TRI 5 FRAME AND BODY MOUNTING AND CAR BUILDING INSTRUCTIONS

The following instructions and tips will help you along with your own Tri-5 project. Some or all of the points raised here will apply to your particular project. Our goal is to make this project as straightforward and as simple as it could possibly be.

Please note that there’s a few differences between the frame horns of the 55-56 frame and the 57. The other frame differences involve the station wagon and sedan delivery chassis. There is a flat area on the top of the kick up where the frame goes over the rear end housing. This is to accommodate the flat rear floor of a wagon. A strip of rubber needs to be glued to this area to prevent metal-to-metal contact. The stock shock pockets need to be removed and the hole filled. This is to allow clearance for the coilover crossmember. Last is the fuel tank, on a wagon it is formed around the stock rear end, and will come in contact with the larger 9” housing. You can use an after market fuel tank, or one that will mount under the floor behind the housing.

There are three other areas that in many cases may or may not require slight modification. On two-door, four door and convertible passenger car models there is a possibility that the left front corner of the trunk will come in contact with the left rear upper coil-over mount. If this occurs you will need to relieve this contact point by tapping the trunk metal with a ball pien hammer. (Figure 1) Don’t make a depression any larger than necessary to clear the bolt that attaches the coil-over. Next, the stock pinion snubber needs to be removed. This can be trimmed off with either a cutoff wheel or plasma torch. (Figure 2) The final minor adjustment that could be necessary is in the rear foot well near the drive shaft tunnel. This metal is very close to the inside frame support. The condition of your floor will determine whether it will come into contact with the new replacement frame. It is a good idea to glue a small strip of rubber to the top of the frame in this area to keep the body and frame from rubbing. Finally, on cars equipped with removable splash panels in the front wheel wells, a small bracket will need to be fabricated and located once the body is mounted. It will require a small “L” bracket made from a piece of 1” or 1 1/8” X 1/8” steel strip. (Figure 3) It can attach to the front outside body mount with ¼” fasteners. Also note that there might be some slight firewall massaging required if you are running a Big Block. It will only be required around the cylinder head area.
What if the body doesn’t line up with the new frame? We have gone to great lengths to ensure that your new frame is straight and square, with all the appropriate mounts in the proper location. Our tooling was designed around GM’s 55-57 drawings and dimensions from multiple 55-57 frames and a 55 body with 47,000 original miles.

We have taken the combination of all of these to insure that the new frame will be as accurate as the original. If the body does not line up with the frame there is a very good chance that somewhere in the past your car may have been involved in an accident or in some way stressed. The stock frame has only one cross-member to mount the front suspension while the rear of the frame utilizes a small, formed piece of sheet metal. If a standard frame 55-57 was ever hit on a corner it could make it difficult to align the body mounts to a new frame.

Shimming the body and core support will be the same as a stock 55-57. Kits can be purchased that are complete with rubber mounts, shims and core support mounts. If you have any concerns about shimming the body, please consult a body shop. Typically a 55-57 did not use shims and sat directly on the rubber mounts.

After removing the stock frame from under your car we strongly suggest trial fitting your new frame before paint and final assembly. This is the time to identify any possible issues with the original body. If the body you are using is out of alignment, you may need to remove or modify the body mounts to align your body to the new chassis. Take your time to make sure that everything is aligned and fits. Once you have done this, the frame can be finished and you can start assembling the chassis. When you prepare the chassis for finishing, DO NOT GRIND ANY WELDS ON THE CHASSIS!

If you purchased a complete package it was shipped pre-assembled. This means that upper and lower control arms are already adjusted for the correct caster and camber. The rack and pinion and tie rod ends have been adjusted for correct toe-in. The rear end has also been aligned and squared with the chassis. When you disassemble the chassis for trial fitting and finishing, make sure to record the length and location of the links so everything can be reassembled properly.

The engine is approx ¾” forward of the stock location. This enables a small block to use a late model HEI type distributor without modifying the firewall. With the chassis level, the engine crankshaft centerline is at approximately a 4.5-degree angle. This is necessary for an 8” harmonic balancer to clear the rack and pinion. The rear end pinion angle is tilted up at a 2 1/2-degree angle to eliminate any harmonics in the drive train. A big block will fit in the chassis but the firewall will need to be modified and the radiator will have to be mounted in the six-cylinder position. Depending on what type of accessory drive system is being used, the radiator may have to mount in this location even with a small block.

Preparing the chassis for powder coating or paint and assembly: If the chassis is going to be powder coated or painted, make sure that any brackets or tabs you want are welded on before its finished. Holes can be drilled after paint but welding brackets on
becomes more difficult. It’s always best to pick a color that can easily be touched up at a later date. **DO NOT GRIND ANY WELDS ON THE CHASSIS!** If you are powder coating your chassis, some powder coaters have oven safe body filler to smooth out the welds if necessary.

When the frame comes back from being powder coated or painted it will need to be prepared for assembly. Safely set the chassis close to level in a well-lit area where you will be able to assemble the rolling chassis. ([Figure 4]) Now the real fun begins. Start by using a rat-tail file in all the holes that bolts have to pass through. On the front suspension it is always best to chase the threads with a tap to clean out any powder or paint that may have gotten inside the bore and on the threads. This is not the time to get a bolt stuck and have it strip the threads. Before installing the rack and pinion or the control arms use anti-seize compound on the threads. ([Figure 5]) The upper control arms use ½” grade 8 bolts. The lower control arms use 5/8” grade 8 bolts. The rack and pinion uses 5/8” grade 5 coarse threads.

**Preparing the control arms for installation:** The procedure for preparing the upper and lower control arms will be the same. Normally they come pre-assembled with the rod ends in place and the ball joints installed. If your arms shipped bare and need painting or plating this is important reading. Before disassembling the control arms either count the number of threads showing or put some masking tape around the jam nuts and upper threads of the rod ends to ensure they maintain proper adjustment.

After painting or plating chase all threads with a tap. The uppers are 5/8”-18 and the lowers use ¾”-16, ½”-13 and 3/8”-24. Make certain that threaded tubes are free from debris. After applying anti-seize compound to the threads the rod ends can be installed. The jam nuts should be in the same position as when the arms were taken apart so they will maintain proper alignment.

Use the ball joint installation tool (part number 86854510) to install the upper and lower ball joints. There are two different theories on what to use on the ball joint before installation, one is Lock-tight and the other is anti-seize compound. I personally use anti-seize so the ball joint can be replaced if necessary. If the ball joint is tightened properly using the ball joint tool it should stay secure even with anti-seize on the threads. **Before installing the control arms on the chassis it is a good idea to lubricate the poly bushings with a light film of wheel bearing grease.** This will eliminate squeaks in the suspension and increase the longevity of the bushings.

The upper and lower arms are ready to be installed on the chassis. The upper arms are the same for right and left and the lowers are right hand, left hand. ([Figure 6]) The easy way to tell the lower right from lower left is the threaded bosses go to the front of the car. The 3/8-24 boss is for mounting the sway bar. Use anti-seize on the threads of the control arm fasteners.

With the upper and lower control arms in place the grease fittings can be installed in the ball joints. ([Figure 7]) Lubricate the ball joints until you see grease coming out around
the edges of the grooved ball. Install the rubber boots and set the spindles in place with
the steering arms pointing forward.

In most cases the tie rod ends come lubricated but you should check by raising the boot,
to see if it is full of grease. If it is not, apply the same method that you used on the ball
joints. We have preset the toe angle and if everything goes back together the same way it
was shipped it will be very close. To get the track width to the original 60” an extension
was needed on the end of the tie rod. With the tie rod extension and tie rod end threaded
on to the tie rod it is ready to be attached to the spindle. It can only install from the
bottom side because of the taper. (Figure 8) When the castle nut is installed and tight
insert a cotter pin to keep the nut from rotating or coming loose.

Aftermarket spindles and ball joints are made to Original Equipment Manufacture
specifications. With the OEM allowed tolerances you may have to use two washers
instead of one under the ball joint castle nut. (Figure 9) The important thing is to make
sure that when the nut is tight a cotter pin will not allow it to rotate. After the upper and
lower ball joints are tight and the cotter pins are installed the upper and lower control arm
covers can be installed. Remove the grease fittings and set the covers in place. In the
case of powder coating you may have to scrape the inside edge or the top of the control
arm to get the cover to fit. It will not hurt to use a rubber mallet and tap it in place, do
not use a steel or brass hammer or it will mar these covers. Use the stainless counter
sunk cap screws to hold the covers in place. (Figure 10)

**Front wheel bearings:** The Tri-5 chassis is set up for either Wilwood or GM style disc
brakes and requires the use of Hi-Temp wheel bearing grease. Normal wheel bearing
grease will break down in high performance or hard driving situations causing damage to
the bearings.

**Front sway bar:** The threaded inserts to mount the sway bar are located on the
underside of chassis in front of the IFS crossmember. Fit the poly bushings around the
sway bar, place the steel bracket set over the bushings and bolt the sway bar to the chassis
with the sway bar ends pointing to the rear of the car. Use the 3/8”-16 bolts and flat
washers to attach the sway bar to the chassis. Mount the 3/8” female rod end to the lower
control arm with the misalignment bushing to the outside of the rod end, using the 3/8”-
24 X 1¼” bolt. Use the picture as a guide in setting up the sway bar linkage. (Figure
11A, 11B) With the lower control arm level with the ground tighten the long 3/8” bolt
so the poly bushing can still be rotated with your fingers. Use the 3/8” jam nut to lock
against the rod end to hold the assembly in place. Over tightening can damage the rod
dead, bend the bolts and cause severe binding.

**Front coil overs:** Mounting the coil over in the upper mount is fairly straightforward,
the coil over fits between the brackets and a \( \frac{1}{2} \)” bolt goes through the hole. The lower
mount requires a \( \frac{1}{2} \)” washer on each side of the coilover. (Figure 12) It uses the long
\( \frac{1}{2} \)” NC bolt and should be torqued to no more than 40 lbs. Like in all the other threaded
surfaces use anti-seize compound before installing the bolt.
Preparing the 9” Ford housing for installation: Prior to final assembly the housing must be thoroughly cleaned to remove any contaminates that may cause excess wear on the center section, axles and gears. The best way to remove any grit or contamination is to use hot soapy water. After thoroughly cleaning the bearing surfaces, axle tubes and the inside of the carrier, rinse everything and dry with a clean, lint-free rag.

When installing the studs that anchor the third member be sure and use anti-seize on the threads. **Do not use an impact wrench to install these studs!** The heat created from using an impact wrench will cause galling. Use the washers that are supplied with the installation kit and stack them up over the stud. Use a regular ½” drive ratchet and six point 9/16” socket to draw the studs into place.

Powder coating in holes can cause enough build-up that bolts will not go through. To take care of this, use a small rattail file and carefully run it through any hole that a 3/8”, ½”, 5/8” or ¾” fastener would go through. Do not use a rattail file on the holes for the third member studs! On threaded holes that were not masked by the powder coater a tap may be necessary. One last area to check is the outside end of the housing where the caliper mount attaches. Make sure the surface is clean and flat. If there are any small irregularities a small flat file will be needed to dress the area. Now the housing is ready for assembly and installation in the chassis.

Installing the 9” Ford housing in the chassis: Install the upper and lower links on the housing before bolting it to the frame. Set jack stands up to support the housing approx 4½” to 5 1/2” from the top of the housing to the frame. This will place the housing close to the designed ride height. With the housing centered under the kick-up of the chassis, the lower links can be installed. They come from the factory with the length preset and marked RH, LH. After the lower links are in place install the upper links. **Wait until everything is installed before tightening any nuts and bolts.**

Rear sway bar: Using the picture as a guide slip the polyurethane bushings on the bar and the brackets on the bushings before installing in the housing. The bar can only mount one way, with the drop under the third member and the arms pointing forward. Once the bar and brackets are set in the housing the aluminum covers can be bolted in place. Use the 3/8”-16 fasteners with a flat washer against the aluminum cover and the lock washer against the flat washer. *(Figure 13A & 13B)* With the sway bar in place the end links can be installed. The chassis mounting point for the sway bar is on the backside of the body mount near the housing. The 3/8” female rod end goes on top with a 3/8” misalignment bushing against the body mount. This is held in with a 1½” X 3/8”-24 bolt lock-washer and nut or a nylon lock nut. It is easiest to install both sway bar end links on the bar and rotate it up to the attaching points. With the rear end at ride height tighten the 3/8” bolt so that the poly bushing can still be rotated with your fingers. Use the 3/8” jam nut to lock against the rod end to hold the assembly in place. **Over tightening can damage the rod ends, bend the bolts and cause severe binding**

Rear coilovers: The lower coilover mount is attached to the housing mount bracket using a 1½” X ¾” grade 8 bolt and lock washer. *(Figure 14A, 14B)* For normal ride height
use the middle hole in this bracket. The stud that the shock mounts to is ¾” in diameter and steps down to ½”. There are two washers one is ¾” and goes before the coilover and then the ½”. A nylon locknut holds the shock in place. After the shocks are mounted on the lower stud the upper shock eye can mount onto the shock cross member. The upper mounting bolt needs to be pointing towards the back of the car. **When the body is installed the only way to remove the coilovers is if the nut is on the rear of the bracket.** The front driver side corner of the trunk needs a small tap with a hammer to make room for the upper shock-mounting nut.

Installing the brake lines has been made easier by having pre-drilled holes in the 4-bar cross member and in the front of the floor X-brace. For the brake line there is a 5/8” hole in the cross member for a bulkhead fitting and in the front there is a ¾” hole for a grommet and a 3/16” brake line. *(Figure 15A, 15B, 15C)*

**Preparing the body for the frame:** This is a list of things that might need to be done before the body is lowered for the final time.

- Fuel lines from the rear of the chassis to the engine.
- New AME master cylinder, we have used one with a 7/8” bore so it would have enough line pressure without going to a power booster.
- If a stick is going to be used a master cylinder for the clutch needs to be installed if it is utilizing a hydraulic clutch.
- If a T-56 5 or 6-speed transmission is going to be used a section of the tunnel needs to be modified from just below the OE inspection cover to just under the bench seat. This panel needs to be removable to get the transmission out of the car from the lower side. *(Figure 16A, 16B, 16C, 16D)*

**Brake master cylinder:** We used a 7/8” dual master cylinder to replace the stock single outlet unit. It requires a small adapter plate that bolts to the stock four-hole mount. *(Figure 17)* The cleanest way to do this is remove the pedal assembly from the car and remove the four bolts that come through the firewall. The AME master cylinder attaches with two holes and the spacing is not as wide as the stock 55 Chev. With the pedal assembly out of the car the holes can be modified on the stock assembly to fit the new master cylinder. The master cylinder lines up with the lower set of holes on the firewall and the stock master cylinder push rod will work with the new AME master cylinder.

**Firewall modifications:** If a hydraulic clutch is going to be used it will be easier to weld a panel in the section of the firewall where the steering column goes through. *(Figure 18A, 18B)* Mark an area just below the brake adapter plate to just above the two fasteners that hold the stock steering column in place and between the two rows of ribs where the master cylinder mounts. This is the area that can be removed. After it’s cut out and the edges are squared make a cardboard template and cut a piece of 16-gage steel to fill the hole. Once this piece is fit and ready to weld the holes for the steering column and the clutch master cylinder can be laid out. With the hole open in the firewall, bolt the steering column to the dash and measure up and over from the cutout area and transfer that to the cardboard pattern. This will help insure the correct placement of the steering column as it comes through the firewall. We used a Flaming River steering column and
mounting hardware. On the lower end we used the mounting boss and rotating ring from the Flaming river kit.

**Clutch master cylinder:** The clutch master cylinder must line up with the pivot on the pedal. *(Figure 19)* The cylinder we used attaches with two 5/16” bolts just to the inside edge of the steering column mount. The remote reservoir is mounted to the left side of the brake master cylinder. The fill caps for the brake and the clutch are level with each other as you face the firewall.

**Radiator:** We used a Griffin high-performance aluminum radiator that is made to replace the stock unit. *(Figure 20)* Because of the March pulley system, the radiator needed to be mounted in the six-cylinder position. Using this radiator requires modifications to the core support and the front valance. Remove the piece of sheet metal that is attached to the lower inside edge of the core support and then unbolt and remove the core support from the body.

**Mounting the radiator in front of the core support:** The upper radiator hose fits under the core support but it needs a small notch in order for it to fit. *(Figure 21)* We split the difference and notched both the upper and lower channels of the support. **Do not notch the support more than half way through.** The stock radiator mounts can be removed from the core support. Lay the core support on a bench and set the radiator in place on the front side and fabricate new mounts. Make sure the radiator is square in the opening because this becomes a part that is visible through the grill. With new mounts fabricated and welded in place the core support can be reinstalled.

Bolt the radiator in place and check the fit. Depending on the type of fan shroud you use the piece that was removed from lower part of the core support may or may not need to be reinstalled. The front valance will need to be modified to accept the much larger radiator. The center brace that runs under this sheet metal should be removed, and will make it easier to work with. *(Figure 22)* This brace can be trimmed once the sheet metal is finished. Once the lower portion of this tray is cut out and there is clearance for the radiator a strip can be made up to fill the hole.

**Fan Shroud:** We used a Griffin fan shroud but because we mounted the V8 radiator in the 6-cylinder position the shroud needed some modifications. It is a great piece and a good start to this part of the project. Utilizing Flex-a-lite’s new Syclone fan, we gave the fan motor about ½” clearance to the radiator core and welded mounts on the radiator uprights to support the fan and motor. *(Figure 23)* After the motor is mounted the shroud needed to fit around the fan.

A shroud will only work if it fits tight against the radiator allowing the fan to efficiently draw its air through the radiator. The 16” Syclone fan from Flex-a-lite should pull 3200 CFM with this shroud while only drawing 17 amps. What this means is that whatever you are using for a thermostat it will go no higher than the advertised temperature.
Laying out the hole for the fan will take some time and is best done using a cardboard template. When laying out the hole for the fan allow enough room on the top and bottom to remove the radiator hoses. Use a pair of tin snips after a pilot hole is drilled. Take your time and make several rough cuts before removing the last 1/4” of material. With a small body hammer and a flat dolly go around the opening and flatten the edges before going over it with a file or deburring tool. With the shroud sitting over the fan, some material needs to be added to the top bottom and sides of the shroud. It worked out to approx. 1 1/4”. With a new flange welded all around the shroud a small strip was welded to each side of the radiator upright to attach the shroud. We used small spring clips that accepted the sheet metal screws and slipped them over the small strips. Four fasteners were used per side to hold the shroud to the radiator.

**Fuel lines:** A good place to run the fuel lines is on the top of the chassis, away from the exhaust and any road hazards. *(Figure 24)* The clearance between the body and chassis at the closest point is approx 1/2”. From the rear coilover crossmember a 3/8” hard line can run to the top of the frame and start forward. It will have to go around the outside edge of body mount near the front of the 4-bar. It is a good idea to plan ahead and put the fuel filter in an easily accessible area of the chassis. *(Figure 25)* We used a small inline filter that is easy to service. The filter is spliced into the hard line with a #6 steel braided line long enough to drop the filter when is separated from the hard line. From this point the fuel line continues forward until the chassis starts to level out by the front suspension. *(Figure 26)* At this point a piece of braided line needs to connect to the fuel pump or engine. *(Figure 27)* Before the body is mounted for the final time lower the body with the fuel line in place and check for any clearance problems.

**Exhaust system:** We offer headers and a complete Borla 2 1/2” stainless steel exhaust system for this chassis using a small block Chevy. There are two hangers per side one after the muffler and one near the rear bumper mount. *(Figure 28)* With the engine and transmission set in place start fitting the exhaust system to the chassis. The holes through the chassis are 3 1/4” on the inside so this allows 3/8” clearance around the 2 1/2” exhaust. The exhaust does not have to be perfectly centered as long as it doesn’t touch while the engine is running. (Note: the Borla exhaust system is now discontinued, but we do offer our own header system. This can be used as a guide for installing your own system.)

The system is made up of seven separate pieces, the headers, head pipe, muffler, straight section, up to the housing, over the rear end and the tail pipe. The head pipe has to run through the chassis before the headers are bolted in place. Once the headers are in place the head pipes can bolt to the flanges. Center the pipes in the chassis and snug the bolts up. Slip the muffler on the tubing but do not let it go far enough forward to hit the chassis, using one of the clamps to hold it in place. Next are the straight piece and the hangers. The best way to mount the hanger is use self-drilling / tapping sheet metal screws. If the chassis is still unpainted these mount can be welded on. After the straight piece of exhaust is in the chassis, the mufflers can be loosely attached to this. Make sure the tube is centered in the crossmember hole. By rotating the straight tubing on the mount with the muffler clamp loose you can center the tube in the opening. *(Figure 29)* The next three pieces that make up the balance of the exhaust system just need to clear
the housing, coilover crossmember and shocks. The rear of the system is mounted in front of the rear bumper mount and is attached with a 3/8” bolt and nut. An easy way to check for rattles is to hit the top of the exhaust tip with your hand.

**Bolting the body on the chassis:** This is one of the most exciting times of the entire project because now all of the preparation is done and it’s ready to come together for the final time. First, you need to push the rubber mounts down into their respective body mount holes. *(Figure 30)* We found a new rubber body-mount kit to be a good investment.

The best way to align the body with the frame is to run a plumb bob from the rear body mount to the center of the frame mount. Repeat with the body mounts near the firewall. With these mounts lined up, the rest will be lined up. Have someone watch while the body is being lowered for any obstructions. Now a lift can go under the chassis and raise the frame and body. There are three different lengths of bolts in Danchuck kit and there are very good instructions on where they go. Start by installing the bolts in the firewall mounts and the rear trunk mounts. *(Figure 31)* If a hole or threaded insert is close to the metal liner or it will not quite line up first try a Phillips screwdriver to move the mount a small amount or pull out the metal liner with pliers and the bolt should thread in place.

With the body bolted down lower the car and open and close the doors and trunk to make sure they operate normally. In a typical situation shims are not necessary.

Hooking up the new steering will be easier than removing the stock assembly. *(Figure 32)* There are several manufacturers that make replacement columns for the Tri-5’s or you can use the original with some modifications. If you are going to use an aftermarket column like Flaming River the U-joint required at the column is a 1” double D and after that it would go to a ¾” double D or a ¾” 36 spline shaft. The length of the intermediate shaft is 14” exactly. *(Figure 33)* The steering shaft kit is available through Art Morrison Ent.

**Hooking up the power steering:** We use an AGR power rack available in two ratios: 15:1 and a 20:1. The 15:1 is what we recommend for high performance drivers. We used the 15:1 in the GT55 project car. It is a very fast steering and also very firm with a good feel of the road. The 20:1 is the standard ratio used on most luxury vehicles where high performance steering is not the focus of the car.

We have used a March “Ultra” kit and part of the package is a Saginaw pump that requires a Flaming River remote reservoir via the Gotta Show braided hose kit. The system hooks up relatively easy once you know where the hoses are supposed to go. On the bottom of the reservoir there are two tapped holes, one ½” pipe and one ¼” pipe. *(Figure 34)* The large line from the remote fill kit runs from the ½” pipe hole to the large line coming out of the bottom of the pump. The small line (return) runs from the reservoir to the rack and pinion and the fitting closest to the firewall. **This is important; the last line to hook up is the power line, the banjo fitting mounts to the pump and**
the other end goes to the lowest fitting or the one closest to the radiator on the rack and pinion.

**Bleeding the rack and pinion and power steering pump:** Fill the remote reservoir with power steering fluid. **CAUTION: Do not use ATF, as this will damage the steering!** With the cap off the reservoir and the front wheels off the ground turn the wheels all the way to the left then all the way to the right. Repeat this twenty times, with somebody watching the fluid level. This will bleed all the air out of the rack and fill the system. Once this is finished the engine can be started and the system can be checked for leaks. With the tires on the ground turn the wheels to the left and right three or four times and you are ready to go. Following this procedure will save a lot of grief and give you a system that works properly.

**Plumbing fuel tank to chassis:** The 9” Ford rear end is larger than the original Chevy housing and it is very close to the fuel tank outlet and sending unit. The stock outlet is aimed up towards the housing and will cause clearance issues. This line can be pushed towards the tank a small amount and a new hard line made to fit up over the housing. If the car sits too low and hits a severe bump the housing could hit the fuel line. The right fix is to remove the sending unit and cut the fitting off where it starts to bend. If you are using a 3/8” line an AN-6 fitting can be soldered or brazed on the end. The line should run between the tank and the mount on the passenger side. After this, it can make a 90-degree bend and go up and over the rear end and tie in with the main fuel line. **CAUTION: Do not attempt this with the tank in the car. The sending unit has to be removed from the tank to make this modification. An open flame or spark near the tank will cause a severe explosion!**

**Venting the 9” Ford housing:** In most cases there is the possibility that a light oil vapor or fine mist will come out of the vent. One method is to fill the vent with foam to catch any fluid while still letting the housing vent. Another is to make a small oil accumulator, plumb it to the housing and mount it in the trunk. *(Figure 35)* This will prevent any oil vapor or mist to coat the underside of the car. An accumulator is a small container with a series of baffles, an outlet, and a vent.

**Spring rates front and rear:** Engineering has found that using a 575# spring on the front and a 250# spring on the rear gives a true, firm performance ride. It will have approximately the same ride as any late model, performance touring car. For a softer ride the front springs could be reduced to as low as 450# and the rears down to 200# to 225#.

**Battery mounting:** We used an Optima yellow top battery and mounted it in the trunk. A Detroit Speed and Engineering battery box and cables were used to mount and wire the battery. *(Figure 36)* This is a great kit and comes with everything necessary to hook up the battery. It is mounted in the right rear of the trunk, just to the right of the spare tire well. The negative cable runs through a ½” grommet in the trunk floor in front of the battery box and attaches to the side of the frame using a 3/8” nut-sert. From this point, another ground cable (smaller) is attached to the body to ensure that both the body and chassis are grounded. *(Figure 37)* The positive cable goes through the floor and
follows the inside lip of the wheel well near the frame. It then runs up and over the rear end to the inside of the rocker panel. Tucked up close to the body, holes will have to be drilled in three supports and grommets inserted. On the last forward support the cable can turn left and go towards the frame. At that point the cable can run on the top of the frame and go to the starter. **(Figure 38)** Between each of the supports use a 1/2” rubber lined clamp and sheet metal screws to keep the cable from hanging down. One last ground needs to go from the engine to the chassis. We went from the motor mount on the side of the block to the 7/16” bolt that holds the mount to the chassis. This completes the grounding of the chassis, body and engine.

**Emergency brake:** With either Wilwood or the SVO rear discs there is an internal drum brake that acts as the emergency brake. **(Figure 39)** We chose a Genie emergency brake kit to tie the front to the rear. It comes complete with all the necessary hardware to hook it up to the emergency drum on the rear disc.

To make it work with the stock emergency brake handle requires relocation of the pulleys and cable that are mounted on the firewall. **(Figure 40)** It works best mounted on the outside of the driver’s side frame rail. The stock cable can run above the body mounts. Pulling directly on the cable with the stock handle will not work so a lever has to be fabricated to create the leverage necessary (6:1 – 7:1) to make the stock handle work.

**Rotor seasoning and pad bedding:** Included in the disc brake kit is a section on breaking in the brakes and it is very important reading. For best results follow the instructions in the kit and if they are missing give one of our techs a call and we will get you a copy. Not following these instructions will cause the pads to glaze over and the brakes will squeak and/or just not work properly until you change the pads.

**Things to check after the first 100 miles:** It is a good idea to check the front wheel bearings after the first 100 miles. If the car is driven hard and the front hubs are aluminum the bearing races could take a final set and loosen the wheel bearings.

Check all control arm fasteners front and rear. Make sure there is no fluid loss from the brake lines, radiator, fuel lines, power steering, transmission and rear end. Check the battery cables in the areas where they are close to the exhaust. Check the exhaust for any rattles or areas where it may contact the frame. Re-torque the wheels and check the springs for settling. Normally coilover springs will take a set and only have to be adjusted once but if the car is driven hard they may require more adjustment.

If a Strange 3rd member is used the rear end oil needs to be changed after the first 250 miles. This is the break in time for the gear set. With a posi-traction never use synthetic gear oil, use a quality 80-90wt posi-traction oil along with a small container of posi-traction additive. If you have any questions, please call our tech department.
PHOTOS

Figure 1
All it takes is a few taps with a ball pien hammer to make enough clearance for the driver side shock bolt.
Figure 2
The stock pinion snubber needs to be trimmed off the floor for the body to be able to bolt to the new AME chassis.

Figure 3
Easily made, the splash panel bracket attaches to the front side of this near-by body mount.
Figure 4
With the frame level on jack stands you have a safe platform to assemble the chassis.

Figure 5
Using a high-quality anti-seize compound will prevent threads from galling or stripping.

Figure 6
While the upper a-arms are labeled, the lower a-arms are not since the sway bar mount dictates which side of the car they go on.
Figure 7
Use a high-quality grease to lubricate the ball joints.

Figure 8
With the spindle attached to the a-arms and the rack & pinion bolted to the frame, the tie rod ends can now bolt up to the spindle.

Figure 9
Depending on the tolerances of your supplied spindles, two washers may need to be used to tighten the castle nut.
Figure 10
With the ball joints now lubricated and bolted to the spindles, the aluminum covers can be bolted down covering the ball joints.

Figure 11A, 11B
Using these photos as a guide, assemble the sway bar linkage and attach the rod end side to the lower a-arm and the other to the sway bar.

Figure 12
Be sure to install the ½” washers on either side of the coil over when mounting it in the lower a-arm.

Figure 13A, 13B
Using the supplied hardware, this aluminum cover securely holds the sway bar in place on either side of the center section.

Figure 14A, 14B
Depending on how you want the car to sit, you can position the rear coil over stud mount in any of the three holes on the housing mount. Most applications will use the middle mounting position.
Figure 15A, 15B, 15C
The brake kit will greatly simplify the process of brake plumbing.

Figure 16A, 16B, 16C, 16D
Only in certain situations will you need to modify the transmission tunnel. Even with the massive T56 trans, the tunnel was only raised slightly. This new panel was made to be removable so the transmission could be accessed.
Figure 17
Painted black, this adapter plate lets you run a modern-day master cylinder in the original location of the OE “mason jar”.

Figure 18A, 18B
When installing the hydraulic clutch for this project, it was easier to make a small new panel to accept the clutch master cylinder and the hole for the new Flaming River steering column. The reservoir for the clutch master cylinder was located near the brake master cylinder for easy access.
Lining up the pushrod with the path of the clutch pedal is critical to ensure proper operation of the hydraulic throwout bearing.

We wanted to make sure that the cooling system would never be a concern. As a result, a Griffin radiator, Griffin shroud and Flex-a-lite electric fan are being used on this project.

A small notch needs to be made in the upper core support to allow clearance for the upper radiator hose.
Since the Griffin radiator is nearly double the thickness of the original radiator, the lower valance and support needed modification.

The Flex-a-Lite fan motor was mounted to the radiator using custom made basketry.

As an extra safety measure, the fuel line was routed away from any heat source and above the scrub line.
Figure 25
When laying out the fuel system, make sure to have an in-line fuel filter and make it so it can be easily removed for filter replacement.

Figure 26
The hard line runs on top of the chassis to a point where braided hose will join up with the mechanical fuel pump.

Figure 27
From the fuel pump to the carburetor another piece of braided hose will be used.
Figure 28
This shot of the complete Borla Exhaust system show all the hangers and a rough layout of how the system is put together. (note: this item is now discontinued)

Figure 29
Rotating the exhaust tubing and then using the clamps, perfect alignment through the exhaust holes can be achieved.

Figure 30
When the body is ready to be mounted onto the chassis, the body mount rubber can be placed into their respective holes.
Starting with the firewall body mounts we worked our way to the rear mounts making sure that everything was aligned. If it wasn’t, a large Phillips screwdriver could make minor adjustments to the body position.

Compared to the removal of the OE steering, the installation of the new steering components was a snap.

Available as a kit from Art Morrison Ent., the steering shaft kit links the rack & pinion to the new steering column.
Figure 34
Using this photo as a guide you can properly plumb your power steering pump.

Figure 35
After testing various methods to control oil coming out of the 9” housing, we found that a small oil accumulator was the most successful.

Figure 36
Relocating the Optima battery to the trunk was an easy job thanks to a Detroit Speed battery mount and battery cables.
Figure 37
To make sure that the body and chassis are grounded, a small cable is made and attached to the frame.

Figure 38
The battery cable is run along the bottom side of the floor to protect it from any heat sources or road hazards.

Figure 39
The Genie e-brake cables run back and attach to the internal drum e-brake. A lever was fabricated to apply enough pressure on these cables so the OE emergency brake handle could still be used.

Figure 40
After reconditioning the e-brake cable pulleys, they were used to route the cable around the driver’s foot well.
Thanks again for purchasing your chassis from Art Morrison Enterprises Inc. If you still have questions about the assembly of your GT Sport Chassis or about the build up of your own personal project, please don’t hesitate to give us a call at 800-929-7188.