If the ScopeMeter is connected to the line voltage and is not operational, the flyback converter operates almost without a load (only the NiCd battery pack). This implies that the current floating through windings L2504 and L2505 (averaged in time) is almost zero. Because of this, the voltage on CL+ is about 30 mV and the voltage on CL- is about 170 mV. The battery pack will be charged with 170 mA.

If the flyback converter is operated normally (ScopeMeter "ON"), the voltage on both CL- and CL+ will rise and the charging current will decrease to 100 mA.

Battery charge protection
To prevent charging of non-rechargeable batteries, a special protection circuit is provided. For safety reasons, this circuit consists of two cascaded sections. When the ScopeMeter is "ON", the flyback converter will be operative. The produced voltage POWER-ON will drive both Field Effect Transistors V2537 and V2538 open (conductive) via R2568 and R2569. Now the battery plus contact is connected to the ScopeMeter circuit ground. If line voltage is present, the voltage -VCH produced by the flyback converter will drive V2534 and V2536, which prevent transistors V2537 and V2538 from conducting. The battery plus contact is disconnected from ground.

Power ON/OFF circuitry
During normal operation the POWER-ON signal is +5V. Transistor V2542 is opened (conductive), so -Vbat/s equals -V_CH. If the ScopeMeter is operating and the RESPOWHT ("reset power supply") becomes "high", V2541 will conduct and V4542 will stop conducting. This will disconnect -Vbat/s from -V_CH.

3.4.9 POWER SUPPLY

- Introduction
See figure 3.19.

Different supply voltages are needed for various ScopeMeter sections. A second flyback converter is used to convert -Vbat/s to supply voltages of -30V, -5V and +5V. This voltage, -Vbat/s, is made by the first flyback converter (in the battery charger section) or comes from the batteries. -Vbat/s is 5V if operated with NiCad battery pack, and 8V if operated from line voltage.

- Detailed circuit description
See figure 3.19 and circuit diagram A2c (figure 10.7).

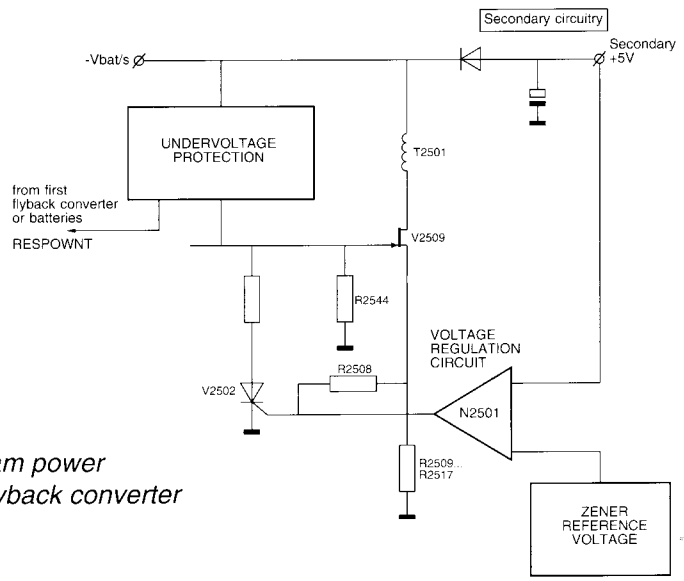

Figure 3.23 Schematic diagram power supply, second flyback converter