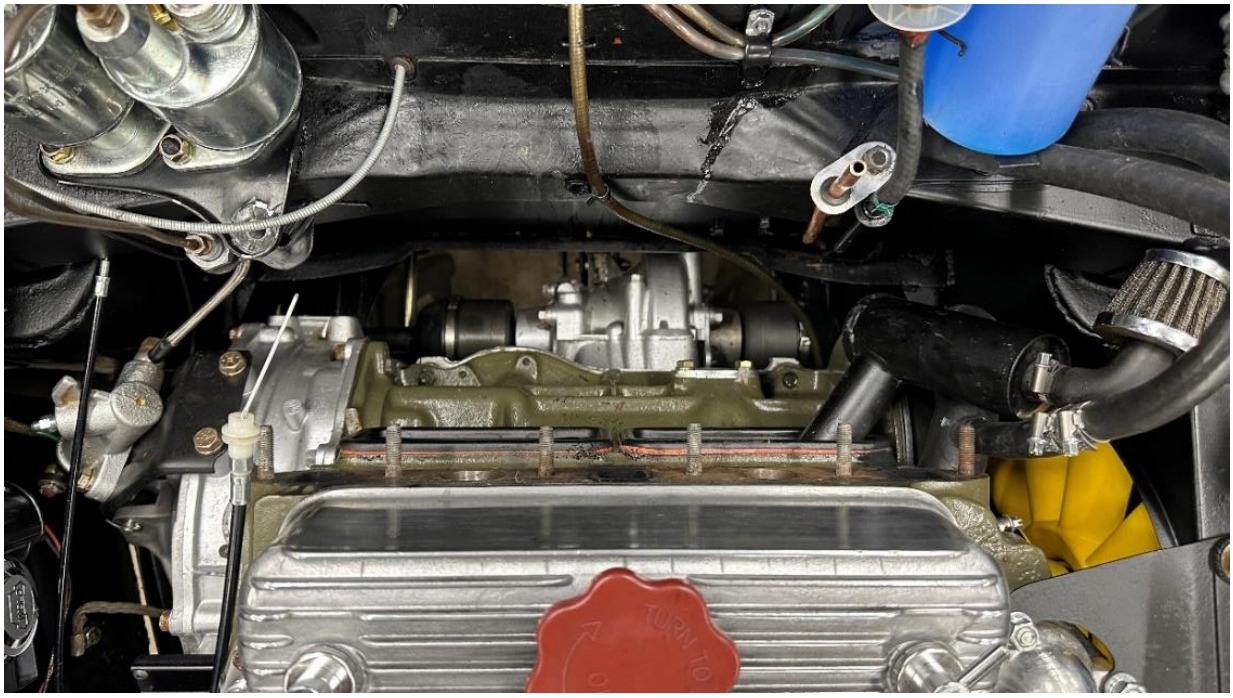
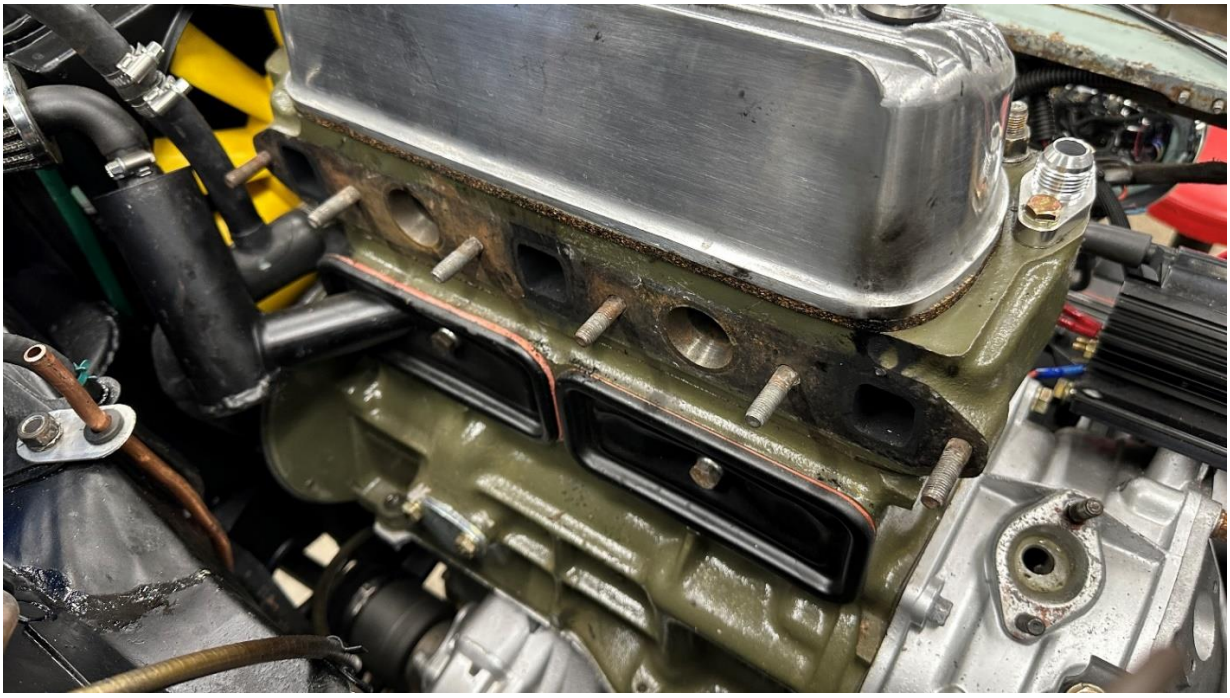
Turbo instruction manual Revision 11

Remove exhaust header, intake manifold and engine support brace from engine

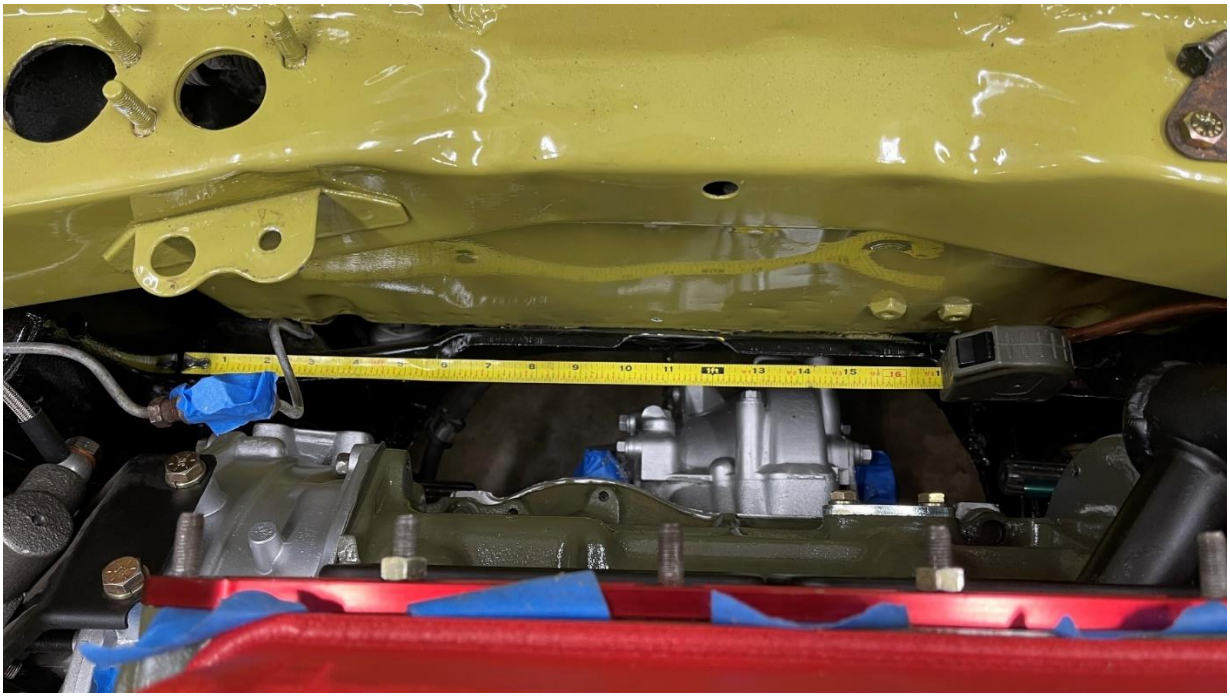


Replace studs if damaged or chase 5/16-24 exhaust studs with die nut if required.

Clean manifold gasket surface. Tape off intake and exhaust ports for grinding in next operation.



Cut sub-frame in this location.  This is required for downpipe installation and running clearance.  You may want to test fit the header, turbo and downpipe to help locate this position on your vehicle.  Every car is slightly different from another.



We recommend at least a 10mm (3/8 inch) gap between frame and down pipe.

You may want to trim the end off the down pipe to improve installation.  We have removed up to 50mm (2 inches) from the end of the downpipe to do this.

You also may want to trim some material off the down pipe to help line up the exhaust system.

We recommend test fitting the header, turbo and dowpipe on the engine before final assembly.

Sometimes the downpipe will need to be modified (dented) in order for the parts to fit correctly.  We want the header and downpipe to slightly interfere so they don't rattle.  We recommend only modifying the downpipe not the header.

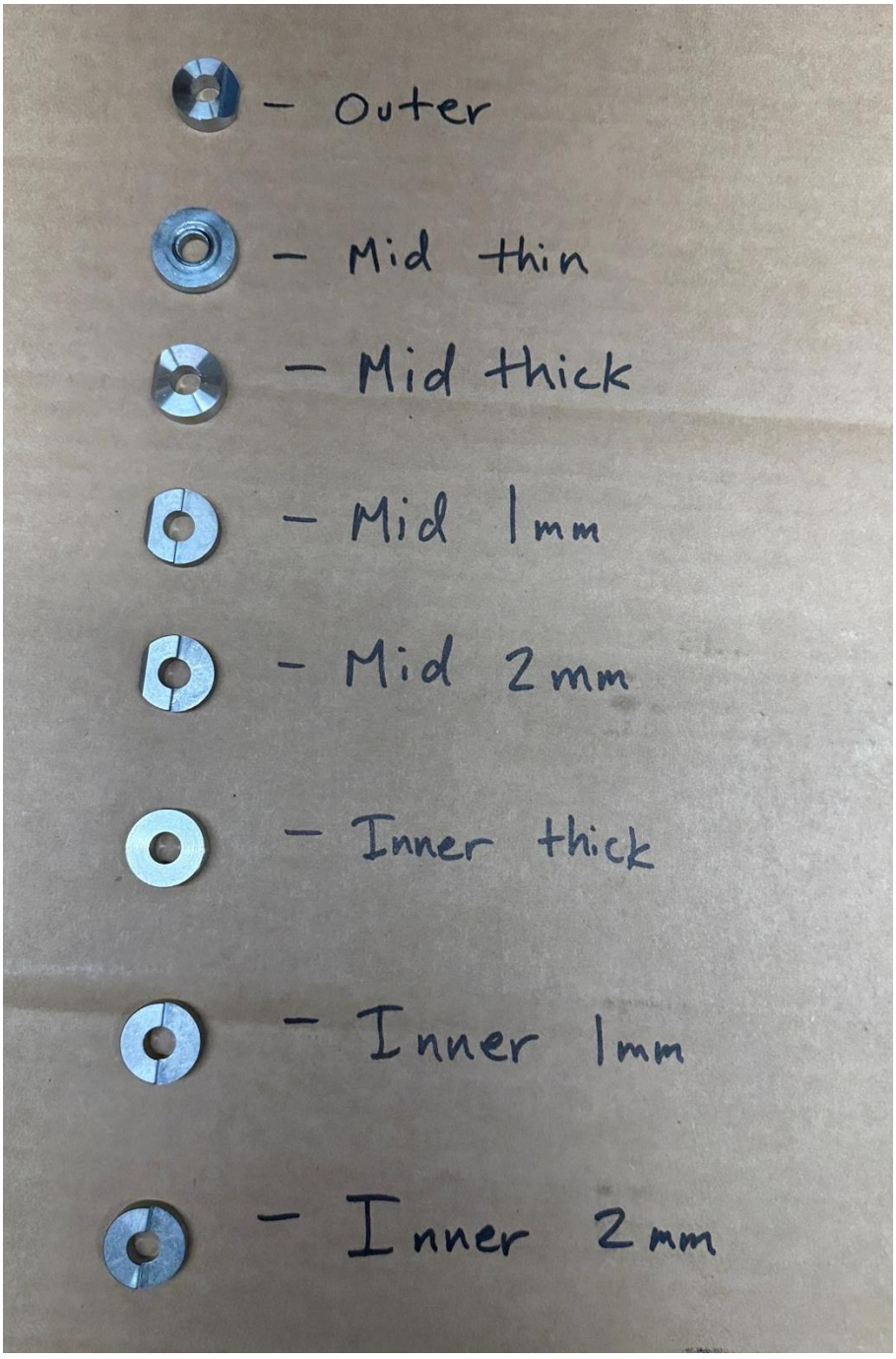
We recommend installing the downpipe before the header.  You will need as much room as possible to get the down pipe into the engine compartment.

Install new exhaust/intake manifold gasket.

Select proper manifold washers by measuring the thickness of new exhaust header flange.  Measure each hardware location that is located next to the intake manifold (4 locations)

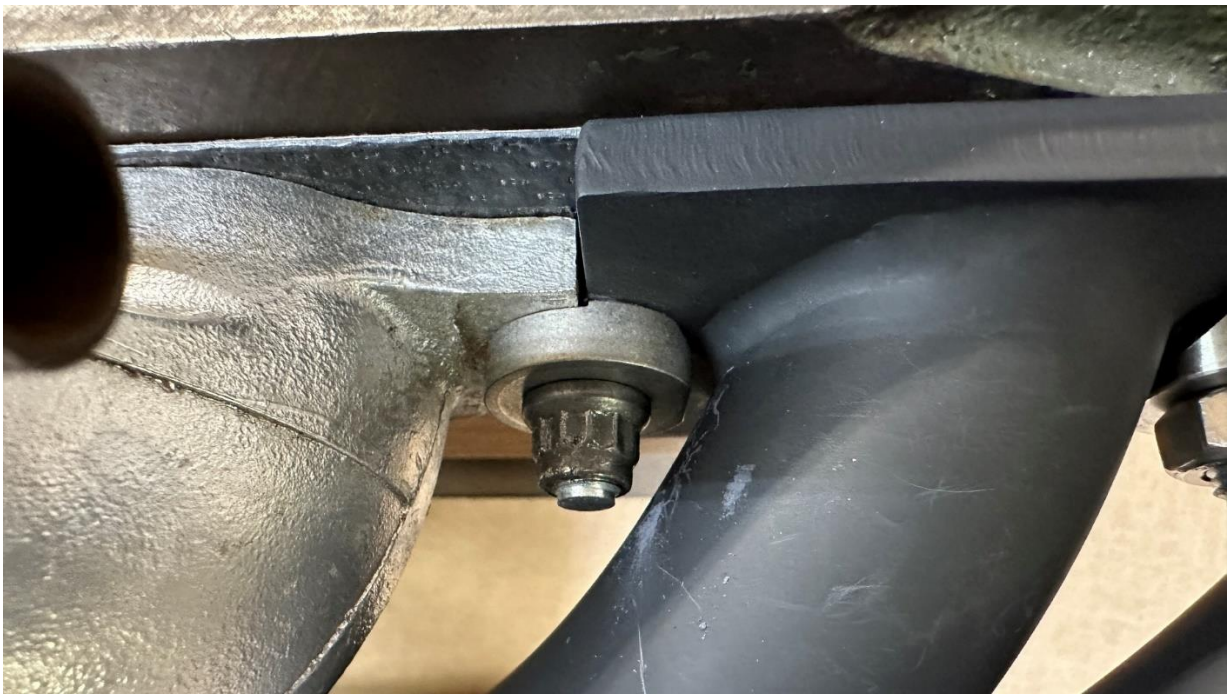

Measure thickness of intake manifold flanges in all 4 hardware locations.  Note the thickness differences in each location to select the proper washers.  We have measured up to a 2mm difference between the intake and exhaust manifold flange thickness.

Select either 0mm, 1mm or 2mm stepped washers depending on difference in thickness of the manifold. These washers are located in bag 1.2. The mid washers have a relief machined into them for weld clearance on new turbo exhaust manifold.



Install both intake and exhaust manifold with stainless steel nuts and washers.  Use stepped washers to accommodate the mismatch in thickness between the exhaust and intake manifold.  Some grinding of the washers may be required to fit them onto the stud.  That is one of the reasons we made the washers 6mm (1/4 inch) thick.

You may want to use the 12 point nuts in this location depending on manufacturing tolerance (bag 1.1).

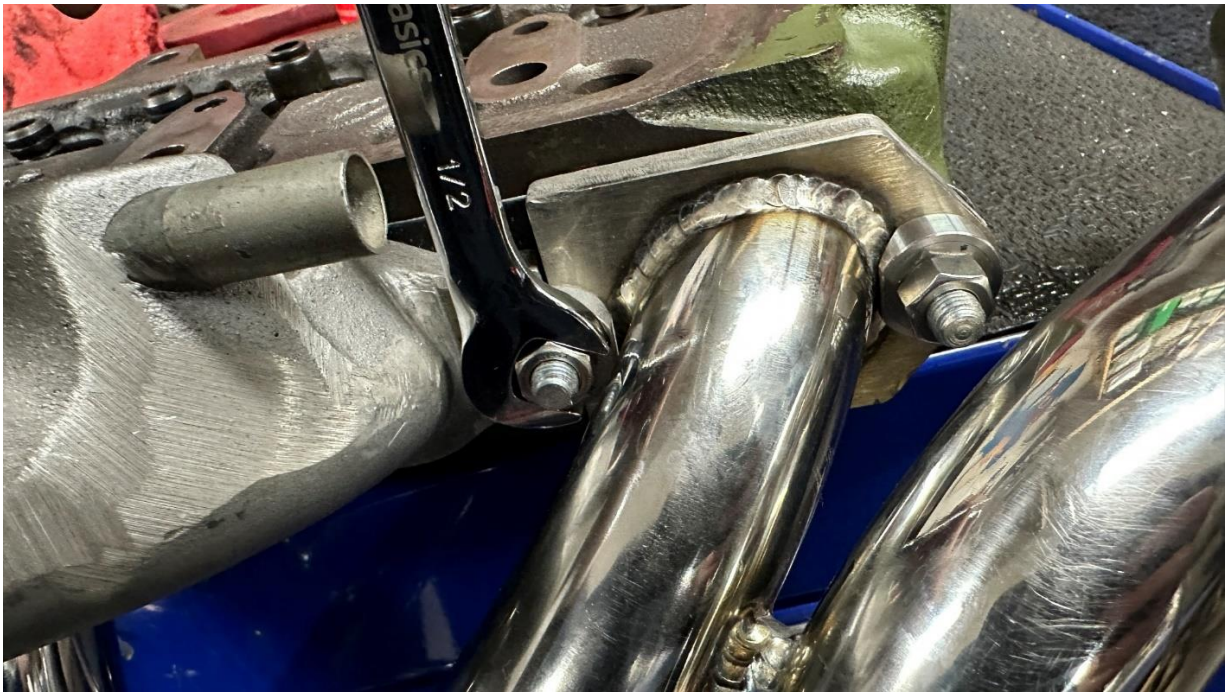


You may also want to use the 12 point nuts in this location depending on manufacturing tolerance (bag 1.1).

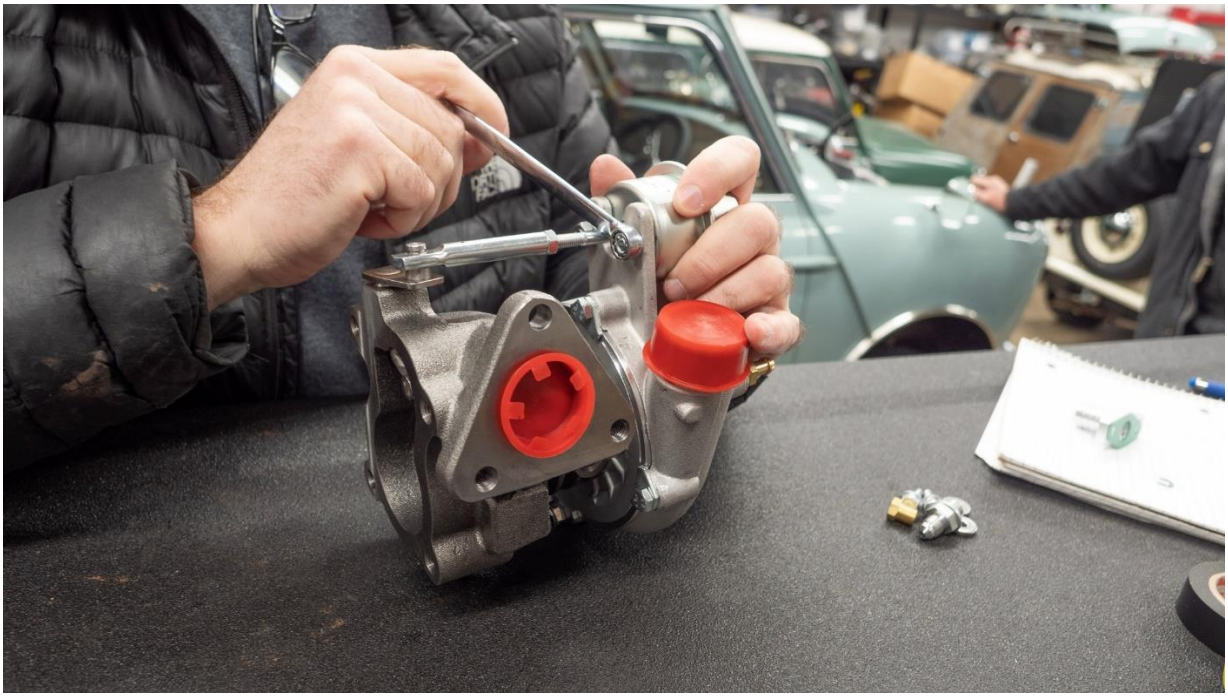
Use thin washers (4mm thick), if required, for tight spot of stud to header.  Stepped washers may also be ground to fit these locations.

Sometimes the exhaust manifold may need to be dented to get the nuts and wrench to fit.

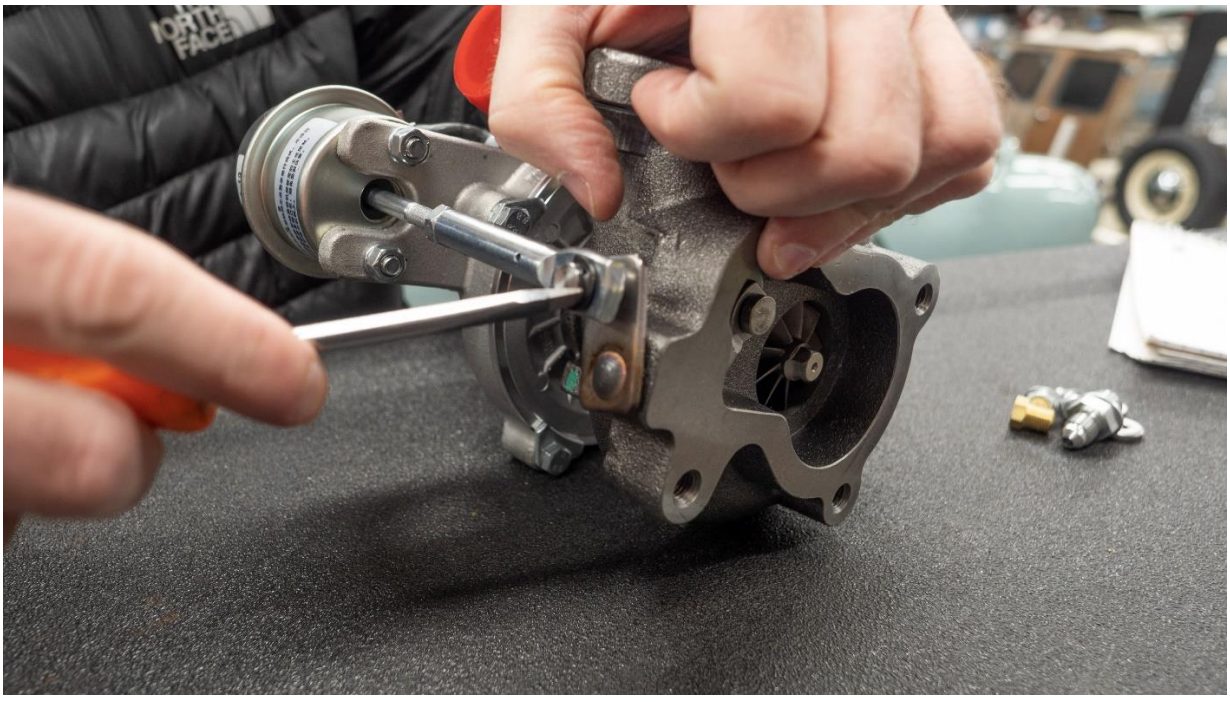
Torque manifold nuts to 15-21 Nm (11-15 Ft-lbs)



Prepare turbo for installation by removing the waste-gate actuator.

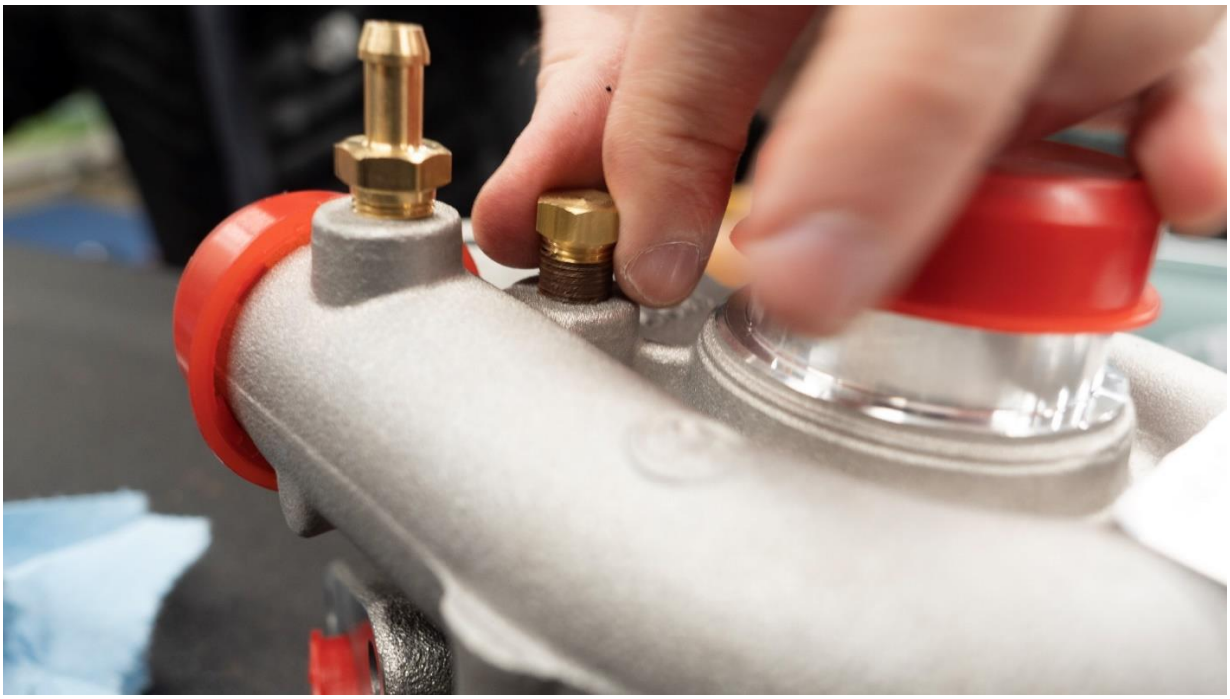


Make sure to note tension of waste-gate actuator when removing it.  We usually recommend a few pounds of tension to hold the wastegate valve closed (about 2-4mm of interference between the pin and hole).



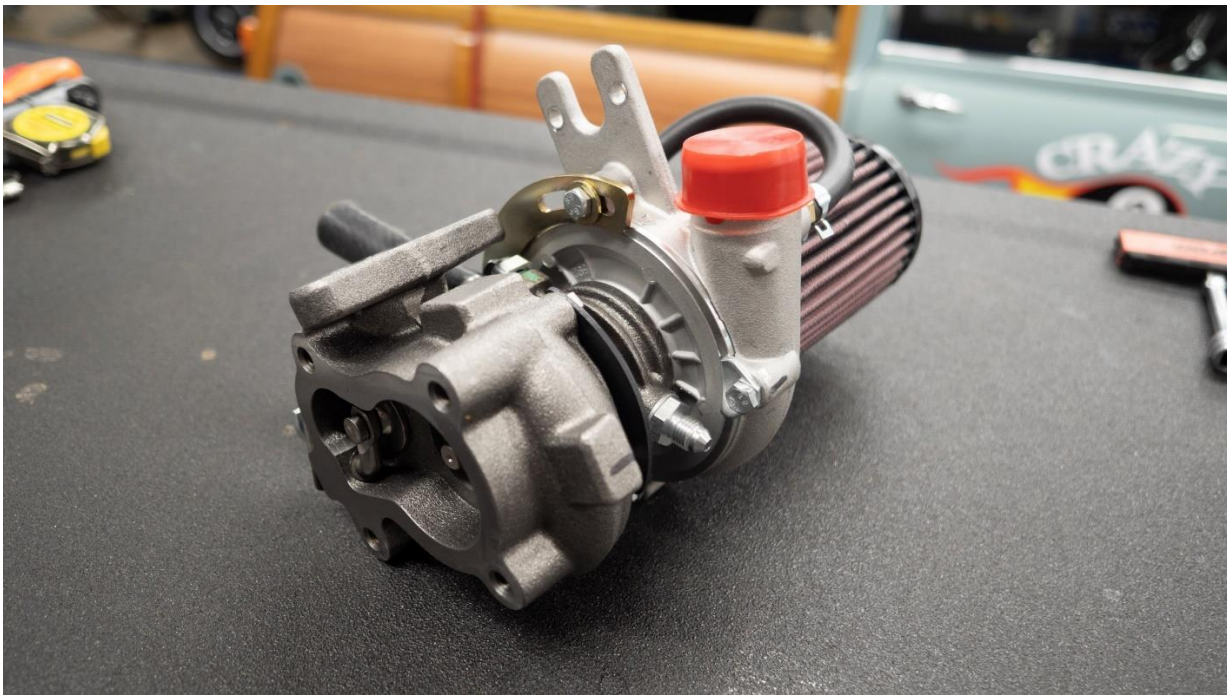
Keep hose clamps but the short rubber hose is not required.  It will be replaced with hose in bag 3.2.

Remove inner nipple on turbo compressor and install new 1/8 NPT brass plug in its location

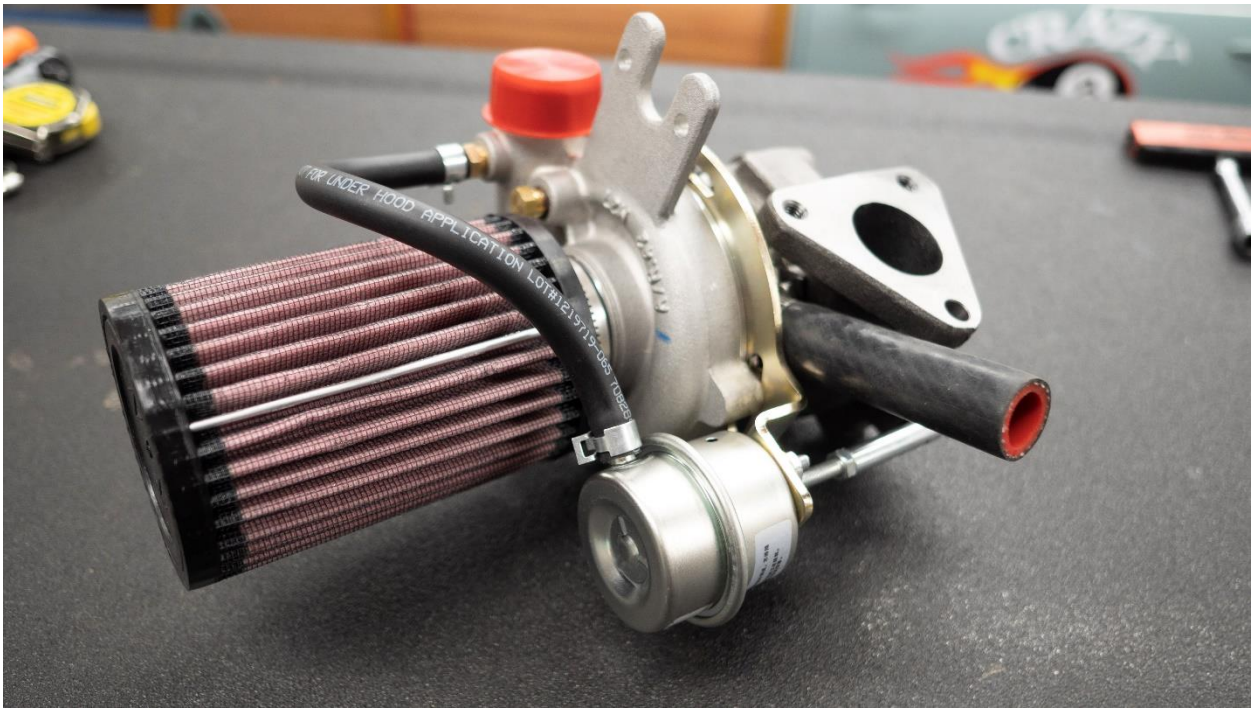


Loosen all of the M6 hex screws on compressor and turbine housings.  This will allow us to clock the fittings and relocation bracket.

Clock compressor and turbine housings per photo.  Note clocking of turbine inlet, compressor outlet and oil feed.



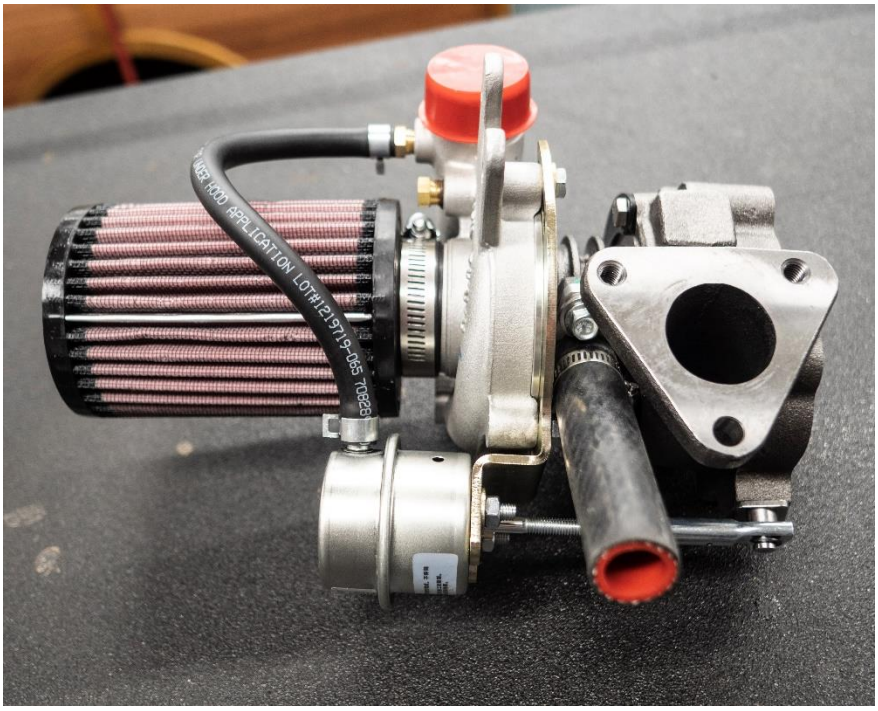
Install new waste-gate bracket from bag 3.1.  Use existing M6 hardware and two M6 washers to mount new bracket to compressor housing.  Install new waste gate hose from compressor outlet to wastegate.



Install waste-gate actuator onto new bracket using existing hardware.  Make sure you have a few pounds of tension to keep the waste-gate valve closed.  This may be adjusted later to control max boost pressure.

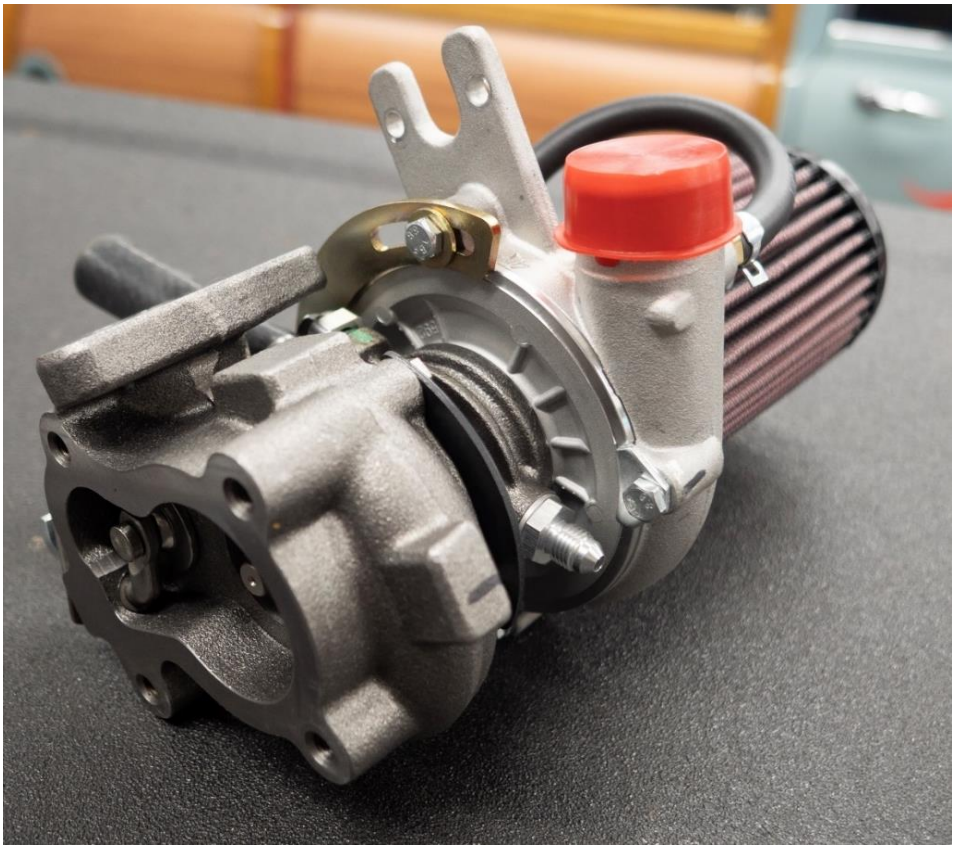
Apply high temp RTV to turbo oil drain fitting.

Install ½’ high temp silicon hose to oil drain before installation of fitting.  Install new nipple fitting using M6x16 hex screws and M6 washers.  Torque to 6-9 Nm (4-7 Ft-lbs)



Install new waste-gate actuator hose (from bag 3.2) and secure with re-used hose clamps.  Install air filter and secure with hose clamps.

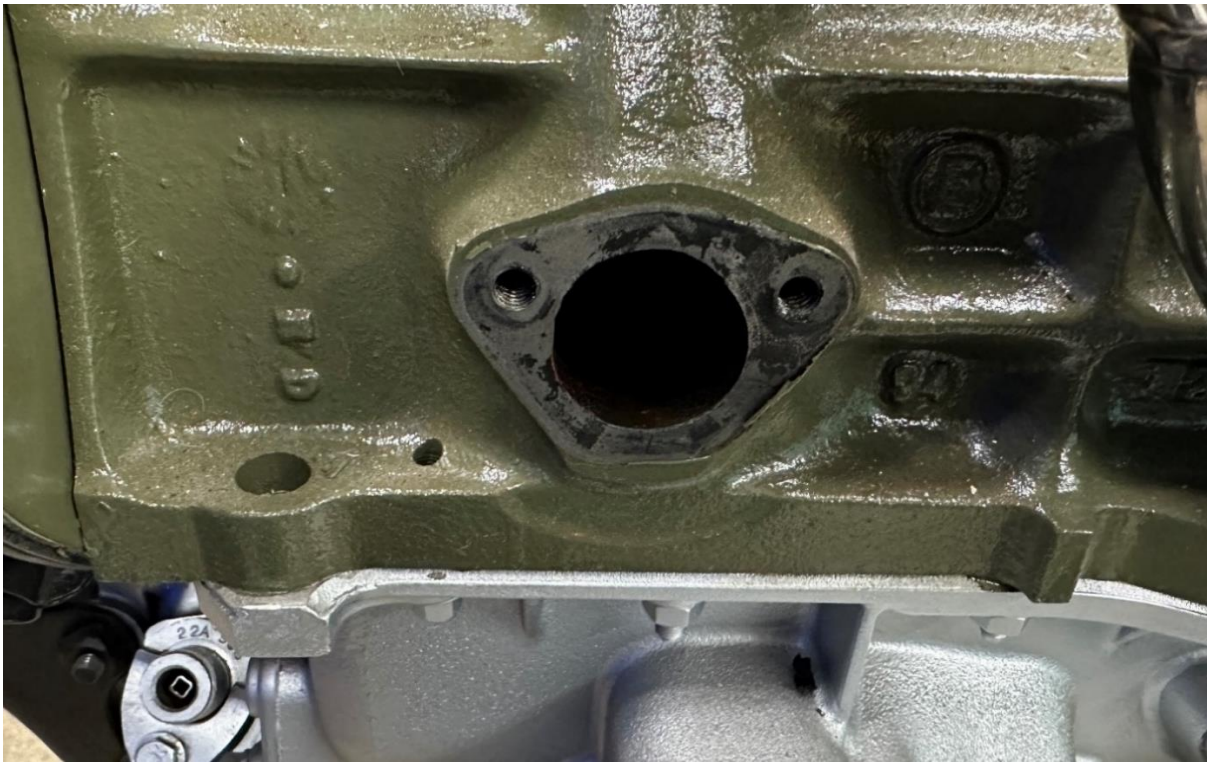
Install oil supply fitting with included sealing washer from bag 3.2.  The turbo is ready for installation.



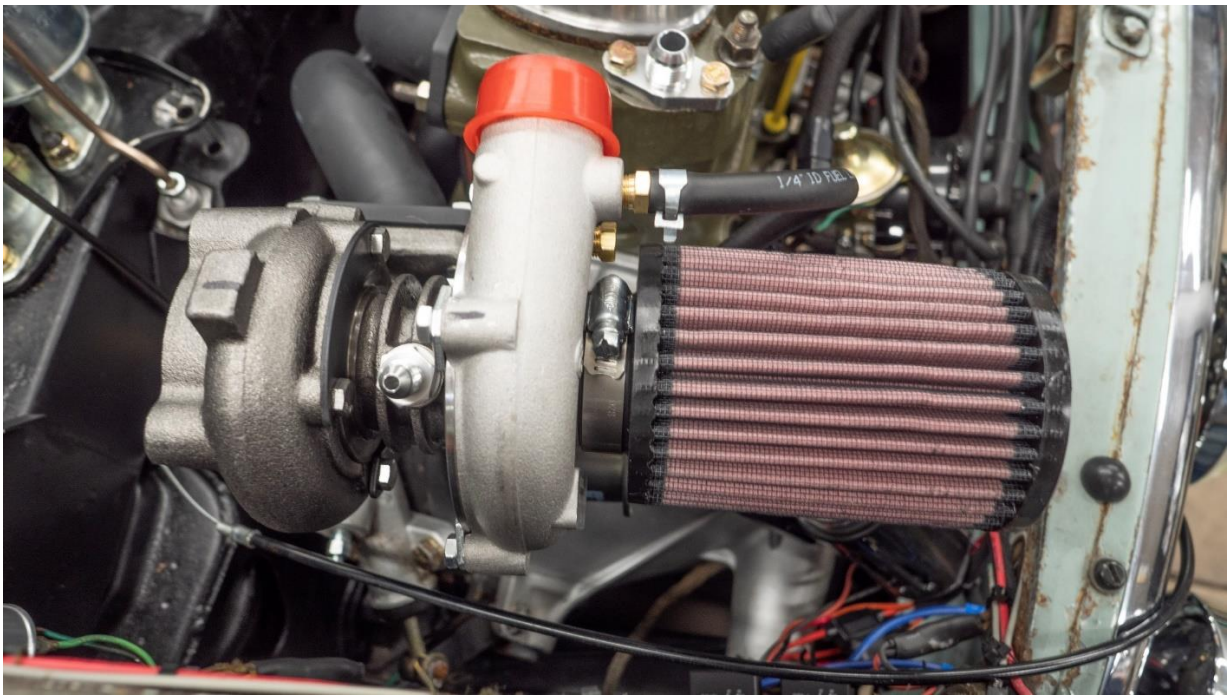
Install oil drain in clutch housing from bag 8.1.  Use pipe sealant to seal fitting to plate.

Use 5/16 UNC nuts to secture plate to clutch housing.  Use high temp RTV to seal plate to clutch housing.

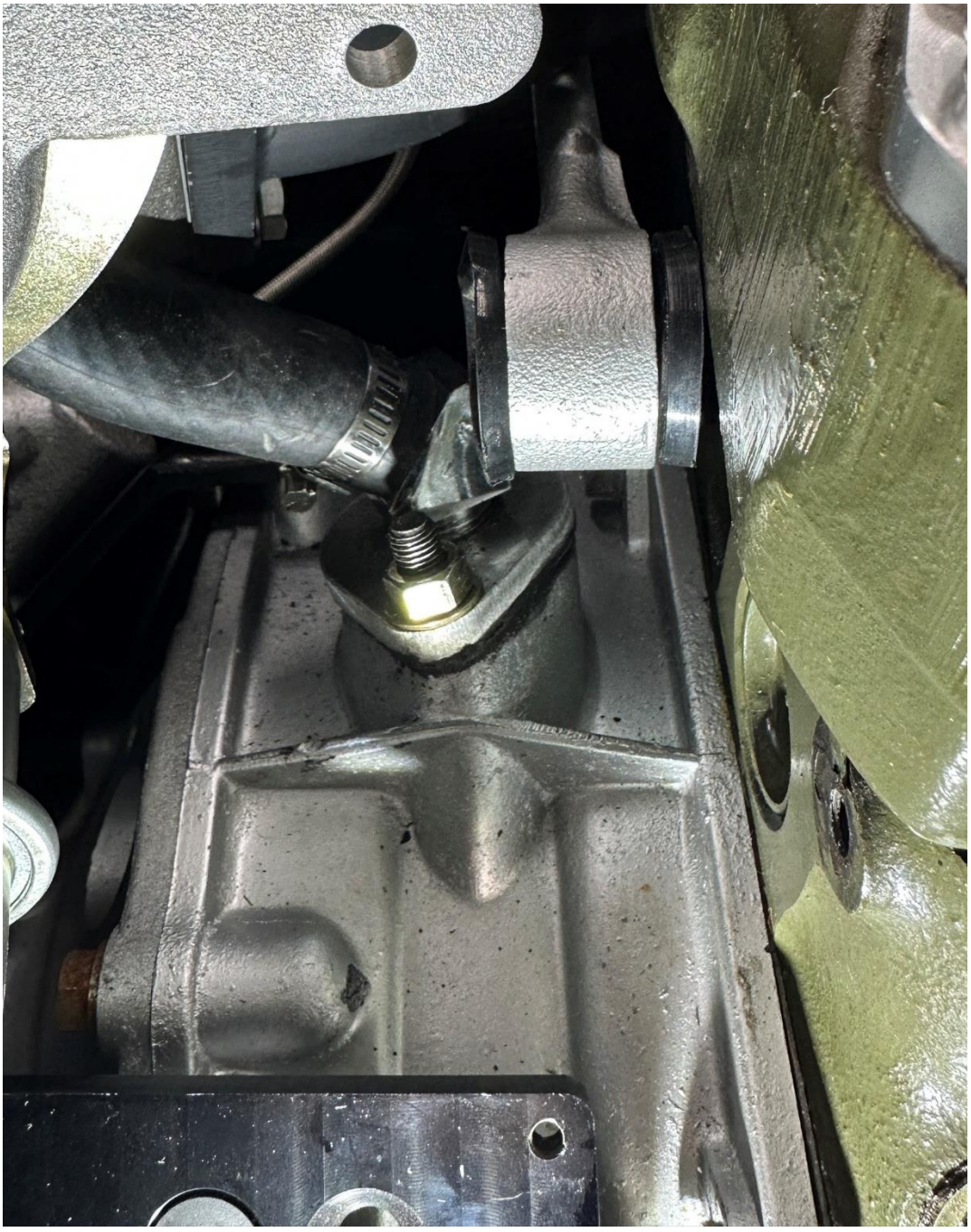
If you don't have a hole in the clutch housing, we recommend installing a drain fitting to the fuel pump mounting location.  A kit for this will be available in the future.



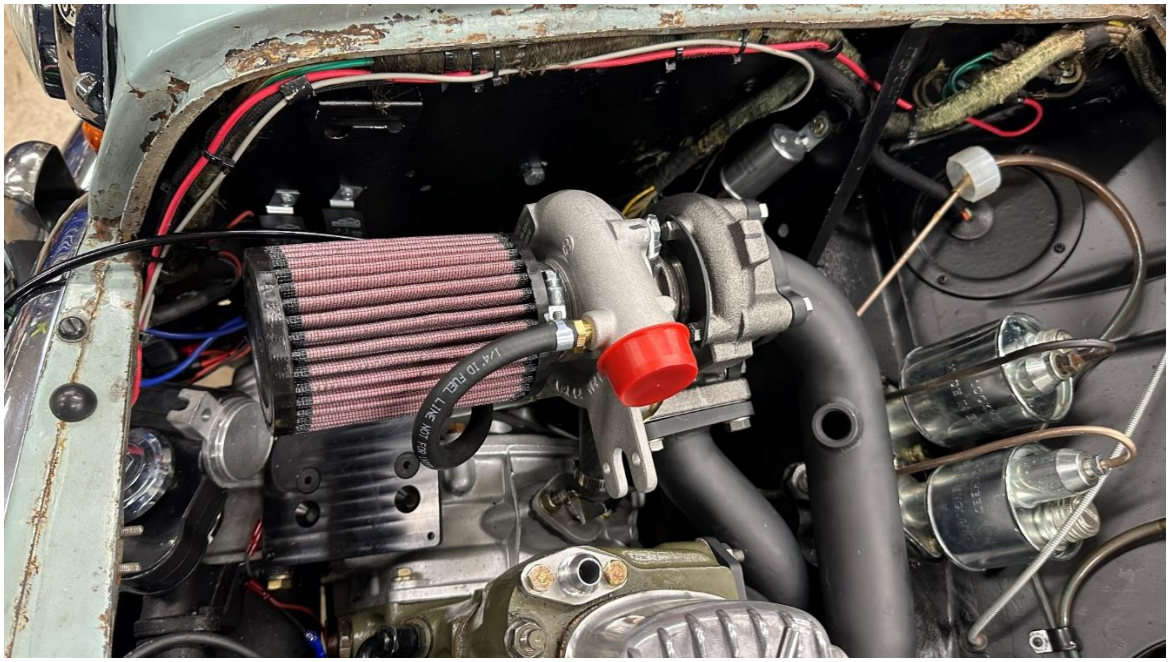
Turbo Installation.  Seal turbo on exhaust header with high temp RTV.  Secure with hardware from bag 1.3.  Torque hardware to 15-21 Nm (11-15 Ft-lbs)



Attach oil drain hose to drain fitting and secure with hose clamp  Attach upper motor stabilizer arm and bracket to engine.



Apply high temp RTV to downpipe and secure it to the turbo with hardware from bag 2.1.  Torque hardware to 15-21 Nm (11-15 Ft-Lbs).

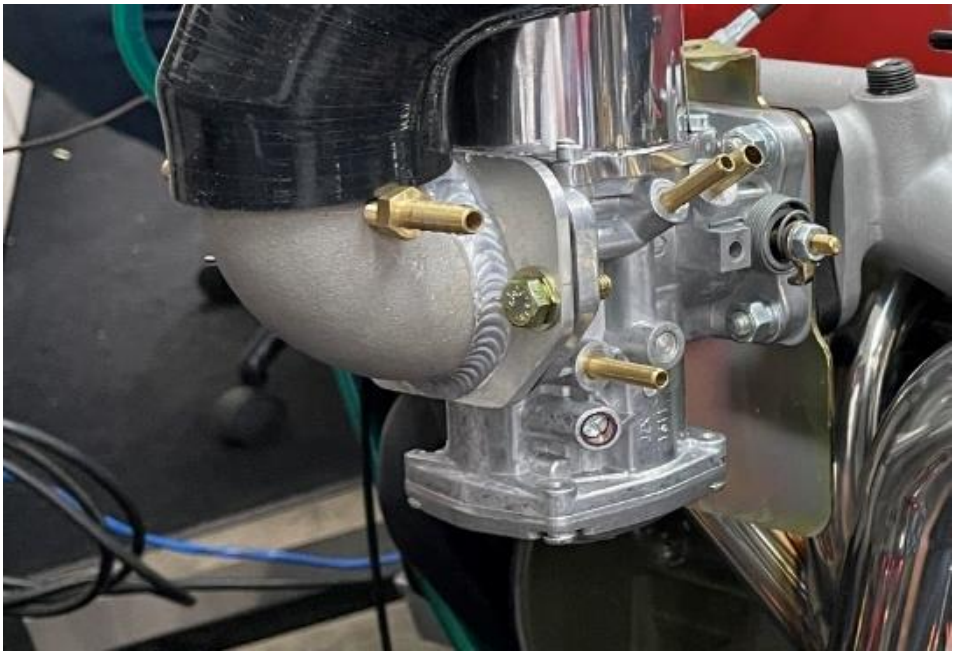


Install oxygen sensor or included O2 sensor bung from bag 2.1

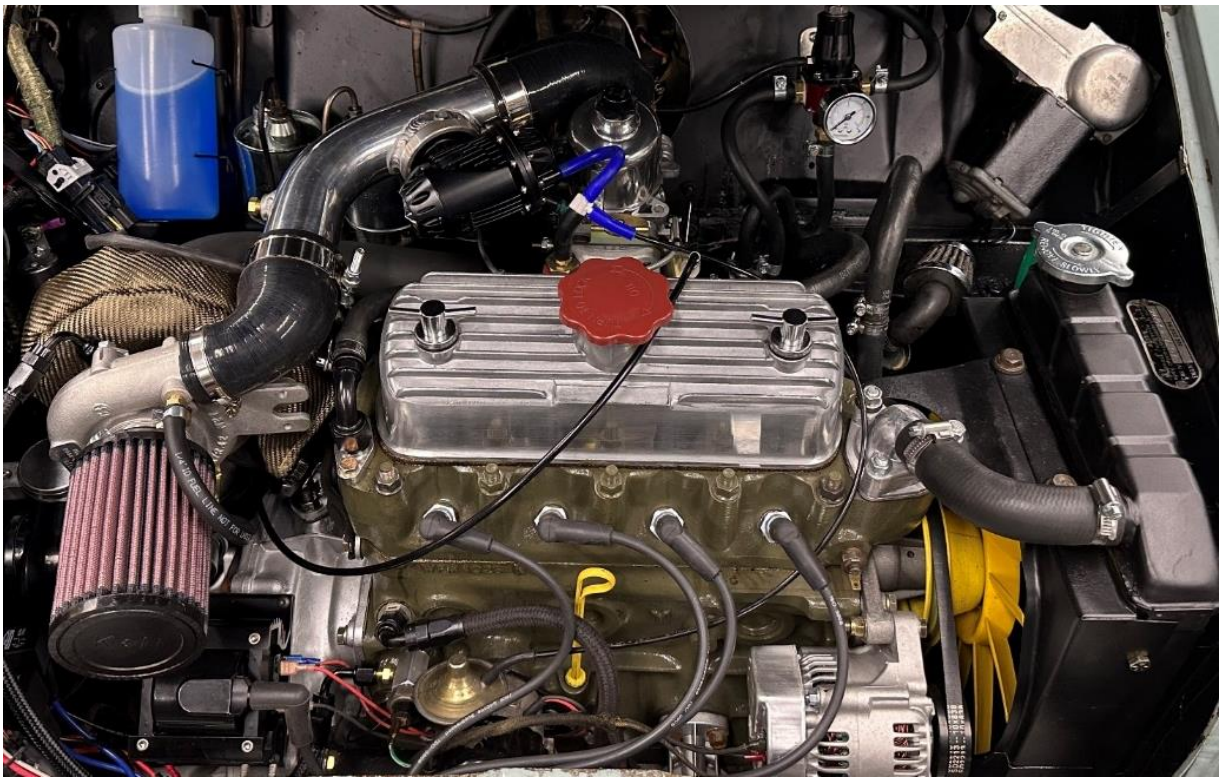
The intake hoses (black rubber) are purposely made long.  Please trim them to fit your application. There should be at least 30mm (1-1/4 inches) of overlap between the hose and the pipe.


Install 1/8 NPT pipe plug from bag 4.1

Install intake elbow onto carburetor and gasket onto carb flange from bag 4.1.  Secure with 5/16 UNC hex head screws and M8 washers.



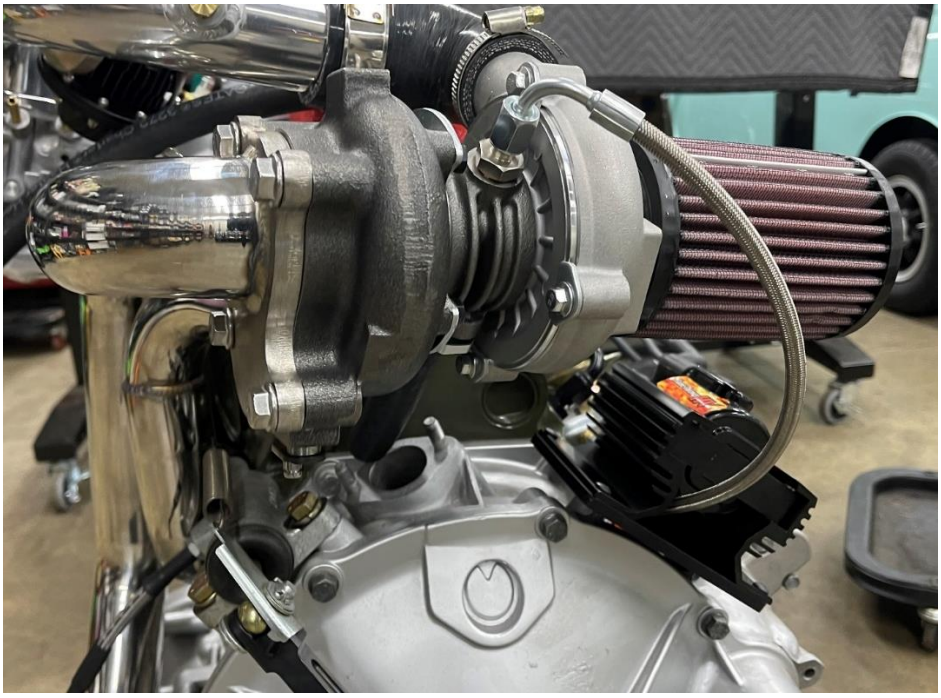
Install intake system as shown and secure with hose clamps



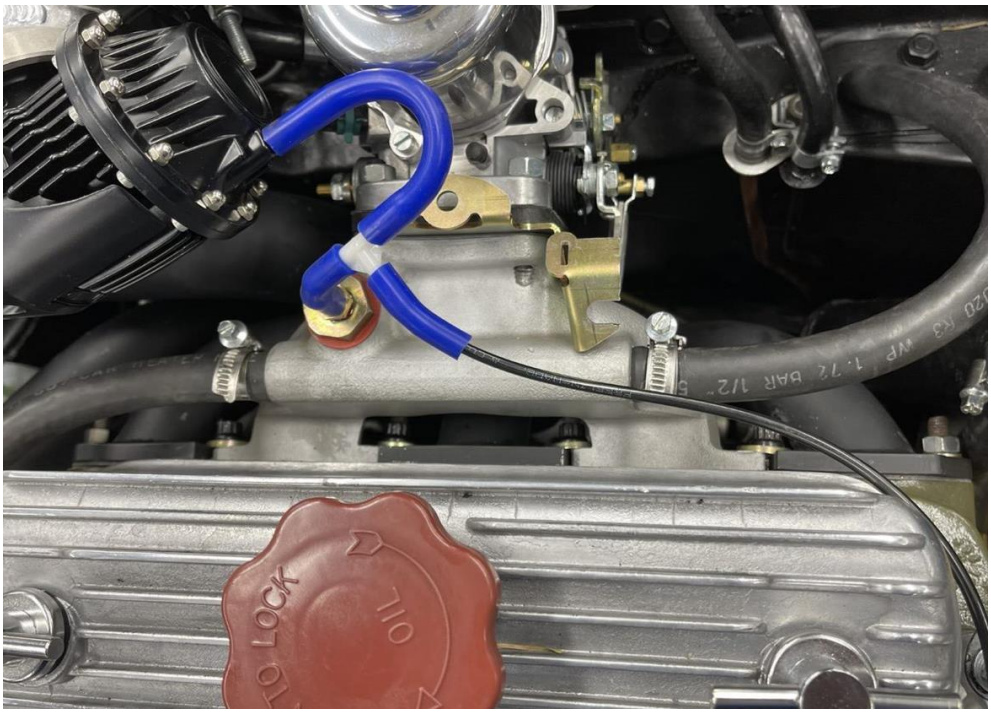
Install turbo oil feed system from bag 7.1  (90 degree fitting not included)

Remove oil pressure sender from engine. Install new 3-way T from bag 7.1.  Install old pressure sender at end of T as shown (1/8 BSPT).  Install AN4 to 1/8 NPT straight fitting to side of T.  Attach oil feed hose as shown.

Connect 90 degree fitting to turbo inlet feed.

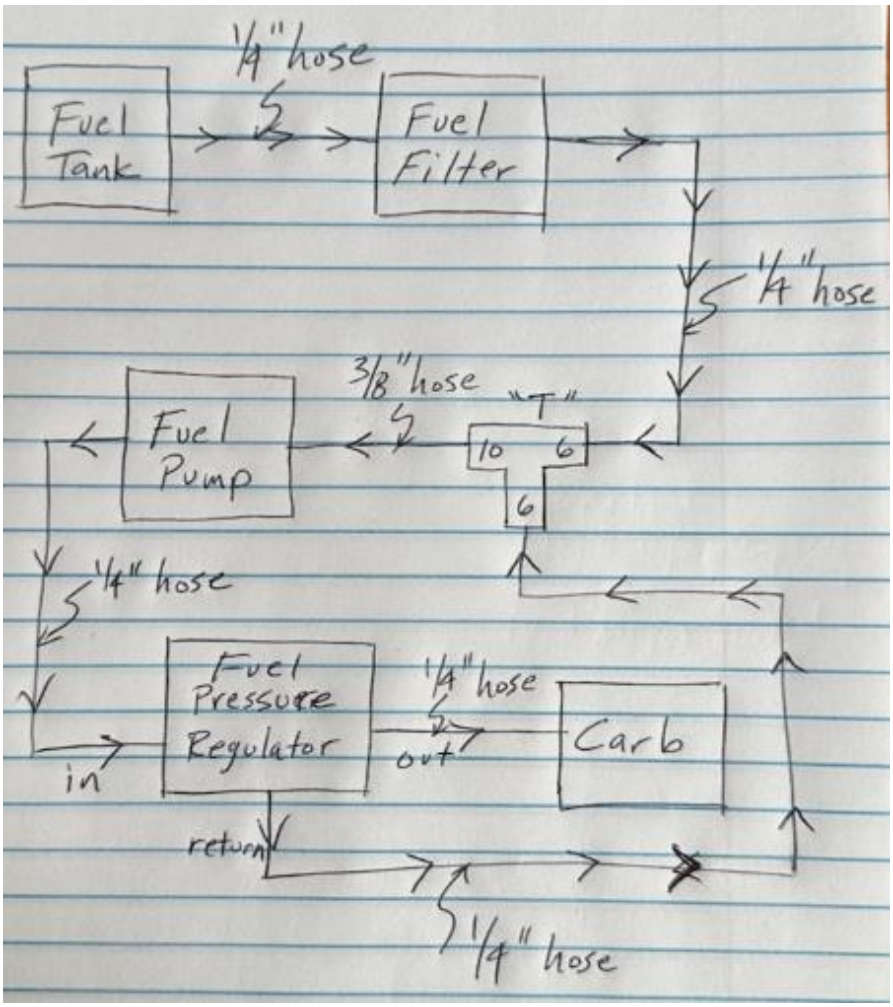


Install vacuum system from bag 6.1  Install vacuum adapter into intake manifold port.  Install “Y” to supply vacuum to blow-off valve and vacuum advance on distributor.  Due to variations from car to car, the installation of this system can vary quite a bit.

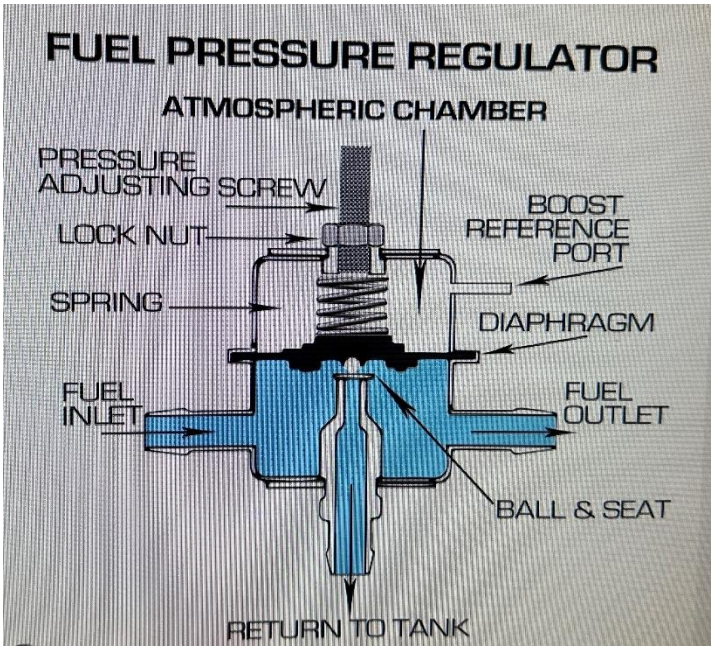


Install fuel pump and filter under rear of car.

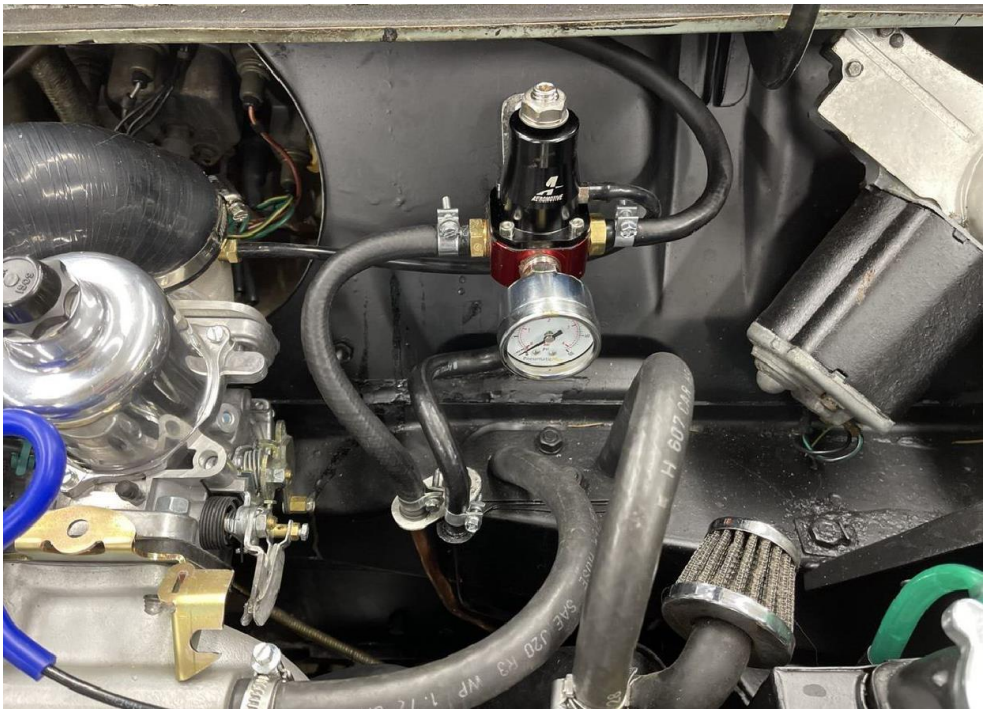
Use diagram to help you route fuel system (updated drawing coming soon)



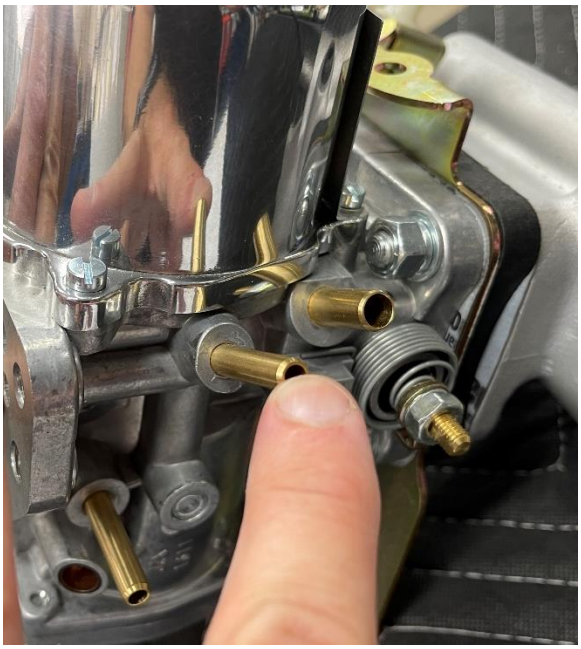
Here is how the fuel pressure regulator works.  Remove the heavy spring in the regulator.  The small diameter spring is the one we need for carburetors (low pressure).  Check that the fittings, that install on the side of the pressure regulator, do not interfere with the pintle (ball & seat in photo).




Install fuel pressure regulator in engine compartment as shown.



Install short hose from intake pipe fitting to this port on carburetor.



Adjust fuel pressure to 3-4 psi at idle with no boost (need new picture with correct fuel pressure reading)


Adjust boost pressure.  Keep boost pressure around 6-8 psi at beginning.  12 psi is max pressure allowed.  We have safely taken engines to over 20 psi during testing.

Adjust air-fuel ratio.  We recommend installing wide band air fuel ratio system.  The goal is 11.0:1 to 12.5:1 air/fuel ratio when under boost