

throw enough money into a hole, and eventually it will fill. Throw the same money at a car, and the results aren't quite as predictable. It doesn't matter how much dough you put in a car. If a healthy dose of moderation isn't on the menu, well, dig a hole.

Make no mistake, the cash deployed throughout this BMW could buy a brand new M3—with a nav system. But then the world would be missing what is arguably one of the cleanest, fastest '02s on the planet.

Voted "The 2002 We'd Most Like to Own" at the 2002 '02 Fest West, this 1973 tii is nothing less than a mobile work of art. Owner Daniel Cooper has done a masterful job melding 30-year-old technology with contemporary hardware, all the best stuff, none of it inexpensive.

Cooper has owned six 2002s since he started driving and purchased the 2002 more than 10 years ago. This particular car was very well maintained, featuring Alpina's performance injection system and suspension. "The original owner was so sure I'd want it, he offered to pay my way there and back if it wasn't totally perfect," said Cooper.

Declaring this one "a keeper," Cooper drove the 2002 several years before placing a call to Kermit Upton at Mountain Auto Sport. The plan was to replace

Building Perfection Obsession and the 2002

by Les Bidrawn Photos by the author

the mechanically injected engine with something a bit more radical. "Upton is a brilliant fabricator, one of the best I've ever seen," stated Cooper. "His installation techniques are in a different class than the other S14 conversions on the BMW club circuit."

The donor car was a 1990 E30 M3 equipped with the venerated 2.3-liter, race-bred motor. Rated at 192 bhp at 6750 rpm and 170 lb-ft of torque, this swap alone would net the car impressive gains over the original engine. Upton went to the BMW EVO parts bin and sourced the rods, pistons and crank to bring effective displacement up to 2.5 liters. He then performed extensive work on the internals, including meticulous balancing and blueprinting of all reciprocating parts and associated head work. Within the polished head reside MASR-spec cams, complemented by Evo III injectors. VAC converted the factory's 46mm throttle bodies/airhorns to 48mm (EVO III spec) and custom-machined the throttle plates, finishing them off with extensive porting and polishing.

"Installing the VAC system produced a noticeable gain in throttle response—you could feel it right off the bat," said Cooper. "Flow bench testing revealed a 10% increase across all four cylinders. And these beauties cost a fraction of the Motorsport stuff."

Intake components are completed by a custom MASR airbox, including a K&N filter fed through a ram-air system.

Split Second provided a tidy fix for the archaic vane-type airflow meter with its mass airflow meter conversion. "Given the fact every modern BMW comes with a mass airflow meter, the Split Second program made a lot of sense. Plus, how cool is it to program a 30-year-old car with a laptop computer?" asked Cooper.

The Split Second conversion netted an 18-hp gain along with an increase in torque, throttle response and driveability. It features a display alerting the driver of lean/rich situations, plus its compact size left the car some 7 lb lighter. We'd previously seen an E30 M3 belonging to Spilt Second president Mark Amarandos kick serious butt on a local club circuit—we know the thing works.

The exhaust is comprised of a two-piece Gruppe A header that feeds a custom twin-can MASR system wrought from 3-in. stainless-steel tubing. Upton fabricated a





trick, hydraulically dampened motor mount (on the topside), tying into the upper strut brace, thus eliminating engine twist and associated rubbing issues. The oil pan was modified for clearance and includes baffles to address the oil starvation issues of the early M3 cars. A larger radiator from a 320i and an M3 oil cooler keep a tab on cooling issues.

The transmission is based on the Euro-spec close-ratio five-speed (dog-leg shift pattern) with reference sensors welded to the bell housing. Will Turner at Turner Motorsport provided the link between engine and trans with a heavy-duty Sachs clutch kit and lightweight aluminum flywheel.

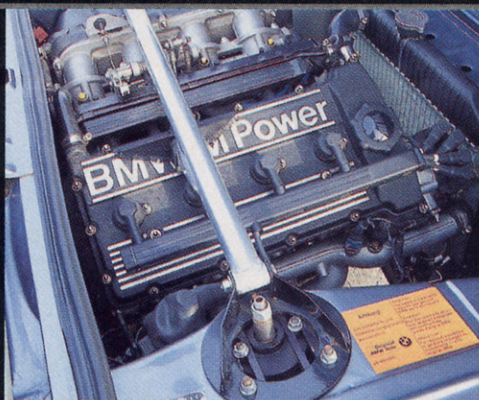
"I previously had the 11-lb BMW Motorsport flywheel on the car, and it worked great," recalled Cooper. "I was worried the 8-lb TMS unit would be too much (or little) until Will assured me I'd be happy with the results. He was right—the

Building Perfection

improvement in throttle response is huge, and the car retains a very driveable demeanor."

Dyno testing revealed 239 hp at the rear wheels, enough power to make smoking the 2002's rear tires as easy as putting your right foot down, especially with the 3.64 final drive. Cooper subsequently installed a Quaife limited-slip ATB differential in a 3 Series case for optimum hook-up. It will still light up the rear meats given the chance but with more predictable results.

"I've put more than 10,000 hard miles on this new motor—this is my daily driver, so it's city stuff, club events and canyon car-



ing," said Cooper. "This MASR engine is bulletproof."

The tii rides on Ireland Engineering coilovers with 250/200 front/rear springs. Ireland Engineering adjustable camber plates provide an exceptional degree of tuneability for this extremely tight chassis. Cooper commissioned Hamlin Fabrication to install a custom rollcage, carved from chro-moly and tied into all four upper suspension towers. The cage is a masterpiece, blending almost invisibly from the roofline into the dash and rear panels. The sub-frame and trailing arms were gusseted by Bill Arnold, and the rear towers are augmented with a TEP rear brace featuring a battery re-locator (and battery). Suspension Techniques sway bars measure 22mm in front and 21mm out back, held in place with urethane bushings.

Cooper wisely upgraded the brakes with a kit from KVR Performance in Ottawa, Conn. The kit is based on four-piston AP calipers that grip two-piece rotors (vented and drilled) with aluminum hats. The rears are the big drums from the 323i. Forged HRE 535 wheels measure 6.5x15 (15 lb each) and carry Bridgestone RE730 rubber sized at 205/50ZR-15. This running gear

manages to look period while providing an exceptional degree of performance. Freakin' beautiful.

The body was painted more than 10 years ago in Baltic Blau Metallic (Glasurit 54-line). "I have not touched the paint. Why mess with perfection?" mused Cooper. Early Euro-spec bumpers reside on each end as do Euro-spec signal markers—goods from the crew at 2002 AD.

The cabin includes Recaro SRD front seats covered in tan Monza cloth—the rear bench features the same material. The center gauge panel is an Ireland piece with AGLA shift and e-brakes boots situated nearby. The only thing that doesn't work is the clock. "I'd like to think of that as an option—the broken-clock package," said Cooper. "I don't care what time it is when I'm driving this car. And who the hell needs a radio when you've got an S14 underhood?"

I've owned several 2002s (both '75s), and this car was unlike both of them. In terms of chassis rigidity, Cooper's 02 has the structural integrity of the latest offerings from BMW. It's reminiscent of an E30 M3 from the Firehawk Series but is more comfortable. Though the unschooled might balk at first gear (down and to the left like a Porsche 914), winding through the gears is a universal experience. The engine pulls with the urgency of a well-sort-

ed race car, the tach busier than the windshield wiper blades. Like most '02s I've driven, once thrown into a turn you're committed—puss out halfway through, and she'll spin. However, the throttle response is so immediate, you can pretty much pedal your way out of anything. The brakes are very good—if they had limits I couldn't find them, at least on this particular road.

As a senior marketing manager for Infineon Raceway (formerly Sears Point) north of San Francisco, Cooper is a consummate "track rat," using any excuse for a bit more seat time. Though most people would consider this 2002 perfect, Cooper is continuing its development, including fitment of a carbon-fiber hood and fenders, a rear disc conversion and custom aluminum radiator.

Obsessive? You bet. Compulsive? Yep. A large hole for money to be poured in? Absolutely. But those are the costs of building perfection. ❧



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