

HOW FAST WILL A STOCK 1933 FORD V-8 GO?

BY DAVE COLE

ON AUGUST 26, 1933, a stripped-down 1933 Ford V-8 roadster, driven by Fred Frame, first-place winner in the 1932 Indianapolis 500 Mile Race, came in first in the Elgin National Stock Car race. We told the story in the July-August *V-8 Times*—how Fred sped around the 8½-mile course laid out on the public roads just west of Elgin, Illinois, at an average speed of more than 80 miles per hour for 203 miles, followed by six other Ford V-8 roadsters, all driven by professional racers, who went nearly as fast as Frame did. Other cars in the race—two Chevies, a Dodge and a Plymouth, were no match for the flying Fords. It was only because of the four slow corners in the course that the Fords did not make even faster laps, as the fastest of them were clocked at better than 100 miles per hour on the timed straight highway section.

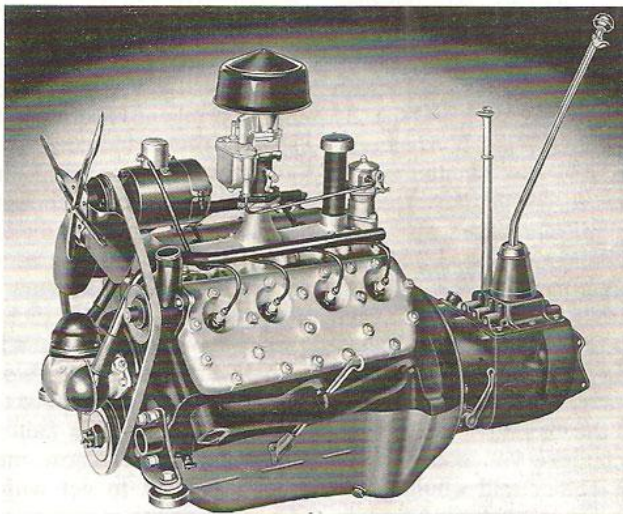
In the September-October *V-8 Times*, we continued the story, telling how Frame was engaged for months after that race in promoting the Ford V-8. We reproduced a Ford advertising poster that featured Fred and showed his Ford speeding around the course, powering through a corner at 90 miles an hour. There were many skeptics who didn't quite believe that a stock low-priced Ford V-8 roadster could go as fast as Frame's car went at Elgin, even with the fenders, running boards, lamps, spare tire and windshield removed, and the text on the poster sought to reassure those doubters. "Lots of people have asked me if it was a regular Ford V-8 stock car," it quotes Fred as saying.

"Yes, it was," he goes on. "The American Automobile Association saw to that. After the race was over, my Ford V-8 was practically torn apart by the technical committee and examined. They checked

up on everything."

The same thing happened early in 1934, when Fred appeared at the Los Angeles Auto Show with the Ford V-8 Elgin Race winner. "Nearly everyone wants to know what was done to the car to make it perform that way," says the story in the *L.A. Times* on February 7, 1934, "but Frame has the answer to that one all ready." Unfortunately, we don't know what he would have said, as the story ends there, but that need not stop us from speculating about it.

Before we try to figure out how Fred Frame and the other Ford drivers in the Elgin race could go so fast, we should establish what the Ford Motor Company claimed as the top speed for a 1933 Ford V-8. Fortunately, it's not too hard to do.



■ The 1933 Ford V-8 engine, as pictured on the front of sales folder, Form 7029. Ford Motor Company said this engine would drive a car 80 miles an hour, but the Elgin racers hit 100 m.p.h. on the straights. How did they manage to do that?

In that big seven-ring binder of *Ford Service Bulletins* that was first issued in April, 1938, one section toward the back of the book has a tab titled P-1 - PERFORMANCE SERVICES. Behind that tab, the first subject has to do with PERFORMANCE ROAD TESTS. It tells what one should expect from a Ford V-8 back as far as 1932 in the way of acceleration and top speed. If a Ford performed according to the figures in the chart, it was in a proper state of tune and its owner should be satisfied with it; if it was slower than

those benchmarks, the owner had some reason for complaint and it was up to the dealer to correct the problem.

But alas, the 1933 Ford V-8 is not listed in that chart (reproduced on the next page). It says only that a 1932 Ford V-8 should have a top speed of 73.5 miles per hour, and a 1934 model should top out at 83.8 m.p.h. But we know that the '32 V-8 was rated at 65 horsepower, the '33 V-8 at 75, and the '34 at

ACCELERATION						
MAKE	ENGINE	YEAR	AXLE RATIO	TIME IN SECONDS		TOP SPEED
				7	10	
				M. P. H. TO 25 M. P. H.	M. P. H. TO 60 M. P. H.	
Ford	85 H.P.	1932	4.11	7	23	73.5
Ford	85 H.P.	1934	4.11	6.5	17.5	83.8
Ford	85 H.P.	1935	4.11	7	20.5	84.5
Ford	85 H.P.	1937-40	3.78	7.5	23	85.6
Ford	60 H.P.	1937-40	4.44	9.5	31	76.0
Mercury	95 H.P.	1939, 40	3.54	7.6	23.0	88.0
Lincoln-Zephyr	110 H.P.	1936, 7	4.33	7	21.5	90.0
Lincoln-Zephyr	110 H.P.	1937	4.44	6.4	19.5	90.0
Lincoln-Zephyr	110 H.P.	1938	4.44	6.6	21.9	90.0
Lincoln-Zephyr	110 H.P.	1939	4.44	7.2	20.4	90.0
Lincoln-Zephyr	125 H.P.	1940	4.44	5.5	17.7	92.0

■ **Ford Service Bulletin Subject P-1**, dated March 8, 1940, gives acceleration and top speed figures for various Ford-made cars back to 1932, but leaves out the 1933 models. The 1940 Lincoln-Zephyr is the fastest of the bunch, but the '34 Ford V-8 gets from 10 to 60 m.p.h. the quickest, and that's using only high gear!

straight off the assembly line, or sitting in a dealer's showroom, with all its factory-installed parts in place, but obviously, the rules under which the Elgin Stock Car Race was run looked at it differently. By the rules imposed by the American Automobile Association, a stock car that was to be

85, mostly because the aluminum cylinder heads used in 1933 and '34 raised the compression ratio from 5.5-to-1 up to 6.3-to-1, and in 1934 the dual intake manifold and Stromberg carburetor improved the Ford V-8's performance even more. It is reasonable, then, to expect that a '33 Ford V-8 would have a top speed just midway between the 1932 and the '34 figures, which turns out to be 78.7 m.p.h. That's not far from the speed that Ford advertised in many of its sales folders and catalogues for 1933; they all say a '33 Ford V-8 would go 80 miles an hour.

That is very close to the average speed that Fred Frame maintained in winning the Elgin race. But he had those four slow corners to get through on each lap, so he had to make up for it on the straight sections by running close to a hundred miles an hour, just to average 80.22.

That's the part that had the skeptics shaking their heads. They just did not believe you could take a Ford V-8 roadster that the factory said would go 80 miles an hour, remove the fenders, running boards, lamps, spare tire and bracketry, substitute a low, racing-type windshield for the stock one, and have that baby run a hundred miles an hour. Sure, the car would be a couple hundred pounds lighter than stock, and more aerodynamic without the fenders and tall, wide windshield, but if nothing was done to the engine to make it crank out more power, you'd be lucky to get more than 85 m.p.h. out of the car. Yet, Fred Frame said, with a straight face, "Yes, it was," when asked if his racer was a regular Ford V-8 stock car, and the inspectors with the A.A.A. Contest Board who tore down the engine after the race did not find anything to dispute that statement.

Perhaps we should define what *stock* means, in this case. We may tend to think of a stock car as one

raced could have parts not needed for racing taken off. You could even get away with removing the big rectangular windshield and installing a little celluloid windscreen of your own design, and the car was still considered to be stock, under these rules. Undoubtedly, the mechanical aspects of the car had more stringent requirements, but whatever was not specifically forbidden must have been fair game for modification for racing, and good racing car mechanics were clever enough to figure out just what they could do to make the car go faster, and still keep it within the standards set for stock cars.

Obviously, some work had been done to those Ford V-8 roadsters to pick up another fifteen miles per hour in top speed. What might the mechanics have done to them? Let's see . . .

ENGINES would have to *look* stock, at least, and would have to have factory-authorized, advertised bore and stroke. Those measurements are easy for the inspectors to get with the cylinder heads off. Overboring the cylinders to fit larger pistons might be allowed, if the parts used were listed in the factory catalogues, but in 1933 there were only three oversized pistons available. In addition to the standard pistons, Ford listed .0025, .005 and .015-inch oversizes in the June 1, 1933, *Parts Price List*. Not until the 1934 catalogue did they add .030" and .045" oversizes, which might have made overboring the V-8 worthwhile. That .015" size, the largest available in 1933, would add only a little over two cubic inches to the basic 221—hardly worth the effort.

CYLINDER HEADS were expected to remain unmodified, no doubt, but who could tell if you milled them down, say, .050"? That would raise the compression ratio to 7.0-to-1, or maybe a bit higher, and give you a lot more power, provided the fuel

you used had a high enough octane rating to avoid pinging, or pre-ignition. It's a lot of work to check a cylinder head for conformance to factory specifications, and inspectors in the field would probably not attempt it.—

CAMSHAFTS could be reground for higher performance without being detected by inspectors in the field, too. As long as they looked stock, hotter camshafts could pass for the factory part.

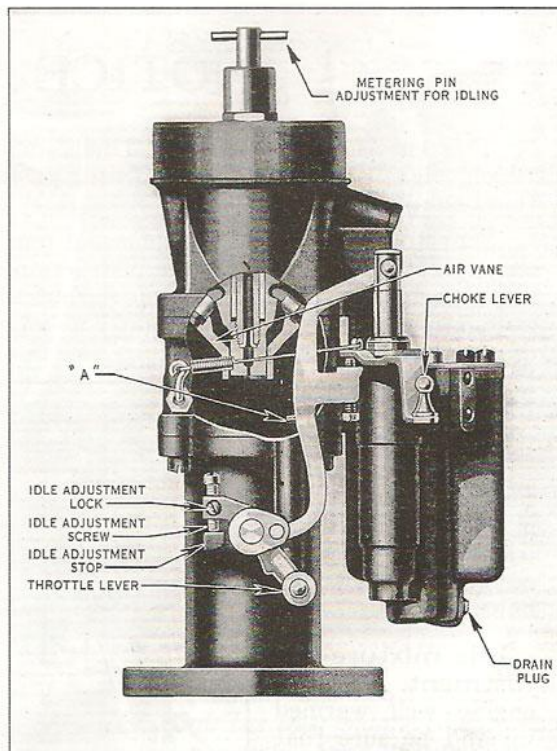
BALANCING all the revolving and reciprocating parts in the engine would not make it any less stock. Indeed, the factory went to some lengths to build the engines in a good state of balance, but they had tolerances that were too broad for a racing engine. You would want it just about perfect if you expect the V-8 to run at a hundred miles an hour. While you're at it, you would want to be sure all the parts fitted together as loose as was consistent with maintaining good compression and oil pressure. That V-8 is going to have to turn over 5,000 r.p.m. at 100 miles an hour, and you can't let any drag or vibration impede it.

MUFFLERS on Ford V-8's are of the three-pass type. The exhaust enters the front of the muffler and goes through a perforated tube to the chamber at the other end, leaves there and goes forward to another chamber at the front, then goes aft again in a third tube to the outlet. All this creates back pressure that you can't afford to have for top performance. Undoubtedly, then, the Ford racers had the mufflers removed, along with the fenders, boards, lamps and the other stuff already mentioned, but the exhaust manifolds, crossover pipe and all the stock plumbing between the engine and muffler must have been retained, as whatever was on the car was supposed to be stock. Eliminating the muffler might save about 5 horsepower that could go toward driving the car—not much power, but a significant benefit for an engine that started with just 75 b.h.p.

The **FAN**, mounted on the generator pulley, takes power from the engine, too. It's useful for drawing cooling air through the radiator if the car is moving slowly or not at all, but you surely don't need it if the car is to be driven over eighty miles an hour, slowing only briefly at corners. It's very likely the fans were removed from the racers.

The **GENERATOR** is another item that takes power from the engine. You can't remove it, though, as the fan belt has to be present to drive the water pumps, and it's that generator that keeps the fan belt adjusted properly. But you could set the third brush in the generator to put out as little current as possible, to cut the drag on the engine.

None of these things, however, would allow a "stock" 1933 Ford V-8 to run 100 miles an hour if the original Detroit Lubricator carburetor and the intake manifold used with it were retained. The D.L. carb just does not flow enough air to allow the Ford V-8 to run as fast as the Elgin Fords went. It has a single throat to feed all eight cylinders through the intake manifold, which is made so that



■ The Detroit Lubricator carburetor, as pictured in the 1933 Ford V-8 *Instruction Book*. It is unlikely the V-8's in the Elgin road race used this carb, as it does not flow enough mixture to drive the car 100 m.p.h.

the #1 cylinder usually runs too lean, as the #2 cylinder right behind it has fired just before #1, and has taken the charge of air and gasoline mixture.

Doug Shull, a V-8 Club member since 1970 and a "CARespondence Shop Talk" advisor for the *V-8 Times* since 1986, used to make his living as a racing car mechanic, so he knows what it takes to make a car go fast. He says he has no doubt that the Fords that raced at Elgin used the 1934-type Stromberg dual-throat carburetor and the so-called "over-and-under" '34-type intake manifold. The Stromberg carb used in '34 is rated at 175 cubic feet of mixture per minute, higher than any later dual carb used on a Ford V-8, and the manifold that goes with it eliminates the starvation of the #1 cylinder, as each throat of the carb serves just four cylinders.

It is difficult to compare the Detroit Lubricator carb with the Stromberg, as they function quite differently. The Stromberg has a venturi diameter of 1.03 inches, according to Ford Service Bulletin Subject S-9000, but the D.L. Carb has a variable venturi, comprised of a pair of air vanes that are hinged such that the flow of air down the throat of the carb pulls them open. The D.L. is said to have a throat measuring 1½", but the round hole at the base of the carb, where it bolts to the manifold, measures more like 1.55 inches. The two openings in the base of the Stromberg are smaller, but if you calculate their area in square inches, you find that the two of

NOTICE

This car is equipped with "Dual" down draft carburetion which slightly changes the adjusting instructions as given in this book.

Starting instructions for normal temperatures as outlined on page 12 as well as starting instructions for cold weather as outlined on page 7 apply to this carburetor also. Adjustment instructions, however, differ slightly as follows.

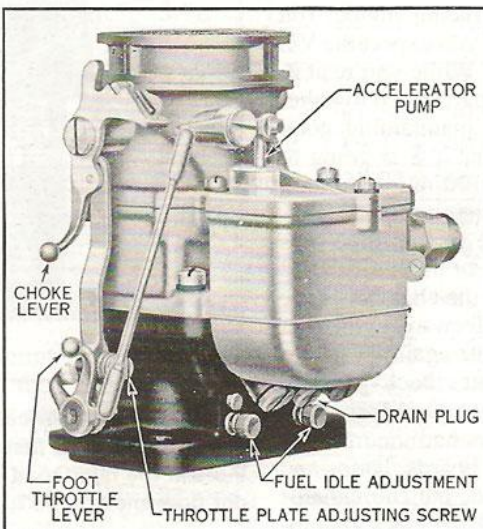
Adjustment

The idle speed of the engine should be set by means of the throttle plate adjusting screw (see illustration) to a speed equivalent to five miles per hour.

Idle mixture adjustment. Have the engine well warmed up and be sure that there are no air leaks at intake manifold or windshield wiper or distributor vacuum connections. The idle speed should be set as outlined above.

The idle fuel adjustment valves shown in the illustration control the quantity of the gasoline-air mixture for low speed operation.

The turning "out" of the needle valves give a richer mixture. The turning "in" of the needle valves give a leaner mixture. Adjust one side of the carburetor at a time. Turn the valve in slowly until the engine begins to lag or run irregular, then slowly turn out until the engine begins to "roll." Finally, very slowly, turn in the adjustment again just enough so that the engine runs smoothly for this speed. This adjusts the mixture for one side of the carburetor; follow the same procedure for the opposite side of the carburetor.



them together are larger than the single opening of the D.L. by some 26%. Thus, it seems reasonable to assume the Stromberg will admit 26% more mixture to the cylinders than the D.L. carb would.

But the Stromberg was not released for use until November, 1933, to be used on 1934 cars, and the Elgin race was held in late August. Could it be that they fudged a little and used a carb and manifold designed for next year's model, or is it possible that Ford actually authorized the new parts for use late in 1933 production? Ed Francis and George De Angelis, in their book, *The Early Ford V-8 as Henry Built It*, state that the 1934-style grille and hood were adopted

■ This "NOTICE" is pasted in the front of 1933 Ford owner's manuals issued late in the model year.

in production as early as September, 1933, as a running change, so some late 1933 Fords had '34 front ends from the day they were assembled. It just might be that the new carb and manifold got an early start, too. But if that's what happened, Ford would have had to explain it to the A.A.A. inspectors and assure them that those were factory-authorized parts.

In support of this notion, some 1933 Ford V-8 *Instruction Books*—the owner's manual, that is—have a sheet of paper pasted to the inside edge of the Foreword, just behind the title page. "NOTICE," it says at the top. The text starts, "This car is equipped with a 'Dual' down draft carburetor which slightly changes the adjusting instructions as given in this book." It goes on to explain "starting instructions," "adjustment [of] the idle speed," and "idle mixture adjustment," and an illustration pictures the Stromberg carburetor. Text on the back of this undated, unnumbered paste-in discusses the lock built into the spare wheel hub cap on

some cars, and concludes with a description of Ford's Clear Vision Ventilation system, as seen on 1934 Fords. Having these features described on a page pasted into the 1933 *Instruction Book* certainly makes it appear that some '33 Fords must have had them late in the model year.

If indeed the Elgin racers used Stromberg carburetors on dual manifolds designed for the 1934 models, it might explain why no photos taken of the speedy Ford V-8's ever show the engine. The hood side panels are always down, and sturdy leather belting with regular buckles secures the hood to the chassis. We have always assumed the belts were put

■ All the Fords that raced at Elgin had the hoods belted down like Fred Frame's Number 10 car. Was it to keep the hood from blowing off, or to keep curious people from peeking at the engine? We'll never know . . .

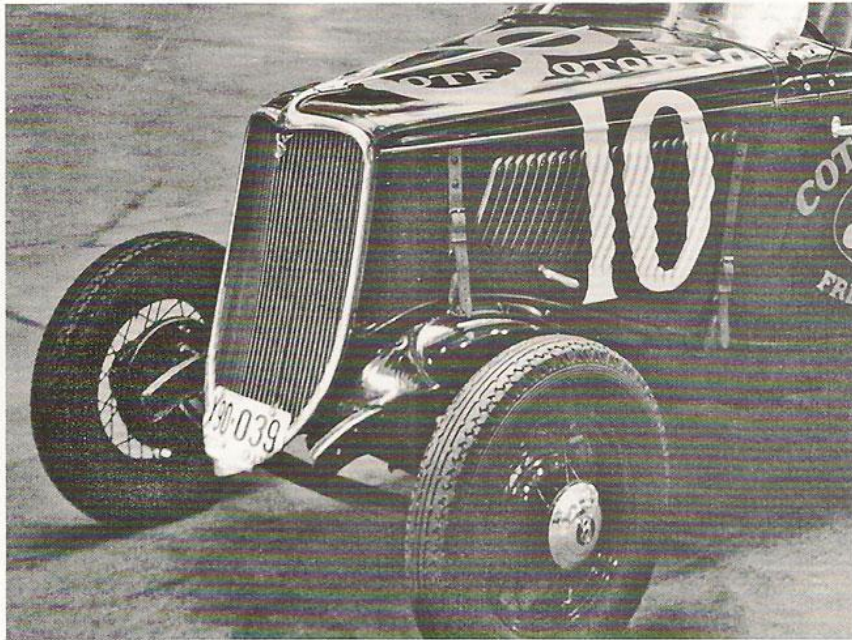
on as a safety feature, so the hood would not fly off in an accident, but it might be the belts were used mainly to keep nosy reporters or spectators from discovering those non-standard engine parts. One thing is certain about the belts: they did not facilitate access to the engine. If a pit crew had to change a spark plug or add a quart of oil during the race, they would have

been seriously delayed in undoing those buckles and straps just to get the hood open!

But as it turned out, the Fords ran reliably, for the most part. Of the eleven Ford roadsters that started, two broke a valve spring during the race and had to retire, and the two slowest ones were flagged off the track when the race was declared over, but seven finished in the first seven places, with average speeds all near eighty miles an hour. Frame was the only one to exceed 80 m.p.h., but Shorty Cantlon, in 7th place, averaged 76.89—almost 77 m.p.h.—and five others ran from 77.82 to 79.57.

This tells us that the drivers were all nearly equal in their ability, and indeed, they were all among the top racing car drivers of the early 1930's. It also suggests strongly that the cars were all prepared for the race in virtually identical fashion, even though the official entrants were scattered around the country. Two of the Fords were entered by Shanesy Motor Company of Chicago and another by Litsinger Ford of that city, one was entered by Côté Motor Company of Detroit—that was Frame's car—and there were other Ford dealers involved, too. A few of the Fords were entered by their drivers, and one ran with the sponsorship of a local business, the Elgin Piston Pin Company. With so much variety among the entrants, one might expect less uniformity in the results, yet seven of them finished the race in fine fashion, never broke down, and their average speeds were all within 3.33 miles per hour of one another. Do you suppose there was some factory involvement here?

A detailed article about the 1933 Elgin Road Races appeared in the January-February, 1971, issue of *Special-Interest Autos* magazine. Writer Bob Russo hedges on that question, saying it is not known whether the Fords had factory backing or not, but he figures the cars that were entered



by their drivers probably did. Leo Levine, in his seminal book, *Ford: The Dust and the Glory*, which covers Ford racing activities from 1901 through the 1960's, devotes only a paragraph to the Elgin race, and sidesteps the question of factory involvement altogether. But a few pages further on, he tells about the early activities of the Automobile Racing Club of America, which began as a group of wealthy young guys in upstate New York who raced their cars, most of them Ford powered, on the driveways and roads of their parents' vast estates. The Sports Car Club of America grew out of the ARCA eventually, but in the early '30's, it was just rich kids having some fun.

In 1935, the fastest car in the ARCA was a Ford roadster owned and driven by young Joel Thorne, who had a passion for speed on land or water and in the air, and spent lots of his family's money doing those things. He had learned that Ford Motor Company had some souped-up V-8 engines, so he and a friend drove his mother's Lincoln out to Detroit, met Larry Sheldrick, who was more or less Ford's chief engineer, explained his case, and did it so well that he was able to load up one of those hot V-8's in the trunk of the Lincoln and take it home. Levine says that engine Thorne got was a duplicate of the one that was in Fred Frame's roadster when he won the Elgin road race.

It would be a great triumph to "connect the dots" here, to tell how old Henry Ford still had an interest in auto racing, although he hadn't done it himself in over thirty years, and divulge who at Ford Motor Company prepared all those hot V-8's for the Elgin race and what they expected to prove by going to such lengths to win so convincingly, and so on—but it cannot be done. No one who was connected with the effort ever admitted anything about it. They were all as tightly battened down as the hoods on the Elgin racers, and we are left with nothing but speculation. 8