PROJECT

Attacking Godzilla

CHASSISWORKS' NOFAB CLIP

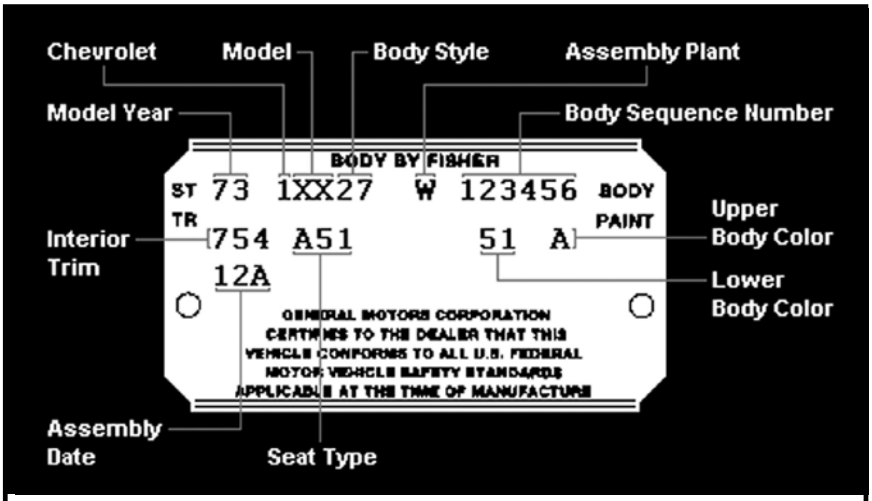
Before we could tear the old car's skeleton out, we had to remove the filthy small-block from it's frame rails.

In the last installment of Project Godzilla, our potentially badass '69 Nova, we talked about how we rescued the wrecked beast from the crusher for $800. This month it's time for disassembly. With the car safely stored in the owner David Wong's (Dee-Dub for short) garage, it was ready to be transformed. As we mentioned in the first article, the Nova's frame was pretty bent from the previous owner's run-in with a Suburban, so this obviously had to go. It just so happens that Chris Alston's Chassisworks offers the ultimate solution to this problem: A complete bolt-on from sub-frame assembly, and by "complete" we mean brakes, suspension, steering, and even a motor plate. But before we could tear the old car's skeleton out, we had to remove the filthy small-block from it's frame rails. The engine that the Nova came with, a seemingly stout GM Goodwrench 350, was definitely not the most glamorous magazine engine (especially compared to a 640 big-block), and although the thought crossed our minds to hit it with spray until it goes "pop," Publisher Aaron Hahn had other plans for it, so that idea was out (see sidebar). When we got the car home it was a matter of simply prying the crumpled fender away from the wheel and removing the hood and core support to reveal the engine. To be honest, the Nova "teardown" was really just a matter of removing some wrecked sheetmetal and pulling the engine. Once the engine was out, we noticed the previous owner ditched the cast exhaust manifolds for some tri-y headers. This upgrade also made us wonder what other mystery performance parts were installed in the engine, in other words this car could've easily been a sleeper in its previous life.

Before we started with the teardown, we drained all the fluid from the radiator and removed the damaged battery to give us access to the bumper and core support. Wong explained, "We were very careful in disposing of the battery since it had a puncture in its side from the collision." As we've learned in the past, battery acid burns are no fun." Wong continued, "The condition of both fenders were too mashed up to even allow us to work on the engine, so we had to bring out the handy Porta-Power hydraulic tool to pry the fender wells

the 411

▸ Here's a shot of Godzilla before we started the disassembly. Notice the spaghetti ball of wires? That will all be redone in another installment of Godzilla's resurrection. The driver's side is the car's good side, as the quarter panel suffered some damage. We'll have to kiss that windshield goodbye as well.

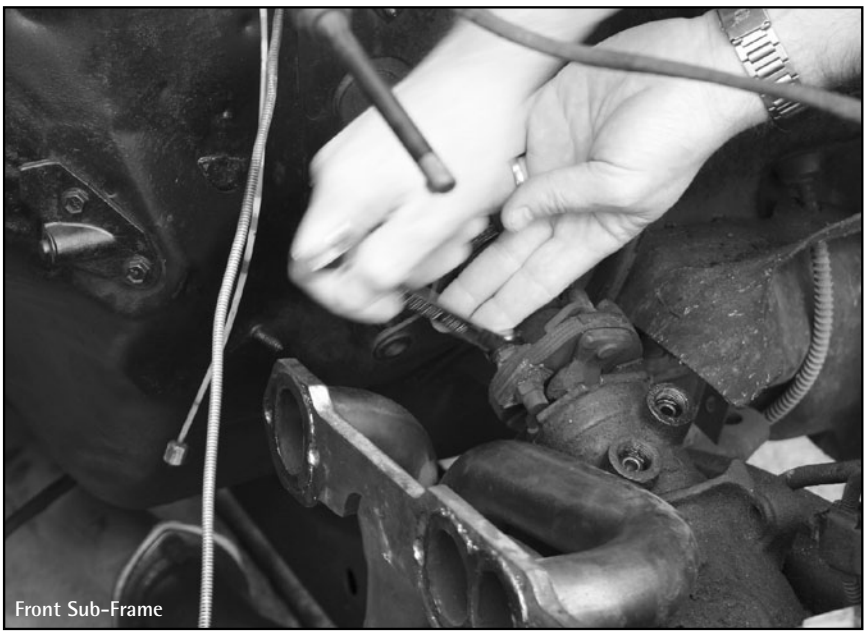


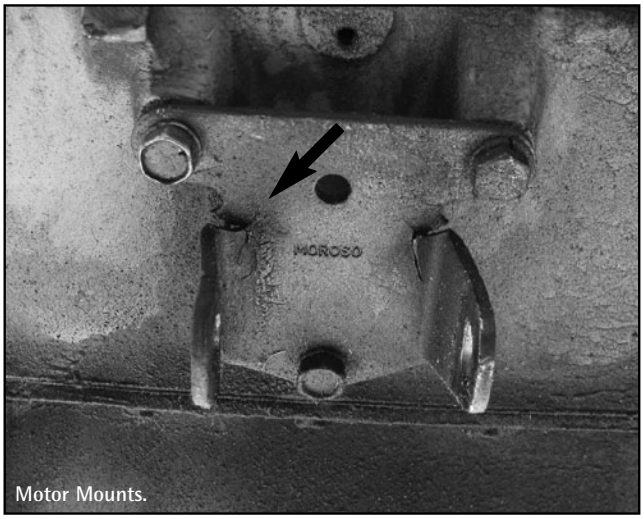
The Nova's Cowl Tag

The cowl tag is the small metal plate attached to the firewall of Novas that is stamped with information about how each Nova was originally built. Other older GM cars have the same thing. Sometimes the cowl tag is referred to as body tag, trim tag, firewall tag, body plate, data plate, or number plate. 1962 thru 1967 Nova cowl tags are found on the passenger side of the cowl, next to the heater blower motor. 1968 thru 1979 Nova cowl tags are found on the driver's side of the cowl, above the master cylinder.

The cowl tags provide the following information: Build Date (month and week the body was assembled), Model Year, Model Series and Style, Assembly Plant, Number (the model sequence number), Interior Trim (color, material and seat type), Exterior Paint (upper and lower paint and/or vinyl top), and Options (the Fisher Body codes).

According to Godzilla's cowl tag, the car is nothing special, just an original V8 car that was produced in Willow Run, Michigan on the first week of November in 1969. It came with a standard black vinyl bench and Frost Lime paint. We were hoping for it to be a genuine Yenko...


Front Sub-Frame


Motor Mounts.


NoFab Front Clip

enough to get to the bolts. With both fenders out of the way, we got our first clear look at the sub-frame. It was not a pretty sight since the front rails were thrashed, but it was something that we had anticipated when purchasing the car."

It was obvious at this point that we needed to begin our search for a full replacement for the sub-frame. With a few companies specializing in full bolt-on front ends, we knew that this would not be a major setback. Chris Alston's Chassisworks was one company that stood out, and we had heard that this sub-frame has been easily installed by at-home garage mechanics in the past. Did we mention we plan on building the entire car at Wong's house?

the 411

- Removal of an X-Body's (Chevy Novas, Olds Omegas, Pontiac Venturas) **front sub-frame** entails loosening of the steering column from the steering box, brake lines, and four large bolts under the body. With those out of the way you can easily roll the frame away from the car, just make sure to support the body with some jack stands.

- Once the engine was pulled, we noticed that the previous owner had upgraded to Moroso solid **motor mounts.** We also observed that they had started to crack, indication that the Nova hit the Suburban very hard.

- One thing we're happy to get rid of is the Nova's squishy body mounts. The Chris Alston Chassisworks **NoFab front clip** come with polyurethane versions that will add some rigidity to the Nova and reduce body-roll.

PROJECT

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Nothing sums up our goals of a serious power wielding street car than the big green monster himself.

The core support was the next major challenge with stripped and inaccessible bolts holding us back. We powered up the reciprocating saw to cut right through the un-salvageable core support like butter. Now we had cleared the way and all that remained was the frame and motor.

The next step was to clear the way to pull the 350 to be replaced by something a bit less lame. We made sure that all of the wiring had been cleared, the headers unbolted, and the oil drained from the motor and tranny. After yanking the motor from the Nova, we cleaning up the firewall and sprayed it with some semi-gloss engine enamel. We know, the firewall is not an engine, but it's thick, temperature proof, and doesn't scratch easily. With the firewall painted, we sat back and enjoyed the beauty of the bare frame and back half.

Since we plan on dropping in a massive big block and had finally converted our fellow sport compact rice burner-driving co-worker to a real power making car, the unanimous vote around the office was 'Godzilla.' Nothing sums up our goals of a serious power wielding street car than the big green monster himself. We plan to stomp around on the roads of Southern California in our new project, so stay tuned as we shoot to make some jaw-dropping power with this car.

Next month we're going to get down and dirty with the install of the new Chassisworks NoFab front clip, and begin transforming this car into something we all can smile about.■

Mystery Motor

Like we mentioned in the intro, the Nova came with a GM Goodwrench 350 small-block that looked pretty non-descript. Besides an Edelbrock Performer intake and carb, the motor looked plain. However, we've been duped by tame-looking small-blocks before, so there is a possibility that the engine was packing more than what it appeared. *FSC* Publisher Aaron Hahn pilfered the small-block and is currently putting it to use in his "lead sled", a '54 Chevy Bel Air. We jokingly brought up the question, "What if the 'stock 350' was packing 11:1 compression, a huge cam, and 383 cubes?" Well, guess we'll know once his heavy beast either bogs down or boils the tires.

Front End

the 411

▸ Over the handful of years building cars, we've found that **engine enamel** makes great firewall and engine compartment paint. It's heat-resistant and is very thick, so it takes a lot to scratch. Look how bald Jake is.

▸ Dee-Dub smiled with glee as his wrecked Nova's **front end** was wheeled out from under Godzilla. We would be happy too if we were on our way to ditching a lowered Acura for a big-block Nova.

Engine Enamel

S O U R C E

Chris Alston's Chassisworks
916.388.0288
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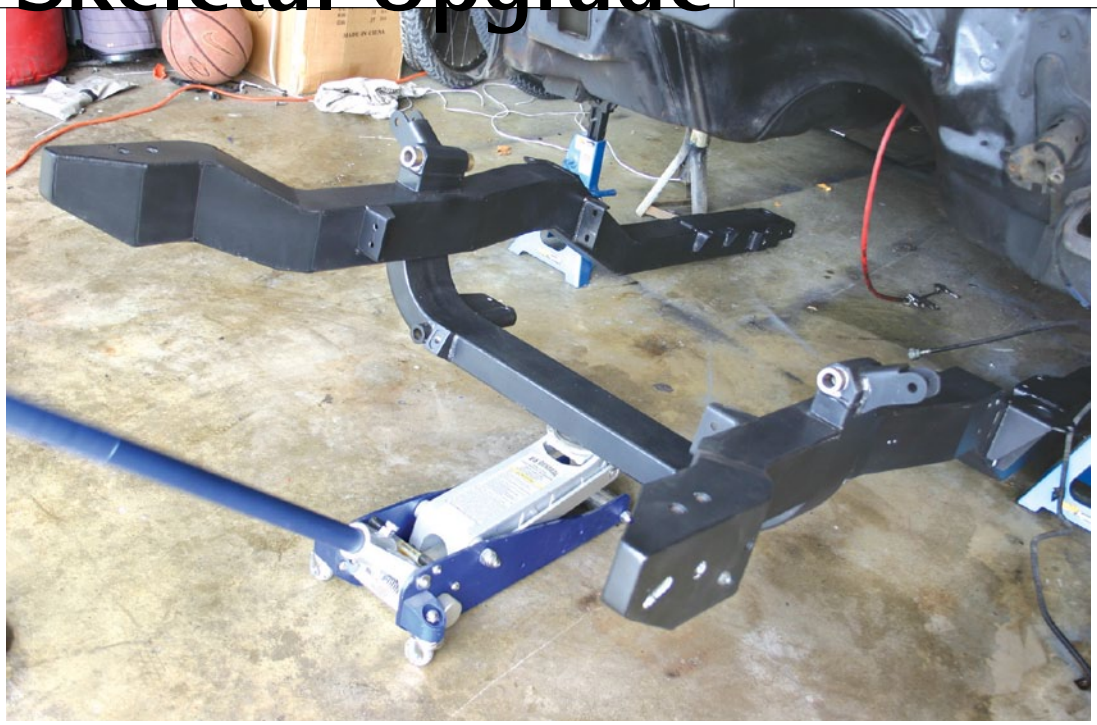
PROJECT

Skeletal Upgrade

A LOOK AT CHRIS ALSTON'S BOLT-ON CLIP



Last month we dissected our project "Godzilla" Nova and even tracked down the car's original options via the cowl tag. In this episode we investigate the components that make up Chris Alston Chassisworks' NoFab bolt-on clip, the key part that will ultimately save DeeDub's (David Wong, the guy that owns it) Nova from the crusher. Since the car had previously been a wreck, the front subframe was unsalvageable. This was a problem since the frame was even too far bent to straighten it on a frame puller. Luckily for us (and you Chevy guys), we found that Chris Alston's Chassisworks offers what they call a NoFab front end setup that could fix our problem in one fell swoop. Unlike some subframes, Chassisworks' clip installs easily at home with common hand tools and doesn't require a whole lot of mechanical background to accomplish. We've even heard that some have able to install it without having to remove the engine. Although these bolt-on clips have been around for a

Common Mistakes?

One thing that stood out about the NoFab clip is the very detailed instructions. It features many photos and detailed text on how exactly to bolt up the kit, saving loads of frustration and potential guesswork. However, we know no matter how complete the instructions are, people still make mistakes. We asked Chassisworks' Jim Wright what are some common mistakes people make when bolting up a complete front clip. He explained, "For most guys it goes pretty smooth, but one of the things that has happened a couple times is they don't put the transmission crossmember in before they try to bolt it up, and that's critical to get the correct spacing. The crossmember should go in before the frame gets bolted to keep the correct width in the back." Believe it or not, that was the extent of things to watch out for, the instructions are that good. If you run into a problem, chances are you're overlooking a step that's shown. In the picture shown above, we attempted to fit the aluminum body mounts the way the factory rubber ones are mounted, and as you can see, they didn't fit. Further investigation of the instructions showed that you do not "sandwich" the solid mounts the way you do with the polyurethane or rubber pieces, the solid mounts simply sit between the frame and body mount provision with no need for a bushing on top.

According to Chassisworks' Jim Wright, it's about 60 pounds lighter than the factory. For all-out drag racing, they offer a version that features a lighter spindle and brake setup that saves about 130 lbs.!

the 411

▸ The NoFab setup comes with spindles that are specifically designed to work with the Chassisworks' suspension. They do lower the front end compared to the factory spindle. According to Wright, they can lower the car 1-1/2 to 2-inches depending on application and what size tire you use.

PROJECT

Skeletal Upgrade

A LOOK AT CHRIS ALSTON'S BOLT-ON CLIP

Luckily for us (and you Chevy guys), we found that Chris Alston's Chassisworks offers what they call a NoFab front end setup that could fix our problem in one fell swoop.

couple of years now, they are becoming more and more popular with gearheads that own early cars, but who want late model suspension technology. Besides featuring ideal suspension geometry and trick steering, the NoFab clip will also help you shed some pounds of the nose of the car. Since our Nova will see some fair amount of street duty, we went with the street brakes and spindle setup and according to Chassisworks' Jim Wright, turns out to be about 60 pounds lighter than the factory. For all-out drag racing, they offer a version that features a lighter spindle and brake setup that saves about 130 lbs!

Crossmember

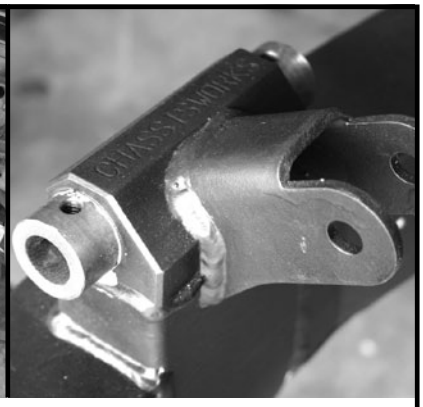
Shocks

the 411

- The clip comes with a tubular transmission **crossmember** that should be installed prior to installation. This helps keep the rear rails lined up with the factory body mount provisions.
- You can order the kit with either single or double adjustable **shocks**. We went with the double adjustables so we can tune the way the car launches once we get the car to the track.

NoFab Billet Steering Rack

Like we mentioned in the intro, the NoFab setup comes with a unique billet steering rack that features quite a few benefits for those looking to not only get more responsive steering, but also who may have some header clearance issues. Chassisworks' Jim Wright explained, "The first benefit is that this is a billet aluminum rack so it's lighter and stays cooler. Also, the big advantage is that you can rotate it. Because the way it's mounted, you can rotate the pinion up and down for more header clearance, u-joint angle, etc." Unlike most adapted Mustang II racks, this one is geometrically correct for the width of the Nova.



The Frame

The frame itself is made of 7-gauge mild steel, much like the same material the factory piece was constructed with, except this one is lighter without sacrificing strength. Wright explained, "The way it's designed, is it's actually laser cut, bent, and then welded together to make the structure. That's what also makes it a little lighter than your stock subframe, while making it stronger as well." The frame also features provisions that allow for subframe connectors, which Chassisworks offers as an option.

PROJECT

Skeletal Upgrade

A LOOK AT CHRIS ALSTON'S BOLT-ON CLIP

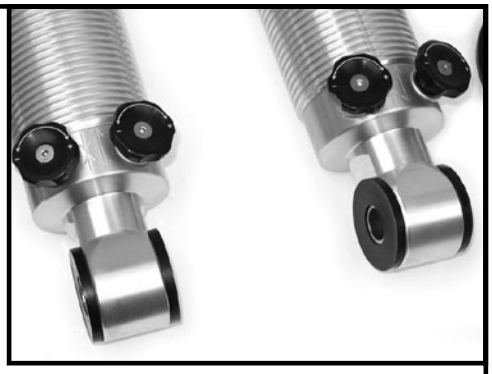
The name "NoFab" says it all, no fabrication needed.

Body Mounts

The name "NoFab" says it all, no fabrication needed. Years ago the damage done to our Nova would require many hours in a body shop and even after that, it probably would never be the same. The Chassisworks clip, however, is better than stock. Not only does the frame bolt up using the stock mounting provisions, it is laser cut, formed and welded out of 7-gauge steel. The clip also keeps the tire in the stock location, providing ample room for up to a 17"x8" front wheel with 4-3/4" back space and P225/45-17" tires. It uses the factory radiator core support and it bolts to the front clip just like your stocker. The front bumper, radiator, and grille will bolt back in the original location with the weld-nuts fabricated into the frame. It comes with all the suspension components to set the car in the ground, including the brakes. But one of the coolest options of the whole setup is Chassisworks' exclusive rack and pinion steering assembly. Unlike most aftermarket frontend systems, the NoFab clip can be purchased with an exclusive rack and pinion system, not a Mustang II rack. Years ago, guys would have to adapt a Mustang II rack to their early k-frames, but that isn't the right way to go since the steering geometry of the Mustang rack isn't correct for the wider early muscle cars. This billet rack, according to Chassisworks, is manufactured to match the suspension crossmember width, assuring you will have exact suspension geometry.

VariShock Double Adjustables

When you buy the whole NoFab package you have a couple different choices in shock design; single and double adjustable. The double adjustable shock, which is adjustable for extension and compression, is designed for mostly for those looking to race in some form, where as the single is designed for more street driving. According to Wright, the single adjustable is, of course, adjustable and you can tune the characteristics, but not as infinitely as the double adjustables. They are constructed from aluminum, are powder-coated for corrosion resistance, and utilize polyurethane mounts. They also feature a threaded body to incorporate the coil over perch. This also allows you to adjust ride height.



Control Arms

the 411

- The NoFab setup comes with either polyurethane or solid aluminum **body mounts**. Since our engine should make tons of torque, we opted to go with the solid mounts to increase our Nova's rigidity.

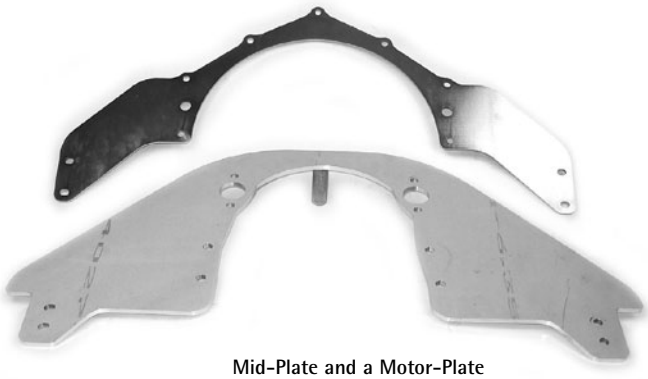
- The upper and lower **control arms** of the NoFab clip feature tubular construction for lighter weight, and are fastened to the frame using trick rod ends. These are loads lighter than the heavy cast stockers.

PROJECT

Skeletal Upgrade

A LOOK AT CHRIS ALSTON'S BOLT-ON CLIP

Brake Setups



Mid-Plate and a Motor-Plate

The Brakes

There are a few options in brakes with the NoFab clip, everything for drag cars to g-machines, but we opted to go with the standard "Street Machine" setup. The system features polished billet-aluminum hubs with screw-on dust covers and have a dual pattern, both 4-1/2" and 4-3/4" bolt circles. Since these brakes are designed of for the street, the rotors are vented to keep heat to a minimum with 11.75-inch in diameter rotors that are .810" thick. Chassisworks also includes 2-1/2"-long studs with 3-inch studs as an option. All necessary bearings, seals and hardware needed for installation are supplied. The rotors feature curved gas-relief slots, which aid in braking. You have a choice of two popular, four-piston Wilwood calipers, which will fit most 15"-diameter wheels. The calipers come in a matte black or polished finish.

A Sneak Peak

Here's a shot of Godzilla's wicked Merlin III block getting dropped of at Pacific Performance. Plans are to stuff this thing with the internals to support crazy amounts of horsepower and torque and start "cruising." We've decided to go with a set of AFR's killer BBC heads, and although we are still undecided about what type of camshaft to go with, we really are starting to lean towards a hydraulic roller cam to keep maintenance down, and the power up. Whatever we end up with, you can bet it's going make a ton of torque and horsepower. Our guess is somewhere in the 750-800 horsepower range.

In this stage of our Godzilla buildup we will be exploring the individual components of the Chris Alston's Chassisworks NoFab front clip, including the brakes, control arms, steering rack, springs and shocks, and spindles. Also, the heart of our Monster, a 632ci big-block is currently at Pacific Performance as we type this, getting the necessary machine work done to house the massive rotating assembly. *FSC*'s Godzilla project is underway. ■

the 411

▸ Since we plan on driving the car on the street, we went with a set of Chassisworks' standard **brake setups**. It comes with Wilwood calipers and vented rotors to keep heat to a minimum. You can also order all-out drag brakes that feature a lighter caliper and rotor assembly.

▸ Since our engine will possibly make a mountain's worth of torque, the folks at Chassisworks recommended that we use a **mid-plate and a motor-plate**. Stock style motor mounts wouldn't live very long under a big block with the kind of power we plan on making.

TECH

Suspension Tactics

THE *FSC* NOVA GETS SUSPENDED

"The instruction guide did a great job of outlining the details to get our suspension setup with a few tools."

Baseline Measurement

As a baseline measurement, Chassisworks recommends 1-1/6-inches of thread remaining past the jam nut on each upper control arm rod end. This is only to get your wheel alignment close to straight. The rod ends had to be re-adjusted later.

The last time you read about our big-block Nova we were installing the new subframe from Chris Alston's Chassisworks. With the new frame we were able to scrap our rusted and damaged stocker for a much sturdier piece, while losing some weight. Even with the frame bolted in, it still seemed far off from being a "real car" again since the front fenders, grill, and radiator support were still missing in action, but we were making some good progress. Once the frame was securely strapped to the car, it was time to bolt up the springs, control arms, shocks, and brake assemblies. This turned out to be a very simple process due to Chris Alston Chassiswork's thorough instructions. We will admit that we have mentioned the instruction manual a couple times in these past couple segments of the Godzilla Project, so it may seem like a blatant editorial plug, but it really is valid for mention since it makes the whole install process so much easier. Easy enough that us *FSC* staffers were able to install the setup without any problems, and that's saying a lot since the car owner, David Wong (who installed much of the suspension himself), hasn't had much experience as a mechanic. Wong explained, "The instruction guide did a great job

the 411

- First on the agenda was the installation of the upper and lower **control arms**. The control arms in the Chassisworks kit come fully powder-coated, so expect to do some minor trimming in order to get the ball joint screwed in. To determine what arm goes on which side, Chassisworks stamps a "D" and "P" in each arm.

- With some anti-seize on the threads, we then installed the **ball joint** using the supplied wrench. We also made sure to install the rubber boot first.

Ball Joint

TECH

Suspension Tactics

THE *FSC* NOVA GETS SUSPENDED

Stainless Steel Allen Headed Pivot Studs

Chassisworks includes these pretty trick stainless steel Allen headed pivot studs to attach both the upper and lower control arms. Before screwing them in, we made sure to clean the threads on both the frame provision and the control arms bolt. They get locked in place with a set screw.

Alignment

Rubber Mallet

Spindles

Once the frame was securely strapped to the car, it was time to bolt up the springs, control arms, shocks, and brake assemblies.

of outlining the details to get our suspension setup with a few tools. The only real tools we needed were a basic 100-piece socket set, a level, a couple tape measures, and a pencil and paper to jot down the measurements for the wheel alignment." And yes, he said wheel alignment. The instruction manual will actually walk you through the alignment step-by-step, making the kit a true one-weekend project, meaning you don't have to wait until Monday to get it aligned. The detailed guide has all of the photos, simple calculations, and instructions to take out all of the guesswork from this process.

The first portion of the suspension we installed was the tubular chrome-moly control arms. Chassisworks ships them powder-coated without the ball joints installed. Before screwing them with the supplied wrench, we made sure to trim the excess powdercoat that had collected near the threads of the ball-joint provision. You also have to screw in the rod ends in order to bolt the arms to the frame. Besides trimming the powdercoat, the assembly of the control arms was simple.

With the frame in place, we also slapped on the steering rack. Unlike most front sub-frame kits, this one comes with an exclusive rack designed by Chris Alston, not a "Mustang II" rack. This, too, was an easy install, and the polished mounting brackets that hold the piece are the kind of details that will make the undercarriage of Godzilla look great when it's all together.

The shock/coil assembly for our Nova project is one of our favorite parts on the car. The Vari-Shocks are double-adjustable using large, easy-to-turn knobs. The coils come silver powder-coated and can be adjusted to lower or raise ride height. This setup will allow for a ton of adjustments. When the car's running, these ride height and shock stiffness will be very important to control the car's front end for not only street driving, but at the track too.

We opted to go with the 14-inch slotted rotors in our kit. We are actually going to attempt to drive this beast on the street, otherwise we would've gone with a featherweight drag racing brake setup, which is also an option with the kit. The brakes are also

the 411

- We also made sure to check the sub-frame **alignment**. If the subframe is tweaked in the car, it could lead to big alignment problems later. To do this, we simply measured from the edge of the new frame to the body seam.

- Once the rod ends were secured to the control arms, we tapped them onto the frame with a **rubber mallet**. This can be tricky since the control arms are lined with Teflon bushings, which makes a pretty tight fit. With a few taps of the mallet, the arms were on.

- With the control arms bolted up, we then installed the **shock simulator**. This is used to hold the lower control arm in place while the spindle is installed.

- The **spindles** simply get bolted up using the supplied 9/16-inch castle nut.

TECH

Suspension Tactics

THE *FSC* NOVA GETS SUSPENDED

"The only real tools we needed were a basic 100-piece socket set, a level, a couple tape measures, and a pencil and paper to jot down the measurements for the wheel alignment."

Brackets

Assembly

Fastened

the 411

▸ The steering rack is bolted up using these nifty polished aluminum **brackets**. They get bolted to the front frame crossmember using Allen head stainless screws.

▸ Here's a shot of the completed spindle/shock **assembly**. The coils allow for ride height adjustability, and the Vari-Shocks are also double-adjustable.

▸ With the rack pushed all the way against the brackets, we **fastened** it to the frame. With the major components installed, it was time to align the frontend.

1.

2.

3.

4.

Godzilla Alignment

1. The first step in aligning the frontend is adjusting the tie rod ends. With the rack fully cocked to one side, we measured the distance from the frame to the center of the bolt hole on the spindle.

2. The camber measurement was next. We originally had trouble lining the level against the spindle, but the ball joint wrench that is provided with the kit made for a solid flat base to get our camber adjustment.

3. The task of measuring and adjusting toe-in would have been easier with the help of another body to hold the tape measures in place to ensure precise measurements. We recommend enlisting the help of a friend on this one. With a little improvisation and patience, Wong took down the measurements 4-5 times to ensure no drastic variance.

4. To finish the installation, we finally bolted up our 11-inch rotors. Our goal was to get the suspension set up correctly following detailed instructions provided by our friends at Chris Alston's. We're confident that we achieved this goal. We will re-visit the suspension, specifically the shock adjustments, when we're ready for fine-tuning at the track.

available in large 14-inch diameter for more of a "g-machine" or "pro touring" car, but we went with 11-inchers so we could use a 15-inch rim, whereas the 14-incher would have to have something larger, and we really didn't want to put big rims on the car.

In this story, we completed the install of the Chris Alston Chassisworks' NoFab front clip and we must say, this is definitely something that could save your car from the scrapper, it did with ours. Plus, this setup is perfect for those that want to replace the entire steering and front suspension in one fell swoop instead of putting a front end together piece by piece. However, it ain't cheap, but it actually works out to be cheaper than if you were to buy the same quality parts individually. ■