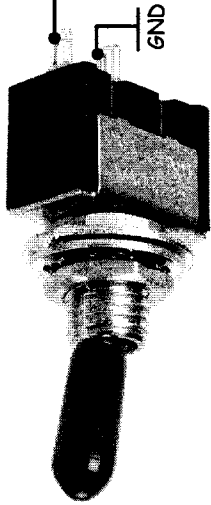
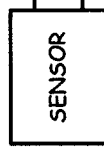


FAIL SAFE ON WHEN SWITCHED TO GROUND,  
PUTS FAN OR FANS INTO HIGH RPM.

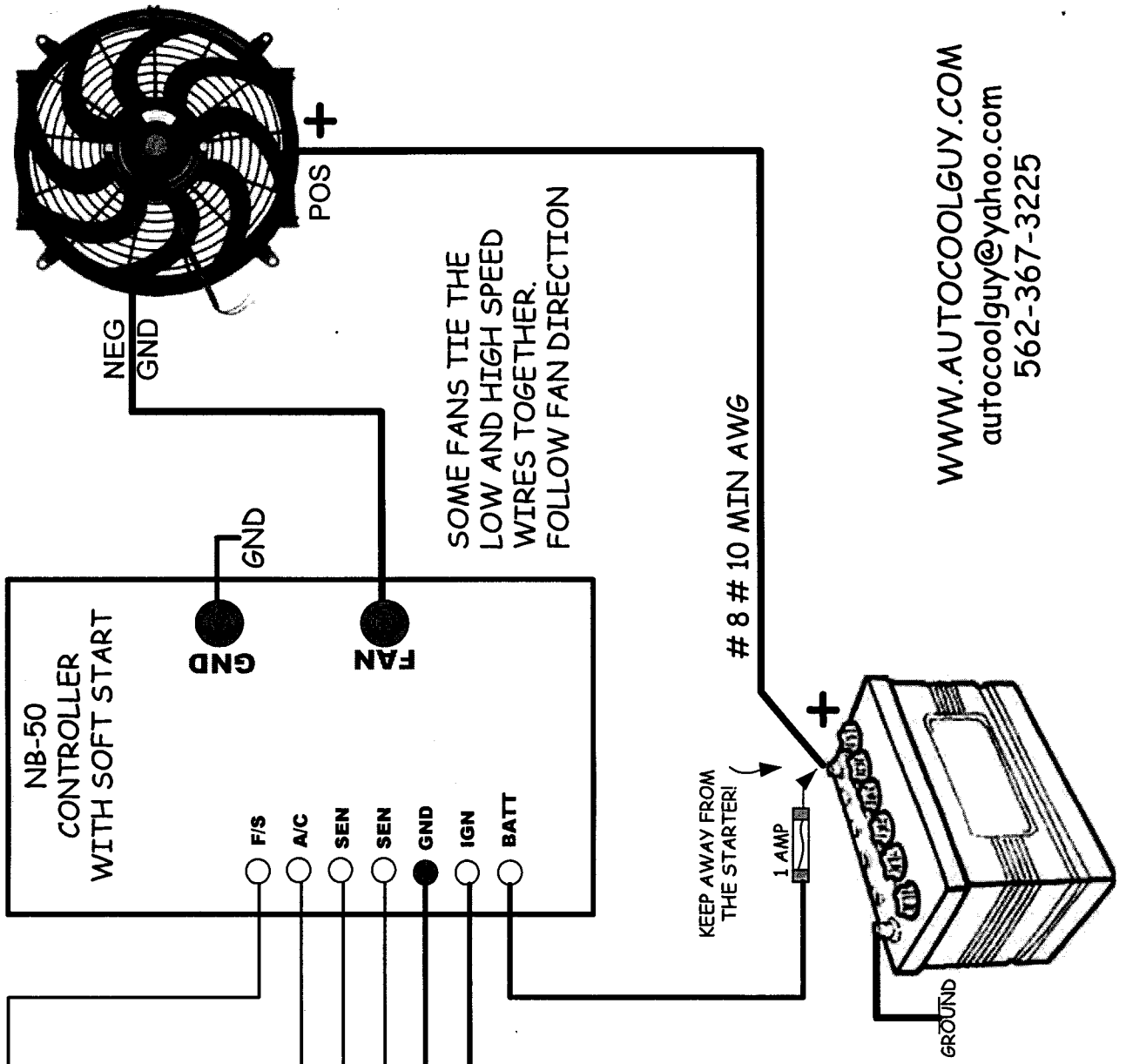
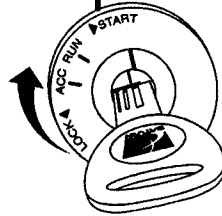


CONNECT TO A/C + 12 VOLTS

SENSOR ON  
RADIATOR  
OUTFLOW  
PORT



IGNITION TURNS THE  
CONTROLLER ON AND OFF.  
COOL DOWN TIMER RUNS  
AFTER IGNITION IS TURNED  
OFF.



NOTE:  
If one side of the sensor is shorted  
to ground, the controller will not  
work at all.

WWW.AUTOCOOLGUY.COM  
autocoolguy@yahoo.com  
562-367-3225

## DETAILS ON HOW TO INSTALL THE NB-50 CONTROLLER

### WIRE DETAILS ON THE SEVEN PIN BLACK CONNECTOR:

**PIN 1.** WIRE THIS PIN TO THE BATTERY PLUS. YOU MAY WANT TO PUT A SMALL FUSE (1 TO 2 AMP) IN LINE FOR PROTECTION. USE AT LEAST 22 TO 20 AWG WIRE FOR THIS ONE. I WOULD USE RED WIRE FOR CLARITY.

**PIN 2.** WIRE THIS PIN TO THE IGNITION SYSTEM SO THAT WHEN YOU START THE ENGINE, THE VOLTAGE WILL GO TO 12 VOLTS. USE 20 TO 22 AWG WIRE.

**PIN 3.** INSTALL THIS PIN TO GROUND WITH A SHORT 20 AWG WIRE.

**PIN 4 & 5.** CONNECT TO THE SENSOR WIRES. IF ONE SIDE OF THE SENSOR IS SHORTED TO GROUND, THE CONTROLLER WILL NOT WORK AT ALL. CALL OR EMAIL FOR A NEW SENSOR.

**PIN 6.** CONNECT THIS PIN TO THE A/C SYSTEM SO IT'S AT 12 VOLTS WITH THE A/C IS ON.

**PIN 7.** CONNECT THIS PIN TO A SMALL SWITCH. WHEN THIS PIN IS GROUNDED THE FAN OR FANS WILL GO TO HIGH RPM. SEE DRAWING ON PAGE ONE.

### INSTALLING THE STANDARD BRASS SENSOR:

PULL THE **OUTFLOW** RUBBER HOSE BACK AN INCH OR TWO TO EXPOSE THE OUTFLOW PORT OF YOUR RADIATOR. THEN, PLACE THE SENSOR ON TOP OF THE OUTFLOW PORT AND THEN SLIDE THE HOSE BACK ON TOP OF THE OUTFLOW PORT AND SENSOR.

BE SURE THAT THE SENSOR BRASS TO THE OUT FLOW PORT IS CLEAN FOR GOOD HEAT TRANSFER TO THE SENSOR. YOU MAY USE SOME RTV TO HELP SEAL ON TOP OF THE SENSOR AND HOSE TO PREVENT LEAKS.

IF YOUR OUTFLOW **PORT IS PLASTIC**, YOU WILL NEED TO ORDER A BRASS PLUG SENSOR OF ONE OF THE COPPER INLINE SENSORS. THIS IS DUE TO LACK OF HEAT TRANSFER.

### HOW TO WIRE UP THE FAN - FANS:

CONNECT THE PLUS (+) OF THE FAN TO THE BATTERY PLUS. THE NB-50 IS FUSED AT 60 AMPS. USE AT LEAST # 12 AWG WIRE FOR THIS LINE. IF THIS LINE GET WARM DURING OPERATION, YOU MAY WANT TO USE A LARGER GAUGE WIRE.

CONNECT THE (-) RETURN SIDE OF THE FAN OR FANS TO THE FAN TERMINAL ON THE NB-50. YOU CAN SHORT THE FAN TERMINAL TO GROUND TO TEST THE FANS AIR FLOW DIRECTION.

CONNECT THE BRASS TERMINAL TO CHASSIS GROUND WITH SHORT # 12 WIRE.  
DO NOT CONNECT THE BRASS "FAN" TERMINAL TO THE BATTERY - YOU WILL BLOW ALL THE INTERNAL FUSES.

GO TO PAGE 2 FOR TESTING YOUR WIRE INSTALL:

COOL DOWN TIMER: 15 SECONDS WITH JUMPER  
55 SECONDS WITHOUT JUMPER AT "SHORT"

## FIRST TEST OF THE AUTO COOL NB-50

After you have wired up the NB-50 controller you will be ready to test the system. Do these checks on the seven (3) pin black terminal first.

1. Measure + 12 to + 14 volts DC from the **BATT** PIN 1 to PIN 3 ground.
2. Verify that PIN 3 of the black terminal is grounded. Might use a ohm meter for this test.
3. Verify that the **sensor wires** are connected to PIN 4 and PIN 5 of the black terminal.  
Note: If one side of the sensor is shorted to ground, the controller will not work.
4. Verify the the air conditioning +12 volt power is connected to PIN 6 of the black terminal – if used.
5. Verify that the FAIL SAFE SWITCH is connected to pin 7 and ground. Put switch on dash board.
6. Turn on the IGNITION but DO NOT start the engine for the next step.
7. Measure +12 to +14 volts from the **IGN** PIN 2 to PIN 3 or GROUND.
8. Turn off the IGNITION SWITCH and go to the next step if the above is tested correct.

**Do these check on the BRASS FAN A & B AND GROUND TERMINALS on the controller.**

1. Verify the FAN'S positive is connected to the battery positive.
2. Verify the FAN'S RTN or ground is wired to the BRASS FAN terminal on the controller.
3. Some fans have the low and high speed wires tied together – follow their directions.  
(In most cases you will not use the low speed wire)

**THE NEXT TEST WILL VERIFY THAT THE HEAVY FAN WIRES ARE WIRED CORRECTLY:**

1. Verify that the IGNITION switch is OFF and locate a short heavy wire or a tool for the next step.
2. Short FAN and GROUND brass terminals.
3. At this point, the fan or fans should go to HIGH RPM.
4. Verify that the air flow is in the correct direction.
4. If the fans DID NOT spin, go back and check the heavy fan wires.
5. If the fans DID spin to high RPM, you have **PASSED**, therefore remove the short.
6. Fan wires correctly wire – you can continue to the next step.

**CONTINUE IF YOU HAVE CHECKED THE ABOVE WITH THE PROPER RESULTS:**

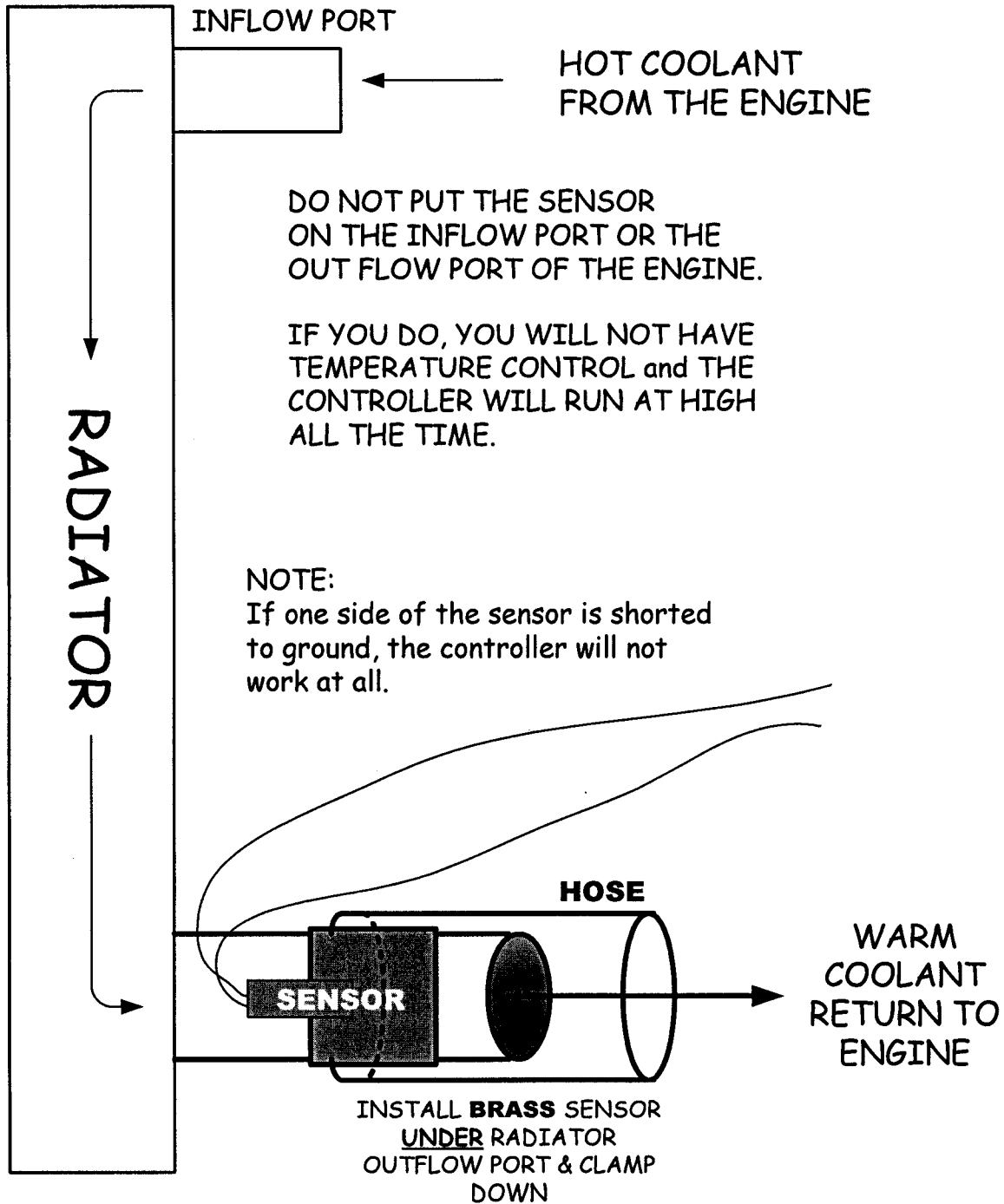
1. Switch on the IGNITION, start the engine and let it idle and parked for this test.
2. Turn the black control knob on the NB-50 to the FULL CCW WARM position.
3. As the engine thermostat opens and the sensor warms up, the fans or fans will start spinning slowly.
4. As the radiator and engine warms up, turn the black control knob CW one step at a time.
5. You can set the black control knob to the center position or other.
6. At this point if the fan or fans fail to spin with a hot motor, short PINS 4 & 5 to force fans to spin.
7. Fan or fans should spin to high RPM with a short across the sensor terminals.
8. If the sensor is wide open (ohm meter) the fan or fans will not work in the temperature mode.
9. The SENSOR should measure 40,000 to 60,000 ohms cold and **not shorted to the brass**.
10. Turn on the fail safe by grounding PIN 7. Fans or fans should go to high RPM.
11. Start engine, turn on the car's air conditioning system and go to the next step.
12. Remove the round plug on the side of the controller to gain access to the Air Conditioning speed pot.
13. Adjust the small pot to preset the A/C fan speed as required. Use small flat screw driver.
14. Keep in mind that the temperature mode will over ride the A/C fan speed.

**USE A LASER TEMPERATURE GAUGE TO MEASURE RADIATOR AND ENGINE TEMPERATURE:**

1. You can now measure the radiator and engine temperature with a laser indicator.
2. Its time to take your car or truck out for a test drive & watch for a constant engine temperature.  
You can find a laser temperature gauge from Harbor Freight Tools or Home Depot.

Do not ARC WELD any part of the car with the controller installed. Remove it before any welding is done to the car.

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**>autocoolguy@yahoo.com<**  
**562-367-3225**



SENSOR RESISTANCE CHECK;  
40,000 - 60,000 OHMS COLD  
OPEN FROM LEADS TO BRASS