

**Newsletter of Air 'Vair, the CORSA Chapter for Air Conditioned Corvairs
Fall 2008**

The Late-Model Blower-Selector Switch

While doing other work under the dash, I noticed my blower-selector switch burnt and the connector to it melted. The A/C still worked, no fuses had blown, and I hadn't smelled nor seen any smoke. But my heater blower didn't work.

My best guess as to what went wrong is something stupid I did while trying to diagnose what turned out to be a corroded battery terminal. I switched out my 1119519 voltage regulator for air conditioning that I put in years ago with my A/C system for the 1119515 *not* for air conditioning that had preceded it. One thing I didn't know about the difference between the two: the one ending in 9 (for A/C) is intended to handle the higher capacity (47Amp) of the alternator for air conditioning, and the other one (ending in 5) *can't handle* that higher output. And I *had* thoughtfully installed an uprated alternator with my A/C. My blower-selector switch was just one of many victims of the electrical havoc that ensued during the three months I used the wrong voltage regulator, which did nothing for my original problem. I was stupidly supposing that if the voltage regulator were wrong, maybe my battery would slowly lose its charge or something. Yes, there will be a future **COOL AIR** about alternators and voltage regulators, too.

My post-mortem on the switch revealed a very solid, but crude, design. While the moving and fixed copper contacts are solid enough, the movement is imparted by a nylon extension of the (nylon) plunger, and this is what melted (another nonmetallic part burned away partially).

The original switch (GM Part No. 3870248) has no part or other number on it, not even ratings. The name of its manufacturer, INDAK, appears, but INDAK quit making this switch decades ago. It switches loads of up to 9.4 Amps at 12 Volts DC (DC is much more demanding on switches than AC), and uses a long pushbutton (Plunger) to Momentarily (only as long as it is pressed) connect a common terminal to either of two other terminals alternately (Single-Pole Double-Throw, or SPDT).

I found that the actuator (lever extension) that depresses the plunger is offset about 0.132 to the left of the plunger's center. You



may find your lever extension bent to the right to compensate for this. If you move the switch to the *inside* of the control, however, the plunger lines up almost perfectly with the actuator, but you will find interference preventing line-up of the forward screw hole. Evidently this was an

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engineering goof that they overcame by simply attaching the switch on the outside. To attach the switch to the inside, just cut the forward corner from the mounting flange of the switch.

Unobtainium

This part seems no longer to be had, even as a used item. If you shop for whole A/C-heater-control modules (GM No. 3885135, but it isn't in any catalogs), you *might* get one that has an intact switch on it. My search for the part on the Internet, including Clark's Corvair Parts, yielded nothing whatsoever. If it had, I might not have written this article. Ultimately I found an NOS switch at Obsolete Chevrolet Parts (www.obschevy.com) of Nashville, Ga., which they quoted at \$45 in May. Their stock is *one*, so it might already be gone (I didn't buy it), or cost more. If I had found it earlier, I might not have written this article. If you put as much effort into replacing the switch by other means as I have, you would find that price a bargain.

Why is this switch exclusive to the Corvair (1965 to 1969, at that)? It's because of the Corvair's rear-engine architecture and the use of cooling air coming off the engine for heating, which led to placement of the heater blower behind the passenger compartment. Engineers adding A/C to the Corvair found it impractical to do what is commonly done in cars with the engine (and heater blower) in the front—that is, use the same blower and ducts for both heat and A/C. So they placed the ducting in the usual place beneath the dashboard, and a separate blower for A/C just ahead of it in the luggage compartment. Both blowers share the FAN speed selector and associated resistor pack. But the switch determines which blower gets the juice according to the position of the COOL control.

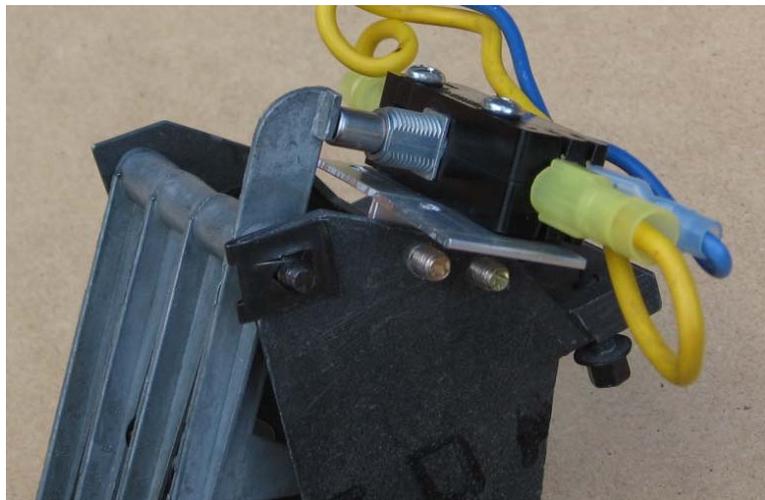
Substituting a Switch

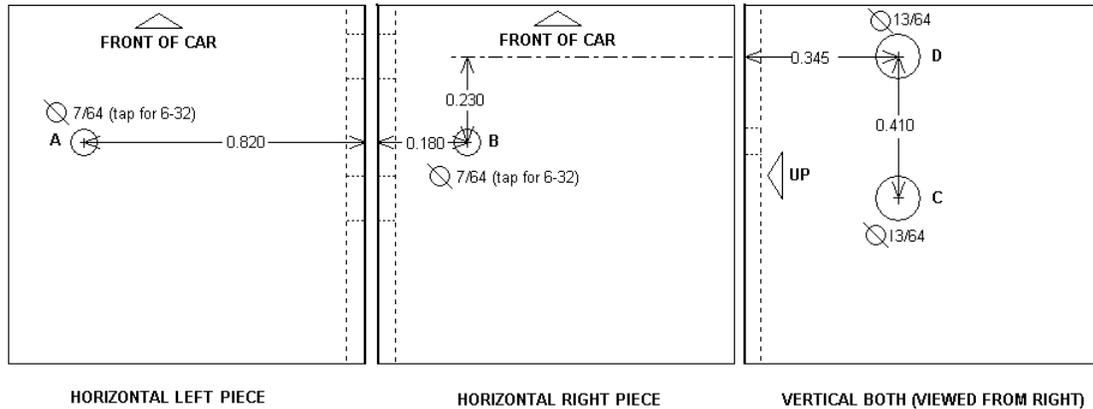
After hours of searching, I found a Cherry E13-00M general-purpose pushbutton momentary SPDT switch rated 2Amp at 48VoltDC that can fit where it needs to. This switch's capacity at 12VDC must be borderline (it was the highest-rated I could find that would satisfy the other requirements), so I tested one in my car for a month or so. It seemed to function just fine, but the original lasted 40 years, more or less. But fabricating a means of mounting it on the control module occupied me for many hours. You can have a bracket like mine in a fraction of the time if you follow these directions. Of course, you must use the same switch, which cost me \$2.51 at an electronics supply house (www.mcmelectronics.com).

The Bracket

When its plunger is lined up with the actuator, the replacement switch's mounting holes fall on both sides of the control's mounting plane. This requires a tee. I found it easiest to make this with two pieces of 1-inch-by-1-inch angle screwed to the inside of the original mounting plane.

I found 1/16-inch aluminum of ample strength for the application and, of course, vastly easier to work than





Holes in (Two) 1 x 1 x 1 Angle (1/16th Thick) for Cherry SPDT Switch
 (Heavy lines are outside corners)

steel, which you can use if you prefer. The original switch housing itself is in fact steel.

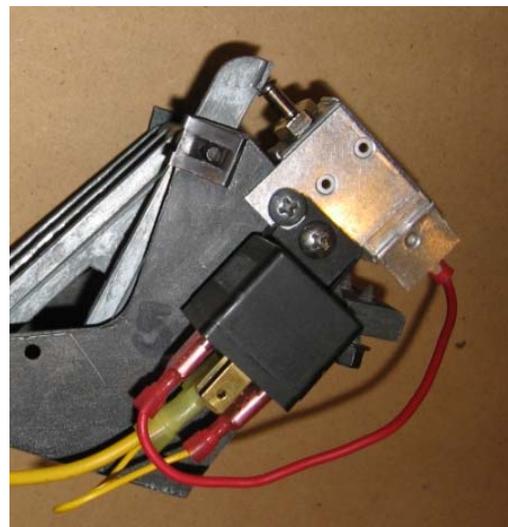
Substituting a Relay

A different approach eliminates all question of the adequacy of the switch for the current required, uses more-commonly-available parts, and doesn't require fabrication of any metal parts. But it's "messier" in terms of external wiring and complexity and requires keeping and modifying the original steel switch housing, which presumably remains no matter what burning and melting destroyed the original switch. I have road-tested this design extensively also and, just like the alternative substitute-switch approach, it works exactly the way the original did.

The additional parts required aside from wire and a 5/16"-18 nut are two: a generic "black-cube" 30-Amp 12-Volt automotive relay with five terminals (the relays with five terminals have exactly the SPDT circuitry required), and an automotive door-jamb (courtesy light) switch that screws into a 5/16" hole such as that for the 1960-62 Corvair (GM Part No. 6276718). The switch for the later years has a 3/8" thread, which is too big for the (original) housing it must pass through.

Bend up the metal tabs on the original switch to release the nonmetallic panel of the switch that contains the three terminals, and remove all the contents of the housing, including the plunger, the moving contact, and both springs. Now, either cut off or bend back the end of the housing opposite the plunger end. This is to make room for the new (door) switch, which is very long. I bent mine, as can be seen in the picture. Use the nut (a square nut fits perfectly) to locate the switch as far back inside the housing as possible.

When the housing is attached and the control module installed, the closed door switch will ground the relay, connecting the NO (Normally Open) terminal of the relay when the FAN switch is in any position other than OFF. Opening the switch (depressing its plunger by pulling the COOL lever all the way up) releases the relay, connecting the NC (Normally Closed) terminal. I attached the relay to the module with one of the two screws that hold the switch housing onto the control. Use only 12-gauge stranded wire for all connections from the relay to the car's harness, in which you will note wires of that gauge.



COOL AIR

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