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Jim & Wanda Coatney of Mears, Michigan

# BLACKBIRD

Dave Earle's custom mini-buggy flies through the sand thanks to turbocharged Honda CBR1100XX Super Blackbird power

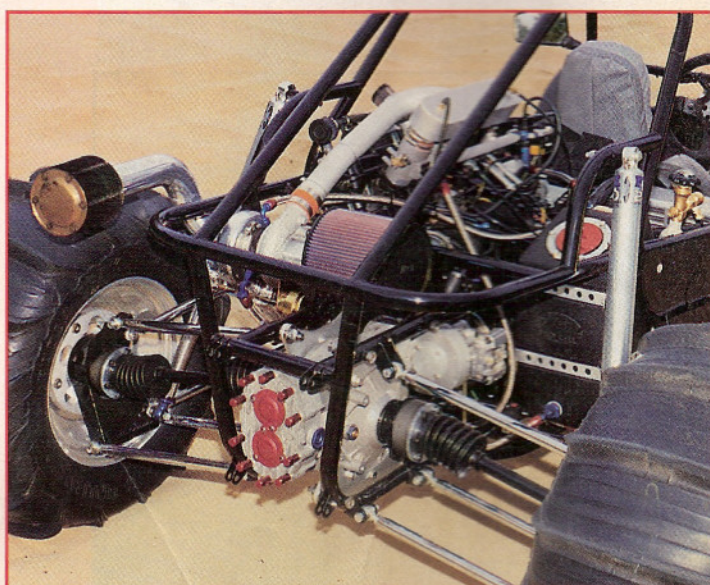
BY DOUG DIXON

Photos by Michael Sommer

**W**e've found that some of the most unique buggies we see are often owned by machinists or fabricators. That's because they can add many custom touches of their own using their talent and equipment. Well Mears, Michigan resident Dave Earle is both a talented machinist and a fabricator, and he built this one-off buggy that is totally unique from stem to stern.

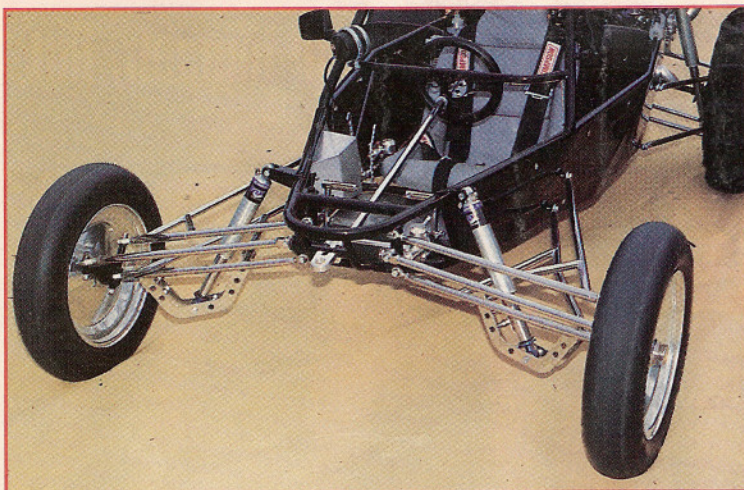
He began the project by purchasing pre-bent chromoly tubing from XTC Motorsports. The tubing he purchased is identical to the center section of a single-seat XTC mini-buggy. Dave TIG welded the chassis together, fabricating custom front and rear sections in the process, giving the car a 100-inch wheelbase. Dave also designed and built the chromoly front A-arms and spindles, which use Fox 2.0 nitrogen-charged shocks, providing 14 inches of front wheel travel. Out back he fitted the car with a five-link (per-side) suspension design and a custom rear upright/bearing carrier. Fox shocks suspend the rear as well, dishing out 12 inches of travel.

Like all buggies, the engine determines the car's basic attitude and, well, this one seems to have a pretty mean attitude. The engine came from a Honda CBR1100XX Super Blackbird street motorcycle ... one of the most powerful production bikes in existence. But that wasn't enough for Dave, he wanted more. So he set about modifying the engine, and like everything else on this car, all work was done by Dave in his shop. He over-bored the



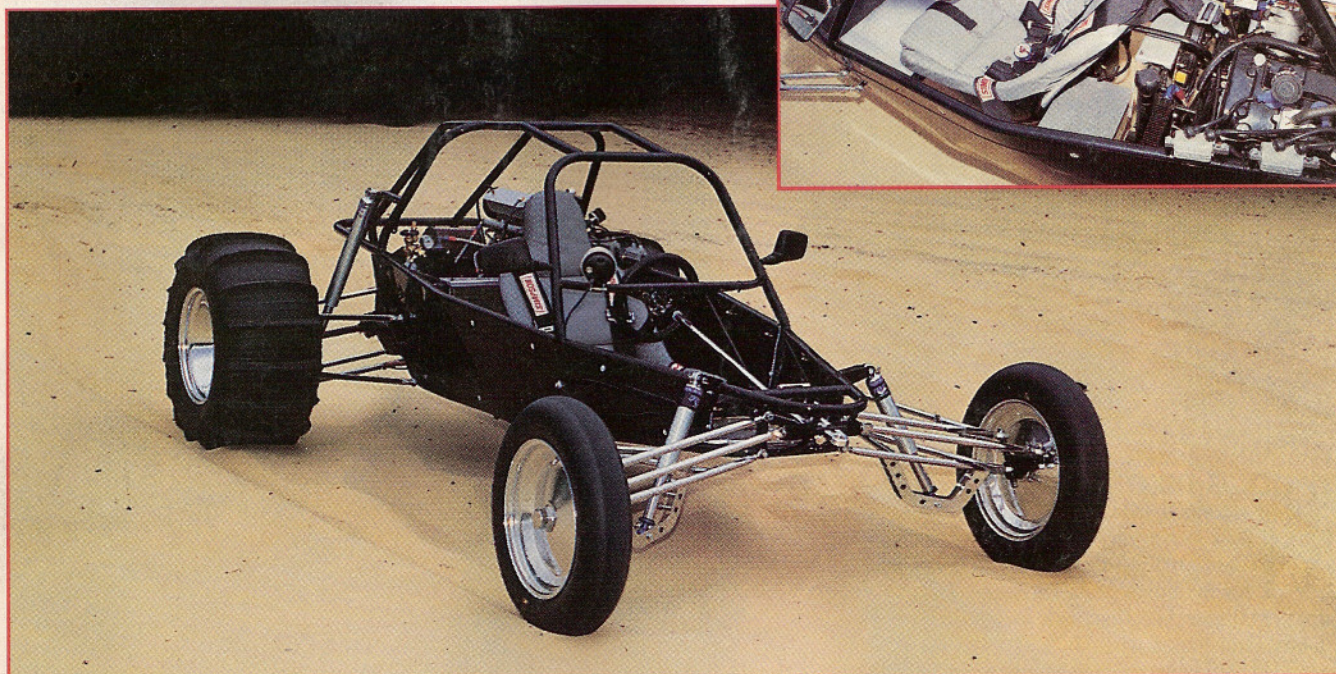
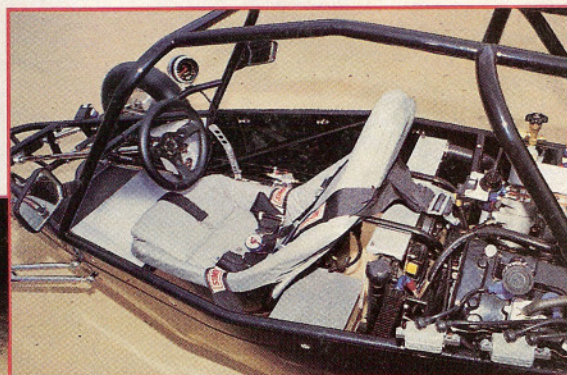
TOP, starting with the center section on an XTC mini-buggy, Dave built his own custom single seater with immaculate detail. ABOVE, trick looking unit is a Winters sprint car-style quick-change rearend.





**ABOVE,** Dave designed and fabricated his own A-arms and spindles, and uses Fox 2.0 nitrogen filled shocks for a healthy 14 inches of front wheel travel. **RIGHT,** a custom carbon fiber seat is used to save weight. Simpson five-point harnesses keep Dave safely secured in the buggy.

cylinders by 1/2mm to make sure they were perfectly round, which bumped the displacement to 1140cc. Falcon race rods and custom JE pistons were fitted, with the compression lowered from the stock 11:1 down to 8:1 for the turbo application. Speaking of the turbo, Dave fabricated the exhaust that leads to the Mitsubishi "hair-dryer," as well as the intake plumbing coming out of it. The stock waste gate was eliminated, so boost is now controlled with an Extreme Performance waste gate. The turbo pressurizes a Hilborn electronic fuel injection system with 46mm throttle bodies. An Accel computer from Hahn Racecraft controls the EFI. The engine also features an ignition system with adjustable timing, coils, and adjustable boost sensor, all Dyna components. When the boost level reaches 10-lbs. the timing retards from 41 degrees to 30 degrees to prevent detonation. Dave tells us that at 30-lbs. of boost the engine makes over 400



horsepower and anything over 20-lbs. of boost requires that he run a wheelie bar. That's major horsepower for such a small and lightweight buggy! The factory 6-speed transmission is retained, as is the stock clutch. But an MRE adjustable clutch lock-up plate is used, which required modifying the clutch housing for clearance. To keep the engine's temp controlled, a VW Rabbit aluminum radiator with an electric fan is used, as well as a large oil cooler.

You'll notice the engine sits in the chassis sideways, unlike most street bike-powered mini-buggies. To get the power to the rear wheels, Dave custom built a gear box that is coupled to the output shaft of the engine, and transfers the power into a magnesium Winters quick change rear end housing, similar to what sprint cars use. The rear end is mounted upside down and features an 8-1/4-inch reverse rotation ring and pinion set with a 4.33:1 ratio. Porsche 930 CV joints are used along with Sway-A-Way axles. Inside each custom bearing carrier are two large roller bearings that support the stub axle. Dave machined the chromoly stub axles so they bolt to the CVs on one end, and fasten to a custom 6061-T6 aluminum flange with a VW five-bolt pattern on the other end. This setup is narrow and compact,

*Continued on page 62*

**ABOVE,** solid Black paint scheme gives the car a "Stealth" look, and we're sure quite a few other buggy owners have been surprised by the stealth performance. **BELOW,** living only a few miles from the dunes, Dave devised this quick and easy way to tow his buggy there.





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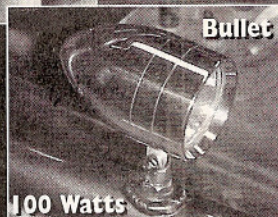


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## BLACKBIRD

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allowing maximum CV angle while keeping the rear track-width relatively narrow. Also note there are no outboard brakes. Stopping power comes from a single six-inch diameter disc brake rotor with a CNC caliper that is mounted on the gear box input shaft. This gives the disc brake the mechanical advantage of the 4.33:1 rear end ratio.

Extending his fabrication talents further, Dave also made the side panels himself. These, along with the chassis, were powder coated black by Magnum Powder Coat. Looking inside the buggy, there's a custom made carbon fiber seat with gray leather covering, sewn up by Upholstery by George. Simpson five-point harnesses keep Dave secured in the car. Steering duties go from a Grant 11-inch wheel to a Stiletto rack and pinion unit. Custom clutch and throttle pedals are used, with a CNC master cylinder used for the clutch. Braking is done with a hand lever that works a CNC cylinder, and the shifting is also hand operated, via a smaller lever next to the brake handle (both custom aluminum pieces). Monitoring equipment includes an Auto Meter 14,000 rpm tach, Dyna shift light, and Auto Meter water temp, oil pressure, and boost gauges. Dave points out that he can change the fuel curve of the engine simply by plugging his laptop into the Accel computer and changing the settings. A Jaz three gallon fuel cell resides next to the engine. And finally, Dave's choice of wheels and tires includes Douglas spindle mounts with S.T.U. Smoothees up front, and 12x15-inch Douglas wheels with S.T.U. 1300 Plus Padla Traks in the rear.

Dave tells us that there are hundreds of small aluminum clamps and brackets that he machined for this car. In addition, all of the key bolts and washers on the car were machined from titanium bar stock to save weight. He did all of the work in his shop except for the powder coat, and the chroming and polishing which was done by Custom Metal Finishing. In the six months it took to build, Dave figures he has hundreds of hours of work invested in this buggy.

The finished toy weighs a mere 735-lbs, so you know it must be fast with so much horsepower. Dave describes the wild ride as, "The car will power into a wheelie at 80mph in third gear and go over backwards if I don't lift." How's that for an incredible power to weight ratio? At West Michigan Sand Dragway the car has run a best of 3.9 seconds and 85mph, with wheelspin off the line hampering the time. Since then, Dave has switched to S.T.U. SR1 paddles and says it feels much faster, but hasn't had it back to the track yet. We imagine it should be quite a bit quicker. In closing, Dave asked that we send a special thanks from him to XTC Motorsports, Appletree Automotive, Hahn Racecraft, Chassis Shop, and Upholstery by George. With a unique frame and hundreds of custom components, Dave's "Blackbird" is truly a one of a kind!

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