

TRD SPORTIVO SUSPENSION KIT INSTALL

Disclaimer & Intro:

This is not the definitive guide to installing the TRD SPORTIVO SUSPENSION KIT. This is simply a quick write up of the experience I went through when I installed mine. I hope it helps anyone else that may have questions, but by no means is this, the 100% official way to install the kit. So if you make a mistake or mess up please **DO NOT BLAME ME**. If any one catches something I have done wrong, **PLEASE** let me know. As some of you know TRD and English instructions for the most part do not mix. The only English instructions I received were for the installation of the member spacers. There were no torque specs and pictures that would have helped me in any way. Luckily there is www.spyderchat.com, and some friends I know that have done this type of thing before. I was able to ask questions, and bounce scenarios off of them. If you search on spyderchat, you will be able to find all of the torque specs, or you can be lazy like me and ask a good friend to send them. Not to worry though I have included them in this article. (You know who you are, and thanks once again). For anyone who is curious I am not a mechanic, but I have and do work on cars. However I have never worked on suspension components before, so this was a first for me. Mostly I have worked on motors, but I did not find this to be a difficult installation. IMHO anyone who knows how to use basic tools (wrenches, ratchets, jacks...) should be able to do this. Please note that you **WILL** need to get an alignment done after the install! I went to Toyota to have this done. The total cost for the 4-wheel alignment was \$105.22 including a 4-wheel balance. Over all it was painless. If you plan on doing this keep at least 1 whole day clear on your calendar. I started at 11:30am and was cleaned up and ready to eat at 7:30PM. I did not break for lunch, and pretty much worked on the car during that entire time.

Tools Used:

- ½ inch drive Torque Wrench (ft/lbs.)
- ½ inch drive Ratchet
- ½ inch drive extender 3 inches in length
- ½ inch drive sockets (12mm, 14mm, 17mm, 19mm)
- 3/8 inch drive Ratchet
- 3/8 inch drive extenders (various sizes)
- 3/8 inch drive u-joint
- 3/8 inch drive sockets (10mm, 12mm, 14mm)
- Wrenches (12mm, 14mm)
- Large 12inch adjustable Wrench (This was used on the spring compressors only)
- Standard screwdriver
- Floor Jack 2 & ½ ton (5 ¼ inch to 15 ½ inch lift)
- Floor Jack carrying case (you will see... ;))
- Jack stands 2 ton
- Collapsible lug nut Wrench (21mm section)
- Spring compressors & safety locks (borrowed)
- Lots of Water (it was hot outside)
- Cardboard boxes to lay on (The parking area on my property is gravel...OUCH!)

TRD Sportivo Suspension Kit:

Front & Rear Struts

Front & Rear Springs

Front & Rear Sway Bars

Front & Rear Strut Center nuts

Rear Strut Dust Covers w/chassis mounting hardware

New Front Sway bar bushings

Front & Rear Sway Bar Bracket Bushings

Rear Member spacers

2 Window stickers (why I do not know ☺)

1 large badge

Instructions (If you read Japanese)

The following picture did not come out very well, and for some reason I do not feel like taking everything off to snap 1 more. It also shows me practicing with the spring compressors, the are not included in the kit.



Suspension Torque Specs:

All spec are in ft/lbs. except where noted.

FRONT SUSPENSION

Suspension support x body 29

Shock absorber center nut 38

Flexible hose x shock absorber 21

ABS speed sensor wire harness x shock absorber 71 in. * lbf

Lower suspension arm, suspension member brace x body 54

Lower suspension arm x suspension member 64

Suspension member brace x body 55

Stabilizer bar bracket x body 22

Stabilizer bar link x stabilizer bar 32

Stabilizer bar link x lower suspension arm 13

FRONT AXLE

Hub nut 76

Tie rod end lock nut 35

Steering knuckle x shock absorber 103

Brake caliper x steering knuckle 80

Axle hub x steering knuckle 41

Steering knuckle x tie rod end 36

Lower suspension arm x steering knuckle 72

REAR SUSPENSION

Flexible hose x shock absorber 21

Suspension support x body 59

Shock absorber center nut 54

Strut rod x suspension member 58

No. 1 lower suspension arm x suspension member 64

No. 2 lower suspension arm x suspension member 64

Stabilizer bar bracket set bolt 29

Stabilizer bar link set nut 32

REAR AXLE

Hub Nut 76

Axle carrier x shock absorber 128

Brake caliper x axle carrier 34

Axle hub x drive shaft 159

ABS speed sensor x axle carrier 71 in. * lbf

ABS speed sensor wire harness clamp x axle carrier 44 in. * lbf

Strut rod x axle carrier 58

No. 1 lower suspension arm x axle carrier 76

No. 2 lower suspension arm x axle carrier 36

Dust cover x axle carrier 74in. * lbf

Part I Front strut Components Removal & Installation:

Ok, here we go.

- A. The first thing I did was to loosen the lug nuts on both front wheels.
- B. Next I removed the center cap over the strut tower using the standard screwdriver.
(please note I have previously installed the TRD Front Strut tower brace, so it does look a little different than a stock car)



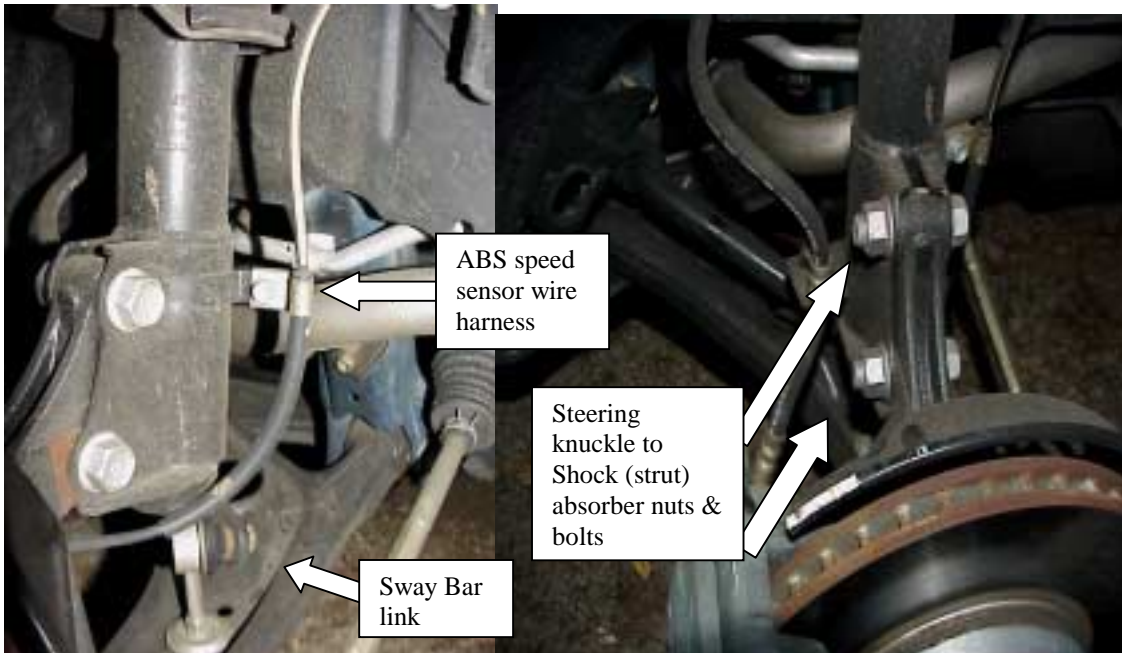
- C. Then I followed the advice of an old friend whom had helped me countless times in the past while we tinkered on our 240Zs. He explained to me the trouble he had gone through while doing a similar install to his Z when it came to dismantling the strut assemble. He had a bear of a time getting the center strut nut off once the struts assemble was out of the car. This involved using vise grips (something I always try to avoid). So I am not sure if this applied here, but I did not have the trouble he did. Basically loosen the center strut nut prior to removing the assembly from the car.

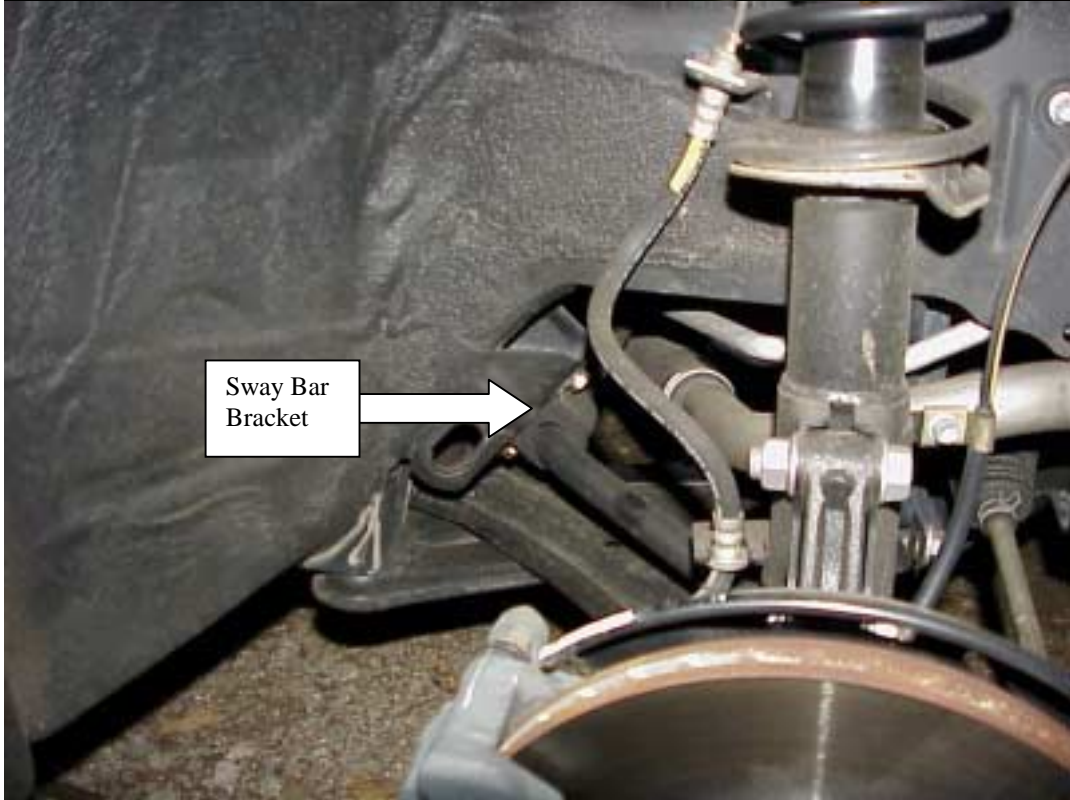
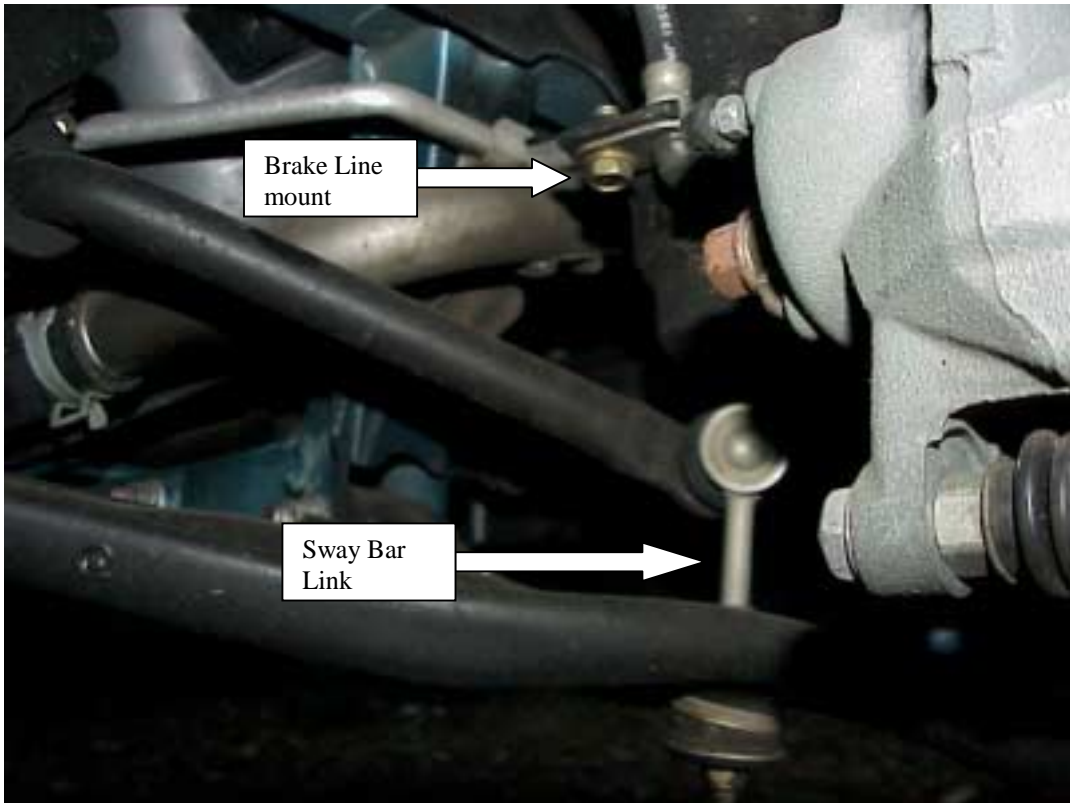


D. After these task were completed I proceed to lift the car. I wanted as much room as possible, and did not feel comfortable having the car resting on 4 jack stands (besides I only have 2) so I backed the rear up onto my ramps, and lifted one side at a time from the marked lift points using my floor jack. I did not use the center lift points for fear of not being able to get the jack out from under the car once I was done. I do not know the exact height I had the car at, but the jack stands were up to the forth notch, and I would guess at 12+ inches.



E. Next I removed both the passenger and driver side wheels, and snapped lots of pics for reference. Here are some shots of the notes:





F. Now that I had reference shots I proceed to dismantle things. First I disconnected the sway bar form the upper portion of the link. It looked like it would get in the way so I started here first.



G. Then I removed the link from the lower suspension arm, and placed the entire assembly in a zip lock baggie. Please note that there is NO washer for the link where it mounts to the upper side of the lower suspension arm. The bottom side however does have washers. BTW I removed the links from both sides at this time.



H. I then removed anything else that looked like it would get in the way. First was the ABS speed sensor wire harness.



I. Then the Brake line Mount.



J. Now came the fun part, removing the steering knuckle from the strut.



I did not want to create any unnecessary stress on the brake line, and the ABS speed sensor, so I supported the calipers using my jack. This worked, but I just did not feel like it was as stable, as I would have liked for it to be. So I switched over to the jack case which was just the right height. (Sorry no picture of that)



K. I then proceed to what I found to be the most difficult part. Removing the front sway bar. First I removed the brackets on both sides (easy).



L. Getting the sway bar out was a royal pain in the ass. I did not even think about taking pictures. In retrospect, I think it would of saved a lot of time and effort if I had removed the front spare tire, and compartment. This I believe would allow for a lot more room to maneuver the sway bar out with. Funny thing is once I found the proper pattern, lift here turn there, inch this way, it came out smoothly and the new one went back in easily.

M. Now that I had no obstructions in the way or at least very few, I then removed the top three nuts from the front strut tower brace/chassis mount. When doing this be sure to hold up the strut assembly when removing the last nut. The strut assemble might drop, and/or lean to one side. This however unlikely could cause damage to the bolt that the nut mounts to. The following picture shows the complete strut & spring assemble.



N. Now it was time to use those spring compressors. I placed one compressor on each side of the spring. Next I tightened them down by hand until I could not turn them any more. Then I installed and tightened the safety locks. Once I felt that every thing was secure I began to slowly remove the strut center nut.



Even with the spring compressors in place, when the nut came off there was still some tension, just enough to send everything flying a few inches. **DO NOT LOSE ANY OF THE PARTS. YOU WILL NEED TO RE-USE EVERY THING EXCEPT FOR THE CENTER NUT!** New center nuts are provided for all four struts/shocks. Here is a picture of everything disassembled in the correct order.



O. Next I removed the compressors VERY slowly a few turns on one side a few on the other. I have heard horror stories about injuries so I was being EXTRA careful. Then I put the new spring onto the new strut. You should be able to read all of the TRD labels from left to right bottom to top once you are done. The strut has a TRD sticker on it and the springs a TRD label on them. They should not be upside down. A cool side note, if you look at all f the writing on the struts you will notice one of the few parts in English shows KYB. Do they make the struts for TRD? ☺ Here is a picture of the completed assembly, along with some comparison shots. I found that I did not need the spring compressors to accomplish the reassemble. My weight pushing down was suffecent. Also note that the center bar of the strut, mounts to a KEYED mounting hole in the dust cover/mountng bracket. Be sure this is aligned correctly.





P. So now all that was left was to put everything back on, except for the sway bar I waited until I had completed both side before installing the sway bar. I pretty much followed the reverse of what I have described here, and what do ya know I got new struts, and springs in the front. Best of all I did not have to pay some money hungry dealer \$800.00. After one side was completed, including the installation of the new stuff. I then moved over to the other side. This way I always had a complete model to refer back to if anything got confusing.



Part II Rear Strut component removal & Installation:

Ok on to the backside. I was a wee bit tired at this point so I did not take as many pictures as I had for the front. Most of the work is very similar to the front.

Q. The first thing I did was to loosen the lug nuts on both rear wheels.

R. Next I removed the center cap over the strut tower using the standard screwdriver.
(please note I have previously installed the TRD Rear Strut tower brace, so once again it does look a little different than a stock car)



S. Once again I loosened the center strut nut prior to removing the assembly from the car.

T. I then proceed to lift the car. Once more I did not use the center lift points for fear of not being able to get the jack out from under the car. Also I was unable to use my ramps on the front end. The car is too low now, and damage would have occurred to the bumper cover. So up front I placed wheel stops, and at the lift points on the sides went the jack stands.

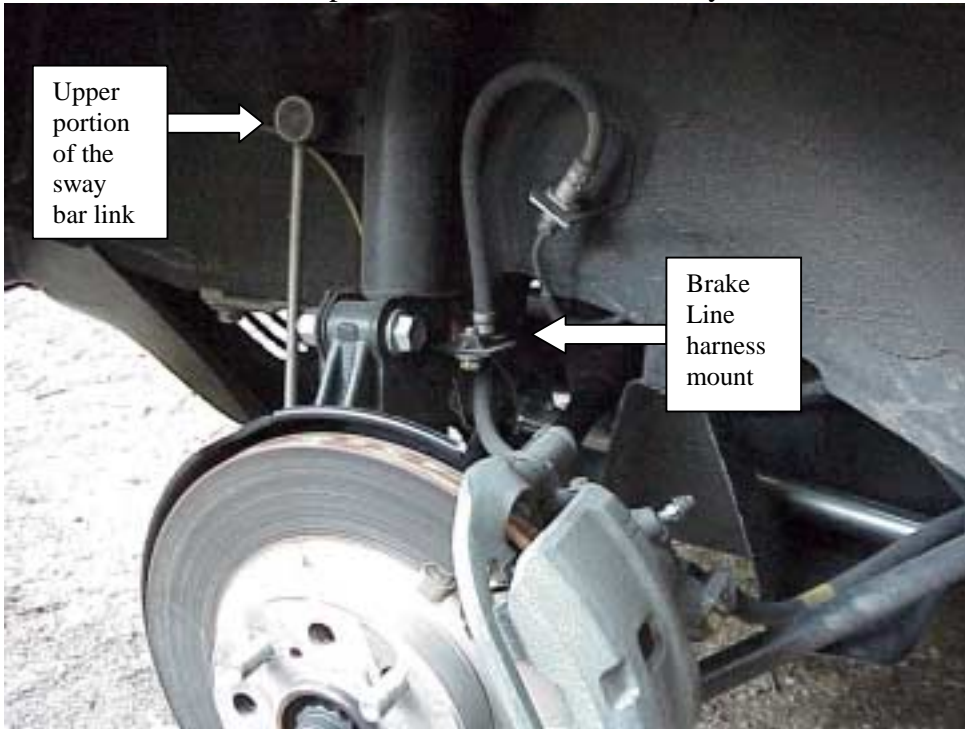
U. I then inspected everything to see what would get in the way. I went straight for the sway bar. I disconnected the sway bar from the lower portion of the link, leaving the upper portion of the link attached to the strut. I then removed the Sway Bar Brackets, and Bushings. I did this on both the passenger side and the driver side of the car. Once everything was disconnected, I removed the sway bar from the car. This was nowhere near as difficult as the front.

V. Next I moved onto the Brake Line mount. Just like before I wanted to get everything out of the way that looked like it would get in the way. The following series of photos will show what I did up to this point, along with providing some reference.



Lower portion of the sway bar link

Please note that the above photo was taken after the sway bar was removed.



Upper portion of the sway bar link

Brake Line harness mount





- W.** Now that everything was out of the way, it was time to remove the nuts from the Strut connecting it to the axle carrier. These are in at 128ft/lbs. I do not have a breaker bar, so it was one foot up in the wheel well resting against the frame, and the other on the opposite side, a few grunts and off they came. Once again I used my trusty jack case to hold up the calipers, and discs.
- X.** Then the same as the front I removed the strut tower mounting nuts. Carefully holding up the strut/shock assemble while removing the last nut. And out it came with out a problem. Unfortunately I did not take any pictures during the disassembly. The first thing I removed was the Sway bar link. This is attached directly to the strut, and will need to be placed on to the new strut. Note that there is NO new bushing provided, so you will need to use the old busing. The spring compressors were used just like on the front. Once you have removed the center nut, the old dust cover pops right off. There is one part you do need to reuse. You will see it and know what it is. I do not know what to call it except for the Styrofoam looking spacer thing. If you look above in the front section part of this write up, just above section O there is a picture of the front strut disassembled. The orangeish thing you see on the end of the dust cover is what I am referring to.
- Y.** Once I had the old strut assembly disassembled, I reassembled the new one. Once again I did not find it necessary to use the spring compressors during the reassemble. Just like the front though; make sure you are in the “key” on the dust cover/strut-mounting bracket. Otherwise when you try to torque down the center nut you will just sit and spin. The following photo shows the fully assembled unit, (minus the sway bar link) along with the old spring next to it.

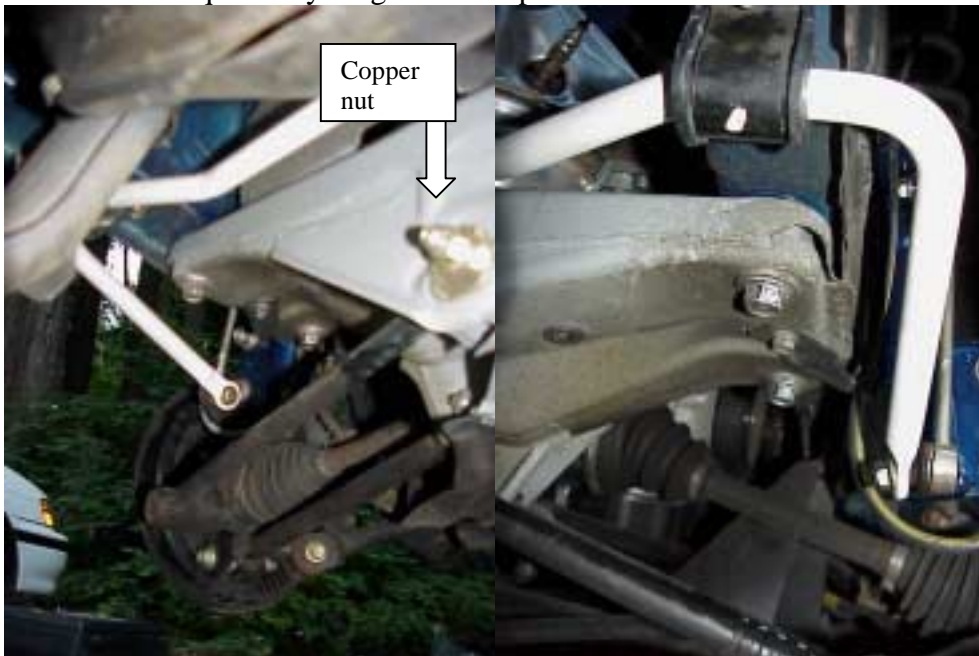


Z. Now that it was all ready to go back into the car, so in it went! I put everything back on at this time except for the sway bar. Once I was finished installing the new strut assembly, I went to the other side and did the process all over again.

AA. Once both sides were finished I then installed the new sway bar and bushings. While I was down there installing the brackets, I went a head and removed the plastic covers from underneath the exhaust, and the motor. Here a picture of the completed install with the new sway bar.



BB. Last and not the least was installing the member spacers. The instructions are in English, but I was unable to follow them to the “T”. I do not have a transmission stand, so I substituted my jack for the stand. I brought up the jack and just kissed the under side of the member directly below the copper nut from the first photo below. I did one side at a time, but I found it necessary to “slightly” loosen the opposite side from which I was working on, in order to get enough clearance to slip in the member spacers in. Once they were in I used a small screwdriver to align them. After that I threaded the bolts in and torque them down half way. I did not want to fully torque down on the first side because then I would just have to loosen them up again. I then moved the jack over to the other side and did the same thing there. Once everything was In I torque everything down to spec.



CC. Next I put all the plastic covers back on, put the Spyder back down on the ground, put away my tools, went for a quick spin to see if I could here anything strange, or feel anything wrong. I was not gone for more than 5 minutes, before I returned to the house and began my night of anticipation. My 4-wheel alignment/wheel balance was scheduled for 7:30 am the next morning. I did not want to go out and start driving without having those done. Needless to say I was up bright and early the next morning.

Part III Post Mortem:

Out with the old Splat, in with the Bionic Splat

After the alignment and wheel balance were completed. I was off to work. For those of you who know California, I live in Ben Lomond; the closest Toyota dealer is in Santa Cruz. I work “over the hill” so my daily commute is on HWY17, or 9. I figured 17 was as good a place as any to break in and test out the new suspension prior to hitting my favorite stretch of local road HWY 9. So when I left the dealer around 10:00am or so most of the commute traffic was gone. Sweet open road... WOW!!! OMFG!!! I have never felt this good driving over 17 before. The slowly fading perma-grin returned in full force. I could not wait until I was off from work so I could take 9 home!!!!

Here are some excerpts from email I sent to some friends I regards to the new suspension.

The car is not the same!!!

Quick question after you had installed yours did you feel like the rear End was a bit looser than before? I think it is just me, anticipating For the body roll, which is not there any more... Hardest part was Getting the front sway bar out...

I find that I am entering corners a hell of a lot quicker than before. ;)

All I know at this point is that I need to re-learn the car. It is 100% different. I am entering a lot quicker, and the response to my input seems to have a 2x Factor now. Time to hit the track again I think ;) I will drive 9 home tonight but take it easy... learning curves begins a new. In a few words, it is almost scary fast In the corners now... :D

It's in and it is a completely different car, or should I say street Legal Go-Kart... More to come...

Hwy 9 Report w/Sportivo:

OMFG!!! :D Frigg'N incredible, Once I got past my fear of how fast I could go... It was one of those moments where you become one with the Car. There was very little traffic past the summit on the downhill Section, and what little there was moved aside. No more worries about a lose rear end. It was as I suspected my previous compensation for body roll. A lot of my style of driving, was and is based on how I "feel" the Weight of the car transferring. When I first took Splat out for a spin after the install, I almost felt blind. I could not feel as much input from the body roll. It was a little unsettling, "what have I done wrong". Actually that is what impresses me the most now. Fast and smooth! I felt as happy as day 1 when I first test-drove the spyder. Impressed by how little goes a long way. Very little input is needed to go where you want. After I learned to accept, and not anticipate, smooth as butter on a hot biscuit. The previous "feelings" are still there, it is just that they are just subtler now. I am also remarkable surprised how the ride Feels now. I was expecting a much harsher ride, not so. I think the car now feels perfect! I love the new THUMP THUMP sound as you cross the little bumpy things on the highway while changing lanes.

Bit -O- history

When I first started driv'n 9 with Splat it was mostly 25% 2nd gear, 60% 3rd gear, and 15% 4th gear. After a wee bit it became 10% 2nd, 75% 3rd, and still 15% 4th. Yesterday was 0% 2nd, 50% 3rd, 50% 4th. WOW!!!! FUN, FUN, FUN!!!!

The scary thing is (in a good way) I know I could have been going faster!

This last weekend (6/24/01) was the IMOC Napa Rally. I put Splat through its paces. SWEET!!! Response has improved in a big way! High speed cornering (for me that is anything above 90MPH) is VERY stable. Recovery is instantaneous from bump steer. The balance seems dead on now! Control is Awesome! I can not wait to get Splat out on the track Again! LAST WORDS: If ya love hit'n corners fast, this is a must have!!!!

By: Ed MacGillivray AKA: WHELP

CAR : SPLAT 00' Spectra Blue Metallic with-
DTM/AutoPower roll bar, F & R TRD strut tower braces, F & R TRD Member braces,
TRD Sportivo Suspension Kit, TRD Alum. Int., J-Spec & TRD badges, TRD air filter,
B&M Short Shifter, Alarm w/proximity Sensor, RS antenna,