

UNTIL RECENTLY, DIESEL ENTHUSIASTS WHO WANTED TO PARTICIPATE AND RACE A DIESEL-POWERED RIG IN THE SCORE DESERT RACES HAD TO COMPETE IN THE STOCK FULL CLASS—ONLY RECENTLY SCORE CHANGED THE RULES TO ALLOW TURBO DIESEL ENGINES TO RUN IN THE CLASS 8 AND TROPHY TRUCK CLASSES.

RPM Offroad President Justin Matney and his crew in Bristol, Tennessee, wanted to do just that—race the famed Baja 1000 with a diesel-powered truck, so he built Dodge Rams to tackle the Mexican desert. The team used three trucks for prerunning and raced two trucks. One of the trucks failed to finish the race, after exceeding the time limit to reach the

final checkpoint. But the other did finish the race, placing an impressive fifth, as the final finisher in the class—not bad for a shop that opened its doors less than a year ago.

All three of the Dodges are 3/4-ton 2500 crew cab models; the prerunner is an '06, the red base race truck is an '05 and the black base race truck is an '06. These tough trucks were built in six months at the new RPM Offroad facility located near the famed Bristol Motor Speedway, in the heart of NASCAR country. Matney ran the '06 SCORE Baja 1000 using the truck that is now used as a test mule and prerunner, and decided to attack the '07 1000 with two improved race trucks. The RPM Offroad crew made extensive modifications to improve the trucks before attempting the grueling race south of the border. We offer you a sampling of what that massive undertaking involved following the feature, in an effort to provide you with an idea of what it takes to create such amazing diesel race trucks.

As we highlight the special features that Matney and his RPM Offroad crew built into each of the three diesel desert racers, you learn that safety comes first, especially in SCORE desert racing. To this end, the RPM Offroad crew started by stripping the factory interior to make room for robust race items. The main safety upgrade is the SCORE-legal rollcage, built from 2.0-inch diameter DOM tubing with 0.120-inch wall thickness to meet SCORE regs and protect the driver and corridors. Incidentally, the team inadvertently tested the strength of the rollcage on the prerunner, while testing and prerunning the racecourse before the race. The cage ties to the factory Dodge chassis throughout the length of the chassis to stiffen and



DESERT RACING

NOT MUCH IS STOCK ABOUT A STOCK FULL RACE TRUCK

Words: Chris Tobin
Photography: Courtesy of RPM Offroad

DIESELS

strengthen the foundation the Dodge engineers laid.

With the cage in place, the factory dash was modified to clear the rollcage tubing and reinstalled along with the stock steering column and steering wheel. Next, they installed three MasterCraft 3G racing suspension seats in each truck, along with Crow Enterprises five-point racing harnesses that must secure the occupants during strenuous racing conditions of up to 1,300 miles at a time. The team used the factory radio dash location to install a host of Auto Meter Ultra-Lite gauges to keep close tabs on the big Cummins diesel and the Dodge 48RE automatic transmission. Below the gauges, a custom console was fabricated to provide a mounting location for the Art Carr shifter along with the two-way race radio and intercom equipment. The passenger side of the dash has a large 10.5-inch Lowrance GPS monitor to allow the front seat passenger to navigate the racecourse, calling out dangerous areas to warn the driver.

After the safety items were completed, the team turned its attention to the suspension, since the stock suspension would not hold up to such severe desert racing. Rules for SCORE's Stock Full class are pretty tight suspension-wise, but they do allow upgraded shocks and a few additional tweaks. Matney's experience running Baja taught him that shocks are a weak link on a big heavy race truck, not to mention one like a Cummins diesel-powered Ram. The shocks are overworked and overheat due to the relatively short travel and limited fluid capacity, even when using a 3-inch diameter shock. To remedy this shortfall, RPM Offroad designed and built its own external-bypass remote-reservoir and 5.5-inch diameter shocks. With the increased fluid capacity, they could drive the

trucks harder without fear of boiling out the shock oil. Custom mounts were fabricated to install the massive RPM 5.5 shocks on all four corners. The team modified the stock rear leaf springs and used Lorenz coil springs up front. MasterCraft 7,000-pound limit straps were used at each corner, to prevent the suspension from overextending while flying through the air.

Custom Weld Racing 17x9-inch beadlock wheels are wrapped in 37x13.50R17 Toyo Open Country M/T tires, and each truck carried two spares on custom mounts integrated into the rollcage, in the rear of the trucks above the 44-gallon Fuel Safe racing fuel cell. To help steering control at speed, a KORE Off Road Fox steering stabilizer is used on each truck. RPM Offroad



Each of the RPM Offroad race trucks is equipped with nine Baja Design Soltek 8-inch HID lights to cut through the Baja darkness.

added custom axle trusses to strengthen the factory 11.5-inch rear and 9.25-inch front axles. Both axles are stuffed with Yukon Gear 4.56:1 gears to help the big truck accelerate and pull through the difficult terrain normally associated in off-road racing.

Moving to the drivetrain, the team shipped the Dodge 48RE transmissions to Sun Coast Converters in Fort Walton Beach, Florida, for modifications to handle the rigors of desert racing. Sun Coast Converters also installed a full manual valve body through the console-mounted Art Carr shifter to allow the driver complete control of the transmission while racing. To keep the transmissions cool, PWR Performance Products transmission coolers are installed on each truck.

Putting the power to the Sun Coast Converters modified transmission is a beefy Cummins engine, which makes use of a custom River City Turbo modified turbocharger and Diesel Innovations intercooler as well as ATS Diesel intake and exhaust manifolds. Air filtration is handled by an AEM Workhorse diesel air filter kit, while fuel is pumped from the Fuel Safe fuel cell by a FASS 95gph 150 series fuel pump. Vulcan Performance lines were used by the crew at Engine Works to plumb each of the fuel and oil systems in the trucks.

For the exterior, Matney and his crew trimmed the fenders to provide additional tire clearance. They also built custom front and rear tubular bumpers as well as light racks above the cab and in front of the grille. Each of the race trucks has four 8-inch Baja Design Soltek HID off-road lights mounted to the bumper, as well as five 8-inch Soltek HID's mounted on the custom-fabricated light bar above the windshield. To improve the looks, Matney had the prerunner decal, and both race trucks wrapped with matching red and black vinyl graphics. The red truck even featured Matney's favorite magazine DIESEL BUILDER on the hood, while both race trucks featured DIESEL BUILDER logos on their bedsides.

While Matney and his RPM Offroad team were not as successful as they hoped at the '07 Baja 1000, they view their efforts as just another experience along the way to winning an event such as the BAJA 1000, and they aren't giving up. In fact, they intend to run the entire SCORE '08 schedule, as well as a few other desert races like the BITD Vegas to Reno race this next August. And now that they have had more time to refine their truck setup and have a Baja 1000 finish under their belts, we are anxious to see RPM Offroad on the podium in '08! **DB**



Under that great-looking hood is a powerful Dodge/Cummins turbo diesel engine enhanced with an AEM filter, ATS Diesel manifolds, FASS fuel pump and River City Turbo turbocharger.



The interior of these trucks is all business, with Auto Meter gauges replacing the stereo and a Lowrance 10.5-inch GPS monitor dominating the dash. They also feature a custom center console for the Art Carr shifter and radio/intercom equipment.



Comfort for three is built into each truck thanks to the MasterCraft 3G suspension seats and Crow five-point racing harnesses.



Matney and crew designed their trucks to race through the Mexican deserts and here's one getting it done.



The Buildup

01. Tearing into a truck with only 283 miles takes some serious guts, but the guys at RPM Offroad are serious about their racing efforts. 02. While the stock Dodge interior is plush, it is not acceptable for racing. 03. The interior was completely gutted to make way for the rollcage and other amenities necessary for racing. 04.-05. The piles of unused interior parts are quite large. 06. To fabricate the rollcages for the cab of the trucks, the RPM team cut holes on the floor to drop the cage through and make the welds on the topside of the cage. 07. Rollcage tubing protruding through the floor of the trucks will be welded directly to the frame once the cage is properly positioned in the cab. 08. Parts of the inner sheetmetal of the cab were trimmed away to allow the cage to fit the contours of the roofline as closely as possible. 09. The cage fits tight next to the body thanks to the trimming and excellent design work performed by the RPM team. 10. Extensive metalwork was needed after the top portion of the cage was installed to provide mounting points for the racing seats as well as strengthen the cage and chassis. 11. RPM Offroad custom-fabricated mounting plates to secure the transmission, transfer case and engine so that they will withstand the desert abuse. 12. The transfer case is secured by custom plates on both sides of the unit where it mounts to tabs welded directly to the frame of the truck.

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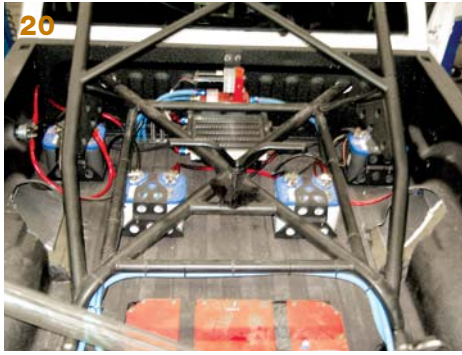
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13. Notice that the team installed a Mag-Hytec transmission pan on the Sun Coast Converters-built Dodge 48RE transmission for its added strength and ease of service. 14. Beefy RPM engine mounts were installed along with reinforced engine mounts on the frame to make sure the engine stays put while the team is bounding through the desert. 15. The team at RPM Offroad fabricated this massive axle truss configuration to strengthen the rear axle of each of the race trucks. This is necessary when jumping nearly 9,000 pounds across the desert. 16. The front axle received similar reinforcement from a custom axle truss. 17. The bed of the trucks required extensive modification as well, starting with a rather large hole to accommodate the Fuel Safe fuel cell. 18. To make sure the cage has maximum strength, the tubing is carefully aligned before welding it in place. 19. The bed mounted portion of the rollcage ties into the cab portion of the cage and has provisions for two spare tires. 20. This Dodge is ready for action with its cage, four Optima Blue Top batteries, Fuel Safe fuel cell and the FASS fuel pump; it only needs the RPM 5.5 shocks to finish it off. 21. A mock-up version of the RPM 5.5 was used to design and perfect the shock. 22. The finished RPM 5.5 shocks are true works of art and excellent examples of the craftsmanship these guys employ. 23. Installing the big shock on the front of the trucks took some serious work, including a custom engine cage as well as mounting the reservoir under the fender against the support rail. 24. The rear shocks and reservoirs are installed coming through the floor of the bed and mounted to the cage. The RPM Offroad crew responsible for designing and building these trick trucks included Joe Aylor, Blaine Kilby, Justin Matney, Jereme Miltier, Ron Moore and Michael Powell. During the race, Aylor and Matney were joined by Sam Blankenship, Alan Clarke, Shane Roberts, Clyde Stacy and Jim Stuart to handle driving duties.

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