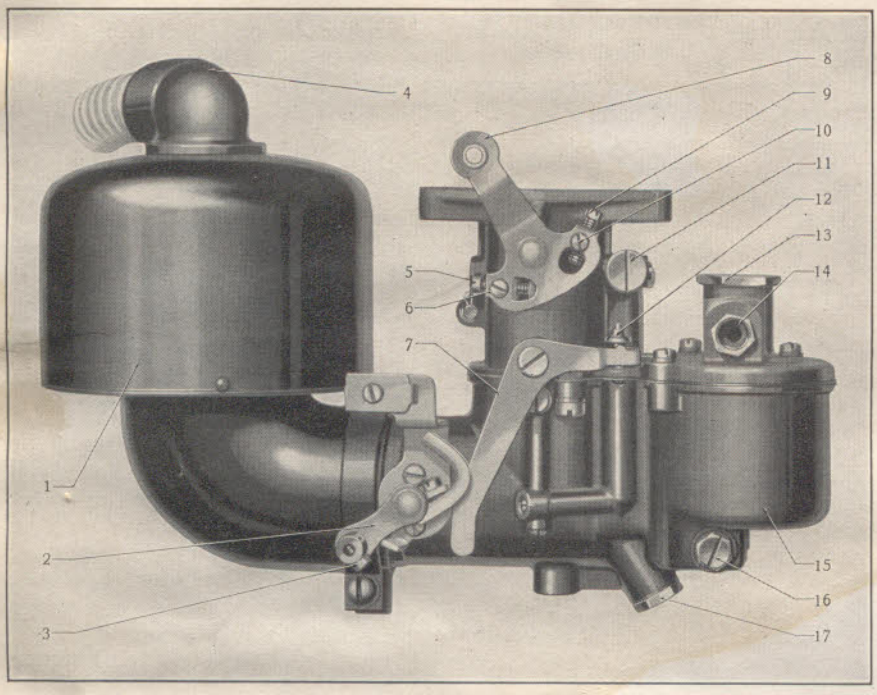

Fig. 8—Carburetor and Air Cleaner

1—Air cleaner
2—Choke lever
3—Choke wire clamp screw
4—Crankcase ventilator connection
5—Closed throttle adjusting screw
6—Throttle adjusting screw lock screw
7—Auxiliary control lever
8—Throttle lever
9—Open throttle adjusting screw
10—Throttle adjusting screw lock screw
11—Idle and low speed adjusting screw
12—Auxiliary control needle
13—Fuel strainer cap
14—Fuel inlet connection
15—Float chamber (carburetor body)
16—Main metering orifice (float chamber drain plug)
17—High speed fuel jet

of water. Such a solution should be tested about once a week to make certain that it will not freeze in the prevailing temperatures.

Under no circumstances should a calcium chloride solution be used. It has a chemical action on different metal parts of the entire system and in a short time will cause damage.

The following formula is dependable for a good non-freezing solution at all temperatures indicated. Capacity of the cooling system is 16 quarts.

Freezing Point Fahrenheit	Percentage Alcohol	Amount of Alcohol U. S. Measure	Amount of Water U. S. Measure	Specific Gravity
20°	10%	2 qts.	14 qts.	.981
10°	25%	4 qts.	12 qts.	.971
0°	35%	5½ qts.	10½ qts.	.959
−10°	40%	6½ qts.	9½ qts.	.950
−20°	45%	7½ qts.	8½ qts.	.943
−30°	50%	8 qts.	8 qts.	.933

Fuel System

Supply Tank

The fuel supply tank has a capacity of 12 gallons, U. S. measure, and is suspended from the rear of the frame. Fuel is drawn from this tank by suction to the vacuum tank on the dash under the hood, whence it flows by gravity to the carburetor. The plug in the bottom of the fuel tank should be removed when necessary to allow dirt and sediment to drain out of the tank. The air hole in the fuel tank filler cap should be kept open.

Fuel Gauge

The fuel gauge is operated electrically. It is important that all connections to this gauge be secure at all times. These connections are shown on the car wiring diagram.

On account of being connected to the battery through the ignition switch, the gauge will register only when the ignition switch is turned on. This will prevent operation of the gauge and the resultant discharge of the battery when the car is stored.

The gauge requires no attention other than to see that the connections are tight at the tank unit and indicating unit on the instrument panel.

Vacuum Tank

The driver will seldom experience difficulty with the vacuum tank as long as the suction and fuel lines are kept tight and clean.

Should the vacuum tank refuse to function it is very likely due to some foreign substance lodged in the passage of the float trip valve. In this instance the float chamber must be cleaned out thoroughly.

Care must be taken to not tighten the clamping bolts, which hold the bracket bands to the tank, so tightly as to distort the outer shell of the tank.

A special fuel filter has been placed underneath the vacuum tank: this requires cleaning occasionally.

Carburetor

The idle mixture and closed throttle running are controlled by the idle adjustment screw ("11", Fig. 8). This operates on the air so that turning it clockwise gives a richer mixture and anti-clockwise a leaner mixture. If after adjusting the idle adjustment screw "11" as above described the engine idles too fast, the throttle stop screw "5" should be turned to the left or anti-clockwise.

The high-speed or main driving jet is of predetermined size and is non-adjustable. The mixture in the operating range is determined by the metering orifice ("16", Fig. 8).

CAUTION: With choke on the instrument panel pushed "in", the choke butterfly valve should be inspected to see that it is wide open. It should also be inspected to see that it closes tightly when the choke button is pulled "out" for starting purposes, because, if the choke is open but slightly, starting may be difficult. The choke operating wire is held in place by the screw "3".

A lever mounted on the throttle shaft operates an economizer needle valve which automatically furnishes the most economical operating mixture under average driving conditions. The adjustment should not be disturbed. An acceleration pump is provided to furnish the proper mixture of fuel for acceleration purposes. It is automatic in operation and requires no adjustment.

The fuel level as set should not be altered.

To clean the carburetor, the main metering orifice ("16", Fig. 8) should be removed.

Air Cleaner

The air drawn into the carburetor contains a certain amount of dust which is an abrasive, and if allowed to enter the cylinders will cause more rapid wear of the pistons, rings, cylinders and bearing surfaces. The dust sticks to the oil in the cylinders and gradually works into the oil pan and is circulated through the engine. The air cleaner ("1", Fig. 8) removes dust from the air before it enters the carburetor by centrifugal force of the air currents within the air cleaner and throws the dust from the air cleaner chamber. The draft from the radiator cooling fan drives the dust past the engine. The air cleaner requires no attention.

Crankcase Ventilation

Due to natural operating conditions of a gasoline engine, gasoline and water vapors form in the crankcase, which, under certain conditions, may cause an etching of the brightly finished steel bearing surfaces in the engine and dilution of the crankcase oil. These gases are expelled (before condensing) from the crankcase through the ventilator pipe connected to the intake of the air cleaner from the rear valve spring cover.

The fresh air vent in the front end of the crankcase is through the oil filler pipe on the left side of the crankcase. This causes a complete ventilation or exhausting of crankcase gases.

The air cleaning shutter should be closed during warm weather and open in weather colder than 50 degrees Fahrenheit. The shutter is closed when the lug is at the extreme rear end of the slot in rear valve spring cover.

Manifold Heat Control

Manifold heat control provides a quick means of heating the inlet manifold, thereby reducing the length of time that the choke must be used after starting a cold engine. It also makes the engine more flexible during the warming-up period, as well as reducing fuel consumption, carbon accumulation, and crankcase dilution.

The valve for this heater is operated by a knob at the right side of the instrument panel. Pulling this knob out closes the main exhaust passage and opens a manifold by-pass, thereby causing all of the exhaust gas to circulate through the inlet manifold heat jacket before going to the muffler. Pushing the knob "in" closes the by-pass and opens the exhaust passage direct to the muffler, under which condition the inlet manifold is heated by the exhaust gas principally from the two center cylinders.

When starting and warming up a cold or cool engine, the manifold heat control knob should be pulled "out" to its stop. After the engine

is sufficiently warm to provide standard performance with the carburetor choke button pushed "in", the heat control knob should be pushed "in" to its stop.

Primarily, the manifold heat control is designed for cold weather usage. In freezing weather, full heat can be used to good advantage for city driving below 30 miles per hour. For cross-country driving at speeds of 35 miles per hour or higher, even in freezing weather, the manifold heat control knob should be pushed in all the way; manifold heat "on" under these conditions would cause a loss of power and efficiency.

IMPORTANT—THE ENGINE SHOULD NOT BE RACED NOR WORKED HARD UNTIL IT IS WARMED UP AND RUNNING SMOOTHLY AND WITH THE CARBURETOR CHOKE BUTTON PUSHED "IN".