David Jun

Pro setups for the Tamiya TA03F Pro chassis

Benchmark

TA03F Pro Set Ups

The TA03F Pro is Tamiya's third generation 4WD racing chassis. This chassis incorporates years of development to provide stable handling characteristics, making this car suitable for both beginners and expert drivers. Be sure that all parts and equipment are in good condition. Any worn or damaged parts should be replaced.

The Differential

When assembling the differentials DO NOT polish or prepare the parts other than the way it comes in the kit or hop-up. Assemble the differentials as per instructions.

The Differential Setting

Tighten the differential bolt until it stops, DO NOT use excessive force. The differential should feel smooth but not free. If the differential is too loose or too free the car will react inconsistently and have a squirrelly and/or loose feel.

Additional Set Up Tip

Replace the thrust bearing assembly with a 5 x 11 mm ball bearing and two large cone washers clam shelled. This provides a simple and smooth differential set up. A properly set up thrust bearing assembly will have the same effect.

The Gears

The gears on the TA03 should have a thin coating of grease such as Tamiya's 'Ceramic Grease' no 87025 made just for that purpose. All gears have some gear lash and a coating of grease on the gears dampen the lash resulting in a quieter, more efficient driveline.

The Counter Shafts

If you TA03 makes a clicking noise, you can correct the problem by adding a small amount of blue threadlock to the 5 x 11 mm and 3 x 7 mm bearing surfaces on both front and rear counter shafts. Use only enough threadlock to coat the bearing surface. Any excess threadlock may enter the bearing or harm surrounding plastic.

The Suspension

The cars suspension with the dampers removed should move freely. The upper arms provide just the right amount of camber. If you are using the adjustable arm set, the original camber angles are recommended. The stock caster angle of the TA03 is 8 degrees.

Using the TA02 caster blocks will decrease the amount of caster to 3 degrees. This makes the car react much more quickly and provides more steering. When using the TA02 caster blocks, one or two washers must be added between the upper arm and the caster block, also two additional washers much be added under the 5 mm ball connectors on the steering bellcranks (this corrects bump steer). One black O-ring must be installed in the front joint cups to prevent the driveshafts from falling out. The TA03F Pro kit comes with both from and rear sway bars. Using the TA-2 caster blocks prohibits the use of the front sway bar. Removing both front and rear bars allows the chassis to roll a bit more in the corners giving more traction and turn-in.

Dampers and Springs

The original dampers provided in the kit are excellent and should be assembled as per instructions. 80w oil is a good alternative to the original oil when rebuilding the dampers. The blue springs from the 'Tuned Spring Set' no 53163, should be used in front and rear. This combination provides a perfect match between the spring rate and oil. If the dampers are too firm the car will be very unforgiving on curbs or corner dots, drift excessively and may even chatter in the corners. If the dampers are too soft the car would have excessive roll and react very slow. Once the dampers are on the car your ride height should be 4 to 5 mm and level to the surface.

Steering

Servo Set Up - Tamiya's 'Hi-Torque Servo Saver' is recommended no 50473. It is very important that the servo saver sits 90 degrees to the chassis in the neutral position. Do not use excessive toe in or out setting (start with 0 degrees). Once the steering is set up, check to MAKE SURE the car turns circles equally both ways.

Wheels, Tyres and Inserts

Tamiya wheels have more value than just the scale appearance. There are several different offsets available. First is what is called the standard offset followed by the 2 mm offset, the 4WD truck wheels and the two-piece wheels, all of which can be used to adjust the

The Protoform S40 Volvo favoured by David in Florida

width of the front and rear of your car. With those adjustments you can fine tune the balance of your car. Wide rear wheels are also an option however the TA03 seems to work best with standard width wheels and tyres.

Start with the tyre that provides the most grip, such as Tamiya's 'Super Slick' tyres no 53220. Use the same compound tyre in front and at the rear, otherwise the overall balance of the car's handling will be compromised. Inserts are equally important, Tamiya's 'Hard Inner Sponge Set' no 53156 works very well as do the 'Soft Shaped Inserts' no 53250. The 'Hard Inner Sponge' will usually provide the most traction, but due to the amount of traction the TA03 tends to understeer a bit. The 'Soft Shaped Inserts' however have less grip and slide more but because the TA03 is so stable both types of inserts will work well.

Battery

The TA03 has two battery positions to choose from. The instructions recommend the rearward position; for more steering move the battery forward. Tamiya also makes an optional 'Carbon Battery Plate Set' that replaces the original battery box no 53261. This allows for side by side stick packs and reduces the weight of the car.

The Belt and Pulleys

The TA03 comes with two 15 tooth pulleys and two 16 tooth pulleys as well as a belt tensioner. Use the 16 tooth pulleys and remove the belt tensioner. The 16 tooth pulleys provides the most surface area for the belt, and removing the belt tensioner makes the belt as free as possible. When the belt gets older and begins to stretch install the belt tensioner.

Conclusion

This set up is a result of extensive testing and development from Tamiya's factory drivers as well as myself, Gary Demory and the designer of the TA03F Pro. Each persons driving style my be different and adjustments can be made to suit each individual.

TA03F-Pro '97 Roar Nats Set Up

Tamiya's third generation 4WD racing chassis is the TA03F-Pro. Not only is it a car I've had a great deal of success with, it's also the easiest sedan car to build, set up and drive. At the 1997 Roar On-Road Nationals in Florida, I went with a set up that was somewhat different from what I normally run back home in California. In this article I would like to share with you in detail what worked for me in Florida.

"Removing both front and rear bars allows the chassis to roll a bit more in the corners"

Remember, the most important tip is to be sure that everything is in good condition. Any worn or damaged parts should be replaced.

Differentials

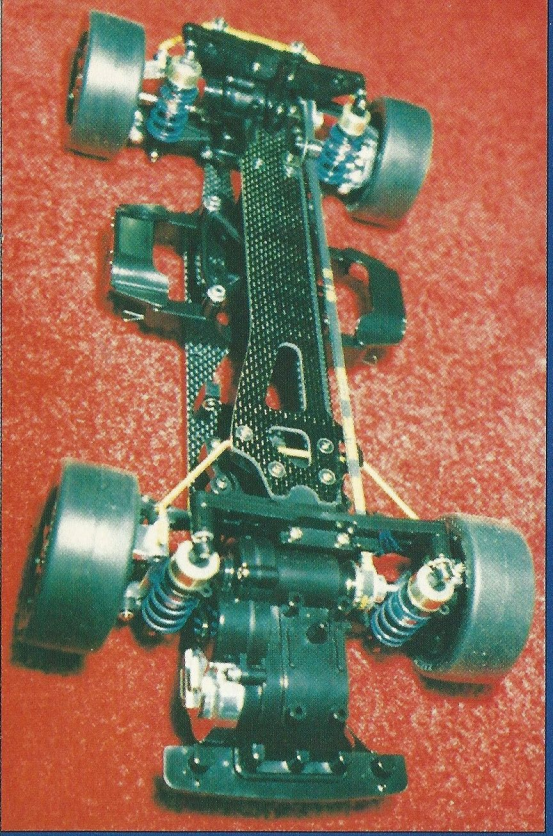
For this step you will need the following Hop-Ups, the Aluminium Pressure plate set no 53219, the 3 mm Tungsten Carbide Diff ball set no 53124 and Hard Join Cup set no 53217.

Assemble the differentials as per instructions but with the above Hop-Ups. Do not use anything between the diff ring and the pressure plates such as damper grease or syrup. This may sound strange, but I've seen people do this. It squeezes out into the diff balls and makes a mess in the diff. When installing the diff rings look carefully and put the round side facing down, this way the sharp edge side faces the diff balls. The sharp edge side is a little flatter and will make the differential a bit more consistent. As for diff lube I use Associated's diff lube because it tends to stay on during rotation. When assembling the thrust bearing portion, the only parts used are a Tamiya 5 x 11 sealed bearing and two large cone washers. Put the remaining parts in your storage box. The order of assembly is as follows. First install the 5 x 11 ball bearing, followed by the two cone washers. The two cone washers should be 'clam shelled' together, then the 4 mm bolt can be installed. When I tighten the differential, I hold the assembly on its side so that gravity will not pull the cone washers or the bearing to one side or the other. You should be able to tighten the bolt all the way down. The diff should feel smooth but not free. When tightening the bolt, tighten a quarter turn at a time and check the differential between each turn. It is very important to use a high quality ball bearing for the differentials. If your diffs feel gritty, even with a new bearing you may want to try a Tamiya sealed ball bearing. I always use Tamiya's sealed ball bearings because they really are the highest quality. At this point you most likely have the joint cups installed. I always put a small amount of Tamiya's blue thread lock on the teeth of the joint cups. This prevents the teeth from stripping out under constant acceleration and braking. Remember to put the 5 x 11 bearings on the joint cups before applying the thread lock. The differentials are one of the most important adjustments on the car, so it is important to pay close attention when building or rebuilding your diff.

Saving Weight

I cut away some of the material on portions of the gearboxes and chassis parts to save a lit-

The TA03 and TA03 Pro chassis



The David Jun replica, much sought after

"This set up is a result of extensive testing and development from Tamiya's factory drivers"

tle weight. On the front gearbox, cut off the unused mounting posts above the motor. For the lower half of the gearbox, remove the outside mounting positions. Then trim the front bumper enough so that it just profiles the gearbox. On the rear gearbox I cut away the left and right tabs in front as well as hollowed out the compartment so the receiver will fit in the centre of the car. Also, I Dremeled the rear swaybar mount area. Then the last bit of weight savings, cut the battery brace so that the X portion is removed.

Remember - if you are planning on racing the Tamiya Championship Series, these modifications are not allowed.

Gearboxes

The front and rear gearboxes should be assembled just as shown in the instructions, but with the following Hop-ups. 5 mm Aluminium Ball Connectors no 53284. Aluminium counter shaft no 53274. The Torque Splitter Unit no 53279. The TA03 Aluminium Motor Heat Sink no 53275. The Hollow Carbon Gear Shaft no 53260, 3 x 15 mm Titanium screws no 53017 and 3 x 10 mm Titanium screws no 53095.

Apply a thin coat of Tamiya Ceramic Grease no 87025 to the surface of the gears. This dampens gear lash and makes the gearboxes more efficient. The Aluminium Motor Heat Sink cools the motor and adds support to the front gearbox. Installing the Hollow Carbon Gear Shaft saves that extra bit of weight. The Aluminium Counter Shaft is installed in the rear gearbox to save weight. The Torque Splitter Unit is installed in the front gearbox. This unit allows the car to carry more speed in the turns. The reason for this is when your car is in the middle of a corner the wheels are usually turned almost all the way to the left or right, and the car is decelerating. Without the torque splitter, the front and rear wheels fight one another. The rear wheels are trying to turn faster than the front causing drag. The torque splitter allows the front wheels to free wheel allowing the car to carry more speed going in and coming out of the corners.

Suspension

For the suspension, the following options will be needed. TA03 stabiliser set no 3276, TA03 Aluminium Rear Upright no 53288, Super Low Friction Damper no 53280, Aluminium King Pins no 53157, Universal Shaft Set no 53172, Cross 2 deg. Caster Blocks, Tech Racing Offset Axles and Kose Suspension Shims.

The suspension is assembled as per the instructions but with the above Hop-Ups. Make sure there is no binding in the movement of the suspension. In the Kose Shim Set, use one red shim on each hinge pin point when assembling the suspension, you will need a total of eight shims. This removes the excess slop in the suspension. The 2 deg. Cross Aluminum Caster Blocks reduce the total amount of caster from 8 deg. to 5 deg. of total caster. This is because there is 3 deg. of anti-dive in the suspension arms. In Florida I needed a little more steering, and the cross caster blocks allowed the car to enter the corners faster as well as enable me to use a front swaybar. Using the Tamiya aluminium rear uprights does not change the suspension geometry, but it does add additional support to the rear axle assembly. The standard rear axles are replaced with Tech Racing Offset rear axles, making the rear track about 5 mm wider than the front. This allowed the car to rotate and finish the turns better. Using the Tech Racing rear axles does not allow you to use universals, but because the rear tyres don't steer, it will not hurt performance. The universals are important in the front suspension and should be used. Not only are the Aluminium King pins lighter than the stock parts, but they are smoother as well. Tamiya's Super Low Friction Dampers are the highest quality shocks available. The shock set comes with all four shocks and blue tuned springs. Assemble all four shocks with the Teflon two hole pistons. For the internal limiters install one black O-ring as per instructions, and in addition, add one short plastic limiter from the stock plastic shock set in each shock. Fill all four shocks with Associateds 30w shock oil, and use the blue springs supplied with the shock set. After you have everything installed, the ride height should be 5 mm and level to the ground. The stock upper arms work very well and should not be changed. In the TA03 stabiliser set there are three different rate bars, Red (Soft), Yellow (Med) and Blue (Hard). Install the yellow bar in the front and the red bar in the back. This proved to be a perfect balance with the torque splitter and because of the amount of traction at the track in Florida. Without the swaybars the car was on the verge of traction rolling.

"Without the swaybars the car was on the verge of traction rolling"

Belt and pulleys

In this step, all you need to have is the Aramid Fiber Belt no 53278 and the TA03 Aluminium Pulleys no 53286. The Aramid Fiber Belt is much smoother, lighter and efficient. The aluminium pulleys are the same weight as the stock pulleys and tend to repel dirt and rubber. The TA03F-Pro came with a belt tensioner which I didn't use. If your belt starts to skip, install the tensioner.

Radio Equipment

For any serious racer it is vital to have the best and most reliable equipment. That's why I use a Futaba 3PJ transmitter with a R103F receiver. To turn the car I use a Futaba 9402 High Speed servo. To power the car I use Novak's Cyclone Programmable speed control.

Radio Installation

First start with the receiver, it goes into the hollowed out compartment in the rear gearbox. Now the servo and speed control, I mount a special way so that everything sits on the lower deck. This is very easy to do, all you have to do is remove the servo to the left and servo tape the speed control next to it. I use shoe goo to hold the servo in place. The only thing you need to change is the linkage between the bellcranks, it needs to be reversed. First set up the servo as per instructions including the rods and linkage. Then remove the servo, and reverse the linkage between the bellcranks. Set up the Tamiya High Torque servo saver no 50473 so it is neutral or 'centred'. Because you have the steering rod adjusted, simply move the servo to the left till the tyres are pointed straight and shoe goo the servo in place. When doing this make sure the battery box is in the forward position. Once the shoe goo is dry (this will take about a day) you can servo tape the speed control. The Novak Cyclone uses a external capacitor so I cut all but 3 mm off the positive and negative leads. Then I use the wire that's used for the brake lights to connect the capacitor to the speed control, this way you have the freedom to put the capacitor wherever you want. It's very important to make the wire as short as possible.

Conclusion

One thing I didn't mention is the tyres and body. I used Pro-Line tyres in Florida which worked great. The body I used was a Proto Form Volvo S40, this provided a perfect balance. Also all of the 5 mm ball ends were replaced with the aluminum ball end set no 53284. Remember, this set up is what worked for me in Florida. You may need to set up your car a bit differently for your home track. The TA03, however, proved to be an excellent platform. The ground breaking design combined with thoughtful modifications proved to be the winning combination for me. Good racing and have fun! RRCI