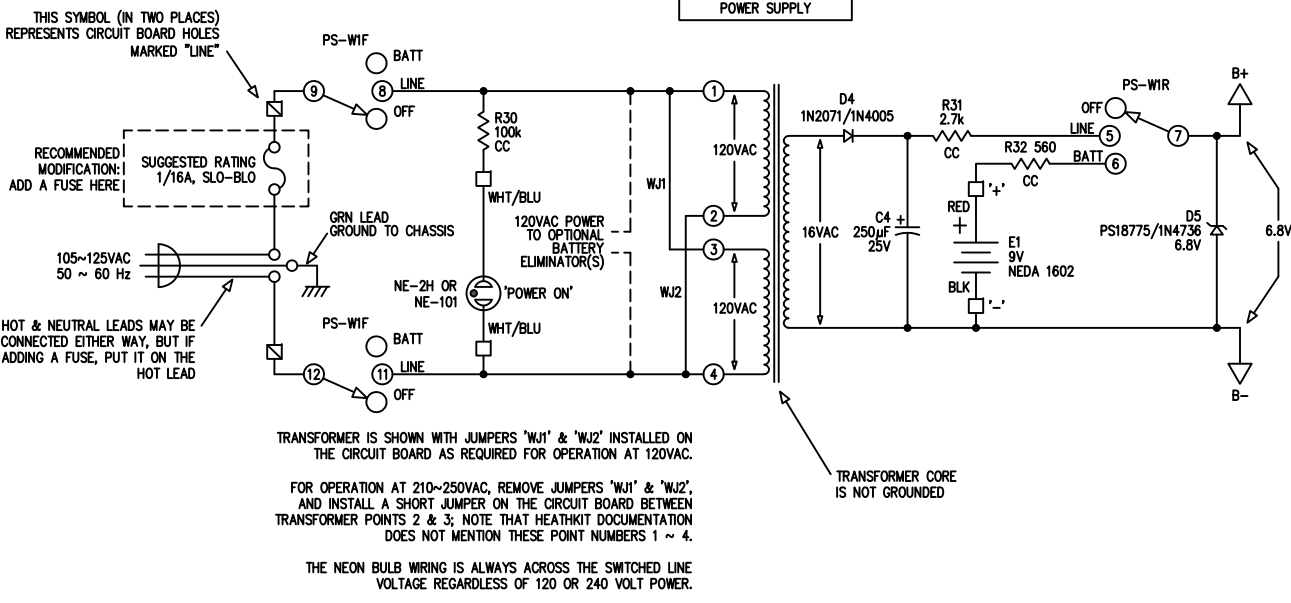
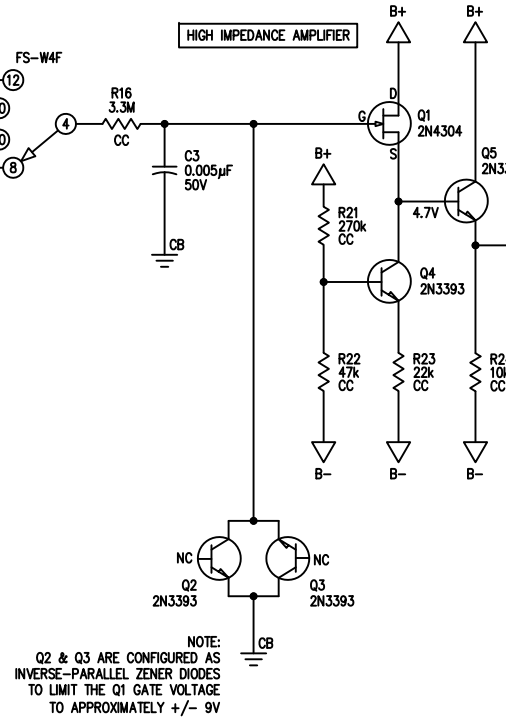
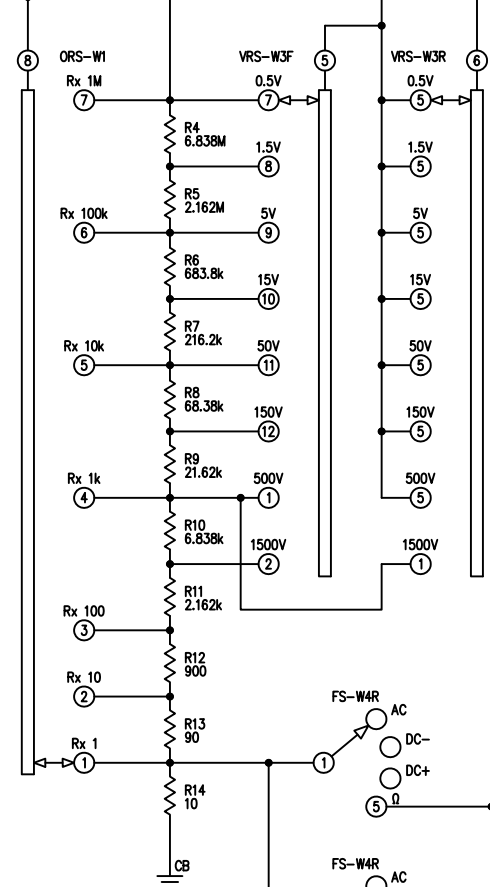


THIS DIAGRAM USES THE TWO SYMBOLS AT LOWER LEFT TO REPRESENT INPUT CIRCUIT GROUND (COMMON), AND THE SYMBOL AT LOWER RIGHT REPRESENTS A CONNECTION TO THE METAL CHASSIS WHICH IS IN TURN CONNECTED TO EARTH GROUND VIA THE POWER CORD. THE CIRCUIT GROUND SYMBOL WITH THE 'CB' INDICATES GROUND CONNECTIONS MADE WITHIN THE CIRCUIT BOARD.

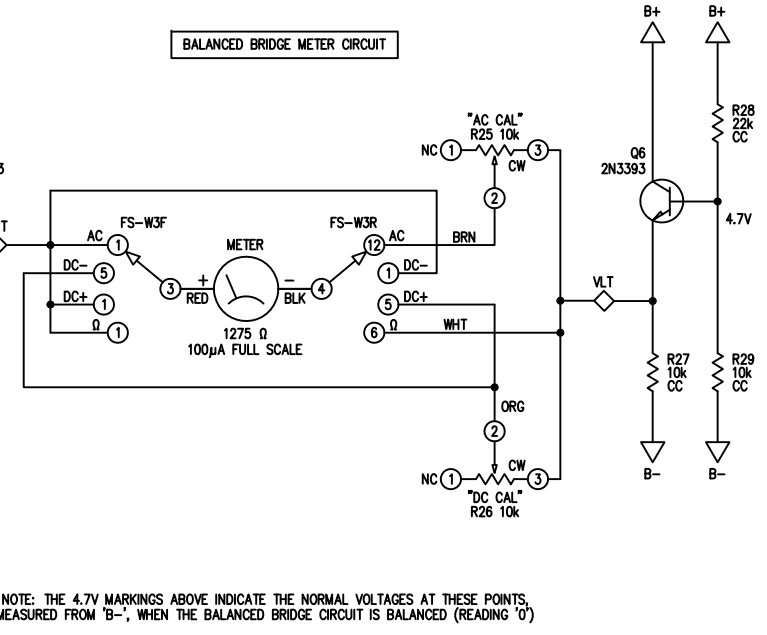
THE IM-16 HAS ITS INPUT CIRCUIT GROUND, AND BY EXTENSION THE REGULATED DC POWER SUPPLY (B+ & B-), ISOLATED FROM THE MAIN CHASSIS AND EARTH GROUND. THE PROBE/TEST LEAD JACK IS MOUNTED ON A SPECIAL ALUMINUM SUB-PANEL; THE BUSHINGS OF THE FOUR SELECTOR SWITCHES ALSO MOUNT TO THIS SUB-PANEL. HOWEVER, EACH OF THE SWITCH BUSHINGS THEN PASS THROUGH A PAIR OF PLASTIC GROMMETS BEFORE FINALLY PASSING THROUGH THE PAINTED ALUMINUM FRONT PANEL, WHERE A FLAT WASHER AND AN ADDITIONAL 'CONTROL NUT' SECURE THE BUSHINGS. IT IS THE SWITCH BUSHINGS THAT HOLD THE SUB-PANEL TO THE MAIN CHASSIS, BUT THE PLASTIC GROMMETS ENSURE THAT NO ELECTRICAL CONNECTION IS MADE BETWEEN THE SUB-PANEL (AND ITS COMPONENTS) AND THE MAIN CHASSIS, AND THUS ALL METER CIRCUITRY IS ISOLATED FROM CHASSIS AND EARTH GROUND.



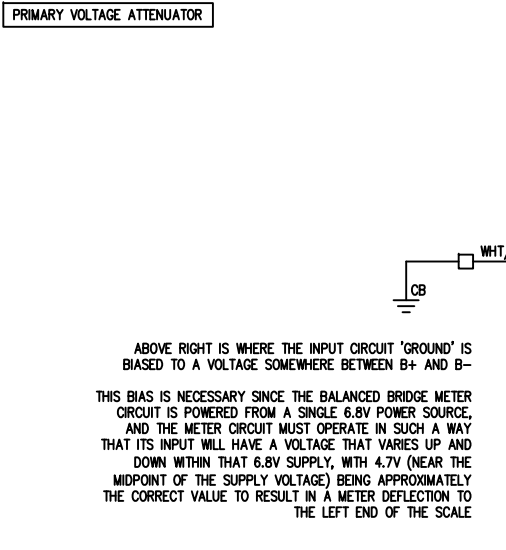
TRANSFORMER IS SHOWN WITH JUMPERS 'WJ1' & 'WJ2' INSTALLED ON THE CIRCUIT BOARD AS REQUIRED FOR OPERATION AT 120VAC. FOR OPERATION AT 210-250VAC, REMOVE JUMPERS 'WJ1' & 'WJ2', AND INSTALL A SHORT JUMPER ON THE CIRCUIT BOARD BETWEEN TRANSFORMER POINTS 2 & 3; NOTE THAT HEATHKIT DOCUMENTATION DOES NOT MENTION THESE POINT NUMBERS 1 ~ 4. THE NEON BULB WIRING IS ALWAYS ACROSS THE SWITCHED LINE VOLTAGE REGARDLESS OF 120 OR 240 VOLT POWER.



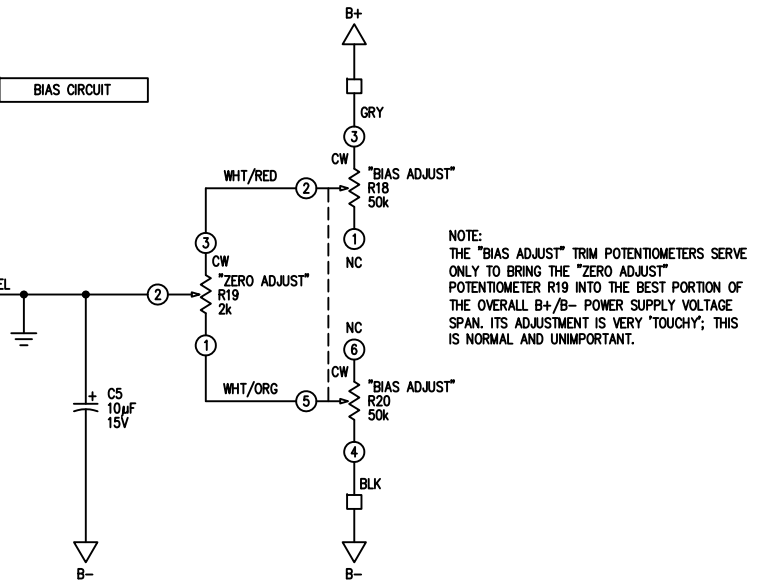
NOTE: Q2 & Q3 ARE CONFIGURED AS INVERSE-PARALLEL ZENER DIODES TO LIMIT THE Q1 GATE VOLTAGE TO APPROXIMATELY +/- 9V



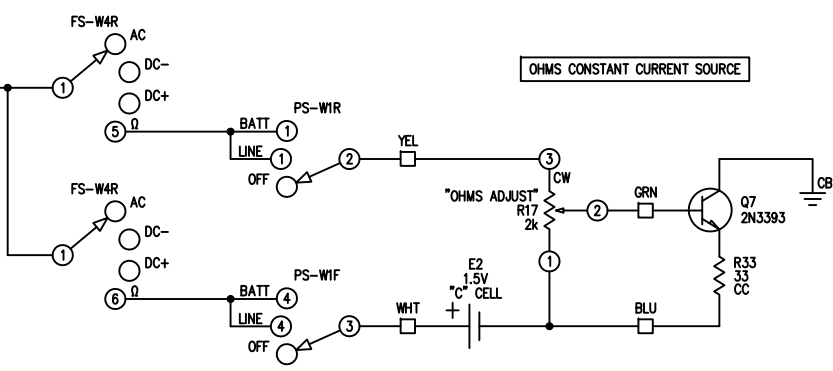
NOTE: THE 4.7V MARKINGS ABOVE INDICATE THE NORMAL VOLTAGES AT THESE POINTS, MEASURED FROM 'B-', WHEN THE BALANCED BRIDGE CIRCUIT IS BALANCED (READING '0')



ABOVE RIGHT IS WHERE THE INPUT CIRCUIT 'GROUND' IS BIASED TO A VOLTAGE SOMEWHERE BETWEEN B+ AND B- THIS BIAS IS NECESSARY SINCE THE BALANCED BRIDGE METER CIRCUIT IS POWERED FROM A SINGLE 6.8V POWER SOURCE, AND THE METER CIRCUIT MUST OPERATE IN SUCH A WAY THAT ITS INPUT WILL HAVE A VOLTAGE THAT VARIES UP AND DOWN WITHIN THAT 6.8V SUPPLY, WITH 4.7V (NEAR THE MIDPOINT OF THE SUPPLY VOLTAGE) BEING APPROXIMATELY THE CORRECT VALUE TO RESULT IN A METER DEFLECTION TO THE LEFT END OF THE SCALE



NOTE: THE 'BIAS ADJUST' TRIM POTENTIOMETERS SERVE ONLY TO BRING THE 'ZERO ADJUST' POTENTIOMETER R19 INTO THE BEST PORTION OF THE OVERALL B+/B- POWER SUPPLY VOLTAGE SPAN. ITS ADJUSTMENT IS VERY 'TOUCHY'; THIS IS NORMAL AND UNIMPORTANT.



NOTES AND OTHER INFORMATION ARE LOCATED ON SHEET 2 OF THIS DRAWING

THIS SCHEMATIC WAS DRAWN, USING AUTOCAD, AS A MEANS TO GET A MORE LEGIBLE AND UNDERSTANDABLE SCHEMATIC FOR THE HEATHKIT IM-16. AN EFFORT HAS BEEN MADE TO SIZE AND SCALE COMPONENTS AND TEXT FOR THE LARGEST AND BEST VISIBILITY AND LEGIBILITY WHILE STILL FITTING ON A NORMAL 11 X 17" SHEET OF PAPER.

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HEATHKIT IM-16
SOLID STATE VOM
SCHEMATIC DIAGRAM
SHEET 1 OF 2

