ADVANCING THE DESIGN

Suspension Upgrades For '47-'55 Chevys, Part 1

by Ryan Manson

Advance Design Chevy pickups are arguably one of the most popular commercial body styles ever introduced by the Big Three. Indeed, from 1947 until 1955 Chevy was the solid leader in truck sales, and over 60 years later there's still a remarkable amount of those trucks still on the road. When we first met our buddy Buck Lyons, he was driving a bone-stock '50 Ford sedan and was starting to regret selling his old '68 C20 workhorse truck. A visit to the tech center and a quick tour of some of the projects we were working on started the wheels turning in his head and it wasn't long before we were headed out, trailer in tow, to find Lyons a truck project.

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A quick perusal of any of the myriad of websites out there with classic truck listings will reveal the fact that solid, shortbed trucks are a scarce resource, with longbed trucks being the majority of the offerings these days. Throw in a limited budget and those shortbed possibilities are reduced even further. Knowing this ahead of time, we discussed what it would take to transform a stock longbed truck into something a bit more in line with what Lyons desired—a shortbed built to perform. Turns out, shortening an Advance Design Chevy is actually easier than a number of the other longbed trucks, '67-'72 C10s for instance, as the early Chevys only require removing a single section of the chassis in front of the rearend, while others require removal of both a section within the wheelbase and a short section from the very rear of the frame. This means that the stock bed only needs to be cut at one end and the header panel reinstalled as opposed to slicing the three sections left from shortening a stock '67-'72 bed. The early beds are also single walled, making the shortening process even easier.

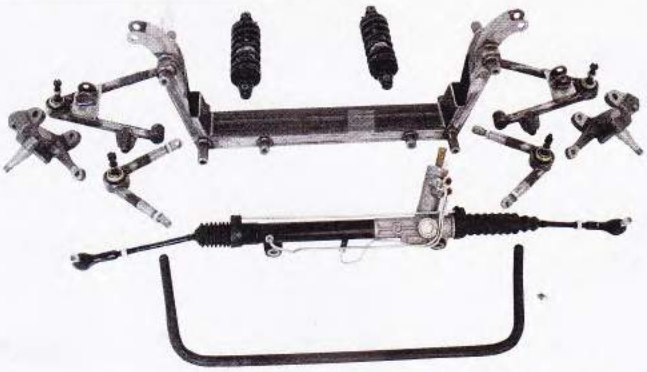
Armed with that info, we decided it would be better to cut down a solid longbed truck and save the extra cash for another aspect of the build. A short time later and Lyons was swinging a rough but solid '49 Chevy longbed 3/4-ton truck off his trailer and into the *CT* Tech Center.

After a thorough inspection, we decided to start with the chassis appointments first, which included cutting the frame down from the stock wheelbase of 125 1/4 inches to the shortbed spec of 116 inches. To update the truck's handling and ride characteristics, we contacted the guys at Scott's Hot Rods who sorted us out with their standard front steer IFS kit up front and four-link setup out back. Their kit is about as straight forward as a weld-in IFS setup can come, with the suspension and steering geometry built into the crossmember; simply lift it against the bottom of the frame and weld it up. No guesswork on the user's end and we like things that way! Out back, the four-link kit is just as simple as the location of the rearend (setup at ride height relative to the chassis) determines the placement of the four-link brackets, shock crossmember, and panhard rod brackets.

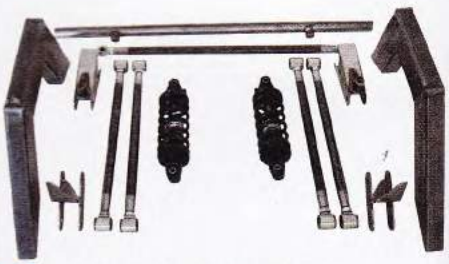
One thing we did notice that we did not know beforehand is the fact that the 3/4-ton frames are significantly narrower behind the cab than the 1/2-ton trucks. This reared its head when we were installing the four-link brackets on the frame as the

Scott's items have a preset angle built in, which did not correspond with the angle of our chassis. Because the chassis is quite a bit narrower, the panhard rod was too long as well. A little detective work revealed why the discrepancy and a quick call to the boys at Scott's got the problem sorted in no time.

We're going to cover all the chassis fabrication this time 'round, following up next month with final assembly, with parts straight from the powdercoater. The final product should be pretty impressive visually and perform even better!



01 To get Buck's '49 closer to Earth and handling more like a sports car than a dump truck, we opted to install Scott's Hot Rods' weld-in front steer standard IFS kit. Though based on the venerable Mustang II IFS design, Scott's kit bares little to the stock setup. Built around a one-piece, 3/16-inch-thick crossmember that is custom-built with the proper camber and caster settings for each specific application, installation is as easy as raising the crossmember against the frame and welding it in. TIG-welded 1⅛-inch DOM tubular control arms attach to the corresponding points on the crossmember, mated to the dropped forged spindles via fully serviceable ball joints. CNC-machined rod ends allow for easy camber adjustments on the upper control arms. A power rack-and-pinion setup, sway bar, and Aldan coilover shocks round out the front suspension components.



02 Out back, we'll be using Scott's coilover four-link kit with Aldan shocks. The boxed kickup allows for an extremely low ride height if so desired, or it can be trimmed to fit a more mild application, such as our '49.

03 We started the installation by removing all the stock suspension components, leaf spring hangers, and shock mounts. Then, the chassis was leveled side to side and set at the correct ride stance, front to back.

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04 Before removing the stock suspension components, Jason Scudellari marked the axle centerline on the framerail. Since we're going to be shortening the wheelbase as well as installing the suspension components, Scudellari uses a plumb bob to translate the axle location onto the shop floor for easy measuring later.

05 To locate the crossmember so that the axle centerline remains the same, Scudellari marked the center of the crossmember and then measured to the backside of the shock upright. This measurement was then transferred to the chassis as well. Note the scribe line that marks the axle centerline.

06 Using a jack for support, the crossmember is then lifted in place and aligned with the marks on the frame. Note that both the frame and crossmember are checked for level.

07 A straightedge is used to ensure that the crossmember is located in perfect relation to the marks made earlier.

08-09 Satisfied with the crossmember's placement, its location is triple checked before being welded in place using a Millermatic 212 MIG welder.

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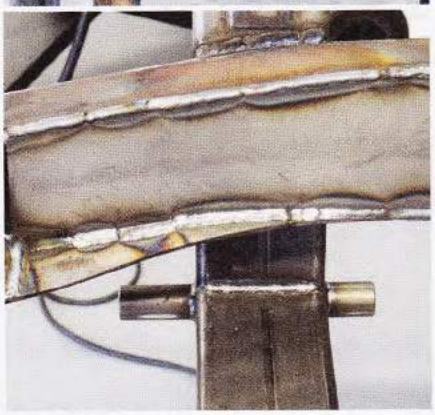

10-11 Before we can sort out our engine mounts, the front framerails need to be boxed from the crossmember back using ⅛-inch plate.

12 Due to the lowered design of the Scott's IFS kit, the framerails need to be C-notched in order for the rack-and-pinion to have adequate clearance during suspension travel.

13 Thankfully, Scott's kit includes a section of tubing that is perfect for creating the C-notch.

14 A Miller Electric Manufacturing Company Spectrum X-Treme 625 plasma cutter makes quick work of cutting the C-notch out of the frame. The provided C-notch section will be welded to the frame in the void created by the plasma cutter.

15 Out back, before we remove the stock suspension components, we're going to cut the frame down from its original ¾-ton longbed wheelbase spec of 125 ¼ inches down to shortbed spec 116. Just behind the cab is the perfect spot to remove the extra length. A pair of 45-degree cuts will be made 9 ¼ inches apart.

16 Once the first two cuts are made, the rear portion of the chassis is rolled out of the way. Note the jackstands supporting the chassis in front of the cut.

17 Next, the front two cuts are made.

18 Leaving the stock rear suspension in place for this step allows the rear frame to be easily slid back in place and mated to the front portion of the chassis.

19 With everything leveled once again and the two chassis sections clamped in place, Lyons and Scudellari check the wheelbase one last time ...

20 ... before the two sections are welded together. Using an angled seam instead of a straight cut increases the shear strength of the joint.

21 A heavy bevel was applied to each side of the joint, providing a large surface area for the weld. This allows the weld to be ground smooth and still be fairly strong.

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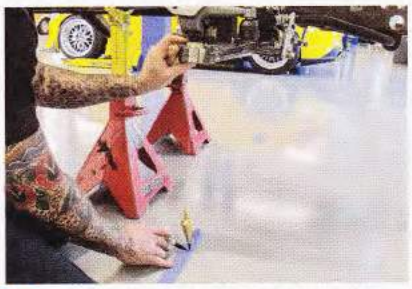
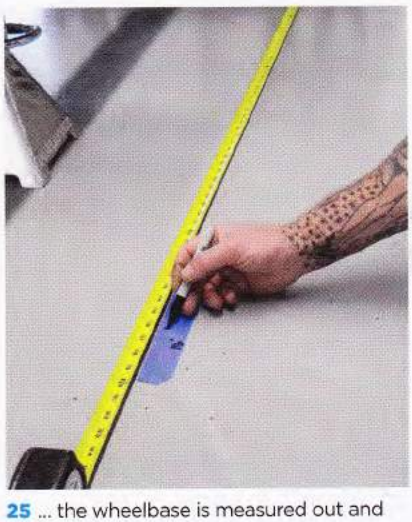
22 Inside the framerail, a fishplate is welded across the entire seam area, further strengthening the joint. This entire section will then be boxed from the crossmember to the kickup, effectively making the chassis stronger and stiffer than it ever was.

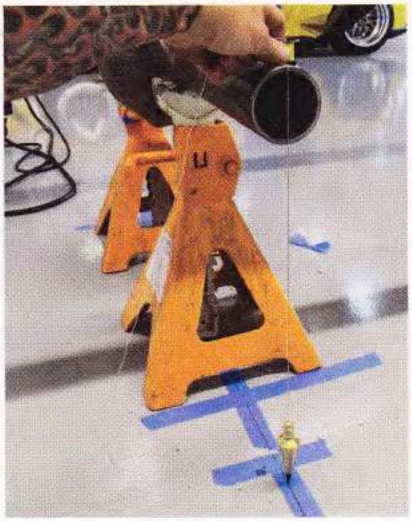
23 With the frame back together in one piece, it's time to start swapping out the rear suspension. The first step is to locate the new 9-inch Currie rearend housing so that the kickup can be installed, followed by the Scott's four-link components.



24 Once again, a plumb bob is used to mark the axle centerline up front ...



25 ... the wheelbase is measured out and marked ...



26 ... and a plumb bob is again used to locate the rearend at exactly 116 inches.

27 Next, Scudellari centers the Currie rearend housing in the chassis.

28 With everything in place, it's time to clamp the kickup sections in place. We determined that we did not need to install the kickup at its fullest height, instead opting to be slightly conservative in order to reduce the amount of kickup that will be visible in the bed. Notice that the kickup sections are being checked for level on two planes, ensuring everything is nice and straight before we make a single cut.

29-30 It's a bit tricky to visualize what all needs to be cut and where, but once it's all figured out and marked, it actually goes pretty quick.

31 The extra material on the kickup is trimmed with a reciprocating saw ...

32 ... while the two "pockets" on the frame are cut using a good old fashion die grinder equipped with a 4-inch cut off wheel.

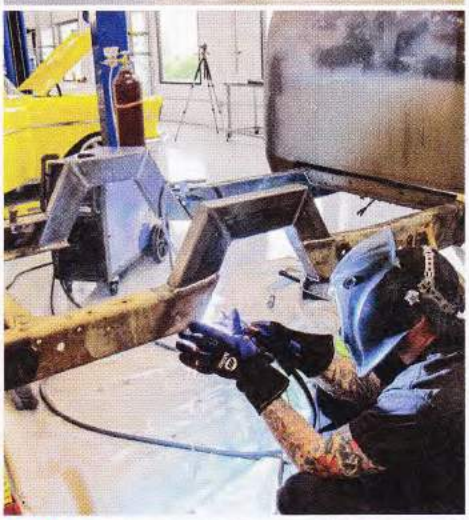
33-34 At this point, the kickup can be slid in place and checked once again for square and level.

35 Next the kickup is tacked to the framerails in a number of places adequate enough to support the frame.

39 While Scudellari welds one side of the kickup, Lyons uses the framerail as a template for the aforementioned boxing plates between the crossmember under the back of the cab and the kickup.

36 To be safe, Scudellari decided to fully weld the kickup to the chassis before cutting the centersection away, using the kickup as his guide.

40 Once complete, the chassis is almost fully boxed its entire length.



37-38 With the centersection cut away, the kickup becomes apparent. A bit more welding and we're in business.

41 The rearend is back in place, the wheelbase set and the housing checked for center so that the four-link setup can be installed. At this point, the rearend is also at ride height in relation to the chassis and the frontend is elevated the corresponding amount (roughly 2 inches lower).

42 The four-link bars are CNC-machined using 0.250-inch wall 1⅛-inch DOM and are all assembled to the same length using antiseize before being installed on the front and rear brackets. The rod ends are also CNC-machined from a solid chunk of billet, making the four-link assembly virtually indestructible.

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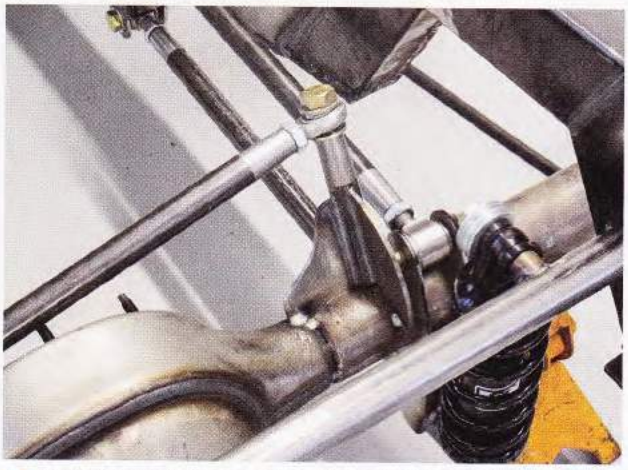
43 The rear bracket is then placed on the rearend and the front bracket raised to meet the framerail.

46 With both upper shocks mounted to the crossmember, it's checked for level before being tacked to the chassis.

44 The front bracket is raised until the four-link bars are slightly uphill, then it is tacked in place. An angle finder on the face of the rearend housing is used to determine pinion angle (typically 2-3 degrees up) before the axle brackets are tacked to the housing as well.



47 The last item on the agenda is the installation of the panhard rod and bracketry.

45 To mount the shock crossmember, the Aldan coilovers are fully compressed and the rearend is raised to the lowest suspension position.

48 Ideally, the panhard rod will be parallel to the rearend at ride height, allowing it to travel in its natural arc during compression and rebound of the suspension. Notice that both the panhard rod and the four-link bars are angled slightly downhill toward the rearend here. This shows the suspension at a relaxed state; at ride height everything will be parallel to the ground.