6. ACCELERATING PUMP SYSTEM

The air flowing through the carburetor responds almost immediately to any increase in throttle opening. There is, however, a brief interval before the relatively heavier fuel-air mixture in the narrow carburetor passages can gain speed and maintain the desired balance of fuel and air. The accelerating pump system operates during this interval, supplying fuel until the other systems can provide the proper mixture.

When the throttle is closed, the pump return spring forces the pump diaphragm toward the back of the pump chamber, drawing fuel into the chamber through the pump inlet. The pump inlet contains a ball check valve which opens to admit fuel from the float chamber into the pump chamber, and closes when the pump is operated to prevent a reverse flow of fuel.

When the throttle is opened, the movement is transmitted by the pump link to the pump operating lever. That lever presses the pump rod sleeve inward, compressing the pump spring. The pump spring, in turn, presses on the diaphragm, forcing the fuel from the pump chamber into the pump discharge passage. The "overriding" feature provided by the pump spring assures an even, prolonged discharge of fuel regardless of how suddenly the throttle is opened and cushions the action of the pump to prevent damage to the pump linkage due to those sudden throttle movements.

The fuel, under pressure from the diaphragm, flows through the pump discharge passage and, forcing the pump discharge ball check valve and weight up, passes into the pump discharge nozzle screw. The pump discharge ball check valve seals the passage when the pump is not discharging fuel. The hexagonal weight holds the ball check valve on its seat to prevent a loss of fuel from the pump chamber due to the siphoning effect of the airstream at high engine speeds.

Flowing up the hollow pump discharge nozzle screw, the fuel passes out holes in the head of the screw into the pump discharge nozzle and is sprayed into the airstream in the venturi. A slot cut into the pump discharge nozzle vents the system to prevent the pump discharge ball check valve and weight from being lifted and fuel drawn from the pump chamber by the siphoning tendencies of the airstream at high engine speeds.