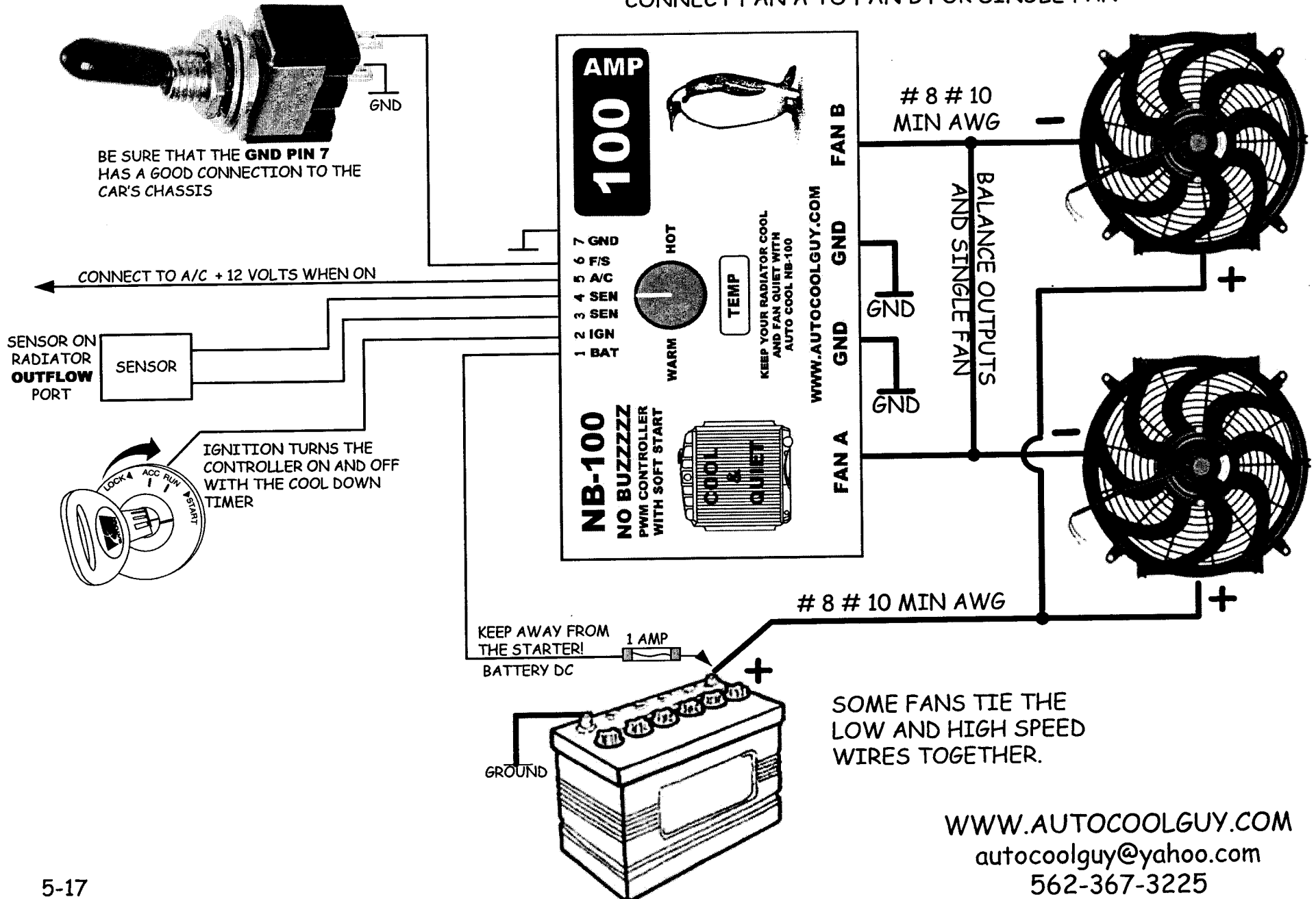


FAIL SAFE ON WHEN SWITCHED TO GROUND,
PUTS FAN OR FANS INTO HIGH RPM.

DO NOT CONNECT THE FAN A OR FAN B
TERMINALS TO BATTERY PLUS - YOU WILL
BLOW THE INTERNAL FUSES!!!!!!

CONNECT FAN A TO FAN B FOR SINGLE FAN



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

DETAILS ON HOW TO INSTALL THE NB-100 CONTROLLER

HOW TO WIRE UP THE SEVEN (7) PIN BLACK TERMINAL:

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 & PIN 4. INSTALL THE TWO WIRES FROM THE SENSOR TO THESE TERMINALS. THERE IS NO POLARITY TO WORRY ABOUT AND YOU CAN AD OR SHORTEN THE LEADS. IF YOU AD WIRE, MAKE VERY SURE YOU HAVE A SOLID SPLICE. I WOULD EVEN SOLDER THESE TO BE SURE. IF A SPICE OPENS, THE CONTROLLER WILL STOP WORKING.

PIN 5. CONNECT THIS PIN TO THE AIR CONDITIONING SYSTEM WERE +12 VOLTS WILL PUT THE FANS INTO THE HIGH RPM MODE. YOU CAN ADJUST THE FAN RPM FROM 0 TO 100 PERCENT WITH AN INTERNAL POT NEXT TO PIN SEVEN. ALSO NOTE, THE TEMPERATURE CONTROL MODE WILL OVER-RIDE THE A/C MODE.

PIN 6. YOU CAN INSTALL A SMALL TOGGLE SWITCH THAT WILL TURN ON THE FAIL SAFE MODE. TIE THE OTHER SIDE OF THE FAIL SAFE SWITCH TO GROUND. THIS CAN BE TURNED ON AND OFF AT WILL IF YOU THINK YOU HAVE A PROBLEM IN HOT WEATHER.

PIN 7. THIS PIN IS TIED TO **CHASSIS GROUND** WITH A SHORT WIRE.

HOW TO INSTALL 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. 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 A DIFFERENT SENSOR.

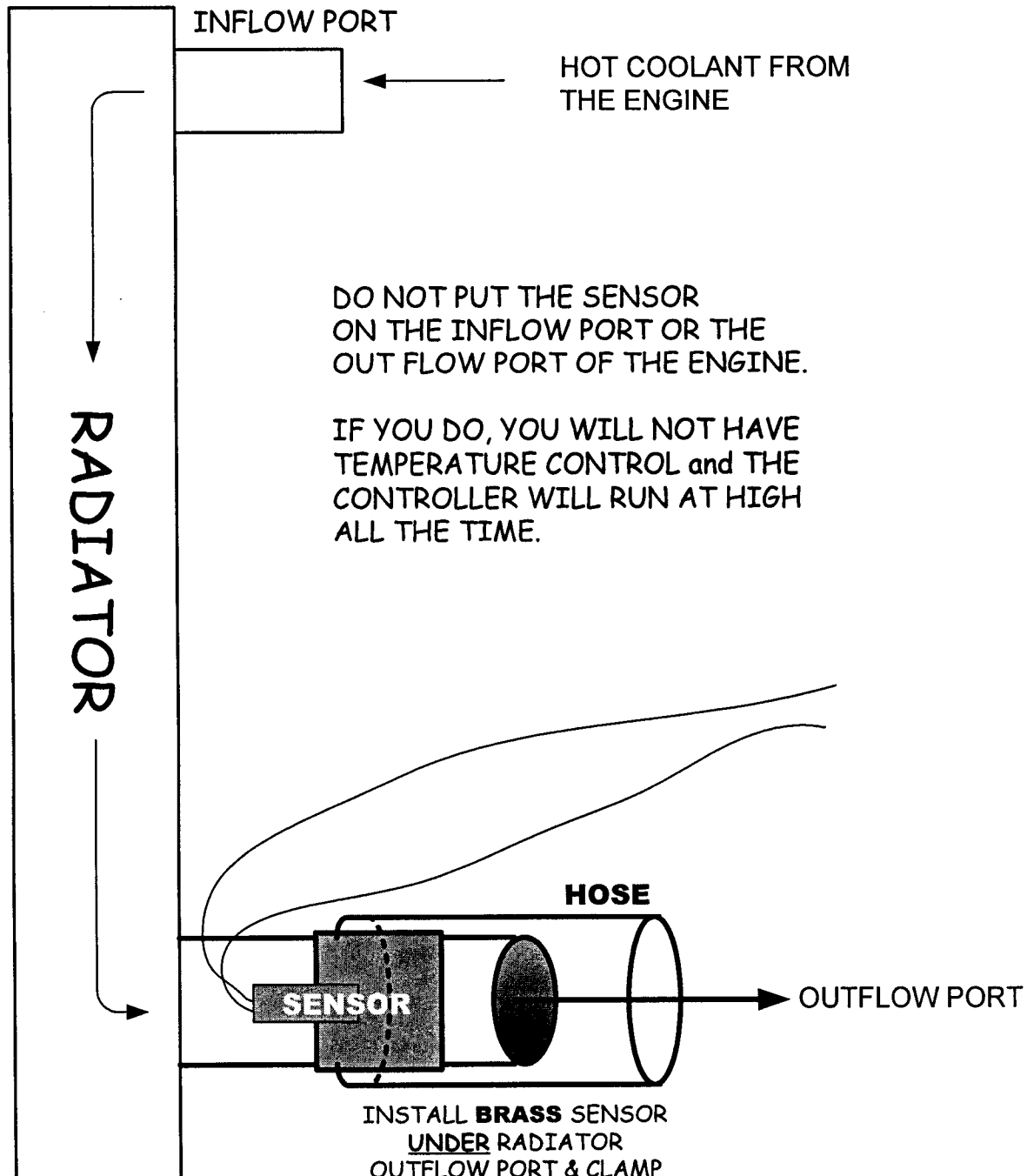
HOW TO WIRE UP THE FAN OR FANS:

CONNECT THE PLUS (+) OF THE FANS TO THE BATTERY PLUS. YOU CAN INSTALL EXTERNAL FUSES ON FAN WIRES FOR EXTRA PROTECTION. THE NB-100 IS FUSED AT 120 AMPS. USE AT LEAST # 10 AWG WIRE FOR THIS LINE. IF THIS LINE GET WARM DURING OPERATION, YOU MAY WANT TO USE A LARGER GAUGE WIRE. SMALL WELDING CABLE WORKS GREAT AND EASY TO FIND AT WELDING SHOPS. # 8 TERMINALS SUPPLIED WITH THE NB-100.

CONNECT THE (-) RETURN SIDE OF THE FAN OR FANS TO THE **FAN A** OR **FAN B** TERMINALS. YOU CAN CONNECT FAN A AND FAN B BRASS BOLTS TOGETHER FOR A SINGLE FAN. YOU CAN SHORT THE FAN A OR FAN B TERMINALS TO GROUND TO TEST THE FANS AIR FLOW DIRECTION. NEXT, CONNECT THE SINGLE **GND BRASS** TERMINAL TO CHASSIS GROUND. DO NOT CONNECT FAN A OR FAN B BRASS BOLTS TO THE BATTERY + OR YOU WILL BLOW THE INTERNAL FUSES!!!!

TIME TO START THE ENGINE:

AUTO COOL NB-100 THE FAN WILL START TO SPIN WHEN THE RADIATOR AND ENGINE STARTS TO WARM UP.



DO NOT PUT THE SENSOR ON THE INFLOW PORT OR THE OUT FLOW PORT OF THE ENGINE.

IF YOU DO, YOU WILL NOT HAVE TEMPERATURE CONTROL and THE CONTROLLER WILL RUN AT HIGH ALL THE TIME.

INSTALL **BRASS** SENSOR UNDER RADIATOR OUTFLOW PORT & CLAMP DOWN

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

FIRST TEST OF THE AUTO COOL 85 RADIATOR FAN CONTROLLER

After you have wired up the NB-100 controller you will be ready to test the system.
Do these checks on the seven (7) pin black terminal first.

1. Measure + 12 to + 14 volts DC from the **BATT** PIN 1 to **GND** PIN 7.
2. Verify that PIN 7 of the black terminal is grounded. Might use a ohm meter for this test.
3. Verify that the **sensor wires** are connected to PIN 3 and PIN 4 of the black terminal.
4. Verify the the air conditioning +12 volt power is connected to PIN 5 of the black terminal – if used.
5. Verify that the FAIL SAFE SWITCH is connected to pins six (6) and ground.
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 7 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 WIRES have been wired to the BATTERY POSITIVE.
2. Verify the FAN'S RTN or GROUND WIRES are tied to FAN A and or FAN B BRASS TERMINALS.
3. Low speed wires from the fan MAY be tied to the high side. Follow fan instructions!
4. Note: You can install the OPTIONAL fuses on either side of the FAN WIRES.
5. You can JUMPER between FAN A and FAN B BRASS terminals to balance the current. (or single fan)

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 A (BRASS) and or (BRASS) FAN B to the (BRASS) GROUND 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-100 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 3 & 4 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 6. 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.

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