CD Player D730/731 Out-of-Speed Control

- **Problem**

  Recently, we finally discovered that the series regulator LM317 (IC 905) increases its output voltage when aging. The series regulator from National Semiconductor is heating up and collapses. The voltage rises to above 12 Volts. Due to this fact, IC703 (HEF4750 on Mainboard 1.630.152.XX) is supplied with excess voltage and is damaged.

  To prevent this causal problem, we recommend to add a heat sink to the series regulators as described below.

- **Effect**

  The speed cannot being controlled anymore, and increases to the maximum deviation of nominal speed.

- **Resolution**

  The regulator's heat is dissipated by a heatsink, and IC 703 (frequency synthesizer) HEV4560 must be replaced, if having been supplied with excess voltage. At this occasion, we strongly recommend to add an other heatsink to the negative regulator (IC 903), too. By this actions, the chip temperature drops for both regulators.

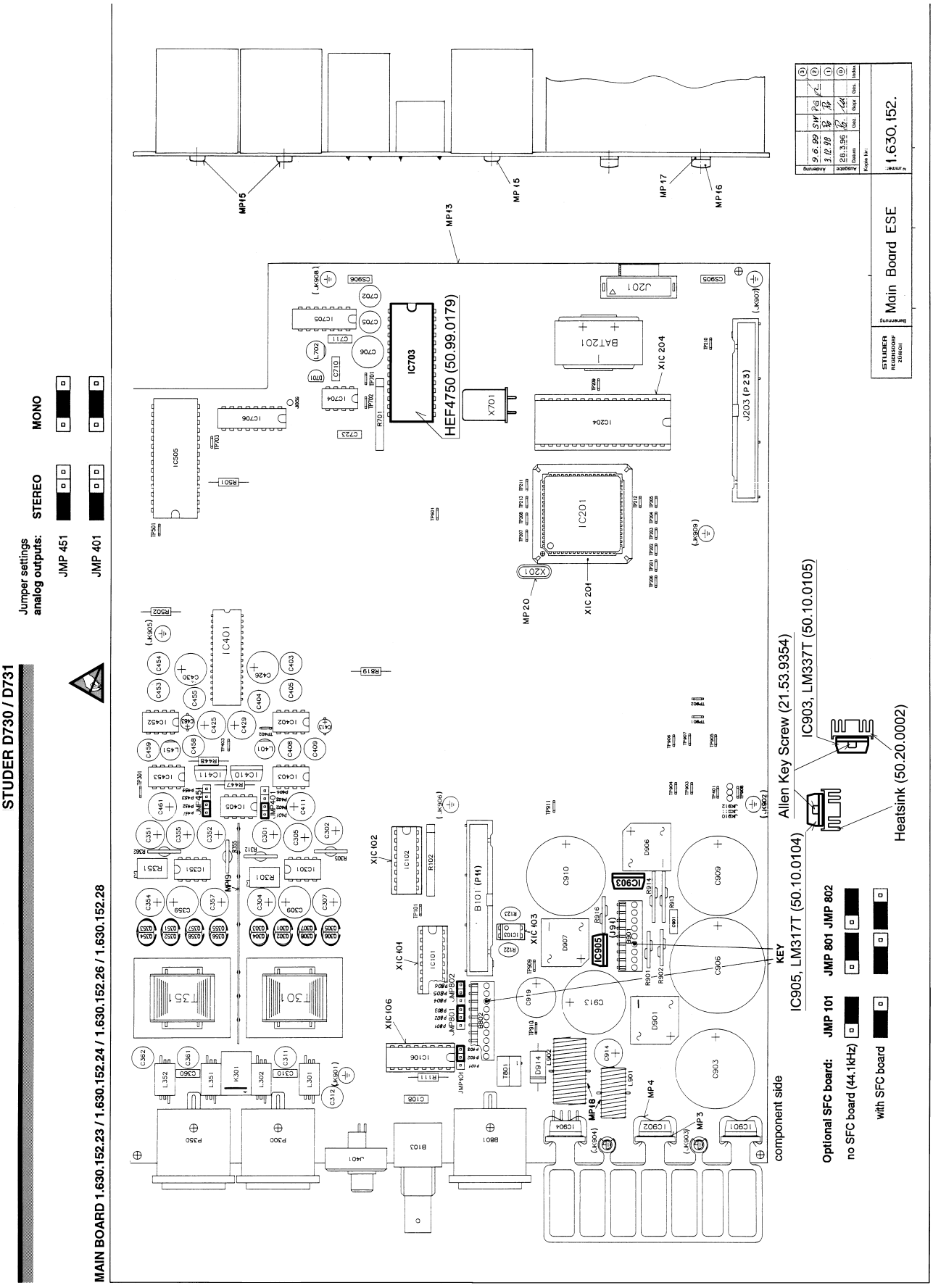
- **Procedure**

  1. Unsolder the series regulator LM317T (IC 905). Add a heat sink (50.20.0002) to a new LM317T (50.10.0104 - Motorola). Apply thermal compound, if available. Mount the heat sink with an Allen-head screw (21.53.9354) to the LM317. Take care that the regulator's terminals are not shorted by the heat sink.
  2. Reinstall the regulator to the PCB. Take care that the heat sink is completely isolated from any component. Bend the regulator's terminals slightly away from C913.
  3. Add an other heat sink (50.20.0002) to the LM337T (IC 903) as described above with LM317T. It's not inperative to replace the regulator LM337T (50.10.0105) by a new device, if it is not obviously defective.
  4. Replace the defective IC 703 (refer to page 2 - HEF4750V, 50.99.0179) .

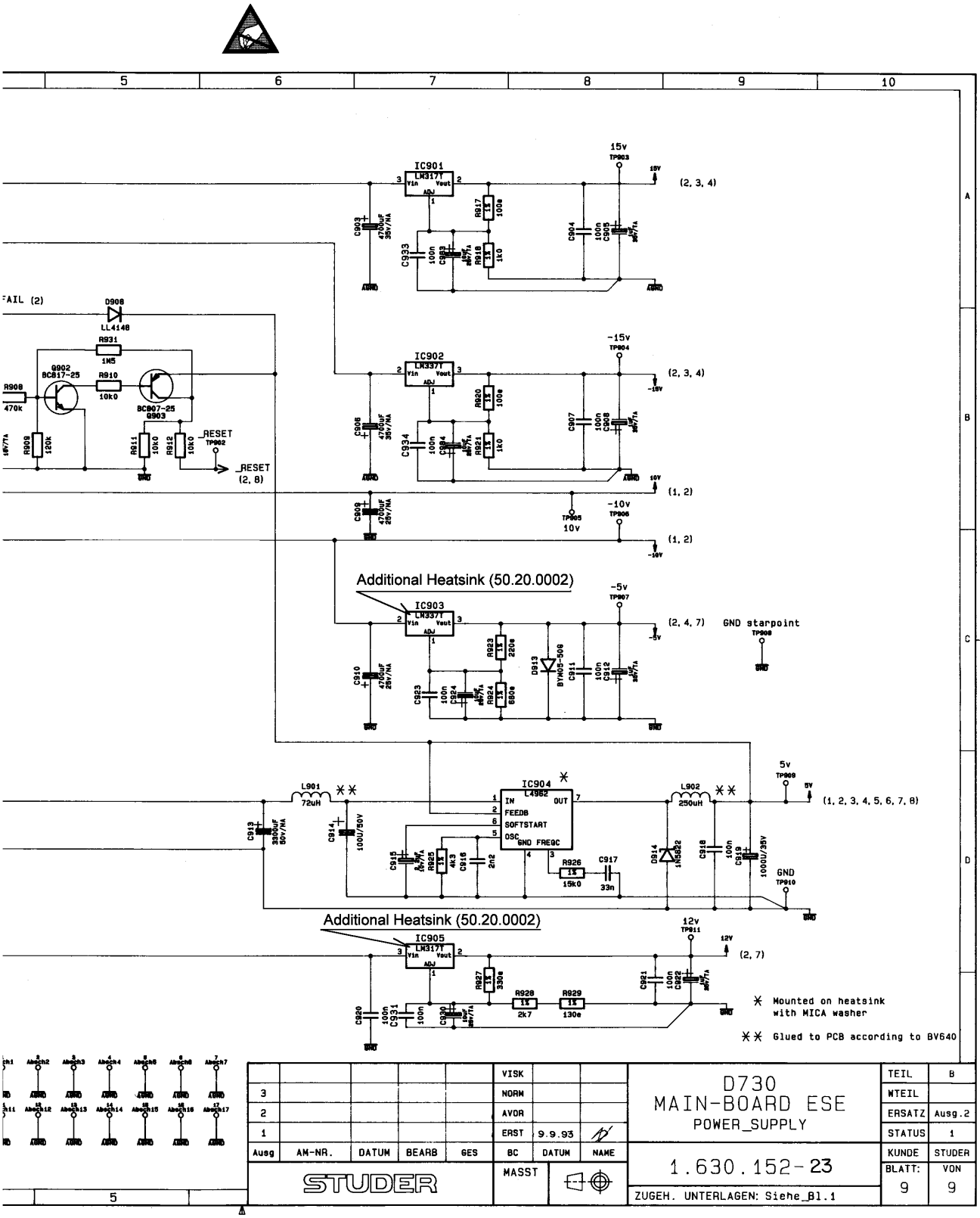
- **Bill of Material**

Spare Part	Studer Order Number	Reference	Count
Heat sink	50.20.0002	to IC903 and IC905	2
Allen-head screw M3x6	21.53.9354	to IC903 and IC905	2
LM 317T Motorola	50.10.0104	IC905	1
LM 337T	50.10.0105	IC903	1
HEF4750V	50.99.0179	IC703	1

Component Layout of PCB 1.630.153.23/.24/.25



Section of Circuit diagram of PCB 1.630.153.23/.24/.25



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