

TECH



Part 7: Chassis Assembly

BASKET CASE CHEVELLE

By Mark Ehlen

Photos by Mark Ehlen and Muscle Car Restorations staff

As we embark on the seventh installment of restoring our basket case Chevelle, we are going to deal with the chassis, brakes, suspension, and fuel system. Our sister publication *Car Craft* covered the restoration and powder-coating of the 1970 Chevelle's frame in its Dec. '14 issue; now we will deal with the parts that bolt onto the frame and turn it into a rolling chassis.

This is an area where, even if most of

these items were included in your basket case's pile of parts, there really aren't all that many that you would want to consider reusing. Sure, you can plan on using all of the durable parts like the control arms, sway bars, spindles, and so on, but many of the consumables may not be worth your time.

For instance, forget about using old fuel lines, brake lines, shocks, brake pads and shoes, brake hoses, springs, and other related hardware. All of the suspension bushings also fall into this category. Even if they

look good, it's just not worth taking the chance, especially when they are so easy to replace at this point. Never again will you likely have this kind of access to some of these parts. They are also relatively cheap to replace and should be considered tier-one safety items. And this is also a great chance to upgrade to better-than-stock replacements.

Wheel cylinders, calipers, and master cylinders are all rebuildable, of course, but is it really worth the time it will take to disassemble, sandblast, rebuild, and paint

1 Plan to replace all of the control arm bushings no matter what they look like. They needed to come out for powdercoating the arms anyway, and Muscle Car Restorations will not reinstall used bushings. This car is getting all new factory-style rubber bushings, but a set of polygraphite bushings from PST could be used to improve handling a bit.



2 There may be some ways to save money on a basket case project, but steering components are not one of them. The inner and outer tie rods, idler arm, and center link are all new from PST. Note where the main and return fuel lines exit the frame to the left of the motor mount.



3 On the opposite side of the frame, Classic Performance Products (CPP) provided a new steering box. These can certainly be reused if you know for sure that yours is good, but it is so much easier to replace these on a bare frame. Besides, nothing will give you that new-car driving feel like the tight steering response from a new steering box.

each of these items compared to the cost of fresh, ready-to-bolt-on components?

Springs can be reused if they aren't broken, but if they came in a box it might be tough to tell exactly what springs you have. Assuming they are right for the car, are they small-block or big-block springs? And, if they are the originals, how much might they have sagged over the decades? Best to just replace them. Steering linkage is also not a place to cheap out. Make it all new when it is super-easy to do so and you'll likely never have to mess with these pieces again.

For sure, this is not the prettiest part of your restoration, but if you'll forgive the cliché, it is the foundation upon which the rest of your car is built. It will have at least as much impact on your driving experience as the engine and trans we'll put in next time.



4 We knew this was originally a big-block car, and the engine came with it, so the techs at Muscle Car Restorations knew the front springs were correct. But even so, 40-plus-year-old springs have likely lost something over time. It's just not worth the savings to risk having the car sit funny when it's done.



5 Muscle Car Restorations routinely has the brake drums powdercoated with the rest of the frame. The drums will show through the wheels, and this keeps them looking good. The shop also very lightly dresses the inside of the drum to remove the powdercoat from the friction surface and to ensure that the drums are perfectly round.



6 Rotors are also powdercoated like the drums, except in gray. This really helps to keep them from getting ugly over time. They are also lightly dressed to remove the powdercoat and to ensure that they are perfectly flat.



7 This is the location of the brake proportioning valve on the driver-side front framerrail. Don't reuse this. Get a new one. The crank to the left is for the automatic transmission's shift linkage.



"For sure, this is not the prettiest part of your restoration"

9 One of the problems with basket cases is that you'll often not have a reference for how everything goes back together. If your brake and fuel lines happen to still be on the frame (these were not), take pictures before you disassemble them so you'll know how to put them back correctly. This shot illustrates how the front brake lines are routed.



8 In case your rear brakes are in pieces, here is a reference photo showing how it all fits together. Pay attention to the length of each shoe. The longer ones go toward the rear of the car. Since all of these parts have had the potential to be exposed to a lot of heat, please don't attempt to reuse them. Safety first!





10 Muscle Car Restorations is a very big fan of powdercoating all of the chassis parts rather than just painting them. Powdercoating is far more durable and rust resistant than any paint, and it is very good at not allowing rust to spread where any chips do occur. It is also highly resistant to oil, gas, and brake fluid, so your chassis will look good and be easy to clean for many years.



11 Here's a reference photo showing a typical GM A-Body rear suspension (minus the springs and shocks). Once all the bushings are in place, it all goes together rather intuitively. Also note the brake hose and line routing.



12 The brake master cylinder and power booster are not parts that you want to have any trouble with down the road. These CPP parts are ready to install and even have the correct gold plating. Again, you can note how the brake lines are routed.

“There really aren’t that many parts you would want to consider reusing”



13 An original fuel tank, assuming it's not too beat up, can be cleaned up inside and restored on the outside. We didn't get one with this car, so Original Parts Group provided a replacement. Here again, you'll have to decide for yourself whether the cost of a new one is worth the time and effort you'd have to spend to restore your original tank.



14 Even if you decide to keep your tank, replace the pickup/sending unit so you will be certain that your fuel gauge will work properly. Notice that this system uses a $\frac{3}{8}$ -inch main fuel line and a $\frac{1}{4}$ -inch return line.



15 Conventional rubber fuel hose is used to connect the lines at the tank.



16 The fuel lines run down the passenger side of the frame and are bolted in place with special fuel line clips.



17 Here you can see how the fuel lines go inside the frame where it turns inboard under the firewall. Do not forget those protective covers!

SOURCES

Classic Performance Products

888/522-8306
classicperform.com

Inline Tube

800/385-9452
inlinetube.com

Muscle Car Restorations

715/834-2223
musclecarrestorations.com

Original Parts Group

800/243-8355
opgi.com

PST

877/226-4101
p-s-t.com

18 The Chevelle's rolling chassis and its freshly painted body—another aspect of this car's restoration covered in the Dec. '14 *Car Craft*. Sure doesn't look like its basket case starting point anymore! **MCR**



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