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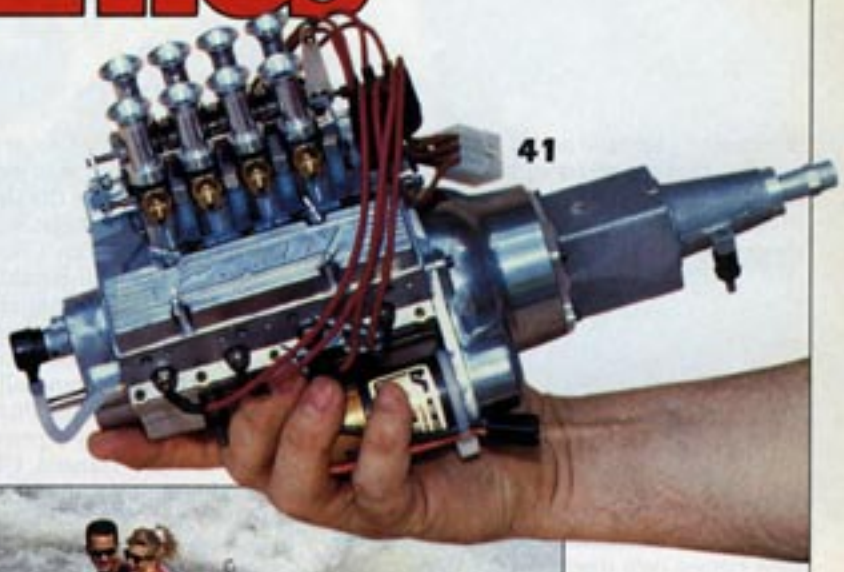


PM cover illustration by Terry Thompson

PEEWEE POWER

Quarter-scale radio-controlled cars feature sophisticated chassis, super detail and real working V8 engines.

TEXT AND PHOTOS
BY CLIFF GROMER,
Contributing Editor

● There's a new car builder in town. But Detroit, Stuttgart and Tokyo don't have to worry—unless the next generation of Americans' average height is about 18 in. That's because Gary Conley's cars—and the engines that power them—are sized down to quarter-scale. Sort of like a real-world, "Honey, I shrunk the car."

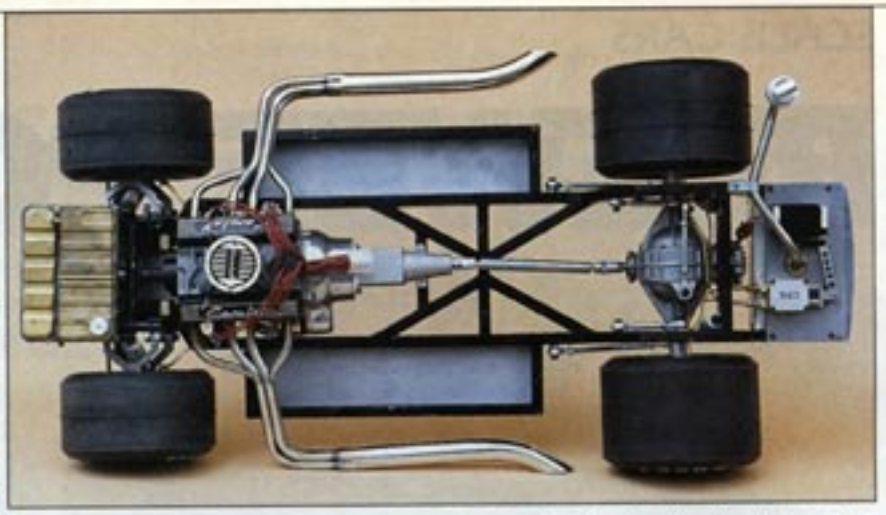
While quarter-scale radio-controlled cars—and racing—have been around for years, typical powerplants have been the off-the-shelf variety, 1.5-hp (at 8000 rpm) 23cc 2-stroke 1-cylinder weed wacker or chain saw engines. But Conley puts together the world's only production miniature operating V8 for quarter-scale cars. His engines put out 2.5 to 4.5 hp, depending on the induction system, from a 50cc water-cooled 4-stroke.

Conley got into the small time because he wanted a scale-size V8 for himself, and no one on the planet made one. So Conley tooled up to build his own. It's probably the most fascinating engine around. And just as fascinating are the painstakingly detailed cars he builds to put them in.

Peeking inside the 12-in.-long, 9-pound V8 reveals a cast block with full wet liners, and a .875-in. bore and .625-in. stroke. The 3-in. displacement can be increased to 3.6 cubes via a stroker kit which increases the stroke to ⅝ in., and uses the standard rod, but changes the height of the wrist pin in the piston.

The bottom end is plenty beefy with a balanced, investment-cast 4140 steel 5-main-roller-bearing crank. Billet rods connect to billet machined pistons which wear a single

Radio-controlled, quarter-scale Cobra has 100-mph potential and costs more than the real McCoy.



Cobra front A-arm suspension features adjustable shocks. Aluminum brake caliper grips with fiberglass pads (upper left). Rear suspension is 4-link setup. Rear disc brakes also are hydraulically activated (lower left). Cobra chassis shows fuel filler and dual master cylinders on rear platform (above).

ring. There is no oil in the oil pan, and the engine runs on model-airplane fuel which contains 15% nitromethane and a 20% oil base. Oil that isn't burned during combustion slides by the ring and lubes the entire lower end.

A mild small-block Corvette solid-lifter grind camshaft served as the pattern for Conley's case hardened, billet bumpstick, and he used a pantograph to accurately copy the configuration in scale. The real cam lifts the valves .600 in., while the scale version operates them at .060-in. lift.

Chevy-style heads (non-water cooled), with siamese ports, use O-ringed head bolts instead of a head gasket. The runner-style, cast and cored intake manifold likewise is O-ringed for sealing. Valvetrain features a shaft rocker-arm assembly with one-piece adjustable rocker arms that are set to .003-in. lifter clearance.

The real fun begins with intake options, where the choices run from milquetoast to mind boggling. Base engine feeding chores are handled by a single carburetor, with duals, tripower or an exotic Weber-style 8-carb setup. It's just a matter of swinging the hinge on your wallet a little wider. Of course, if you want your real micro V8 to be different from everyone else's on your block, go for broke (literally) and opt for the functional scale replica GMC 6-71 supercharger mounted on twin carbs. Belt-driven from the crankshaft, the blower puts out 12-psi boost at 13,000 rpm, and produces the unmistakable whine that's music to the ears of hot-rodders everywhere. The supercharger's internals were designed in Sweden, while Conley designed the cases.

Modified model-airplane suction-feed carbs are pressurized with a 4.8-volt electric fuel pump and give an almost throttle-body-injection-like response. Low- and high-speed metering systems manage the mixture throughout the power range.

Fires are lit with glowplug ignition (also a model-plane engine item), making the engine work like a modified diesel. The distributor is just a dummy unit, but the 12-volt remote-controlled electric starter is for real. Push a button on your radio-controlled transmitter, the starter cranks and the V8 rumbles to life. Cooling is handled by a water pump, a scale radiator with top and bottom tanks and a 22-tube, 18 fin/in. core.

A variety of exhaust options, including stainless-steel headers and cast ram's horn-style manifolds let you be creative in spewing out your gas. Sorry, Sierra Club, but no catalytic converters are planned at this time.

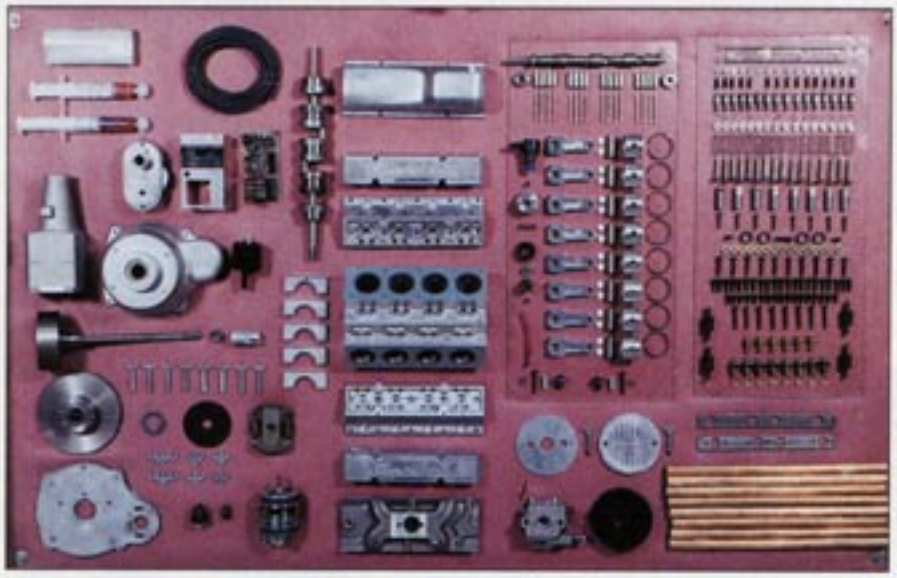
Aside from the striking detail of all those teensy-weensy parts, the really cool thing about this engine is that it captures the characteristic rumpety sound of a real V8—only with the volume turned down. It sounds like a real V8 engine that's running at some distance away. Idle speed is a brisk 3000 rpm, and the mill will rev to 14,000 rpm.

Not surprising, Conley engines don't come cheap. While you can get into a conventional radio-controlled quarter-scale package for less than $1000 for a complete car and drivetrain, Conley's engines start at $2495 for a base kit that you assemble. His fully assembled, tuned and test-run supercharged baby will set you back about $4400. And for that kind of money, you don't even get a car to run it in.

Conley's cars, both a '23 T-bucket and Shelby Cobra are as exotic as his engines and get power to the ground using a centrifugal clutch. The 39-in.-long, 40-pound Cobra is his showpiece and comes set up for road or oval racing.

The Cobra sits on an X-member frame to which Conley adds his own independent front suspension using upper and lower A-arms machined from bar stock and fitted with his preloaded, greaseable ball joints. Toe, caster and camber are ful-

Conley with his unique Cobra and T-bucket.



[Clockwise from bottom left]: Dime shows scale of cylinder head. Parts that make these V8s tick. Basic engine comes with a choice of intake and exhaust. Cylinder head and cam are based on Chevy small-block. One-piece roller-bearing crank uses split races. Micro GMC 6-71 blower really works.

ly adjustable, as are the coilover shocks. Rack-and-pinion steering turns reproduction Halibrand functional knock-off wheels.

The rear suspension uses an off-the-shelf quick-change Halibrand replica rear and a 4-link setup. Brakes are unique—a hydraulic 4-wheel disc setup with dual master cylinders, filled with silicone brake fluid, for separate front and rear circuits. Full-floating calipers, machined from billet aluminum use stainless-steel pistons and liners. Fiberglass brake pads grip aluminum rotors.

The T-bucket uses radius rods to support the front and rear ends. Up front is a traditional dropped axle with a transverse-mounted leaf spring. The rear wheels are Halibrand replicas, while the fronts use individual wires that are hand-tuned by truing the wheel with a dial indicator. Goodies include functional headlights, leather interior and polished aluminum firewall.

How far will Conley go to achieve realism? Well, the Cobra's interior can be had with stitched carpeting and full leather seats and door panels. For gauges, Conley cut out pictures of real Cobra gauges from magazine photos, and mounted them in the dash using custom aluminum bezels and a punch and die to punch out the plastic lenses. Truly a man possessed.

Top speed on the Cobra, with stock rear-end gearing of 7.00 to 1 is about 45 to 50 mph. Ultimate speeds of about 100 mph are expected with 2.00-to-1 gearing and push-starting the car up to about 40 to 50 mph.

Prices for a complete Cobra kit start at about $7000 and range up to $9500 for a turnkey car with options.

Putting the whole thing into perspective, a real '66 Shelby Cobra costs about $6500 new.

With truly unique cars and engines, Gary Conley hopes to make it big by staying small. **PM**

For more information, contact Gary Conley at Conley Precision Engines, 825 Duane St., Glen Ellyn, IL 60137; (708) 858-3160.