I.T.T. Model 'Studio 720'

General Description: A portable stereo cassette tape recorder operating from mains and dry or rechargeable batteries. Sockets are provided for the connection of stereo headphones and microphone/radio/pick-up or tape recorder input/outputs. The circuit features manual or automatic record level control.

Mains Supplies: 220-240V, 50Hz.

Batteries: 7·5V (5 × HP11).

Current Drain : (50mW output): 20mA.

Loudspeaker: 4 Ω impedance.

Dismantling: Pull of the battery lid. Loosen three countersunk screws in the cabinet bottom and one in the battery compartment. Lift cabinet bottom and tilt to the right. The chassis is retained by four long screws with washers. Lift the chassis and tilt to the right. The boards are held by retaining screws, spacers and washers. When replacing the boards, the switch levers must be in the correct position.

Fuses: The thermic fuse has Si 201 integrated in the mains transformer, regenerates itself within a short time after the set has been temporarily disconnected from the power outlet. The plus lead of accu A (0·2mm diam. enamel copper wire serves simultaneously as its fuse).

Operation with 'Dryfit-set DS 1': Insert accu A in the battery compartment in such a manner, that the lettering points toward the bottom and the contacts point to the centre of the set.

Plug the 3 connecting pins of charging adaptor B into the sockets provided for them. To avoid prolonging the charging time, no buttons should be depressed during the charging process.

Adjustments

Erase Frequency Bias: The alignment is carried out with the 'REC' button depressed and in the switch position 'Fe' (measurements with oscilloscope).

The erase frequency (67 kHz can be adjusted with Tr201). An adjustment of the R.F. transformer Tr201 can also be carried out by a frequency comparison (Lissajous figures). The limiting values of the erase head voltages lie between 40Vpp and 55Vpp (measured between TP201 and earth). The bias current is adjusted with the potentiometer VR4 (104). This bias current should be changed only after the record/replay head was replaced and the required frequency response no longer attained. The correct bias (limiting values between 70mVpp and 125mVpp) should be ascertained with the aid of the frequency response

only. The bias current is correctly adjusted when the optimum frequency response of the recorder is attained. Adjust with VR4 (104), measure at R1 (101), test point 1 (101).

In the switch position 'Cr' adjust the bias with VR3 (103) to a value that is 3 dB higher than that measured in the 'Fe' position.

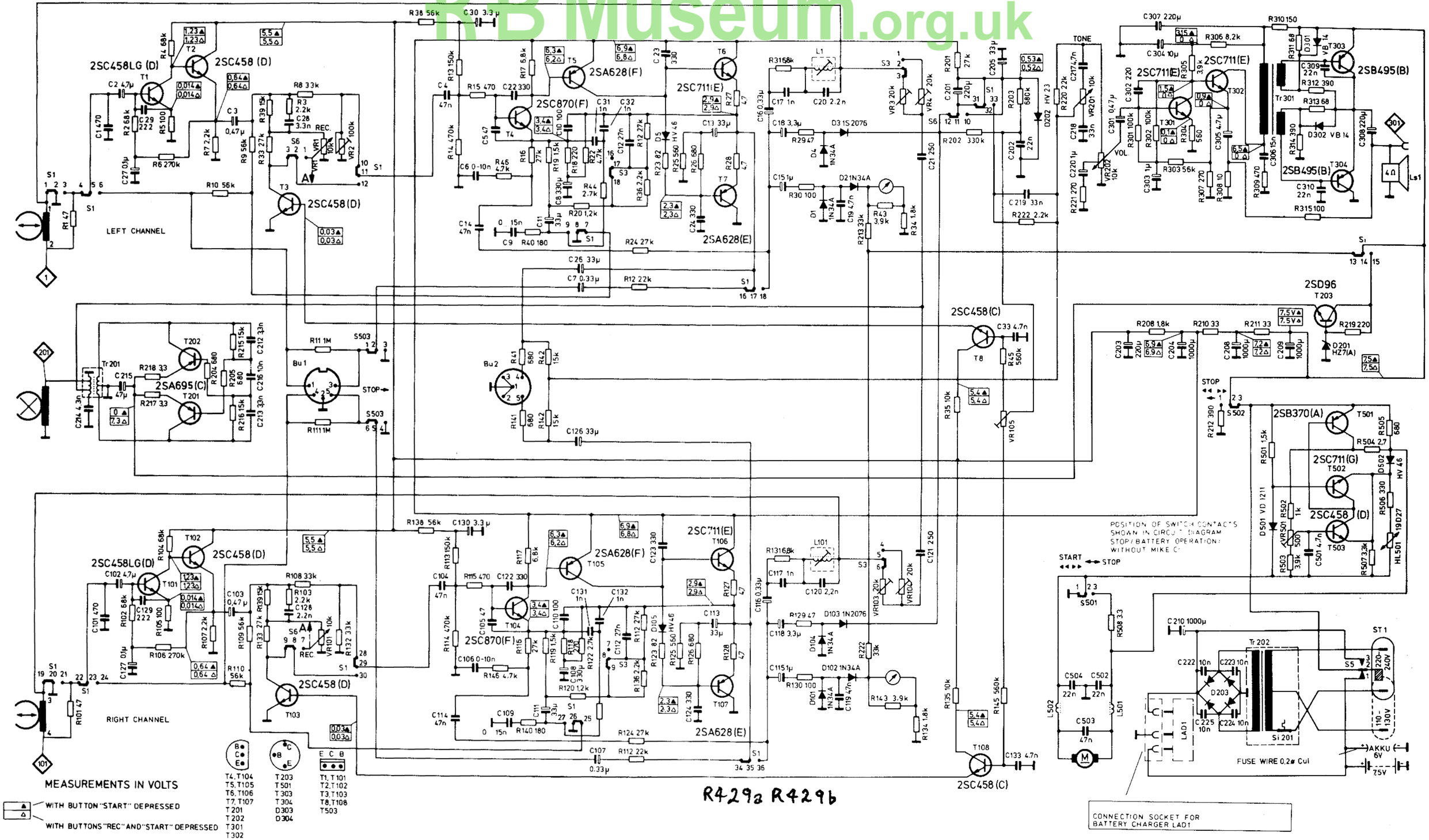
Automatic Recording Level Control: Connect audio oscillator to Bu1, signal to pin 3 (5), earth to pin 2. Switch on automatic level control. Set VR 202 (VOL.) and VR201 (TONE) to 'O' position, recording button (REC.) depressed. Connect A.F. voltmeter (Rint = 100k) to Bu2, pin 4 (5) with earth to pin 2. E inp = 2V, 1kHz. Read E out; then switch E inp to 200 mV. The time for each 6dB rise of the E out should be approx. 18s to 45a.

The balance adjustment of the channels is required only when one of the transistors T3, T103, T8, T108 was changed. Connect audio oscillator with 500 mV at 1 kHz to Bu 1, pin 3; A.F. voltmeter to Bu 2, pin 4 (note test result). Then connect audio oscillator with 250mV at 1 kHz to Bu 1, pin 5 and A.F. voltmeter to Bu 2, pin 5. With V.R. 105, adjust the output voltage of Bu 2, pin 5 to half the value measured at Bu 2, pin 4.

Balance of Channels (Playback): Play back I.T.T. test cassette (Order No. 5996 01 30) with 333 Hz (Part 2). With V.R. 2, match the output signal of Bu 1, pin 3 to the output signal of Bu 1, pin 5 (both measurements to earth).

Tape Speed: V.R.501.

Circuit Diagram Notes: The voltage measurements are taken without signal at the operating voltage of 7·5V with a measuring instrument 33kΩ/V internal resistance. The indicated measurements are average values determined from series measurements. Measurements may deviate ±10 per cent. The differences between playback and recording, which in part are only slight. Lie according to the actual measurements, in the order of the magnitude indicated.



(R429a) CIRCUIT DIAGRAM - MODEL STUDIO 720 *(Part)*

(R429b) CIRCUIT DIAGRAM - MODEL STUDIO 720 *(Continued)*