

V-DUBBER

NEWSLETTER OF THE CENTRAL FLORIDA VW CLUB

Late Model 1303 Super Beetle Front Suspension Rebuild Project

By Chirs Hobbs

In-mid 2008 Chris Hobbs' 1979 Super Beetle convertible, having finally passed the 50,000-mile mark, had developed a serious front-end shake at around 45mph that is commonly known as the "Super Beetle Shimmy". Subsequently, a trip to Nix and Black for front wheel spin balancing had diagnosed the true problem—worn outer tie rod ends. Chris determined to fix this problem himself, and in March of 2009 he put the Beetle's front end up on jack stands in his auto shop and got to work. As we know, the Super Beetle has a strut front suspension, and additionally the 1975-1979 Super Beetles come with rack and pinion steering which is an additional variation of the strut front suspension components. Once the front wheels had been removed, Chris' immediate problem was that the outer tie rod ends refused to cooperate and unscrew *in situ* from the tie rods. This meant that each entire tie rod would have to be removed from the rack and pinion gearbox in order for him to apply sufficient torque in a bench vise. And then, as they say, one thing led to another... Since this was likely to be the only time that Chris was ever going to have the Super Beetle's front suspension apart, and he already had the tie rods off, he decided to "play it safe" and do a complete front suspension rebuild—replace tie rods, ball joints, and all rubber bushings. A call to R&S Performance for information produced a recommendation to call Topline Parts in California. (Topline specializes in Super Beetle suspension parts.) The more Chris learned from Topline, the more he started to think of adding a minor suspension modification, that is, minor front end lowering to level out the Beetle's stance. Topline recommended retaining the standard strut cartridges and housings, but substituting their "sport spring" which, by itself, would allow the front end to "relax" just enough. They recommended substituting the stock ¾-inch stabilizer bar with their 7/8-inch stabilizer bar for better handling. Finally, they recommended replacing all 4 of the front and rear 30-year-old strut cartridges and shock absorbers with new ones—oil-filled Cofaps in the front and KYB gas shocks in the rear. All of these were purchased by Chris, along with Topline's complete front rebuild kit—tie rods, ball joints, and black urethane bushings.

The old stabilizer bar was easy to remove but the control arms were another matter altogether—the ball joint studs did not want to come loose from the steering knuckles until it was finally necessary to apply force with some taps from a cold chisel and a five pound sledge. Then it was back to Nix and Black with the control arms to have the old rubber bushings and ball joints pressed out, and new ball joints pressed in—the only part of this job that couldn't be done at home. Meanwhile, Chris separated each brake drum/steering knuckle assembly from each strut assembly, carefully lowering the latter from under each fender by removing its 3 nuts inside the luggage compartment. Using spring compressors, it was then possible to safely remove the locking nut from each strut piston rod, followed by the thrust bearing assembly and the upper spring cap.

Removing the original strut cartridges turned out to be an extremely messy business, as the original strut housing actually formed the outer shell of the factory strut "cartridge". Thankfully the strut caps, although tight, could be removed with minimal force and banging; in researching this part of the job, Chris came across many tales of VW hobbyists who were forced to visit junkyards for replacement housings when they ended up destroying their original housings in trying to remove rusted-on caps. With the cap removed, pulling out the strut piston, valve, and seal then released all the strut fluid all over the garage floor. By contrast, the Cofap replacement strut was simply a drop-in component to be tightened down by the strut cap. Before reassembling the strut assemblies, Chris cleaned and repacked each thrust bearing assembly with lithium grease. Then each strut rod was capped with its dust cover and a new rubber "bump stop", after which each original spring was replaced with a "sport spring" (slightly shorter in length). With spring compressors in place, the upper spring cap, thrust bearing assembly, and lock nut could be reattached. One interesting fact about this job: you absolutely positively need an *offset wrench* for the job of tightening this lock nut.

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Local membership includes National Club and newsletters: \$30/ family per year

Meetings normally held at 5 'N Diner on Hwy 50 in east Orlando, second SATURDAY of month, 2PM.

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By now the front suspension had been almost completely disassembled, at which point Chris got his final inspiration—converting the front drum brakes to disc brakes using Topline’s conversion kit. (Late Karmann Ghias and Super Beetles sold outside of the U.S. commonly had front disc brakes.) Another phone call, and within a week a very heavy box of TRW rotors and calipers had arrived (Chris went with solid rotors; no cross-drilled rotors here). The steering knuckle was reused, so first this was separated from the backing plate containing the brake shoes (Chris had an electric impact wrench, which helped a lot!). Then an adapter plate was attached to the steering knuckle using the same bolts; the calipers were to be attached to this plate later. The kit includes new braided brake lines and wheel bearing sets for the rotors. After removing the brake shoe assemblies and attaching the adapter plates, the steering knuckles were reattached to the completed strut assemblies which were then carefully raised back up into the fenders and reattached inside the luggage compartment. (It should be noted that throughout the reassembly process, Chris had 2 workshop manuals for reference, and a torque wrench, and used proper torque settings on all nuts. And lots of anti-seize grease.)

With the strut assemblies in place, and the control arms back from Nix and Black, it was finally time to reattach the control arms, tie rods, stabilizer bar, and bushings. First the tie rods; that was easy. Then the control arms; not so bad either. The Topline kit included a specially modified camber adjustment bolt assembly that would permit additional camber adjustment that is sometimes needed for lowered Super Beetles. Each black urethane bushing was covered, inside and outside, in a special grease that minimizes squeaking. The new beefy stabilizer bar was hard to install, though—it required compression, about 2 inches or so, to line up the threaded ends with its control arm bushings. Chris was finally able to work this out using a come-along. Then the stabilizer bar was tightened down. After making interim adjustments to the suspension components for camber and toe-in, Chris was ready to tackle the disc brakes.

As is usually the case with wheel bearings, the hardest part was pressing in the 2 outer bearing races in each new rotor. Chris used an old trick and borrowed the old bearing races, which he punched out of the front brakes drums, as guides on which to carefully “beat in” the new bearing races with a 5 pound sledge. After greasing, the bearings and rear grease seals were installed and the rotors placed on each spindle. Thrust washers and locknuts were carefully torqued. Chris then attached the calipers to the adapter plates, making sure that washers were added to center each caliper on its rotor to ensure even braking. He then replaced the old rubber brake lines with new braided lines to the calipers, a helper was found for the bleeding of the brake system, bearing dust covers were replaced, and the speedometer cable reattached.

Finally, after 3 months on jack stands, Chris was able to replace the front tires. Thereafter it was quick work to jack up the rear end and replace the rear shocks as well. The old shocks had very little give left in them. After a couple of test drives, Chris can now report that the entire front suspension rebuilding operation was a success. The “Super Beetle Shimmy” is gone. The car sits completely level for the first time. Thanks to the new disc brakes, it stops better than ever before. All that is left is a trip back to Nix and Black for a proper front end alignment and spin balancing. Although the entire operation turned out to be far more costly than a simple set of outer tie rod ends (where this story began), this VW has been low-maintenance over the years so it was overdue for some pampering.



(Here is another of Chris Hobbs’ labors of love.)



Secretary's Report

The Central Florida VW Club met on the 11th of July 2009 at the Five and Diner on E Colonial Drive in Orlando. The meeting started around 2 pm. Those in attendance were, Rollie Walker, Saul Klein, Bill and Patti Neary, Chris Hobbs, Richard and Debbie Van Treuren, Dan Rivadeneira and Lisa Gray.

On-Going Biz

We talked about the 2010 Convention and generally agreed that the Daytona location would work out very well. The dates of June 10-13 also work out well for our Club. Debbie and Rollie will make arrangements with Jerilyn Pandich at the Plaza to secure our dates. Debbie had a poster and flyers for the Euerards to take with them to the August Convention.

On September 12th we will have a Club Adventure- Bugs in the Hangar in New Smyrna. This is a free show, they just want us to register. There will be lots of VWs of every kind and we will have our CFVWC tent set up for shade which is in short supply at the Hangar. The site will be the same as last year- South Street just north of the New Smyrna Beach Airport. Show starts at 9 am and runs until 3 pm. After the show our Club will have a late lunch at the Athens in Edgewater.

Rollie will be away for the August Meeting. That does not mean there won't be one. We will meet at the Five and Diner for our usual meeting at 2 pm on the 8th!

Hope to see everyone then!

Minutes Submitted by Debbie Van Treuren, Secretary

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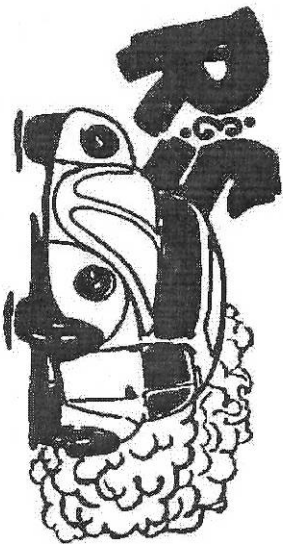
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Meeting!

The August Meeting will be on the 8th at the

5 & Diner.

Location: E Colonial Drive and the 408

Meet at 2:00pm.

Bugs in the Hamburger

September 12th

**New Smyrna Beach
Meet-up time to be
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