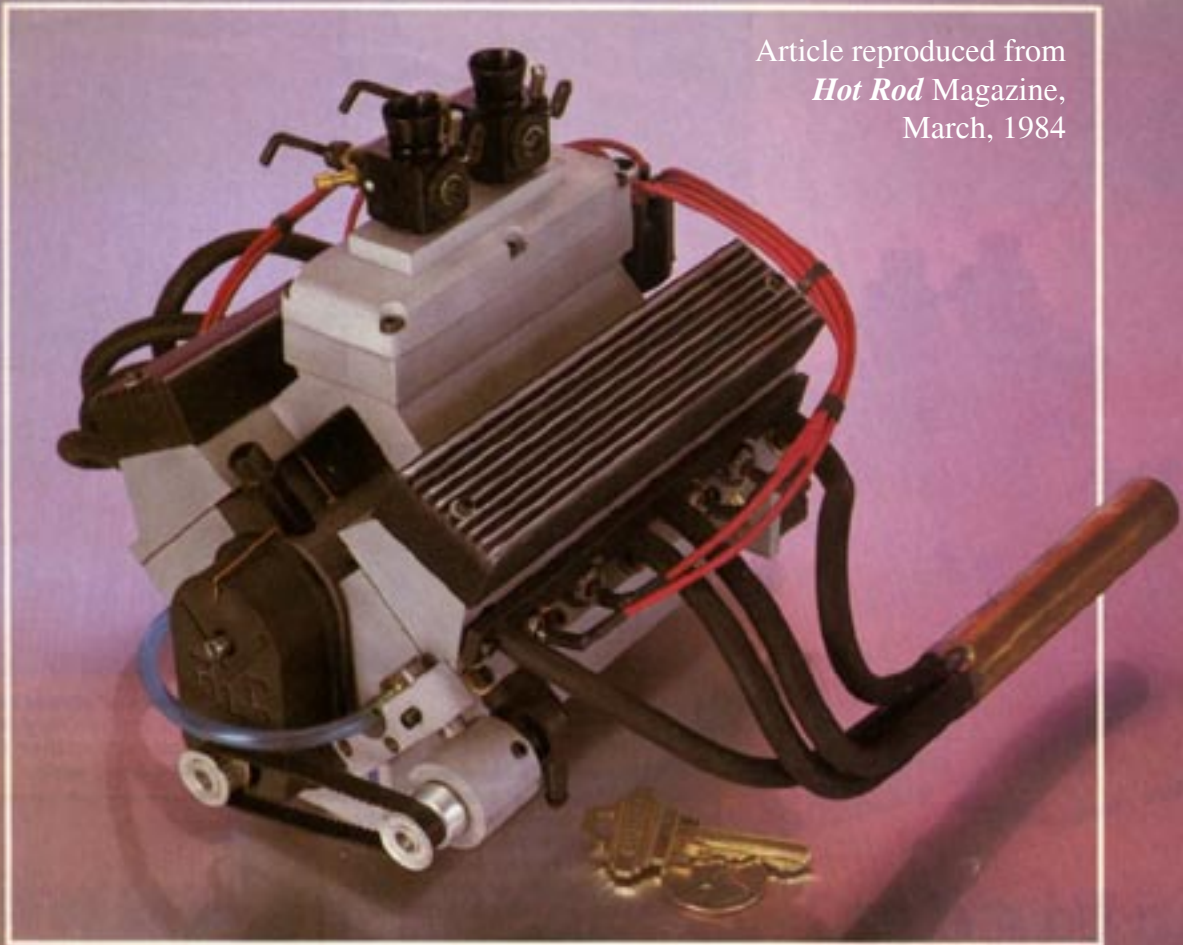


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no big deal

... Just the World's Smallest, Running Production Model V8

By John Baechtel

Gary Conley approaches hot rodding on a small scale—one-quarter scale to be exact. His miniature small-block engines are the world's smallest, running production V8s. Based on a small-block Chevy V8, these amazing little engines are designed for the serious hobbyist. They are used chiefly in radio-controlled model race cars and hydroplanes, and there are even a few enthusiasts who have them just so they can fire them up on the coffee table for the amusement of their guests. But as Gary quickly points out, these are thoroughly engineered scale performance engines, not toys. The fact that he's selling a lot of them at nearly \$1700 apiece indicates the level of quality and perform-

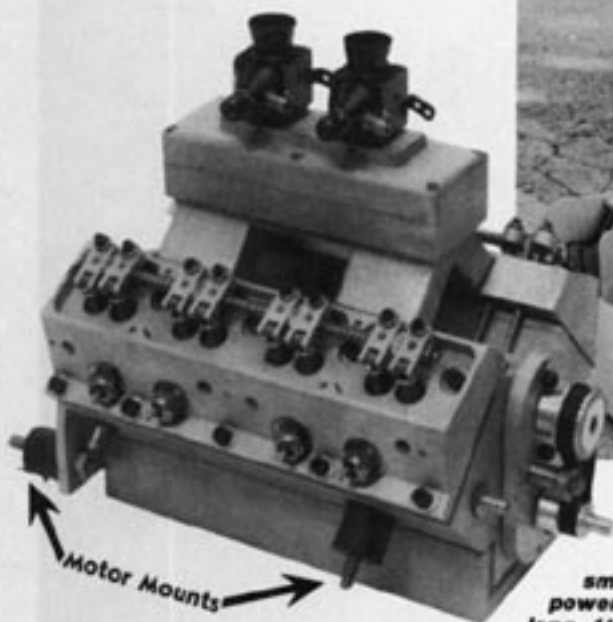
ance they offer for people knowledgeable in such matters.

And they are trick! With a total displacement of 1.53 cubic inches (28cc), each engine weighs 6 pounds and puts out approximately 1½ hp. The operating range is 2000-9500 rpm, with a broad torque band and the best sounding exhaust note since glass packs were in vogue. The bore and stroke both measure ¼ inch, and the short-block features a ball bearing crankshaft, aluminum rods, water-cooled cylinder liners, and an exact duplicate of a Chevrolet performance camshaft. The block and cylinder heads are aluminum, and the miniature valvetrain is smoother than the finest Swiss watch movement.

Conley began designing and con-

structing his engines more than three years ago, and from the very first unit, he has never had a component failure. They're remarkably durable and come in all sizes. While the V8s are the most popular model, Gary also builds V2, V4, and V6 engines, and he is currently working on a one-quarter scale Ferrari V12. Demand is so great that he has set up a production line (G.L. Conley Engineering, 825 Duane St., Glen Ellyn, IL 60137, 312/858-3190) and hired one of his former students, Scott Hyland, to run it so he can concentrate on designing more engines and, yes, even speed equipment like the forthcoming Roots-type supercharger for V8s.

All of these engines run on model airplane fuel with 20 percent oil and



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10-20 percent nitro. Single and dual carburetor versions both use model airplane carburetors on tunnel ram manifolds. Ignition is via glow plugs which are battery powered at low rpm; the engine runs on compression alone at high rpm. Like any racing engine, periodic oil changes and valve adjustments are required, but hey, that's part of the fun. It wouldn't be hot rodding if you couldn't tune it from time to time.

Like any hot rodder, Gary can't leave well enough alone. He's continually coming up with new ideas and vehicles to display the merits of his scale performance engines. In addition to the champ car shown here, he has also built his own hydroplane, a V4-powered off-road truck for chasing the dog around the backyard, and a V8-powered World of Outlaws sprinter. His next project is going to be a one-quarter scale '32 highboy roadster for display at the HOT ROD Super Nationals. Gary is willing to tackle any model engine building request, and is already looking into building scale versions of some of Detroit's new 4-cylinder powerplants. Although he does his hot rodding in a small way, the results are unique and guaranteed to please any hot rodder's sense of technological finesse. Right on, Gary. **MR**

The world's smallest small-block is a compact powerplant, measuring 5 inches long, 4½ inches wide, and 6 inches tall. Engines are available in either single or dual-carburetor versions, with unique, fully functional tunnel ram manifolds.

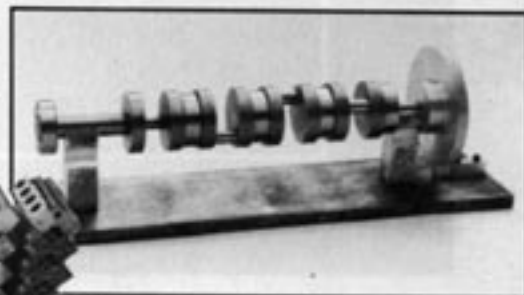


At first glance this might look like the engine facilities of the Gary Beck/Team Minor Top Fuel effort, but it's actually a portion of the Conley Engineering engine center.

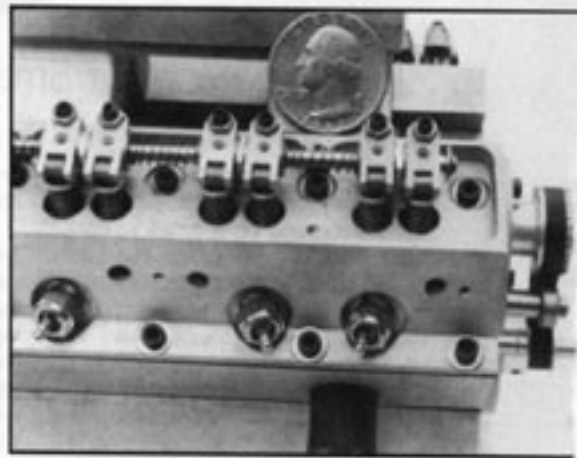


This is the aluminum cylinder block with deck plates removed so you can see how engine coolant circulates around the removable wet cylinder liners. The deck plates seal the coolant jacket, and the dry cylinder heads clamp everything together.

Is this the future of street racing? The coast is clear as Gary fires up the Champ car for another test session in front of the house.



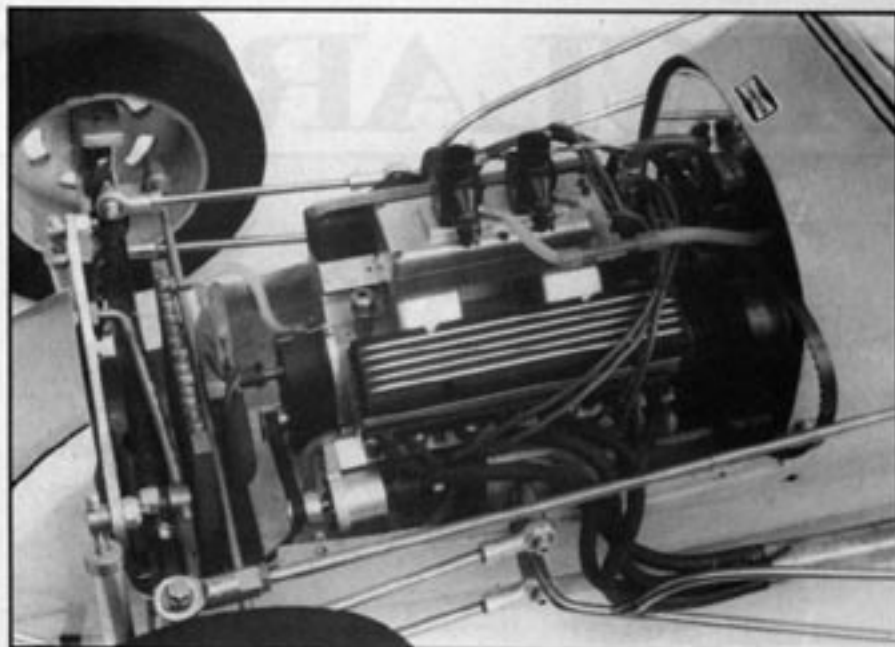
The "built-up" crankshaft features five main ball bearings and metal-to-metal rod journals.



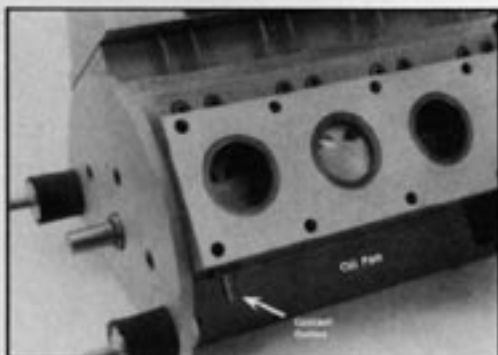
Most people find the jewel-like miniature valvetrain the single most impressive part of the engine. The shaft-mounted rocker system features fully adjustable roller rocker arms and valve gear capable of sustaining 9500 rpm. Note the glow plugs on the world's smallest angle plug, bow tie head.



Basic internal components include an accurate, scale duplicate of a Chevrolet performance camshaft, solid lifters, valve seats and guides, valve retainers and locks, cylinder liners, pistons, pins, and aluminum connecting rods.



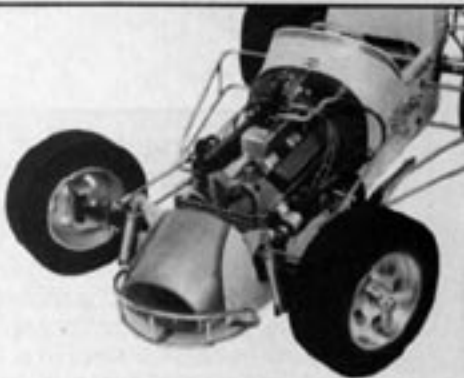
Gary's Champ car illustrates a typical installation. Note the radiator, fan, and crank-driven aluminum water pump. And how about those finned aluminum valve covers?



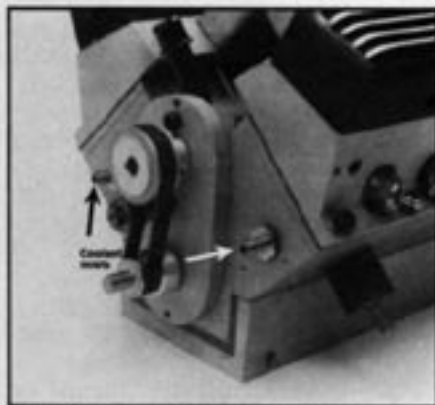
An installed cylinder bank deck plate on an assembled engine. Cylinder bores are approximately the size of a dime, with generous valve reliefs in the pistons.



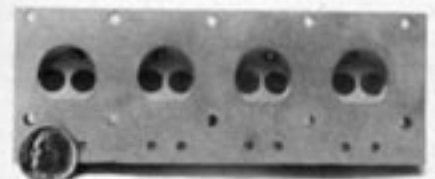
The battery pack and servo controls are located under the cockpit, which is beautifully detailed with a wood-grained dash, replica gauges, and a great looking steering wheel.



The business end of the car looks remarkably like the real thing. Imagine how neat the engine will look in Gary's forthcoming street roadster.

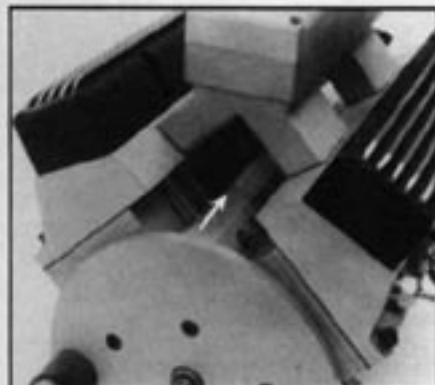


This is the adjustable, belt-driven cam timing gear normally covered by a plastic timing cover.



Wedge-shaped combustion chambers feature equal-size valves and angled spark plug entry. The valves and valve seats are hardened to promote longer seat life.

The Champ car is approximately 2 feet long and weighs 35 pounds. The body and basic kit components are available from Pacesetter Products, Garner Valley, Box 257, Mt. Center, CA 92361, (714) 659-2318.



One departure from a real small-block engine is the exposed lifter gallery and pushrod guides.

