

**SATELLIT G7 Mk II**

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**SERVICE MANUAL**

# **SERVICE MANUAL, SATELLITE G7 Mk II**

## **GENERAL**

The SATELLITE G7 Mk II is based on a combination of an 8 in 2 audio mixer and a four channel high-power headphone amplifier. The amplifiers are optimised for high quality high- Z headphones. In addition, a built-in microphone allows instant communication with the control room.

Up to 10 SATELLITES G7 can be networked by a multicore cable. Besides the eight balanced audio signals, the multicore carries the supply voltages, some logic signals and the balanced talkback signal. To simplify wiring, each SATELLITE G7 is equipped with a feed-through connector.

Each of the eight balanced input channels has its own level- and panpot to create a stereomix. The mastersection is equipped with a baxandell trebel- and basscontrol, and two master controls for both stereo amplifiers. The amplifiers are short-circuit-proof and are able to deliver more than 20 V<sub>eff</sub> to the connected headphones. Up to six headphones in two groups A and B may be plugged via 1/4 " phonejacks. A red "Clip" LED indicates overload in any of the output stages.

A powerlogic allows a remote powercontrol i.e. from the control room. A yellow "Stand-By" LED indicates that the central power control is switched and the built-in power switch may be operated. Activity is indicated by the green "Power" LED. The SATELLITE G7 is protected by a built-in temperature sensor, which cuts off power in case of thermal over-load. A red "Temp" LED indicates the thermal overload. The unit will automatically return to operation after cooling down.

A built-in talkback microphone is activated with the "Talk-back" pushbutton, and the yellow "Busy" LED is lit. A simple AGC circuit compensates varying talking distances. When the pushbutton is engaged, a logic signal appears to lock the other connected units, so there is only one station active at a moment. The locking of the other stations is also indicated by the yellow "Busy" LED.

The necessary requirements for a proper installation of a system of some SATELLITES G7 are balanced cue sends on the mixing console and an external power supply for the balanced supply voltage. Best results and easy installation is obtained using the MAINFRAME G7 which was designed to serve up to 10 SATELLITES G7.

## **THE CONSTRUCTION**

The case of the SATELLIT G7 is made of black anodised extruded profiles and 2 mm Aluminium sheets. With this construction a maximum of stability and easy access in case of servicing works are obtained. Although the inside seems to be very compact, it is quick to disassemble without soldering works.

A built-in 3/8" and 5/16" microphone thread in the bottom allows the mounting of the unit on all standard microphone stands.

## LIST OF THE PCB'S INSIDE THE SATELLITE G7 Mk II

Qty	Name	Function
4	INPUT PCB	balanced input for two channels with level- and pan-control.
1	MASTER PCB	carries the baxandell treble- and bass-control and two master-controls for both stereo amplifiers.
1	SYS-CON PCB	carries all talkback circuitry, the powerlogic and the LEDs.
1	MOTHER PCB	enables the interconnection between INPUT PCBs, MASTER PCB and MAIN PCB, carries the phonejacks.
1	MAIN PCB	carries the voltage regulation of all circuits, the current regulation of the amplifiers, the clipdetector and the temperature detector.

## TECHNICAL DATA

Input Channels	8
Input Sensitivity	+ 6 dBm
max. Input Voltage	+ 21 dBm
Input Impedance	44 kOhm, balanced
CMRR @ 15 kHz	> 50 dB
Crosstalk L/R and R/L	< 50 dB
Frequency Range	70 Hz - 20 kHz (-1 dB)
Clipdetector	flashes 2-3 dB beyond max. output
max. Output Voltage	> 28 dBm
THD+N	< 0.05 %
Noise	< -75 dB
Dynamic	> 100 dB
Talkback Output Voltage	0 dBm
Talkback Frequency Range	100 Hz - 5 kHz (-1 dB)
Talkback Output CMRR	> 50 dB
Supply Voltage	+/- 35 Volt (+/- 5 V)
Idle Current	+/- 50 mA
max. Current	+/- 500 mA

## **GENERAL SETTINGS**

### **Control of the internal voltage regulation**

1. Connect a voltmeter between [M] and pin 11 of IC TL 074 on the MAIN PCB.  
The reading must be +16 Volt.
2. Connect a voltmeter between [M] and pin 4 of IC TL074 on the MAIN PCB.  
The reading must be -16 Volt.

### **Control of the current regulation of the amplifiers**

1. Connect an amperemeter between [M] and [+UE].  
The reading must be 350-400 mA.
2. Connect an amperemeter between [M] and [- UE].  
The reading must be 350-400 mA.

### **Control and adjustment of the idle current of the amplifiers**

1. Connect a voltmeter between [TP 1] or [TP 1'] and [TP-RA].
2. Adjust the semifixed resistor [Tr 1] that the reading is 5 mV +/- 2 mV.  
Measurement should be made with temperature between 20<sup>0</sup> and 25<sup>0</sup>.
3. Continue with [TP 2]/[TP 2'] and [TP-LA] etc.

### **Control of the offset voltage of the amplifiers**

1. Connect a voltmeter between [M] and [TP-RA].
2. The reading should not exceed 100 mV.
3. Continue with [TP-LA], [TP-RB], [TP-LB].

### **Control of the thermal overload shut-off**

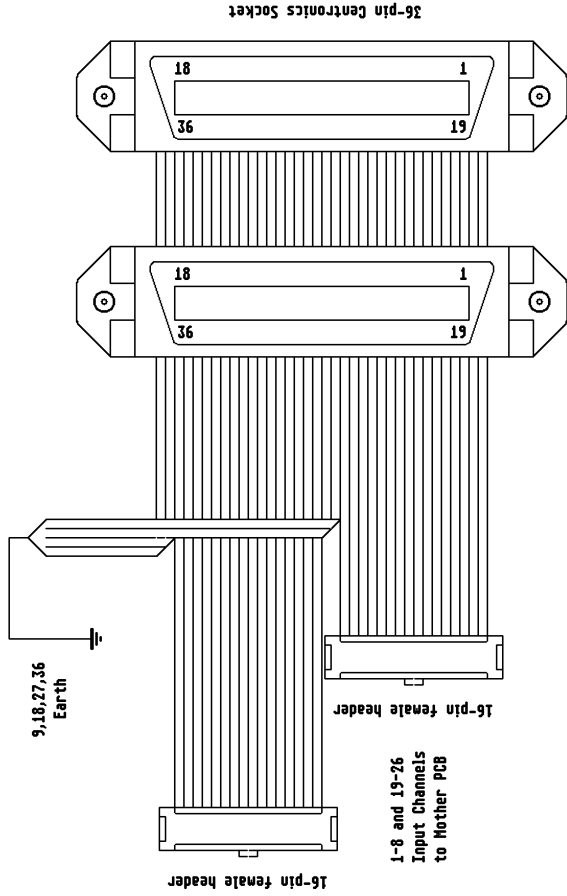
1. Heat the NTC beneath IC TL 074 with a soldering iron.  
The yellow relays on the MAIN PCB must release, the red "TEMP" LED on the SYS-CON PCB must be lit.
2. Cool down the NTC, the relays must switch on, the "TEMP" LED must switch off.



**COLORCODE AND FUNCTION OF MULTIPAIR CABLE**

CENTRONICS Pin No.	FUNCTION	COLOR
1	In CH 1 (+)	white-red
2	In CH 2 (+)	white-blue
3	In CH 3 (+)	white-green
4	In CH 4 (+)	white-yellow
5	In CH 5 (+)	white-grey
6	In CH 6 (+)	white-black
7	In CH 7 (+)	white-pink
8	In CH 8 (+)	white
9	Earth	green
10	U - (-35V)	green-blue
11	U - (-35V)	yellow-grey
12	Ground	green-black
13	Ground	green
14	U + (+35V)	red-green
15	U + (+35V)	yellow-pink
16	TB (+)	red-blue
17	TC	red
18	Earth	Screen
19	In CH 1 (-)	brown-red
20	In CH 2 (-)	brown-blue
21	In CH 3 (-)	brown-green
22	In CH 4 (-)	brown-yellow
23	In CH 5 (-)	brown-grey
24	In CH 6 (-)	brown-black
25	In CH 7 (-)	brown-pink
26	In CH 8 (-)	brown
27	Earth	yellow
28	U - (-35V)	yellow-blue
29	U - (-35V)	blue
30	Ground	yellow-black
31	Ground	grey-green
32	U + (+35V)	yellow-red
33	U + (+35V)	grey
34	TB (-)	grey-pink
35	PC	black
36	Earth	Screen

not connected: violet and pink



10,11,28,29 - U-  
12,13,30,31 - Ground  
14,15,32,33 - U+  
16,34 - TB  
17 - TC  
35 - PC  
Powersupply and  
Controlsignals to  
Main PCB



**LAKE PEOPLE**  
D-7750 KONSTANZ

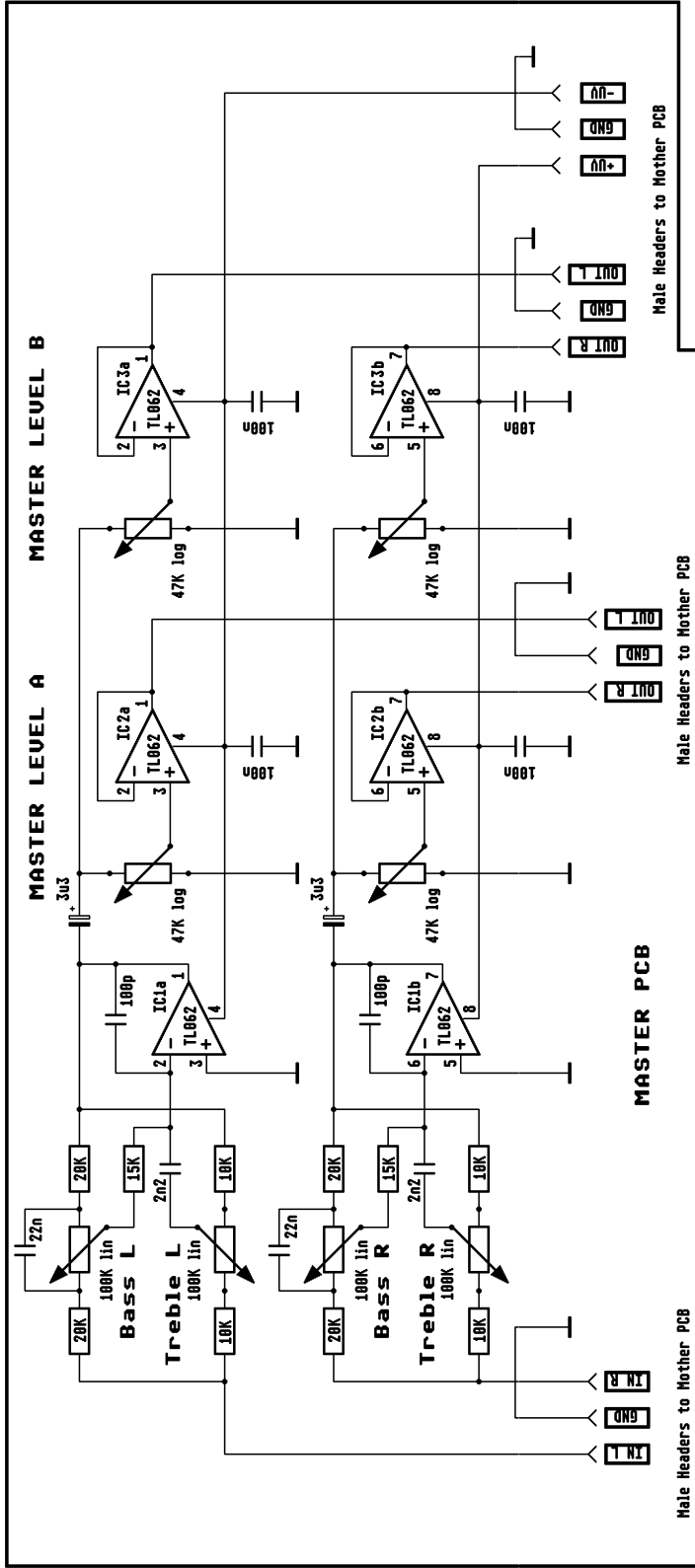
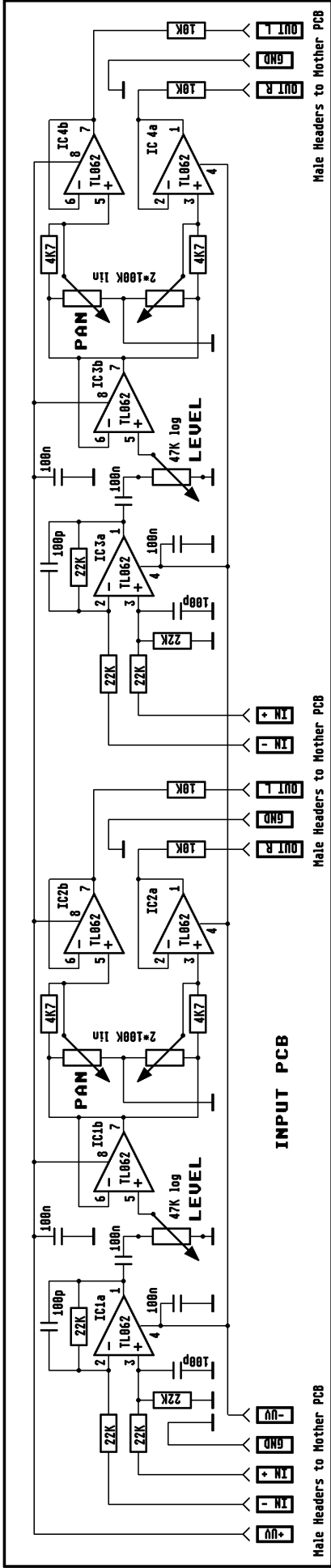
**SATELLIT G7 MKII**  
Wiring of Centronics Sockets

DESIGNED BY: **F. REIM** VERSION: **1.0** DATE: **10.01.93**

FILE: **G7-2-WIR.PCB** MODIFICATIONS: **none**

SHEET **1** of **1**





**MASTER LEVEL A**

**MASTER LEVEL B**

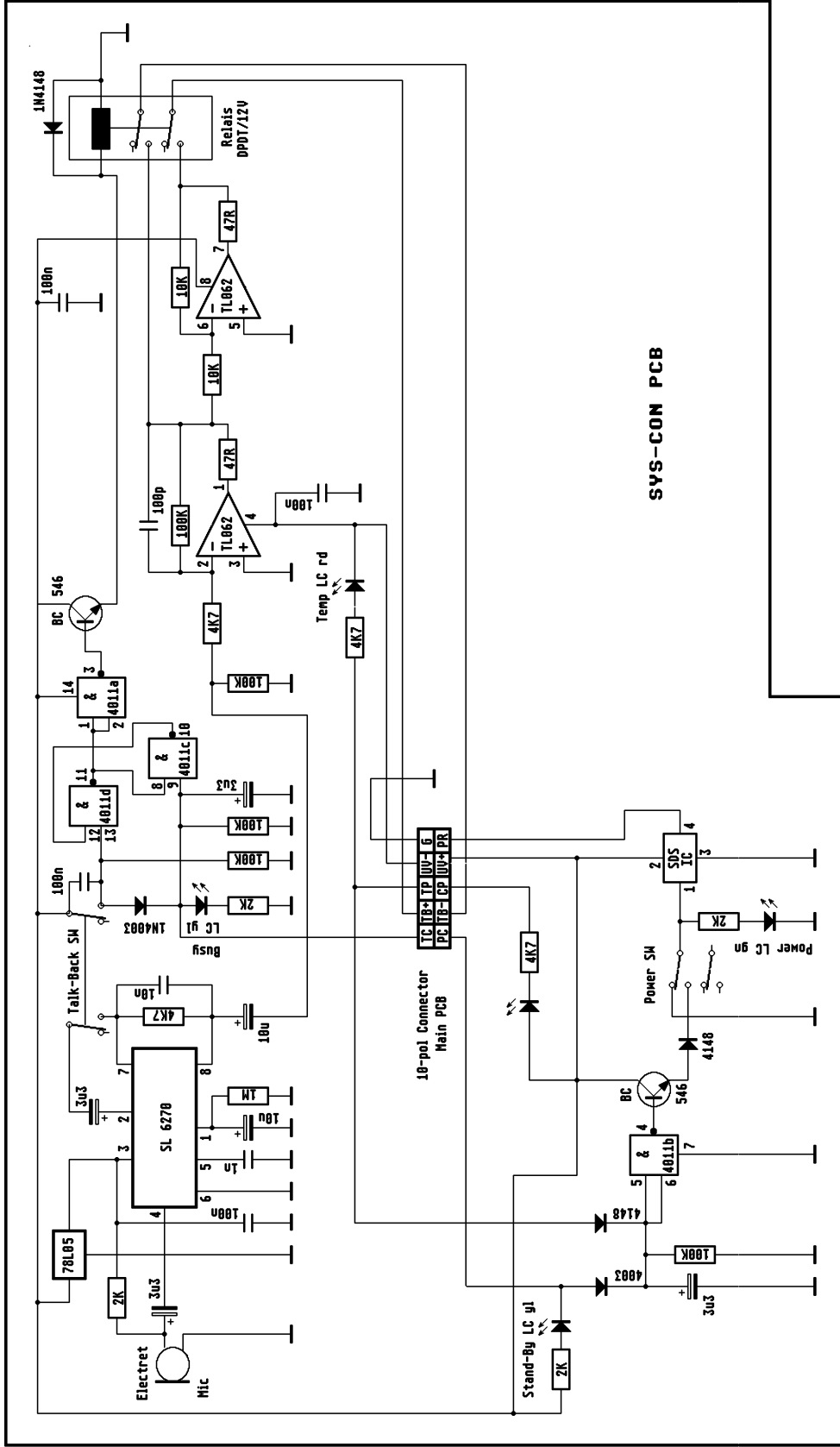
**L** LAKE PEOPLE D-7750 KONSTANZ

SATELLIT G7 MKII INPUT/MASTER PCB SCHEMATICS

DESIGNED BY: F. REIM	VERSION: 1.0	DATE: 10.01.93
FILE: G7-2-SC2.PCB	MODIFICATIONS: none	

SHEET 2 of 4



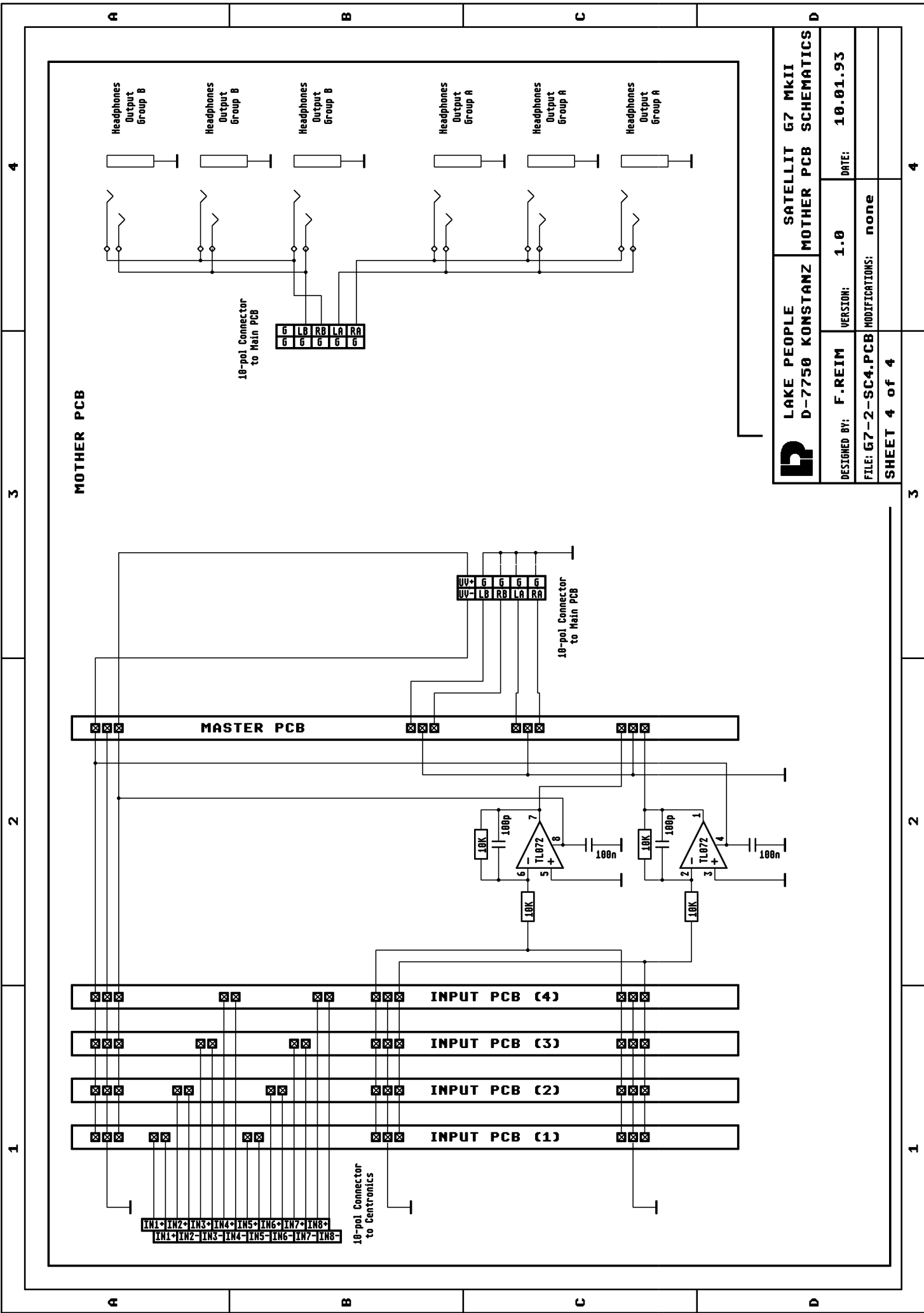


SYS-CON PCB



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 SYS-CON PCB SCHEMATICS

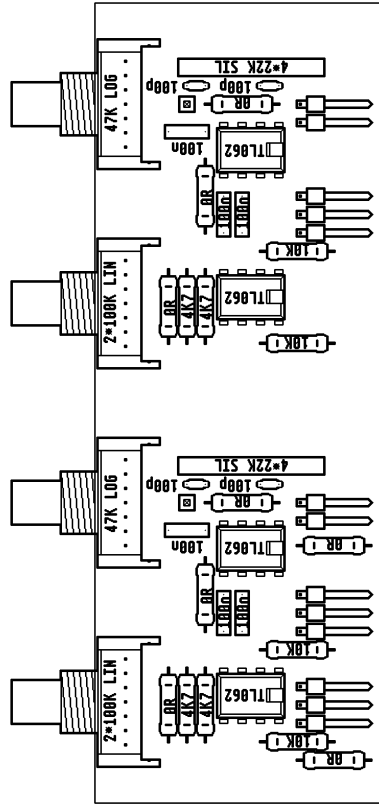
DESIGNED BY: F. REIM	VERSION: 1.0	DATE: 10.01.93
FILE: G7-2-SC3.PCB	MODIFICATIONS: none	
SHEET 3 of 4		



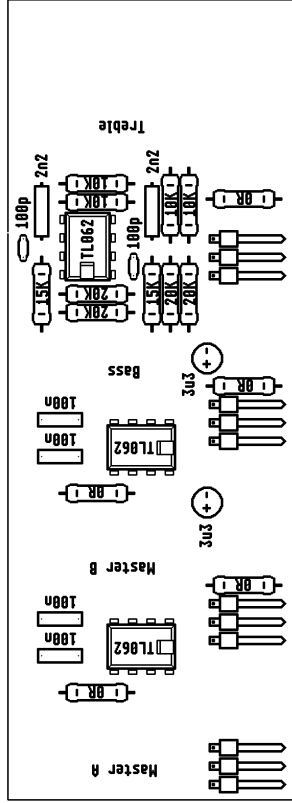
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**D-7750 KONSTANZ**  
**SATELLIT G7 MkII**  
**MOTHER PCB SCHEMATICS**

DESIGNED BY: <b>F. REIM</b>	VERSION: <b>1.0</b>	DATE: <b>10.01.93</b>
FILE: <b>G7-2-SC4.PCB</b>	MODIFICATIONS: <b>none</b>	
<b>SHEET 4 of 4</b>		

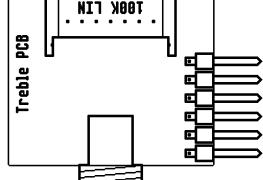
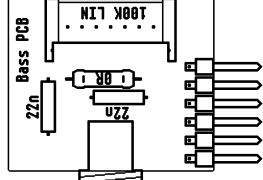
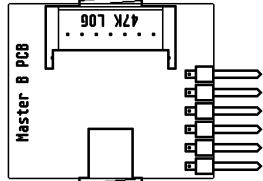
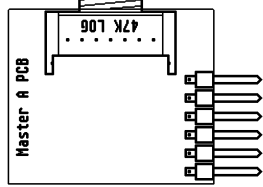
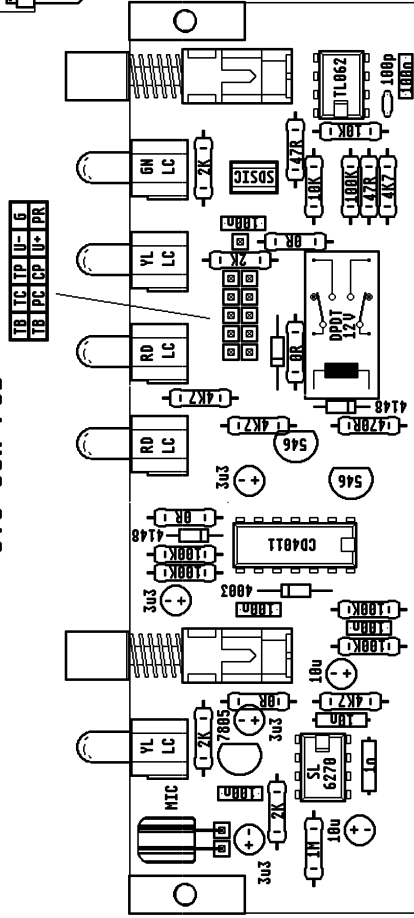
INPUT PCB



MASTER PCB



SYS-CON PCB

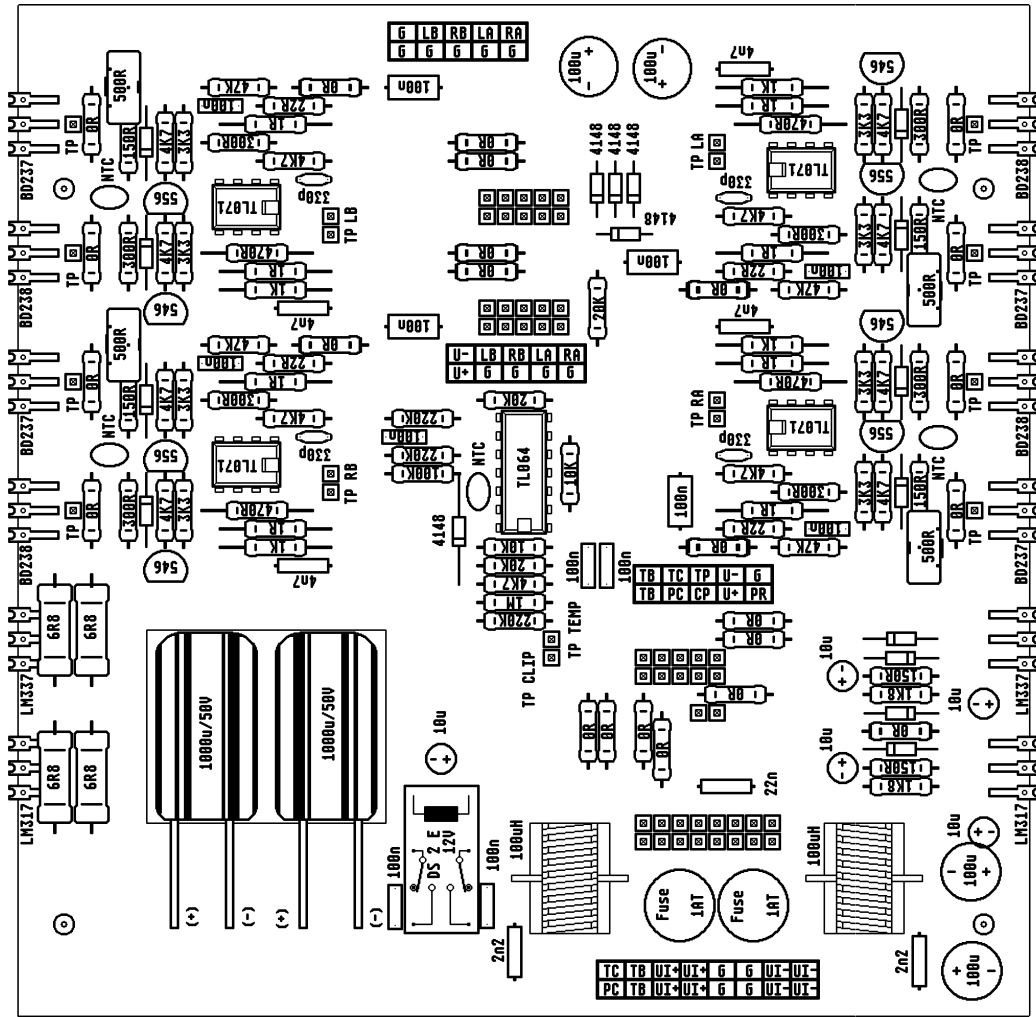


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SATELLIT G7 MkII  
INPUT-,SYS-CON-,MASTER-PCB COMPONENT LAYOUT

DESIGNED BY: F. REIM	VERSION: 1.0	DATE: 10.01.93
FILE: G7-2LY10.SET	MODIFICATIONS: none	
SHEET 1 of 3		

MAIN PCB



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**SATELLIT G7 MkII**  
MAIN PCB COMPONENT LAYOUT

DESIGNED BY: **F. REIM** VERSION: **1.0** DATE: **10.01.93**

FILE: **G7-2LY20.SET** MODIFICATIONS: **none**

**SHEET 2 of 3**

4

3

2

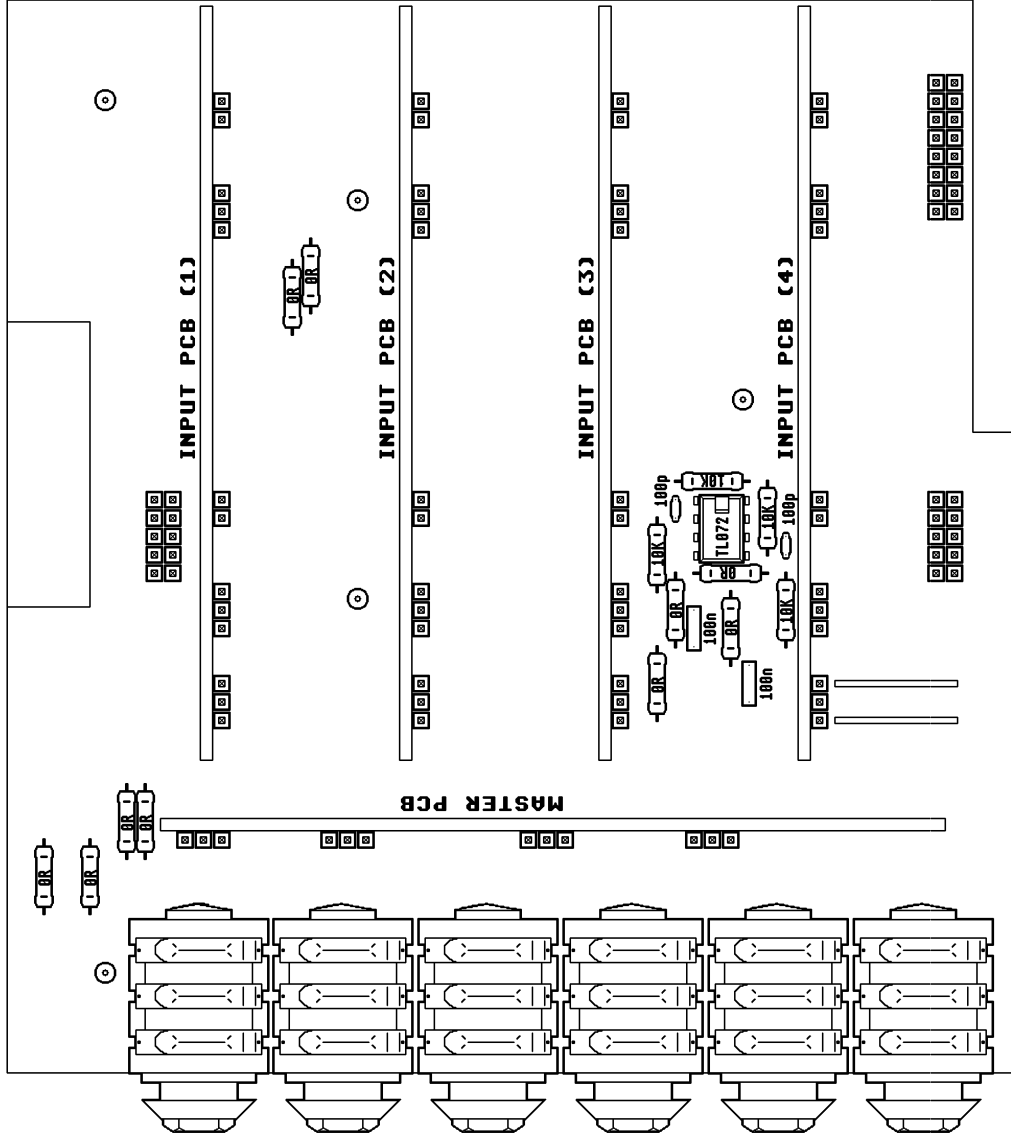
1

A

B

C

D



U- LB RB LA RA  
 6 6 6 6 6 6

8\* 7\* 6\* 5\* 4\* 3\* 2\* 1\*  
 8- 7- 6- 5- 4- 3- 2- 1-



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**SATELLIT G7 MKII**  
 MOTHER PCB COMPONENT LAYOUT

DESIGNED BY: **F. REIM**

VERSION: **1.0**

DATE: **10.01.93**

FILE: **G7-2LY30.SET**

MODIFICATIONS: **none**

SHEET **3 of 3**

1

2

3

4

A

B

C

D