

Flathead-powered car races to 300 mph mark

By "LandSpeed" Louise Ann Noeth



The Flatfire crew strikes a pose on the Salt Flats.

Only work to support my 'carcaine' habit," joked Ron Main of his 20-year odyssey with land speed racing. "As a teenager, I didn't have money to buy cars, so I stole them to go joy riding; I loved them that much." Sneaking up on 60 years of age, Main still loves the cars. And, by the way, he always returned the cars he took joy rides in very close to where he got them. "Hot Rod magazine was my whole world," added the man whose driver's license was on perpetual probation until he was 25. "I liked girls, too, but I didn't have as

much luck with them as I did with cars."

That about sums up Main and gives you a good idea how far back and how deep passion runs as a certified "motor head." Last August, during the 53rd Annual Speedweek held annually at the Bonneville Salt Flats since 1949, the rehabilitated delinquent turned in a brilliant driving job at the controls of Flatfire, his luminous Dreamscycle Orange, supercharged streamliner. Tripping the clocks with a terminal speed of 295.305 mph, Main shattered the

existing class record by a whopping 50 mph.

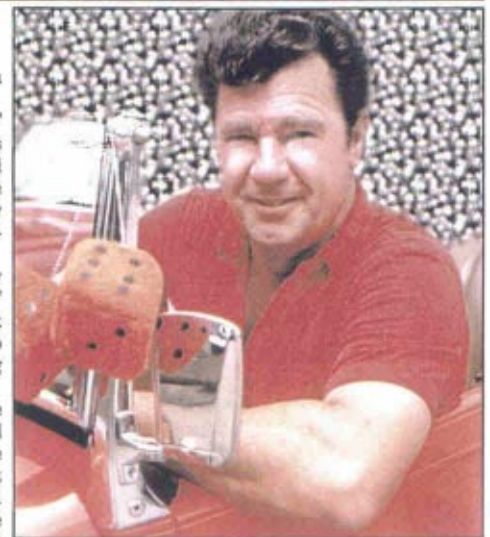
That sparked "pit buzz," as news of what Flatfire's 1946 cast-iron block had done. All doubts were erased; this was certainly the world's fastest flathead-powered vehicle.

"The car pulled very strong during the run," Main recalled, "It felt rock solid, and it was hard to believe that I was running almost at 300 mph."

Harder to believe is the engine he used. The Ford flathead V-8 engine came into being in 1932 and went out of production in 1953. While the engines were once plentiful and cheap, a half-century can take quite a bite out of the spare parts inventory. Technology blew past the flathead faster than Enron executives can sell stock, but Henry Ford's little boiler holds a Vise Grip on some enthusiasts, Ron Main chief among them.

Although he quickly deflects praise in deference to others who have helped him, Main is the keystone (and wallet) for an amazing private development program in land speed racing. Starting with a block that was lucky to see 100 hp, and with the expert help of Dick and Mike Landy, Vortech Engineering, and Bruce Crower, the Flatfire engine now cranks out 700 big ponies plus. Believe it.

In the late 1980s, Main noticed that records set with flathead engines



If the roadster Ron Main is sitting in is powered by a flathead, chances are its engine has a few less horsepower than the flathead in his 300 mph race car.

of the past decades were faster than the speeds newer race vehicles were turning in. He figured he could do better, and when he saw fellow racer Bud Morrill's topside exhaust flathead, Main was inspired. "Just looking at it made me breathe hard," he smirked. Main built a roadster in 1989 to house his experimental flathead, dubbed it "the Phantom," and broke a record on the first run. Sadly, lack of a windshield bracket disqualified the car.

But you just can't keep a bad boy down. Using old-style Hilborn mechanical injection, Main returned to Bonneville in 1990 and broke a



This nose shot shows how close the Flatfire is to the ground in an effort to maximize its aerodynamics.

record every day for five days in three vintage classes. Main then thirsted for something really fast and built a lakester that made its debut on the great white dyno in 1991. He called it "Flatfire," a hot rodding contribution that would give the overhead valve a good run for the money. As the car built up speed, Main enclosed the wheels and moved onto the venerated streamliner classes, populated by the slipperiest cars on earth.

"Flatheads were what I grew up with and read about in magazines," confessed Main. "I always wanted to take a shot at it myself, but not build something 'just like daddy did.' I wanted to build a flathead for the 21st century."

Even the non-technical recognize Flatfire's engine as something special. The engine is an impressive array of polished metal parts, but its most striking feature is the pair of beefy exhaust pipes rising out of the top of the intake manifold. The ports have been swapped and the intake and exhaust valves now occupy opposite locations. Using titanium valves, a one-off head gasket, and O-ringing, the block and head at the cylinders helps the engine withstand the tremendous cylinder pressures. Shuffling the valves meant an entirely new "inverted radius" camshaft and profile, thanks to Bruce Crower. Landy built the special roller lifters.

The deeper you go into Flatfire's engine, the more modifications are exposed. A distinctive girdle ensures the crankshaft stays put in the three-main bearing configuration. Reinforced front and rear main caps, as well as a custom, four-bolt center cap, support the 4 3/8-in. stroke billet Moldex crankshaft. Aviad's dry sump system takes care of the lubrication duties. The Landy brothers handwork is further evident in the Crower billet rods and extensively machined Ross forged pistons.

Major effort went into the engine to improve its breathing ability. Nothing inside this engine was overlooked — wherever an erg of energy might be hiding, the Landy boys teased it out. Part of the staggering horsepower numbers is due to the crank-driven centrifugal supercharger built by Vortech Engineering. Main reasoned that the low demand on the powerplant to drive the supercharger, combined with the inherent top-end boost, was the right approach. "We overdrive the T-trim unit to produce 22-psi boost at 6,500 rpm, which is about as tight as you ever want to turn a side-valve flat motor."

In land speed racing, the only goal is more speed. The sleek body work is the result of a NASA-developed 3D computational fluid dynamic software program — the first such race vehicle to benefit from the technology. Flatfire has certainly put a spotlight on the old flathead motors and is a natural progression of hot rodding's very nature: imagination and inventiveness.

Such thinking gets a guy into trouble. Consider his position on electronic fuel injection. Main is adamant that it doesn't add horsepower. "It only improves drivability, it allows the engine to live longer," he said confidently, "Under full power, there is no advantage. Peak horsepower is peak horsepower; a dyno test will prove that fuel injection and carburetors make the same amount of power." Main insists that engine-building experts agree with him. "Dick Landy, Ed Pink, and Ken Duttweiler will tell you the same thing. If we can't use the tools of today, hot rodding will die," Main contends. "We want to attract young people to the sport, not scare them away by being too restrictive." The web site, www.flatfire.com, was designed with youth in mind. Main specifically chose to compete in



Beneath all of this high-tech equipment rests a 1946 Ford flathead engine that originally cranked out only 100 hp; it now produces over 700 hp.

special construction classes so that he could use the best technology available and push the limits. "Where once it was our parents who wanted outlaw hot rodders, today, we have a few racers that are starting to act like our parents did — how did they get so old?"

Main's magic number, 300, is like the sound barrier for a flathead. The 2002 season is the 70th year of the flathead's creation, and it will also be Main's 60th birthday; he is aiming for a three-bill celebration. An avowed 1950s devotee, Main calls himself a "recycled teenager." However, the moniker is point-on. Flatfire is no casual dabble in speed. It is fidelity of purpose, spawning one of land speed racing's most ingenious and innovative approaches to attack the straight line in many years.

"The hardest part is just getting everything to work in concert and at full potential at the same time," he confessed. "The handling, the weather, we push everything to the limit; the course has to be perfect. We are on the borderline of everything, but when you push so hard — things break."

At the 2001 World Finals, while trying for a world record, the Flatfire team grenaded two complete engines. That's racing. Blowing up a flathead is not an uncommon event. You can chart a racing career by how many engines someone has destroyed. Does this daunt the once-felonious speedster? Naw.

"You'll end up with crumpled set of assets, no matter how you approach this," scoffed Main. "After we get to 300, we will put the car out on the dry lakes and make it a dirt beater." Heaven help us all.

Author's Note: In December 2001, Flatfire lost a valued member of its team, Gray Baskerville, our biggest cheerleader, lost his battle with

cancer. The hot rodder's hot rodder, his spirit will be with us on the salt as long as wheels spin.

Flatfire specs

Engine

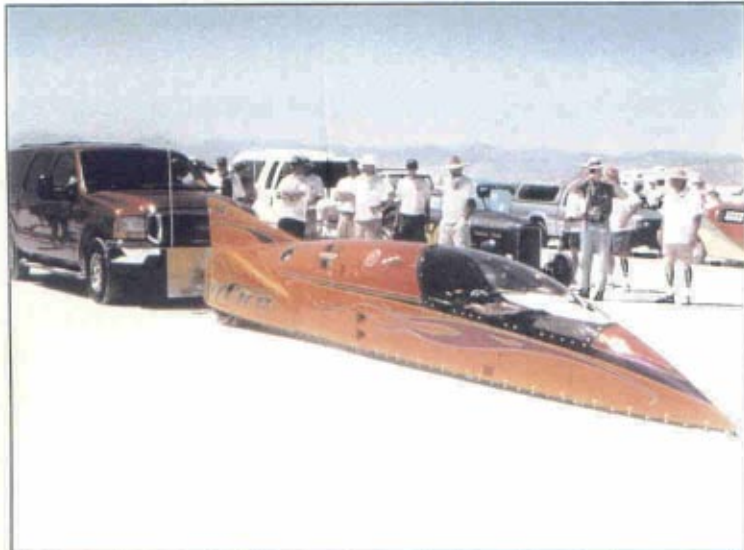
- 301-cid. 1946 Ford flathead block
- Bore 3.307 inches, stroke 3.750-inch
- Vortech V-1 T-Trim H. D. supercharger
- Dli reversed intake and exhaust ports
- Ross domed forged 6.8:1 aluminum pistons
- Crower steel billet rods
- Manley 2.02-inch titanium valves
- K-motion valve springs
- Crower "inverse radius" roller cams
- Moldex billet 4.375 inch stroker crankshaft
- Tony Baron finned aluminum heads
- Motec M48 digital fuel injection, CD18 ignition computer & ADL
- Individual Cobra R coil per cylinder
- MSD 96 pounds per hour injectors
- Two spark plugs per cylinder
- Avaid dry-sump 70-psi oil system

Drive Train

- Jerico air shifted 5-speed transmission
- Tilton triple-disc racing clutch
- Speedway Engineering mini-quick change rear end with rifle drilled axles

Chassis/Body

- Carbon Fiber body designed by Aerosmith Engineering
- Rich Manchen chromemoly tube chassis with custom designed tandem front steering
- Length: 26 feet 4 inches, Height: 3 feet 2 inches, Width 3 feet 8 inches
- Goodyear Bonneville racing tires
- GVW: 3,100 pounds



The flathead-powered Flatfire waits for a push that will launch the car towards another 300-mph pass across the Salt Flats.