

corally

FROM THE LAND of wooden shoes and windmills comes one of the most technically advanced, versatile on-road cars on the market. Based on the design of its younger brother, the World Champion SP-12, Corally's* new 1/10-scale SP-10 has many of the same award-winning features.

THE KIT

Although the SP-10 comes assembled, I took it apart to learn about its finer points. First, I noticed that its chassis is made of metal rather than of composite.

According to the manual, the hardened metal is called "Coral," and it's very rigid. Coral eliminates the unwanted "tweak" that can occur with layered-composite

chassis, which flex at different points because of how they're

unique damping system and differential setup. In place of a



European speed demon!

made.

Although the car's rear end is based on the popular T-plate design, Corally uses a

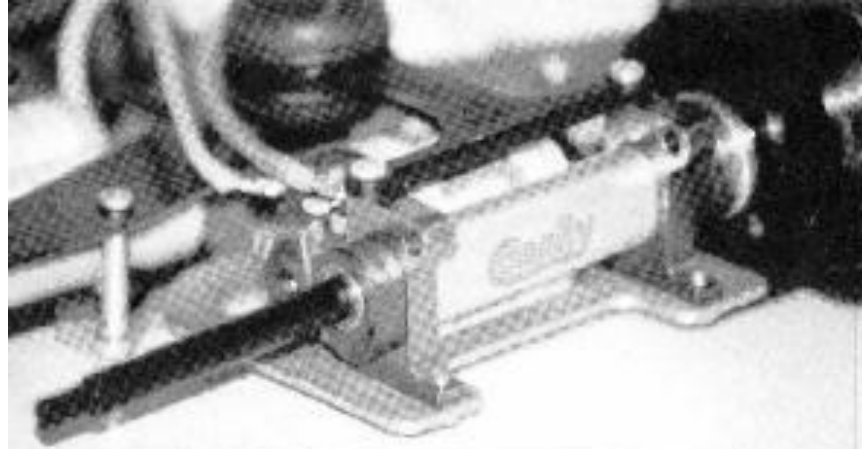
shock absorber, an upper damper-plate/post assembly floats freely inside an enclosed rubber boot that's filled

by JIM SHEPKA

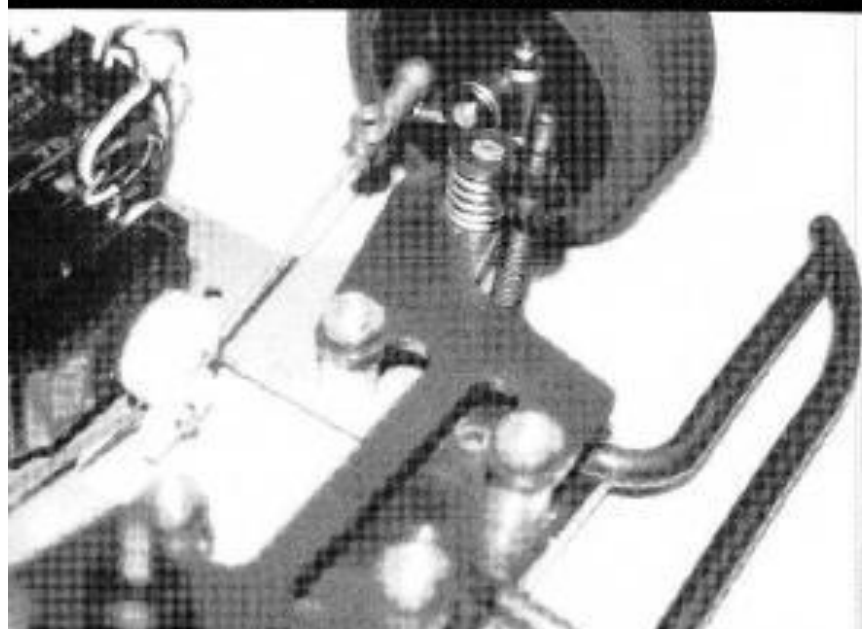


SP-10

SP-10



This unique graphite axle allows you to install the rear tires by removing a small plastic C-ring. Unlike conventional axles, which only support the inside of the wheels, these extra-long axles also support the outsides.



To reduce bump-steer, the servo-saver is pointed downward rather than upward.

with a thick lubricant. This feature provides the rear pod with very consistent damping.

Between the front-beam suspension and the chassis, there are spacers of different sizes that are used to adjust camber/caster and ride height. Unlike a traditional steering-block/axle assembly in which the tire and bearings rotate around the axle, the SP-10's axle and tire rotate as a unit on bearings that are inside the steering block. Larger bearings support the entire assembly, and they spin more freely than standard-size bearings.

The chassis plate's

shape allows a choice of three locations for a split battery pack, and this enables you to alter the car's weight bias for different tracks. For roadcourses, you can mount three batteries on the left and three on the right; for oval racing, three on the left and three in the middle. The SP-10 also has a unique battery tie-down system. The cells are glued to a special adapter, which is then bolted to the chassis. This reportedly reduces the strain on the chassis and makes it easier to change the batteries.

This car's precision differential really intrigued

SPECIFICATIONS

Type On-road
Scale 1/10
Sug. Retail Price \$325

DIMENSIONS:

Overall Length 13.5 inches
Width 8.3 inches
Wheelbase 10.25 inches
Front Track 8.25 inches
Rear Track 8.3 inches

WEIGHT:

Gross (with battery) ... 43 ounces

BODY:

Type Not included

CHASSIS:

Type Flat pan
Material Coral (metal)

DRIVE TRAIN:

Primary Spur/pinion
Transmission Direct-drive
Differential Ball
Bearings/Bushings Ball bearings

SUSPENSION:

Front: Type Cross-member A-arm
Damping Coil spring
Rear: Type T-plate
Damping Free-floating,
lubricant-filled damper

WHEELS:

Front: Type One-piece plastic
Dimensions (DxW)
1.8x1.25 inches
Rear: Type Two-piece plastic
(drive cone)
Dimensions (DxW)
1.8x1.25 inches

TIRES:

Front Blue dot foam
Rear Green-dot foam

ELECTRICS:

Motor Not included
Battery Not included
Speed Controller Not included

OPTIONS AS TESTED:

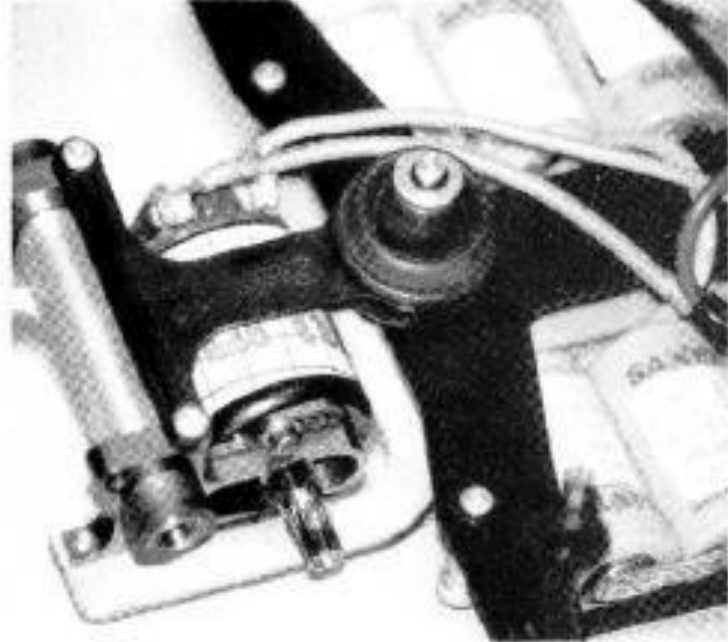
Fulaba 3PB PCM;
Twister Blueprint 12-turn double motor;
Du-Mor spur and pinion gears; New Wave 6-cell 340 SCE battery pack; Pro-Line front bumper; SCAT tire compound and diff lube; NOSRAM DNS speed controller; Bolink Porsche 962 Lite polycarbonate body.

COMMENTS:

The SP-10's engineering is topnotch. Its fit and finish are great, and its differential is incredibly efficient (especially when Corally metric-pitch pinions and gears are used). Although the SP-10 isn't very durable and can't be adapted very well to different surfaces, updates are in the works. The car is a snap to work on (literally—with all the E-clips!), but I'd like to see a better battery tie-down system. Adapters are available to allow the use of standard EBS-style rims, but they add weight to the drive line. The aerodynamic Bolink 962 body is a real asset, and the Twister motor and New Wave cells make an exceptional power package.

me, because it had several innovations. First, the axle is made of solid graphite and doesn't have an aluminum tip. Instead, it's threaded and machined to

accept diff nuts and E-clips, which are used in place of setscrews and locknuts to secure the tires/rims to the axle. Coupled with Corally's unique



SP-10

A rubber boot on the top of the T-bar provides the rear damping. It's filled with silicone to smooth out the rear suspension. The pinion is longer than usual, because the spur gear is positioned further from it.

drive-plate/rear-wheel assembly, this setup eliminates the need for hubs. The standard drive hub has been replaced by a "driver" plate (a conical device) that's fitted to the drive side.

You adjust the diff in the usual way (i.e., by tightening the nut). Then you slide the wheel over the axle, pressure-fit it to the driver plate and secure it to the outside of the axle with an E-clip. Unlike typical rear ends that have inboard bearings (e.g., those of the 10L, the Lynx, etc.), the SP-10 has bearings at the ends of its axle. This improves the drive line's linear stability and makes the axle run incredibly true.

Two rubber O-rings prevent the steel differential rings from slipping. You don't have to glue or pin the diff rings in place, because the driver plate and the axle flange have been routed to accept the O-rings. When the O-rings are in place, install the diff washers and the spur gear. The diff rings ride against rubber instead of metal, and this provides excellent vibration damping.

Because Corally's spur and pinion gears are machined not molded, their teeth mesh precisely. The

pinion-gear mesh is very efficient, and this increases speed and improves acceleration. The spur gear rides on 12 balls, which have been inserted from both sides: six on one side and six on the other. What's so special about this? The differential ball holes haven't been drilled all the way through each side of the gear! Because of this setup, the spur gear doesn't wobble back and forth like standard spur gears do. Unfortunately, the Corally gears are 48-pitch metric, and they won't mesh with standard 48-pitch gears. I switched to a set of Du-Mor standard 64-pitch gears.

THE GEAR

To prepare the SP-10 for a road test, all I had to do was install the electronics and a Pro-Line* front bumper and paint a body. I commissioned Richard Muise of

Motion Graphics* to prepare a Bolink* Porsche 962 Lite body for this project. If you're looking for a hot roadcourser body and an award-winning paint job, this is the perfect combo. My car's beautifully detailed and prepared body is a real show stopper!

I chose my trusty Futaba* 3PB PCM radio (with a 132 servo in front) and a NOSRAM* DNS International Torque speed controller, which is a fully proportional unit with three integrated circuits and eight high-spec FETs. It also has an adjustable torque limiter that comes in handy on low-traction surfaces.

I chose a motor from Twister's* new Blueprint series. Each "blueprinted" motor starts as a high-quality, Yokomo-based, hand-wound modified motor.

Then it's taken apart and adjusted using all the high-tech manufacturing and tuning tips. A lengthy instruction sheet and a variety of brush-and-spring combinations for specific track applications are also supplied.

For batteries, I bought a couple of 1700mAh 6-cell packs from New Wave Cells*. Disgusted with the high prices and poor selection of quality cells, brothers Mike and Joe Marciano started this company to provide attractive alternatives. This company offers competitive numbers at reasonable prices. I suggest that you check out their batteries the next time you're in the market for high-quality packs.

ROAD TEST

With my gear in tow and my reputation on the line, I

In this age of high-tech composites such as graphite and carbon fiber, it's unique that the chassis and front-suspension parts on Corally R/C racing cars are made of a material called "Coral." This special, aerospace-grade aluminum alloy is reported to have a better strength-to-weight ratio than many of the composites now in use.

Because it's strong yet light, Coral was originally used in ships and by the Royal Air Force in a variety of fighter-plane applications. Although aluminum is light, many of its alloys can be bent easily. Coral, on the other hand, has exceptional "memory"; after it has been flexed, it returns to its original shape. Coral can only be bent (i.e., in a severe crash).



Is Coral better than graphite? It's tough to say. Cars with graphite chassis have scored some notable victories, but there's no denying that Corally cars can run with the best of them!

headed for the weekly race at Mike's Speedway in Hadley, MA. I set up the SP-10 chassis according to its instructions, and I put it through its paces. I've run several chassis on this track, so I knew what it would take to be competitive. After a few laps to trim the car and to dial-in the steering, I let the SP-10 rip.

Although I had miscalculated the gearing for this



To prevent them from slipping under acceleration, the diff rings ride on O-rings in the hub and axle. The thrust bearing is completely enclosed in the rear wheel to protect it from dirt. To adjust the diff, you turn the nut on the axle. Most axles have a metal sleeve into which a thread has been cut, but the thread has been cut right into this graphite axle.

motor, I was impressed by the way the SP-10 came off the corners. With the ESC's torque control on its maximum setting, acceleration out of the corners was awesome. I didn't have to regulate the torque control because the carpet had extremely high bite, and the SCAT® tire compound was doing its job well. Unfortunately, the ESC's instructions were vague about recommended settings and specs, so I had to adjust the car by trial and error. With torque dialed out of the system, the car was a real dog off the turns. At

full max, it was a missile, and since the car was so hooked-up off the turns, I just left it there. With blue tires up front and green ones on the rear, I was able to turn the SP-10 under any car and still maintain exit speed. This caused it to peak out on the straights much sooner than I had expected, but changing the pinion gear solved the problem.

The car has fast steering response. Corally recommends center-point steering, with the steering arms positioned at a severe downward angle to the servo-saver. This contradicts any Ackerman setup that I know of, so I was surprised by the car's stability down the straight. Part of this can be attributed to the car's narrowness (8.3 inches) and its smooth differential. The car is very responsive, so you'll need extra stick time to get a feel for it.

With a quick gear change and a fresh pack, I was ready for my first qualifier. There were no surprises; the SP-10 was a rocket out of the box! With just the right amount of steering dialed-in, I ran the low groove and still pulled the other cars down the straights. (In a 4-minute race, being able to run 4 or 5 fewer feet in each circuit really adds up!) After a few more qualifiers and a 2nd-place finish in the A-Main (I was edged out by another SP-10 with a left-turn-only chassis plate), I was comfortable with the car's characteristics. It took me a while to get used to its awesome turning capabilities and the high cornering speeds generated by Twister and New Wave motivation, but I doubt you could find a car that handles better on smooth tracks.

I know what you're thinking! If this car is so great, why aren't more of them on the circuit? Unfortunately, the SP-10 doesn't run well on rough surfaces. The chassis' inherent stiffness and the free-floating damping system aren't popular, but Corally will soon release several updates that will make the car more competitive on the oval scene. The need for lighter chassis plates, sway bars (there's no tweak adjustment on this version), increased suspension travel and more replacement parts are just a few things that will be addressed. (Look for information on the updates in future issues of *Car Action*.)

The Corally SP-10 is one of the finest-engineered cars on the market. If you're looking for a killer carpet car, this one could be your ticket to the A-Main. Of course, nothing beats a good maintenance program, stick time and a desire to win. But trust me—the SP-10 makes success that much easier!