# *FRANK BARON*

## "EARLY ENGINE DESIGNS - CONCEPTS IN BREATHING"

Frank Baron moved to Los Angeles at the age of 9 in 1920. His father owned a popular barber shop on Pico Blvd., West of La Brea. Harry Miller would come in for a hair cut and shave and give young Frank free tickets to various tracks around L.A. at the time.

The sound and smell of the fronty Fords and screaming Millers would forever be imbedded into his first memories of race engines.

At the age of twelve, Frank would get his first Model T coupe which would shortly get chopped and a Rajo O.H.V. head installed.

During high school auto shop, at Beverly Hills High, Frank continued his love of cars and also got to meet the likes of Bob Estees.

Upon graduation in 1928, Frank began working for another L.A. notable, Mark C. Bloom. This would be around 3rd and La Brea Blvd. A couple of times Frank would be seen pumping gas and checking "out" under the hood of Clark Gable's Duesendburg after hours during graveyard shift.

After a short period at Blooms, Frank started working at Fahy Ford Dealership where he would meet Tommy Thickstun. At this time Frank and Tommy began to talk and compare notes on improving the Ford V-8's breathing.

In around 1937, Frank would open his first shop, Baron's Automotive Service, on West 8th Street. This became a regular hang-out for Tommy Thickstun and other Hot Rodders, Frank Palmer and of course Bob Tattersfield.

Frank Baron and Tommy Thickstun collaborated on the idea of compression versus breathing for the Ford V-8. Up to this time, most all Rodders would raise compression because this was the simplest way to gain horse power, without major engine work. They even fabricated a four carb manifold, which ended up on a Bob Estees Roadster at the Dry Lakes (Muroc).

During this same period Tommy started producing his first line of speed equipment. During the pre-war period, many records were set with Thickstun's Dual 180 degree manifolds, which many old-timers consider the best dual manifold ever produced. Many would copy it, but he was the first to understand the concept of 180° firing, and at the same time his cylinder heads and marine splash covers would gain much attention.

Tommy Thickstun died in 1946 while vacationing with Frank Baron and friends at Lake Elsinore. He was to be remarried one week later. He was only 34 years old.

Many years later, Frank Baron remarked, when Tommy talked about various concepts new at the time, everyone listened. Frank recalled driving up Venice Blvd. in front of his new shop at a 'fast' rate of speed while Tommy was checking out vacuum and pressure gauges

on their roadster. It was equipped with a new roots blower being developed by himself and Carburetor and Electric Engineering (Tattersfield). Frank remarked that Thickstun had the intellect of another mentor, Ed Winfield.

Now that the war years were behind , Frank and Bob Tattersfield would lay the foundation for a complete new line of racing equipment. Bob Tattersfield and his father already had a fine line of dual manifolds and cylinder heads, but not a racing-only line.

Development during early 1946-1948 would produce a complete package that would power some of the most powerful flathead (no nitro), of that era. Concepts, and ideas of Thickstun, Baron and Tattersfield began testing prior and during the war would begin to materialize now.

Pop-up pistons 7/16 would be raised above the block, not only to raise compression, but at the same time, enlarge the transfer area. Intake valves would be increased to 1-3/4 and exhaust valves to 1-5/8 using these special heads. This made the need for four carburetors a necessity. Many people called this over-carbureation. When Frank approached Ed Winfield regarding camshafts for this "combination", he remarked, "that set-up should work very nicely with one of my cams".

Most manufacturers were still making only 2 and 3 car manifolds and cylinder heads Development was nothing more than a redesigned Ford Denver head with more compression and most still used small valve diameters. The Tattersfield-Baron four carb would incorporate 180° port arrangement with one venturi per cylinder to insure complete cylinder filling. Other manufacturers would not build their own Four carb manifold until well into the '50's. Others would also make cylinder heads with pop-up pistons such as 3/16 to 1/4, but none like the Baron design.

It was during this time that Bob Tattersfield, with the help from Bill Burke, would build the Tattersfield-Baron special belly tank, showing off their new line of racing equipment.

Bob would enter the first Bonneville Nationals Meet with a speed of 140+. It was rumored that the Thickstun Roots Supercharger was even installed, but time ran out and only a few runs were made, according to Bob Morton, an Ansen mechanic.

John Browning would run Tattersfield-Baron combination that week with a speed of 140, making it the fastest Highboy Roadster at Bonneville's first ever speed week. Others running Tattersfield-Baron equipment along with his own was Lou Senter of Ansen Automotive.

Lou Baney running a Frank Baron built engine captured 10 first place finishes out of 11 Lake Meets, in coupe classes and had the first coupe to run 125-130-135, with a top speed of 143 at the end of 1949.

Robert Morton, Ansen employee and engine builder, stated that the speed equipment wars continued through 1949-1950. One of his engines would also run in the Tattersfield-Baron Tank at a speed of 146 at El Mirage.

The late Bob Robinson, ran a qualifying speed of 145.16, in May 1950 running a "C" Roadster class Rubio and Morton, in the Ansen Special. Later that day it was to become the first stock body roadster to run over 151.00 at the Lakes, using Tattersfield-Baron-Ansen equipment.

Bob Morton's Ansen Special Roadster would dominate drag racing in 1950 at the Santa Ana Drags, at over 120 in the quarter mile.

Tattersfield-Baron Equipment continued to get exposure, the track roadster of John Kelly and Robert Falcon, with Bill Stevens driving in A.S.C., winning many races. Also very popular at the circle tracks, were Lou Senter's sprint cars running the Tattersfield-Baron-Ansen equipped engines.

Boat racing, being very popular in California, was a natural for Frank Baron. He began running a class 135 Hydro against the likes of Eddie and Bud Meyer and Richard Hallett in the early 1940's, at Marine Stadium. In 1949-50, owner, Frank Baron and co-pilots, Lou Baney and George Baldie, ran the fastest Cracker Box, "Lets Go", boasting a 235 H.P., 239. cu. in. flathead engine on alky.

Frank Baron and Bob Tattersfield ended their business relationship around 1951-52, when Carburetor and Electric Engineering concentrated mostly with aircraft production, due to the Korean war.

Frank continued selling some manifolds and cylinder heads under his own name into the mid-fifties. Ansen continued with some of the Tattersfield components.

Frank Baron stated that with the advent of nitro and overhead valve engines, a good breathing flathead on alky didn't stand a chance. Barney Navarro also noted this in a 1950's issue of Hot Rod Magazine in an article on special fuels.

Frank Baron continued through the '50's and late '60's, with his son Tony, and Julius Kushner at both their Studio City Shop and Miracle Mile Service Center.

At this time, Frank began a program of developing a Paxton Supercharger Kit, which would propel a '63 XKE Jaquar to quarter-mile speed of 115 and 13.50 E.T.S. at San Fernando Drag Strip.

Frank passed away in April 1991, and his son, Tony continues to build a very fine line of speed equipment in the tradition originated by his father, Tommy Thickstun and Bob Tattersfield.

Nearly 50 years after the first Tattersfield-Baron special tank was introduced, Tony Baron ran over 200 m.p.h. with his new equipment at Bonneville 1995, with a record of 199.041. A second Lakester (Baron-Williams), is being built and will hopefully run at Bonneville's 50th year anniversary. The new Lakester will debut at the Muroc reunion in 1998. The car is still equipped with a Ford Flathead engine.


# BATTLE OF THE BIG MILLS

**by Charles Camp**

From an unusually large group of record attempts, the June 26th meet of the Russetta Timing Association produced five new class records. Eighteen contenders broke records in their classes on qualifying runs, making them eligible for record tries.

Again turning the fastest time of the meet, at 154.10 mph, Don Waite went on to set a new C Roadster record of 149.005 mph on a two-way run. This rear-engine T-Merc, which this meet featured Evans heads, Navarro manifold, Winfield cam and Kong ignition, has improved its time each successive meet, placing Waite high on personal points standings. There is some evidence to indicate that Waite burned an *ethyl alcohol* mixture in his 286 cubic inch engine.

The Reemsnyder-Sullivan entry changed class this meet by addition of a belly pan, moving this record-setting roadster from A to B class. This "red monstrosity," which ran Edelbrock heads, Evans manifold, experimental cam, and Spalding igniter, qualified at 135.95 mph, considerably higher than the 116.68 mph record for B Roadsters set at the May meet. On record runs, this car averaged 131.04 mph (in spite of considerable wind on the return leg) to set a new record.

Again outstanding was the performance of Chuck Daigh's '39 V-8 convertible running in the A Coupe class. Chuck's Ford boasts 268 cubic inch and is equipped with Evans heads, Navarro manifold, Smith cam, and Potvin ignition. On his single qualifying run, he turned 126.58 mph and averaged 122.55 mph on record runs for a new A Coupe record. Of interest in Daigh's car is the absolutely "stock" appearance of the machine, hardly any outward evidence being visible of the truly formidable competition of which it is capable.

The fourth record fell at the hand of the Xydias-Batchelor masterpiece. The Edelbrock-equipped V-8 60 A Streamliner uses a Winfield cam and Kong ignition. On its one qualifying attempt, the car turned 138.46 mph, which was bettered by a time of 139.75 mph on the downwind record attempt. On his return run, Dean Batchelor ran wide of the traps. Rather than risk disqualification, he circled back in a large arc to rerun the course. With only a ¼-mile wind-up before hitting the trap, Dean accelerated surprisingly fast to clock 110.29, for a new A Streamliner record average of 125.02 mph. This low average will practically assure a new higher record next meet, in all probability boosted by this same outstanding car.

Fifth of the old records to be broken was the C Coupe average of 121.47 mph set by Lou Baney in the May meet. Appropriately, it was Lou, himself, who raised it this meet, 4.17 mph. On qualifying runs, the Baney-Thomassin coentry turned 132.54 mph. Downwind, on record runs, the time dropped slightly to 132.15 mph, but the return time held up well against an adverse wind at 121.13 mph, giving a new C Coupe record of 126.64 mph.

The Baney-Thomassin monster is probably most outstanding for consistency in improving times, perhaps accounted for by sheer brute horsepower of its Tattersfield-Baron equipped engine. Unusual features of the engine bear scrutiny by all who would like to build a real "bomb." Peaking at 5050 rpm this 3⅜-inch by 4⅛-inch engine (296 cubic inches) produces 225 hp. More surprising is the fact that the engine will put out over 200 hp for 500 rpm either above or below its peak rpm. This output is accomplished by no single attribute, but by a combination of "finer ingredients."

Most unusual are the pistons, which extend 7/16-inch up into the Baron heads. The raised portion of the piston is of slightly smaller diameter than the main portion. This particular characteristic, though used by others, was conceived in this form by Frank Baron. Other engines of this type use up to ¼-inch high domes on the pistons, but in the writer's opinion, the 7/16-inch domes allow by far the greatest mixture transfer area in the combustion chamber; while maintaining respectable compression ratios.

Though much higher ratios are obtainable with this set-up, Baney uses about 9:1 in his present engine. A further factor in the combination is the use of large valves together with ports which were enlarged with mill cuts. Baney instead 1¾-inch intake valves and 1⅝-inch exhaust valves to make the most of the Winfield S-1 camshaft. Lift on this cam is about .327-inch intake and .305-inch exhaust with intake opening around 24 degrees BTDC. Topping the intake section is the four-carburetor Tattersfield-Baron manifold, which in this case does not constitute over-carburetion, due to the clean "breathing" characteristics of the rest of the induction system. Completing the combination of ingredients is the new Harman-Collins magneto to which Baney attributes many benefits. Some of the initial tryout on this magneto was done on

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**• Wally Ranstrom's A Sedan turned 107.91 mph, qualifying for a record run, but did not make a record attempt.**

*Photo by Tom Gosch*

## BATTLE OF THE BIG MILLS

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this and other cars of comparable calibre, to allow Harman and Collins to evaluate and improve their product.

Considering the '32 coupe chassis in which Baney runs the engine, one is even more convinced of the engine's efficiency, due to the obviously "built-in-headwind" character of its not-too-aerodynamic lines. With this in mind, it is with some justification that Baney feels that he could better some of the coupe times using a cleaner body style.

Of considerable interest was the competition in A Sedans. Walt Redman, Bob Dyar, and Ardoin-McLaughlin all exceeded Sharon Baker's 107.42 mph record in qualifying runs. On record attempts the three sedans timed very close: Redman clocking 110.56 mph, Dyar, 110.70 mph, and the Ardoin-McLaughlin entry, 110.02 mph. Returning against the wind, Redman evidently did not have enough engine, with 259 cubic inches, as he dropped to 100.78 mph, for an average of 105.17.

Dyar pulled 102.15 for the best average of 106.42 of the three cars, shading Ardoin-McLaughlin who returned at 102.38 for an average of 106.20. This is very close running, probably because of similarity in body styles producing nearly equal wind resistance (drag) while all three carry top-flight engines.

Du Bois-Kavanagh's B Sedan, after setting a record of 118.96 last meet, qualified at 121.29 for fastest B Sedan. This car features full Edelbrock equipment in a decidedly-chopped '32 sedan body. With an undetermined engine trouble, this entry conked out on record runs, at 114.94 mph. Second fastest in this class was Reg Fudge Jr's butchered '37 sedan boasting 275 cubic inches in a '49 Merc block equipped with Navarro heads and manifold and Meyer-Spalding ignition. With very little competition experience, Fudge attained 117.95 mph in qualifying on gasoline.

Coincidentally in C Coupes, Don Towle turned two identical qualifying times of 129.12 mph while Fran Hernandez copied with identical runs at 126.76 mph. Towle used full Edelbrock while Hernandez uses his own Offenhauser equipment with Winfield cam and Kurten ignition.

In spite of course conditions, times improved in almost every category. Bob Pierson in his 268-cubic inch B Coupe qualified at 126.40 with full Edelbrock equipment. He was followed nine mph slower by Bob Cantley at 117.34 mph. The Cantley entry runs Edelbrock with

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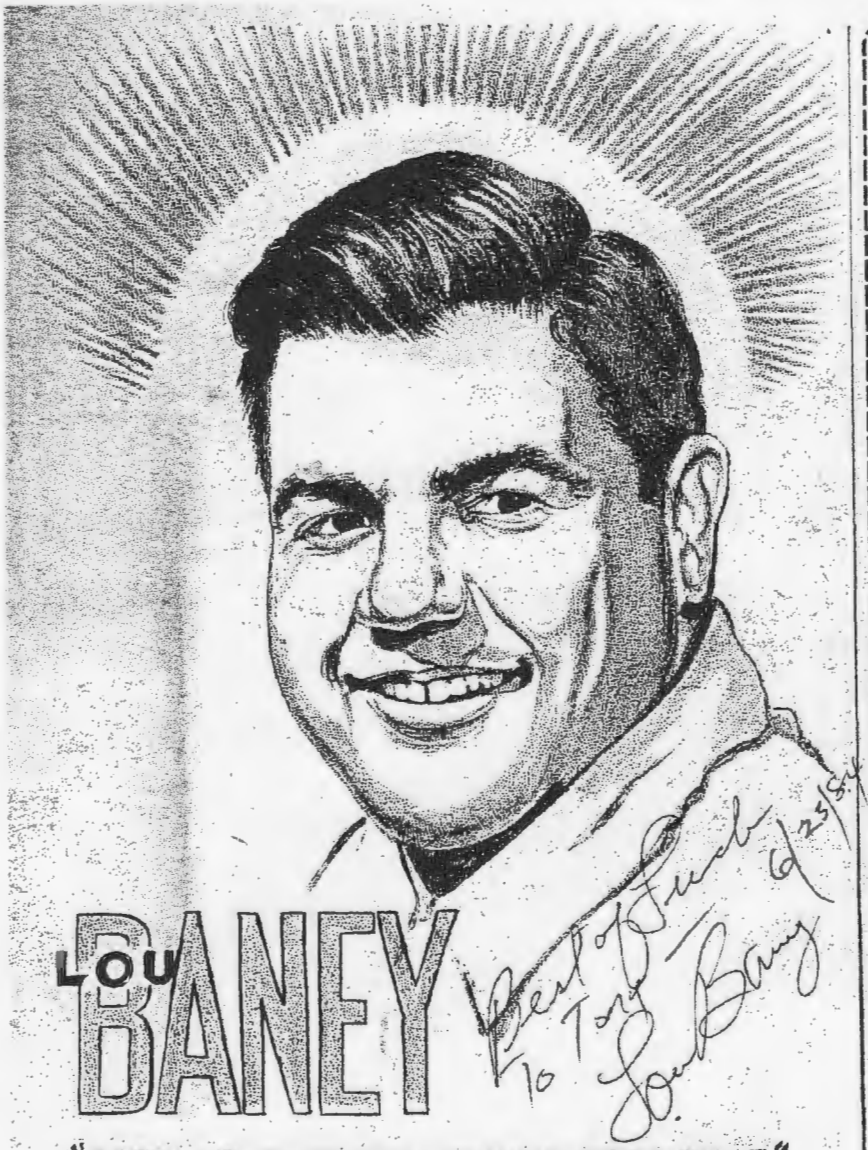


# LOU BANEY

Best of Luck to Tom
Lou Baney 6/25/54

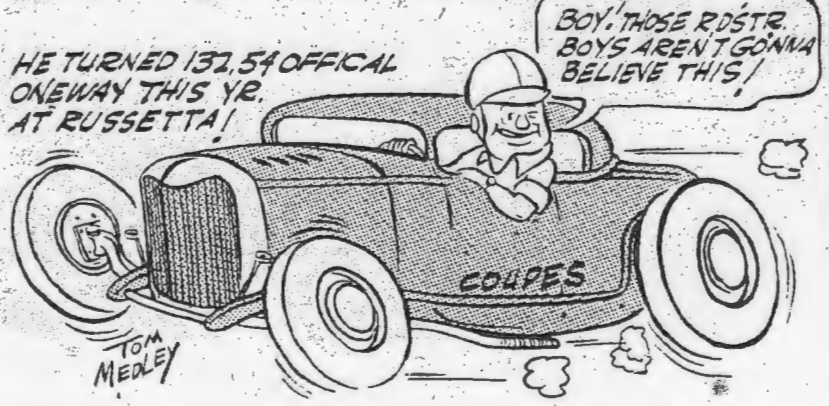
"POPULAR RUSSETTA TIMING PRESIDENT"

LOU WAS BORN IN JAMESTOWN, NEW YORK AND MOVED TO LOS ANGELES in 1934, WHERE HE FINISHED HIGH SCHOOL AT MANUAL ARTS HIGH.

STARTED RUNNING AT S.C.T.A. MEETS IN '41, SWITCHED TO RUSSETTA in '48 WHERE HE RAN A '32 COUPE 2 WAY AVERAGE OF 126.64 MPH

BANEY RUNS A SPEED SHOP and SERVICE STATION IN L.A. LOU IS 29 YRS. OLD.

HE TURNED 132.54 OFFICAL ONEWAY THIS YR. AT RUSSETTA!



# HOT ROD Forum

By Bruce Crower

## Flatheads Forever?

It seems as though history is starting to repeat itself based on the 40-year cycle. Activity is steadily increasing relating to "early Forties" hot rodding and the engines of that era. The interesting thing about it is that the Forties rodder may now prefer to build up another roadster, "just like the one I used to have," with the Ford suspension, rearend, and even the older drum juice brakes instead of modern discs and spots. We have been in mouse-motor heaven since the late Fifties when the small-block goodies became available, but the Ford V8 flathead was still very quick, with memorable performers like the Bean Bandits, Jazzie Nelson, and others carrying the marque.

What has happened is this: the nostalgia bug has captured the 1940-'50s hot rodder because many have reached retirement age with extra time and bucks to do it all over again, and perhaps even better than before. Count me in on the fever. I recently acquired a pure stock '32 roadster with original paint, low miles, and even 1932 license plates. I've been hitting some swap meets to check out available vintage speed equipment, but there are not that many choice parts, such as heads, manifolds, cams, ignitions, etc., to be found at reasonable prices. They're drying up fast.

One of the "afflicted" called the other day and we began hashing over the Ford flathead, reminiscing on what we used to do, and then speculating on what would be a 1980s approach to making the flathead "go." We discussed the excellent stock parts that were raceable, such as the rods and cranks, which permit most of the budget to go into the speed parts. The "Y" and "L" blocks could be bored to 3⅛ inches or 3 7/16 inches, and, with an offset grind on a '49-present Mercury crank, the stroke could increase an extra ½ inch. The '32 V8 came with 221 cubic inches, and the big bore stroker sported 293 cubic inches. These engines were the most feared at the lakes and drags.

The dilemma on the L-head design, however, was the inability to get high compression ratios without cutting off the breathing around the valves and restricting the transfer passage to the cylinder. It was quite obvious on dyno tests that the high-compression heads (9:1) would pull better power at around 5000 rpm, but would fade away as the rpm went up. Conversely, the lower compression, such as 7.5:1, would generally carry the torque better in the 6000-and-up rpm area. A "lakes" engine pulling a tall gear at 5000 rpm liked the high compression, but a drag engine with lower compression would always turn better times due to the extended rpm range.

I think the modernized flathead could have the best of both worlds; that is, high compression without the usual breathing restriction by applying a couple of different twists when building it. One part of this would be to machine a "stepped-roof" chamber above the valves, giving the intake valve the room for at least a .500 lift, but limiting the exhaust lift to .300 with a low-roof chamber above. The lower exhaust lift will not affect power as most of the exhaust gases leave the cylinder before the valve reaches .200 lift. Also, in the flathead design you really have an inverted overhead cam, and valve control is excellent, even with very fast action.

The other way to reduce combustion chamber volume and retain a large transfer passage is to exploit the pop-up piston to a greater degree, even up to 7/16-inch using a flat-top piston. This would eliminate the need for a deep relief in the block and provide a transfer passage equal to inlet valve flow capabilities. Unfortunately, such a head was never available, and there is not enough material in the vintage heads to accept the deep counterbore for the pop-ups. A rework of older heads involving expensive welding or the solid aluminum plate route with the cover lid as per Robert Roof's Model "A" head would also do the trick. The last suggestion is for the retiree with a Bridgeport mill and an understanding wife: mucho chips!

So far, we've handled the compression and breathing problem, but we still have the siamesed center exhaust ports to contend with. Any flathead builder remembers the exhaust divider that directed the exhaust down the port instead of letting it blast directly into the adjoining cylinder. The exhaust intrusion still existed, though, and kept the cam grinder stifled as to really developing the ultimate cam. On this score, a 180-degree crank would solve the problem, as each center cylinder would share the port at equal intervals, and there would be no need for the bolt-in divider. This would open the door for exhaust tuning and way-out cam timing. True, there were some 180-degree cranks made "back then," but for one reason or another they were not widely used.

The .500-lift cam would best be handled by enlarging the bearing bores and using larger later bearings. This would require a steel billet cam and hard-chrome or chilled-iron lifters in either the radiused or flat configuration. In the valve department, I always used a Lincoln flathead valve with the head reduced to 1¾ inches. Although this obviously blocked the back side of the valve for air flow, the normal path of breathing seemed to be mostly straight out in line with the port.

To keep our modern flathead streetable, I would top it off with an Edelbrock three-carburetor manifold with progressive linkage and any of the good ignitions with four-lobe cams and dual points. I suppose the all-time best sparker was the one built by Kong Jackson with the huge cap and precision Winfield breaker cam.

For those who are building flatheads, either the V8 or four-bangers, let your needs be known to the equipment manufacturers, and I'm sure they would be pleased to pull out the old casting patterns, cam masters, etc., to fulfill the need if the quantity was right. In 1949, Paul Schiefer dyno'd my 258-cubic-inch flathead at his old San Diego shop and it developed a respectable 209 hp on gas and 248 hp on 10 percent nitro. It doesn't sound like much now, but that's the way it was, and it might be more fun the second time around. HR