

Track Report

Kyosho

O · P · T · I · M

**Faster than a speeding bullet—
Able to leap the roughest terrain in a single bound—
The Optima has it all!**



THE KYOSHO LINE of R/C kits, distributed by Great Planes Model Distributors*, includes everything from planes to cars and boats. Their car line has something to suit everyone's taste from the four-wheel-drive .21 gas-powered Integra Vanning to the

four-wheel-drive electric off-road Optima. The Optima was designed to be competitive on the racing circuit straight out of the box, but with the addition of the optional ball bearing kit and a hopped-up motor, championship performance can be expected.

THE KIT. The Optima comes attractively packaged

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photos by Louis DeFrancesco, Jr.

in a large box covered with many full-color pictures of the car from various angles. All parts are well packed to prevent damage during shipping. The 31-page assembly manual is very complete and it contains all the information needed to build the car and much more. It has a table which explains the pros and cons of each of the different Kyosho chargers, it tells about the optional Kyosho LeMans motors, and it gives a good description of the recommended front and rear end adjustments. The radio installation section of the manual contains specific installation instructions by manufacturer and servo model for the most commonly used radios.

CONSTRUCTION. The assembly of the Optima is organized into 44 nicely illustrated steps which are explained in the manual. There is no need for me to comment about specific assembly steps, because the building instructions are so good and all parts fit very well.

The Optima's main chassis consists of eight aluminum pieces. These parts bolt together to form cages in the front and rear which enclose the gear boxes and are connected by two aluminum bars. The gear boxes are molded of fiber-filled nylon and house the differential in the front and the differential and some of the drive gears in the rear. The differential housings are also made of fiber-filled nylon and contain metal gears. Each differential is supported by two ball bearings. Power is transmitted to the front differential by a fully enclosed chain-drive system, which works well and is not subject to the wear that would occur with an open system. Two different differential gear ratios are provided so that the builder can vary the relative speeds of the front and rear wheels. I set up my car so that the front and rear wheels rotate at the same rate.

The front and rear suspension systems are constructed largely of fiber-filled nylon for strength and lightness. Both consist of extra-long double wishbones for handling uneven terrain with minimal effects on steering. Dampening is provided by coil-over oil-filled shocks on all four wheels. Both the front and rear suspensions have adjustable camber and ground clearance. Each of the front and rear axles are supported by two plastic bushings. Kyosho offers ball bearings as an option. The four tires are of a spiked design similar to those on most R/C off-road cars.

The radio control is mounted on a fiberglass plate, which also serves to stiffen the main chassis and hold the motor battery. Parts are provided to mount just about any of the common standard or mini servos. The resistor type speed controller provides three forward, one braking, and two reverse speeds. The controller also has a voltage step-down circuit so that the radio control can run

by DAVID TROST, M.D.

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off of the 7.2-volt motor battery. I used a JR Circus* four-channel radio with two NES-505 servos in my car.

The motor and battery used for this review were the LeMans 480G and the Kyosho 6-cell, 1,200-mAh racing battery. The Optima comes with an RS 540 motor but I wanted to take advantage of one of the other powerplants available.

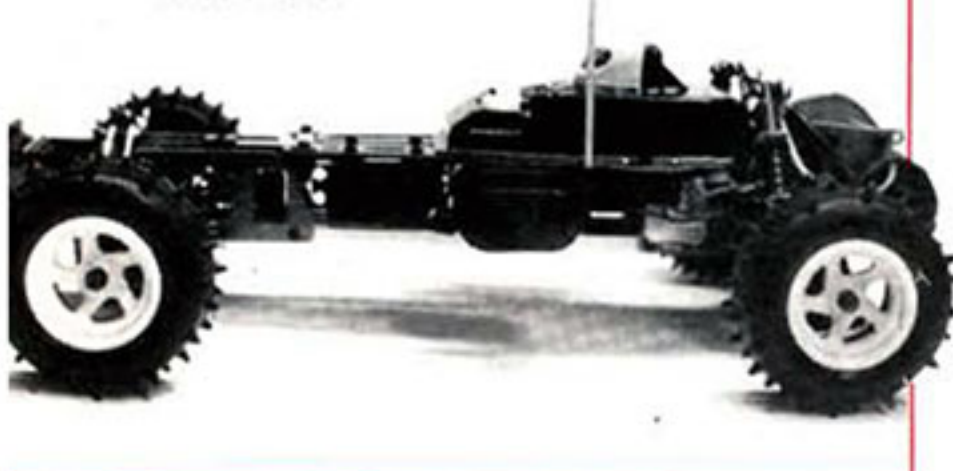
The Kyosho LeMans motors are modified, high-performance motors and there are six of them available. The LeMans model numbers are based on the motor's expected run time (in seconds) using a six-cell, 1,200-mAh battery pack. All of the LeMans series motors have adjustable timing, diamond-trued commutators, and coils potted in epoxy resin, and all of the motors except the 600E have dual ball bearings. The 480G also features a machined aluminum endbell for durability.



Above: New Kyosho Auto Charger provided plenty of juice. Below: Note ample suspension travel to handle the roughest terrain.



Optima chassis complete with radio installed, ready for body. Car is four-wheel drive.



The car is completed by trimming the clear polycarbonate body and driver/radio cover along marked lines and finishing them on the inside with paint. A

nice set of pressure-sensitive decals was provided for the outside. I used the Tamiya paint specially formulated for polycarbonate bodies.

A Kyosho Auto Charger was used to get the most out of the battery. This charger operates off of a 12-volt car battery and will charge any four- to six-cell, 100- to 4,000-mAh nickel-cadmium battery safely and automatically. You simply hook it up, press a button, set the desired charging current from 0 to 4 amp hours and let the charger do the rest. The built-in ammeter and voltmeter allow constant visual monitoring of charge status. The charger has a delta peak

automatic cut-off to ensure safe charges to 100% capacity.

I found this charger to be very easy and pleasurable to use. It consistently recharged the car battery from dead to full capacity in about 18 minutes.

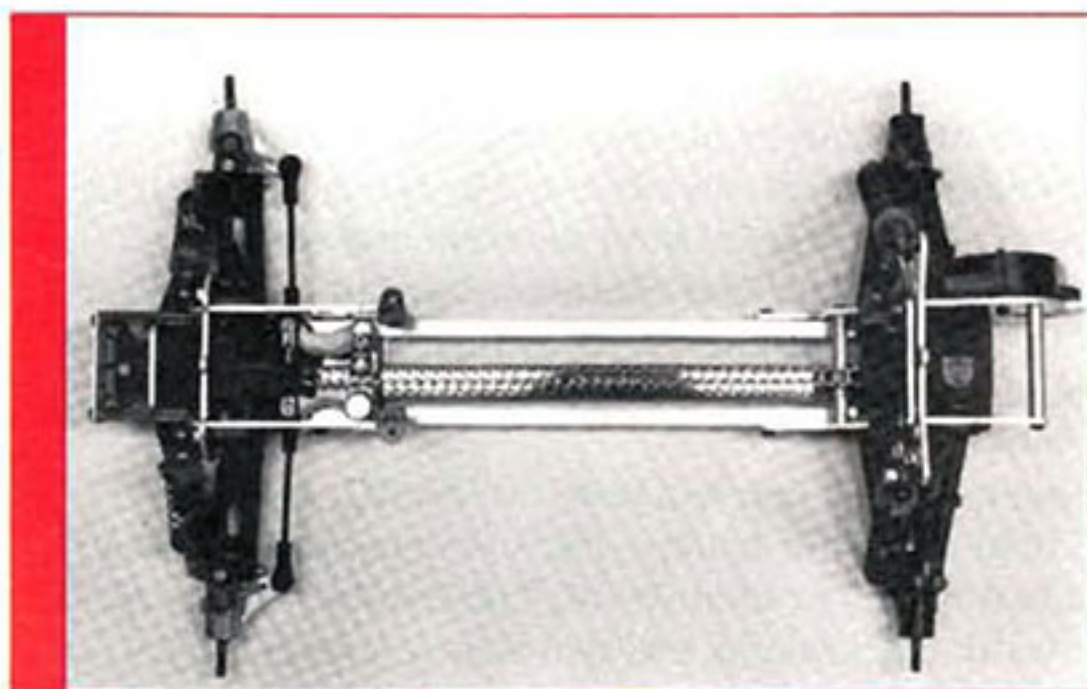
PERFORMANCE. Running the Optima is when the real fun begins. The car comes with two pinion gears (12 teeth and 15 teeth) to vary the car's speed/torque ratio. I used the 12-tooth gear almost exclusively to get the highest speed possible. I also advanced the motor timing 4°. The LeMans 480G motor accelerates the car quickly, and gives it a very fast top end. Motor runs were sometimes under eight minutes with the timing advanced 4°, so less advance may be desirable for competition races. The suspension easily handles rugged terrain and can absorb a 1-foot drop without a bounce. The steering is positive, even over rough ground. With its low center of gravity, the Optima corners very well with very little tendency to roll over.

The Kyosho Optima is an all-purpose R/C electric car. It's not only great for the fun-loving hobbyist who wants something to play with at the beach, but by adding a LeMans 480G motor and ball bearings, the Optima is a serious competition machine.

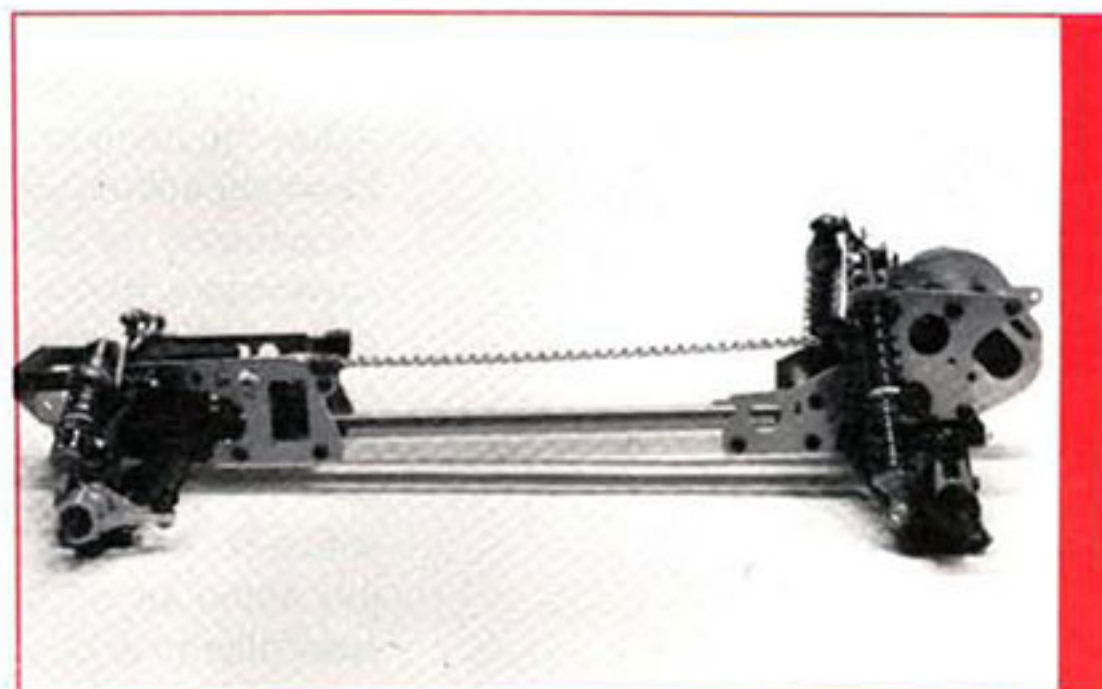
**The following are the addresses of the companies mentioned in this article:*

Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

Circus Hobbies, 3132 S. Highland Dr., Las Vegas, NV 89109.



Top view of main aluminum chassis.



Side view; note strong chain drive.