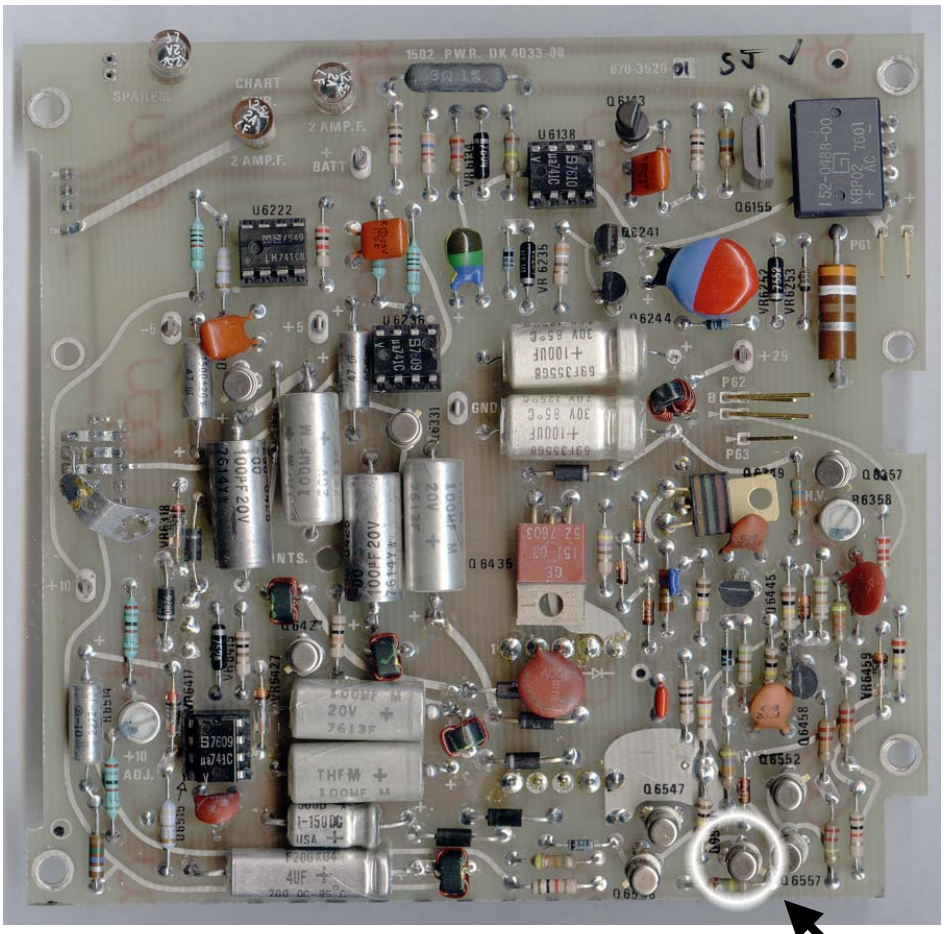
Tektronix 1502/1503 TDR NiCad Battery Anti-Discharge Circuit

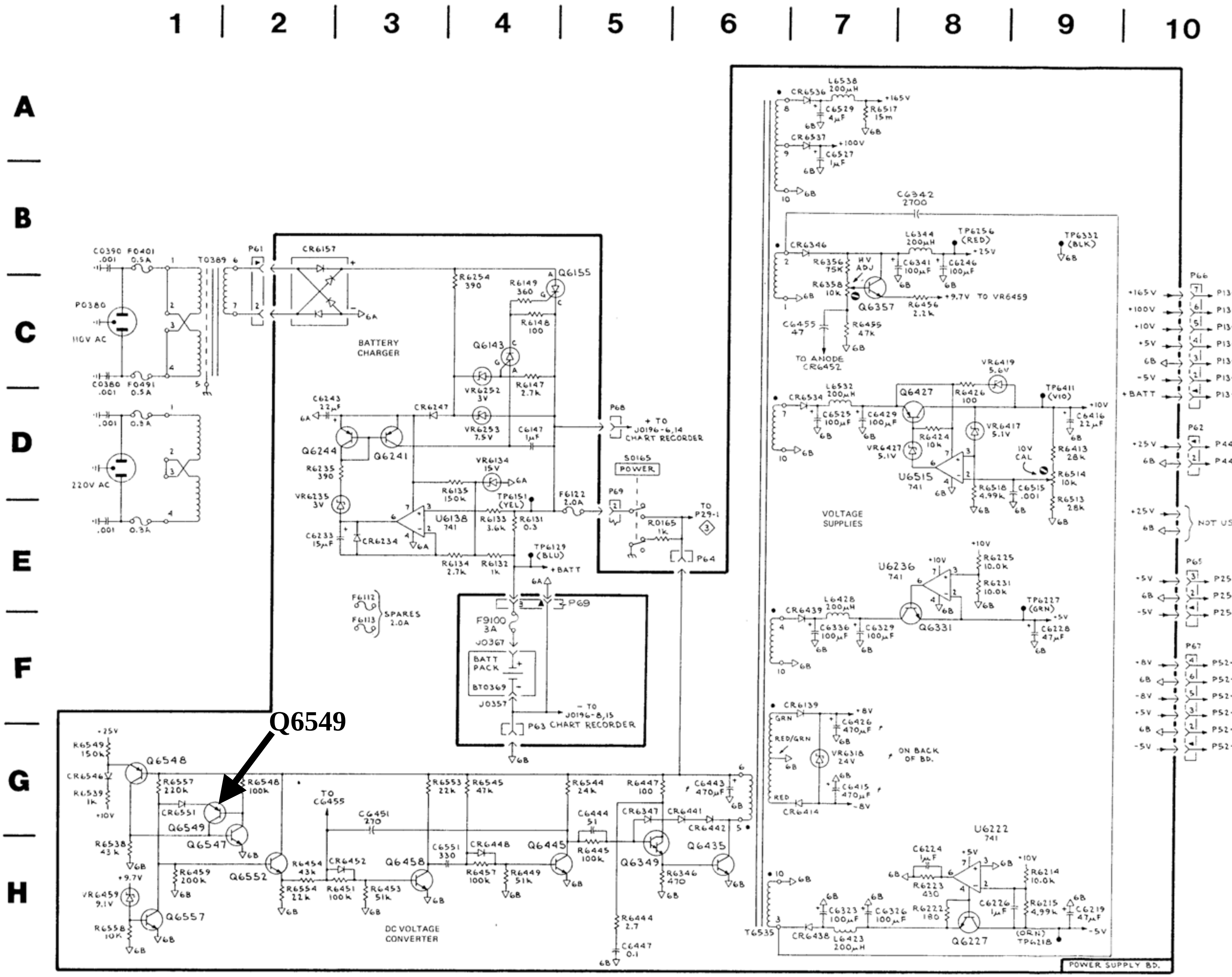
The Tektronix 1502/1503 TDR's Power Supply Printed Circuit Board (PCB) has a 2-transistor battery protection circuit described as an Anti-Discharge Circuit. When the Nicad battery pack voltage drops to around 9½ volts this circuit switches off the Power Supply voltage generator oscillator circuit that produces the ±5, 8, 10, 25, 165 volts needed for basic operation. This action is meant to prevent the NiCad battery pack from becoming damaged by over-discharge.

Once discharged to the 9½ volt level the battery pack must be allowed to recharge so the voltage rises above 9-10 volts before the TDR will again operate. The Tektronix manual states that the TDR must have a battery pack in order to operate although the manual does not state what harm there is in powering the TDR from 115 VAC power alone.

There may be times in the field when the NiCad battery is dead beyond immediate repair and it is necessary to operate the TDR. Therefore, it is useful to know that the Anti-Discharge circuit can be made inoperative by removing PNP transistor Q6549 from the PCB. This prevents the NPN transistor Q6547 from shutting down the Power Supply Oscillator circuit that generates the operational voltages required for the 1502/1503 TDR's to operate.

Once Q6549 is removed (the transistors can be pulled out of the board sockets) the TDR may be operated from 115 VAC power without a battery pack installed.

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A
B
C
D
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H
Q6549
BATTERY CHARGER
VOLTAGE SUPPLIES
DC VOLTAGE CONVERTER
110V AC
220V AC
POWER
CHART RECORDER
BATT PACK
SPARES 2.0A
TO ANODE CR6452
ON BACK OF BD.
NOT USED
10V CAL
HV ADJ
POWER SUPPLY BD.
Q6548
Q6547
Q6552
Q6557
Q6458
Q6445
Q6349
Q6435
Q6155
Q6143
Q6244
Q6241
Q6357
Q6427
Q6331
Q6227
U6138
U6515
U6236
U6222
T0389
T6535