

# Track Report

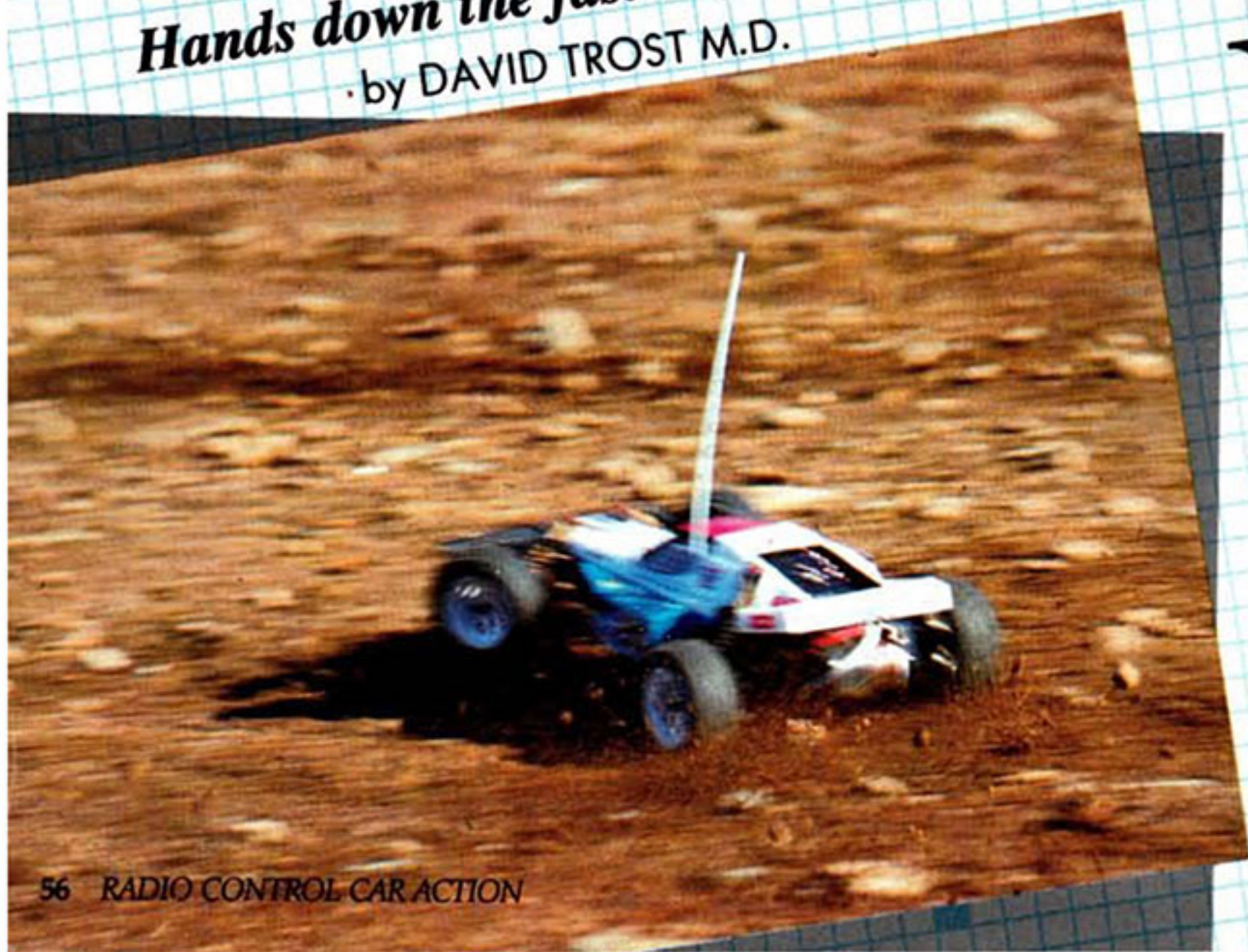
## From Great Planes



# Turbo OPTIMA

*Hands down the fastest four-wheel-drive car out of the box!*

by DAVID TROST M.D.

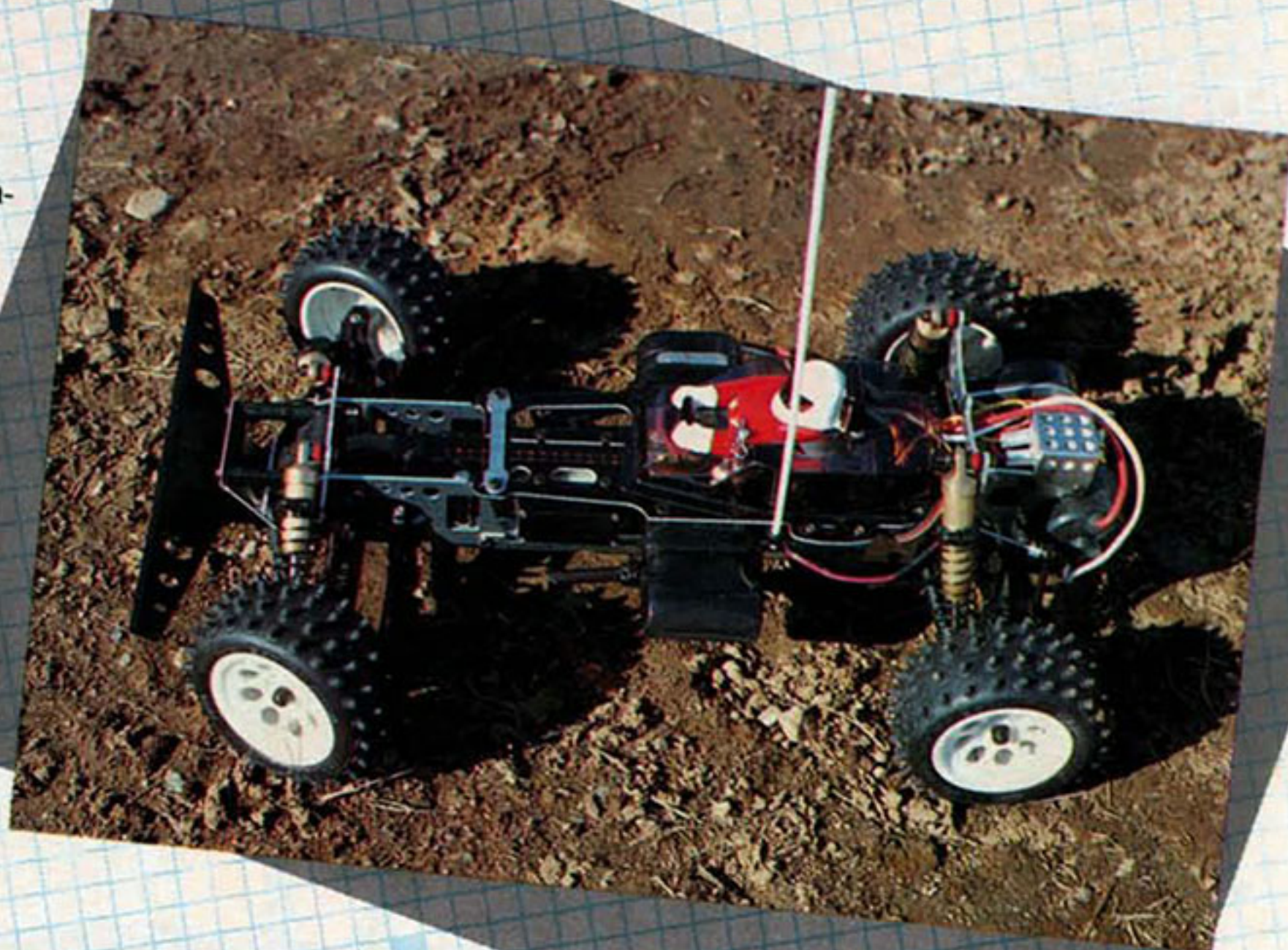


**I**T WAS ONLY a year ago that Kyosho, distributed by Great Planes Model Distributors\*, introduced the Optima, a four-wheel-drive buggy that's taken the winner's circle by storm. Now, 100,000 Optimas later, the people at Kyosho have decided to improve on their already outstanding machine. They've gathered up many of the best Optima hop-up modifications seen on the race course and are offering them all in one package. The Turbo Optima is the culmination of their efforts to build the best off-road car kit on the market.

Outwardly the Turbo Optima chassis resembles the standard Optima/Javelin chassis, but there are subtle differences. The Turbo Optima has a superior suspension system with heavier wishbones, front and rear stabilizer bars, and top-of-the-line adjustable shocks. The Turbo Optima comes complete with a full



set of 16 ball bearings and a high-rpm LeMans 240S motor. The drive system features a heavy-duty drive chain and a torque limiter to protect the drive system during lightning-quick starts. For added speed and excitement,



the Turbo Optima was designed to run from an 8.4-volt pack instead of a 7.2-volt pack. The car comes with a voltage regulator to drop the motor battery voltage down to the 6 volts the radio needs.

**THE KIT.** The Turbo Optima comes attractively packaged in a large box. The parts are well packed to prevent damage during shipping. The 28-page assembly manual is very complete and contains all the information needed to build the car and much more. It gives a good description of motor care, battery charging, and chassis tuning for maximum performance. The radio installation section of the manual contains specific installation instructions for the most commonly used servos.

**CONSTRUCTION.** Assembly of the Turbo Optima is organized into 53 steps, each very nicely illustrated and explained in the manual. Since the manual is so good, there's no need to comment about specific building steps.

The Turbo 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 end by a fully enclosed chain-drive system. Two different differential gear ratios are provided so you can vary the relative speeds of the front and rear wheels. On my car 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. Damping 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 is supported by two ball bearings. The "option house" shocks provided can be tuned to any track condition. The front and rear stabilizer bars are also fully adjustable. The

tires are a low-profile spiked design.

The receiver and throttle servo are 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 standard or mini servo. The resistor type speed controller provides three forward and two reverse speeds.

I used a Kyosho Pulsar two-channel radio in the model. This system features a pistol grip, wheel transmitter with servo-reversing. It has semi-adjustable throttle trigger centering to allow it to be used for gas or electric cars. The steering wheel has adjustable centering tension. The receiver is lightweight and small enough to fit in any 1/12-scale racer. The servos have plenty of power and are relatively fast. Both transmitter and receiver have changeable frequency crystals.

The battery was the Kyosho 7-cell 1,200-mAh Turbo Racing battery. The kit comes with a hot LeMans 240S motor.

Kyosho LeMans motors are modified, high-performance motors, and there are many available. LeMans model numbers are based on the motor's expected run time (in seconds) using a 6-cell, 1,200-mAh battery pack. Most of the LeMans series motors have adjustable timing, diamond-trued commutators, and coils potted in epoxy resin. Many have dual ball bearings.

The clear polycarbonate body was trimmed and painted with Tamiya's paint specially formulated for polycarbonate bodies. The body was completed with the fine set of pressure-sensitive decals provided.

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

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any 4- to 7-cell, 100-4,000-mAh Ni-Cd battery safely and automatically.

**PERFORMANCE.** Running the Turbo Optima is where the real fun begins. I thought the Optima I built last year was great (see the Winter 1986 issue), but this beast just ate it alive. With the motor timing set at 6° and a 9-tooth pinion gear, the car accelerates lightning quick and has a very high top end. The suspension easily handles rugged terrain and can absorb large jumps without a bounce. The steering is positive, even over rough ground. With its low center of gravity and stabilizer bars, the car corners well with almost no tendency to lean in the turns.

Since this car is so souped-up already, only a few options are available. Kyosho offers different tires to suit various track conditions, pinion gears with various numbers of teeth, and motor and side guards.

I'd like to mention one point, however: after every three or four runs, initially, and then about every ten runs thereafter, the chain tension needs to be adjusted.

The Turbo Optima is a great car and will quickly climb to the top of the racing circuit. I can't wait to see what the fertile minds at Kyosho come up with next!

*\*The following is the address of the company any mentioned in this article:*

*Great Planes Model Distributors, P.O. Box 7, Box 4021, Champaign, IL 61820.* ■ •