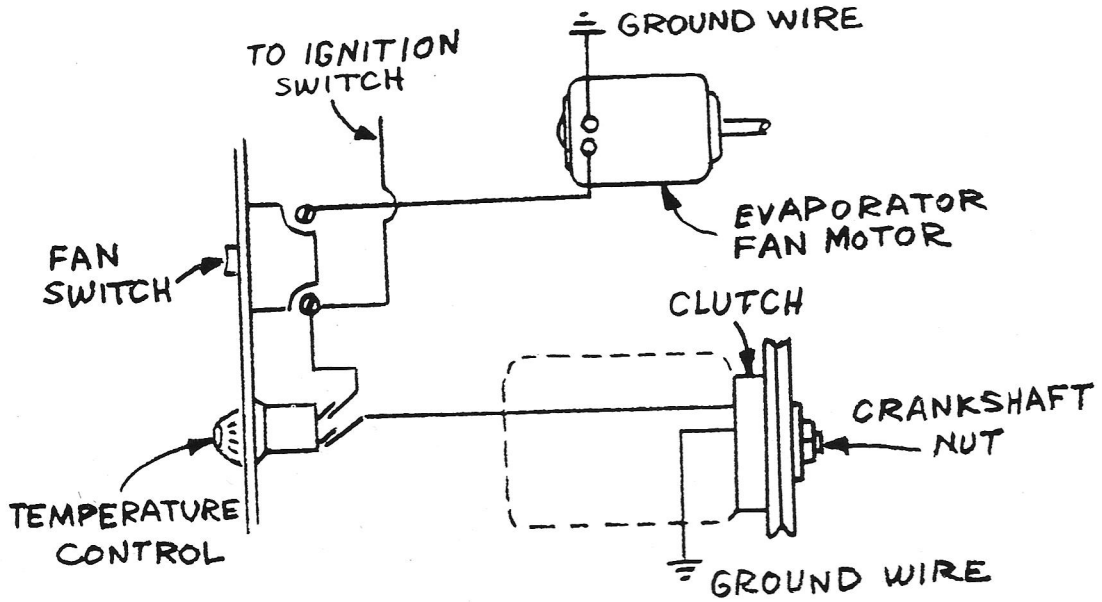
to it. Usually all evaporators are factory air and built into the dash. Sometime the evaporator is accessible from under the hood and air is directed from inside across the coil and back to the inside of the car. Nothing seems out of place, so now you are ready to check the fan on the evaporator. Without running the auto engine, you should be able to turn on the switch and operate the evaporator blower fan. If this fan is blowing properly and you are satisfied that nothing seems to be out of order, you are ready to proceed with the check on the customer's statement that the unit is not cooling. So far, you have done nothing but look and feel around as if you were looking for something suspicious. This first examination should only take ten minutes of your time. In making this examination you may find broken lines or any of a half dozen troubles that are visible to the eye of a man who has some understanding of the principle of mechanics.

For instance, if you find the belt that is driving the condensing pump is broken or so loose that it cannot turn the clutch pulley on the pump, there is no reason for proceeding further until this is remedied. But suppose you find everything in good order. Then you can make a final check to determine whether there is gas in the system, whether the valves in the compressor are good, or whether the strainer is stopped up where the liquid refrigerant feeds into the expansion valve. None of these troubles may be present. You are just assuming these troubles may be the cause for no cooling. These last troubles are internal. You cannot see them with the naked eye. Now, have the owner or your assistant get into the auto and start the engine. If no one is there to help you, you start the engine and place a weight on the gas pedal. Try to have the engine turned up at a fast idle. In other words, you are going to make the engine run at a nice easy speed equal to about thirty miles an hour if the auto were moving. This will be just a little faster than a fast idle. With the motor running, you are ready to switch on the air conditioning switch. This switch will turn on the fan which blows through the evaporator and at the same time engage the magnetic clutch that starts the compressor pump to turning.

See the schematic for an auto air condition electrical system in **Figure 10-9**.

Right up to this point, you have not touched a thing. So far, you have just looked and examined the system. Now, with the motor running you will take a look at the nut on the end of the clutch housing and see if it is turning the pump crankshaft at this point. You might switch the unit off and on or have it switched off while you watch the nut to see if the clutch is taking hold or not. Suppose it is doing its job, and the compressor is turning and should be pumping. Now, you will feel of the high side line coming off the pump leading to the condenser. You will note whether there is any heat whatsoever in this line which would indicate that there was a little gas in the system, but not enough to refrigerate the evaporator. You may also feel of the expansion



(Fig. 10-9)