A9L Electric Fan How to

Acknowledgements

Special thanks to Mike Glover, Ben Frazier, Brian Renegar, Paul Booth, and Thomas Tornblom for all of their help, I could not have made this work without their help. If you find this "How to" useful, please let me know. Rick_Merino@yahoo.com

Background information on testing Pin 41

Looking through the archives, I have seen multiple folks state that their A9L fan control would not work. Initially, I suspected that my A9L would not work, due to my inaccurate testing methodology of pin 41. If the appropriate method is used for testing the pin 41 ground, I believe that all A9Ls should work. **PLEASE READ THE ENTIRE DOCUMENT BEFORE GETTING STARTED. THERE ARE NO GUARANTEES, SO PROCEED AT YOUR OWN RISK.**

Parts required

Here is a list of the parts that I used for controlling the electric fan.

1. Electric Fan (I used a Derale –AutoZone special ☺)
2. Relay (I used a 30A from AutoZone)
3. Wire (I used 16 gauge for the relay activation and 12 gauge for the Fan PWR)
4. Connector for pin 41 of the EEC-IV connector (From another harness)
5. Fuses (I used a 20A fuse on the + lead from the relay to the fan).
6. 2Kohm ½ Watt resistor (for testing).
7. Multimeter – Volt meter (for testing)

Scalar settings in CaleditTM, ShiftmasterTM 2.08, and their HEX address locations

Since I am using a ChipmasterTM prom setup, I use the CaleditTM software for altering the EEC-IV PROM. I will also list the ShiftmasterTM equivalents, but I have not tested these. Here are the scalars and their addresses. Below is a list of what my settings are. My fan comes on at 190F(A of gauge) and turns off at 184F (top of L of gauge); I have a 180F Thermostat and an aluminum radiator.

Note: Temperature binary values are multiplied by 2 to get real value. Without the 7416,7417,and 7418 values set to 0, the fan will come on and stay on. The ShiftmasterTM 2.08 software does not appear to have any scalars for these. I suggest starting with a binary file that has these values set to 0.
http://groups.yahoo.com/group/EECTuner/files/A9L%20Electric%20Fan%20How%20To/a9lfan.bin

CaleditTM

Scalar Name	*Address*	*Hex value*	*Bin value*	*Real Value*
Fan High Speed Temp Disable	741E	5C	92	184F
Fan High Speed Temp Enable	741F	5F	95	190F
Fan Low Speed Temp Enable	7414	41	65	130F
Fan High Enabled	741D	01	01	01(On)
Fan Low Speed Enable	741C	01	01	01(On)
Fan Low Speed Temp Hysterisis	7416	00	00	0F
Fan Low Speed vss	7417	00	00	0
Fan Low Speed vss hysterisis	7418	00	00	0

ShiftmasterTM 2.08

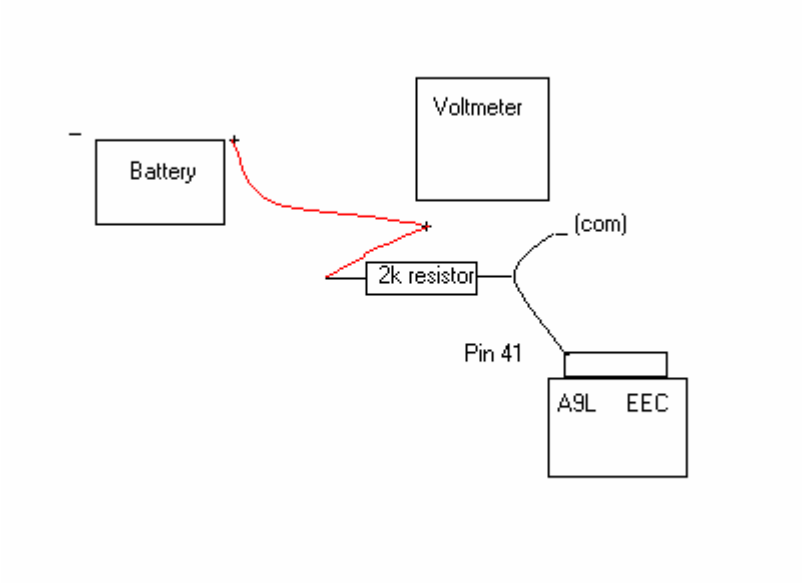
Scalar Name	*Address*	*Hex value*	*Bin value*	*Real Value*
FAN_TEMP	7414	41	65	130F
FAN_ENABLE	741C	01	01	01(On)
HEDFHP	741D	01	01	01(On)
ECT1_HS_FAN_ON	741E	5C	92	184F
ECT2_HS_FAN_ON	741F	5F	95	190F

Testing Pin 41

In order to test whether or not pin 41 goes to ground (once the required temperature has been reached), we need to use a 2k ohm ½ Watt resistor and a voltmeter. **Using a voltmeter by itself will indicate that Pin 41 is grounded 100% of the time.**

1.The + of the voltmeter goes to the + battery.
2.The – or COM of the voltmeter goes to the 2k ohm resistor on one side along with pin 41.
3.The other side of the resistor goes to the + battery.

This will load the circuit in order to keep from getting a false signal to ground.

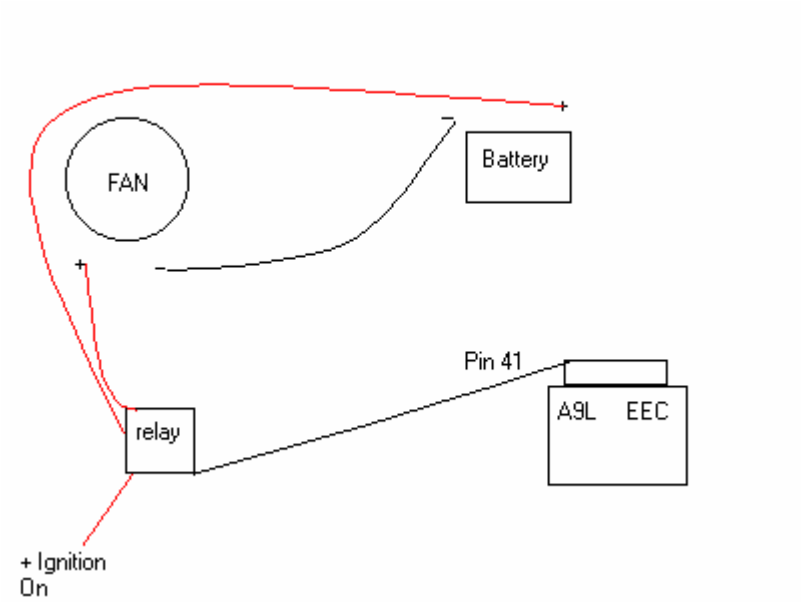


If this test works, then it is worthwhile connecting the electric fan to a fan control relay that is controlled by pin 41. If not, then there are some A9L EECs that do not support this function and you must pursue some other way of controlling your electric fan. Sorry ☹

Wiring the relay and fan

Pin 41 does not provide enough current to run the electric fan. DO NOT CONNECT THE – (negative) OF THE FAN TO PIN 41, YOU WILL SMOKE THE EEC IF YOU DO!!!

Pin 41 can provide enough current to trigger a relay. The activation – or ground of the relay should be connected to pin 41.



Suggestions/Miscellaneous

You may want to play around with the temp enable and disable settings. My fan does cycle, but it takes a while once the motor is nice and hot. Also, the temp at the gauge seems lower. Even though the enable temp is 190F, the gauge reads about 175-180F when the fan activates and about 160F when it cycles off. Remember the temp values in binary are ½ of the real values. Also, you can use the Windows Calc in scientific mode to convert from hex to bin and vise versa.

Good Luck and let me know if you have any questions.

Rick Merino

Addendum

After Experimenting for a while, I finally got the fan to turn on and off where I wanted it. The fan turns on when the gauge reads just above the A of NORMAL and turns off right at the A mark. Below are my new temperature settings.

CaleditTM

Scalar Name	*Address*	*Hex value*	*Bin value*	*Real Value*
Fan High Speed Temp Disable	741E	62	98	196F
Fan High Speed Temp Enable	741F	64	100	200F
Fan Low Speed Temp Enable	7414	41	65	130F
Fan High Enabled	741D	01	01	01(On)
Fan Low Speed Enable	741C	01	01	01(On)
Fan Low Speed Temp Hysterisis	7416	00	00	0F
Fan Low Speed vss	7417	00	00	0
Fan Low Speed vss hysterisis	7418	00	00	0

ShiftmasterTM 2.08

Scalar Name	*Address*	*Hex value*	*Bin value*	*Real Value*
FAN_TEMP	7414	41	65	130F
FAN_ENABLE	741C	01	01	01(On)
HEDFHP	741D	01	01	01(On)
ECT1_HS_FAN_ON	741E	62	98	196F
ECT2_HS_FAN_ON	741F	64	100	200F

AC fan control

I am actually running a separate fan on the condenser which is wired to a separate relay which is activated by tapping into the dryer (black canister on the passenger side firewall) pressure switch +. When the AC is turned on, the + signal from the pressure switch triggers the relay, which in turn turns on the fan.

If you are running only one fan and would like for it to come on when the AC is activated, then you will need to use some diodes. Check out Brian Renegar's site to see how to do it.
http://users.erols.com/brenegar/fan_wiring4.jpg