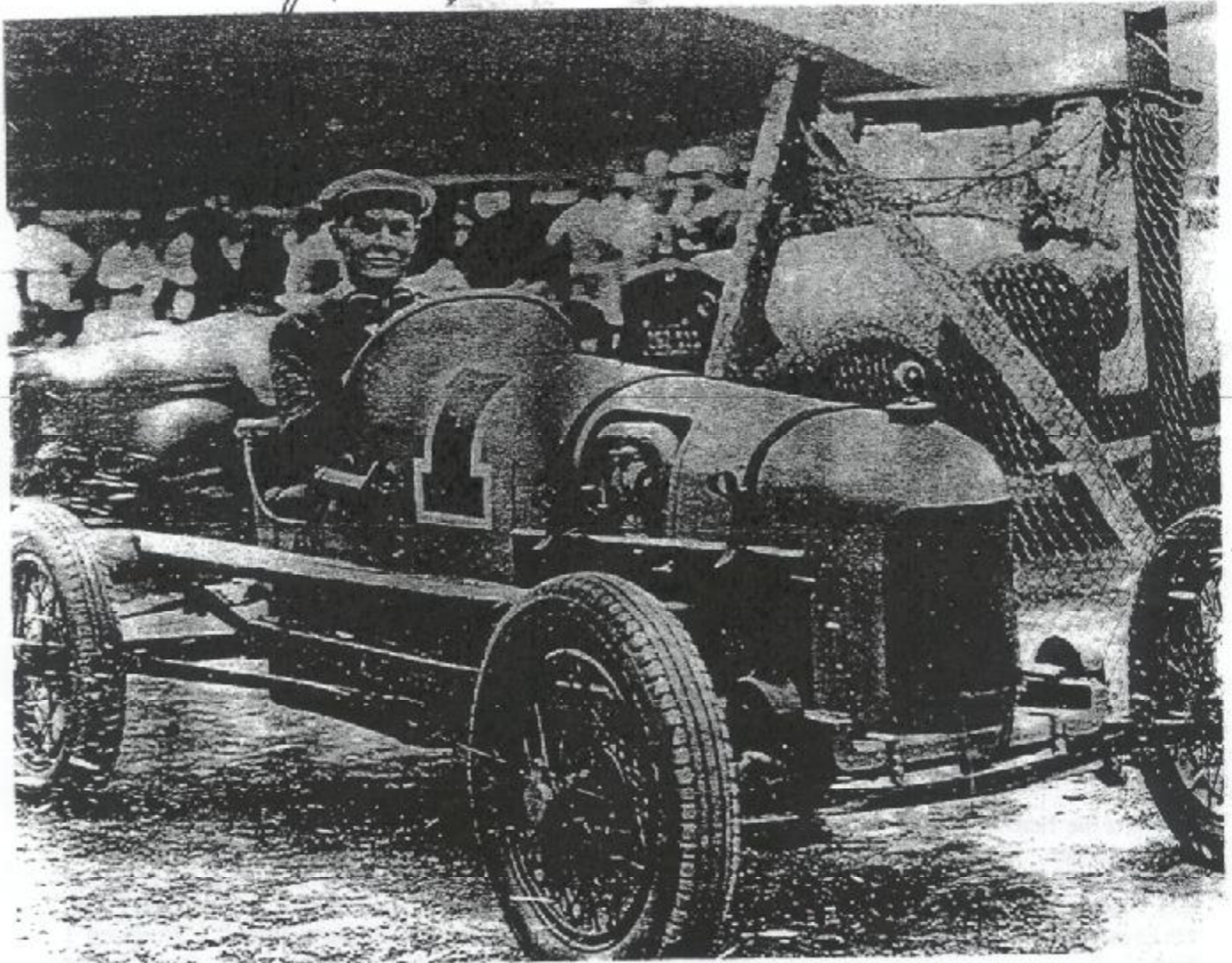


July/August 1986 "Vintage Ford"



Ed Winfield in the seat of his "Two Up and Two Down" race car. This Winfield-designed flathead Ford showed its heels to the overhead boys, including Frontenac and Miller at the Ascot Speedway in Los Angeles in January 1928. Arthur Chevrolet said, "I saw it but I still don't believe it!" Ed Tate photo.

A Look at a Modern Day Genius ED WINFIELD

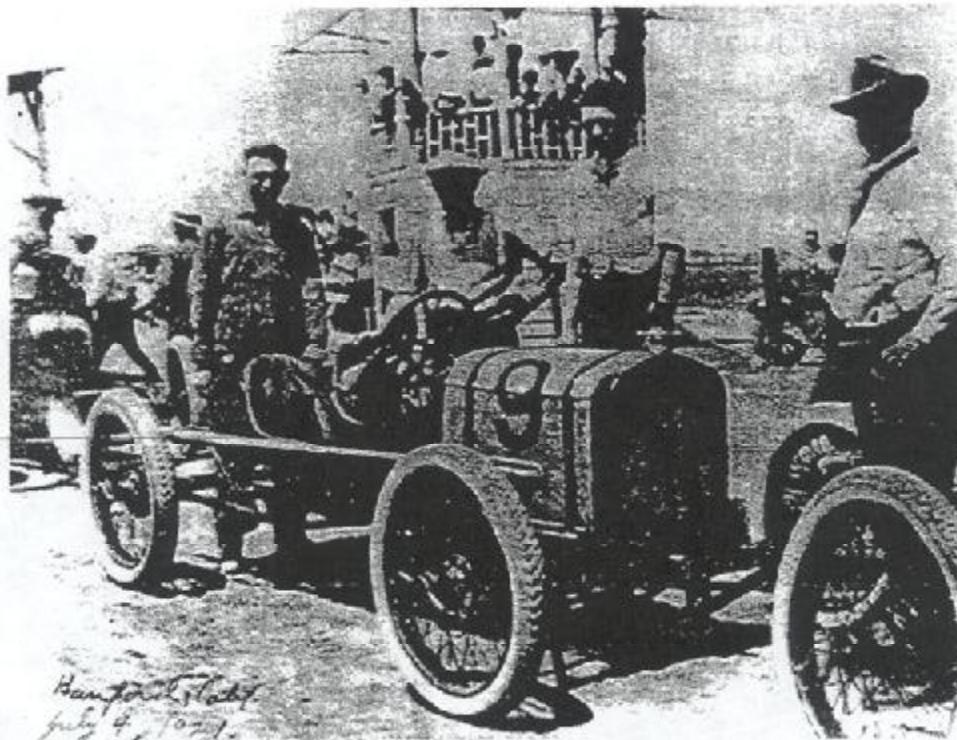
By H. C. EGSGAARD

Those of us who live in Southern California and like the speedy side of the Model T Ford have two major advantages over the rest of the nation. We have about 360 days of open cockpit driving weather each year and we have the facilities of probably the greatest mind that ever graced itself upon the Model T, Ed Winfield.

During my first encounter with Ed Winfield we were discussing the volumetric efficiency of a certain engine port design and I declared that the piston begins to suck the gas into then cylinder. I was quickly interrupted by Ed, who said, "the piston does not suck the gas in. It creates a hole for the outside pressure to

fill! Son, do you know how far away that pressure starts building up? About 250 miles out there," pointing to the sky. It was then that I kind of got the message that around Ed Winfield it might be wise to be a listener and keep my limited knowledge to myself! The longer I knew Ed Winfield, the more astute that decision became.

It is fascinating to contemplate how a mind such as Ed's came into being. He was a total and complete man in what he chose to do. He was a designer, an architect, pattern maker, metallurgist, machinist, research engineer, developer and salesman all wrapped up in one. He did it all. He had a psychic



Ed Winfield's first race car. Photographed at Hanford, California, July 4, 1921. Ed Tate photo.

presence of the here and now, and things that were going to happen. In driving a race car he knew precisely where he was and what was going to happen when it happened. Let's listen to a taped interview with Ed and learn what he had to say about 'knowing things.'

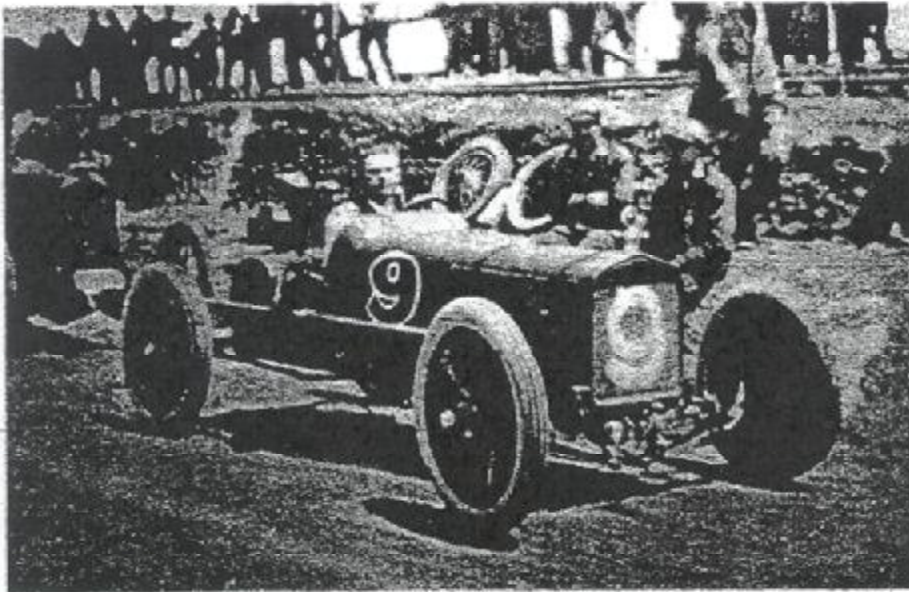
Well, it was something like when I went east with Morrell in 1925. He was the president of the Winfield Carburetor Company. The Winfield Company paid me a salary and a royalty and I did own stock in the company, but he owned the control. We were heading to Indianapolis to put the first Winfield carburetors on the Indianapolis cars, and we had to be there in five days. That was on the old road. You left the pavement at Victorville (California) and you don't see it again until you reach Kansas City.

Well anyway we were in cross country back there somewhere and we had been driving all night this night and in that cross country back there there was no moonlight, no nothing, and dark as pitch. Bill Morrell was driving and Bill says, "I want you to get some sleep. You've been driving all the time." I said, "Hell, I don't think I'll be able to sleep with you driving." We were sailing along -- this Ford was hopped up a little -- it would do 66 to 68 mph on a level road, honest speed, and so it would cruise at 60 pretty easy. We were sailing along there about 60 and black as ink and I was sitting there

looking into the darkness imagining all kinds of stuff you know, and I figured that if we hit something we're going to be hitting it pretty hard. As I kept looking into the darkness I said, "Bill, I wish you'd slow down." I imagined I could see something fluctuating there in the



Big Ed Winfield with his little brother, Bud. The picture is not dated but must be circa 1912-13.



Winfield's first car, now with disk wheels. Ed Tate photo.

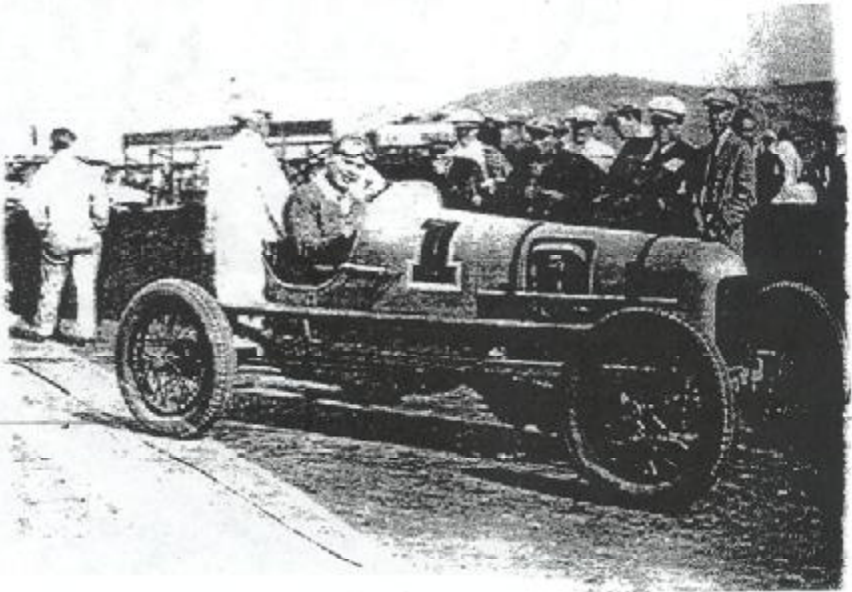


Ed Winfield's second car, "Kant Skore." Ed Tate photo.

dark. "It won't hurt of slow down, Bill, because I think I can see something. If you slow down it certainly won't be anything lost." So he slowed down, slowed right down, and slammed the brakes on and we stopped about as far as from here to that door from a slow-moving freight train, moving about 35 miles an hour. You couldn't see the caboose light or the engine light (because) it was so far away. And so now there you are. That's an example. I don't know what it is but that kind of doings has saved my life quite a few times. Not only that once. So there's something peculiar, you see. It is strange how it works, but another second and it would have been too late.

Certainly one of the better old car tours on the West Coast would have been the Annual Winfield Weekend Tour to Las Vegas when we used to visit Ed Winfield and celebrate his birthday, and, now dedicate the Tour to his memory. This is a tour where many of the hotties show up to pay tribute to the man Ed Winfield, and all pay a religious respect for the tour's number one rule: you can not make the tour without a Winfield carburetor on your car. About 99-1/2% are Fords but occasionally one of the other breeds makes the run with us but they can't always keep up with the pack.

Of course, most of the 'pack' have brought their tape recorders along to make tapes that are played again and again at the Ford gatherings. They are



Winfield's flathead racer. Photo at Ascot, dated February 6, 1927. Courtesy Babe Stapp.



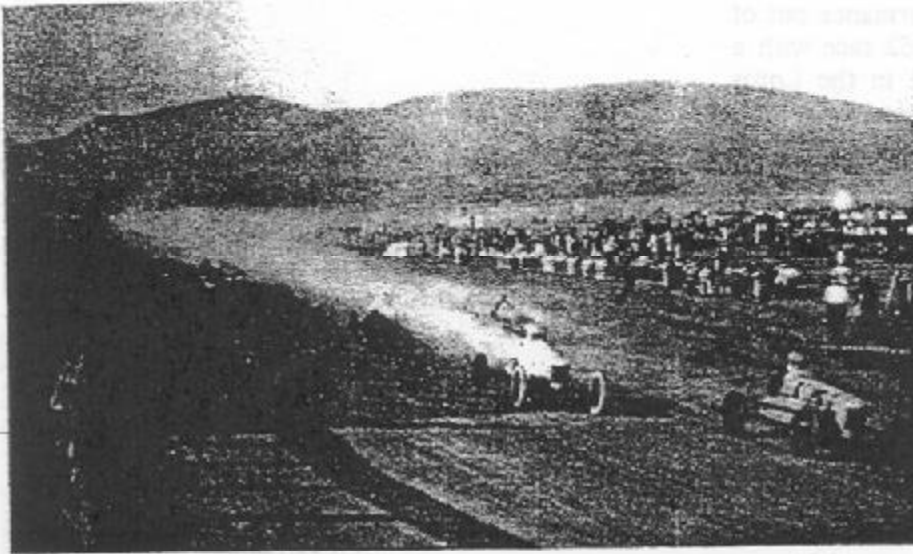
Babe Stapp in the Hooker Special which featured a Model T based Miller engine. About 1924. Photo courtesy Babe Stapp.

technical, historical, and humorous.

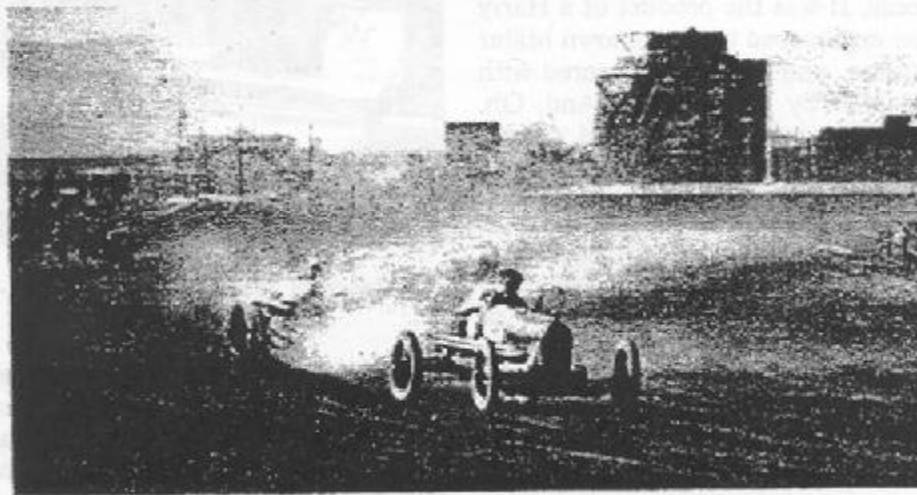
A walk through his shop in the back yard is every bit as interesting as listening to him talk. The first thing you notice is the Landis camshaft grinder that Ed did all his production cam grinding on. More interesting, however, is the old homemade cam grinder that he made when he was 18 years old, which was more flexible and more appropriate for accomplishing the experimental work for which he was world renown. A casual glance at the mail on the desk in the shop would show current correspondence from the top race car mechanics all over the nation. The letters would invariably begin with, "Dear Ed: I'm having a problem with..." or "Dear Ed: could you tell

me how..." or "Dear Ed: the cam is working just fine and"

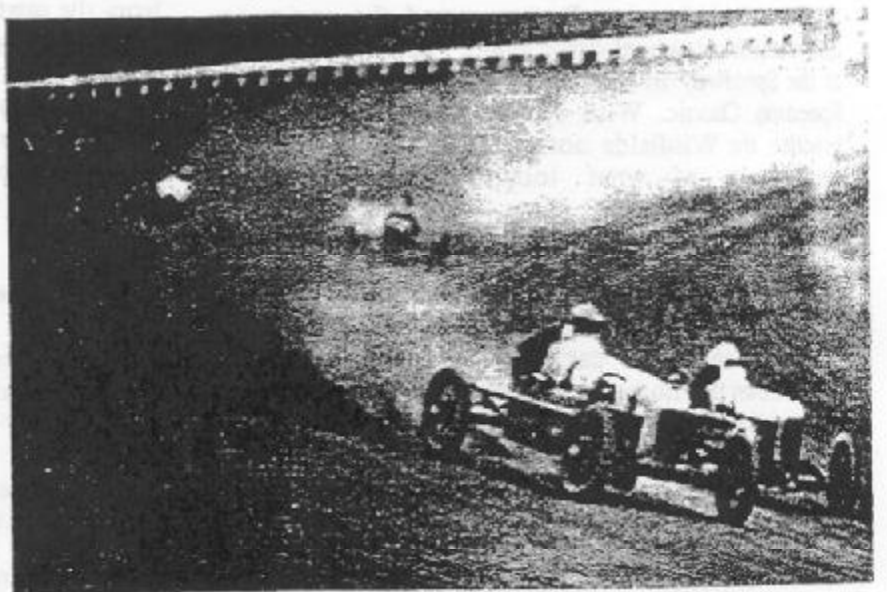
One of the more interesting episodes in Ed's life in recent times was the Ford Motor Company's getting back into racing in 1962. They had contracted with Collin Chapman in England to build a rear engine chassis for a Ford engine, to be run at the Indianapolis Speedway 500-mile race. Collin Chapman owned the Lotus factory in England and at that time was winning, along with his driver Jimmy Clark, many of the World Road Racing championships. The Ford engineers were trying to get "x" amount of horsepower out of an aluminum-blocked, four camshaft, V-8 they had been building. In desperation,



Ed Winfield in his "Kant Skore" car, leading in a Culver City 100-miler. Ed Tate photo.



Ed Winfield leading in the Pacific Coast Championship race at Ascot in 1927. He won the race.

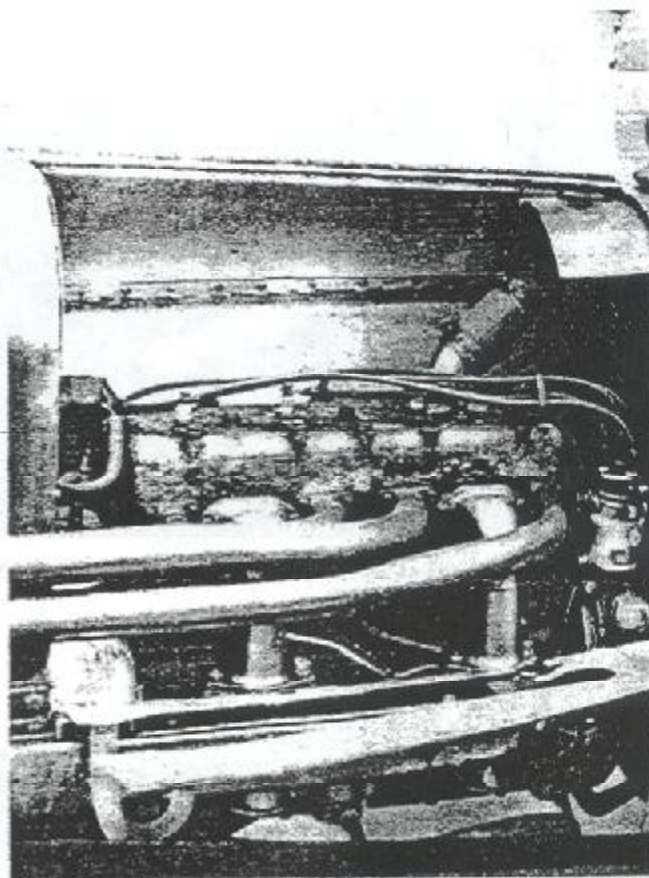


Winfield leading the Hooker Special (on the outside yet!) at Ascot in the 1928 race. Ed Tate photo.

not being able to get the desired performance out of their new engine, they entered the 1962 race with a Fairlane, stock-block push rod engine in the Lotus chassis. Finally, apparently in desperation, the engineers at Ford called the Great Mind at Las Vegas, Ed Winfield, and explained their problem with the four-cammer. Ed asked if there was a way they could bring one of the engines out to Las Vegas so that he could have a look at it. Ford flew an engine, along with two of the engineers on the project, to Las Vegas, for Ed to have his look. He barely glanced at the engine when he said, "My God men, can't you get some bigger valves in that thing!" "Why," he said, "they had intake valves in that thing big enough to choke a whale, ha, ha, ha." Ed redesigned the intake ports for them and reduced the intake valve to about half the original size, and the engines began to perform as expected.

Probably the most dramatic and sensational car that ever set its wheels on the Indianapolis Speedway was the NOVI Special. It was the product of a Harry Miller dream. It was engineered by the renown Miller draftsman, Leo Goosen, and then reengineered with minor changes and built by Ed Winfield. And, Oh, what a machine it was! It was a supercharged, double overhead camshaft V-8 of 180 cubic inch displacement. It had a two-inch stroke with a 180-degree crankshaft that spun on three main bearings all day long at 8000 rpm, and fired like a four-banger. The drama that this combination caused at the Speedway is indescribable. Thousands upon thousands of dedicated NOVI fans, including your writer, made the annual pilgrimage to the Speedway just to hear the NOVI run! The sound was electrifying and when the NOVI would pass on a trial run it was not uncommon to see spectators look up to see if the roof was still on the grandstand! The howl of that engine at speed was nothing short of awesome!

Ed and his brother Bud mounted the engine in one of the front-wheel-drive Miller Fords that had run at the Speedway in 1935, and entered it in the 1941 Speedway Classic. With Ralph Hepburn driving in practice, the Winfields noticed that blue smoke was coming out of what looked like the engine compartment at speed down the straightaways. It looked like a probable oil leak onto the exhaust manifold so they flagged Ralph in for an inspection. After a thorough once-over, they could find nothing wrong so Ralph was sent out for more driving and experience with the car's handling characteristics. Again down the home stretch at speed the NOVI was giving out a blue smoke somewhere around the front end of the car, and again Ed and Bud flagged him in again for a closer look. This time it got the fine needle inspection, and still nothing unusual appeared to be wrong with the car. So back on the track it went. The scenario was repeated. This time, however, Ralph complained that the car got a little squirrely at top speed, and a good look at the tires answered the problem of the blue smoke. The NOVI had been



Engine of Winfield's "Kant Skore" car. Ed Tate photo.

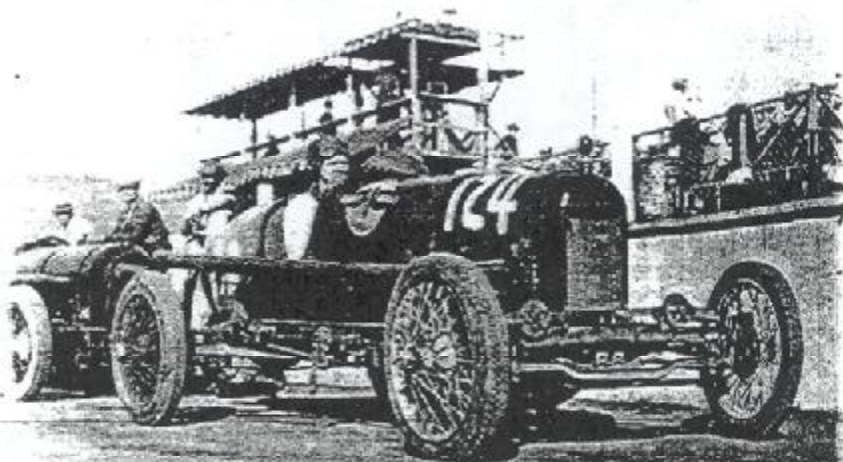
spinning the wheels and breaking loose when the blower came into full effectiveness!

The NOVI never won Indianapolis, much to the disappointment of most of the racing fraternity. It broke wheels, axles, and transmissions. It cracked oil and gas lines. It had magneto failure and was plagued from the start with bad luck. But it never went out of the biggest speed classic in the world with engine failure. Certainly a tribute to the hands and craftsmanship of Ed and Bud Winfield. Today, with the upswing of the antique race car hobby, it is not uncommon to hear a voice ask somewhere in a group, "hey buddy, did you ever hear a NOVI run?"

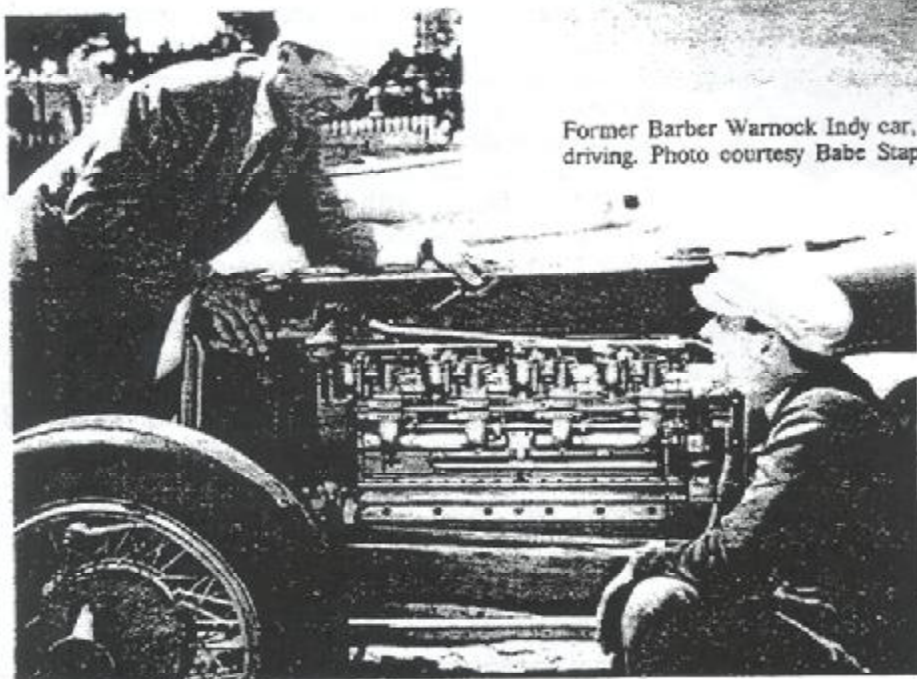
ED WINFIELD

Ed Winfield went to work in a blacksmith shop when he was seven year old, and at the age of 12 he had completed his formal education, the eighth grade. That was quite commonplace during that era, but what *was not* commonplace was Ed, after graduation, stripping the body off the family's 1910 Model T to make it go faster one Sunday afternoon when the rest of the family was away on the Pacific Electric visiting friends.

At sixteen he was into his next major project, a 1914 one-cylinder motorcycle. With a hand grinder he changed the overlap duration of the lobes of the camshaft, hand-filed 20-thousandths off the head,



Former Barber Warnock Indy car, now called the "Brady Special." Fred Frame driving. Photo courtesy Babe Stapp.



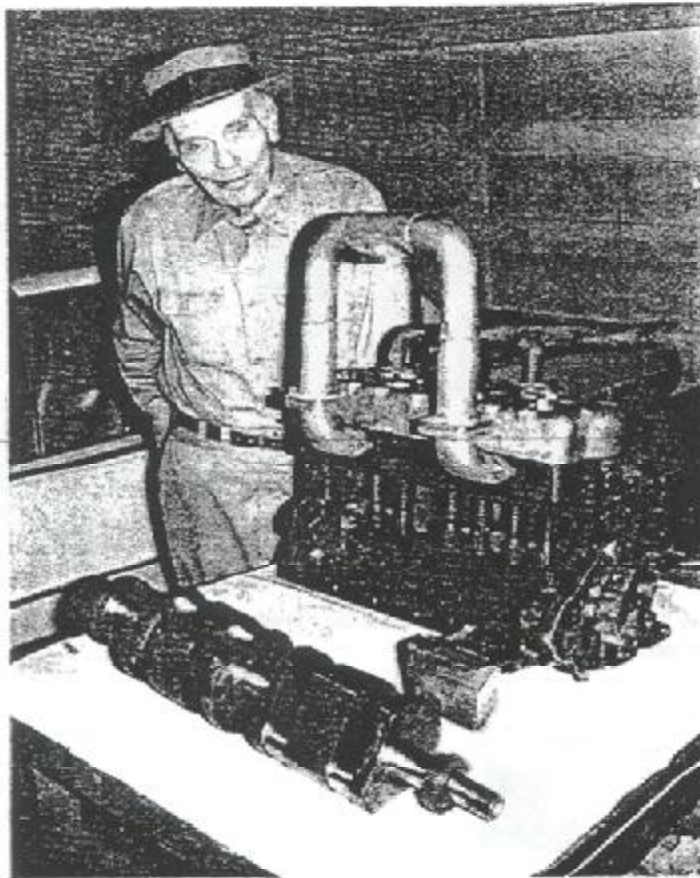
Ed and Fred Frame with Frame's 1932 Indy Winning car, which used four Winfield carburetors. Every car that qualified and ran at the Indianapolis 500 from 1927 to 1937 was equipped with Winfield carburetors.

opened the intake ports considerably and, "I could climb any mountain around here in high gear -- and those were all dirt roads!"

World War I had just rung down its curtain, and young men with destiny in their hearts were able to focus on a direction. Ed took a job sweeping floors with the great Harry Miller in Los Angeles. Harry had been making carburetors and engines for the war effort and was now again back at making carburetors, engines and cars for the racing fraternity. This was the perfect job for young Ed. Here he was able to listen to the dreams of whom many regard as the greatest racing car genius the world has ever seen. In the drafting room he was able to watch Leo Goosen put those ideas down on paper, and in the shop he was able to watch the great Fred Offenhauser make those ideas and drawings into machines like the world had never seen before. And, oh, what dreams they were!

While working off and on for the next four years for Miller, Ed was achieving considerable success on his own building carburetors, altering camshafts, souping up Model T's, and winning at the newly established ASCOT Speedway. Success begets success and soon young Ed was making parts for other car owners and helping them win races. He became deeply intrigued with the technology of the racing car: tire pressure, wheel stiffness, balance, steering and differential ratios, oil and fuel locations and pressurers, and so on. He was continually experimenting with different Model T engine concepts, valve timing, spark leads, fuels and all the many things that make a racing car go just a little bit faster. "Why," Ed said:

The first time I went down to Banning to race all those fellows down there wanted me to adjust their carburetors. They were running my



Recent photo of the late Ed Winfield with his "Two Up and Two Down" engine. Ed Tate photo.

carburetors, you know. I went around and adjusted most of their carburetors and some of them came over and said their cars were running better. That was a pretty dusty track, you know, down there. That's why I had to get away from that barrel throttle I had on the first carburetors. The dust and dirt would get in those barrels and they'd get jammed up. That barrel concept is still a good one; if you can keep it clean it's really the best.

Now down there in Banning I went out and turned a couple of hot ones and got the feel of the track. After I had it pretty well figured out I came in and set the tire pressure on all four of my tires. They were all different. That was the first time I raced there. That was April 10, 1921.

The track was pretty rough you know and I just had some little padding in my car. I didn't think that was a good idea. I walked into town and there was a blacksmith shop that had some old cars out in back. I went there and found a seat with the heavy springs in it and the leather was real good, and I got it for two dollars. You know it fit tight in my car just right. Boy, it was just the right thing on that track!

Anyway, we got the green flag and I left those hooligans behind. You know the trouble with those hooligans was they thought I fixed

their carburetors so I could win. Ha, ha, ha! Can you imagine that? I offered to trade any of them my carburetor for their's and we would race, and I told them I'd beat them anyhow. Well I traded carburetors with Eddie Myers. That's Louie Myers' brother, you know, and I still beat them! Eddie, you know, had a pretty good car. It was the *Redlands Special*.

There are quite a few missing links in the history of the two-cam Miller head conversions for the Model T. We'll mention what we know about it because later on in this tale it will be involved in a great race against Ed Winfield.

There was the *Hooker Special* that the late, great Babe Strapp drove to many wins; there was the *Shultz Special* that ran out of San Diego; and there was the *Sloan Special* that the late, great Sig Haugdahl drove at many state fair races in the Middle West. The *Hooker* car is in the Lindley Bothwell collection (Cover of *The Vintage Ford*, Vol. 6, No. 4). The *Shultz Special* is in the Carl Schmidt collection in Stockton, California, and the *Sloan* car is in the Middle West.

If one is familiar with the Miller engines, the Miller influence on the Model T Miller is unmistakable. Yet while all the engineering drawings and blueprints are pretty well intact on everything that came out of the Miller shops, there is no evidence in print of anything for the Model T ever coming out of those shops. Even Leo Goosen, the master engineer and draftsman that put all of Harry Miller's dreams down in engineered form, did not remember drawing anything for the T.

Carl Rogers of Indianapolis, race car driver, builder and racing parts dealer, had this to say:

I had the dealership here for Green Engineering speed parts and then I bought out the Craig Hunt Manufacturing. That was in 1925. I had heard about the Model T Miller car that was winning many races over in Illinois and further West, that Sig Haugdahl was driving. He was driving for Alex Sloan. Sloan ran all those big fair races in the Middle West, you know. I went over to Joliet and saw Sloan and the car. Sloan said he had the car built in California by Curly Wetherroth. It was a real beauty, so I took the train to California to see about getting the Miller distributorship for the central U.S. Do you know what Harry Miller said to me? "I'm not going to make any more of those heads for the Ford. Those Ford guys don't have any money anyway!" And that ended our discussion about a dealership.

Your writer's opinion: I suppose after the *Hooker Miller* had run second to the *Winfield Flathead* for all during the mid-twenties, it would have dampened the enthusiasm for Miller to make any more parts for the Model T.

Ed Winfield:

Some of those old cars would go pretty fast. That four cylinder National would do 75 mph. I fixed one up so it would go over 80. That's the

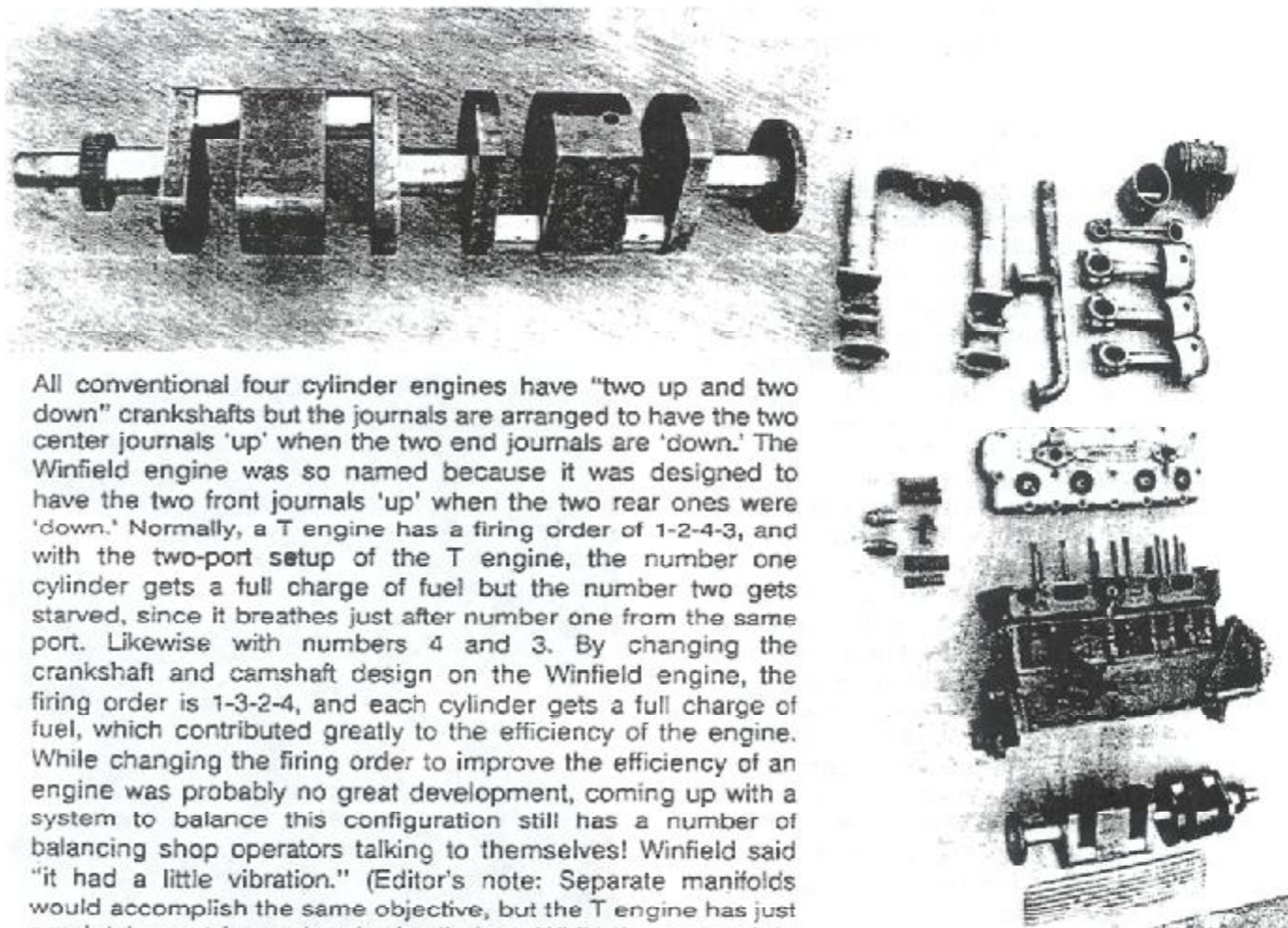
one that was trying to follow me into Bakersfield. (This was) My first one (car) with bucket seats on. I was running wide open coming down off the Grape Vine into Bakersfield. He told me he was running wide open and this cop on a motorcycle, a Harley-Davidson, could do about 80 and he saw us go by. Well, I was ahead in the race car and I don't know how fast I was going. I had let it out a little bit for about a mile or so and I must have been going about 130 mph; I would say I was going 130 without exaggerating anything, and I slowed down a little, about half throttle, coasting into Bakersfield, when the National and the cop caught up with me. He said, "what the hell is in that thing? I've been trying to catch up with you for twenty miles and you left me way behind. I didn't start catching up until you started to slow down." I said I wasn't trying

to push it, I just let it out for a couple of minutes and then I shut off; I've been driving with half throttle for quite some time. "My God," he said, "that is a going rig!" And he knew I was going to the races so he didn't give me a ticket or anything. He was a pretty good guy. He said, "Hold it down from here on in."

Question: Is that the time you got the big gas mileage going to Bakersfield? The astronomical mileage on your T going to Bakersfield? "I was trying to think. Let me see. Yes, this was the time -- I think this was the time."

Question: What kind of mileage did you get? "44 miles to the gallon." Were you using your own carburetor?

Yes, I never had any other carburetor on my own car. I made the first Winfield carburetor for my motorcycle. Let's see... now that was... ah... December 1917. That was for my



All conventional four cylinder engines have "two up and two down" crankshafts but the journals are arranged to have the two center journals 'up' when the two end journals are 'down.' The Winfield engine was so named because it was designed to have the two front journals 'up' when the two rear ones were 'down.' Normally, a T engine has a firing order of 1-2-4-3, and with the two-port setup of the T engine, the number one cylinder gets a full charge of fuel but the number two gets starved, since it breathes just after number one from the same port. Likewise with numbers 4 and 3. By changing the crankshaft and camshaft design on the Winfield engine, the firing order is 1-3-2-4, and each cylinder gets a full charge of fuel, which contributed greatly to the efficiency of the engine. While changing the firing order to improve the efficiency of an engine was probably no great development, coming up with a system to balance this configuration still has a number of balancing shop operators talking to themselves! Winfield said "it had a little vibration." (Editor's note: Separate manifolds would accomplish the same objective, but the T engine has just one intake port for each pair of cylinders. While the ports might have been split with some form of dam, this would have reduced the port area, somewhat nullifying the effectiveness. Another solution to the problem tried was in reversing the engine's rotational direction, which now would make the former exhaust ports now intake ports (and vice-versa), but this created other problems.)

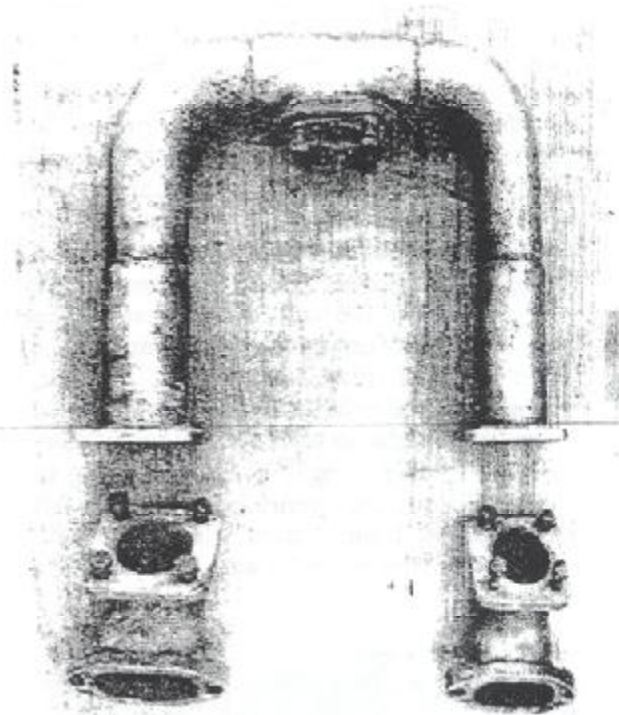
The disassembled "Two Up & Two Down" engine. This is the engine that beat the overheads in 1928! Ed Tate photo.

motorcycle. I made my first carburetor for an automobile for my first race car. Let's see now... that was in 1920. Yes, it was in 1920. Yes, I made that when I built my first racing car. That was the *Poverty Looking Special*, a two bucket seat job. I had a carburetor man help me with the design. We had some of his ideas incorporated in the design. His name was Harry A. Brooks. He worked for Harry Miller also. He was quite a bit older than I was. We had some of his ideas and some of my ideas in that first one. That was up at the race in San Luis Obispo. That was the trouble, you see. His ideas and my ideas didn't mix very good. That's why I had so much trouble with that first one. We couldn't get along and so he went back to Harry.

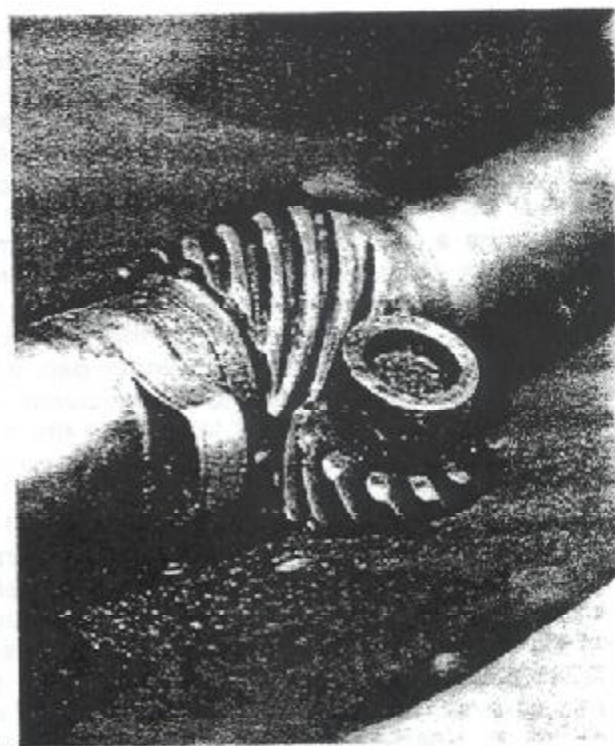
Question: What do you know about the Barber Warnock car, Ed? "I don't think I know anything about that." The Barber Warnock car, Ed! Babe Strapp told me that Jack Peticord and Tex McCarver brought the car out here from Indianapolis and sold it to DeWitt Brady, the Ford dealer in Culver City. It was the car that placed fifth at Indianapolis in 1923.

Oh, oh! You mean the *Brady Special* that Fred Frame drove for Brady. Oh sure, I remember the car. It had the Fronty head on it. Sure, it came out here in the mid-twenties. I think it was about 1924 when it came out here. Oh yes, Brady put the front wheel brakes on the car. He was trying to sell those things -- those four wheel brakes for the Ford. That was the car that had the roller cam in it that I made. Sam and I made those blocks with the roller cam in them. It was Sam's idea. We made the blocks with the roller cams in them for \$185. We made four of them. Oliver Siberell got one; Fred Lewellen got one; Brady got one, and of course I made the first one for myself. I don't know who paid for the one Brady got. Fred gave Sam the money for it but you know Fred never had any money. I'm sure Brady paid for the cam. But I never saw any of the money. Sam kept it all. Fred handed the money to Sam and the money disappeared. I never saw any of it. And that's how we went different directions. He was pretty irresponsible; he thought he was a good business man but he wasn't a business man at all. What he really needed was a guardian. Yes, it was Fred that asked me to make the cam but I think that Brady paid for it. That's the way it was.

I knew Fred Frame before he ever drove a racing car. I met Fred at Whitey Womack's garage over in Flintridge. Fred was a chauffeur for someone in Pasadena and he brought the Mercer 22-70 over to Whitey's garage. The Mercer was a 1915 22-70 so it must have been 1916 when I met Fred. Yes, it was 1916.

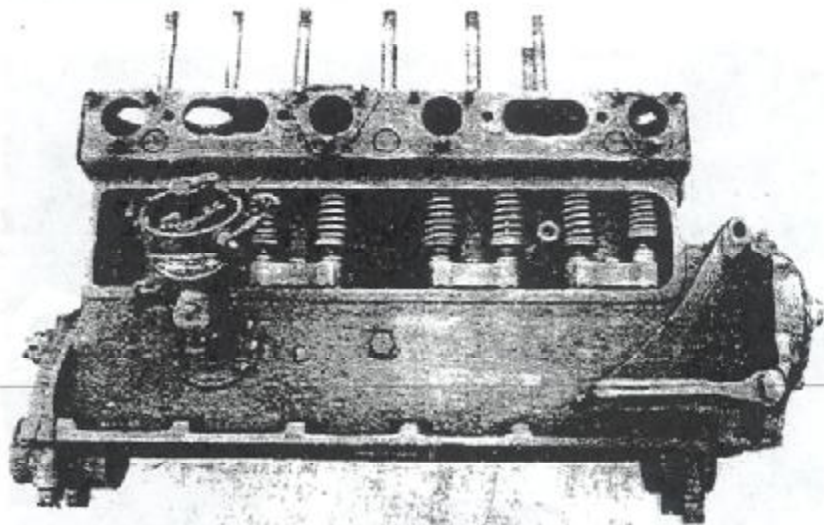


The intake manifold and adaptors used on the "Two Up & Two Down" engine. Ed Tate photo.

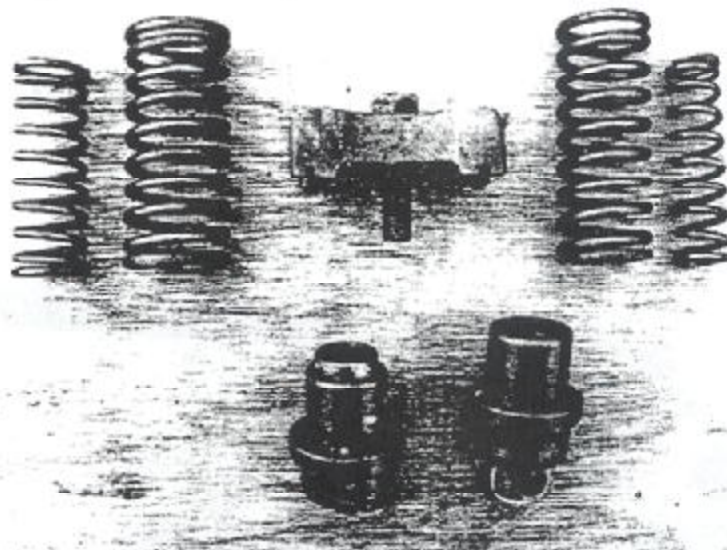


Close up of the cam lobe and distributor drive gears of the "Two Up & Two Down" Winfield engine.

Anyway, Whitey had this 1910 Ford that he had taken the body and fenders off and he sat on the gas tank to run for parts. Fred liked to drive the 'bug' because it was quick, and Whitey commissioned me to keep it in shape. Whitey wanted me to hop it up a little and I could use it to shag parts for Whitey with it. Fred and I found a couple of bucket seats for the bug and that, you know, was better than sitting on the gas tank. It got to be a good speedster. Well Fred Frame talked Whitey into letting him take the car out to Ascot to a special race for Model T's there, and the prize was a new Ford. As I remember it was the prized. And, ah, so Clyde (Whitey) let him have the car to run out there and it was the first race Fred ever drove on a race track. As it turned out it was the first race I ever rode in as a mechanic. Well, Fred didn't go out there with the intention that I ride with him. He would rather ride alone, but when he got there and found out that he had to have a mechanic, he said, "You be my mechanic." I said, "I can't be your mechanic. I'm only 16." Let's see, this was in December; I had just turned 16. That would put it December 1917. And, ah, I said to Fred that the 3-A rules say that a riding mechanic has to be 21. "Ah," he said, "that don't make any difference. Go down there and sign up. Those dumb bastards don't know the difference down there." I said, "All right, I'll try it." I weighed 180 pounds and was over six feet tall, so I went down there and told them I wanted to sign up as a mechanic, and they gave me a blank to fill out. I filled it out and gave them the money, whatever it was -- three or four dollars -- and I was a registered 3-A mechanic. As far as I know, the only registered 16-year-old mechanic, ha, ha, ha, in existence.



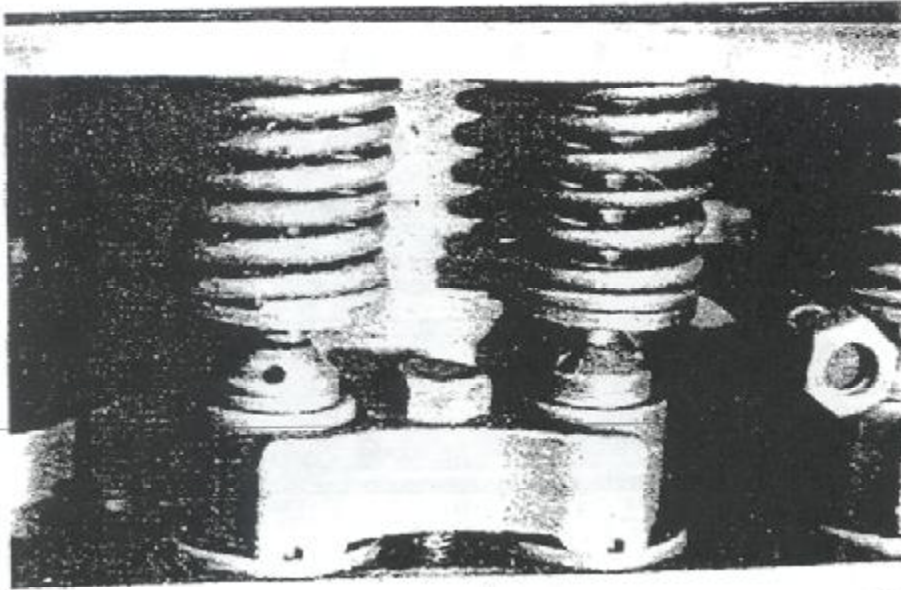
The 2-up & 2-down engine. Note the enlarged ports, and the use of studs instead of bolts to secure the cylinder head. Ed Tate photo.



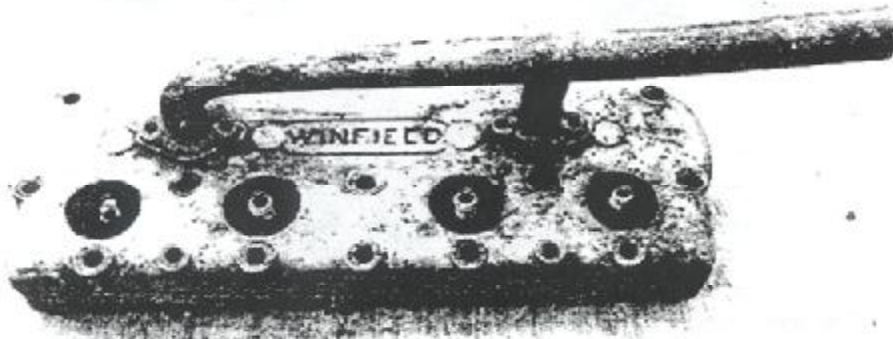
The roller tappets and valve springs for the Winfield 2-up & 2 down engine. Ed Tate photo.

So then I went back. I had an oil tank on this car, which was fashionable on race cars, you know. I had said to Fred, "What do we need an oil tank for this is only a five lap race, and we certainly don't need extra oil." But Fred insisted on it, so I put it on. Without my knowing it, he had filled it (the car) up with oil and we had to drive about 20 miles to Ascot -- that was the old original Ascot down on Slauson -- and by the

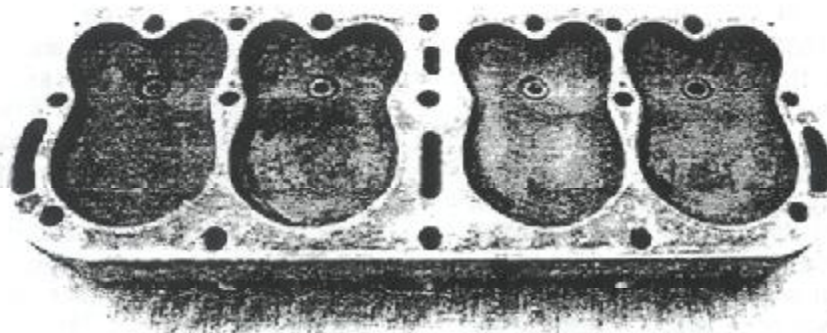
time we got there the bug was smoking an awful lot. I said to Fred, "My God, how much oil did you put in that tank?" He said he had filled it up, and of course, that was too much and it fouled everything up. So Fred said, "Well if you think it's too much, drain it out there on the ground." I started to drain it right there on the track and old Pop Wagner saw me draining the old and came over and started to give me hell. He was a



Close-up of the roller tappets, guides and retainers of the Winfield engine. Ed Tate photo.



Winfield aluminum head for the Model T engine. Ed Tate photo.



strict old guy and I knew he was strict, and I never did anything to get on the wrong side of him or to irritate him if I could help it. I liked to stay on the good side of him. So Fred said get something to drain it in, and I said, "Hell, I've been looking for something to drain it in for half an hour." Time was wasting you know and pretty soon Wagner said to get that car up here on the starting line, and if you don't get up on the line with Wagner, you lose your place. Well, we pushed it up on the line and started, but it wouldn't go. It wouldn't go. It had too much oil. We could have won the race easy otherwise. I was kinda disgusted. We didn't need that tank on there anyway. Well, it was Fred Frame's first race. It was the first race that either of us was ever in. Of course you know that Fred went on to win at Indianapolis later on.

The Ascot race track where so many fierce battles had transpired between Ford racing cars was the object of vicious attacks by the local newspapers. Because quite a number of the pilots of these cars were getting killed (on the average of two every season), the newspapers took up the challenge, quite like the Women's Christian Temperance Movement to knock out the booze parlors of the Twenties, to put an end to auto racing. The promoters of Ascot, smelling the possible demise of their promotions, planned to have a Fourth of July race and Celebration that would out-shine anything that had ever been attempted before at Ascot. They decided to have a race for the *Fastest Ford in the World*. One of the choice pieces of advance publicity was Arthur Chevrolet's arrival in town. Chevrolet, the manufacturer of the Frontenac speed equipment for the Ford car, had been campaigning the factory Fronty, with the great Ralph Ormsby driving, throughout the U.S., and now, according to the pre-race publicity, (had) arrived in Los Angeles to accept the challenge. Arthur had stated unequivocally that he had come here to win. The little Barber Warnock car

got in on the pre-race publicity also as the little giant that had slain all the mighty foreign entries at the Indianapolis Motor Speedway. The billing stated that DeWitt Brady, its owner, had now mounted four wheel brakes because the car was now capable of going so fast down the straightaways that they needed improved braking to slow it down some for the corners. Needless to say that the Winfield flathead and the Hooker car got their share of the ballyhoo. Another choice piece of ballyhoo was a newspaper article about Winfield's not being able to attend the driver's meeting a few days prior to the race (see sidebar).

The day arrived for the race. It was scheduled to be a fifty lap sprint in conjunction with the 100-mile championship of the Western States Race. Art Chevrolet asked, "What's the matter, Ed, don't you think you can hold together for fifty laps?" Ed said, "Oh, I think I'll be there if you're there. I thought this was a race for the fastest Ford in the world, not an endurance race." Winfield won his point and the race was tempered down to 25 laps, or 12-1/2 miles.

Ed Winfield won. Art Chevrolet came over to Ed, looked at the Winfield flathead race car, scratched his head and said, "Well, I'm looking at it but I still don't believe it!" The engine was Winfield's "two up and two down" one-of-a-kind design.

Well you know there is another one of those two up and two down engines, don't you? I loaned those drawings to Art Sparks (developer of the first forged aluminum *Forgetric* pistons) when he was in high school. He made that engine there in the shop at Glendale High School. He made the crank quite a bit heavier than mine because he made his own steel tube rods. They were much heavier than my aluminite rods. And I let him use my cam grinder to make his cam.

Question: Did he use your Landis grinder, Ed?

No. The Landis couldn't do the job on that design. He used the grinder that I built for that cam. He didn't want that much overlap so I redesigned the ramps for him, and Art built a very nice engine. Do you know Bud Pagliuso? He went to Glendale High with Art and he built a real nice speedster, and they put that engine in Pagliuso's car. It had a Miller nose on it. It was the best speedster in California at that time, a very pretty car.

Right: Ed Winfield in his "Fastest Ford in the World" 2-Up & 2-Down flathead Model T Ford racer. Ed Tate photo.

WHY ED WAS ABSENT

(The following appeared in an unidentified Los Angeles newspaper in January 1928.)

"An interesting story was brought out at the driver's meeting at Ascot Monday night, where arrangements were being made for the 100-mile race for the championship of the western states Sunday, when it came to light that Big Ed Winfield had spent the night in the Glendale jail.

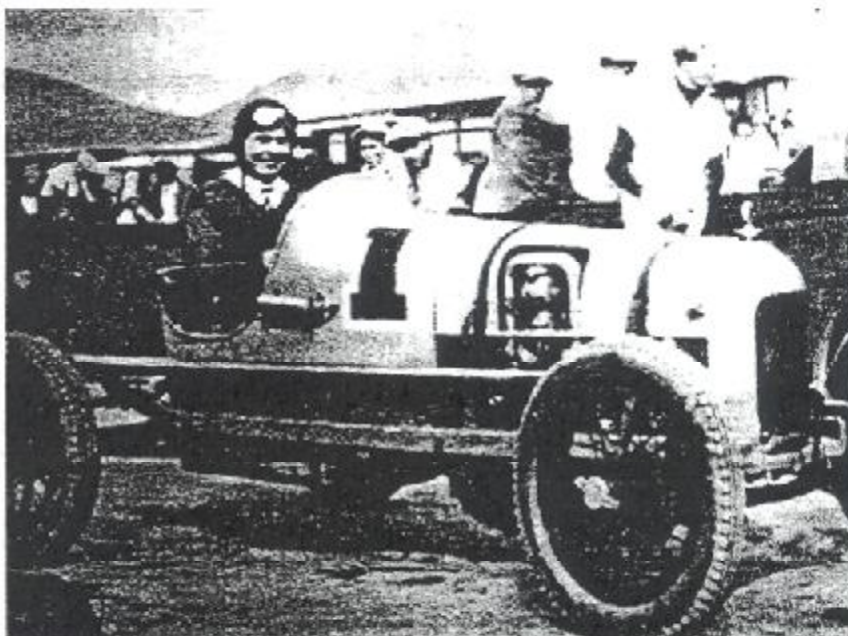
"Big Ed was entered in the sprint races last week and was on his way to the track when he heard a siren behind him. Not wishing to be delayed, he shoved the throttle to the floorboards but could not outdistance the officer, though the race went up Brand boulevard without any advantage to Winfield.

"A traffic jam ended the argument and Big Ed drove another race behind bars. He swears that next week he will walk to the track in order to start the 100-mile race."

And in a Glendale paper, with a date of January 21, 1928, this note:

"Eddie Winfield, famous automobile race driver who resides in La Canada, 'had his day in court' last Saturday, and as a result paid \$65 in good hard cash as fines assessed by Judge Charles R. Dyer.

"Winfield was found guilty on a charge of reckless driving and \$50 of the \$65 went to appease the law on this charge. According to the court records, Mr. Winfield was to have appeared in court on the Monday previous, but had failed to appear. This alleged oversight of his 'date' with Judge Dyer cost him a fine of \$15. Accompanying the fine on the reckless driving charge was a two day suspended sentence."



Another Teeny Peek at the Winfield 2U-2D Engine

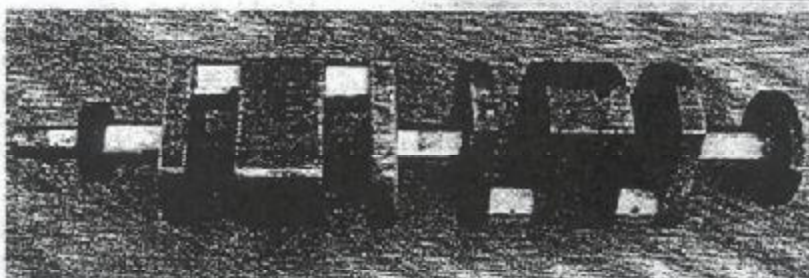
By Jim Cullinane with help from HH and Dick Nuss

We gave you sort of a glimpse of this famous old Warhorse engine back in our Book # 6, another presentation of it's re-borning travails in the following Book # 7 and now we thought you needed a refresher of sort, having survived the recent lengthy presidential fracas with your life and some of your common senses intact. Well, here is what has happened since we last got together to talk.

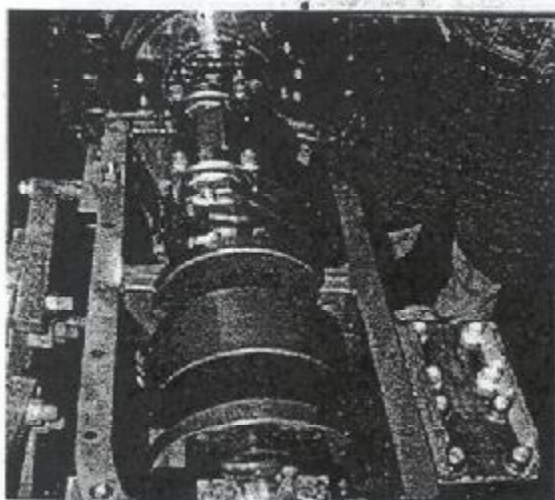
As you may recall, we left you with the tentative understanding that before much could be done on this engine, the original "T" block, that was horribly disfigured sometime in the active racing past by an errant thrown rod or two, needed to be fixed at Jack Zerkle's in the Great State of Missouri. The first two Photos show the before and after condition, having eaten up a sacrificed block from Glen Chaffin in the meantime as wangled in the good name of Jr. High

Science by none other than HH, ESQ. WOW, what a great job that Zerkle did! See Photos at right!

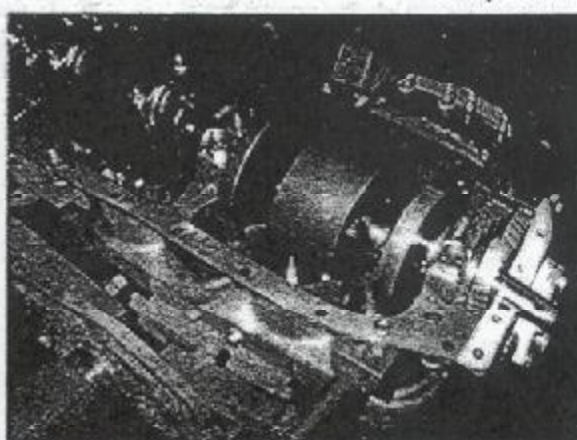
Well then, the next hurdle was to make a new



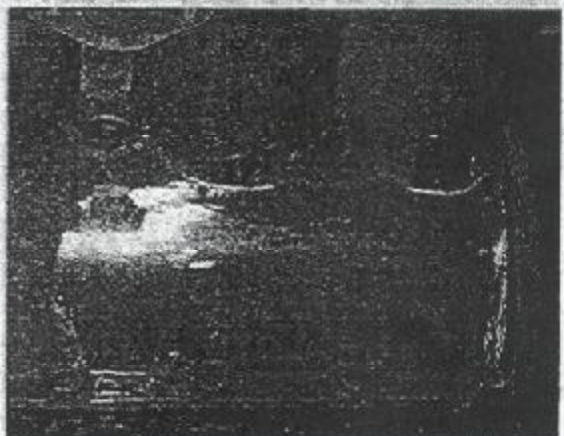
old original one was cracked in a few places and that would never do for a real race engine, especially one that thumps as heavily as does this one. So, off to get a new one made just exactly like the old



2U-2D three bearing crankshaft because the 80-year



one from a heavy forged steel billet at Joe Castillo's in La Mirada, CA. Well, the first one produced was a failure as the deep rifle drilling for the oil passages went askew and entered the No Fly Zone (mainly due



to the fact that the main bearings are so small), so it was scrapped. Phooey!! So, back to square one on that score. The second try was a complete success as the engine experimenters tried a totally different drilling approach. The two crankshafts (old and new) are shown in the next three Photos on the previous



page. By the way, that new crankshaft building effort took a long time, but entirely worth it. When Dick finally dynamically balanced the new crank, it did real well and should allow the engine to be a high-speed screamer. Just to see what would



happen, he also tried the old cracked one on his balancing machine and darn near broke his machine because it was so badly out of balance at only 300 rpm! WOW!! The conclusion that Dick reaches is that the original crankshaft was not spin balanced at all! No wonder it thumped!

Next, the special roller lifters that Ed Winfield made in his backyard shed in Reseda those many years ago would have to be machined from scratch as a precise new set because two of them could not be found. HH and many friends scoured Chris Eggsgard's extensive but overgrown place with a fine-tooth comb rake many times after his passing but came up short each time. HH surmises that when Chris wrote that lengthy article about this engine for the Vintage Ford Magazine way back in 1986 or so, he took photos of the components and the two lifters never made it back to be with their rightful brethren. ergo got lost in the tall weeds. The old original and new reproduced lifters

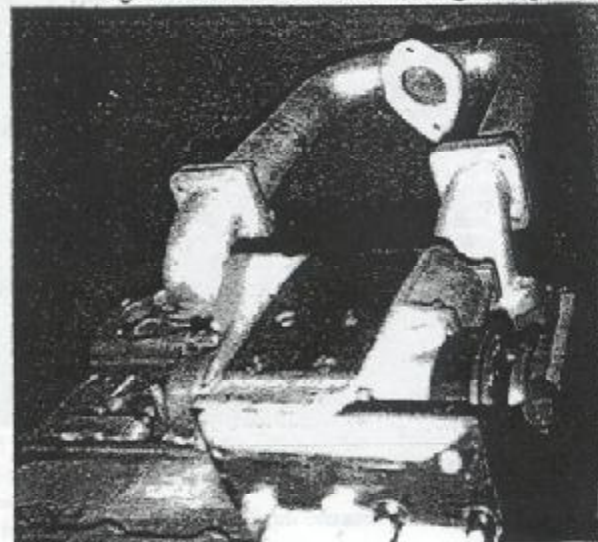
are shown in the next two Photos. They work on the unique squarish shaped lobe profile of the Roller Cam as shown here in this next closeup Photo.

We showed you the very unique camshaft from the original engine last time (Books # 6 and # 7) and it



was used 'as is' on the expert advice of other old timer racing camshaft grinders who often stopped by Dick's and Bill's race engine machine shop for free coffee and lengthy kibitzing. A complete expose' will be presented about this famous engine with a long murky history in Book # 9 later this year after it is completed and working properly in the custom replicar that Rick Rawlin's of Santa Ana CA had hand-made from scratch by a fellow in Anaheim. Racer Rick is doing this as a final tribute to our good old friend, Ed Winfield.

Also on this page is shown a Photo of the intake and exhaust side of the engine with the very large diameter "up and over" intake manifold that Ed made for the large carburetor. The 2U and 2D engine firing order of



1-3-2-4 and weird crankshaft throws balances out the piston power thrusts and shared intake charges so that all 4 cylinders are full producers of equal power. The updraft carburetor barrel is pointed laterally outward (but horn forward) from the engine so that all 4 cylinders get the same incoming charge mass flow at all times.

Remember that Ed was the greatest of all the World's pure racing camshaft and carburetor designers and makers of the dim dark past. Too bad he was such a secretive guy and never wrote any of the important stuff down. That's why I call it a dim dark past!

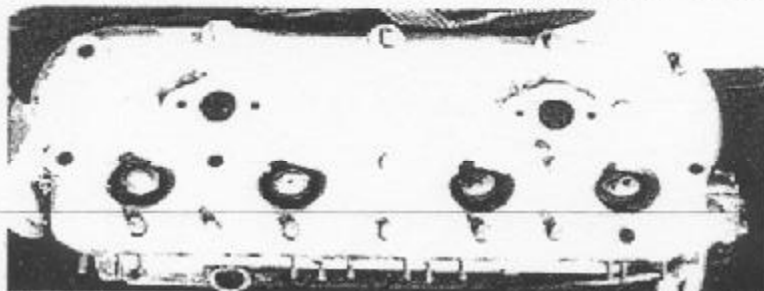
The other Photos shown here are of the engine as it was being built at Dick Nuss' and Bill Duncan's Engine Machine Service in LA located near the LAX airport.

As to the compression ratio of the original engine, it was about 5:1 in keeping with the upper range of the available fuel 80 years ago and Ed's belief that very high compression ratios lead to early graves. The new engine is producing somewhere between 7.2:1 and 7.5:1 and this will be determined once the deck height is finally measured precisely. Because this is a flathead design and the original specially made head will still be used on the engine to preserve its historical racing significance, there was no

realistic way that it could be modified sufficiently to go beyond a CR of 7.5:1. (Sc2 head Photo)

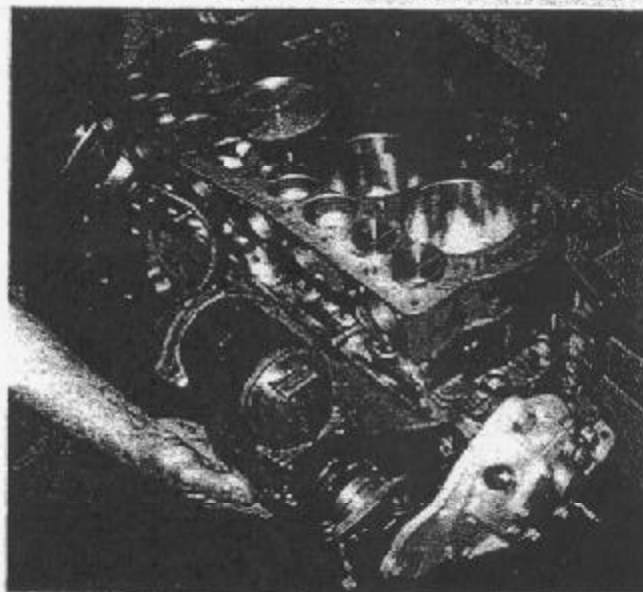
Not only that but when Dick precision measured the combustion chambers in the headspace, they were all different so he made them all the same by carefully milling them out. Further complicating this head issue is the fact that the casting wall thickness varied substantially from front to back but since there isn't much that can be done with it, nothing was. The result will be (and has been)

that the back of the head has more coolant capacity than the front. Anyhow, here are a couple of shots (Photos) of this most famous engine as Dick Nuss was rebuilding it. Pretty neat, HUH? Looks just like jewel! "But it ought to rip and tear", says Dick!

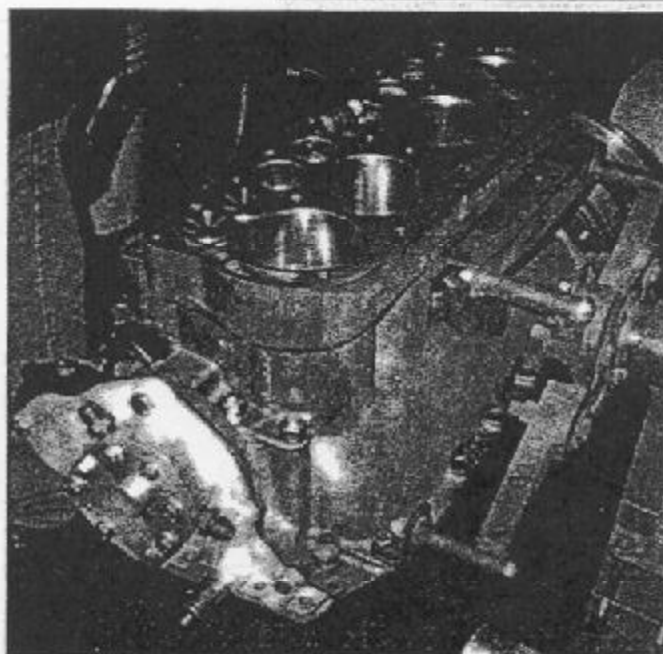


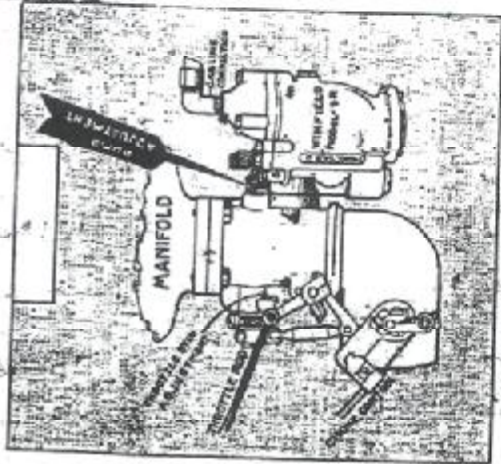
Rick intends to get the whole new rig on the racetrack at Laguna Seca in the summer of 2003 at the earliest to show the rest of the World a thing or two about our childhood racing hero, Ed Winfield! Sure wish Ol'

Ed was still around to witness his Second Coming! Of



course he would be over a hundred years old by now!





THIS ARROW POINTS TO THE PUMP ADJUSTMENT

All adjustments on the Model "SR" Winfield carburetor are marked for identification. The "idle" and "pump" adjustments are marked on top of the serrated heads. The intermediate and high speed adjustments are marked on the right chamber cover. All adjustment screws, excepting the pump adjustment, are made richer by unscrewing or turning to the left (anti-clockwise). The pump adjustment is made richer by turning to the right (clockwise).

6 Open Pump Adjustment One Turn (16 notches)

7 Open Idling Adjustment One-half Turn (8 notches)

8 Open Intermediate Adjustment Two Complete Turns (32 notches)

9 Open High Speed Adjustment two and One-half Turns (40 notches)

10 Throttle Stop Adjustment

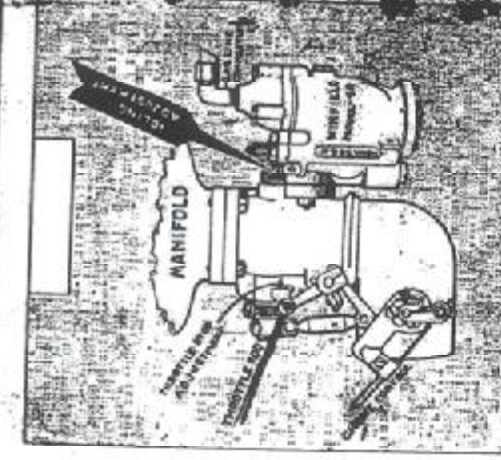
11 Float Level

12 Intermediate Adjustment

13 High Speed Adjustment

14 Accelerating Pump Adjustment

15 Throttle Rod Callin



THIS ARROW POINTS TO THE IDLING ADJUSTMENT

All adjustments on the Model "SR" Winfield carburetor are marked for identification. The "idle" and "pump" adjustments are marked on top of the serrated heads. The intermediate and high speed adjustments are marked on the right chamber cover. All adjustment screws, excepting the pump adjustment, are made richer by unscrewing or turning to the left (anti-clockwise). The pump adjustment is made richer by turning to the right (clockwise).

6 Open Pump Adjustment One Turn (16 notches)

7 Open Idling Adjustment One-half Turn (8 notches)

8 Open Intermediate Adjustment Two Complete Turns (32 notches)

9 Open High Speed Adjustment two and One-half Turns (40 notches)

10 Throttle Stop Adjustment

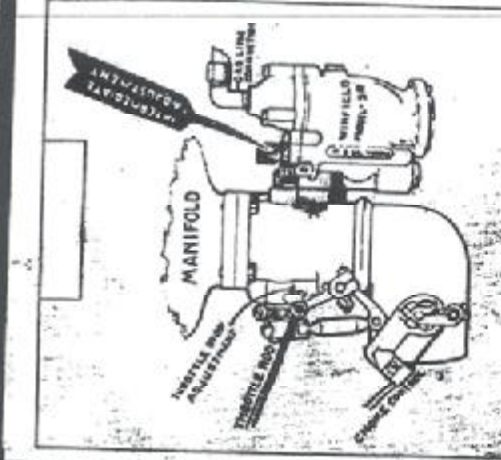
11 Float Level

12 Intermediate Adjustment

13 High Speed Adjustment

14 Accelerating Pump Adjustment

15 Throttle Rod Callin



THIS ARROW POINTS TO THE INTERMEDIATE ADJUSTMENT

The "idle" and "pump" adjustments are marked on top of the serrated heads. The intermediate and high speed adjustments are marked on the right chamber cover. All adjustment screws, excepting the pump adjustment, are made richer by unscrewing or turning to the left (anti-clockwise). The pump adjustment is made richer by turning to the right (clockwise).

6 Open Pump Adjustment One Turn (16 notches)

7 Open Idling Adjustment One-half Turn (8 notches)

8 Open Intermediate Adjustment Two Complete Turns (32 notches)

9 Open High Speed Adjustment two and One-half Turns (40 notches)

10 Throttle Stop Adjustment

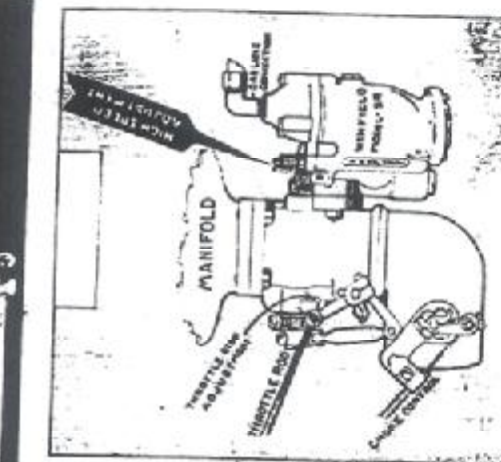
11 Float Level

12 Intermediate Adjustment

13 High Speed Adjustment

14 Accelerating Pump Adjustment

15 Throttle Rod Callin



THIS ARROW POINTS TO THE HIGH SPEED ADJUSTMENT

The "idle" and "pump" adjustments are marked on top of the serrated heads. The intermediate and high speed adjustments are marked on the right chamber cover. All adjustment screws, excepting the pump adjustment, are made richer by unscrewing or turning to the left (anti-clockwise). The pump adjustment is made richer by turning to the right (clockwise).

6 Open Pump Adjustment One Turn (16 notches)

7 Open Idling Adjustment One-half Turn (8 notches)

8 Open Intermediate Adjustment Two Complete Turns (32 notches)

9 Open High Speed Adjustment two and One-half Turns (40 notches)

10 Throttle Stop Adjustment

11 Float Level

12 Intermediate Adjustment

13 High Speed Adjustment

14 Accelerating Pump Adjustment

15 Throttle Rod Callin

IMPORTANT! This is a UPDRA CARBURETOR Instruction Sheet

NOTICE—In Blank Spaces Above Pictures Mark in the Setting of the Adjustments and Give Instruction Sheet to Car Owner

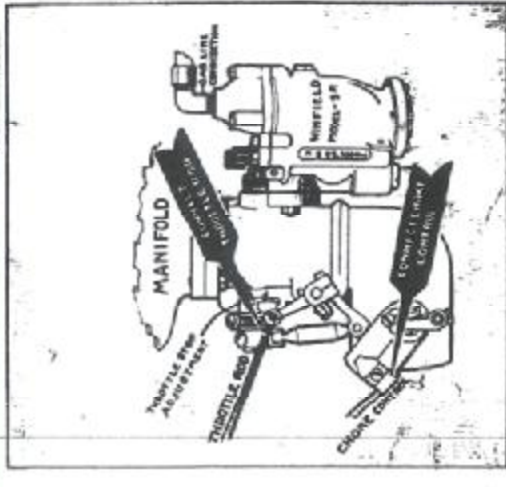
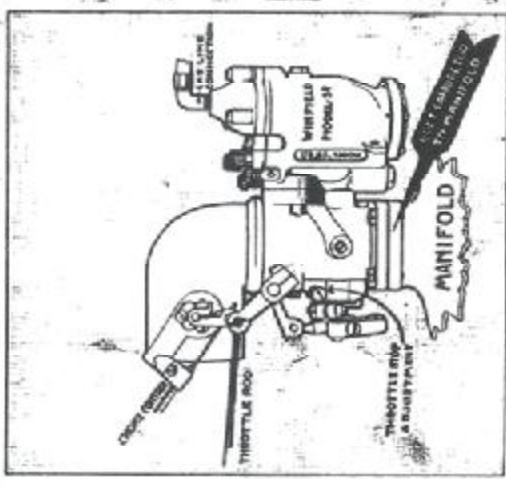
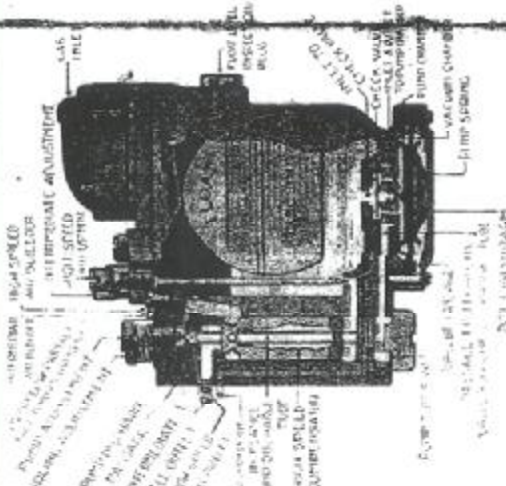
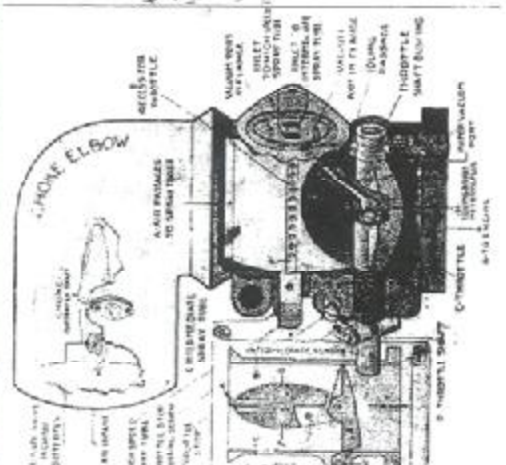


ILLUSTRATION D

General Instructions for Installing and Adjusting Model-SR WINFIELD CARBURETOR

Read Carefully

Read Carefully



2 Sectional View of Throttle Chamber & Choke Butterfly

This second illustration shows (1) the Three-Speed Carburetor System of the Winfield—Idle, Intermediate, High Speed—each stage representing the equivalent of a carburetor in itself. (2) The Spray Tube System which plays so important a part in distribution, assuring fine fog-like vaporization. (3) The patented Winfield Throttle and Double Venturi arrangement which brings in and then both Venturis into action.

3 Sectional View of Updraft Carburetor

This sectional illustration pictures the new 1935 Winfield development—the Automatic Diaphragm Pump—and also the Double Accelerator. The Diaphragm Pump adds New Power to the existing spray speed and power required for starting. It will supply all needed acceleration in the initial starting stroke and provides the Diaphragm Pump with the necessary fuel.

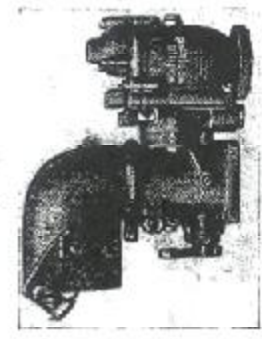
4 Bolt Carburetor to Manifold

Be sure the manifold flange is clean and flat. Do not forget to use a gasket between flange and carburetor. If a gasket of more than 1/32 inch thickness is used, care should be taken in tightening the bolts because the flange can be bent or broken by too much pressure or uneven pressure when it is being tightened.

5 Connect Throttle Rod and Choke Control

Connect throttle rod to throttle lever. Be sure that throttle lever is set at the correct angle in relation to throttle rod. See illustration C. Be sure that throttle opens and closes all the way when operated by foot throttle pedal. Now connect the choke control. Be sure choke butterfly is wide open when choke control button is pushed in. Also be sure the choke butterfly is fully closed when choke control button is pulled out. Now connect gas line.

1 THE FIRST STEP—Assemble Carburetor



This above efficient shows the Downdraft Winfield Carburetor completely assembled ready to bolt to manifold.

For information on how the carburetor is installed on a specific make of car, consult the Winfield catalog. Bolt adapter flange in carburetor to gas manifold, using gasket furnished for this purpose. Fasten choke elbow or straight choke to throttle chamber with special retaining clamp furnished. Adjust choke cable holder to proper angle and tighten retaining screws. Put choke lever on choke butterfly shaft. Hold it against stop and move choke butterfly to wide open position. Then tighten choke lever clamp screw. See illustrations B. Air float bowl is threaded through hole in special gasket furnished for this purpose.

SPECIAL NOTICE—FLOATS

Because of the great difference in pressure between a gravity fuel feed system and a pump fuel feed system two types of floats are used in the Model SR Winfield Carburetor—one type for gravity and one type for pressure. In order that the floats may be easily distinguished the gravity float is marked with a G. The pressure float is not marked. All Winfield carburetors are equipped with pressure floats unless otherwise specified with the order or when ordered in special package equipments for cars which have gravity or vacuum tank feed. *When the gravity float is used the C float needle near should be used.* Refer to Instruction Section No. 13 for obtaining the proper float level with either pressure or gravity float.

ILLUSTRATION C—

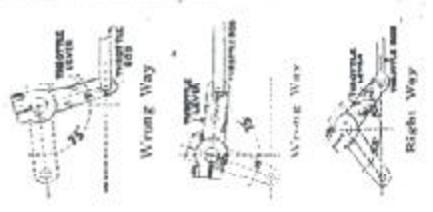


ILLUSTRATION B



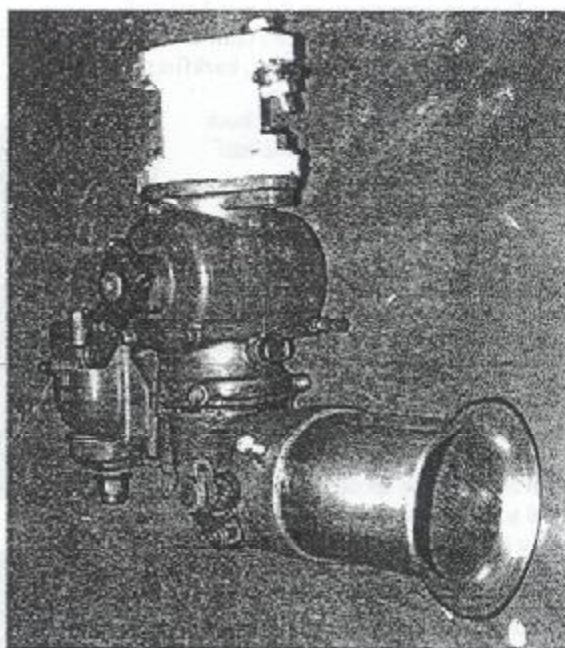
NOW!... You are Ready to Adjust the Carburetor
—SEE OTHER SIDE

Winfield Carburetor Co., Ltd.
3035 TREASWELL STREET
LOS ANGELES
1900 EAST JEFFERSON AVE.
DETROIT
CARBURETORS

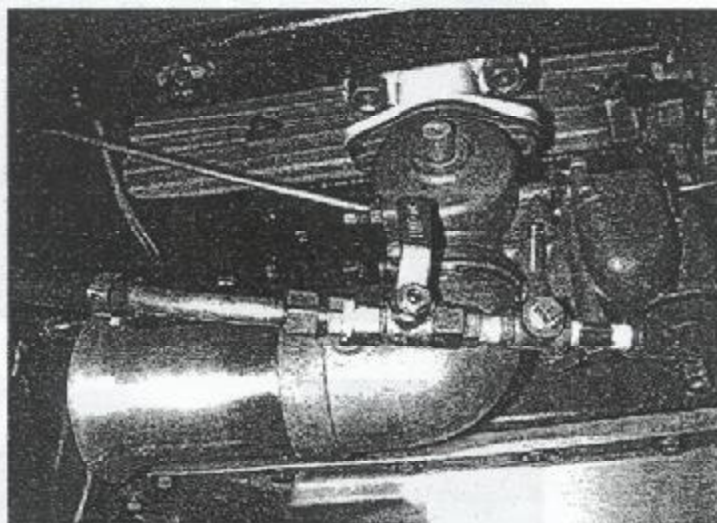
Few More Pointers About Winfield Carburetors

By Jim Cullinane

I thought we had finally put this continuing juicy subject to bed! Yet, here it is again! Hmmm! I guess we, the Model "T" motoring public, are so used to modern automatically compensated carburetors (or none at all) and intelligent fuel injection systems, we lose ourselves in a myriad of possibilities and proper operation diagnosis when confronted by a fully adjustable (but probably worn out) 80 year old Winfield Racing Carburetor. That mouthful said, here are a couple more things to ponder over in the back of your cluttered yet ever-racing mind. The first two Photos show the handsome devil of which we passionately speak.



In Books # 3 and # 7 we said that to start with, the carburetor needed to be preset to some recommended arbitrary adjustment positions for the three needles controlling idle (low speed), intermediate speed and high speed just in order to get it going at all. We sort of snuck in

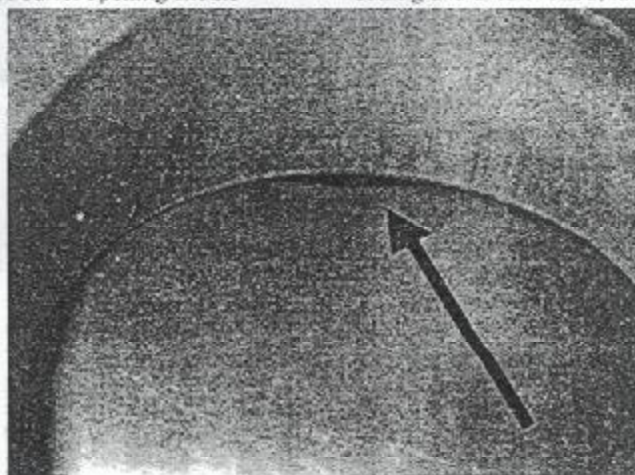


an additional engine starting point requirement in Book # 7 that a small amount of barrel opening should show when you peeked down the discharge tube flange where it connects to the intake manifold flange. See the inside close-up shot of the carburetor in the third Photo here with the arrow pointing the way.

We also said that a high idle speed setting was essential to getting the engine started the first time also since you don't really know how all this crazy adjustment stuff mutually plays together. So, it would

be wise to insure that the idle speed setting is high enough to run the engine at a very high idle speed such as 800 to 1000 rpm, by turning in the screw adjustment a ways inward at first. Now, assuming all other things are Kosher as pickles, and you are at full mental retard on the spark advance control, start the engine. Get it warm and then you can fiddle-fa-- with the idle mixture and idle speed adjustments to your little hearts content.

While the engine is still running at the high-speed idle setting and at full retard, turn in the idle mixture



adjustment a few clicks (i.e., less air bleed). (See the middle screw in the trio displayed in the top Photo on the next page.) This is done to see where the richness overcomes the ability of the engine to digest the mixture by slowing down and feeling sluggish, not to mention pooping out more exhaust smoke or just dying completely. That is too rich! Back the screw out the same

number of clicks (while remembering the number) and once started again, back it out some more until the engine speeds up and finally either coughs, backfires, gasps or quits altogether. That is too lean! Remembering where you started from, go back by screwing in the adjustment needle one half the number of clicks of the total excursion between too rich and too lean. That should be the proper place to leave the setting. Maybe!

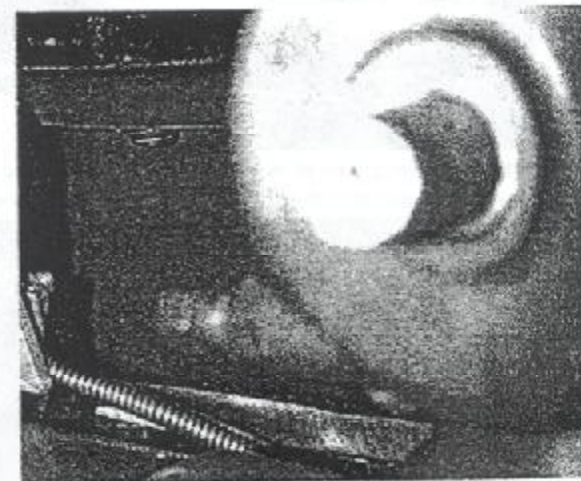
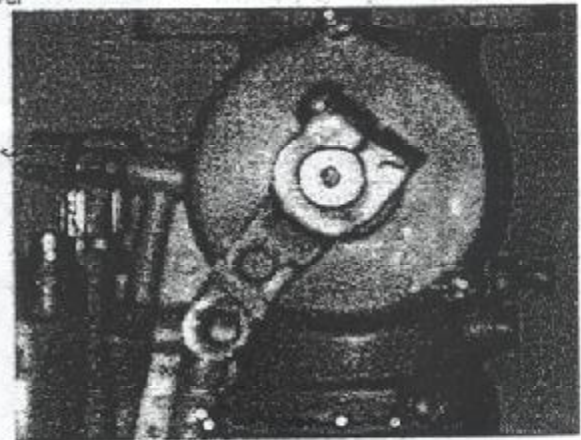
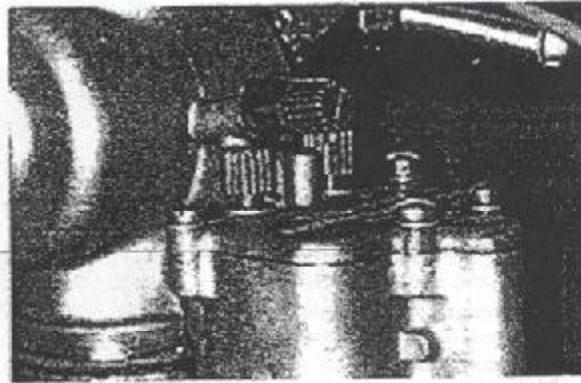
Now reduce the idle speed a bit down into the 400 to 500 rpm range by turning the idle speed screw counterclockwise to see if the sucker still runs at all. (See the bottom Photo on the next page for directions to this screw.) Many very radical racing camshafts won't allow the engine to idle very well at the lower speeds and you may find that the stable idle speed for your engine is 700 or 800 rpm or even more.

Assuming that it does idle stably at the desired lower speed, check the idle mixture adjustment again by going a couple of clicks richer for a while and a couple of clicks leaner for a while. And then leave it where the engine runs the smoothest of all at no load. Then see if the engine can gather speed at full retard and light added throttle without backfiring, gasping or quitting dead. This is so you won't look stupid at a stop sign when you take off at retard!

If the engine loads up (runs way too rich) at a continuing idle, either,

1. Your idle mixture is still far too rich,
2. You are getting too much leakage air flow around the barrel, thereby confusing the idle jet flow into the throat located just above the barrel, or
3. You have gross leakage of the intermediate or high speed spray manifold located below the barrel caused by the excessive leakage air, or
4. You have set the idle speed too low for that engine and have forced the other air leakage paths to predominate the fuel mixture control process.

Do not attempt to get the desirable low thumping idle we all cherish so much by closing off the needed open sliver of air-fuel mixture flow opening between the barrel and the throat (of the bottom Photo on the previous page). Because, when you do that, the powerful piston suction occurring somewhere downstream finds another entirely bogus air pathway into the engine around the barrel and that upsets the proper airflow past the idle port and spray manifold. The engine may run near idle speed, but not very well and will be hard starting, to boot. That is no good for starters! There, that's it! For now!



General Information Regarding the New Model "S" Winfield Carburetor

Downdraft or updraft The New Model S Winfield affords you a universal carburetor . . . a carburetor that can be used either as an updraft or downdraft . . . a carburetor that will deliver the same high carburetor efficiency on any kind of gas motor, whether it is a truck, bus or passenger car.

The New Finish The Model S is a simple, sturdy and strong instrument. Look at it! Doesn't the design and appearance impress you? The beautiful bronze finish which is used on the die-cast metal will materially enhance the sales appeal. And if it looks good to you now, wait until you get it installed on your car. Then you'll see how fine this new Winfield really is.

A New Catalogue All information pertaining to the new Model S will be contained in a new catalogue to be issued about April 19, 1930. So as to differentiate from the old catalogue, the new cover will be of deep blue. This new catalogue will be registered and in order to receive the new installation sheets as issued, you must register your catalogue with the factory.

New Box Package The new Model S is packed in three separate boxes—a box for the float bowl half; a box for the throttle chamber; and a box for the choke elbow. The label will give the contents of the box, the size of unit and the serial number.

Stock This method of packing has two advantages. You have a nice appearing package for display purposes. Secondly, it permits you to carry a small stock. For instance with a stock of 5 throttle halves; 6 float bowls; 2 idling tubes and bases; 4 air bleeders together with a few special fittings, you will be able to make practically any installation that comes into your shop.

Throttle Package Contains These extra parts are all packed in the same box with the throttle chamber assembly: the choke retaining ring; the adapter flange; the adapter flange gasket; the four studs; and the general instruction sheet.

One-eighth inch sizes So as to have accurate carburetion for any size motor, the new Winfield is available in one-eighth inch sizes. This is a great improvement over the former method of stepping up sizes a quarter of an inch at a time. With the old arrangement, you often had a carburetor that was just a bit too small, while the next size was too large. With an eighth inch graduation in size, you can always use the correct size carburetor for any engine. This means another forward step towards accurate carburetion.

Sizes Identified by Letters The new carburetor sizes are designated as follows:
A—1 inch. AA—1 $\frac{1}{8}$ inch. B—1 $\frac{1}{4}$ inch. BB—1 $\frac{3}{8}$ inch. C—1 $\frac{1}{2}$ inch.
A, B and C sizes still correspond to the former Winfield practice of designating carburetor size. You merely have the addition of two in-between-sizes designated as AA and BB. For your information, another larger size carburetor will be added later.

New Equipment Numbers In this catalogue, each installation has an equipment number. These equipment numbers designate the carburetor size. For instance:

All equipments in the 1100 series require a 1" or A carburetor.

All equipments in the 1200 series require a 1 $\frac{1}{8}$ " or AA carburetor. = T

All equipments in the 1300 series require a 1 $\frac{1}{4}$ " or B carburetor.

All equipments in the 1400 series require a 1 $\frac{3}{8}$ " or BB carburetor.

All equipments in the 1500 series require a 1 $\frac{1}{2}$ " or C carburetor.

To illustrate: Equipment 1403 in your catalogue is for the Chrysler 75, 1929, and Chrysler 72, 1928. The fact that it is in the 1400 series instantly tells you that it requires a 1 $\frac{3}{8}$ " carburetor.

Truck Equipments Any equipment number prefixed with "TR" signifies a truck installation. The truck installations are kept separately in the back of this catalogue. This is the same method as used in the Model M catalogue.

Bulletin No. 3

HOW MECHANICAL FUEL PUMP CHANGES THE FLOAT LEVEL AND PERFORMANCE OF WINFIELD

The mechanical fuel pump, such as the A. C., has an inherent tendency to supply too much gasoline at low engine speeds and not enough for high speeds. Secondly, the capacity of these present day pumps is not sufficient in the amount of fuel that it can supply. To offset this deficiency in capacity, the pressure has been raised to about two pounds. This pressure puts a heavy tax on the needle valve and tends to raise the level of gasoline in the bowl too high, when the motor is operating at idling or low speeds. At very high speeds, the pump sometimes fails to deliver sufficient gasoline to maintain the level.

The float level in a Winfield has been set by an actual gasoline flow test so that the fuel in the center of the bowl measures 13-16" from the top surface of the float bowl. This measurement must not be made along the side of the bowl because the capillary action holds the gas up on the side of the bowl. Secondly, the level in a Winfield has been set for a normal fuel pressure such as delivered by the vacuum tank. Therefore, when the pressure is increased as much as two pounds, there is a tendency for the fuel to rise to a greater height in the bowl before the float can exert enough force to close the needle tightly.

In order to overcome this tendency, the engineering department recommends that you change the position of the float valve collar on the float needle as specified herewith.

Take out the float assembly. Scribe the needle exactly even and parallel with the bottom of the float valve collar. Then tap the collar up towards the top of the needle 1-64". Be sure to check the distance you move this collar and do not exceed the limits specified of 1-64". If you choose, you can reverse this operation by scribing the needle above the collar 1-64", and then tap the collar up on the needle to the mark you have scribed. Then, re-assemble the float assembly and make the installation.

This change will keep the level of the gas at the correct level for a mechanical fuel pump and you will find that it materially increases the performance of a Winfield.

The A. C. Mechanical Fuel Pump is on the following current 1929 models:

Auburn 8-90
Auburn 120
Blackhawk
Buick 116
Buick 121-129
Chevrolet
Du Pont G
Franklin 130
Franklin 135-137
Graham Paige—all models

Marquette
Oakland
Oldsmobile
Peerless 6-61, 6-81, 125
Pierce-Arrow—All Models
Pontiac
Reo
Stearns-Knight J-8-90
Studebaker—All Models
Viking

WINFIELD CARBURETOR CO.
Engineering Department.

(OVER)

Bulletin No. 4

OILING THROTTLE BEARINGS

Oil the Throttle Bearings. This is important. If you meet with any trouble due to the throttle tending to bind, do not tear the carburetor down and scrape the bearings. There is only one operation that is necessary and that is **oil**.

When you install a Winfield, be sure to oil both ends of the throttle shaft at the throttle bearings. Use ordinary engine oil. Make this operation while the motor is idling because at that time the suction around the bearing reaches its highest degree. The suction will draw the oil in around the bearing.

Show the owner how to make this operation. Tell him to oil these bearings at least every 1000 miles. If he chooses to oil them oftener, no harm can be done. Be sure to get this point straight . . . **the babbit bearings must have oil.**

On every case where there is a tendency for the throttle to bind, the trouble has been due to lack of proper lubrication. If the owner drives around town, this trouble does not show up. However, on long trips, the throttle shaft will dry off from the heat and since there is no condensation of gas to lubricate the bearing, it gradually gums up and becomes sticky. Oiling the throttle bearing with engine oil will positively cure this trouble. Above all do not sand-down the throttle shaft because it is unnecessary and will spoil the performance of the carburetor. It will permit an air leak. You can save yourself all the grief in the world by this one simple operation—**OIL THE THROTTLE BEARINGS, AND OIL THEM OFTEN.**

For your own shop use, we recommend that you mix Dixon's **Powdered** graphite with a light oil. Make a heavy mixture. Do not use flake graphite. Then oil the throttle bearings with this mixture. Shake the mixture every time you use it so as to keep the graphite suspended. The graphite will continue to lubricate after the oil has dried out.

WINFIELD CARBURETOR CO.

Engineering Department.

May 1, 1931

Service Bulletin No. 5

Subject:- Ford Head.
To: All Winfield Dealers

On some Fords, the Winfield head will produce periods of engine vibration where on other Ford engines there is no tendency for this roughness to show. These periods are in the Ford engine even with the original head.

There are three periods in the speed of the engine where these points of vibration are noticeable. They usually show up somewhere in between these speeds:- 30 to 35 MPH; 45 to 50 MPH; and 55 to 60 MPH. The vibration during any of these stages usually lasts for a range of one to two miles an hour.

From a service standpoint there are several things which can be done to smooth out the motor.

1. Be sure that the ignition setting is not too far advanced.
2. Missing, pre-ignition and attendant roughness can easily be caused by the type of plug and setting of the gap. The mechanical condition of the motor and the way the owner drives must be considered in determining the type of plug to use.
3. Use two head gaskets instead of one. This lowers the compression slightly.
4. A loose fly-wheel will cause a rumbling vibrating noise all the time. It sounds more like a knock.
5. If there is a period of noise which shows up only around 30 to 35 MPH, it is usually caused by worn timing gears. This condition is best described as a clattering sound or vibrating noise. "It sounds like something rumbling around inside a steel drum. The noise it produces is between a rumble and a clatter." A new set of timing gears will eliminate this trouble.
6. A loose fan pulley will produce a sharp rattle.
7. Install a pair of the Winfield offset timing gear dowel pin. These pins set the camshaft timing back about one-half a tooth.

These dowel pins-part 110-list at 50¢ per pair. However, they are available without charge for any Heads which you have already installed or which you have in stock. Commencing May 1st all shipments of Winfield heads will have these dowel pins included as a part of the equipment.

WINFIELD CARBURETOR CO., LTD.

If you ever have occasion to take a bell crank off of the carburetor be sure that you re-assemble it correctly. Make sure that you reset bell crank arms at the correct angle. These arms move over a 90° arc. Therefore, at closed position, the angle made by the arm in relation to an imaginary horizontal line drawn through the shaft should be 45°. At wide open, the angle should be 45° above this imaginary horizontal line.

If the bell crank arms are not set correctly, and if the wrong length of bell crank connecting rod is used, your bell crank will bind. Therefore until you are entirely familiar with the bell crank, your factory recommends that you leave it alone.

Assemble Carburetor for Customer

When you receive an order for a specific installation from a customer who is not a regular Winfield dealer, your factory recommends that you assemble the carburetor complete before sending it out. Take from stock any special fittings required and make the complete assembly: this means slip on the proper throttle levers; slip the choke elbow into the retaining ring on the throttle chamber; bolt the float bowl to the throttle chamber. In other words, send the carburetor out all ready to install as specified in the equipment sheet. If you follow this suggested practice, you will find that even the man who is not familiar with the carburetor can install it with perfect ease.

About Converting Standard Undraft Manifold for a Downdraft Installation

Many car owners will want you to convert their engine into a downdraft job. Unless the manifold on the engine has been originally designed for downdraft carburetion, your factory recommends that you leave these special "converting jobs" alone. First of all, you'll waste more time cutting up the old manifold than you can get money out of the job. Secondly, to gain full benefits from downdraft carburetion, a specially designed manifold is really required. Because the mixture flows down-hill, the downdraft manifold is larger in size. This increased capacity means that more volume of mixture can be put into the cylinders. So as a natural result, a downdraft installation on a conventional manifold cannot show any appreciable gain in performance over the standard updraft Winfield installation. You need a special downdraft manifold to get the full value from downdraft carburetion.

The new Model S as a standard updraft will give plenty of pep and power to the car. The owner will not need a downdraft for performance—the updraft Model S has plenty.

But where you have a special designed downdraft manifold such as the factory furnishes you for the Ford, you may unhesitatingly recommend the downdraft job. On these installations you have a manifold designed to get the maximum results from downdraft carburetion.

How to Use the Installation Pictures to Help Sell the Carburetor

Every owner wonders if the job will really work on his car. Secondly, he wonders how it will look. You will find that a picture of the installation on the same make of car as the prospect drives, is the greatest little salesman in the world. Turn to the equipment sheet in the catalogue and show the customer how the installation looks on his car. Get a little technical if you want—explain the throttle action, the choke and all that. The customer will like it, and you will find that it helps get the order.