

BUILD A TRUE DUAL-PURPOSE RIG IN 6 EASY STEPS!

8 LUG HD TRUCK

8-LUG.COM

EXTREME TECH!



FULL INSTALLS:

SULASTIC RUBBER SPRINGS
DIESELSITE CPR FUEL SYSTEM
HEATH DIESEL BOOST CONTROL

BLOOD DRAGS:

IT'S THE EVENT TO CHECK OUT!

COVER QUEST:
YOU KNOW YOU WANT IT!

SEPTEMBER 2010 VOLUME 5, NO. 9 • \$3.99 IN U.S. \$5.99 IN CANADA



A SOURCE INTERLINK MEDIA PUBLICATION

TEXT AND PHOTOS: JOE BURNSIDE

BE KIND TO YOUR KIDNEYS

SULASTIC RUBBER SPRING INSTALLATION



TRUCK NUMBER ONE: '05 Dodge 2500
Quad Cab Hemi 4x4 with a 2-inch
front lift and 1-inch rear suspension lift.

OWNERS OF $\frac{3}{4}$ - AND 1-TON TRUCKS KNOW FIRSTHAND HOW HARSH the ride can be in their unloaded trucks. Heck, even with a considerable load in the bed, the ride is still not exactly luxurious. Sulastic Rubber Springs to the rescue! The rubber springs from Sulastic are an elastic suspension that reduces (and in many cases completely removes) the vibration and shock caused by the leaf spring suspension, improving safety and overall handling of the vehicle. Sulastic rubber springs are designed for the specific spring rate, damping, and spring speed of each make and model of truck in order to improve ride quality. Sulastic rubber springs do not affect the load-carrying capacity of the truck, and the ride height will remain within $\frac{1}{4}$ inch of stock height.

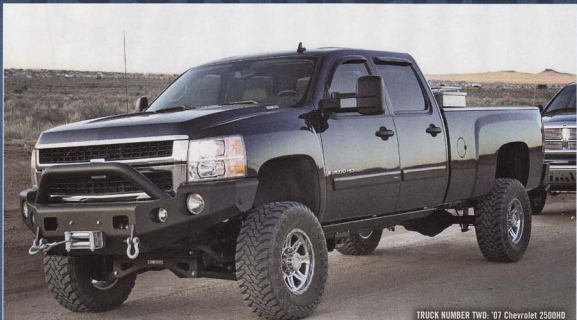
At the center of the rubber spring is the main axle, which is vulcanized to the proprietary Sulastic rubber compound and housed within a nodular cast-iron cylinder. Nodular cast-iron is stronger and

considerably more flexible than aluminum and less brittle than traditional cast-iron, making it a logical choice for an automotive application such as this. The rubber is then twisted appropriately to obtain the correct dynamic characteristics for each specific truck model. The final assembly step is to weld the hot rolled steel plate brackets and stop member to the main axle.

To test the claims of a smoother ride, we installed Sulastic rubber springs on an '05 Dodge 2500 Quad Cab Hemi 4x4 and an '07 Chevrolet 2500HD Crew Cab 4x4. This combination was chosen because of the differences between the two trucks. The Dodge has a solid front axle, a mild 2-inch lift, and a 6-foot bed, whereas the Chevy has an independent front suspension, a 6-inch suspension lift, and an 8-foot bed. Rather than only providing a seat-of-the-pants testimonial, we instrumented the trucks with three triaxial accelerometers to measure both

“OWNERS OF $\frac{3}{4}$ - AND 1-TON TRUCKS KNOW FIRSTHAND HOW HARSH THE RIDE CAN BE IN THEIR UNLOADED TRUCKS. HECK, EVEN WITH A CONSIDERABLE LOAD IN THE BED, THE RIDE IS STILL NOT EXACTLY LUXURIOUS.”

YOUR KIDNEYS



TRUCK NUMBER TWO: '07 Chevrolet 2500HD Crew Cab 4x4 with a 6-inch suspension lift.



Installation on the Dodge was straightforward. After securing the axle and the frame of the truck, the shackle bolts were removed.



The leaf spring was pulled down to remove the lower bolt, which attaches the leaf spring to the rear shackle mount.

the baseline and post installation ride performance. The accelerometers were mounted on the frame above the rear shackle, in the front of the bed (nearest the tailgate) and inside the cab on the center console. The test road consisted of light to extreme bumps to replicate highway expansion joints, railroad crossings, and potholes—each pass was made at 30 mph in both directions. The improvement in the ride quality was immediately noticed after the Sulastic rubber springs were installed. In fact, the rear leaf spring suspension augmented with the Sulastic rubber shackle of

the Chevy now seems to be smoother than the independent front suspension.

The Sulastic rubber shackles made a positive difference in the overall ride performance of both trucks. The ride quality is reasonably improved, as evidenced empirically by the graphs and theoretical seat-of-the-pants dyno testimony. The installation of the Sulastic rubber springs won't turn your ¾- or 1-ton truck into a high-end plush luxury automobile, but your friends and kidneys will thank you for installing them. [E]



Here is a side-by-side comparison of the Sulastic rubber springs (inside) next to the OEM stock shackle hangers.



To install the Sulastic rubber springs, simply reverse the removal order of the stock shackle hangers. Washer shims are provided to ensure a proper fit of the shackle to the leaf spring and frame of the truck.

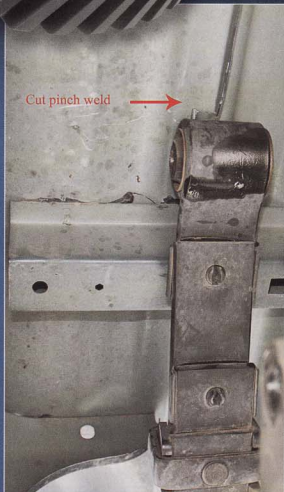
BE KIND TO YOUR KIDNEYS



The final step is to ensure the shackle bolts are tightened to the correct torque specifications.



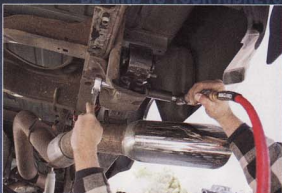
Installation on the Chevy required the same basic steps as the Dodge, except the receiver hitch was removed so that we could remove the lower shackle bolt.



In order to remove the bolt from the leaf spring and OEM shackle, the pinch weld joining the bed panels was cut (see arrow) and folded to allow clearance for removal of the bolt and OEM shackle.



These are the Sulastic rubber springs next to the stock shackle hangers. Notice how different the Sulastic parts are compared to the ones used on the Dodge. Sulastic takes the time to design specific rubber springs for each vehicle make and model.



Similar to the Dodge installation procedure, we installed the Sulastic parts on the Chevy in the reverse order of the removal of the OEM shackles.



The final steps are reinstalling the receiver hitch and checking all bolts for proper torque per manufacturer recommendations.



The Sulastic rubber is vulcanized around the main axle within the nodular cast-iron cylinder. Then the steel plate brackets and stop member are welded to the main axle.

CERTIFIABLE PROOF

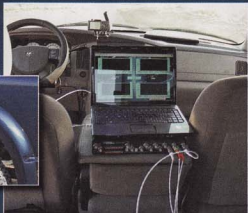
THE FOLLOWING DATA GRAPHS ARE PROVIDED AS empirical evidence to validate the declarations of improved ride quality after installation of the Sulastic rubber springs. Of the three data collection locations (frame, bed, and cab interior), the frame and cab interior locations were chosen for illustration.



This Chevy has a cable harness running from the control station inside the cab to the triaxial accelerometers.



This Dodge has a triaxial accelerometer mounted to the frame above the rear shackle.



The accelerometer control station was used to gather ride performance data on both trucks before and after the Sulastic rubber springs were installed.

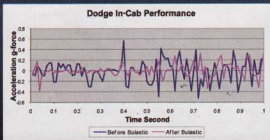
DODGE FRAME

Observe the difference in the peak-to-peak magnitude of the blue (before installation) trace as compared to the magenta (after installation) trace. This is a direct correlation to a smoother ride after the installation of the Sulastic rubber springs.



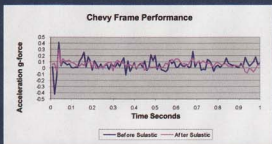
DODGE CAB

Notice how constant the magenta trace is during the first half of the plot. Then, during harsher road conditions, the magenta trace is still more stable than the erratic swings of the blue trace. This is a result of the road vibrations being absorbed by the rubber springs, which translates into a smoother ride in the cab.



CHEVY FRAME

Performance in the Chevy was improved, too. The rubber springs absorbed more of the road vibration, as evidenced by the stable constant trend of the magenta trace when compared to the irregular blue trace, which represents the vibrations not absorbed by the rigid OEM shackles.



CHEVY CAB

Similar to the performance witnessed in the Dodge, the benefit of the Sulastic rubber springs is noticeable in the Chevy's cab also.

