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|--------------------------------|------------------------------|
| 1. High Speed Adjustment       | 13. Air inlet                |
| 2. High Speed lock nut         | 14. Idling jet               |
| 3. High Speed needle seat      | 15. Throttle stop adjustment |
| 4. Compensator feed line       | 16. Throttle stop lock nut   |
| 5. Compensator tube            | 17. Throttle arm             |
| 6. Accelerating well           | 18. Throttle arm lock screw  |
| 7. Compensator chamber         | 19. Choker arm               |
| 8. Compensator vent plug       | 20. Choker arm lock screw    |
| 9. Spray tube                  | 21. Carburetor flange        |
| 10. Spray tube retaining screw | 22. Gas line connection      |
| 11. Idling Adjustment          | 23. Strainer bowl            |
| 12. Idling lock nut            | 24. Strainer bowl plug       |

## ADJUSTMENTS

Winfields are noted for their ease and range of adjustments. Perfect adjustment can be made in very few minutes. There are two simple adjustments on the Winfield Carburetor, an idling and a high speed, each working independently of the other:

Start the motor and allow the motor to warm up slightly. Next retard the spark, and open throttle about one-third, allowing motor to race. The high-speed adjustment may now be accurately set. Close it by turning to the right until the motor starts to slow down, and fire irregularly, then open it by turning to the left just enough to allow the motor to obtain its maximum speed. Lock the adjustment in this position by tightening the lock nut against float cover.

Next close the throttle so motor idles. The idling adjustment should be set so the motor idles smoothly. If the motor will not run or fires unevenly, screw in idling adjustment for richer mixture. If the motor "gallops" screw out idling adjustment for leaner mixture.

If at a fully closed throttle the motor does not idle at the desired speed, faster idling may be obtained by turning the throttle stop adjustment to the right; and slower idling by turning to the left. Lock throttle stop adjustment by tightening lock nut.

To facilitate minor changes in adjustment, it should be noted that the High Speed adjustment gives a richer mixture when screwed out, and a leaner mixture when screwed in, and the idling adjustment gives a richer mixture when screwed in and a leaner mixture when screwed out.

## THE IMPORTANCE OF CARBURETION

Carburetion is undoubtedly more important than any other one thing in the operation and performance of the present day automobile. The successful carburetor must automatically compensate for variations in temperature, altitude, and fuel; it must operate smoothly and positively at all speeds; it must respond immediately when quick acceleration is desired; and must be economical in fuel consumption. Satisfactory slow speed operation must be obtained without sacrificing power at high speed. These are some of the requirements of a good carburetor and should be obtained by a device which is as free as possible from moving parts. Not by a complex, involved machine, which is sure to be unreliable.

## COMPARISON

In making the following comparisons it is not to be construed by the reader that any reflection is being cast on any particular make carburetor. The statements in this circular are purely to give the reader a comparison between this carburetor and various other types manufactured.

There are certain defects known and admitted on nearly all carburetors. Practically all have a defect known as a flat spot, which is apparent when the throttle is opened from the low speed to the high speed jet. Some carburetors have a rich spot at about  $\frac{1}{4}$  throttle opening which causes the motor to operate rough and use excess fuel. Some carburetors are so restricted in the venturi in order to procure slow speed performance that power and speed are greatly sacrificed, while on the contrary, others have large venturis but lack proper design to get smoothness, slow speed performance and acceleration. Still others are designed with so many small moving parts, springs, etc., that the inevitable wearing of these intricate moving parts causes the adjustment to frequently change. This necessitates very frequent adjusting and eventually replacing the worn parts. Some carburetors rely on a dash control for getting the correct adjustment to suit varying speeds and conditions. Not many people can, and very few do, successfully operate this type of carburetor. Performance on this style carburetor is impaired for that reason.

Practically all carburetors do not vaporize the gasoline in the carburetor sufficiently to make a cold motor fire regularly but must wait until the motor is warm. During the interval before the motor is warmed, gasoline not vaporized and that recondensed thru contact with the cold manifold enters the combustion chamber. This liquid gasoline cannot be burned and finds its way past the piston to dilute the crank case oil.

This dilution of oil is naturally a great menace to motors. Some manifolds eliminate some of this dilution but no manifold can successfully overcome all of it without first having a carburetor that thoroughly vaporizes the fuel without aid of motor heat. Five years ago, present day carburetors could handle the fuel then available but the decreasing quality of gasoline has compelled car manufacturers to constantly change manifold construction to get more aid from heat. The ideal carburetion, however, is obtained from a cold mixture of very finely divided gasoline particles and air. This mixture, due to its greater density, produces the most effective charge for an internal combustion automobile motor. It is essential, therefore, that a carburetor break up the liquid fuel as fine as possible without the aid of heat, and that it use only enough heat to prevent condensation of the fuel in the intake manifold.

### THE WINFIELD

The Winfield Carburetor was originally designed with the foregoing requirements borne strongly in mind. As a result, the high speed and the quick acceleration which were obtained have made it popular with such world-famed racing drivers as Ralph De Palma, Eddie Hearne, Sig Haugdahl and a host of other drivers of Miller Specials, Dusenbergs, and many other cars. Winfield Carburetors hold track records on practically every dirt track they have competed on. The Standard Commercial Carburetors are made from the identical design of the racing carburetors. The Winfield's remarkable success on racing cars and a tremendous demand from pleasure car owners warranted its production for all cars.

### SIMPLICITY

When the Winfield Carburetor was made, the paramount object in mind was to eliminate moving parts. The result was a carburetor of extremely simple design. There is only one moving part aside from the float mechanism. This part is the throttle. Winfields have no springs, small plungers, dash pots or countless other troublesome parts.

### CONSTRUCTION

The construction of the Winfield Carburetor is as follows: The main carburetor body, float cover, throttle cover, and choker elbow are made of aluminum. The throttle is made of bronze and has very large bearings. The float chamber is of standard construction, using a metal float working in conjunction with wing type levers and a Monel metal float valve. The strainer bulb is made of bronze and contains a fine wire mesh screen. Only a screw driver and wrench are

needed to completely disassemble and reassemble the carburetor. Not a single special tool is required. The carburetor is very compact, light in weight and, due to its design, presents an attractive appearance.

### IDLING

The Winfield produces unusually smooth idling for several reasons:

First: Because of the very high vacuum under which the idling jet operates. This alone will break up the fuel into very fine particles and will cause the jet to be very positive.

Second: Because of the state of turbulence maintained within the idling speed mixing chamber.

Third: Because of the limiting of the discharge of the fuel mixture to one small opening from which it is forced, at a very high velocity, into the intake manifold.

These last two features are very unusual, for ordinarily the fuel used in idling is not thoroughly mixed with air until it is in the intake manifold. A complete mixing then is impossible. Another feature of the Winfield idling jet is that no lean or rich spot is encountered as the throttle is opened from a fully closed position to the position at which the secondary jet comes into operation.

This "flat spot" is eliminated in the Winfield Carburetor by a special construction which varies the suction on the slow speed jet as the throttle passes through this small period of motion.

### ACCELERATION AND SMOOTHNESS

The quick acceleration of the Winfield Carburetor is obtained by the use of a special type of acceleration well. The satisfactory operation of this well, however, is due greatly to the spray tube (an exclusive Winfield feature) used in connection therewith. This spray tube also is dependent upon a rotary cylindrical throttle which enables the spray tube to transmit the right amount of suction to the accelerating compensating well at all the varying throttle openings. The manner in which this is done is readily seen upon inspection: Note the variation in the number of openings in the spray tube that are exposed to suction as the throttle is opened or closed. Naturally the number of openings thus exposed varies as the area of the throttle opening, this varying the suction on the accelerating well accordingly. When an increase in suction is made on this well, a momentary enrichment of the fuel mixture takes place. It is necessary that this enrichment take place instantaneously and that its duration be neither too long nor too short. It is the ac-

accomplishment of this that gives the Winfield Carburetor the quick acceleration for which it is noted. The smoothness with which it operates is due to the very high vacuum under which the jets operate at all times, and consequently to the high velocity of the air passing by them.

### HILL CLIMBING

Winfield Carburetors are superb for hill climbing and mountain travelling, as their perfect acceleration enables a quicker pickup and exact compensation gives sustained power without "loading up." The performance of a Winfield can be most appreciated when climbing a hill with a set throttle. When the crest of the hill is reached and the pull on the motor is relieved the car will continue to run smoothly. Naturally this would not be the result if the "loading up" symptom was present.

### ALTITUDE

The same features of compensation referred to heretofore that gives the Winfield all around performance enables it to withstand altitudes and temperature changes without annoyance of frequent adjustment.

### ECONOMY

The Winfield gives surprising economy for a carburetor so endowed with the features of Speed, Power, and Fast Acceleration. No exaggerated claims of extreme mileage are made for the Winfield but it does increase the mileage noticeably on most cars. This mileage is obtained because the Winfield gives power and speed by thorough vaporization of the fuel. This efficient using of the fuel naturally resulting in economy. The economy feature is covered in our guarantee.

### TRUCKS

Winfields have met with wonderful success in carbureting truck motors. This is accounted for because of the increased power and smoothness attained, as well as the economy feature. Winfield Carburetors are even better on trucks, insofar as economy is concerned, than on pleasure cars.

The reason is that continued operation at larger throttle openings under heavy loads does not result in the greatly increased gasoline consumption which always accompanies a continual opening and closing of the throttle.

### GUARANTEE

Winfield Carburetors are sold with the following guarantee: Any Winfield Carburetor may be returned, if undamaged, to the dealer from whom it was purchased any time within thirty days and the purchase price will be refunded. This guarantee means that the purchaser is the Sole Judge as to whether he desires to return the carburetor.

We do not believe that mileage or any basis of making guarantees is sound other than an absolute guarantee of Customer's Satisfaction.

Make	Model	Type	Size of Carburetor Inches	Price
Chevrolet	490		1	\$20.00
Chevrolet	F.B.		1	20.00
Cleveland		Valve in Hd.	1	20.00
Dodge			1 1/4	25.00
Durant (4)			1	20.00
Essex (4)	1921-23		1 1/4	25.00
Essex (6)			1	20.00
Ford with aluminum manifold, etc.			1	20.00
Ford with aluminum manifold, etc.			1 1/4	31.50
Ford	Rajo Model "B"		1 1/4	25.00
Ford	Rajo Model "C"		1 1/4	25.00
Ford	Rajo Old Type		1 1/4	25.00
Ford	Rajo	Racing	1 1/2	30.00
Ford	Rajo	Racing Dual	1 1/2	60.00
Ford	Frontenac	Stock	1 1/4	25.00
Ford	Frontenac	Racing	1 1/2	30.00
Ford	Frontenac	Racing Dual	1 1/2	70.00
Ford	Roof		1 1/4	25.00
Ford	Roof	Racing	1 1/2	30.00
Ford	Roof	Racing Dual	1 1/2	60.00
Ford	Roof	Racing Double Dual	1 1/2	120.00
Gray			1	20.00
Hudson	1924-25		1 1/2	30.00
Hudson	1921-22-23	Dual	1 1/2	65.00
Hupmobile			1	20.00
Maxwell			1	20.00
Oakland		L-Head	1	20.00
Oakland		Valve in Head	1	20.00
Overland	Mystery 4		1	20.00
Star			1	20.00
Studebaker	Light 6 1924		1	20.00
Studebaker	Light 5 1925		1	20.00
Willys-Knight			1 1/4	25.00

Other Makes on Application

### Standard Interchangeable Types

1"	Standard Vertical or Horizontal	\$20.00
1 1/4"	Standard Vertical or Horizontal	25.00
1 1/2"	Standard Vertical or Horizontal	30.00

Distributed by

**HAMMEL-GERKE CO.**

532-34 South Alameda Street  
LOS ANGELES

*Winfield*  
CARBURETORS

