

# HOW TO:

## Route '67-'68 Mustang Vacuum Lines

Finally, a vacuum schematic for 1967-68 Mustangs with factory air conditioning.

article by the Mustang Monthly Staff

After going to great lengths and expense to get integral, in-dash factory air conditioning in your 1967-68 Mustang, isn't it discouraging to discover that there's no vacuum schematic (or diagram) in your shop manual to help you make the set-up work right? Or perhaps your Mustang had factory air conditioning all along, but after 16 years of use the vacuum lines fell victim to dry-rot or a

"Lemme try boss!" mechanic. Whatever the situation, flipping the selector to MAX gets only a lukewarm blast from the defroster outlets. So you fake it by switching a couple of vacuum lines, and then you get an Arctic blast from the heater outlet below.

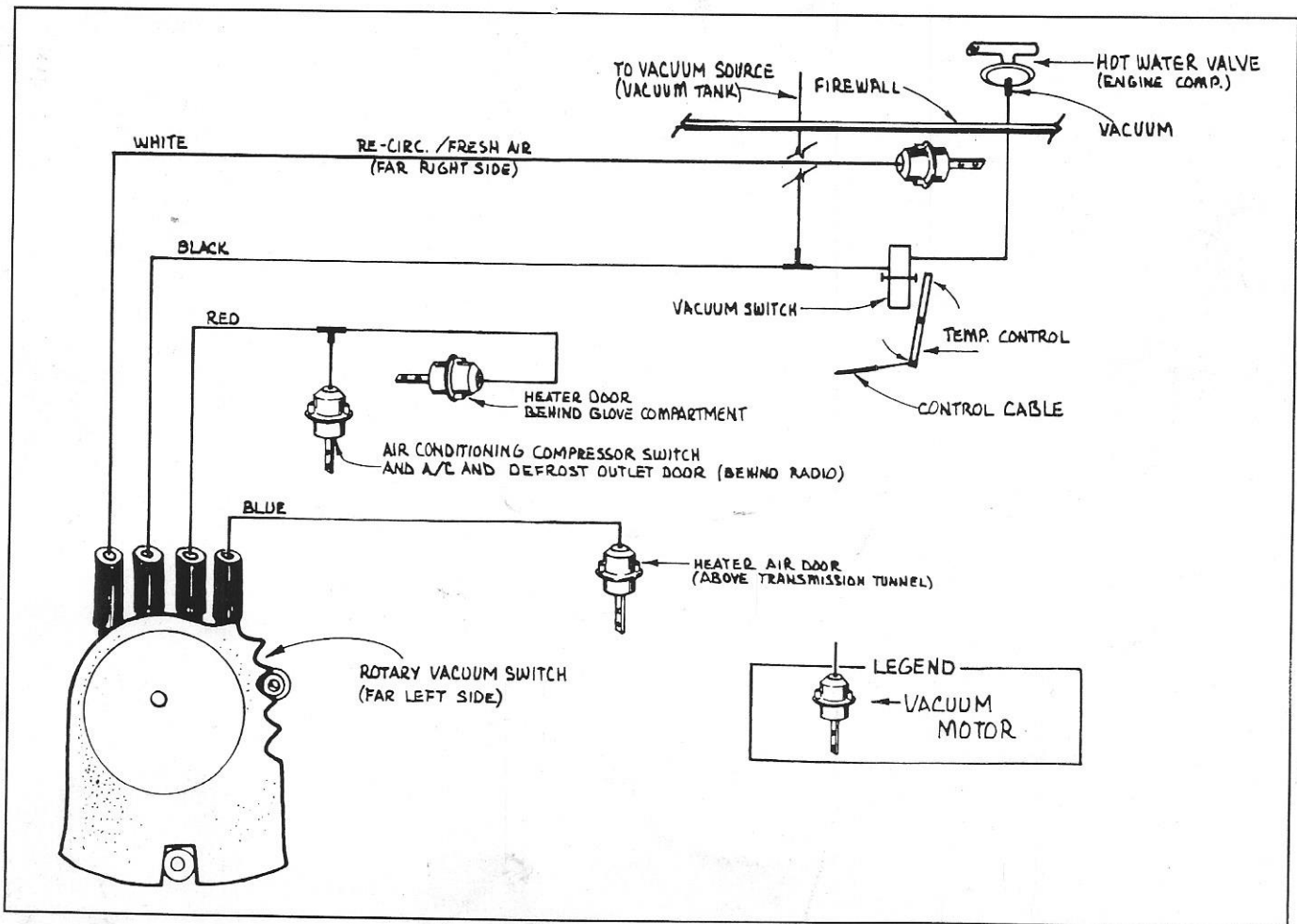
Owners of '67-'68 Mustangs tend to feel left out. After all, 1969-'73 shop manuals cover vacuum line connections, so those owners get to cruise in cool comfort. Where does this leave the second-generation Mustang owner? Well, we've got the answer to one of your most asked questions, "Where's the diagram?"

Integral factory air conditioning for '67-'68 Mustangs is nothing more than a space-saving idea that incorporates a combined heating and air conditioning unit. The '67 Fords were among the first to come with this option that all but eliminated the hang-on air conditioners of 1965-'66. With the use of engine intake manifold vacuum, various air doors within the compact unit are actuated by small diaphragm vacuum motors. These vacuum motors receive their vacuum through

a selector switch that meters the negative pressure from a coffee-can-sized container mounted on the passenger side inner fender apron, just below the hood hinge. The purpose of this container is to store a sufficient vacuum source during low manifold vacuum conditions (wide open throttle or heavy load). You could easily run the vacuum line straight to the intake manifold, but the vacuum source wouldn't be constant, and there would be air door movement every time you got a lead foot. The vacuum tank helps maintain a more constant vacuum source, keeping those air doors and other vacuum actuated devices in their assigned positions.

### AIR CONDITIONING

Moving the selector to MAX during hot weather actuates a trio of air doors (by the use of vacuum motors) into positions that direct cool air from the blower and evaporator to dashboard outlets. One of these vacuum motors (located behind the radio, accessible by removing the instrument panel) not only



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operates the air conditioning/defrost air door, but it also closes the air conditioning compressor switch, which engages the compressor clutch.

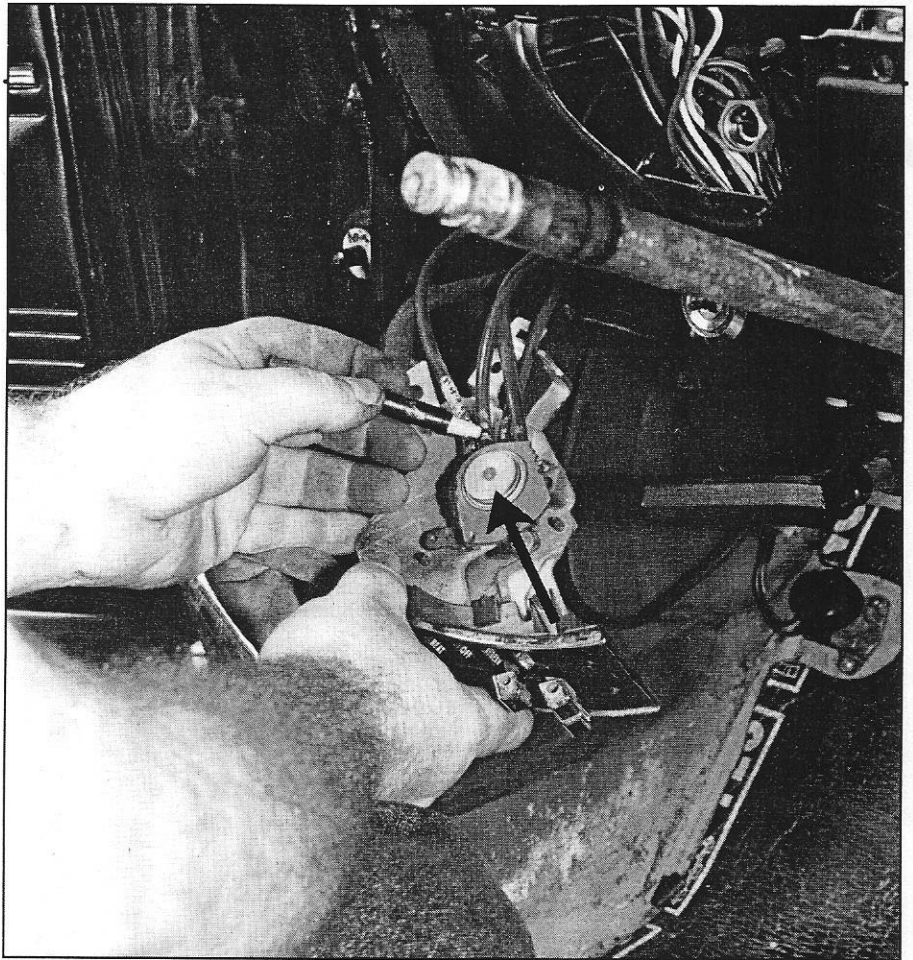
While in the MAX position, the cool air recirculates throughout the interior. Warm air passes through the evaporator where heat is drawn out by the refrigerant and is expelled by the condenser in front of the radiator. The cool air passes through the dashboard outlets, then returns through an inlet door on the far right side of the A/C unit where it passes through the blower and evaporator, and the process is repeated again.

Moving the selector to FRESH causes much the same reaction as the MAX mode, however, the inlet air door closes to return air and opens to fresh outside air from the cowl vent. The fresh air is cooled as it passes through the blower and evaporator. To maintain a fairly constant temperature, a thermostatic control switch senses evaporator air temperature and engages (or disengages) the air conditioning compressor clutch as required. As the temperature warms, the compressor engages, and when the temperature cools to a pre-set level, it disengages.

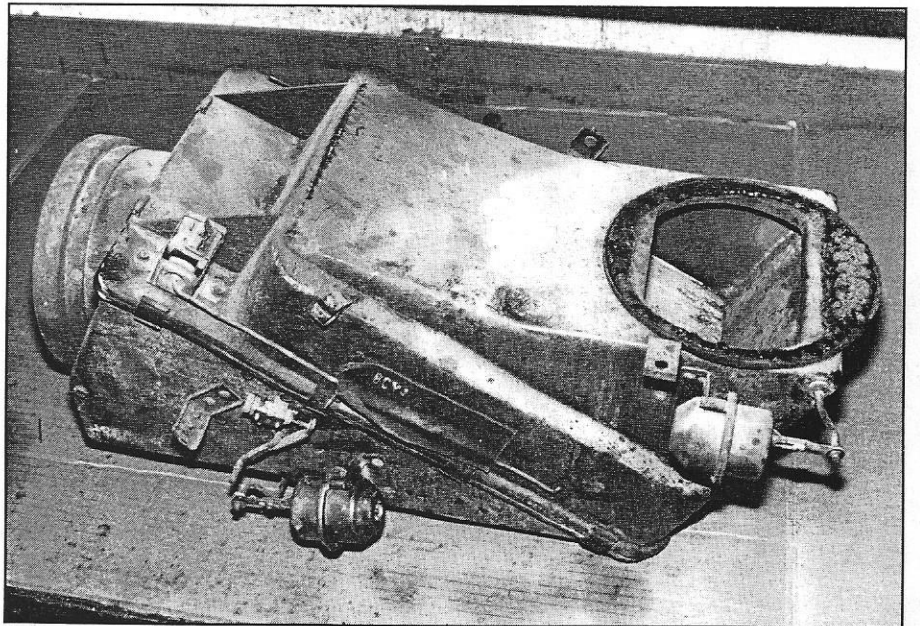
## HEATING

The heating part of the '67-'68 integral air conditioning is both mechanical and vacuum actuated. By slipping the TEMP control downward, a vacuum switch opens to direct vacuum to the hot water control valve (mounted on the firewall), opening the valve and allowing hot coolant to flow into the heater core within the unit. As the TEMP control is moved downward, the heater core air door opens further, allowing more heat to escape to the blower. If less heat is desired, moving the TEMP control upward (but not to the stop) closes the door, restricting the amount of heat that meets the blower. Moving the selector to HEAT actuates two air doors. With a warm engine, and TEMP control in the down position, the result is a warm blast of air from the heater outlet, located just above the transmission tunnel. The HEAT mode accepts fresh air from the cowl vent, and the fresh/recirculation air door on the far right side closes to return air.

With the selector in the DEF position, the air conditioning/defrost air door shuts off the air conditioning outlets and opens to the defroster outlets. With the air conditioning/defrost air door in this position, the compressor will be inoperative. Mustangs with integral factory air conditioning after 1968 had a DEF-OG or DEMIST mode in addition to defrost



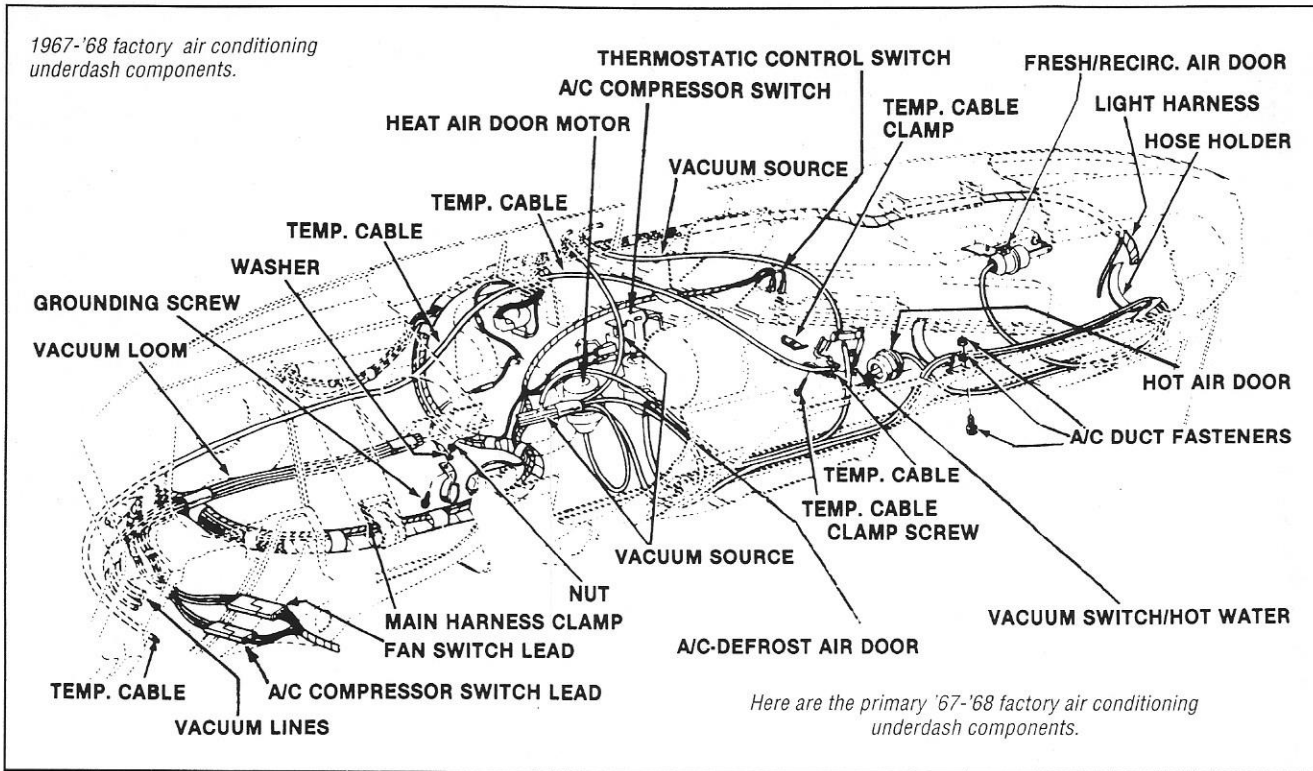
The brains of your integral factory air conditioning lie in the rotary selector switch (arrow). This assembly includes the rotary selector and fan switch, as well as the temperature control cable slider and air conditioner outlet.



After removal of the instrument panel, disconnecting and moving the defroster duct out of the way will provide access to the air conditioning compressor switch and vacuum motor (shown here out of the vehicle for clarity). This vacuum motor operates the air conditioning/defrost air door as well. The air door should be up for air conditioning and down for defrosting.

# HOW TO: ROUTE '67-'68 MUSTANG VACUUM LINES

1967-'68 factory air conditioning underdash components.

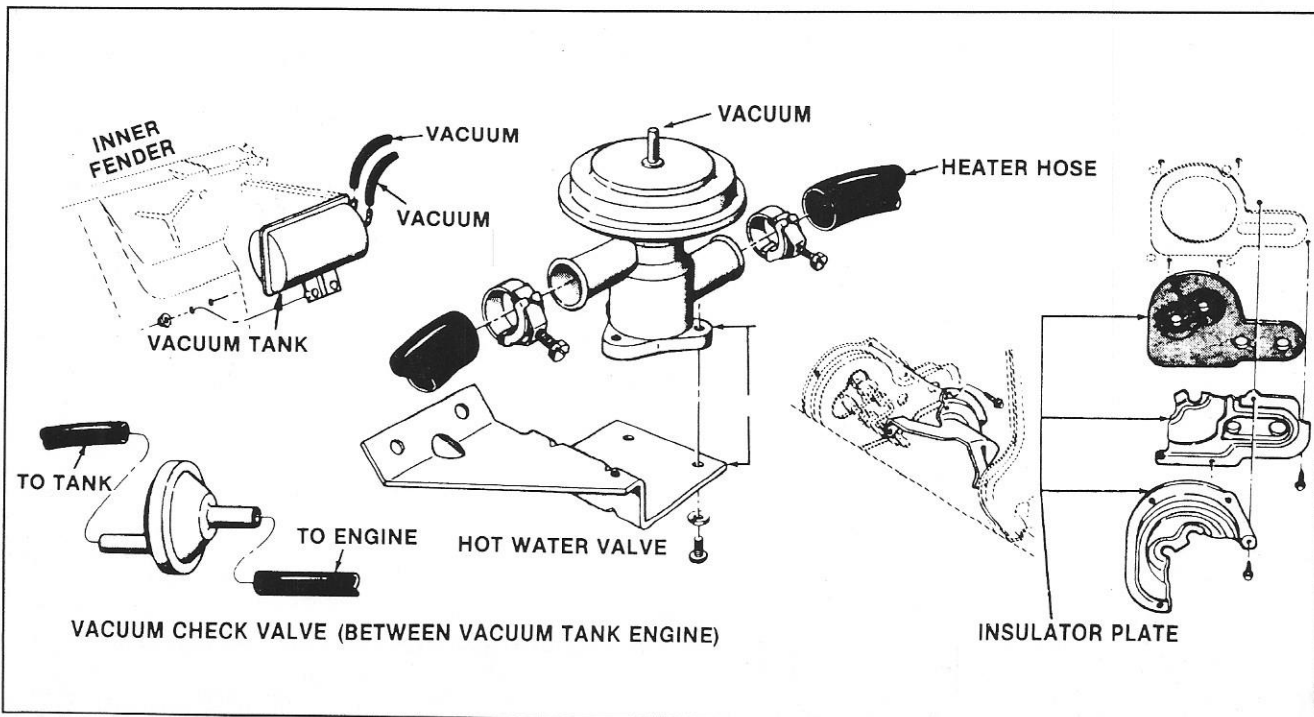


that engaged the compressor, pulling moisture out of the air to defog the windshield.

So you can see how misrouted vacuum lines can cause a bundle of air conditioning and heater problems in '67-'68

Mustangs. And because Ford failed to include a vacuum schematic in the '67-'68 shop manuals, or anywhere else for that matter, owners of '67-'68 Mustangs with factory air conditioning have been left in

the dark for many years. Trial and error was the best method. Now your repairs can take a more scientific approach.



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