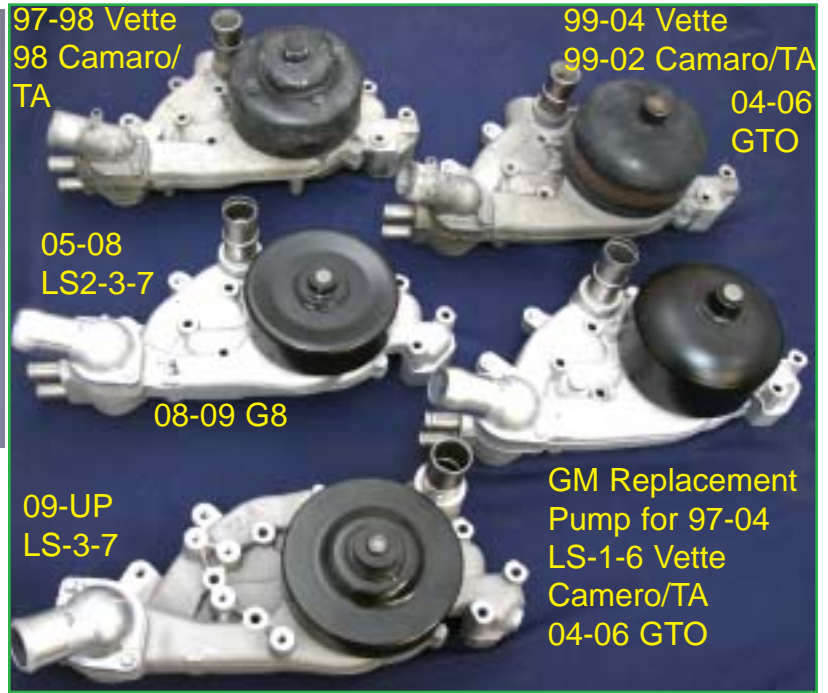
Note that the AC compressor is a rear exit. This will allow hose to hood clearance and a cleaner look.



The A/C condenser is mounted to the radiator. Roger already had purchased the radiator which had the top outlet on the drivers side and the bottom outlet on the passenger side. Normally we would build a cross flow radiator with both outlets on the passenger side. In this application we used an Gates #22436 top radiator hose and an Goodyear 60867 Lower hose.



S&P makes three styles of waternecks for the GEN III engines, above are the '04-08 style waternecks which have a slip in thermostat and the '97-'03 use a twist lock thermostat. '09-up the top outlet of the waterpump is on the driver side. In most Vette applications the straight waterneck is used. Available in polished only.



Larry fabricates a bracket for the gas pedal from a pattern from an earlier project. All Vettes from 97 up are drive by wire. This bracket can be purchased from S&P.



With the gas pedal in place, Larry starts on the mounting bracket for the clutch slave cylinder, after several attempts we now have a bracket which can be purchased from S&P.



Roger decided to stay with all stock gauges, so the tranny had to come back out to change the tail housing to a manual speedometer tail housing. Right shows the kit with the shifter relocater.

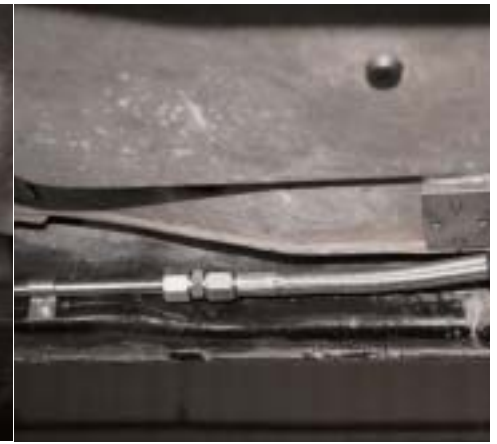




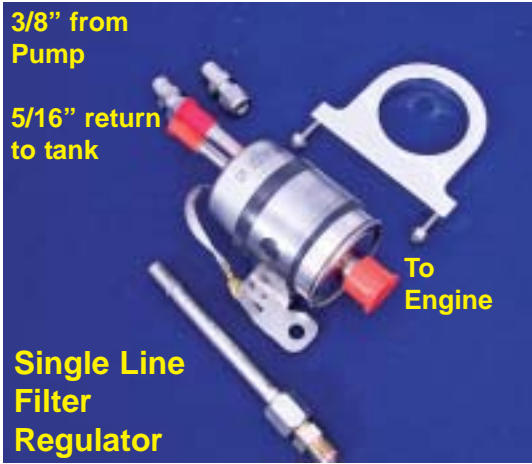
Roger sent his tank to Rock Valley (800-344-1934) to have the fuel pump installed inside. Larry installs the 1/4 pipe 90 degree to AN6 fittings to allow the connection of the braided lines that will route the fuel to and from the fuel filter/regulator.



The LS-3 is a single fuel line system so you have to use an Vette fuel filter regulator. The 3/8 line on rear is the inlet from the tank and the 5/16 is the return to the tank. S&P has the fittings or the whole kit available.



The S&P Rear Exit fuel lines come down to the frame where it connects to the 3/8 stainless frame fuel line from the filter regulator.



99 -up Vette fuel filter is used on LS2-3-7 and earlier motors when using a single fuel line. S&P's kit supplies fittings and AN6 adapters. This filters and regulates the fuel pressure and returns the excess fuel to tank.



Larry custom fabricated the AN6 Aero-quip power steering hose. These lines are also available for purchase from S&P.



We will only need the front two oxygen sensors since it is earlier than 1974. The S&P header collectors are equipped with O2 buns in each collector. S&P will remove the rear O2 sensors while removing the anti theft, emissions and changing the gear ratio and tire rollout during the computer reprogramming.



With the use of a manual transmission, Larry mounted a switch to the clutch pedal to prevent starting unless the clutch is pressed.



After hooking up the S&P engine wiring harness, we used an S&P 90 degree elbow with built in MAF and a red filter to bring the air into the engine.



With everything installed and ready to start, we first performed a final check of all connections. We then turned the key on to let the fuel pump apply pressure to the system and checked it for leaks. We then checked the throttle and made sure that it is working properly. The shifter and brakes are checked before the key is turned to the start position.

