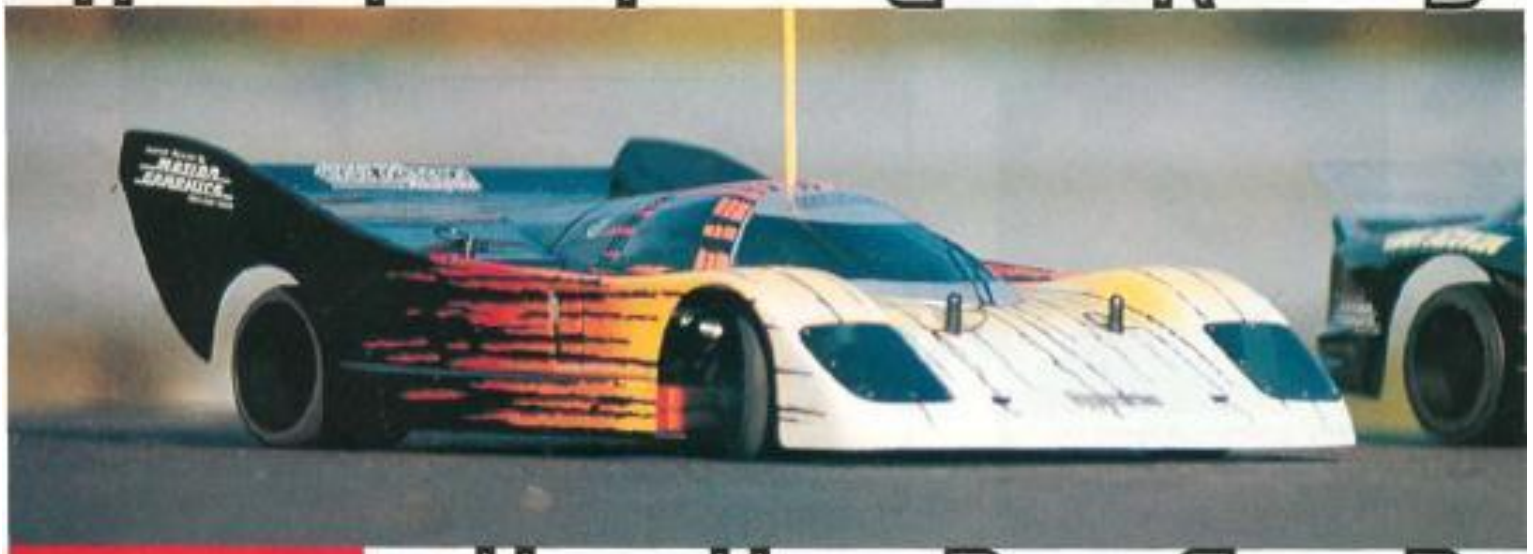
TRACK REPORT

HYPERD



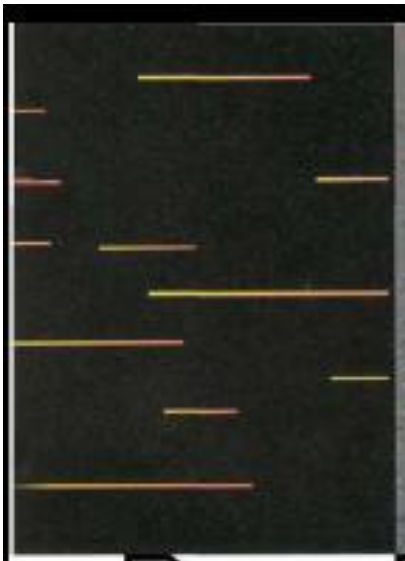
by STEVE POND

HYPER

R/C ON-ROAD race cars are simple by design. The surfaces on which they race are very flat (or at least smooth), and this negates the need for the complex suspension systems used by off-road R/C cars. Most on-road cars have flat, graphite chassis plates and simple front and rear suspensions. Although a few have profoundly different suspension designs, most cars are only separated by subtle differences. These subtleties can often make or break a car's racing success.

Hyperdrive's* newest on-road race cars, the H10SC and the H10SE, prove that details do make the difference between mediocre and marvelous. They may look similar to many other cars, but they have design features and details that put these cars among the very best.

You might remember that the original

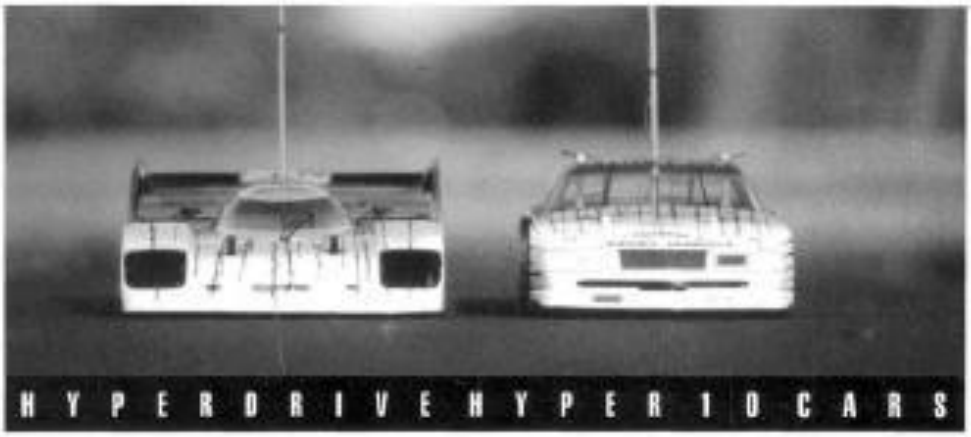


DRIVE

Hyperspeed speedsters

10 CARS

Hyper 10 made something of a splash when it was first introduced. Its wide front end and narrow rear end emulated those of full-scale race cars and went against the grain of old-school R/C design. This "backward" configuration was designed to improve steering by enabling these cars to use tires made of hard compounds, which reduce rolling resistance. The original Hyper 10 also had battery trays and 6-cell stick packs that were mounted across the rear of its chassis instead of the usual saddle-style packs.



HYPERDRIVE HYPER 10 CARS

ADVANTAGES

The H10SC and H10SE fulfill the needs of a more diversified market. The wider H10SC is designed for on-road racing, and the narrow H10SE is designed for high-speed oval racing. Both retain many of the design features that made the original Hyper 10 a potent performer, e.g., a battery tray for stick-packs and the responsive three-shock rear suspension. (Except for the difference in their widths, the new cars are almost identical.) Each car has a graphite chassis plate with two upper supports that make the chassis extremely rigid. Their front suspensions are variations of the old crossbar axle. The axles are held to the chassis with aluminum cinch blocks.

The Hyperdrive crossbar is unique because of its extra-long kingpins and its axle-mounted steering servo. The long kingpins have a section of fuel tubing above the suspension spring that softens the blow when the suspension bottoms out. Below the suspension springs are heavy-duty steering blocks identical to those used on the Associated RC10 off-road cars.

With the servo mounted on the axle, there's more room on the chassis for other electronics, and the servo can move with the axle when you make caster adjustments. After the steering linkage has been set, caster adjustments will have no effect on it.

Their rear suspension design is based on the age-old T-plate, but it offers a smoother, more consistent operation than that of any other on-road car. Instead of a flexible one-piece T-plate, the Hyperdrive cars use two-piece graphite T-plates.

The tongue of the T-plate is mounted on the chassis and supported by front and rear pivot balls. The balls allow the T-plate to roll from side to side with little resistance. For up-and-down movement, the lateral part of the T-plate is also supported by pivot balls—one to the left, and one to the right.

A one-piece, fiberglass T-plate flexes constantly; this causes fatigue in the T-plate, and results in a lack of consistency in the rear suspension. Because the two-piece T-plate doesn't flex, it causes very little resistance in the suspension, so to adjust the rear suspension, you adjust the shocks' spring tension. Instead of *supplementing* the suspension, the springs on the shocks in the Hyperdrive cars *are* the suspension.

The rear-shock configuration on the new cars is more durable. The tall shock tower used on the older cars served as a mount for all three shocks. The long upper shock was mounted from the rear of the pod to the top of the tower. If the car collided with something hard, the pod would fly forward and cause the shock to bottom out. When the shock couldn't absorb any more of the impact, all of the stress was transferred to the shock tower, which would eventually break away from the chassis. In the new configuration, the center shock is mounted from the front of the rear pod to a post in the center of the chassis, and the two side shocks are mounted to a shorter tower that's attached to the T-plate. This setup reduces the risk of damage and lowers the center of gravity slightly for better handling.

The cars' rear axles are similar to those found on other graphite and aluminum on-road cars, but they're designed to accept Hyperdrive drive rings. The rings are larger in diameter than others, and they've been sandblasted on one side to prevent them from slipping during acceleration.

The car also features light Delrin hubs, extra-strong wheels (on which you can use the included foam tires or any other compound), body mounting posts and a light, molded front bumper.

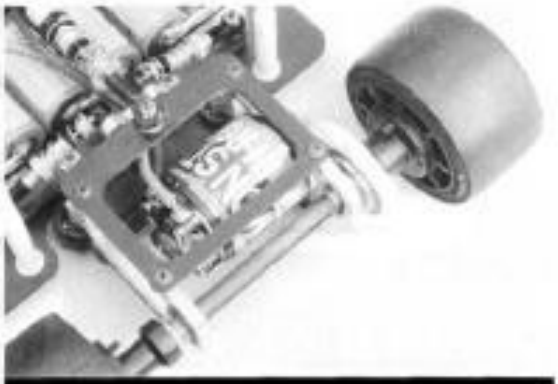
SET UP FOR SUCCESS

Hyperdrive's clear, detailed assembly instructions should pose no problems to R/C enthusiasts who have some building experience. If you follow the instructions, the cars will perform very well, but there are a few things you can do to make assembly a little smoother and to improve the cars' handling characteristics. These pointers apply to both cars, except where noted.

These simple steps can transform the suspension from good to great. The kingpins and steering blocks have machined surfaces that can cause erratic operation, regardless of how well-lubricated they are. Before I pressed the kingpins into the axle, I put the axle in a Dremel® Mototool and polished its surface with piece of crocus cloth (very fine-grit sandpaper for polishing). I also rolled up a piece of crocus cloth and placed it in the Mototool to polish the hole in the steering block. With both surfaces polished, the front suspension action is considerably smoother.

It's critical that you assemble the rear end properly. There's a graphite plate that bridges the slot for the T-plate and provides a place on which to mount other rear-suspension components. I found it difficult to thread the nylon standoffs (they "sandwich" the plate) over the two 4-40 screws that hold the plate to the chassis. One solution is to drill holes in the standoff blocks. They should be just large enough to slide over the screws; any larger, and the plate won't be held firmly to the chassis and there will

The quick-change battery system's main component is this L-shaped graphite piece to which you attach the 6-cell battery. The female connector half is automatically aligned with its male counterpart that's mounted on the main chassis.



Above: Lightweight Delrin hubs are standard equipment on these cars. I added TRC T/M radial tires, Robinson Racing's narrow-profile, 64-pitch spur gears and Hyperdrive's light pinion gears. Below: Despite its fairly conventional appearance, the H10 has an innovative front suspension. Its extra-long front kingpins allow room for rubber bumpers that absorb shock when the springs bottom out, and the servo pivots with the axle when you make caster adjustments.

be too much slop in the suspension. The entire assembly will be secured to the chassis when you tighten the nuts that hold the upper chassis braces in place. You could also run a 4-40 tap through the stand-offs.

To enhance the rear suspension performance, polish the pivot balls that support the T-plate. Like the front kingpins, they have a slightly abrasive machined finish that you can polish away with crocus cloth. Also, don't overtighten the screws that hold the balls to the T-plate or the seams in the plastic cages may split.

I installed Hyperdrive's optional quick-change battery system on the H10SE. In this system, the batteries are mounted on a fiberglass plate and this allows you to change packs in as quickly as 2 seconds! The chassis of both cars have already been drilled to accept this system, so installation is a snap. Just be sure to file and polish the leading edges of the brackets that hold the battery tray in place.

Neither car comes with electronics or the accessories necessary to make it race-ready, so I shopped for some hardware. Both cars were equipped with Futaba* PCM 1024 radios—systems appropriate for race cars of this caliber. In the H10SC, I installed an S132H steering servo; a Novak* 410-M1c speed controller; Trinity* matched Sanyo 1400 SCRs; a Trinity 16-turn Quad Tri-Rotor modified motor; Hyperdrive's new, light, aluminum pinion gear; Robinson Racing's* narrow-profile, 64-pitch spur gear; custom-mounted Atlantic* Gomme tires; and TRC* composite BBS wheels.

I equipped the H10SE with an ultra-fast, ultra-powerful Airtronics* 94151 servo. It's more than capable of handling the substantial loads placed on the steering during high-speed oval racing.

I used Novak's top-of-the-line 410-MXc speed controller. It's slightly heavier and larger than the M1c, but it's more efficient, and efficiency is everything in oval racing. Other accessories include Reedy* matched Team Sanyo 1400 SCRs; a Trinity 13-turn, single-wind Tri-Rotor; Hyperdrive's light, aluminum pinion; Robinson's narrow-profile, 64-pitch

H10SC

H Y P E R D R I V E

Manufacturer ..... Hyperdrive
Type ..... On-road
Scale 1/10
Price $449.95

DIMENSIONS:
Overall Length ..... 18.75 inches
Width ..... 8.875 inches
Wheelbase ..... 10.25 inches
Front Track ..... 7.25 inches
Rear Track ..... 6.875 inches

WEIGHT:
Gross (with battery) ..... 43 ounces

BODY:
Type ..... Andy's Lotec GTP*
Material ..... Polycarbonate

CHASSIS:
Type ..... Plate
Material ..... Graphite

DRIVE TRAIN:
Primary ..... Pinion/spur
Transmission ..... None
Differential ..... Ball
Bearings/Bushings ..... Ball bearings

SUSPENSION:
Front: Type ..... Rigid beam/cinch block
Damping ..... Floating axle/coil spring
Rear: Type ..... Two-piece T-plate
Damping ..... Three oil-filled, coil-over shocks

WHEELS:
Front: Type ..... TRC BBS*
Dimensions (DxW) 1.95x1.125 inches
Rear: Type ..... TRC BBS*
Dimensions (DxW) .. 1.95x2.0 inches

TIRES:
Front/Rear ..... Atlantic Gomme*

ELECTRICS:
Motor 05/540*
Battery ..... 6-cell sub-C*
Speed Controller ..... Electronic*

OPTIONS AS TESTED:
Futaba Magnum PCM transmitter and S132H servo; Novak 410-M1c speed controller; Trinity matched 6-cell SCR 1400mAh battery and Tri-Rotor 16-turn quad motor; Hyperdrive light aluminum pinion gear; Robinson Racing narrow-profile, 64-pitch spur gear; TRC BBS wheels; and Atlantic Gomme tires; Bud's Racing stabilizer wing.

COMMENTS:
The Hyperdrive H10SC is a serious road racer but, as with many top-of-the-line cars, performance has its price. The SC isn't exactly inexpensive, but you get a car that's second to none when it comes to performance, quality and adjustability.

*not included

spur gear; and TRC T/M radials—the most popular capped tire in paved oval racing. I chose the gold compound, which seems to provide the best all-around traction for average track and weather conditions.

Richard Muise of Motion Graphics finished both cars. I supplied him with an Andy's* Lotec GTP body for the H10SC, and an Associated* narrow Lumina body for the H10SE. He gave both bodies the paint scheme from the Chevy Cyclone prototype mini pick-up—a scheme I first used on the Project Yokomo, which was featured in the July '91 issue. Since then, I've adopted this brilliant scheme for all of my race cars.

Testing the Hyperdrive cars produced no surprises. It's not that the cars didn't perform well, it's just that I had a gut feeling while I was building them that they would be excellent performers. In its element and properly tuned, each car can match or exceed the performance of any other car on the market. The SC is particularly suited to heavy benders because of its wide stance and infinitely adjustable suspension. Initially, the car's rear was a little loose under power, but when I eased the spring tension slightly and added a Bud's Racing* stabilizer wing, it settled right down.

The SE was also a performer. In an attempt to minimize aerodynamic drag, I initially set it up with only a spoiler. On concrete ovals, however, I usually use a wing (it's allowed by ROAR rules). I didn't feel very comfortable with the car's stability, but after I added a large Bud's bi-level wing, I was much more at ease.

Both cars are extremely responsive to suspension adjustment. The adjusting collar for each shock is finely threaded for ultra-precise adjustments. Also, rear-suspension modifications on both cars make damping and handling more consistent, and the whole rear of the cars more durable.

If I had to rate these cars on a smash-or-trash basis, I'd say that each is a smash. Both are very capable performers; just add a good driver, bake for 4 minutes, and you have a winner!

(Continued on page 130)

Above: You can make battery changes in less than 2 seconds with Hyperdrive's optional quick-change battery system! Both H10s have been drilled to accept this system. Below: Hyperdrive has redesigned its three-shock suspension system so that the vertical shock has its own tower. Extra-fine threads on the shock bodies allow for precise spring-tension adjustment.

INDUSTRIES

H10SE

Manufacturer ..... Hyperdrive
Type ..... On-road
Scale 1/10
Price $449.95

DIMENSIONS:
Overall Length ..... 18.25 inches
Width ..... 8 inches
Wheelbase ..... 10.25 inches
Front Track ..... 6.375 inches
Rear Track ..... 6.625 inches

WEIGHT:
Gross (with battery) ..... 44 ounces

BODY:
Type ..... Associated Lumina (narrow)*
Material ..... Polycarbonate

CHASSIS:
Type ..... Plate
Material ..... Graphite

DRIVE TRAIN:
Primary ..... Pinion/spur
Transmission ..... None
Differential ..... Ball
Bearings/Bushings ..... Ball bearings

SUSPENSION:
Front: Type ..... Rigid beam
Damping ..... Floating axle/coil spring
Rear: Type ..... Two-piece T-plate
Damping ..... Three oil-filled, coil-over shocks

WHEELS:
Front: Type ..... TRC NASCAR*
Dimensions (DxW) ..... 1.8x1.125 inches
Rear: Type ..... TRC NASCAR*
Dimensions (DxW) ..... 1.8x2.0 inches

TIRES:
Front/Rear ..... TRC T/M radials*

ELECTRICS:
Motor 05/540*
Battery ..... 6-cell sub-C*
Speed Controller ..... Electronic*

OPTIONS AS TESTED:
Futaba Magnum PCM transmitter; Airtronics 94151 servo; Novak 410-MXc; Reedy matched, 6-cell, 1400mAh battery; Trinity Tri-Rotor 13-turn, single-wind modified motor; Hyperdrive light aluminum pinion gear; Robinson Racing narrow-profile, 64-pitch spur gear; TRC T/M radials and NASCAR rims.

COMMENTS:
If you want the absolute best superspeedway car, consider the Hyperdrive H10SE. In addition to its exceptionally well-finished parts and overall high quality, the SE can be precisely adjusted for almost any track. All this, however, comes at a price; many may find the SE beyond their budgets.

*not included