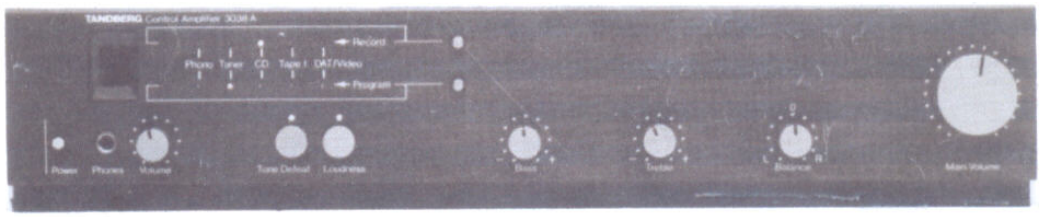
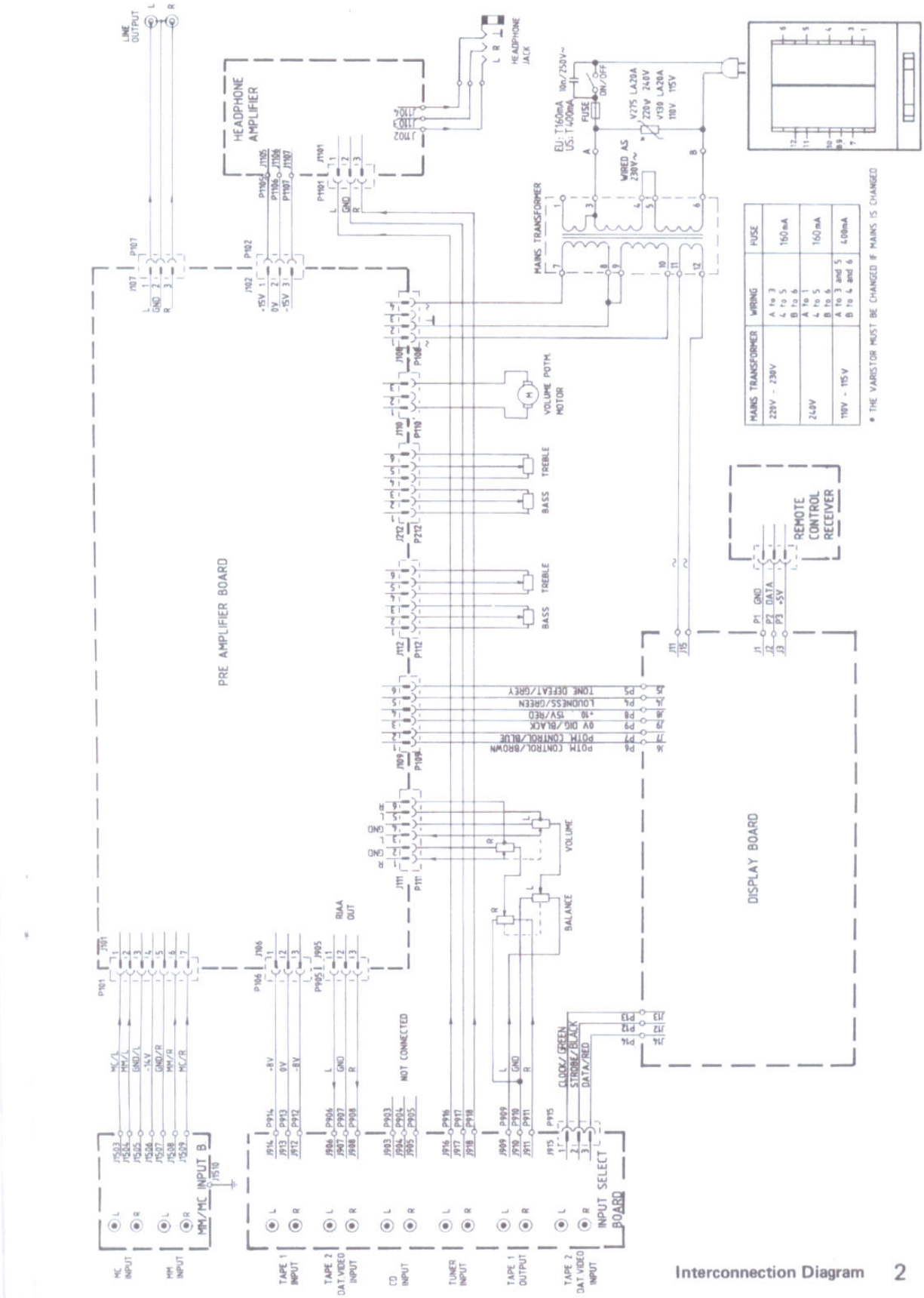
TANDBERG® TCA 3038A

Circuit Diagrams and Alignment Instructions

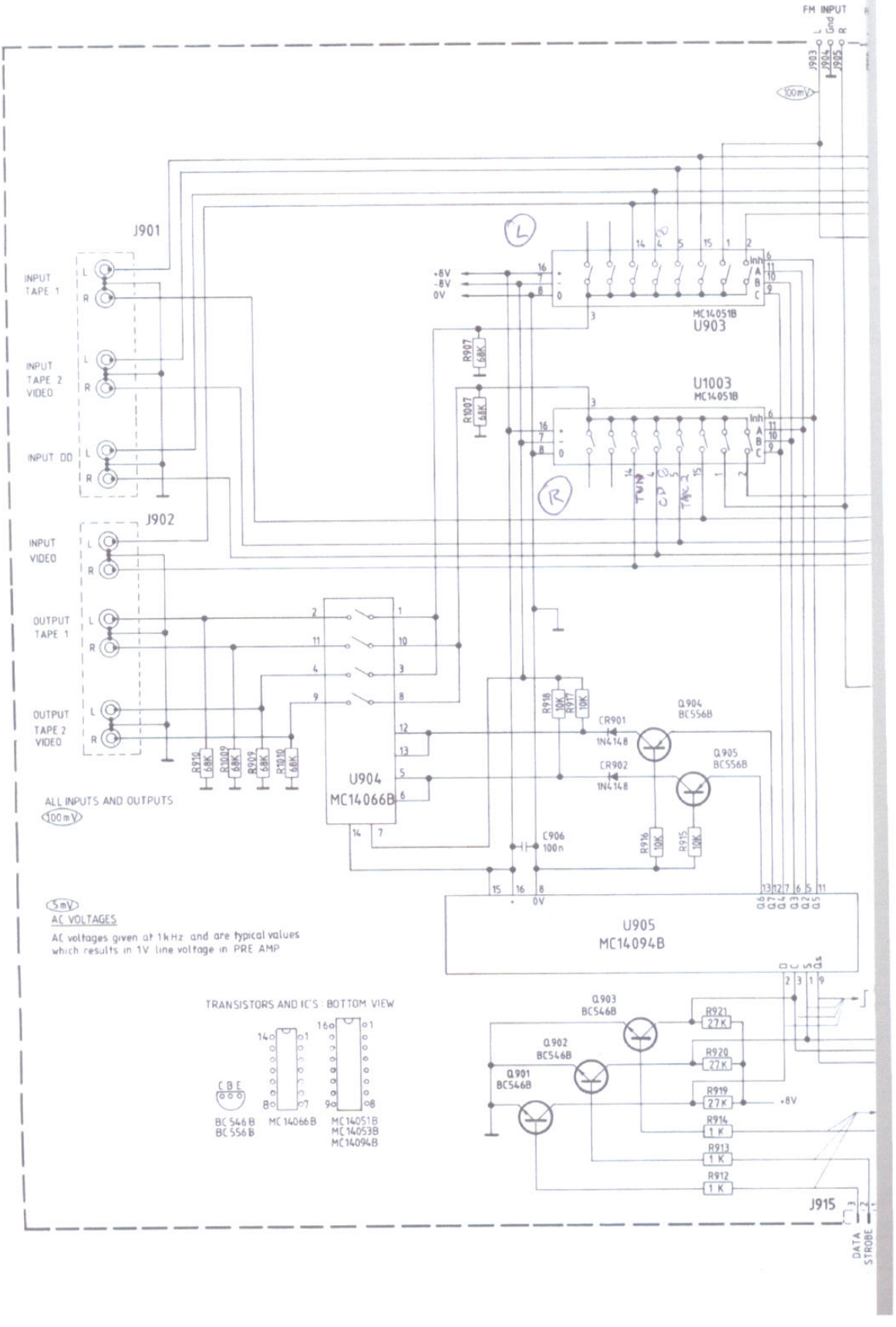
SCHEMATICS W/NOTES

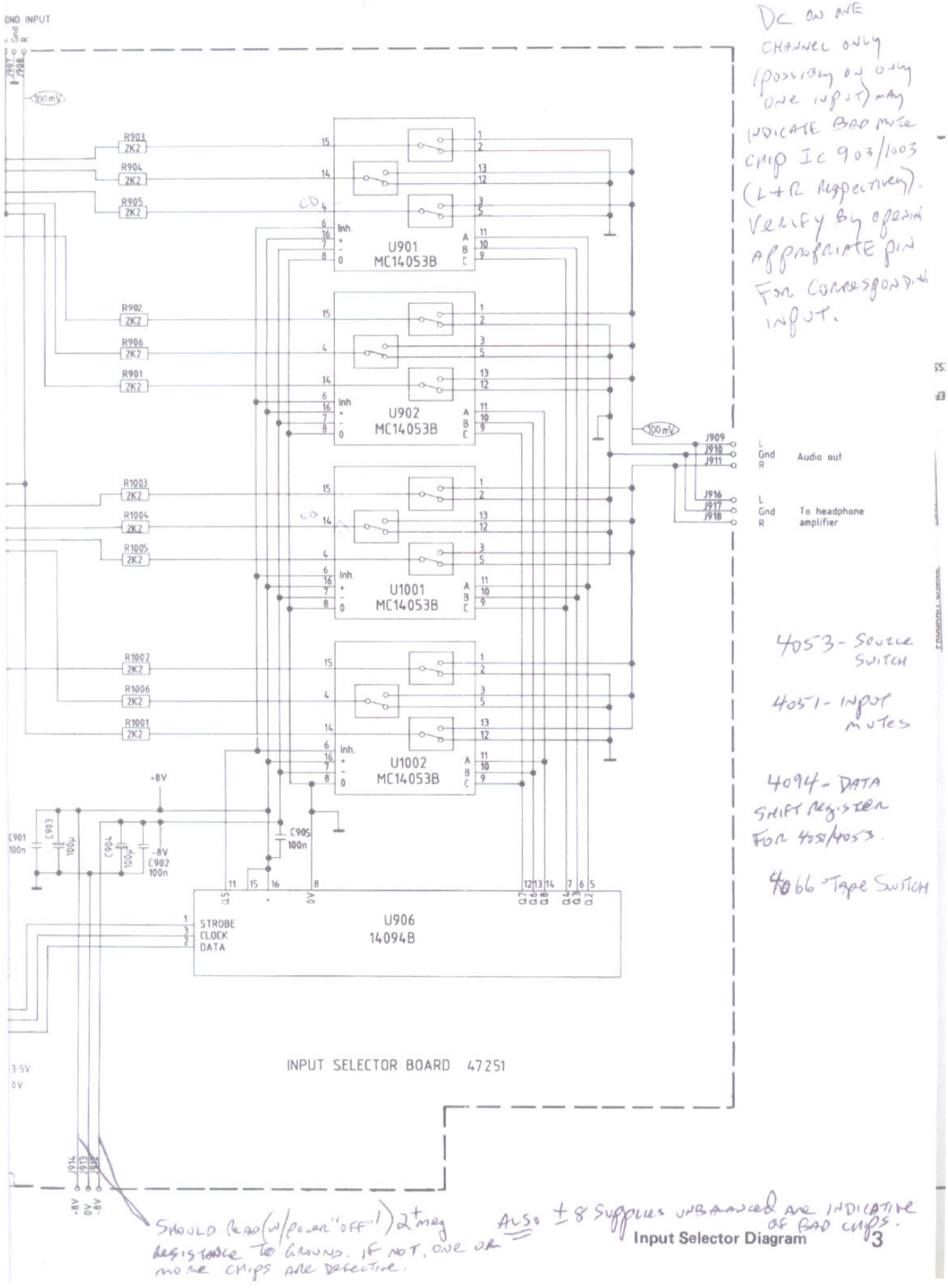


January 1989



Interconnection Diagram 2


FM INPUT
J903
J904
J905
100mV
J901
INPUT TAPE 1
INPUT TAPE 2 VIDEO
INPUT DD
J902
INPUT VIDEO
OUTPUT TAPE 1
OUTPUT TAPE 2 VIDEO
ALL INPUTS AND OUTPUTS
100mV
+8V
-8V
0V
U903
MC14051B
U1003
MC14051B
R907 68K
R1007 68K
R910 68K
R1009 68K
R909 68K
R1010 68K
U904
MC14066B
R918 10K
R917 10K
CR901
1N4148
CR902
1N4148
Q904
BC556B
Q905
BC556B
R916 10K
R915 10K
C906
100n
U905
MC14094B
5mV
AC VOLTAGES
AC voltages given at 1kHz and are typical values which results in 1V line voltage in PRE AMP
TRANSISTORS AND IC'S : BOTTOM VIEW
C B E
BC 546 B
BC 556 B
MC 14066 B
MC 14051B
MC 14053B
MC 14094B
Q903
BC546B
Q902
BC546B
Q901
BC546B
R921 27K
R920 27K
R919 27K
R914 1 K
R913 1 K
R912 1 K
J915
DATA
STROBE



DC ON ONE CHANNEL ONLY (POSSIBLY ON ONLY ONE INPUT) MAY INDICATE BAD MUTE CHIP IC 903/1003 (L+R RESPECTIVELY). VERIFY BY OPENING APPROPRIATE PIN FOR CORRESPONDING INPUT.

4053 - SOURCE SWITCH

4051 - INPUT MUTES

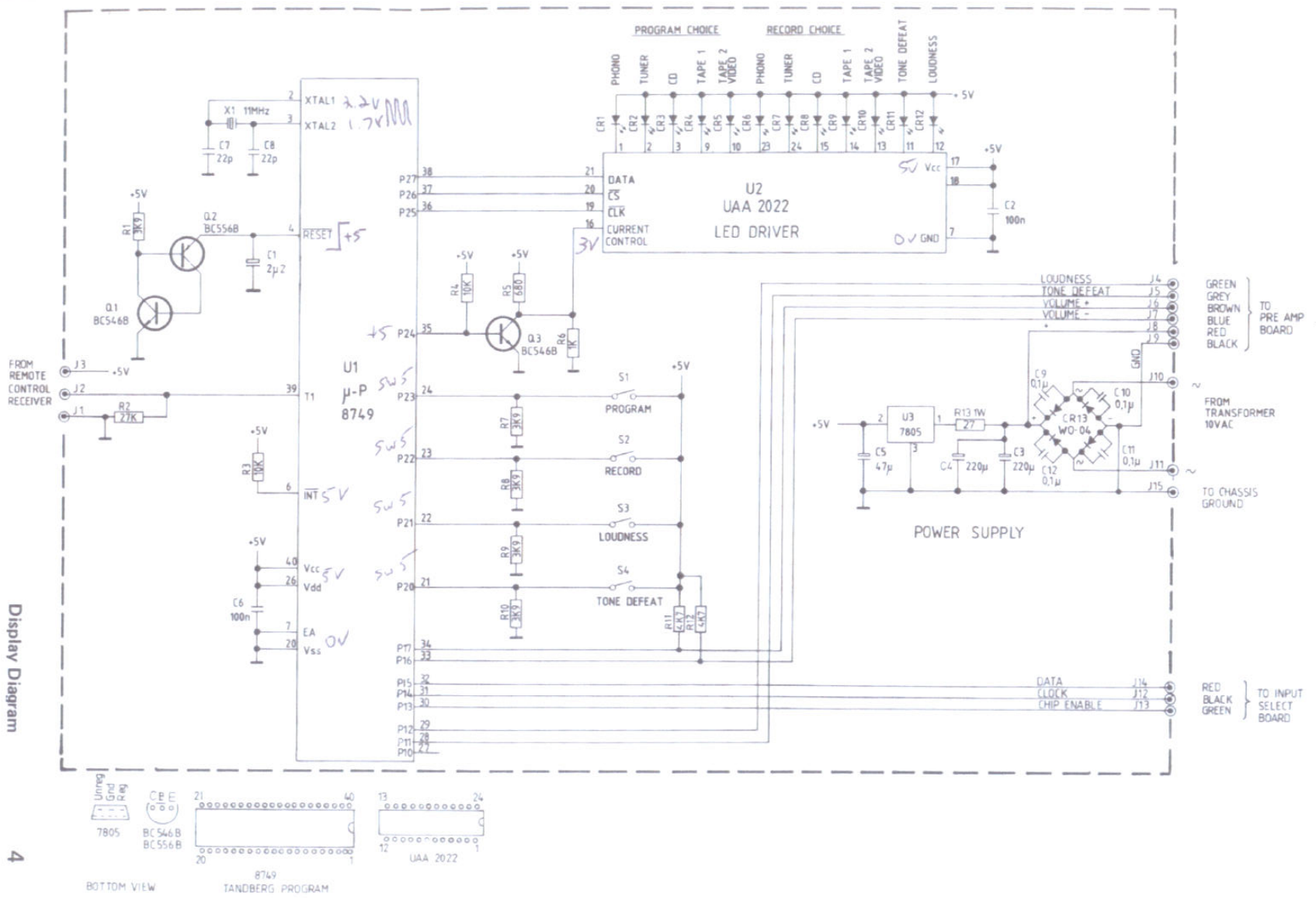
4094 - DATA SHIFT REGISTER FOR 4051/4053.

4066 TAPE SWITCH

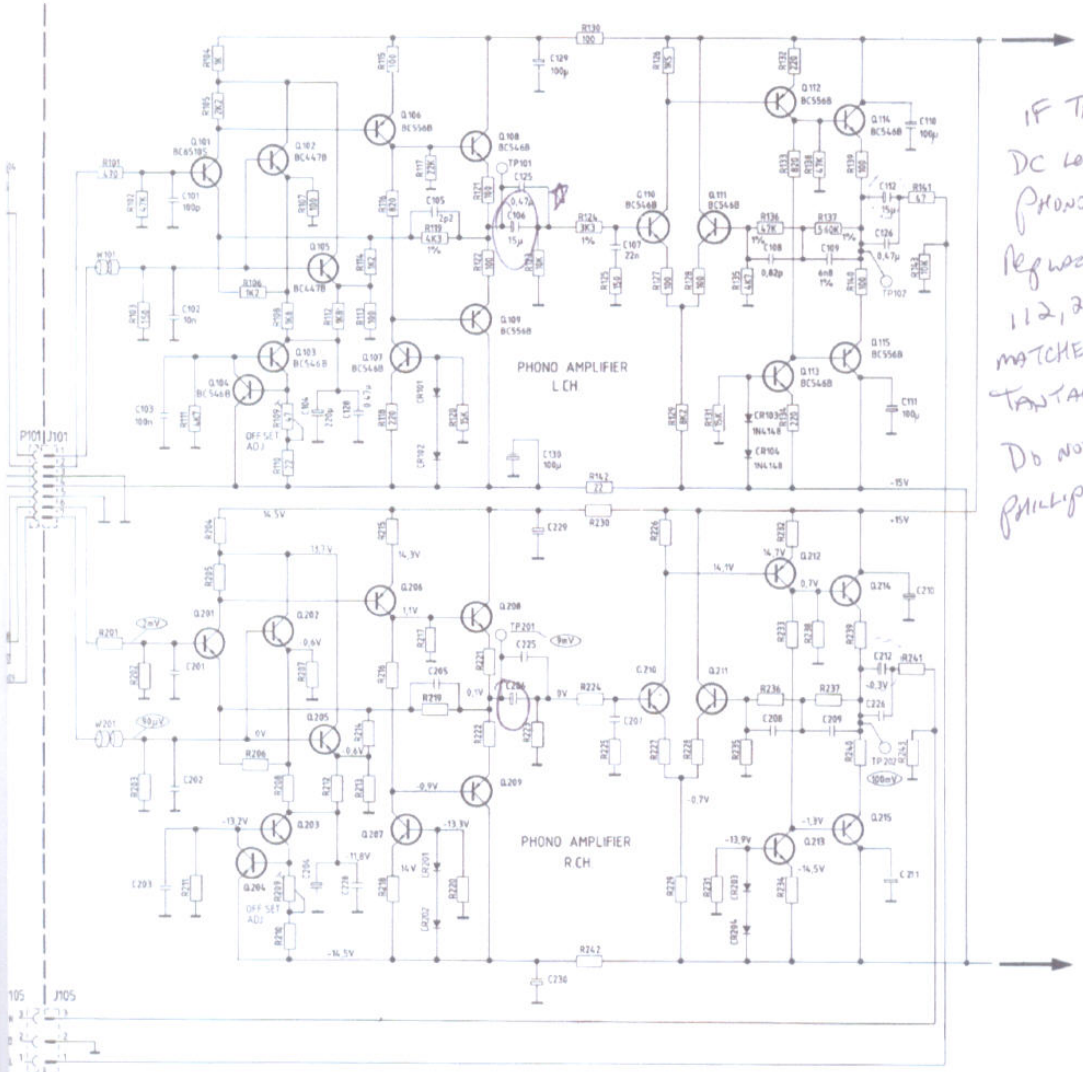
SHOULD READ (W/POWER "OFF") 2+meg RESISTANCE TO GROUND. IF NOT, ONE OR MORE CHIPS ARE DEFECTIVE.

ALSO ±8 SUPPLIES UNBALANCED ARE INDICATIVE OF BAD CHIPS.

Input Selector Diagram


PROGRAM CHOICE
RECORD CHOICE
PHONO
TUNER
CD
TAPE 1
TAPE 2 VIDEO
TONE DEFEAT
LOUDNESS
+5V
U2
UAA 2022
LED DRIVER
DATA
CS
CLK
CURRENT CONTROL
Vcc
GND
U1
μ-P
8749
XTAL1
XTAL2
X1 11MHz
C7 22p
C8 22p
RESET
C1 2μ2
Q1 BC546B
Q2 BC556B
R1 3K9
INT
T1
Vcc
Vdd
EA
Vss
C6 100n
C2 100n
R2 27K
R3 10K
R4 10K
R5 680
R6 1K
Q3 BC546B
R7 3K9
R8 3K9
R9 3K9
R10 3K9
R11 4K7
R12 4K7
S1 PROGRAM
S2 RECORD
S3 LOUDNESS
S4 TONE DEFEAT
FROM REMOTE CONTROL RECEIVER
J1
J2
J3
LOUDNESS J4
TONE DEFEAT J5
VOLUME + J6
VOLUME - J7
J8
J9
GND J10
J11
J15
GREEN
GREY
BROWN
BLUE
RED
BLACK
TO PRE AMP BOARD
FROM TRANSFORMER 10VAC
TO CHASSIS GROUND
U3 7805
R13 1W 27
C5 47μ
C4 220μ
C3 220μ
C9 0,1μ
C10 0,1μ
C11 0,1μ
C12 0,1μ
CR13 WO-04
POWER SUPPLY
DATA J14
CLOCK J12
CHIP ENABLE J13
RED
BLACK
GREEN
TO INPUT SELECT BOARD
7805
BC546B
BC556B
BOTTOM VIEW
8749
TANDBERG PROGRAM
UAA 2022

* - ⓫ C106/206 may leak, causing base of Q110 to be driven into cutoff. Lift C106/206 to check (drive signal will pass through C125 which is in parallel w/106).



IF THERE IS DC LEAKAGE IN PHONO SECTION REPLACE C/106,206 112,212 WITH NEW MATCHED SET OF TANTALUMS 22/16V. DO NOT USE ORIGINAL PHILLIPS ORANGE CAPS!

PREAMPLIFIER BOARD
47256-2

TRANSISTORS AND ICs BOTTOM VIEW

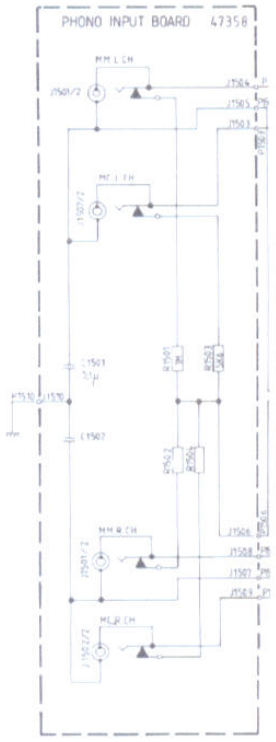
C B E — BC548B, BC556B, BC560C, BC447B, BC485B
E B C — BC 451S
E C B — BD 239B, BD 240B
MC 14053 B — U101, U201

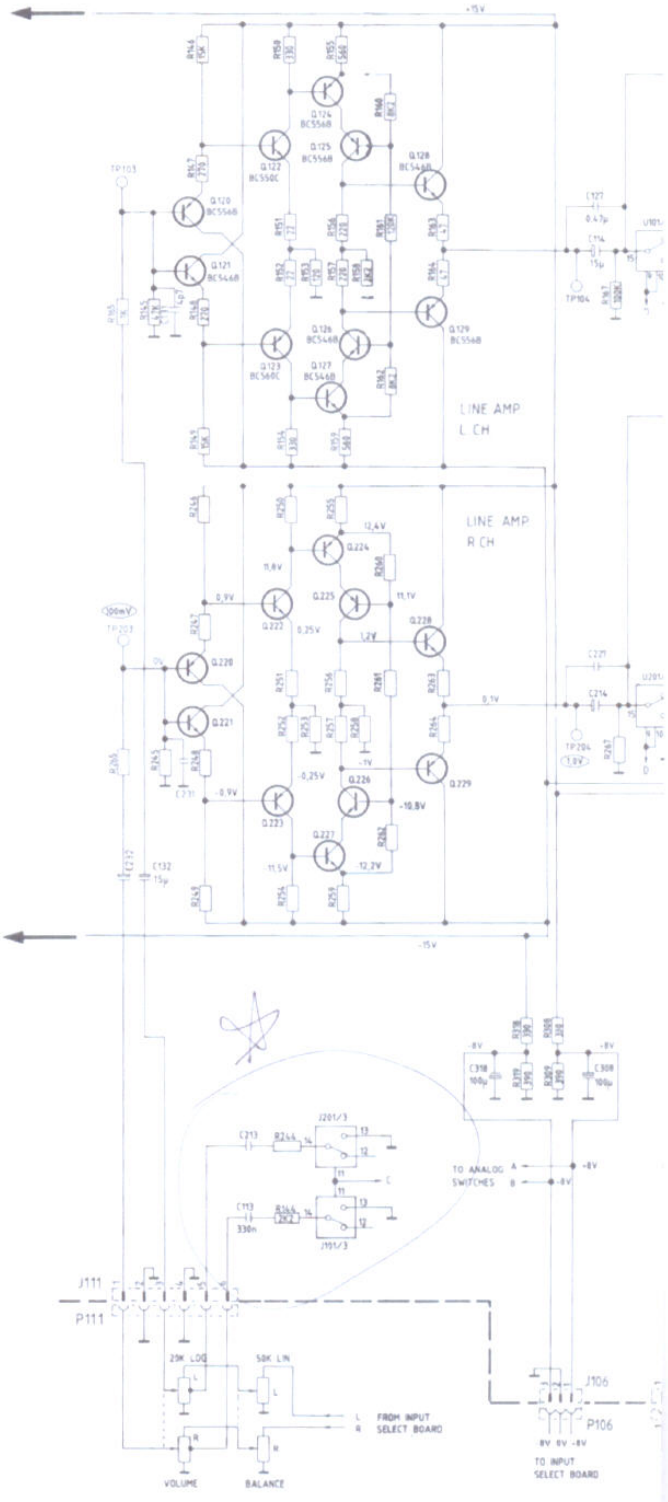
100mV AC-LEVELS AT 1kHz ARE APPROXIMATE VALUES. VOLUME POTMETER IN MAX POSITION. BALANCE IN MIDDLE POSITION

5V DC-LEVELS WHEN MC INPUT AND HIGH LEVEL INPUTS ARE LOADED WITH 10kΩ AND 1kΩ RESPECTIVELY. ALL DC LEVELS ARE TYPICAL VALUES

ADJUSTMENTS:
Adjustments can first be performed after 10 minutes warm-up.
Adjust R109/R209 until the DC voltage at TP101/TP201 is 0V ± 100 mV.
Short-circuit connectors shall be used at the MC-inputs.

Part of Preamplifier Diagram

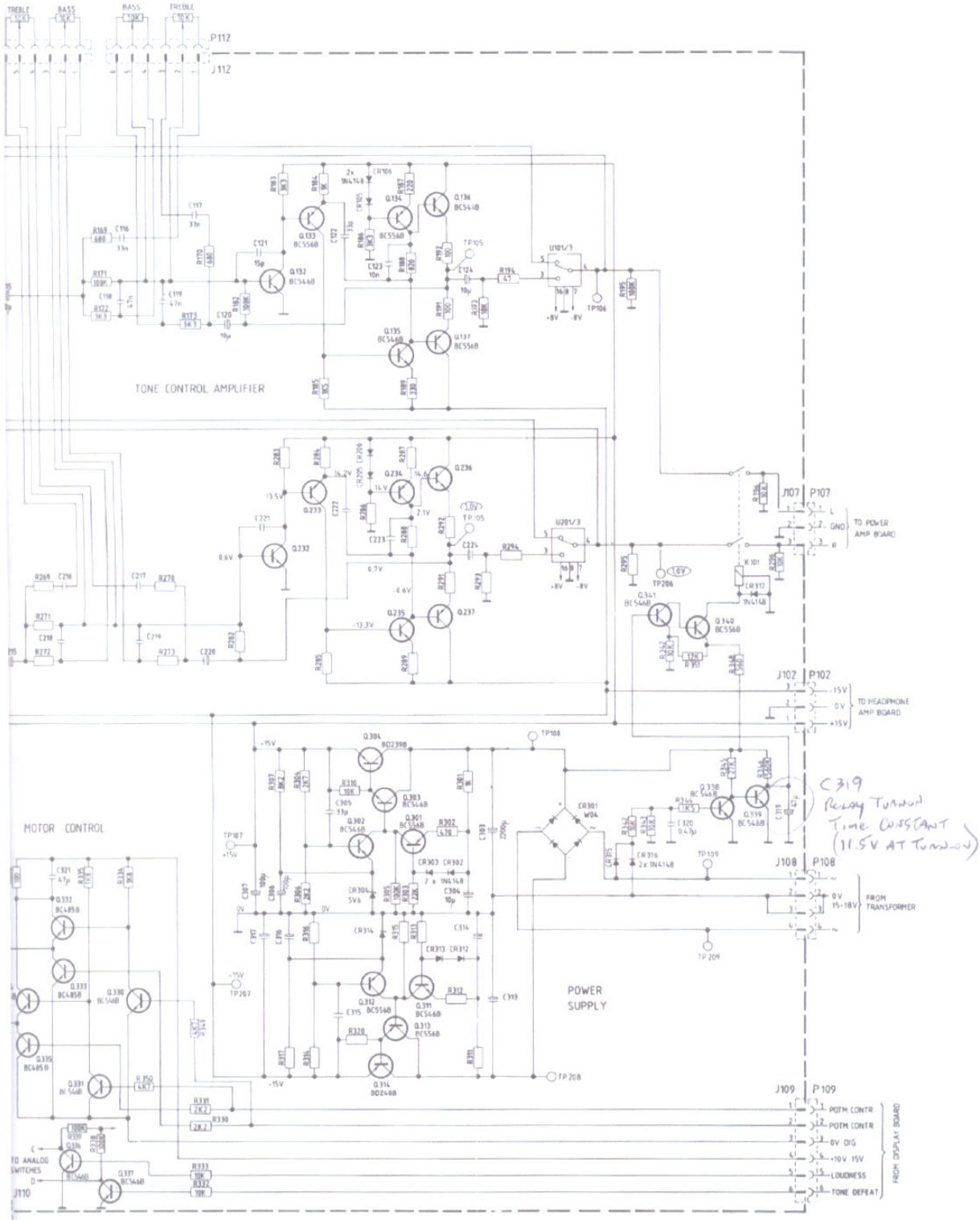

PHONO INPUT BOARD 47358
MM L CH
MC L CH
MM R CH
MC R CH
TO INPUT
SELECT BOARD



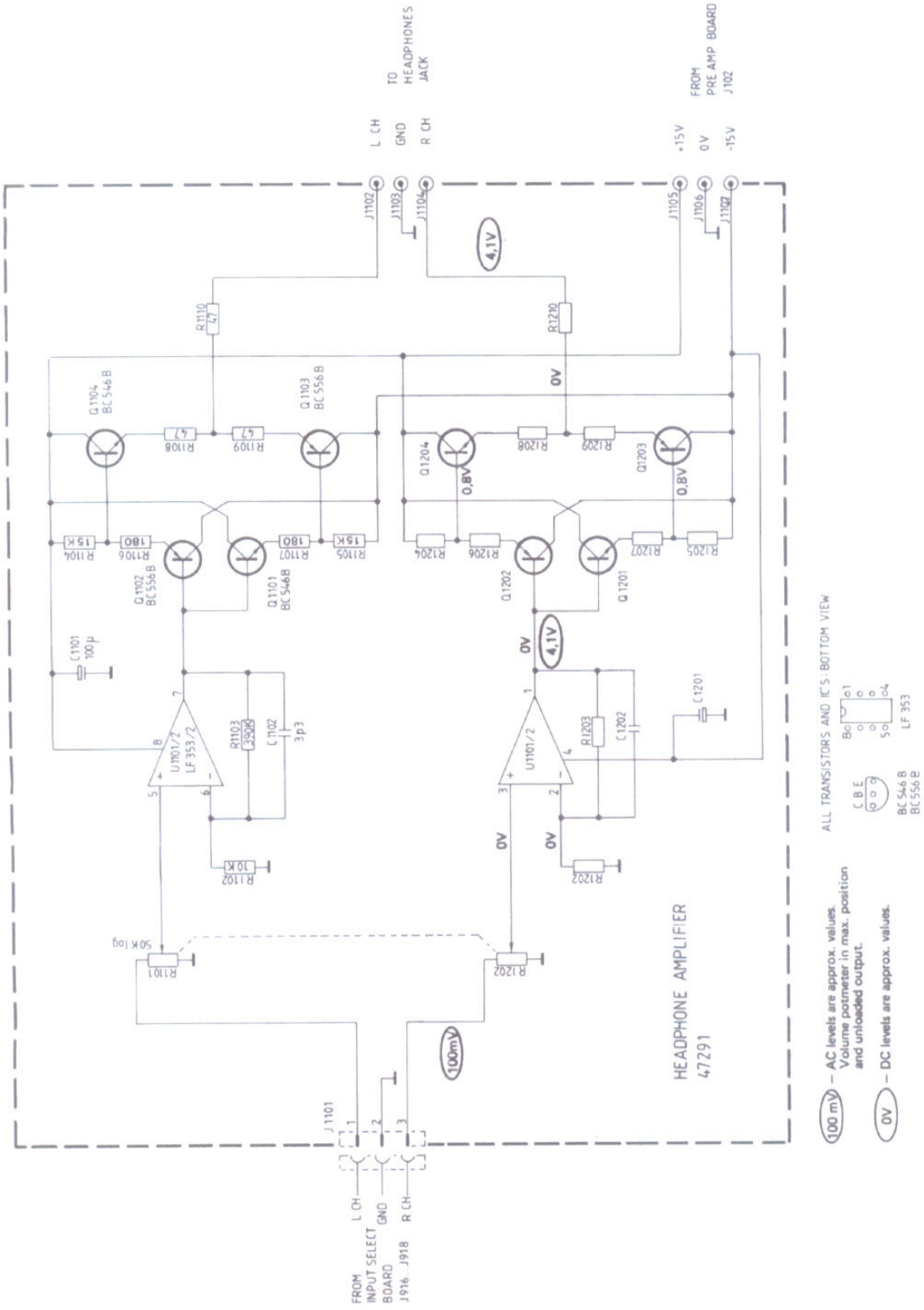
Loudness Low pass Filter.
Not An Active Circuit.
Loudness is Accomplished By
Dropping Highs & Raising Volume,
Thereby Increasing Relative Bass
Response.

IF one Channel out.

Check For
Cold Solder on
Volume pot.



Part of Preamplifier Diagram


TO HEADPHONES JACK
L CH
GND
R CH
FROM PRE AMP BOARD J102
+15V
0V
-15V
J1102
J1103
J1104
J1105
J1106
J1107
4,1V
0V
0,8V
HEADPHONE AMPLIFIER
47291
100mV
FROM INPUT SELECT BOARD J916 J918
J1101
ALL TRANSISTORS AND IC'S: BOTTOM VIEW
BC546B
BC556B
LF 353
100 mV – AC levels are approx. values. Volume potmeter in max. position and unloaded output.
0V – DC levels are approx. values.

Technical Data

Tandberg Control Amplifier TCA 3038A

Power Requirements:	110 – 115 V/220 – 230 V/240 V ± 10 %, 50/60 Hz
Power consumption:	35 W max.
Dimensions:	Width: 17 1/8" (43.5 cm)
	Depth: 13 3/4" (35.2 cm)
	Height: 3 1/4" (8.7 cm)
	Weight: 10.7 lbs (4.85 kg)

Technical Data according to IHF-A-202, 1978

Frequency range:		
Phono MM, Phono MC:	20 – 20.000 Hz	± 0.5 dB
Tape 1, Tape 2, Tuner, CD:	20 – 20.000 Hz	+ 0/– 0.5 dB
Maximum Voltage Output:		
Preamp output:	5 V at THD = 0.05%	
Preamp output:	5.5 V at clipping level	
Tape 1, Tape 2:	5.5 V	
Headphone output:	10 V unloaded	
Total Harmonic Distortion (20 Hz – 20.000 Hz):		
Phono MM, Phono MC:	< 0.08 %	
Tape 1, Tape 2, DAT, Video, Tuner, CD:	< 0.04 %	
Input Sensitivity – Ref. 0.5 V output voltage:		
Phono MM	0.9 mV	
Phono MC:	120 uV	
Tape 1, Tape 2, DAT, Video, Tuner, CD:	70 mV	
A-weighted Signal-to-Noise ratio:		
Phono MM:	75 dB	
Phono MC:	70 dB	
Tape 1, Tape 2, DAT, Video, Tuner, CD:	85 dB	
Maximum Input Voltage (1 kHz):		
Phono MM:	70 mV	
Phono MC:	5 mV	
Tape 1, Tape 2, DAT, Video, Tuner, CD:	5.5 V	
Input impedance:		
Phono MM:	47 kohm	
Phono MC:	150 ohm	
Tape 1, Tape 2, DAT, Video, Tuner, CD:	min. 10 kohm	

Secondary Disclosures

Output impedance:	
Preamp:	200 ohm + 15 uF in series
Headphones:	150 ohm
Headphones (min. load):	150 ohm
Tone-control response:	
Bass:	± 9 dB at 100 Hz
Treble:	± 9 dB at 10.000 Hz
Loudness:	Max. 7 dB at 50 Hz
Crosstalk (100 Hz – 10 kHz):	
Phono MM, Phono MC:	To any of the other sources > 75 dB
Tape 1, Tape 2, DAT, Video, Tuner, CD:	To any of the other sources > 75 dB
Separation (100 Hz – 10 kHz):	
Phono MM, Phono MC:	> 50 dB
Tape 1, Tape 2, DAT, Video, Tuner, CD:	> 50 dB
Transient intermodulation:	
All inputs:	Immeasureable

Other Technical Data

Frequency range:	
Tape 1, Tape 2, Tuner, CD:	1.6 – 250.000 Hz + 0/– 3 dB
Phase shift (20 Hz – 20.000 Hz):	
Tape 1, Tape 2, DAT, Video, Tuner, CD:	+ 5°/– 5°

– Specifications are subject to change without notice.

Dismantling/Mounting the Display board

Dismantling/mounting the Display board is in principle shown in the figure. (The dimensions are not the same).