



# STANDARD OF THE WORLD

Story Dr Goggles Photos Simon Davidson



## FLAT-OUT ON THE FLATS WITH A FLATHEAD CADILLAC!

**B**UDDY Walker is a hyperactive, six foot four, 49-year-old grandfather who works on rigs and hails from Greeley, Colorado. He had a thing for hot rods and bought himself a '38 La Salle with the intention of making a rod, began a teardown and started asking questions.

Now, flathead Fords are everywhere but the flathead Cadillac is a whole 'nother thing; there are very few parts and not much knowledge about hopping them up. Buddy thought that had to change. He got the salt bug and thought that maybe he could build a Cadillac flathead and run it at Bonneville. On the HAMB he wondered aloud if it was possible to make 500hp with a GM blower, and whether anyone else was interested in the project.

Randy Jackson from Waco, Kansas, responded when Buddy went looking for advice about an independent rear end, and when Buddy's ideas became a little grander Randy was drawn into a project that would create interest around the hot rod world and set records at Bonneville. There were others too: Don Binkly, a machinist from California who the others regard as freakishly talented, and Dale Hays, from Columbus Ohio, who designs automation systems for CAD and has been building and racing flatheads since he was 15.

The La Salle itself was ditched in favour of a '38 Chev, as the body mods that it had already copped would have excluded it

It was an interest in racing old iron and flatheads other than Fords that brought the unique and far-flung team together, but it was these three sturdy pieces that kept it all from flying apart, top to bottom, side to side and front to back



Everywhere you go on this mountain there's a twist, from the crank snout support to the two-part CNC heads – but twist is the last thing it'll do thanks to the hell-for-stout girdles that keep everything on the straight and narrow



**“ONCE WE'D MADE 575HP ON 14LB OF BOOST, THEY ALL FELL SILENT”**



The roof lost just under 3in; any more would have made it an illegal chop



from the class Buddy was aiming at.

What they have created to plug into the Chev is truly amazing. “Even after we’d made most of the parts and assembled the motor we had people saying ‘that won’t work, that compression chamber won’t work, that cam won’t work, those pistons, those rings – I mean everything! But once we’d made 575hp with 14 pounds of boost they all fell silent, you coulda heard a pin drop,” says Dale.

“Now, that is just a dyno, but we’ve had it out here for a week, we haven’t been nice to it and it hasn’t even leaked a single drop of oil. We can’t deny an element of luck, but it is a solid endorsement of the work that has gone into this motor. There are seven extra studs in each head, which are our own design, and a custom billet girdle and pan; we’ve over-engineered a heap of parts – it’s strong and tough.”

And here’s the thing – although none of the custom-made parts existed before, they are now stored as CAD files and can be made as required, which sounds like the start of a business. “It means we can play with combustion chamber shapes, timing gears, magneto sets, flanges,” Dale says. “It’s all in there.”

Dale also says: “All credit to Buddy for rounding us up and doing a lot of networking and plotting the path. This is vital: in land-speed almost all information is widely shared and everybody wants you to go fast and avoid rookie pitfalls. But with so much freely given help, someone has to decide the direction to head in, and that was Buddy.”

It wasn’t until Speedweek 2010 that they all met in person. And Buddy was keen to point out that FlatCad has Australian content in the form of a timing cover and valley covers courtesy of Ross Ritchie in Perth, who was one of the first hook-ups from the HAMB.

New, the 1938 Cadillac made 150hp with 260ft-lb of torque with a 3450rpm redline. To make four times as much power and rev to more than 5000rpm, it would need stronger parts. But here’s the thing: if you measured the time spent developing flathead Fords compared with Cads, you’d find they weren’t in the picture. Dale

reckons what work had been done was easily ignored anyway.

Nope, the crew were breaking a lot of new ground – although they had a little help here and there. One of Dale’s mentors was Harley KR race bike man Snuffy Smith, whose chamber know-how had made flathead Fords faster. Dale and Chris Daniels developed Smith’s KR-type chamber with a pop-up piston on which they lowered the top ring, bevelled the crown severely and jammed it to within 40 thou of the head. These moves gave them comp but also protected the ring and crown from torching.

Those pistons, obviously, were custom designed, and so were the billet CNC rods they swing on. Look no further than Dale himself for the design. The original 1938 motor had three main bearings. They stepped it up to BBC-size mains and worked with Crower to carve a billet custom stroker crank. Their work on the crank came in cheaper than Crower quoted because the design specs were so complete. These boys had done their sums.

Acting on an early hint that rules might change to prevent top plates on vintage engines, the team incorporated a massive (1 1/8in thick) crank girdle and designed the blower manifold as a 3/4in-thick hell-for-stout piece that performed top-plate duties, clamping everything together. Torsional rigidity is aided by the billet pan supporting the skirt of the block. Pete Harris was instrumental here as they fashioned these parts as well as the billet steel main caps, parts that Dale reckons are a work of art.

Dale says his main concern was splitting the block down the middle, but their intake/top-plate/girdle/blower manifold did the job. Endless hours and unquantifiable talent from Don and Kevin was essential in making these parts affordable, let alone at all.

As with many higher-end land-speed cars, FlatCad employs a water-to-water cooling system where a standard-capacity cooling system runs to a radiator in an ice box. This allows a high-pressure system that can be got up to operating temperature and has a

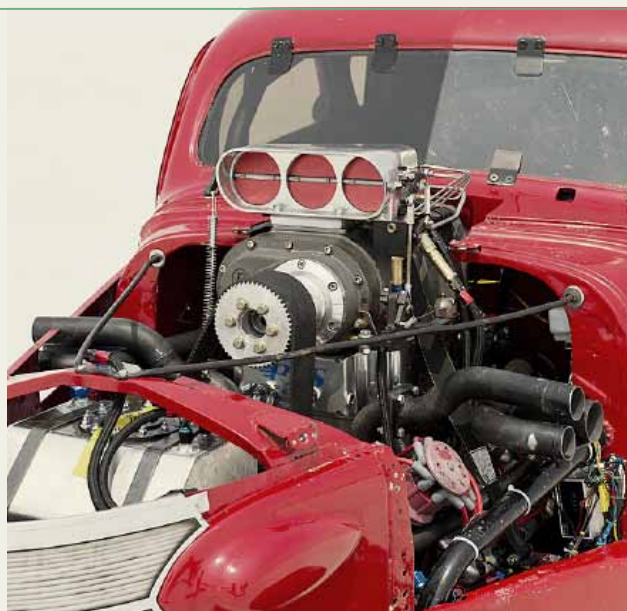


Next year that red needle will sit closer to 7000 than the 5500rpm limit they imposed this year. Yep, they're a ways from done yet



No son, they didn't come like that. As Dale Hays said, "Our trial and error was in virtual 3D. We designed it all, but if it weren't for some of our guys, we could never have had it made". These are two-piece 30-stud CNC billet heads, yeah!

After clipping the existing record the Cad is in impound, where the team has four hours to work on it. Here a bigger team, each of whom knows what he's doing can make a difference. At 7am next morning they get a return run. If the average of the two breaks the standing record then they've got their name in the book. They did it, in two classes



high thermal reserve without requiring air through-flow. The routing of the coolant has been improved by taking it into the lower block and out of the heads. For oiling there is a dry-sump system with priority to the mains and full pressure to the lifters. These lifters ride in blocks that, once again, are tied together to increase strength, rigidity and reliability.

Cam-wise, the mushroom flat tappet design has fast ramps, long duration and more than 0.500in lift. Dale says the "whole front of the motor thinks it's a BBC", yet it has an SBF thrust on the front of the billet cam and a Fowler full roller-bearing snout that acts like a fourth main.

Behind this reborn and mumbified monster they jammed a Liberty four-speed crash 'box and a Halibrand QC hung off a four-link. The Chev had already been caged and copped a near three-inch chop after careful examination of the SCTA rules.

The car first ran at Bonneville in 2011 with a small-block Chev in order to get some handling sorted and have a look-see. Dyno work and shoe-horning followed.

At Bonneville Speedweek 2012 Randy, Don, Bob and Dan Rudd, Tim Wilbanks, Chris Daniels and Mark Kerecz manned the pit, the push car and the tools while Buddy and Dale took the tiller and piloted the 3000lb car on the salt. They set a record in XXO Flathead/Blown Vintage Gas Comp Coupe of 149.292mph, with a top speed of 162.023. Then they set the XXO/BVGALT record of 154.832 with a top speed of 165.949.

Buddy isn't anywhere near finished with this thing yet, but the crew certainly isn't disappointed with what it's achieved. They all exceeded what they thought could be done, made some great friends and found a place in a team where the mutual respect is obvious and well deserved. And to all those who said it couldn't be done, they have a message: "look at the scoreboard".



## 1938 CHEV Buddy Walker

### MAKIN' IT MOVE

**Block:** 1938 Cadillac Flathead

**Heads:** Custom two-piece

**Pistons:** Custom pop-ups

**Comp:** 7.42:1

**Deck:** Deep relief, KR style

**Bearings:** BBC type

**Crankshaft:** Crower billet

**Cam:** Mushroom flat tappet, 0.500 lift

**Blower:** BDS 6/71-style

**Oiling:** Dry sump

### DRIVE

**Box:** Liberty four-speed

**Clutch:** McLeod steel

**Diff:** Halibrand-style QC

### BENEATH

**Brakes:** Rear drums only

**Front end:** '40 Ford, dropped 6in

**Rear:** Four-link

### ROLLING STOCK

**Rims:** Wheelsmith, Moon discs

**Rubber:** Goodyear Landspeeds

24/4 1/2-15 (f), 28/5-15 (r)

### THANKS

The FlatCad crew insists that this would not have happened, or indeed been possible without the involvement of Jeff Fowler and his crew at Fowler Engines in Columbus, Ohio, and John Beck of Vintage Hot Rod in Chico, California, who did all the dyno work and oversaw the injection work. Said the boys: "John watched over us like our patron saint at Bonneville".

