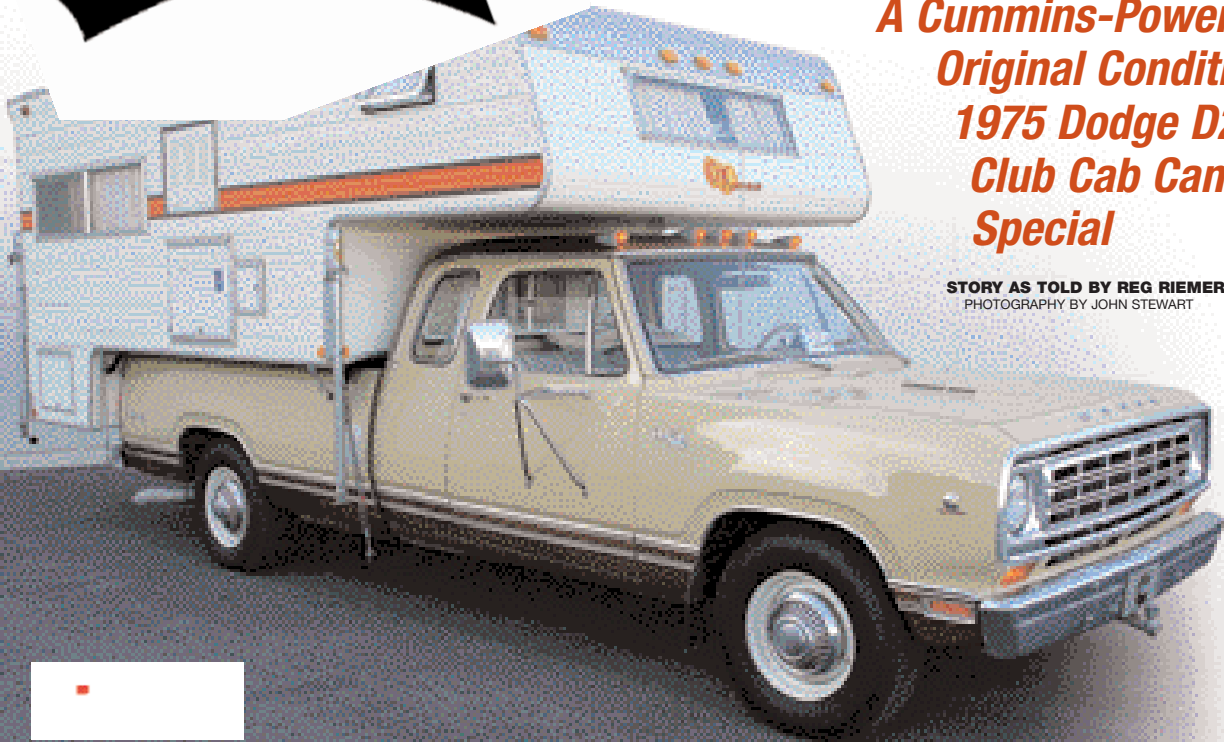




10 Day Wonder

A Cummins-Powered Original Condition 1975 Dodge D200 Club Cab Camper Special

STORY AS TOLD BY REG RIEMER
PHOTOGRAPHY BY JOHN STEWART



A classified ad led Canadian tuner and racecar workshop owner Reg Riemer to a rare find: a mint condition 1975 Dodge. This D200 Club Cab 2wd Adventurer SE Camper Special, with a 1975 OKanagan 11.5-ft slide-on truck camper, had spent 31 years tucked away in a barn. The truck and camper had only 20,000 original miles. He purchased the pair for \$6,000 on Sept. 27, 2006, and was happy as a clam with the new retro Camper Package.

The only problem with a 1975 Dodge camper truck in today's world is the old 360 and 440 V-8 engines are not up-to-date puller engines. They use far too much fuel for the work they are capable of doing. In 1975, nobody was worried about fuel costs or economy, they just installed more fuel tanks. Reg got the idea that the retro '75 Dodge D200 Club Cab camper truck would be cool if it could be re-powered with the modern, powerful, and fuel-efficient Cummins/Dodge 6BT Intercooled Turbo Diesel driveline (CTD).

Back in 1975, the Camper Special pickup was an option available for the family man who planned to load a slide-on camper for weekends and vacation. At that time the Dodge pickup was often used as a work truck from Monday to Friday. Camper Special pack-

ages were available for most D200 and D300 pickups, although features varied between Canada and USA models. The packages consisted of a camper wiring harness, with improved electrical service for camper power and lights. Also, Dodge improved the brakes, suspension, fitted the heaviest duty auto trans of the time—complete with trans oil cooler—for increased pulling strength. West Coast mirrors were fitted along with a sliding rear window.

Reg realized this vintage camper truck, if Cummins equipped, would make a fantastic tow vehicle for pulling the camper and racecar trailer.

The Design Phase

The donor truck was purchased on Oct. 15, 2006 for \$4,200 from the local classifieds—a rusty 1992 Dodge Cummins Turbo Diesel D250 Club Cab 2wd Automatic with PS, PB and Cruise. It was perfect for the swap, having the same frame length and chassis specs. It had one more option than the '75 D200—cruise control. Before pulling the engine, Reg ran the truck on RCTS's Dynojet. Amazingly enough, the 6BT made more power than rated at the rear wheels, and



Looking just like it might have in 1975, this D200 has been re-equipped with a modern powerplant for efficient long range towing.



The interior is all Dodge, with amazingly well preserved/restored fabrics and materials. Note the original pedals. The Cummins box under the dash holds the factory '92 CTD dash lights for water in fuel, wait to start, check engine. Reg also added an Overdrive Lock Out control button and cruise control switches from the steering wheel of the '92 donor truck.



The instrument panel is classic Dodge, except for the addition of pyrometer and manifold pressure gauges.

even more amazing, when the intake pipe was removed he found the turbo wheel was very hard to turn.

Reg drove the beat-up donor truck for two weeks to check the driveline for any problems, and also started to order parts that would be needed during the build. The new parts list included \$1,500 for the following:

Holset Turbo, D2500 Cummins front springs, lift pump, alternator brushes, starter brushes, contact plate, belt, valve cover gaskets, 8-inch longer-than-stock speedo cable, ISSPRO meters tach, EGT gauge, boost gauge, water pump, '92 CTD front springs, CTD engine mount isolators, shift linkage rubber bushings, crankcase vent tube, fuel filter, trans filter and gasket, front timing gear case gasket and crank seal, 3rd Gen CTD fender badges, Stewart Warner fuel transfer pump for saddle tanks, three feet of fuel hose, black paint, Dodge factory service manuals for '75 and '92 Trucks, and a 1989 CTD speed sensor with speedometer cable fitting.

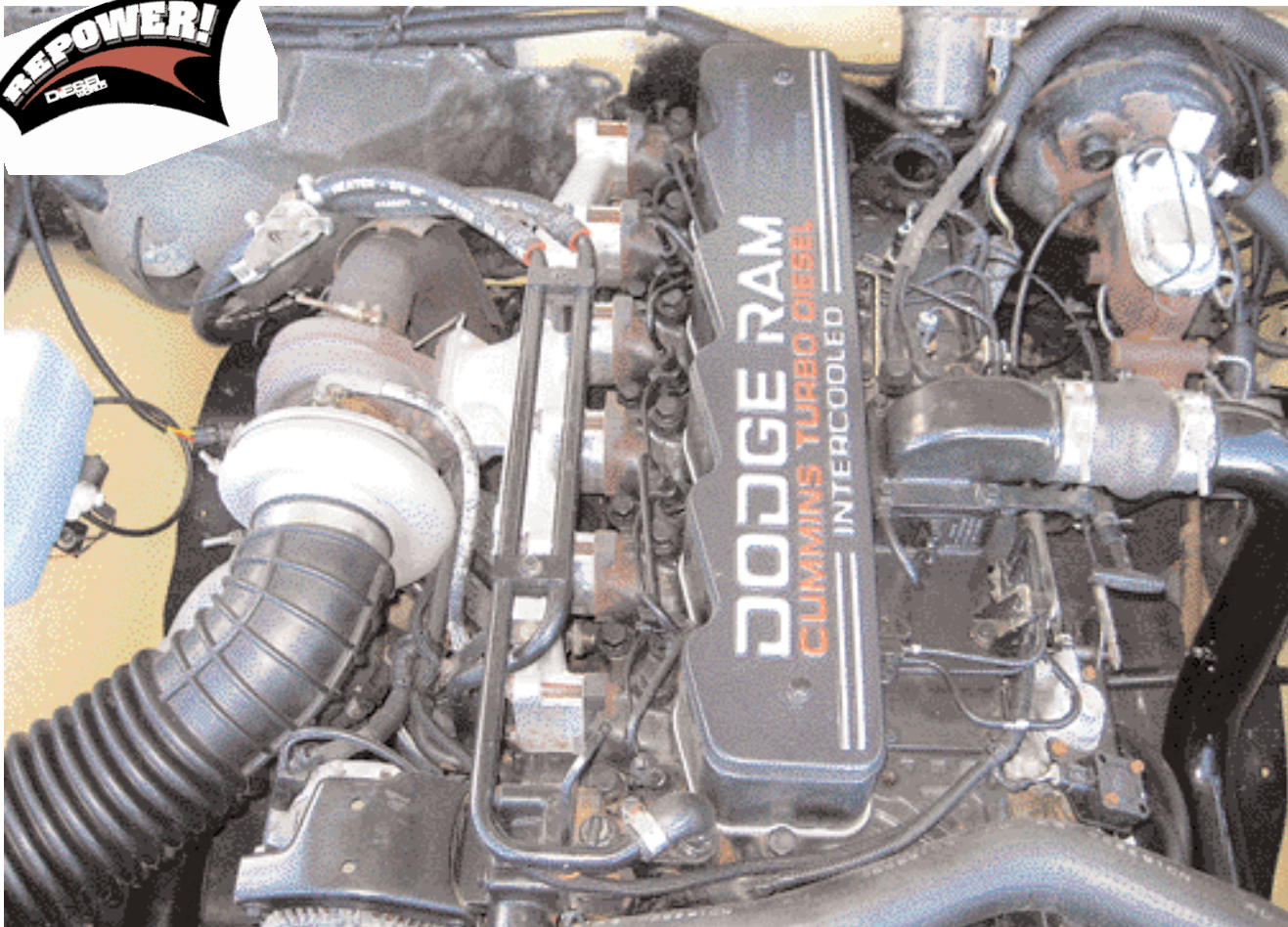
The speed sensor is sort of a transition speed sensor, as it allows the stock 1975 cable drive speedometer gauge to work, and also allows the 1992 style electronic speed sensor connection for the Cummins ECU. The 1992 CTD trucks only have the electronic sensor; the mechanical cable drive connection has been eliminated

from the system. So the 1989 CTD sensor is perfect for this swap, since it allows the cable speedo from the '75 as well as the ECU from the '92 to work together.

Reg wanted to do the swap without changing the retro flavor of the 1975 D200. He found out that Dodge Trucks from 1972 to 1993 are all of the same family, including the Dodge Cummins first generation trucks. Comparisons between the frame dimensions and rated carrying specs published in the service manuals confirmed that the '92 CTD engine and mounts, driveline and other miscellaneous parts would bolt right up. Only some new mounting holes for the rear trans mount would be needed.

The complete '92 Dodge CTD Engine and single board ECU (SBECU) system and wiring harnesses were stripped away from the '92 Dodge to allow fabrication of one clean looking add-in CTD sub harness to be installed in the 1975 D200. The sub harness includes the charging system, starter, grid heater relays, Cummins water in fuel warning and display panel, and cruise control system.

Also to be installed in the '75 D200 were the '92 Dodge CTD 47RH 4-speed OD trans and rear mount, 3.55-1 Dana 70 posi,



Under the hood resides a '92 Cummins Turbo Diesel that delivers up to 20 mpg and marches up the steepest passes on cruise control.

driveshaft, rear springs, rear brakes, rear brake lines, emergency brakes, trans shift linkage from column bell crank to trans, radiator, hoses, fan and shroud, overflow tank, windshield washer tank, intercooler with pipes, trans oil cooler and lines, vacuum pump / power steering pump, '92 hood release cable, throttle cable, brake pedal switch, cruise control actuator with switches and hoses, intake air box and tube, mounting brackets from the '92 radiator support (for both radiator and intercooler), and rear wheel nuts.

Reg was able to retain the remaining parts from the original mint-condition 1975 D200 Club Cab truck. These included the body, cab, box, interior, radio, switches, 50/50 bench seat, Club Cab jump seats, frame, front suspension (minus the springs), front brakes, steering system, keys, emergency brake cables and linkage, all body electrical systems, stock gauges, stock fuel tank, two safari side tanks with level indicator switch, 9.50x16.5 one-piece wheels, front wheel nuts, and power steering lines. Reg kept the Camper Special options, and the Adventurer SE stainless steel and alloy options such as hood liner, carpet, SS throttle, brake and e- brake pedal trims, SS body moldings, and SS window moldings.

The 10 Day Build Marathon

A month after buying the '92 CTD donor truck, Reg began work. However, as a small business owner, his work window was limited to 10 days. He decided that he would do the Cummins swap as a 10-Day Build—start to finish—in the flavor of today's TV reality shows. RCTS Canada R&D Inc is located in Calgary, Alberta, Canada. For blow-by-blow details, you can check Reg's reports on his site, www.monsterhorsepower.com.

The first step was to move the '92 CTD donor truck into the shop from the bitter outside cold. Looking at the '92 CTD truck on the lift showed the extent of rust was much worse than thought; the floorboards were rusted right through.

The best way to pull the CTD engine and trans from the truck would be to remove the hood and front radiator support. The plasma torch was used to cut off all the CTD intercooler and oil cooler mounting brackets from the '92 radiator support, as these would be welded on the '75's radiator support when it was removed.

With the Cummins driveline removed a very close inspection was performed showing that the engine remained clean and well maintained. All the external parts were steamed clean. All 12 valves were adjusted and the newly purchased parts were



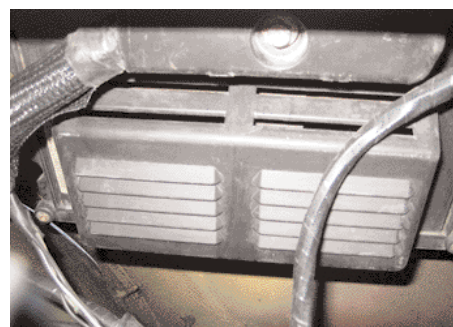
Here you can detect some of the cutting that had to be done to fit the radiator and intercooler to the '75 radiator support, because the CRD engine is much longer than the original '75 V-8. The '75 V-8's original extended radiator support mount had to be cut off, so the CTD radiator/cooler could be moved forward in the engine bay.



As it turned out, the radiator did fit on the front radiator support, with about 1/2 inch to spare. From above, radiator and shroud look neat and tidy. The stock hood also fits.



The speedometer cable needed to be 8 inches longer than stock and was purchased separately. The speed sensor allows the stock 1975 cable drive speedometer gauge to work, and accommodates the 1992 style electronic speed sensor connection for the Cummins ECU. The 1992 CTD trucks only have the electronic sensor; the mechanical cable drive connection has been eliminated from the system. So the 1989 CTD sensor is perfect for this swap, since it allows the cable speedo from the '75 as well as the ECU from the '92 to work together.



Reg found a spot for the CTD ECU over the driver-side wheel well.

installed. New Denso starter and alternator brushes were fitted with 256,000 km on the engine, though they were only worn about halfway.

Some of the early Cummins 12 valve 6BT's had a known problem called "The Killer Dowel Pin Problem" (KDP). This is a problem with two alignment pins on the timing cover case-to-engine block. The pins would sometimes fit loosely and fall out into the spinning drive gears of the camshaft and injection pump. Reg planned to drive this truck on many long distance camping trips so he removed the front cover and checked the nasty little pins. The pins in this engine were not loose but he staked the aluminum hole for the pin with a punch so this problem would never happen. The timing gears had no sign of wear, and there were no deposits or buildup anywhere inside the engine. After removing all parts needed from the '92 CTD truck it was pushed back outside to the Alberta deep freeze.

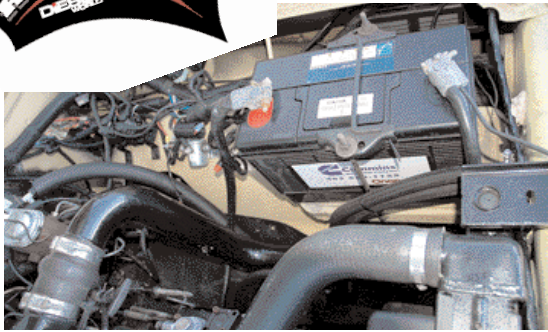
The '75 D200 was driven into the shop. Once it was on the lift, work started on the removal of the old 360 V-8 and drive-line. The hood and radiator support were removed in the same manner as the donor truck. The '75 radiator support needed to be modified to allow welding on of the CTD radiator, intercooler

and oil cooler mounting brackets.

Reg found that installing the engine was hampered by a lack of room. The long CTD motor/trans assembly kept hanging up on the firewall when he tried to lower it through the hood opening. The solution was to pull back the carpet in the cab, and remove the front body-to-frame bolts, as well as the flex joint on the steering column. He then blocked up the body with a temporary "body lift" and the big Cummins driveline slipped in with ease. The '92 CTD auto trans shift linkage rods, links and pivot in the '75 fit perfectly.

Another point of interest came when Reg discovered the '75 D200 steering column was not set up correctly from the factory. He found that many of the old '70s Dodge trucks need the steering column adjusted, so they don't push on the flex joint at the steering box. There are two bolts that hold the column solid to the dash and three that hold it to the mating plate at the firewall. If you loosen all five of these bolts you can push up or down on the column to get it running smoothly in place. Then torque up all the bolts.

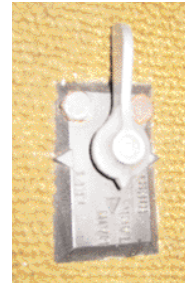
With the CTD engine and trans installed in the '75 D200, work was started on fitting the radiator and intercooler to the '75 radiator support. Using the plasma cutter Reg cut off the '75



The wiring harness includes a blend of '92 Dodge and '75 Dodge circuits. The complete '92 Dodge CTD Engine and single board ECU (SBECU) system and wiring harnesses were stripped away to create one clean-looking add-in CTD sub harness to be installed in the 1975 D200. The sub harness includes: charging system, starter, grid heater relays, Cummins warning and display panel and cruise control system. Note: '89-91 CTD use an external voltage regulator similar to '75 D200. '92-93 CTD use voltage regulator that is integrated into the engine ECU.



The two optional side fuel tanks have been converted to diesel, which gives a range of over 1,100 miles between fill-ups.



The three-way switch on the floor works via the lift pump, transferring fuel from the left and right side tanks to the main fuel tank.



The stock turbo was not running smoothly, so it was replaced with a more modern Holset unit. The engine's output was upgraded using CPL pump tuning info to improve performance without hurting fuel economy. The powerplant now generates 279 hp and 580 lb-ft of torque at the rear wheels.

V-8's extended radiator support mount. This mount allowed the radiator to be mounted far back, closer to the engine, but that would not be needed with the long CTD engine. The CTD radiator would be mounted right on the front support, with only a 1/2 inch clearance to the hood release latch.

One of the biggest concerns with this swap was fitting the CTD radiator nicely under the original '75 Mopar "bird bath" hood. This is the hood style used in the old '60s Dodge Charger and others, basically a low spot on both sides of the center hood line where water would pool when parked in the rain—a cool "must keep" design feature. Reg was happy to see the hood would close with no modifications with 1/2-inch clearance everywhere. The CTD fan and shroud fit perfectly, and actually looks like a better fit than the original setup in the CTD trucks.

The Electrics

Next hurdle was the installing the Cummins engine control harness. With the factory Dodge 1975 and 1992 service manuals at hand, Reg tracked every circuit involved with Cummins engine control to create his own wiring diagram, which he used to build the CTD sub harness that would be now be installed into the '75 D200. This was difficult, but fortunately Reg had a lot of experience doing this type of work. The bulk of the Cummins electricals are all in the one large engine bay harness that plugs into the firewall bulkhead connector, running to the starter relays, stop relay, grid heaters and engine harness plugs. Only circuits not needed were left in the 1992. These included head lights, park lights, horn, windshield washer pump, wipers, heater blower motor, and ABS. These were not needed because all the stock 1975 Dodge wiring would suffice.

In the cab of the '92 Dodge the following electrical items were removed: cruise control switches from the steering wheel, brake pedal switch, Cummins control panel and overdrive lock-

out button. These items are wired back up together with the sub harness that runs through the bulkhead on the 1975.

Only five wires need to be cut on the original '75 Dodge factory wiring. These included (1) 12v Ignition wire running from alternator to ammeter; 12v Ignition wire running from ammeter to battery; the 12v Ignition Start wire, the coolant temp sensor for temp gauge, and last, the oil pressure sending unit for the oil pressure gauge.

Other parts of the swap progressed more easily. The 1975 power steering lines and pressure fitting adapter bushing thread right into the Cummins Dodge PS pump. Also, the '92 CTD throttle cable is required for the swap because the '75 cable is too short to reach the bell crank on the Cummins. A simple modification to the Adventurer SE's cool stainless steel trimmed gas pedal arm mount allowed the '92 cable to work perfectly. The hood release cable from the '92 CTD is also required as the '75 unit is not long enough to go around the big radiator and intercooler.

With the engine and all systems hooked up, the '92 CTD donor truck was pulled back into the shop for the differential swap. The CTD Dana 70 fit perfectly with no modifications other than the emergency brake cables from the '75 need to be fitted to the Dana 70 brake drums, as they run differently through the frame compared to the '92. The driveshaft was also a direct bolt-up, as were the brand new '93 D2500 Cummins front springs. A custom 4-inch exhaust with resonator and straight through muffler using mandrel bends was constructed. Because this truck will have a slide-in camper, Reg built an exhaust tip that turned down 45 degrees and out 45 degrees to keep any diesel fumes from entering the camper.

Project Finished & First Road Trip

After filling the fluids and re-installing the original '75 D200 16.5, one piece wheels it was time for the first road test. The old truck ran amazingly smoothly and powerfully. On Boxing Day 2006 Reg drove the Cummins- powered retro camper all the way

to Los Angeles via Salt Lake and Vegas, then back north up the PCH Hwy 1 and 101 to Canada. Over the 4500 mile road trip, measured fuel economy was more than double what the 360 V-8 could manage, 20 MPG. With the cruise on, the truck and camper will blast up the mountains without any loss of set speed. A very handy feature now are the two optional side tanks that, when combined with the main tank, allow running distances of more than 1,100 miles between fill-ups. The added weight of the Cummins and the new '93 CTD front springs really helped the handling of the normally rear-heavy truck camper. Reg, understandably pleased with the outcome, tells us the looks and nods the truck gets on the road make the whole project worthwhile.

Ignoring his time, Reg figures he has about \$9100 dollars in his unique rig. He was able to sell the used 360/auto combination for \$1,200, and the '92 CTD roller for \$1,300. He bought the '75 Dodge classic for \$6,000, and the '92 Dodge CTD for \$4,200. He spent about \$1,400 on new parts. Reg says if you're looking to do this swap, and you need a sub harness, he can build you one. ■

SOURCE:

RCTS

*Canada Research and
Development Centre
526 Cleveland Crescent SE
Calgary, Alberta*

SPECIFICATIONS

VEHICLE:

*1975 Dodge D200
Owner: Reg Riemer
Cost to Build: \$9,100
Time To Build: 10 days
Fuel Economy: 20 mpg*

ENGINE

*Type: 5.9 Cummins 6BT
Upgrades: Holset turbo
Output: 279 hp and 580 lb-ft*

DRIVETRAIN

*Transmission: ATS 5-Star 47RH
Axle: 3.55 Dana 70 w/posi*

SUSPENSION

*Front: Coilover shock
Rear: Leaf spring
Wheels: 9.50x16.5*

SPECIAL FEATURES

*Dual sidesaddle fuel tanks; 4-inch custom
exhaust, original camper, original paint.*