Twister Cyclone

storm WARNING!

WE KNEW IT would be only a matter of time before Mike Walker Sr. produced a vehicle that's worthy of the Twister* name. He has been involved with motor sports for most of his adult life and, with the knowledge gained during years of racing full-scale cars on the West Coast, moving into scale was just a natural progression.

by JIM SHEPKA

PHOTOS BY JIM SHEPKA

CYCLONE CONSTRUCTION

Twister makes it easy for you: the parts for each construction step are packed together in bags that needn't be opened until you reach the appropriate step. With that in mind, I turned my attention to the basic chassis plate and began by filing the battery slots. Instead of using a file, I chose my trusty Dremel tool and worked on each slot so that the batteries fit snugly into place. I also went over all the edges of the chassis just to round off any hard spots, and then I washed off the graphite filings.

The shape of the chassis plate is unique.

Constructed of carbon fiber, it was cut in this configuration to achieve "low polar moment of inertia." What's that, you ask? By putting the vehicle's mass as close to the center axis as possible, the chassis' rolling angle and the amount of weight transferred across it when cornering are reduced.

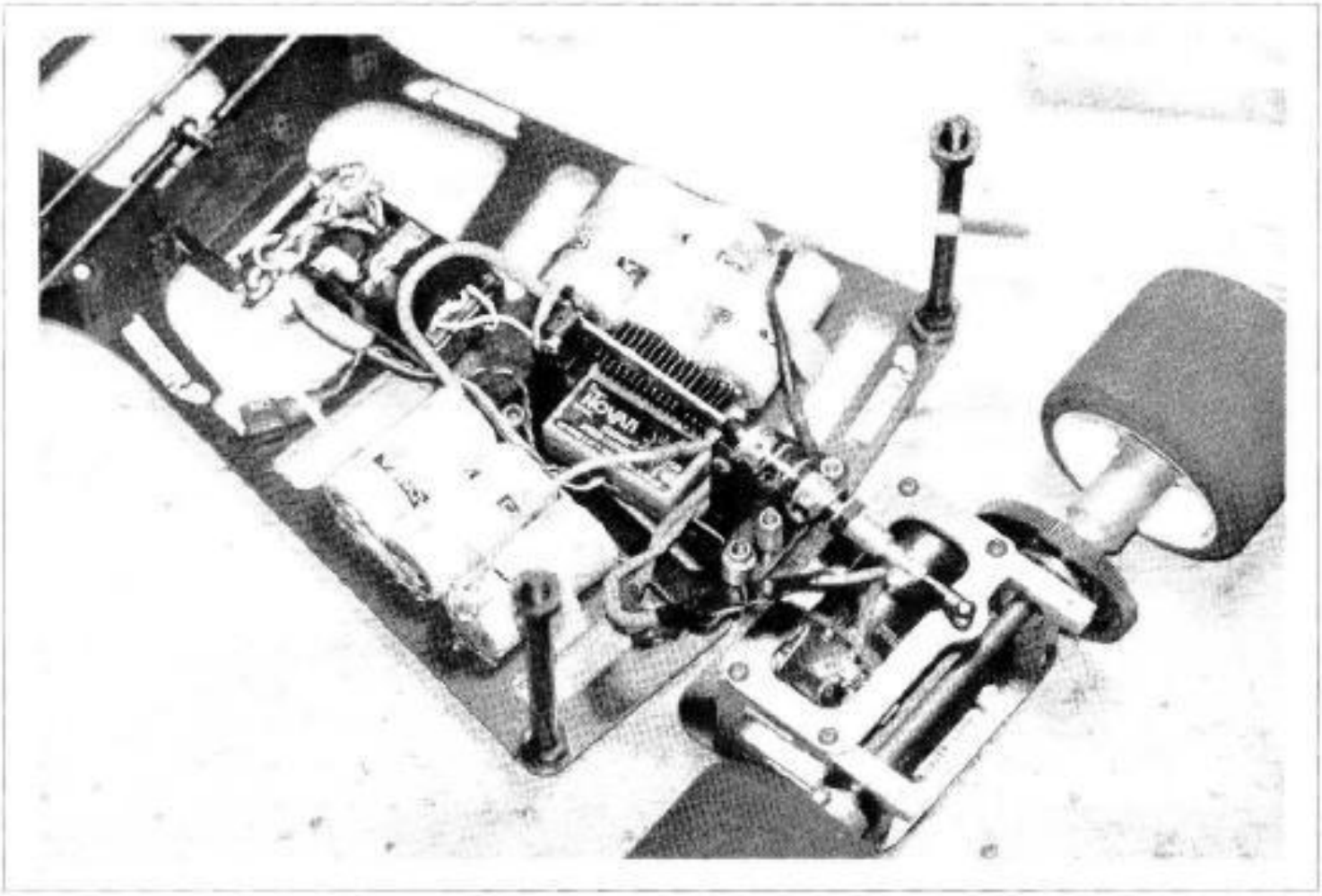
Bag no. 1 contained all the necessary front-end hardware. I inserted the axle through the steering block, attached an E-clip to one end and put a drop of CA on it for increased security. Having completed both sides, I joined the steering blocks to the suspension arms—a job that takes manual dexterity. When you insert the kingpin through the arm, snap an E-clip into place, as shown in the illustration. With the spring and steering block in place, position the kingpin so that you can attach the remaining E-clip. (A small pair of needle-nose pliers works nicely here.) Repeat the steps for the other suspension arm. Be patient; it might take a few attempts to get it right.

Now, using the enclosed aluminum screws, attach the suspension arms to the chassis. The screws come in two lengths; the longest one is attached to the middle of the suspension arm. With the appropriate shims in place (they only go in one way!), align the holes and screws, and tighten all the screws to the same degree. When both sides are secure, construct the front support brace (two plastic rod ends and a threaded rod) and attach it to the two screws that protrude from the tops of the suspension arms. Hold it securely with the supplied nylon nuts.

I emptied the contents of bag no. 2 onto my work tray and looked for the hardware I needed to attach the axle mounts to the T-plate. Using four, 8x32, 1/4-inch screws, I attached both sides and secured them with a dab of thread-locking compound. I noticed that the right side block (motor) didn't sit flush with the bottom of the T-plate, so I filed the excess away. Then, using 4x40 button-head screws, I attached the upper T-plate support to the bulkheads.

Next, I attached the brass pivot ball to the T-plate. Insert a 4x40, 1-inch, flat-head screw from the bottom and then put a nylon shim and the ball into place. The ball is threaded, so you don't have to tighten it firmly, but be careful to avoid scratching it.

I moved on to bag no. 3 and began by attaching the rear shock post to the mounting plate. I again used an aluminum, 8x32, 1/4-inch screw. Then I attached the plate to the chassis: I used the 5x40, 1/2-inch, flat-head



A Novak T-4 fits nicely under the shock brace. The tweak-adjusting screws are right below the Delta shock.

cyclone

Type ..... On-road
Scale 1/10
Retail Price $270

DIMENSIONS:
Overall Length ..... 18.25 inches
Width ..... 8.90 inches
Wheelbase ..... 10.25 inches
Track (f/r) ..... 7.25 inches

WEIGHT:
Gross (race ready) ..... 41.9 ounces

BODY:
Type ..... Not included

CHASSIS:
Type ..... Pan
Material ..... Carbon fiber

DRIVE TRAIN:
Primary ..... Pinion/gear
Transmission ..... Direct-drive
Differential ..... Ball
Bearings/Bushings ..... Bearings

SUSPENSION:
Front: Type ..... Nylon suspension arms
Damping ..... Spring-loaded
Rear: Type ..... T-Plate
Damping Oil-filled, coil-over shocks

WHEELS:
Front: Type ..... One-piece plastic
Dimensions (DxW) ..... 1.7x1 inches
Rear: Type ..... One-piece plastic
Dimensions (DxW) ..... 1.7x2 inches

TIRES:
Front/rear ..... Green-dot foam

ELECTRICS:
Motor ..... Not included
Battery ..... Not included
Speed Controller ..... Not included

OPTIONS AS TESTED:
Futaba PCM radio with S132 servo; Novak T-4 electronic speed controller; Twister Blueprinted 12-turn double motor; Bolink '89 T-Bird Lite body; Bud's bi-level wing.

COMMENTS:
At home on roadcourses as well as ovals, the Twister goes together quickly, has a solid construction and is really fast, right out of the box. The kit should have adjustable rod ends; the rear body posts were too short; but the wing mount is really "trick."

screws and four fiber washers, which I spaced between the plate and the chassis. I then secured the screws with locking nuts. With an X-Acto knife, I removed the sharp edge on the center pivot hole so that the pivot ball would move freely when I installed the T-plate (see the illustration). I inserted two 4x40, 1-inch, flathead screws into the holes that are adjacent to the pivot ball on the T-plate. Holding the screws in place on the chassis plate from the bottom, I slid small silicone spacers over their tops to hold them and then fit the T-plate to the chassis.

With the chassis and T-plate on a flat surface, I continued the assembly. I put a "tweak" spring collar on both outside screws with the small ends facing upward. I then fitted a tweak spring, attached the remaining collar (with the small end facing downward) and fastened it with 4x40 locknuts. With the tweak screws in place, I slipped a 1/2-inch silicone tube over the center screw and secured it with a 4x40 locknut. (Refer to the diagram for details of the proper adjustment.)

With the T-plate secured at the rear, I mounted the front of the bar to the chassis using one 8x32-inch aluminum screw shimmed by two washers and attached to the antenna mounting post. Washers of various thicknesses produce various degrees of traction, so play it safe for now, and go with the manual's recommendations (one thick; one thin). Avoid over-tightening the nylon screw.

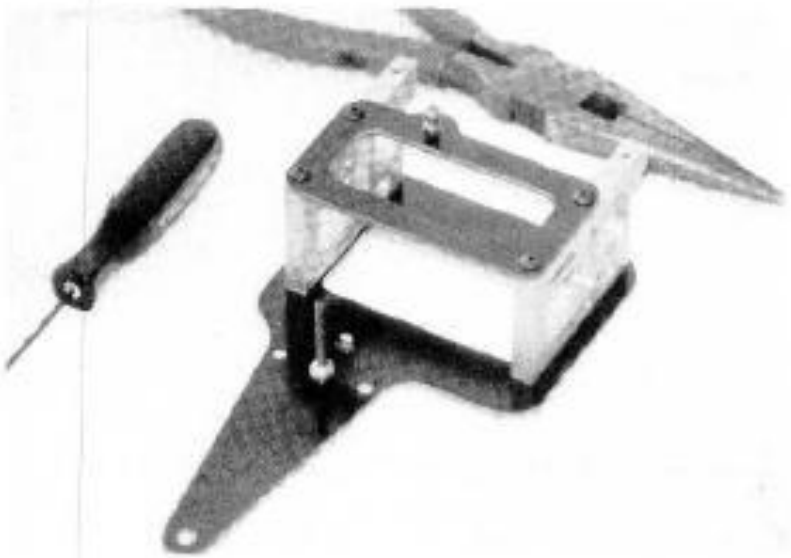
With the shock towers in place, I installed the shock brace between the posts with 2x56, 1/2-inch screws and nuts. Next, I put a drop or two of CA into the top of the rear post, and I inserted a ball cup into the hole with the cup's open side facing the rear of the car.

Next, it was time to complete the differential—no big secrets here; just a standard straight-axle design. I'm not a fan of gluing the diff rings in place because of the residue that's left on the axle and hub when you replace them. I can never get the contact point as smooth as I'd like. Instead, I use notched diff rings, and I pin them into place. I drill a small hole in the hub and axle flange and insert a small "pin." The small red plastic tube that comes with motor spray cans works really well here; just trim it to the proper length and put the notched ring into place. This simple technique is effective and a lot less expensive than the available kits.

The kit includes five bearings: two for the axle carriers, one for the spur gear and two for the drive hub. Both rear hubs and the shock absorber are gold-anodized.

The final step is the construction of a Delta-type shock. I emptied the contents of bag no. 7 onto my parts plate and coated each part with a thin film of oil. I then slid an O-ring, a washer, a small spring and a cap nut over the shock shaft and set it aside. Next, I filled the shock cylinder with 30WT oil (not supplied) and I carefully slid the shaft assembly into the cylinder. To "bleed off" any trapped air, etc., I depressed and released the shaft for each turn of the cap nut. With the cap nut firmly secured, the shaft should move freely in and out. If it doesn't, repeat the process until you're satisfied with the results.

I then attached the rod end to the top of the shaft, slid the spring into place and secured it with the spring adjusting nut. Using a small threaded rod, I attached a ball cap to the opposite end of the shock, and before mounting it, I pumped the shock a few times to make sure it was working effectively. Satisfied with the results, I snapped both ends



The Cyclone's one-piece pod plate and T-plate is a nice feature. The pod will accept either a normal or a reverse-rotation motor, depending on which side you choose to mount the motor.

of the ball joint into place.

I chose a Futaba* 132 steering servo, which I attached to the chassis with double-sided tape. (I didn't use servo blocks.) I then mounted a Futaba PCM receiver directly behind the servo, and a Novak* T-4 electronic speed controller fit neatly between the shock supports.

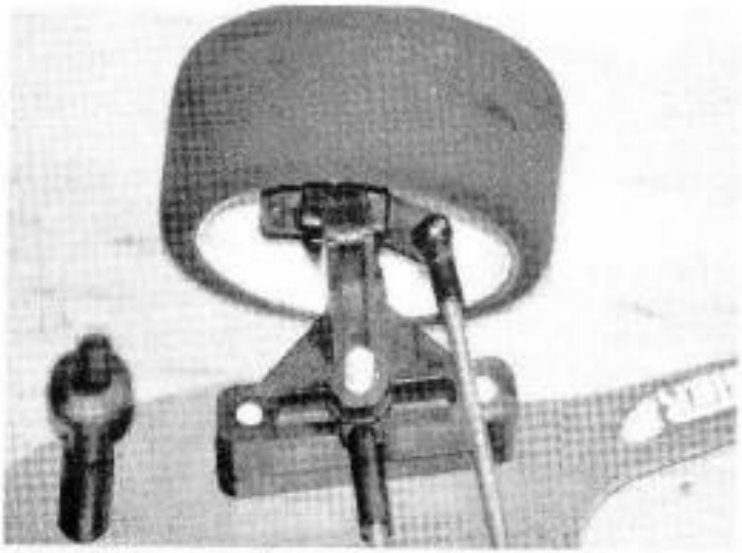
BODY BEAUTIFUL

The kit doesn't come with a body, so I bought an '89 Bolink* T-Bird body. I cleaned it with warm, soapy water and painted the inside completely with automotive-grade masking liquid. When this had dried, I drew the outlines of the numbers and the hood graphics with a felt pen, and then I cut out the designs with an X-Acto knife. You might recognize the design—the "Winston Eagle" logo.

After removing some of the masking, I applied a coat of Pactra's* Candy Blue and then a shot of white. When that had dried, I repeated the process for the numbers, using Neon Red and then white. With that step completed, I removed the remaining masking (except for the windows) and shot the entire car with a fine coat of Candy Yellow and then white.

I allowed the car to dry overnight before removing the masking from the windows. To highlight the colors, I outlined the graphics, the window molding, the hood lines, etc., with a fine-point permanent marker, and I finished the scheme with a few decals. I was pleased with the results.

The kit comes with CKW* tires mounted on dish rims; these are stable while cornering hard and don't become deformed under load. The Twister hub flanges are slightly larger and longer than the usual ones, and this means that the rims can literally be press-fit onto the hubs. This precise fit makes for a drive line that runs very true.



Associated-type suspension arms are used up front. Camber shims are placed between the blocks and the chassis, and aluminum screws secure them to the chassis.

LET'S BLOW!

I headed to my local track—Mike's Speedway, Hadley, MA—with a ton of batteries, motors and tires. With the chassis set according to the manual, greens all around and a stock motor in place, the Cyclone hit the track and was soon blowin' up a storm.

It wasn't too difficult to get the rear end to stick on the high-bite carpet track; in fact, the car started to snap-roll in turns! A switch to a harder front tire (blue) quickly remedied the problem.

In full racing trim, the Cyclone weighed just under the ROAR limit, and a strategically placed quarter bought it up to playing weight. By experimenting with chassis settings, I found that the Cyclone is very responsive to minor changes. By putting a split pack at a variety of locations on either side of the chassis, I really affected cornering. For my racing style, I decided to run the left side batteries all the way to the rear and the right ones all the way forward. This combination worked very effectively on the oval. A slight adjustment of the tweak screws was necessary to balance the chassis for proper handling. With a fresh pack on board, the Cyclone began to turn

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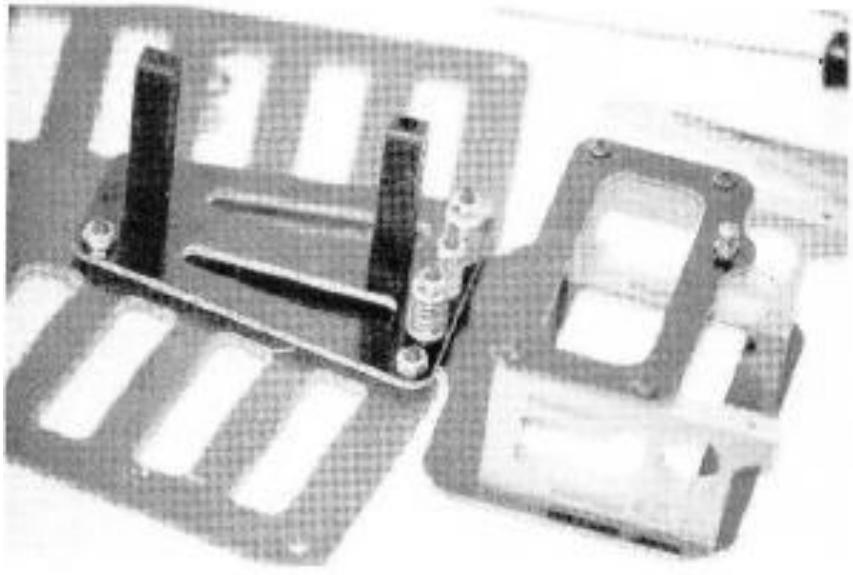
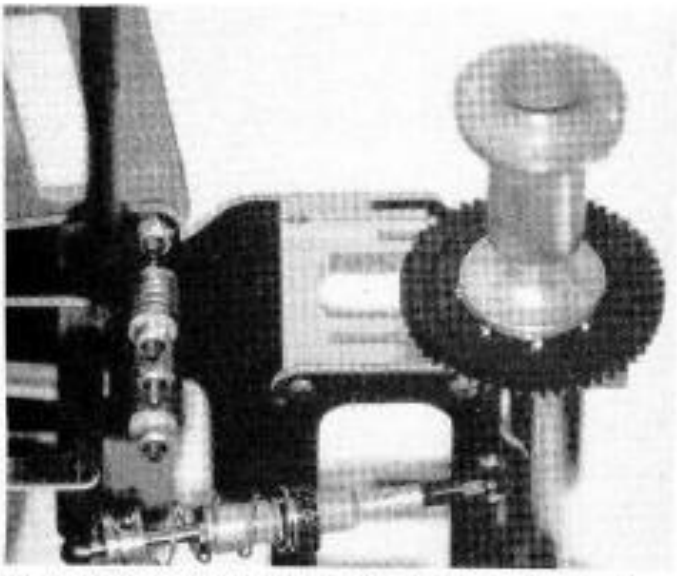


The design of the rear end and T-plate assembly is straightforward. Flexing is controlled by the shock, and side rolling is handled by the spring-loaded tweak screws. Note the two small holes toward the rear of the axle blocks. The wing is mounted directly on the blocks and secured by setscrews on the backs of the blocks.



A longer-than-usual drive hub is used to offset the centered motor. Both the hubs and the shock are gold-anodized.

some very competitive lap times.

Now that I had the bugs out, it was time to see whether the Cyclone's performance could really blow my mind. I replaced the stock motor with a Twister "Blueprinted" 12-turn double and dropped in a fresh 1700mAh pack. These Blueprinted motors start as Yokomo hand-wound motors and they're then super-tuned by the folk at Twister. (Tuning tips and extra sets of brushes and springs are part of the package.)

I can see why they call this car "Cyclone." It was a bullet on straights and a handful in turns. Unfortunately, I over-powered the suspension setup. When running at these speeds, there's a fine line between over-powering and and getting it "just right," and I definitely crossed it. Fortunately, the Cyclone's uncomplicated chassis means that adjustments are easy to make, and the car was up and running in no time. After some tweak-screw fine-tuning and the addition of a Bud's" wing (mounted directly on the axle blocks, so there are no after-market wing mounts to increase weight), the car really came into its own.

The easy-to-assemble Twister Cyclone is a study in simplicity. Its low center of gravity, central motor pod and lightness are really great features. If you're tired of having to "chase" the handling of your current car, the Cy-