

MARVEL
CARBURETER
-AND-
HEAT CONTROL



As used on 1927-28
Hudson Super-Six

"BOOKLET B"

MARVEL CARBURETER CO.
FLINT, MICHIGAN

U. S. A.

MODEL "B" CARBURETER

Used on Hudson 1927-1928 Super-Six Cars

The carbureter measures the fuel charges for the engine and automatically mixes them with the proper amount of air to form a highly combustible gas. The Marvel model "B" carbureter is of the automatic air valve, heat controlled type. Its outstanding advantages are:

1. Simplicity of adjustment and operation.
2. Quick starting in any weather.
3. Automatic and manually controlled heat application to insure complete vaporization of fuel and maximum quick warming-up in coldest weather, thereby reducing over-use of the choker and resultant crankcase dilution to the minimum.
4. Economy in fuel consumption.
5. Ease of adjustment of heat control to meet varied driving and climatic conditions.

CONSTRUCTION

The construction embodies a main body or mixing chamber and a conventional float chamber bowl with fuel strainer attached at point of entrance of fuel to bowl. Within the mixing chamber are two nozzles which proportion the amount of gasoline used in the mixture. One of these nozzles, called the "low speed," is regulated by the gasoline adjustment needle at the bottom of carbureter and the other, called the "high speed," is controlled by the automatic air valve. An air screw is provided which regulates the pressure of the air valve spring enclosed therein. Within this screw is also enclosed a plunger connected by a link to the air valve. The function of this plunger is to provide a resistance in addition to that of the air valve spring to assist in acceleration. This arrangement of plunger and air valve screw is termed the dash pot.

A further control of the high speed jet is provided by the "economizer" which is a fuel metering valve operated by the carbureter throttle. This valve provides the maximum fuel feed to the "high speed" nozzle when the throttle is fully opened for high speeds, hill power and for quick "pick-up." During the ordinary driving ranges this valve controls the amount of fuel being used, thus providing all the economy possible. This valve is entirely automatic and requires no adjustment.

A choke button is provided on the instrument board to assist in starting. Pulling out this button closes a butterfly valve in the air intake passage of carbureter which restricts the air opening of the carbureter, and consequently produces a richer mixture. This button should be released part way at once upon starting, and fully released as soon as engine will run without it.

A control lever is also placed on the instrument board to provide for manual regulation of heat control in addition to the automatic heat control mechanism of the carbureter.

HEAT CONTROL

The carbureter and manifolds have been designed to utilize the exhaust gases of the engine to insure complete vaporization and a consequent minimum consumption of fuel. This is accomplished by an exhaust jacket in a double walled riser placed between the carbureter and the intake manifold. This riser is connected to the exhaust manifold in such a manner that the exhaust gases pass between the walls of the riser, through the heat jacket and the outlet to the exhaust pipe. The amount of heat thus furnished to the riser is controlled by two valves; one in the main exhaust above the exhaust, outlet from riser and one in the exhaust inlet of riser heat jacket.

The valve in the main exhaust is connected to the throttle lever of carbureter in such a manner that the greatest amount of heat is had in the jackets of riser when the throttle is only partly open, as in idling and at low speeds, and a decreasing amount as the throttle is opened further for higher speeds. By means of the heat control lever below instrument board this automatic action of the heat valve may be varied to suit weather and driving conditions.

The valve described above in main exhaust line kit rear end of engine is housed in a separate casting. On the front side of this casting will be noticed a boss acting as a locating stop for the damper valve lever. This stop indicates the closed position of the damper valve and is to be used in assembling control rod to carbureter, the normal position of valve being against this stop boss when heat control on instrument board is set at "Hot" position and throttle is closed.

The control lever below instrument board operates the valve in the exhaust inlet of the riser heat jacket simultaneously with the valve in the main exhaust and an adjustment by moving control lever to "Cold" may be had to the point where no exhaust gases pass through the riser jacket thereby shutting off all the heat.

Gases from the main exhaust enter at opening "N" at back of riser (see Figure 1) and pass through riser jackets, returning to exhaust pipe below valve "A."

It will be noted in Fig. 1 that valve "A" is connected by means of connecting rod "H" to roller "E" operating in slot "D" of cam "C." The roller "E" is connected by means of a short, loose jointed, free lever, to lever "F" which in turn is attached in fixed position to throttle shaft "G." As



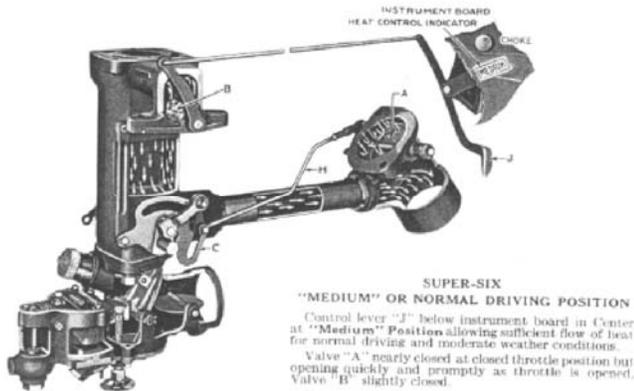
Figure 1

Heat Control (Cont'd)

throttle is opened, valve "A" is also opened due to the roller at end of connecting rod "H" following the slot "D" in cam plate "C". Thus the volume of heat through heat jackets of riser will be lessened as the engine speed increases, depending upon the position of the cam "C" controlled by lever "J." In the Figure 1 showing **"Hot"** or WARM UP POSITION, owing to action of slot "D" in cam "C" on position of valve "A" as throttle is opened, valve "A" is caused to remain closed (thus insuring most heat) until engine has attained a speed of approximately forty to forty five miles per hour, after which at higher speed it opens automatically and rapidly to "wide open" thus insuring against back pressure and overheating.

The valve "B" in riser heat inlet is connected by a lever and link to the cam "C," the position of which is controlled by the lever "J" as stated. In the **"Hot"** or WARM UP POSITION it will be noted in cut that this valve "B" is held wide open.

In Figure 2, showing **"Medium" Driving Position**, owing to the cam "C's" position having been changed from

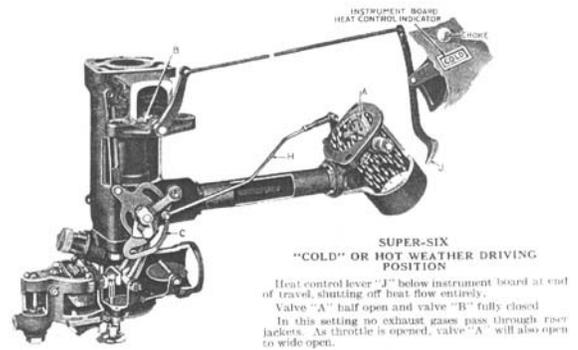


making frequent stops. If temperature of air is 85° or above, drive with lever "J" further toward **"Cold"** from **"Medium"** or on **"Cool,"** and in extremely hot weather on **"Cold."**

For economy and best engine performance it is essential that driving be done with control lever "J" as near center at **"Medium"** position, as shown in Figure 2 as driving and weather conditions permit.

In Figure 3, showing "Cold" position, owing to the cam "C's" position being still further changed by the control lever "J" below instrument board, the valve "A" at CLOSED THROTTLE POSITION is already open partially, and opens quickly with throttle to full wide open position. At the same time it will be noted that valve "B" has been closed by cam "C" thus insuring in this setting no heat circulation through the system.

This, as stated, is the setting used only during hot weather or under certain constant heavy road conditions when engine appears to lose power because of too much heat.



STARTING

To start, engine, set heat control lever "J" to **"Hot"** position, pull out choke button all the way. Advance spark lever about half-way and OPEN THROTTLE ABOUT ONE-THIRD WAY and depress starter pedal.

The moment the engine fires the choke button should be pushed in to part release, and the throttle closed slightly so that engine be allowed to run at fairly good speed for quarter to half minute. If engine hesitates, pull out choke button and push back in at once to a point where engine runs smoothly during this short period, the object being to secure momentarily a richer mixture to assist engine in warming up. Even in zero weather it is not necessary to run with choker out, except momentarily when just starting cold engine. It should be borne in mind that the automatic heating system of the carbureter makes it entirely unnecessary to drive with choker pulled out and one of the objects of the heating system is for this purpose, thereby obviating the common practice of diluting the oil in the crankcase by using an excess amount of fuel from over-choking while engine is warming lip.

It should be remembered in cold weather that the position of the heat lever largely controls the performance. Therefore, where quick acceleration is desired in cold weather, drive with heat enough to provide same which will not be obtained if control is too near **"Cold"** position. As stated before, normal weather driving, the heat control may be set half-way, at **"Medium"** and in hot weather further toward the **"Cold"** position at end of lever travel if desired - the full **"Cold"** position to be recommended however, only in extreme hot weather under hard driving conditions.

ADJUSTMENT

No change should be made in the carbureter adjustments until after an inspection has been made to determine if the trouble is in some other unit. It should be noted that the gasoline lines and strainer are clear, that there is gasoline in the vacuum tank, that there are no leaks at connections between carbureter and engine, that the ignition system is in proper condition, and that there is even compression in all cylinders.

Adjustment (Cont'd)

If it is necessary to test adjustments or to make a readjustment proceed as follows:

Set air screw so that end is flush with the end of ratchet set spring. Turn gasoline adjustment to the left very carefully until the needle head rests against its stop. Then turn to the right to bring the notch in the disc handle directly below the guide post above it

The notch in the disc handle of needle is put in handle after the needle has been carefully calibrated by a flow-meter at the factory, to the "Normal Setting" therefore the notch in handle should register with guide post above it. This setting of needle valve is absolutely essential to get the best results, and is termed the "Normal Setting," because it is the standard fuel flow for this engine.

To provide for extremes of hot and cold weather a limited range of adjustment is provided on this needle: more than "Normal," by turning to the left until against stop, or less than normal, by turning to the right against stop. THESE POSITIONS, AS STATED, ARE ONLY FOR EXTREMES OF HOT AND COLD WEATHER, where an owner may desire a little more mileage in hot weather, or a little quicker acceleration in zero weather, and are not to be understood as necessary seasonal adjustments, as satisfactory performance and mileage may be obtained in any kind of air temperature with the needle in "Normal," at the notch. The heat control provides for atmospheric variations.

With needle set at "Normal," set heat control lever "J" on dash at "Hot" position, and leave in this position while making adjustment. Pull out choker to closed position and start engine in usual manner. As soon its engine has fired release choker. Run for a moment until engine has warmed up, remembering to never use choker more than necessary, as when not needed it, has a tendency to foul up engine and ruin the lubricating oil in the crankcase.

Next, set air screw for good idle by either turning in to the right a little or backing out to the left its the needs of the engine require, remembering that first of all, the needle must be set as described at "Normal." With the needle so set and the engine warmed up, the adjustment of the air screw

for proper idling is easily accomplished by using a little care. If the air screw is turned in too tight, the motor will roll. If the air screw is not tight enough, the motor will hesitate and perhaps stop entirely. To make a nice clean adjustment for idle, first having set needle at "Normal" as described, turn air screw in quarter of a turn at a time until engine rolls, through richness. then turn back to the left until engine hesitates, indicating that mixture has too much air and is too lean; next turn air screw in to the right three of four notches at a time until engine runs smoothly. This idle setting accomplished, by proceeding as directed above, the proper adjustment for the entire range of the engine will have been attained.

If the engine idles too fast with throttle closed, the latter may be adjusted by means of the, throttle lever adjusting screw.

CAUTION

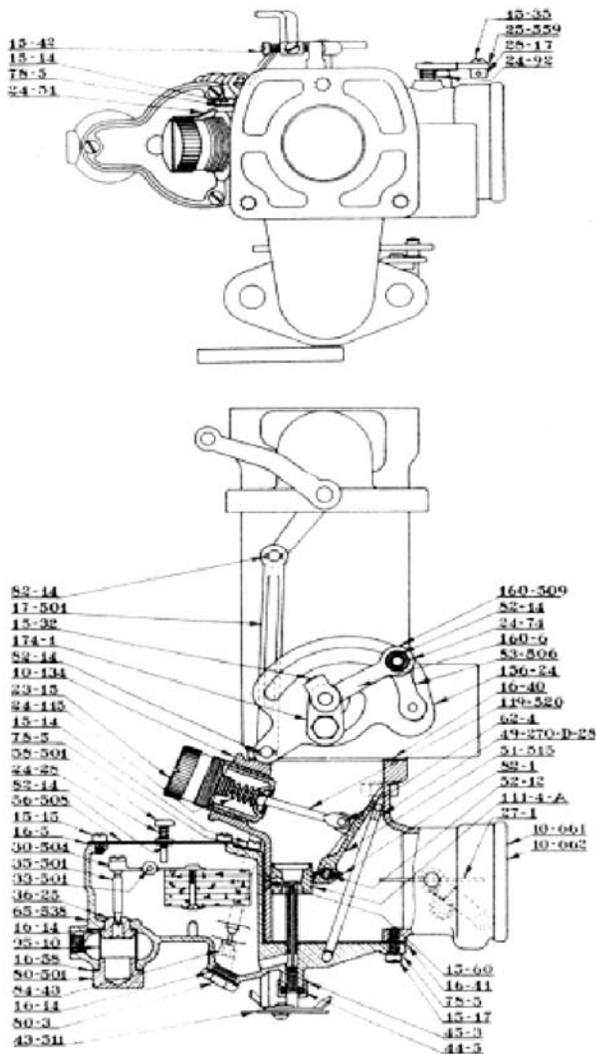
It must be remembered that the low speed needle has been carefully calibrated to "normal" notch in disc handle and guide post above it, at the factory and that in checking or making an adjustment that the needle must be so set and the rest of the adjusting done with the air screw as described.

Do not vary needle setting from "Normal" unless in extreme cold weather to open up, or in extreme hot weather to cut down fuel flow a little. Never have needle opened beyond "Normal" in hot weather, nor below "Normal" in cold weather. If in doubt as to needle adjustment always leave it "Normal."

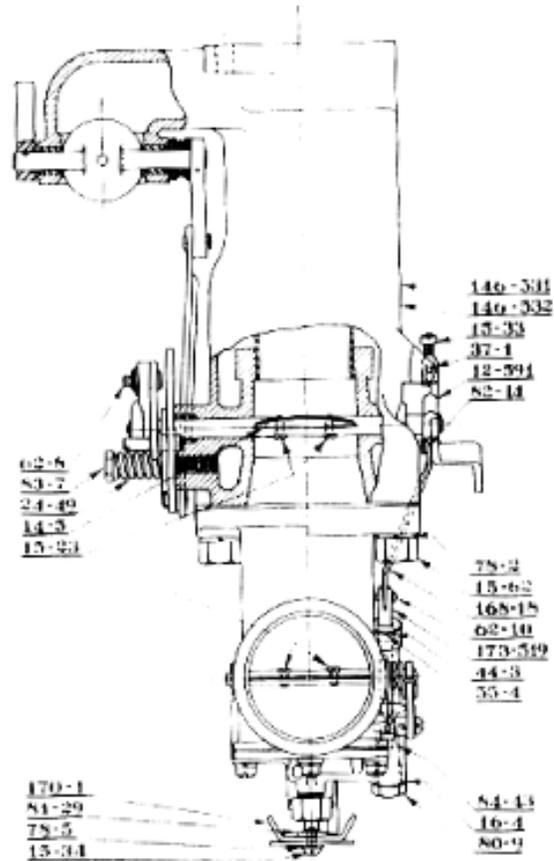
ALTITUDE CHANGES

No change is necessary for touring thru mountainous country but for cars operating permanently in territory of 4000 feet elevation or over we advise going to the nearest Hudson dealer or Marvel service station and changing to 49-225-D-28 High Speed Jet for the best results such altitude territory.

Do not, under any circumstances, make this change unless operating permanently above 4000 feet elevation.



MODEL "B" RISER AND CARBURETER ASSEMBLY
For 1927-28 Hudson Super-Six
 Showing Numbers of all parts sold for Service



MODEL "B" RISER AND CARBURETER ASSEMBLY
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PARTS PRICE LIST

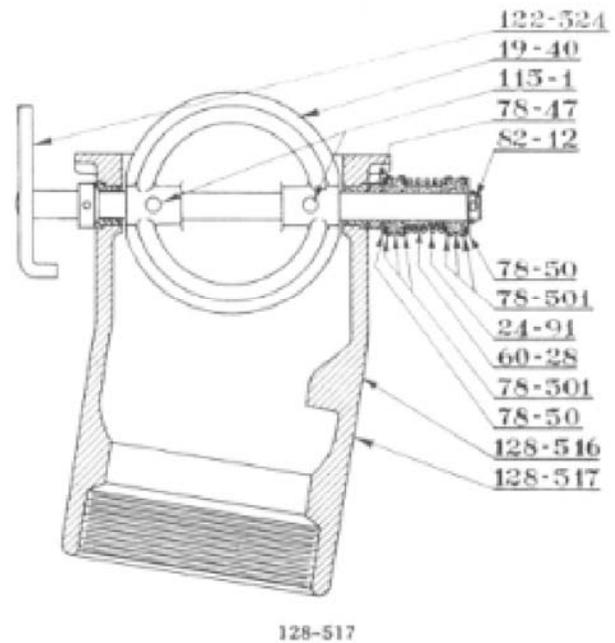
MARVEL CARBURETER MODEL "B"
For 1927-28 Hudson Super-Six

Part No.	Name	Price
10-134	Carbureter Body	\$ 4.00
10-661	Carbureter and Riser Assembly	30.00
10-662	Carbureter Assembly only	20.00
12-591	Throttle Lever and Shaft Assembly	.75
14-5	Throttle Fly	.30
15-14	Ratchet Spring and Metering Pin Packing Retainer Screw	.05
15-15	Bowl Cover Screw	.05
15-17	Body to Bowl Lock Screws	.05
15-20'	Throttle and Choker Fly Screws	.05
15-32	Pilot Set Screw	.05
15-33	Throttle Adjusting Screw Pinch	.05
15-34	Needle Stop Screw	.05

Part No.	Name	Price
15-35	Choker Swivel Screw	.05
15-42	Throttle Adjusting Screw	.05
15-60	Spacer Block Screw	.05
15-62	Carbureter Flange Cap Screw	\$.05
16-4	Metering Pin Plug Gasket	.05
16-5	Bowl Cover Gasket	.05
16-14	Bowl Drain Plug and Float Valve Seat Gasket	.05
16-40	Carbureter Flange Gasket	.05
16-41	Body to Bowl Gasket	.05
16-58	Strainer Gasket	.05
17-501	Connecting Rod and Stud Assy.	.40
23-15	Air Adjusting Screw	.60
21-28	Flusher Spring	.15
24-49	Cam Friction Spring	.10
24-51	Ratchet Spring	.15
24-74	Cam Roller Link Friction Spring	.15
24-92	Choker Spring	.15
24-115	Air Valve Spring	.30

25-559	Choker Lever and Shaft Assy.	.75
27-1	Choker Fly	.25
28-17	Choker Swivel	.25
30,504	Float and Lever Assy.	.75
33-501	Float Lever Shaft Assy.	.20
35-501	Float Valve Assy.	.15
36-25	Float Valve Seat	.25
37-1	Lead Stop	.05
43-511	Gasoline Adjusting Needle Assy.	.50
44-3	Metering Pin Packing	.10
4-5	Gasoline Adjusting Needle Packing.	.10
45-3	Gasoline Adjusting Needle Packing Nut	.15
49-270-D-28	High Speed Jet	.30
51-515	Air Fly and Dash Pot Plunger Assembly	1.50
52-12	Air Fly Shaft	.20
55-4	Metering Pin Packing Retainer	.15
56-508	Bowl Cover Assembly	.75
58-501	Flusher Plunger and Cap Assembly	.15
62-4	Air Spring Plunger Pin	.05
62-8	Cam Lever Pin	.10
62-10	Metering Pin Link Pin	.05
65-538	Bowl Assy.	10.00
78-2	Flange Cap Screw Lock Washer	.05
78-5	Ratchet Spring, Bowl to Body Metering Pin Packing Retainer, Gas Needle Stop Lock Washer	.05
80-3	Bowl Drain Plug	.15
80-9	Metering Pin Plug	.20
80-501	Strainer Plug and Gauge Assy.	.30
81-29	Gas Adjusting Needle Stop Nut	.05
82-1	Air Fly Shaft Cotter Pin	.05
82-14	Flusher Plunger, Conn. Rod, Metering Pin Link Stud, Cam Roller Link Friction Spring Cotter Pin	.05
83-7	Cam Friction Stud	.10
83-506	Cam Roller Stud and Link Assy.	.25
84-43	Metering Pin Jet	.25
95-10	Strainer Gauze	.10
111-4-A	Spacer Block	.30
119-520	Dash Pot Plunger Assy,	.85
146-531	Riser Assembly Complete	10.00
146-532	Riser, Lining, Bushing and Damper Assy.	5.00
156-24	Damper Control Cam	.50

160-6	Cam Lever	.40
160-509	Cam Lever, Link and Roller Assy.	1.25
170-1	Gas Adjusting Needle Stop	.10
173-519	Metering Pin Assembly	.40
174-1	Cam Friction Plate	.20



FRONT END DAMPER BODY ASSEMBLY

Part No.	Name	Price
24-91	Damper Spring	\$.10
19-40	Damper Valve	1.25
60-28	Asbestos Bushing	.10
78-17	Thrust Washer	.05
78-50	Damper Shaft Washer	.05
78-501	Dampoi-Slitiift \\\ ashei	.20
82-12	Damper Shaft cotter	.05
115-1	Damper Valve Rivet	.05
122-524	Damper Lever Shaft and Thrust Cone Washer Assy.	1.00
128-516	Damper Body and Bushing Assy.	1.50
128-517	Damper Body Complete	4.00

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FLINT, MICH., U. S. A.

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