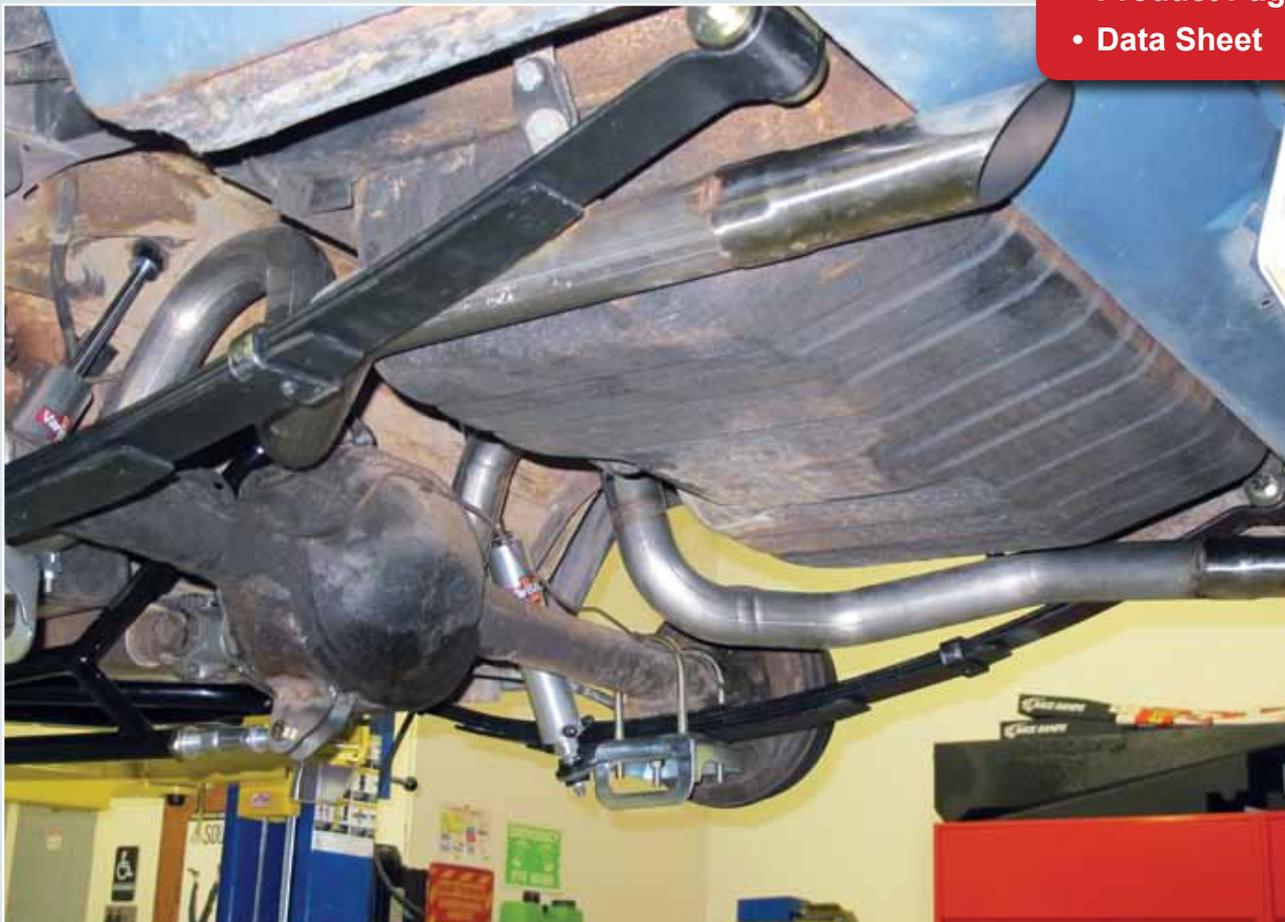


- Product Page
- Data Sheet



We wrap up our High School Hauler's suspension upgrades with TCP's leaf-spring kit and optional torque arm

READY FOR ACTION, PART 2

By Mark Houlahan

Today, most everything you can think of for your home or garage is offered in package form. From home theater systems to oil-and-filter kits, packages offer several benefits to the end consumer. First, packaged items are designed to work together harmoniously. There's no hunting for the right A/V cable or wondering what lifters

will work properly with a certain camshaft. The parts are picked by the manufacturer to ensure that when you open the box, you've got everything you need. You won't be fighting to fit things together, either. Oftentimes the package concept will save the consumer a few bucks as well.

In our Oct. '12 issue, we installed a Total Control Products (TCP) coilover package on

the front of our '70 Mustang, dubbed the High School Hauler. Now, we're rolling the car back into the Source Interlink Media tech center to wrap up our suspension upgrades with TCP's rear leaf-spring suspension package, chassis-stiffening package, and torque-arm kit. It's a complete solution that'll keep our rear tires planted with maximum traction and the coupe heading wherever we point it.

TCP's leaf springs are made from alloy steel and formed to TCP's own specs with a standard rear eye; mid- and reverse-eye springs are optional to achieve the desired ride height. TCP also offers 4-, 4½-, and 5-leaf spring setups to provide an increase in ride firmness while resisting spring wrap up, which causes wheelhop. Included in the package are VariShock adjustable shocks, beefy shackles with polyurethane bushings, spring mounting plates with new hardware, and replacement front eye bushings, also in polyurethane.

Complementing the leaf-spring kit is TCP's optional torque arm. This unit takes the twisting torque of the rear axle and converts it into a downward force that keeps the tires

in contact with the road surface for maximum traction. Although similar in function to a traction bar, a torque-arm suspension will also keep the tires planted when cornering forces come into play. This makes it a great all-round suspension aid, no matter what type of driving you do. While the easiest way to install the TCP torque arm is with one of the company's Fab9 axle housings, TCP also offers a bracket kit for traditional 9-inch and 8-inch Ford axle housings. In our case, our 8-inch had already been beefed up with gears, a differential, 31-spline axles, and more, so we opted for the weld-on configuration. The final piece of the rear-suspension puzzle is TCP's chassis-bracing package.

The kit consists of 2x2-inch, square-tube subframe connectors, a bolt-in tubular subframe-connector support, and an adjustable driveshaft safety loop. TCP's subframe connectors feature 7-gauge steel endplates and a weld-in design for the utmost in chassis strengthening. The tubular connector support is fastened to the connectors to further tie the front and rear subframes together. It also includes the forward mounting point for the torque-arm system and a gusseted mounting plate for the driveshaft loop. We've got quite a bit of work ahead of us, but when we're done, the High School Hauler should be able to firmly plant its 275-series drag radials and move out with authority.



1

Since welding is involved on the axle housing, not to mention it is bolted to the leaf springs we'll also be replacing, we figured it was best to pull the axle apart in the car so it wasn't such a back breaker. First to come out are the axles. Remove the four retaining nuts for each axle and slide them out. If they've been installed for a while, a slide-hammer and/or pry bar will be your friend here.



3

Disconnect the driveshaft from the axle housing by removing the four ½-inch retaining nuts and the U-bolts. You can either completely remove the driveshaft (plugging the trans tailshaft to prevent fluid leaks), or you can support the driveshaft across the mufflers with a piece of wood or a long-handled tool.



2

It's easier to remove the axle brake lines from the wheel cylinders than it is the parking brake cables. Disconnect the brake hard lines, pull the four (per side) T-bolts out of the axle housing ends, and let the brake assemblies hang by the parking brake cables as shown here.



4

Remove the center section's retaining nuts and copper washers (if still equipped) and use a plastic-faced mallet to separate the center section from the axle housing. Let the fluid drain completely before removing the center section altogether.



The last pieces holding the axle housing in place are the spring plates and retaining U-bolts. The threads on these bolts will often be quite rusty and a cut-off wheel is sometimes called in to cut the U-bolts off, but we were lucky (aided with some previously sprayed penetrating oil) that all eight nuts came off without an issue.



With the shackle ends free, the leaf springs can be lowered, providing a bit more access to the front spring eye through-bolts. A pair of 3/4-inch sockets separates the bolts and nuts here. Once again, you might end up fighting a rusty bolt that is seized inside the eye bushing. We've had to resort to a reciprocating saw to cut the bolt before. However, we lucked out again and both of our leaf spring bolts came out freely.



With a helping hand from the High School Hauler's owner, the factory 8-inch housing is pulled from the car by sliding the housing one way far enough to clear the leaf spring, then lowering the housing and sliding it back to clear the other spring. The bare housing is much easier to handle than one full of gears, diff, brakes, and axles too!



The main component of TCP's leaf spring rear suspension kit is of course the pair of leaf springs. Available in several spring styles, we opted for the 4 1/2-leaf mid-eye spring. The extra half-leaf helps prevent spring wrap during acceleration and offers additional stiffness. The spring comes with a front-eye-bushing made from rubber. We're using a press tool here to remove it in anticipation of upgrading to polyurethane bushings.



To remove our tired stock leaf springs, we start at the shackle mounting at the rear. First the shackle hardware is removed and then the shackle's upper pivot shaft is pried from the shackle bushings in the framrail. Plenty of penetrating oil helps make this an easier job, especially when it comes time to remove the bushings themselves.



The polyurethane bushings are part of the rear leaf spring suspension kit, though the end-user is responsible for installation. Once the stock rubber bushing is pressed out, the polyurethane bushings are lubricated and are pressed into place by hand.



11

The polyurethane bushing's steel sleeve is installed next, again with a light coating of the supplied Teflon grease to prevent suspension squeaks. The assembled leaf springs can now be installed back on the car utilizing the new spring-eye-bolt hardware provided in the suspension kit.



12

Also included in the leaf spring suspension kit are new, beefier spring shackles with polyurethane bushings. The bushings are lubricated and installed into the mid-eye spring ends as well as the rear framerails. The passenger-side shackle assembly is shown here.



13

For the driver-side shackle, due to the tighter working room, you'll have to assemble the outer bushing and bushing sleeve onto the shackle bolt as shown in this photo. This is the only way to get the bolt into place in the frame, as installing the bushing first will not give you enough working "angle" to get the bolt started.



14

To help keep the Hauler going down the track pointed in the right direction, we opted for TCP's weld-in subframe connectors with bolt-in connector support and driveshaft safety loop. To prep the connectors for welding, an initial test fitting is done using supports. The '69-'70 Mustang will also require trimming the ends of the front floor supports/subframe.



15

With the subframe connectors properly placed, a marker is used to locate the edges of the connectors in relation to the chassis. These areas will need to be cleaned to bare steel for welding.



16

The subframe connectors are then removed and the floor supports/subframe and rear framerails/torque boxes are ground down with a 60-grit sanding disc on a pneumatic die grinder. The edges of the subframe connectors will also be ground to bare steel so that good weld penetration will not be a problem.



17

Another fit check is made to ensure that the chassis and the subframe connectors have been cleaned to bare steel in the proper areas. All looks good, but we have one more step before we can squeeze the trigger on our MIG.



18

Our subframe connectors are ready to go, but we want to test fit our bolt-in connector support. Unfortunately, the Pypes exhaust you see here that we installed last year has to go—part of it anyway. We'll unbolt the header collectors and slip the mid-pipes out of the muffler inlets to give us some working room.



21

Part of the subframe connector and support kit is this nice bolt-on safety loop. The loop uses an L-shaped mounting bracket, allowing for fore and aft adjustment. The loop itself has slotted mounting holes, which allow the loop to be adjusted as needed to perfectly center it around your driveshaft for maximum clearance.



19

The connector support brace bolts into place front and rear. The front bolts pass through the floor supports, so you'll have to bust out the drill and a nice, sharp 3/8-inch drill bit. With the support brace loosely bolted in, everything fits nice. We'll be scheduling another trip to the exhaust shop however.



22

The final upgrade our '70 coupe is going to see out back is one of TCP's 33-inch torque arm kits. These kits are available for 9-inch axle housings (they even offer a Fab9 housing with all the mounts installed and ready to bolt-in) as well as 8-inch housings. Following TCP's instruction sheet, the axle housing is measured to find true center and then the bracket locations are affixed off of that measurement.



20

We're pretty good with a welder, but when it really counts (rollbars, chassis support, and so on), we call in a favor to our pal Pete Epple from our sister magazine *Circle Track*. If they can weld together whole race car chassis, our subframe connectors are nothing for these guys. Thanks Pete!



23

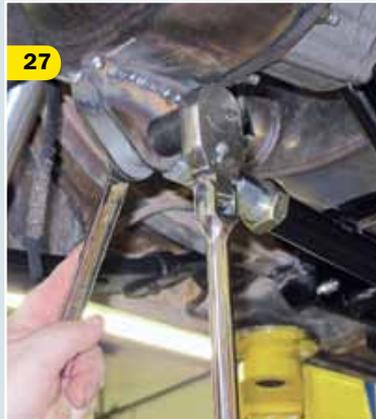
Using the torque arm's ends to help locate the mounting tabs, the tabs are tack welded to the housing.

24

Fully welding the bracket is necessary for optimum strength. Do not remove the torque arm or spacer/tool until the welds have fully cooled to prevent fitment issues later.



27



With the axle housing reassembled, the torque arm is bolted up and pinion angle set per the included instructions. We need to take our High School Hauler in for a performance alignment and to rebuild the custom exhaust betwixt the headers and mufflers, but we plan to hit the track soon to compare its current performance to our baseline. Stay tuned. **MMF**

25



The modified axle housing is returned to the car and fitted to the new leaf springs. Securing the axle housing to the new springs is the job of TCP's trick spring plates with integral tie-down loops and new U-bolt retaining hardware; all part of the rear suspension kit.

26

The rear leaf-spring suspension kit comes standard with single-adjustable QuickSet 1 VariShocks, but we upgraded to the double-adjustable QuickSet 2 option. The double-adjustable QuickSet 2 VariShock offers 16 independent settings to control shock rebound and extension for a total of 256 shock combinations for ultimate tuning at the track for any condition.



TCP REAR SUSPENSION COMPONENTS USED

TCP-RLSS-MU	Rear Leaf-Spring Suspension	\$875
TCP-LSM-M45	4½-leaf Mid-Eye Option	\$20
VAS 14244-715	QuickSet 2 VariShock Option	\$200
TCP TA2F9-33	Torque Arm	\$389
TCP TABKT-4	Torque Arm Axle Brackets	\$50
TCP PKG-SFC-01	Subframe/Support/Loop Kit	\$498
Total		\$2,032

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