

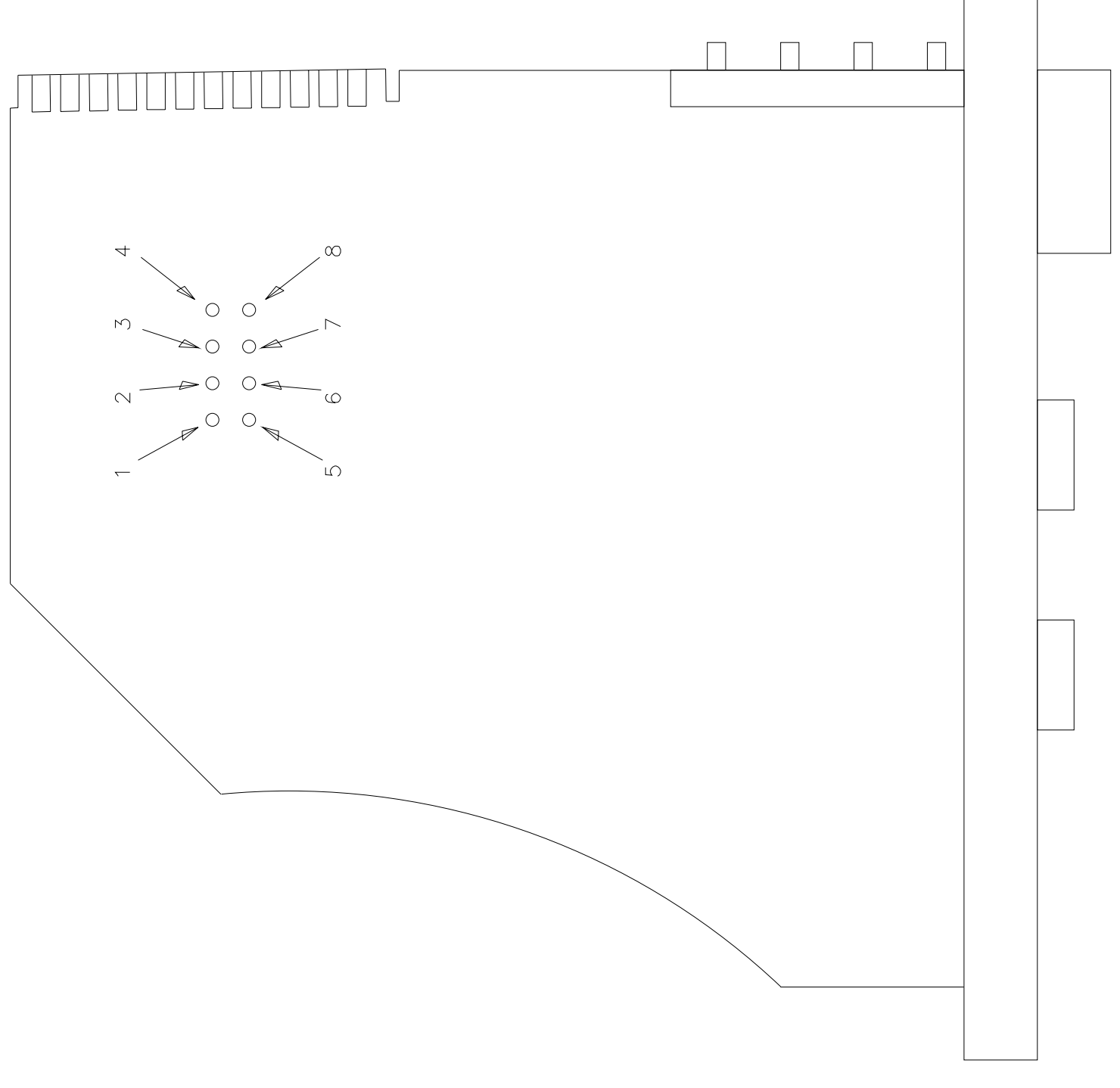
INSTRUCTIONS

- 1) REMOVE THE CONTROLLER FROM THE CONSOLE. THE CENTER VENT PULLS STRAIGHT OUT TO REMOVE THE TRIM BEZEL SURROUNDING THE CONTROLLER AND THE SWITCH PANEL BELOW IT ALSO PULLS IN, UP AND OUT. IT IS NOT NECESSARY TO DO ANY DISASSEMBLY OF THE CONSOLE EXCEPT FROM THE FRONT AS DESCRIBED.
- 2) THE TEMP CONTROLLER AND THE SWITCH PANEL ARE HELD IN WITH SMALL SCREWS AT EACH SIDE. USE A MAGNETIC SCREWDRIVER TO KEEP THE SCREWS AND WASHERS FROM FALLING INTO THE RADIO AREA WHEN THEY ARE REMOVED. STORE THE SCREWS AND WASHERS IN A SAFE PLACE.
- 3) THERE ARE TWO PLUGS ON THE LEFT SIDE OF THE TEMP CONTROLLER. CLOSE TO THE FACE OF THE CONTROLLER IS A HEAVY CONNECTOR WITH ROUND PINS FOR THE FAN SPEED SWITCH. AT THE REAR OF THE CONTROLLER (TOWARD THE FRONT OF THE CAR) IS A MULTI-PIN CONNECTOR THAT MATES WITH THE PADS ON THE CIRCUIT BOARD INSIDE THE CONTROLLER. BOTH OF THESE CONNECTORS NEED TO BE UNPLUGGED TO ALLOW THE CONTROLLER TO BE REMOVED FROM THE CONSOLE.
- 4) ONCE THE WIRE CONNECTORS ARE FREE OF THE CONTROLLER, REMOVE IT TO A CLEAN WORK SURFACE OUT OF THE CAR. THE PLASTIC CASE IS REMOVED IN TWO STEPS. FIRST, REMOVE THE FIVE PHILLIPS SCREWS SECURING THE COVERS TO THE CONTROLLER. THEN, USING A SMALL FLAT-BLADE SCREWDRIVER, WEDGE AND RELEASE EACH OF THE PLASTIC CLIPS AROUND THE PERIMETER OF THE COVER. THE TWO HALVES WILL THEN COME OFF, REVEALING THE CIRCUIT BOARD AND THE INTERNAL MECHANISMS OF THE CONTROLLER.
- 5) WITH THE CONTROLLER SITTING RIGHT-SIDE-UP AS IT IS NORMALLY INSTALLED IN THE CAR, LOCATE THE SMALL PC-MOUNT RELAY ON THE TOP SURFACE OF THE CIRCUIT BOARD. THIS IS A CUBE ABOUT 20MM LONG, 13MM WIDE AND ABOUT 8MM THICK. ON MY '89, THE RELAY IS LIGHT BLUE COLOR. THE RELAY IS SOLDERED TO THE CIRCUIT BOARD WITH 8 PINS PROTRUDING THROUGH TO THE BOTTOM OF THE BOARD. THIS RELAY NEEDS TO BE REMOVED. EASIEST WAY IS TO USE A LITTLE SOLDER WICK OR A VACUUM DESOLDERING TOOL TO REMOVE THE OLD SOLDER, THEN LIFT THE RELAY OFF THE BOARD. BE CAREFUL NOT TO OVERHEAT THE PC BOARD.
- 6) ONCE THE RELAY IS REMOVED, THE HOLES MAY NEED TO BE ENLARGED SLIGHTLY TO ALLOW THE HOOKUP WIRE TO PASS THROUGH. I USED A VERY SMALL DRILL BIT, HELD IN A SMALL PIN VISE. AVOID USING A POWER DRILL FOR THIS-- A LITTLE TURNING BY HAND IS ALL THAT'S NEEDED ON THE FIBERGLASS CIRCUIT BOARD.
- 7) ON THE DIAGRAM, LOOK AT THE NUMBERS ASSIGNED TO THE HOLES IN THE CONTROLLER CIRCUIT BOARD. NOTE THAT THESE DO NOT APPEAR ON THE BOARD ITSELF. THESE ARE REFERENCE NUMBERS FOR THE DIAGRAM ONLY. YOU'LL NEED TO ATTACH A SECTION OF HOOKUP WIRE TO EACH OF THE SIX HOLES IDENTIFIED IN THE DIAGRAM. THESE ARE NUMBERS 1 AND 4, 5 THOUGH 7, NUMBERS 2 AND 3 ARE NOT CONNECTED. THE WIRES NEED TO LAY FLAT ON THE BOARD WHERE THEY EXIT THROUGH THE UNUSED CONNECTOR PORT OPENING. NOTE ALSO THAT IT IS EASIEST TO ROUTE THE WIRES IF THEY ARE SOLDED TO THE CONTROLLER BOARD FROM THE BOTTOM UP. THE WIRES THEN ROUTE FLAT ON THE BOTTOM OF THE BOARD, OUT TO THE NEW RELAY EXTERNAL TO THE CONTROLLER CASE WHEN ALL IS DONE.
- 8) SLIDE A PIECE OF HEAT SHRINK BACK UP EACH WIRE, AND ATTACH THE FREE WIRE END TO THE CORRESPONDING RELAY TERMINAL. 1 ON THE BOARD GOES TO 1 ON THE RELAY, ETC. ONCE ALL SIX WIRES ARE CONNECTED, SLIDE THE SHRINK TUBES INTO PLACE OVER THE RELAY TABS, AND SHRINK THEM WITH A HAIR DRYER. THE WIRES' LENGTHS NEED TO BE MANAGED CAREFULLY SO THAT THEY LAY FLAT ON THE BOARD ALL THE WAY THROUGH THE CONNECTOR PORT. THEN ROUTE CLEANLY TO THE RELAY TERMINALS IN THE INSTALLED POSITION AS SHOWN.
- 9) ONCE ALL THE WIRES ARE CONNECTED, YOU CAN PUT THE COVERS BACK ON AND INSTALL THE SCREWS. I USED A STRIP OF DOUBLE-SIDE FOAM TAPE TO SECURE THE RELAY TO THE CASE. NOTE THE INSTALLED POSITION IN THE DIAGRAM. THIS POSITION JUST CLEARS THE RIGHT SIDE OF THE CONSOLE OPENING DURING REINSTALLATION, AND IS COMPLETELY CLEAR OF THE ACTUATOR FOR THE CENTER VENT DIVERTER FLAP. IN A PINCH, THE RELAY MAY BE MOUNTED TO THE BOTTOM OF THE CASE TOWARDS THE BACK, BUT THIS MEANS YOU'LL GET TO WRESTLE WITH BOTH PANELS TO GET IT IN AND OUT.
- 10) REINSTALL THE CONTROLLER IN THE CONSOLE. IN THE REVERSE ORDER OF REMOVAL, BE SURE THE TWO ELECTRICAL CONNECTORS ARE FULLY SEATED ON THE CONTROLLER BEFORE YOU SCREW EVERYTHING BACK TOGETHER.

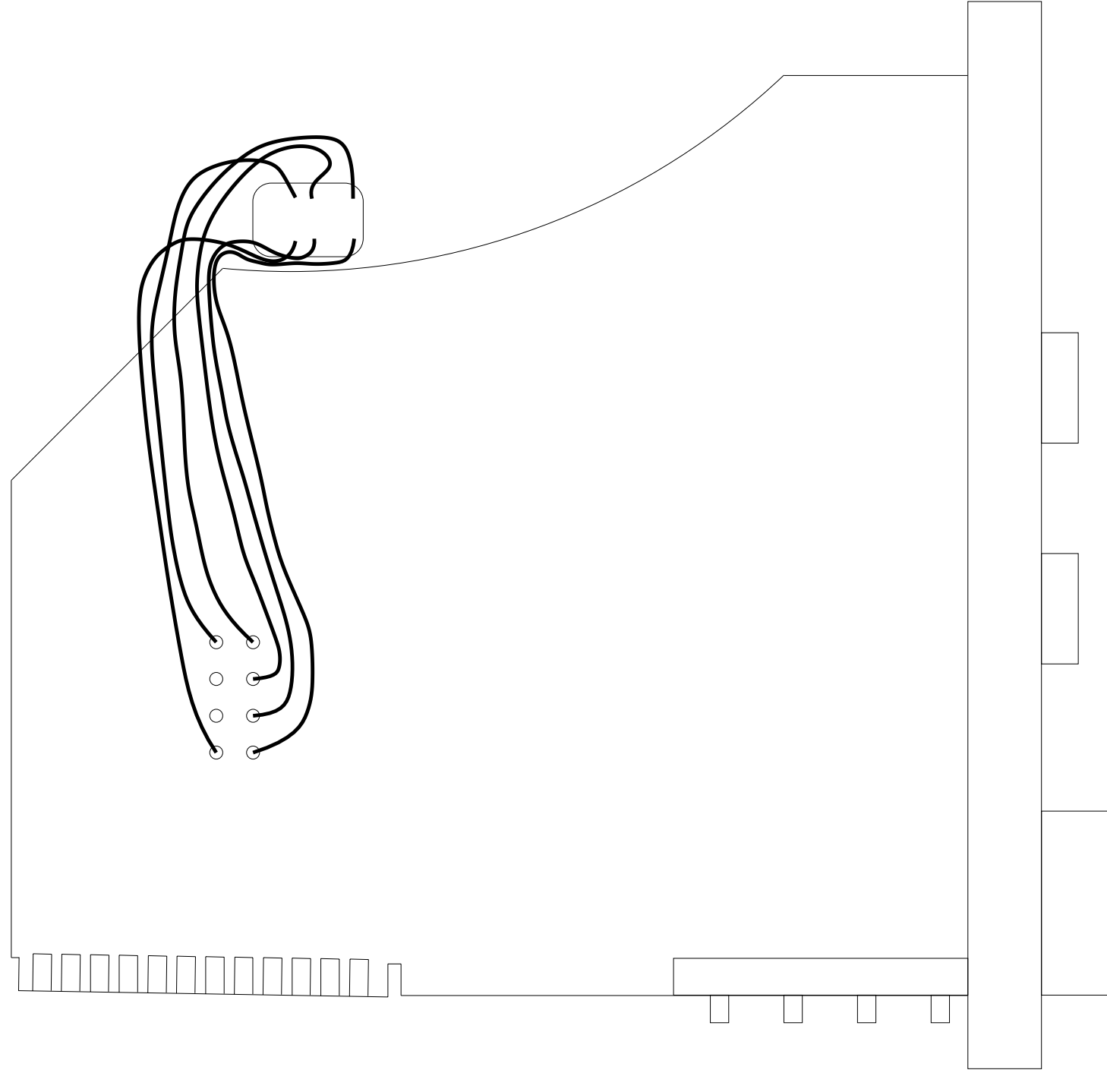
THINKS TO CONSIDER--
 THE PANEL CONTROLS ARE ILLUMINATED BY FIBER OPTIC TUBES FROM A SINGLE BULB IN THE CONTROLLER. THE FIBER IS SOMEWHAT FRAGILE, SO BE CAREFUL WHEN HANDLING THE TUBES. BE SURE THE SLIDE CONTROLLERS ARE IN THEIR MIDWAY POSITIONS WHEN YOU INSTALL THE COVERS. THIS WILL HELP KEEP THE FIBER TUBES OUT OF THE WAY OF THE HOUSING SCREWS.
 IT'S ALWAYS A GOOD IDEA TO REMOVE THE BATTERY GROUND STRAP WHENEVER YOU ARE WORKING ON ELECTRICAL COMPONENTS. THE CONTROLLER IS ONLY HOT WHILE THE KEY IS ON, BUT STILL BETTER TO BE SAFE THAN SORRY.
 COMMENTS, SUGGESTIONS, OR ENHANCEMENTS TO THIS PROCEDURE SHOULD BE SENT BY EMAIL TO ME AT DR.BOB@WORLDNET.ATT.NET
 NO WARRANTY IS IMPLIED BY THIS INSTRUCTION. THIS IS A DESCRIPTION OF A MODIFICATION THAT I DID TO MY OWN CAR. YOUR CAR MAY BE DIFFERENT, YOUR ABILITY MAY BE DIFFERENT, YOUR PROBLEM MAY BE DIFFERENT. IN OTHER WORDS, YOU ARE ON YOUR OWN.

1989 PORSCHE 928 TEMP CONTROLLER A/C RELAY MODIFICATION DETAILS AND NOTES

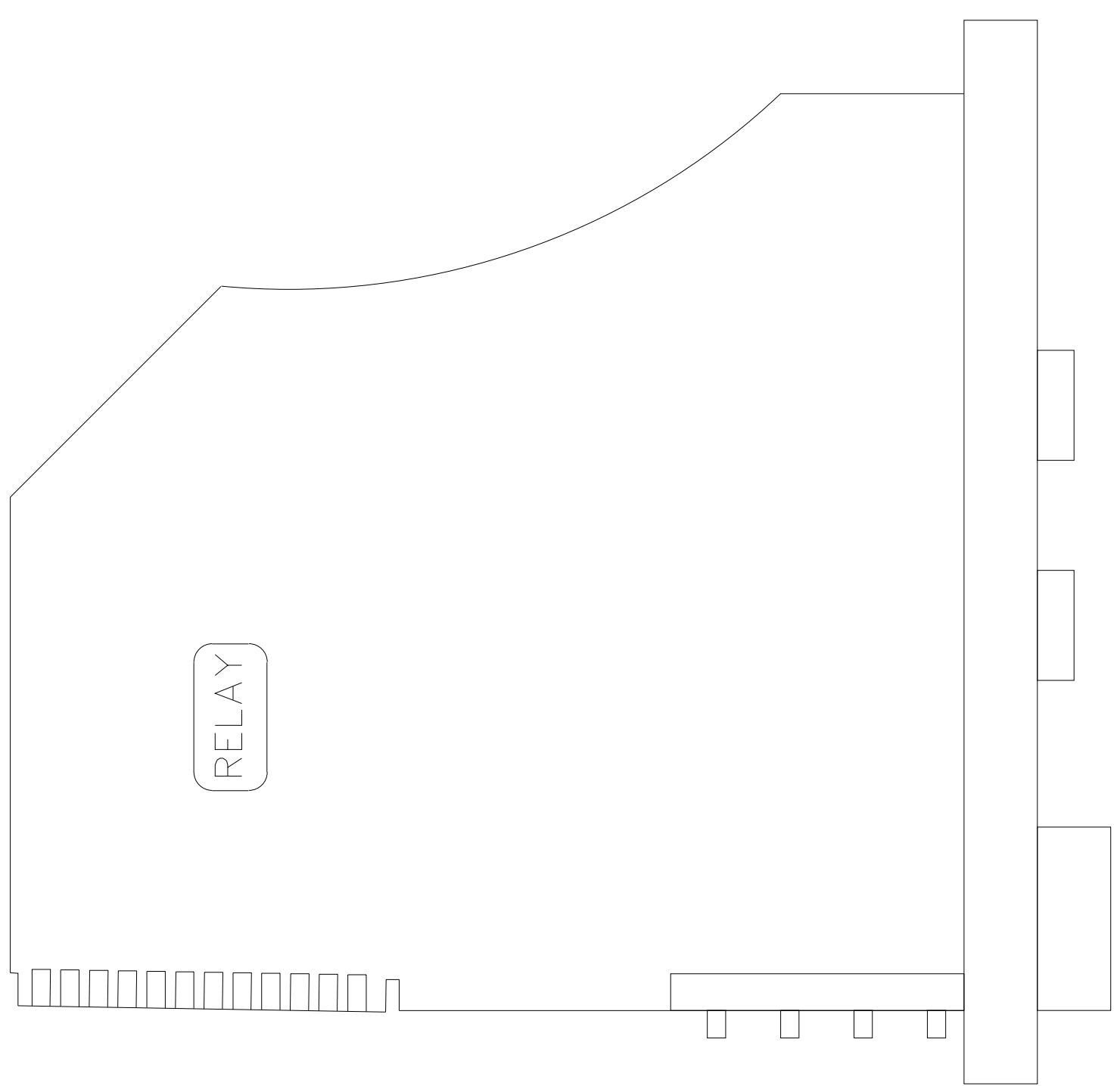
DRN.	DR. BOB	CHK.	SCALE	NONE
DATE	JULY 30, 1998	APP.		
JOB No.	HOUSE	DWG. No.	80XXX-X-D-9XXX	SH 1
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BOTTOM

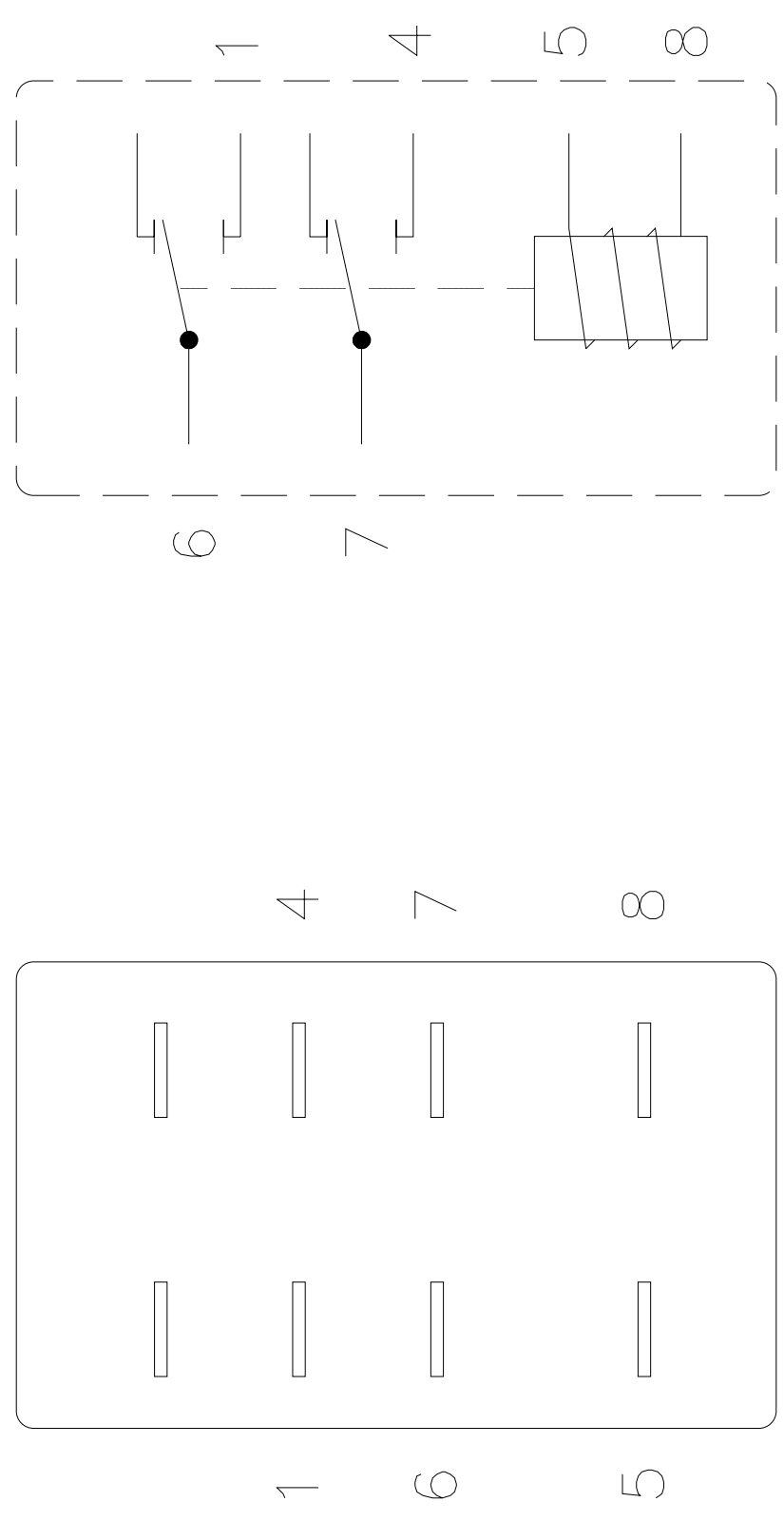


INSTALLED



TOP VIEW

- 1 EA ICECUBE RELAY
COIL: 12 VDC
CONTACTS: MIN 2.5 AMP
FORM A --or-- FORM C
- 6 EA HOOKUP WIRE:
18 GA MINIMUM
STRAINED, TINNED
6" LENGTH
- 6 EA HEATSHRINK TUBING
3/16" BLACK PVC, 1/2" LENGTHS



RELAY CONNECTIONS