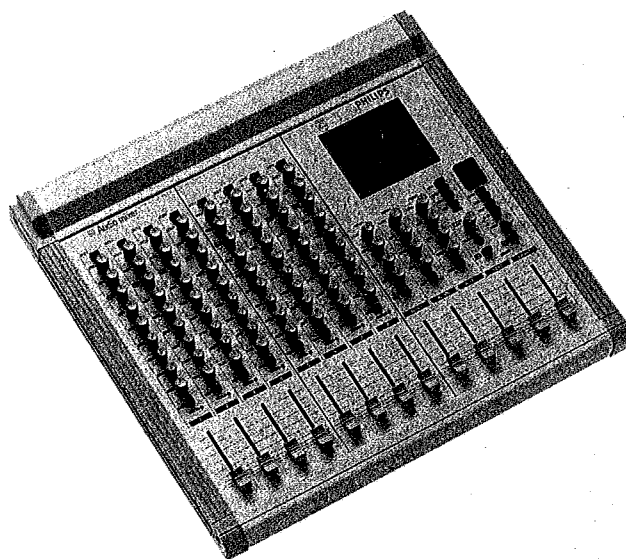


Philips Communication & Security Systems



**Audio mixer
Console de mélange
Mischpult
Mezclador de audio
Mengpaneel
Consolle di missaggio audio**

LBB 1149



PHILIPS

ENGLISH

Instructions for use

Page 1

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ENGLISH

FEATURES

- +48 V Phantom power supply for the microphone inputs
- Insertion connectors in all mic/line input channels and output channels
- 3 Band equalizer for all mic/line input channels
- Cue facilities on all mic/line channels
- 3 Auxiliary input and output channels
- 5 Subin channels

1 INTRODUCTION

The Philips 8-channel console mixer is a professional Public Address mixer, pre-eminently suited for sound reinforcement applications. It can be used either as part of a permanent sound system for conference venues, churches, etc. or as mainstay of a touring PA rig moving around clubs and theatres.

The audio mixer consists of:

- 8 input channels
- 2 output channels
- 3 auxiliary send channels
- 3 auxiliary return channels
- 5 subin channels
- 1 talk back channel
- 3 VU indicators
- 1 headphone channel

Low-impedance microphones can be connected to each channel which also provides +48 V phantom power for the connection of condenser microphones. In addition, there is a balanced line input available on each channel.

Each channel contains a GAIN control, a -30 dB PAD switch, a 3-band equaliser, with one swept frequency section covering the mid-band.

The output signal of the EQ is sent to the Left/Right output via the channel fader, the panpot control and the left and right master fader.

Each channel has 2 post-fader sends and one pre-fader send, allowing separate mixes to be made completely independently of the main mix.

Cue facilities are available on each channel, including the 3 Aux send master channels. A peak LED indicator and three VU LED bargraph meters are provided to monitor the main L/R mix and the Cue and/or 3 Aux send channels.

The stereo Aux return inputs are provided with high, mid and low frequency equalisation and volume control.

The Subin inputs can route line level signals directly to the L/R and Aux busses.

The talk back mic input can be switched to the Aux and the L/R outputs.

2 CONTROLS AND INDICATORS

Top panel (fig. 1)

- | | | |
|----|--------------------|--|
| 1 | -30 dB | Depressing this pad-switch attenuates the incoming signals by 30 dB. |
| 2 | GAIN | Input level control, used in conjunction with the -30 dB pad, providing a sensitivity range for almost any type of audio equipment. |
| 3 | HIGH | EQ high level control, shelving equalizer with zero centre detent. |
| 4 | MID FREQ | EQ sweep middle frequency control with fixed presence characteristic. |
| 5 | MID | EQ mid level control with zero centre detent. |
| 6 | LOW | EQ low level control, shelving equalizer with zero centre detent. |
| 7 | AUX 1, 2, 3 | Three auxiliary level controls send the signal to the 3 master send channels. Aux 1, 2 are post-fader connected, while Aux 3 is pre-fader connected. |
| 8 | PAN | Panorama control, which sends the signal in balance to the left and right master channels. In the middle position it has a centre detent. |
| 9 | CUE | Depressing this pushbutton permits metering and monitoring of the selected channel. |
| 10 | PEAK | A LED peak indicator illuminates at 3 dB level before clipping occurs and warns to reduce the input gain. |
| 11 | 1, 2, ...8 | Channel level fader to increase/decrease the total channel signal. |
| 12 | RTN 1, 2, 3 | Aux return stereo level control to increase/decrease the input signal. |
| 13 | HIGH
MID
LOW | EQ high level control, shelving equalizer with zero centre detent.
EQ mid level control with zero centre detent.
EQ low level control, shelving equalizer with zero centre detent. |
| 14 | CUE | Depressing this button permits metering and monitoring of the master send channel. |
| 15 | AUX 1, 2, 3 | Aux level fader to increase/decrease the master send signal. |
| 16 | LEFT, RIGHT | Master level fader to increase/decrease the master signal to the L/R outputs. |
| 17 | PRG/CUE | Switch to select 'program' (the signal from the left/right master output faders) or 'cue' (monitoring when one of the channel cue switches is depressed). |
| 18 | PHONES | Stereo phono jack socket. |
| 19 | TALK BACK | Talk back on/off switch. |
| 20 | LEVEL | Talk back level control. |
| 21 | MASTER | AUX 1, 2, 3, ST preselecting push buttons to route the talk back signal. |
| 22 | PHONES LEVEL | Headphones level control. |
| 23 | XLR connector | Connector for a dynamic type talk back microphone. |
| 24 | METER | Aux 1, 2, 3 or Cue push buttons to route signals to Cue/Aux indicator. |
| 25 | L, R, CUE/AUX | LED bar indicators for the left and right master channel and the selected Cue/Aux signals. |
| 26 | POWER ON | LEDs to indicate mains power. |

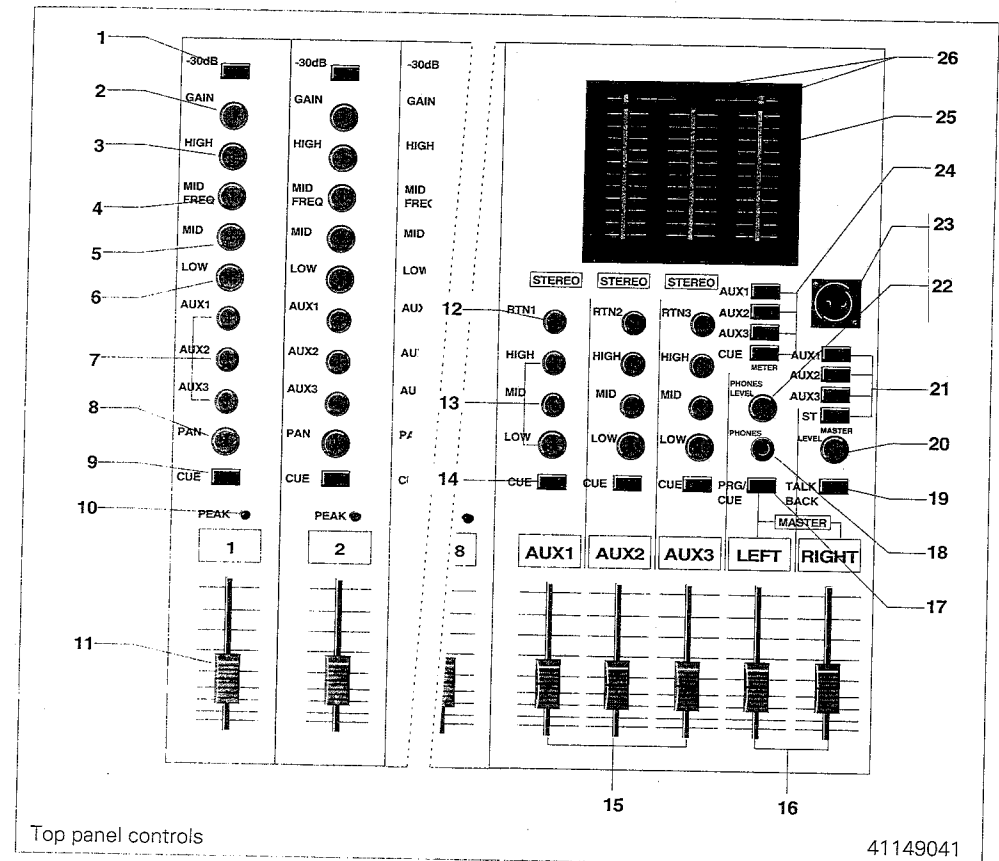


FIG. 1

Rear panel (fig. 2)

- | | | |
|----|------------------|--|
| 1 | Power | On/off mains switch. |
| 2 | Phantom | On/off phantom power supply switch, for all (1-8) input channels simultaneously. |
| 3 | Subin (5x) | Unbalanced sub-input phono connector directly connected to the bus L, R and Aux 1, 2, 3. |
| 4 | Low-in (8x) | Balanced microphone input XLR connector (with or without phantom power supply). |
| 5 | Hi-in (8x) | Balanced Hi-input phono connector. |
| 6 | Insert (8x) | Input channel insertion phono connector. |
| 7 | Return 1, 2, 3 | Stereo input phono connector of Aux return 1, 2, 3. |
| 8 | Aux send 1, 2, 3 | Unbalanced output phono connector of Aux send 1, 2, 3. |
| 9 | Insert (2x) | Output L/R channel insertion phono connector. |
| 10 | Unbalanced | Unbalanced L/R output phono connector. |
| 11 | Balanced | Balanced L/R output XLR connector (in parallel with 10). |
| 12 | Fuse | AC mains fuse holder. |

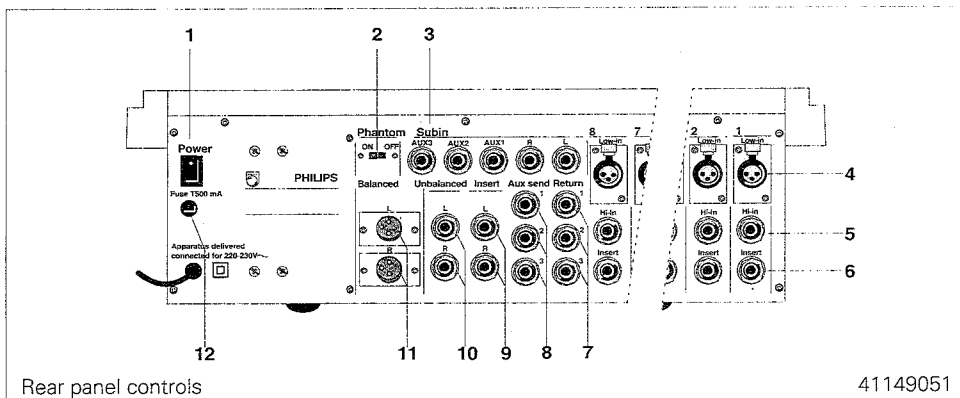


FIG. 2

3 INSTALLING THE MIXER

Warning

Do not expose the audio mixer to rain or moisture, as this may result in fire or a dangerous electric shock.

Disconnect the mixer from the mains power supply before opening. For safety reasons, just switching off the mixer is not sufficient !!

3.1 Opening the mixer

Open the mixer by removing the screws at the bottom of the housing.

3.2 Connection to the mains

Before connecting the mixer to the mains supply, ensure that the mixer has been wired for the local mains voltage.

Mains voltage selection

On delivery, the mixer is ready for use on 220 V AC mains supply. However, adaptation of the mains transformer for local mains voltages of 110, 120, 220, 230 and 240 V is possible.

This adaption must be carried out by skilled workers as follows:

- Twist or interchange the coloured wires following the instructions on the mains transformer (fig. 3).
- If 110 V or 120 V mains voltage is used, the AC mains fuse has to be substituted according to paragraph 3.4.
- Change the text on the rear panel concerning the mains voltage and the value of the mains fuse.

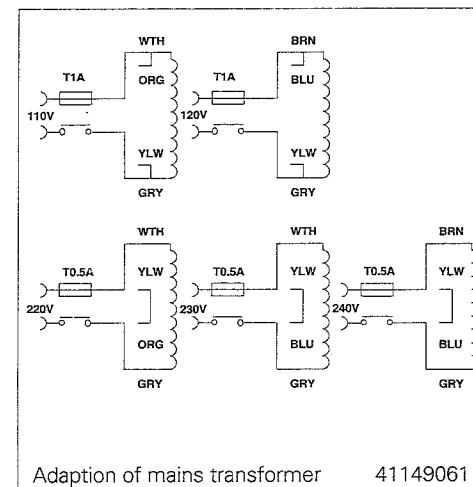
Mains lead

On delivery, the mixer is supplied with a fixed 1.5 m long 2-core mains lead, terminated with a 2-pole mains plug.

It may be necessary in some countries to replace the mains plug with one of a local standard type.

A replacement plug must be wired as follows:

- neutral = blue
- phase = brown



Adaption of mains transformer

41149061

FIG. 3

3.3 Overcoming earth-loop problems

If the mixer is used with equipment which has its own earth connection, it is necessary to avoid earth loops which may introduce hum on the output signal. Therefore the electrical earth of the electronics and the mechanical earth of the housing should be separated by removing the black earth wire link W15 (fig. 4).

Insulate the disconnected terminal to prevent it from making contact with the cabinet. In most applications where the mixer is used as a central unit, the earth links **in all the other** equipment connected must be removed.

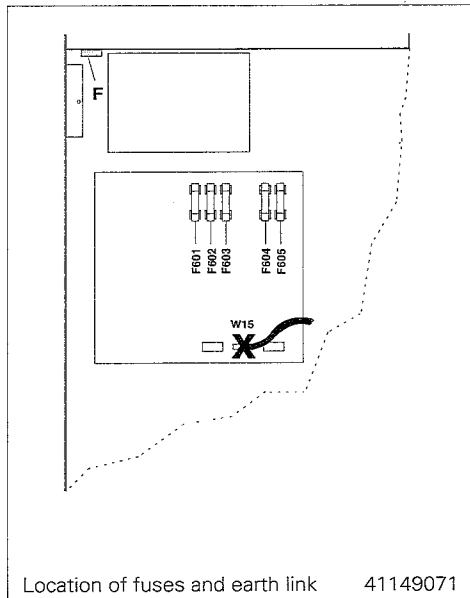


FIG. 4

3.4 Fuses

The location of the DC fuses is shown in fig. 4.

F601, F602:	
1A	4822 253 20018
F603, F604, F605:	
0.5A	4822 253 20014
F: AC mains fuse, (located on the rear panel):	
T500mA -220/240 V	4822 253 30017
T1A -110/120 V	4822 253 30021

3.5 Connections

Make sure that all input faders are down while connecting any source to the input channels.

Microphones

In principle, condenser or dynamic microphones have to be used for the 8 input channels. If condenser microphones are used, first switch on the phantom power supply and then connect the condenser microphones.

If dynamic microphones are used, first make sure that the phantom power supply is switched off.

If condenser and dynamic microphones are connected simultaneously to the input channels, make sure that the dynamic microphones are of the balanced type.

Note

Since two sources may not be connected to one input channel at the same time, do not connect a microphone to the XLR input when a line source has been connected to the Hi-in phono input of that channel and vice versa.

Audio sources

Low and high level sources can be connected to the balanced Hi-in phono input. The sensitivity of this input is equal to that of the microphone input, however without phantom power supply.

Other high level sources can be connected to the unbalanced Subin and Return input phono connectors.

Outputs

Equipment with balanced inputs (such as Power Amplifiers) can be connected to the balanced L/R output XLR-connectors.

Equipment with unbalanced inputs should be connected to the unbalanced L/R output phono connectors.

High level input equipment can be connected to the 3 unbalanced Aux send output phono connectors.

Insertion

Balanced insertion phono connectors in the 8 input channels and in the 2 output channels are available for connecting any auxiliary equipment with high level input/output signals.

These connectors have an output (tip) and input (ring) connection (fig. 5).

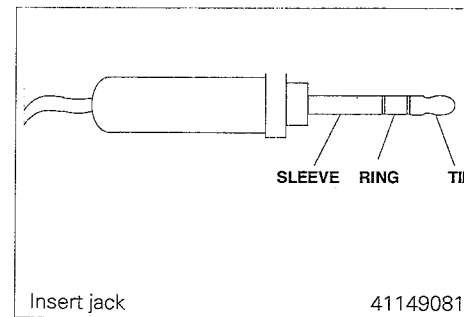


FIG. 5

4 OPERATION

After connecting all the necessary equipment, slide the Left and Right master fader to the -10 dB position. Set the 8 channel faders 5 dB below the maximum.

Adjusting

Adjust the signal to 0 VU on the LED bar using the -30 dB pad switch and the gain potentiometer. If necessary, carefully adjust the equalizer to the requested sound for each channel.

Make sure that the peak LED indicator never lights up. However, if it does light up, reduce the input gain and increase the channel fader to the requested output level.

Cueing

If a channel is to be checked during operation, press the channel cue switch; switch the program/cue switch into the 'cue' position and the signal can be heard on the headphones. It is possible to mix more channels when more cue switches are pressed.

Balancing

Each channel signal can be balanced between Left and Right by means of the panpot control.

Auxiliary send channels 1-3

The Aux 1, 2 master faders of the Aux send channels (post-fader) can be used for separate mixing. When the master send fader is open, the Aux send output can be connected to e.g. a reverberation unit. The output of the reverberation unit should be connected to the Return input. The Aux 3 fader (positioned before the channel fader) of the Aux send channel can be used for mixing, independent of the channel fader and it also provides monitoring facilities.

Auxiliary return channels 1-3

The return input channels 1-3 are stereo channels. The output of these channels are mixed with the master output channels L/R. A 3 band EQ is available: high, low and mid (fixed frequency).

Each channel input has a stereo phono connector. The tip is valid for the left master channel and the ring is valid for the right master channel. For connecting mono equipment, connect the tip and ring together (sleeve is earth).

Indicators

LED bar 1 and 2 are connected in parallel to the L/R output connectors.

LED bar 3 can be used for monitoring the Cue or AUX 1, 2, 3 signals.

While operating the mixer, make sure that the LED bar lights up around the 0 VU point to allow the connected equipment to be driven at full power level.

Talk back

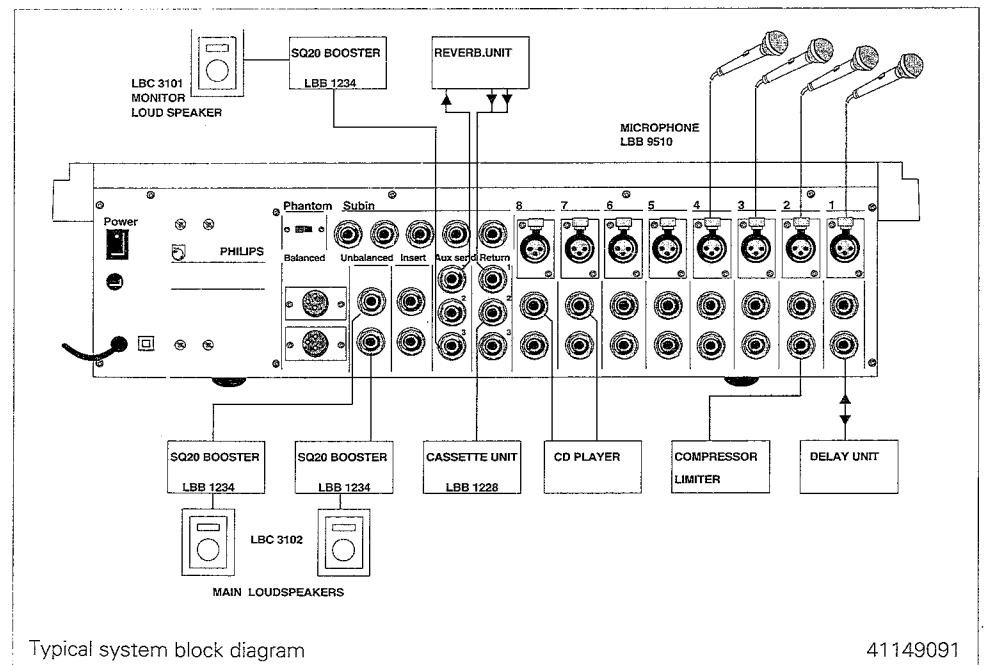
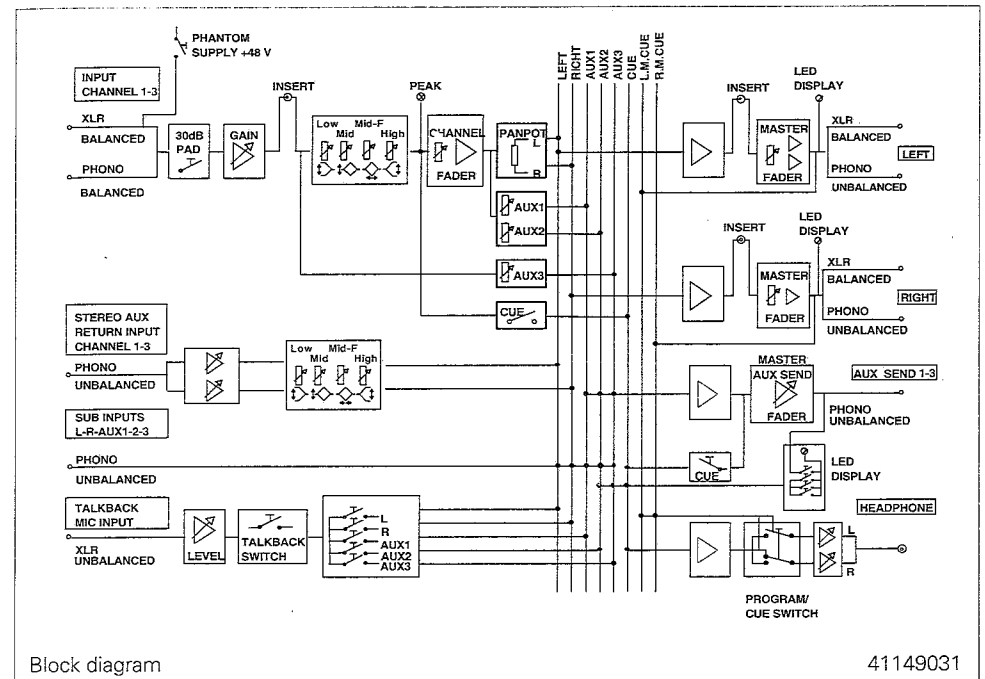
If the balance engineer wants to make announcements during operation, the talk back microphone must be switched on. Communication can then take place after selecting either the master L/R outputs or one of the 3 Aux send outputs.

Inputs/outputs

Level diagram for 0 VU on the LED bar:

- All equalizers in the flat position.
- All panpots in the middle position.
- All volume controls/faders in the maximum position.

5 DIAGRAMS



6 TECHNICAL DATA

SUPPLY

Mains supply

- voltage : 110, 120, 220, 230, 240 V +10/-10%
- on delivery : 220-230 V, 50/60 Hz

Power consumption : 45 W

All values below are based on 0 VU on the LED scale, fader and level controls in maximum position and all equalisers in position "flat".
Level tolerances +/- 2 dB

INPUTS/OUTPUTS

Input	Impedance k Ω	Sensitivity mV	dBV	Connector type
Low-in (200 Ω)	4	0.1	-80	XLR
Hi-in	6	0.1	-80	1/4" phono
Insertion (channel)	6	40	-28	1/4" phono
Aux return (stereo)	25	80	-22	1/4" phono
Subin (5x)	15	250	-12	1/4" phono
Insertion (master)	10	126	-18	1/4" phono
Output	Impedance Ω	Sensitivity mV	dBV	Connector type
Master balanced	150	1260	+2	XLR
Master unbalanced	600	400	-8	1/4" phono
Insertion (master)	100	126	-18	1/4" phono
Insertion (channel)	100	40	-28	1/4" phono
Aux send 1-2	600	1300	+2	1/4" phono
Aux send 3	600	400	-8	1/4" phono
Headphone	100	9000	+19	1/4" phono

Channel 1-8

- gain control : 40 dB
- phantom power for all balanced XLR inputs : + 48 V, switchable ON/OFF
- pad switch attenuation : 30 dB

Channel talk back

- for dynamic microphone : unbalanced XLR

Overload

- LED illumination : 3 dB below clipping level

Indicators

- 3 VU LED bars : Left, Right and Cue/Aux
- 0 VU : +2 dB for balanced output

CHARACTERISTICS

Frequency response : 20 - 20,000 Hz (+1/-3 dB)

Equaliser

- type : shelving/parametric
- input channel signal : +/- 15 dB max/min
- frequency:
 - high : 10 kHz shelving
 - mid : 350 - 5,000 Hz presence
 - low : 100 Hz shelving

Signal to noise

(related to +2 dBV and 200 Ω input resistor)

XLR-L/R outputs:

- all faders down : 90 dB
- all channel faders down and output faders -10 dB : 72 dB
- one input channel fader max. gain : 62 dB

All values are measured according to IEC-A curve.

Harmonic distortion

- THD at + 12 dBV into 600 Ω output, 20 Hz - 20 kHz : < 0.1%

Crosstalk

- 1 kHz adjacent channels : - 65 dB

MECHANICAL DATA

Dimensions

- h x w x d : 456 x 513 x 130 mm

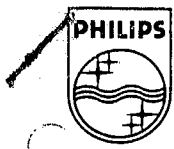
Weight

: 10 kg

SAFETY

: according to IEC 65

This product is manufactured to comply with the radio interference of the Council Directive of 87/308/EEC.

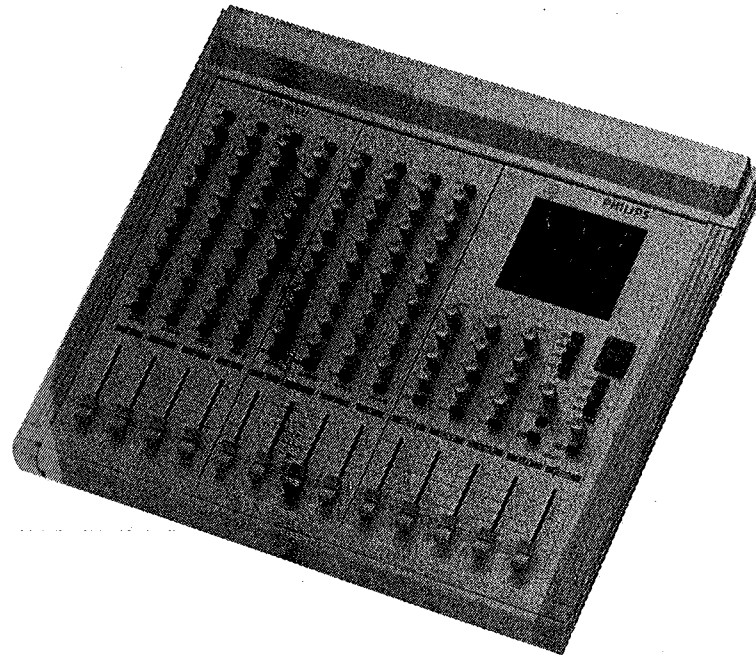


PHILIPS

LBB 1149/00

8-CHANNEL AUDIO MIXER

Service Manual




**CUSTOMER
SUPPORT**

4822 861 01005
920201

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1 INTRODUCTION

The 8-channel console mixer is a professional PA mixer, pre-eminently suited for sound reinforcement applications.

- The mixing console is a 8 inputs to 2 outputs mixer desk.
- It can operate on 110/120/220-230/240 V, 50-60 Hz, AC-supply.
- The console has 8 universal input channels, each provided with a balanced microphone / line input. The microphone input is provided with a 48 V phantom power supply, which can be switched on / off.
- There are 5 outputs: L, R and Aux send 1, 2, 3.
- The outputs L and R are each provided with a VU-meter (LED-bar). 1 VU-meter (LED-bar) is available for a selected Aux 1-3 and CUE output.
- A stereo monitor amplifier with volume control is provided with 1/4" phone connector for headphone control.
- Each channel is provided with a 3-band equalizer, high, low and midfrequency with fixed Q.
- Front-panel XLR-type talk-back microphone input assignable to the main output (shifting) and/or any of the Aux send-channels.
- 3 Aux stereo return channels with a high, low and mid fixed frequency equalizer.

2 ELECTRICAL AND MECHANICAL DATA

Total harmonic distortion: < 0.2 %, 20 Hz .. 20 kHz
 (+14 dB output into 600 Ohm)
 (channel fader and master fader at nominal).

Maximum voltage gain :

- 84 dB mic channel into stereo out.
- 84 dB mic channel into aux send 1,2,3
- 24 dB aux return 1,2,3 to stereo out
- 14 dB sub into stereo out, aux send 1..3
- 74 dB mic channel into stereo unbalance out
- 64 dB channel into stereo insert
- 64 dB talk-back into stereo, aux send 1..3
- 54 dB mic channel into channel insert
- 74 dB mic channel into phone output
- 84 dB aux 1..3, channel in to phone out

Crosstalk : -65 dB (1 kHz adjacent input channels)
 : -65 dB (1 kHz input to output)

Frequency response : +1, -3 dB, 20 Hz .. 20 kHz
 : (+4 dB output into 600 Ohm)

Hum & noise : -128 dB equivalent input noise
 : -90 dB residual output noise

Measuring conditions : -72 dB stereo out master fader at
RS = 150 Ohm nominal level and all channel
input gain = max faders at minimum level.
input pad = 0 dB -62 dB stereo out master fader
input sensitivity = -60 dB and 1 channel fader at nominal
(measured with IHF-A) level.
(normal position: max. -70 dB aux send master level
level attenuate 10 dB) control at nominal and all
channel mix level control at
minimum level.
-62 dB aux send master level
control and 1 channel mix level
control at nominal level.

Input channel gain control: 40 dB (-60..-20 dB) variation
in gain stop to stop.

Input channel pad switch : 0/30 dB of attenuation

Input channel equalization: ± 15 dB maximum boost or cut in
each of 3 bands.
- high : 10 kHz shelving
- middle : 350 Hz..5 kHz peaking (fixed Q)
- low : 100 Hz shelving

Clip indicators : red LED built into each input
channel, it turns ON when post-
EQ signal is 3 dB below clipping.

LED display 0 dB = : L, R, Aux 1..3 0 dB = 1.23V
1.23 RMS output level CUE 0 dB = 400 mV

Phantom power : +48 VDC is applied to
electrically balanced inputs (via
6.8 kOhm current,
limiting/isolation resistors) for
powering condenser microphones.

Power consumption: 45 W

Dimensions (wxdxh) : 513 x 456 x 130 mm

Net weight: 9.5 kg

3

ENVIRONMENTAL REQUIREMENTS

Working conditions

- Buildings.
- Stationary use.
- Indoor use without airconditioning.
- Operation by laymen.
- Climate: tropical conditions, all over the world.

Safety requirements

- According to IEC 65.

EMC-requirements

- Immunity and emission according to standard EN55013 and EN55020.
- Susceptibility to static discharges: Static discharges on all touchable parts of the system will not cause:
 - . any damage of system parts,
 - . any non-self-presetting disturbing system

functions

- According IEC801-2 (edition 1990), 8 kV, severity factor 2.
- Other legal requirements: Cadmium is not present in components or as metal-protection.

4

QUALITY, RELIABILITY AND SERVICEABILITY

M.T.B.F. : 25.000 power-on hours.
M.T.T.R. : < 30 minutes.

5 SPECIFICATION OF VERIFICATION PROCEDURES

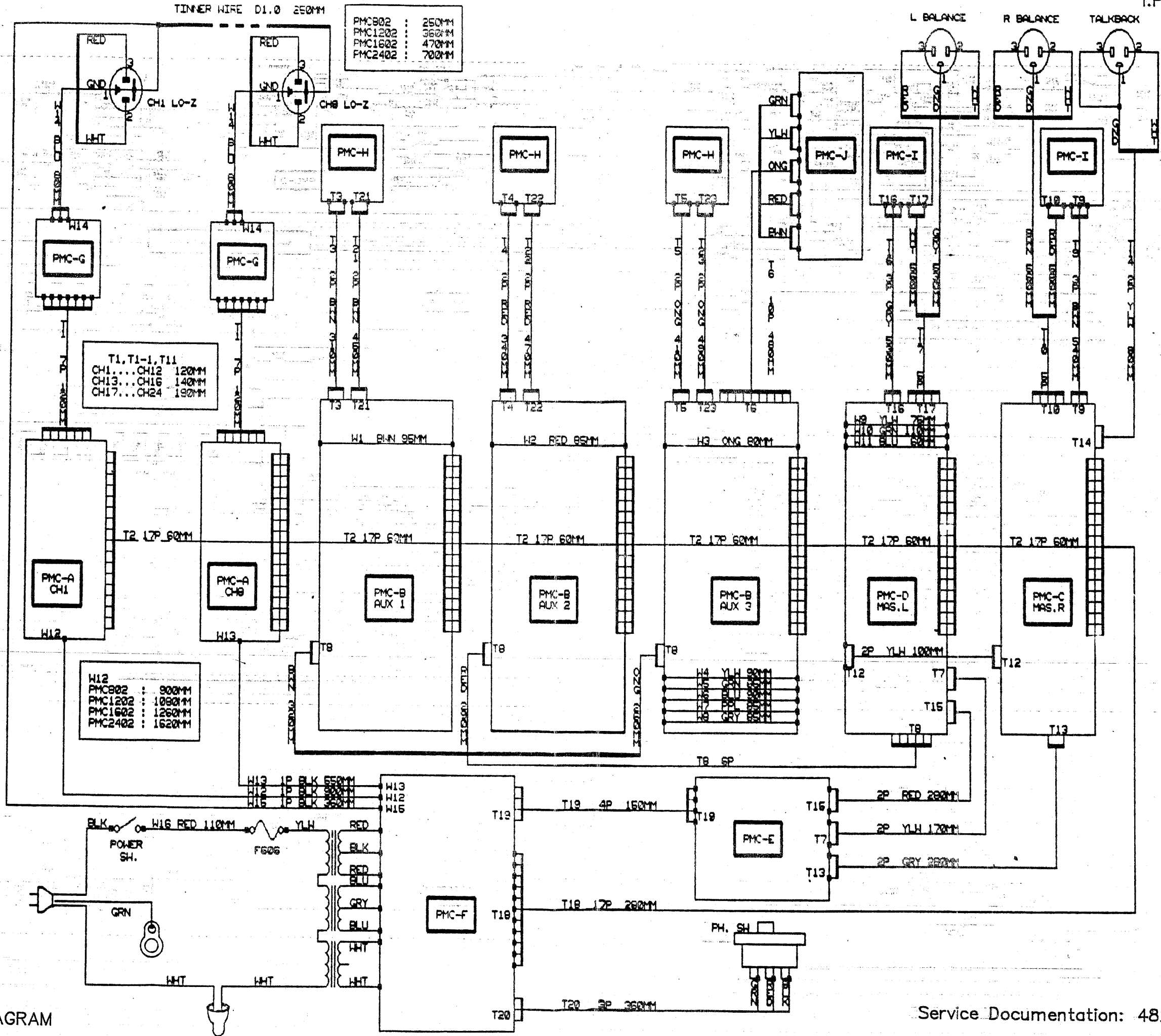
Temperature

Operating : Adjusted at room temperature (20 - 25°C).
 (inside spec) Cold : acc. to IEC 68-2-1 (A), 4 h, -10°C
 Dry heat : acc. to IEC 68-2-2 (B), 4 h, +45°C
 Cyclic damp heat: acc. to IEC 68-2-30 (Db),
 +45°C 21 cycli.

Fault classification: According to MIL stand. 105D.

6 SPARE PARTS

POS.	DESCRIPTION	CODE NUMBER
	MAINS TRANSFORMER	5322 148 20017
	MAINS SWITCH	5322 277 11394
F601/602	FUSE 1A 250V	4822 070 31002
F603..606	FUSE 0.5A 250V	4822 070 35001
	PHANTOM SWITCH	5322 276 13276
	KNOB SLIDE (GREY/BLACK)	5322 414 30198
	KNOB SLIDE (GREY/RED) (AUX)	5322 414 30199
	KNOB ROTARY (GREY/BLACK) 12X16	5322 414 30201
	KNOB " (GREEN/BLACK) 12X16	5322 414 30202
	KNOB " (RED/BLACK) 12X16	5322 414 30203
	KNOB " (GREY/BLACK) 14X16	5322 414 30204
	KNOB " (GREEN/BLACK) 14X16	5322 414 30205
	KNOB PUSH (CUE) (BLACK)	5322 414 30206
PMC-A	PCB ASSY	5322 214 90989
PMC-B	PCB ASSY	5322 214 90991
PMC-C	PCB ASSY	5322 214 90992
PMC-D	PCB ASSY	5322 214 90993
PMC-E	PCB ASSY	5322 214 90994
PMC-F	PCB ASSY	5322 214 90995
PMC-G	PCB ASSY	5322 214 90996
PMC-H	PCB ASSY	5322 214 90997
PMC-I	PCB ASSY	5322 214 90998
PMC-J	PCB ASSY	5322 214 90999



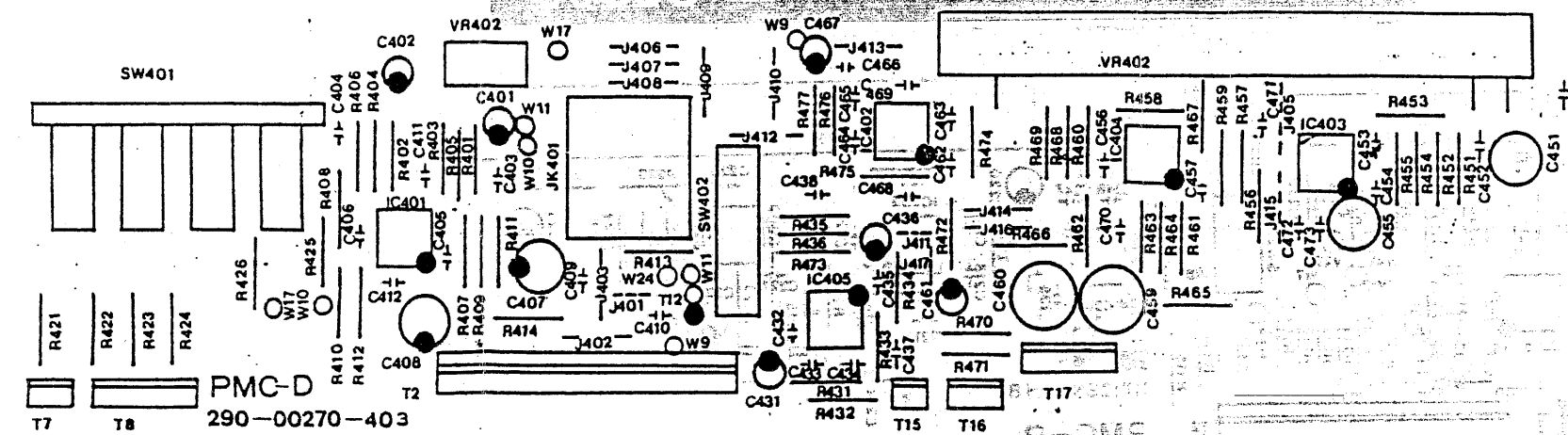
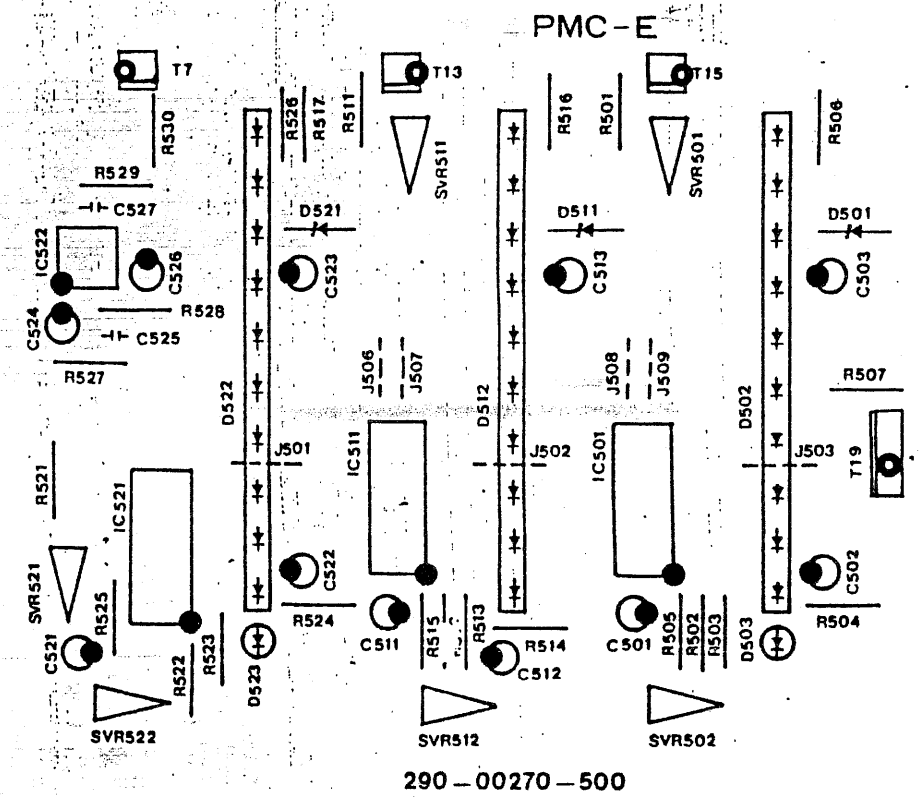
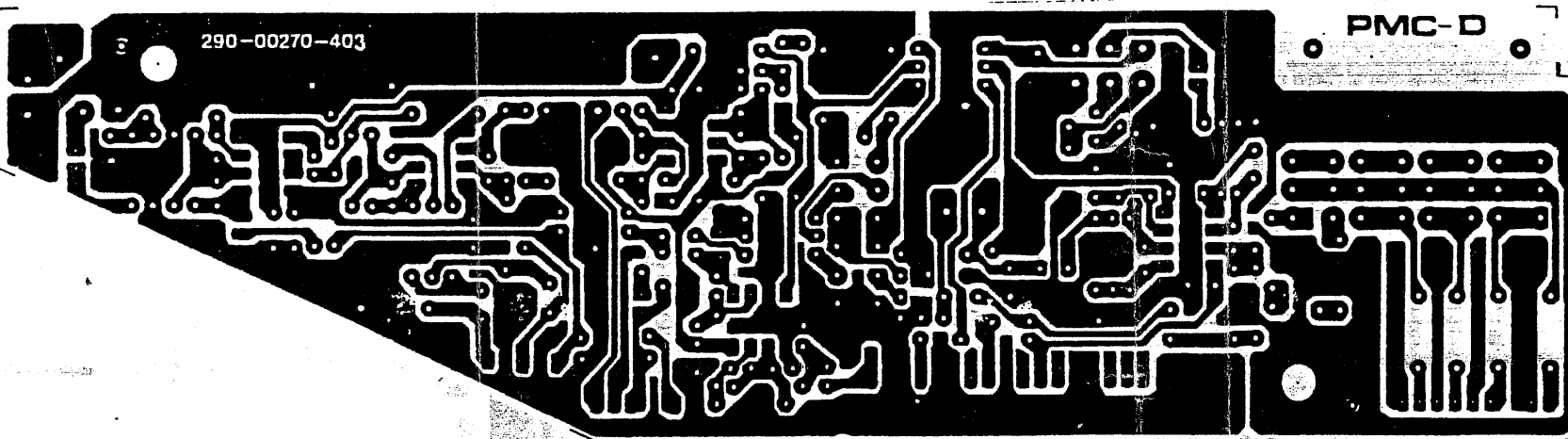
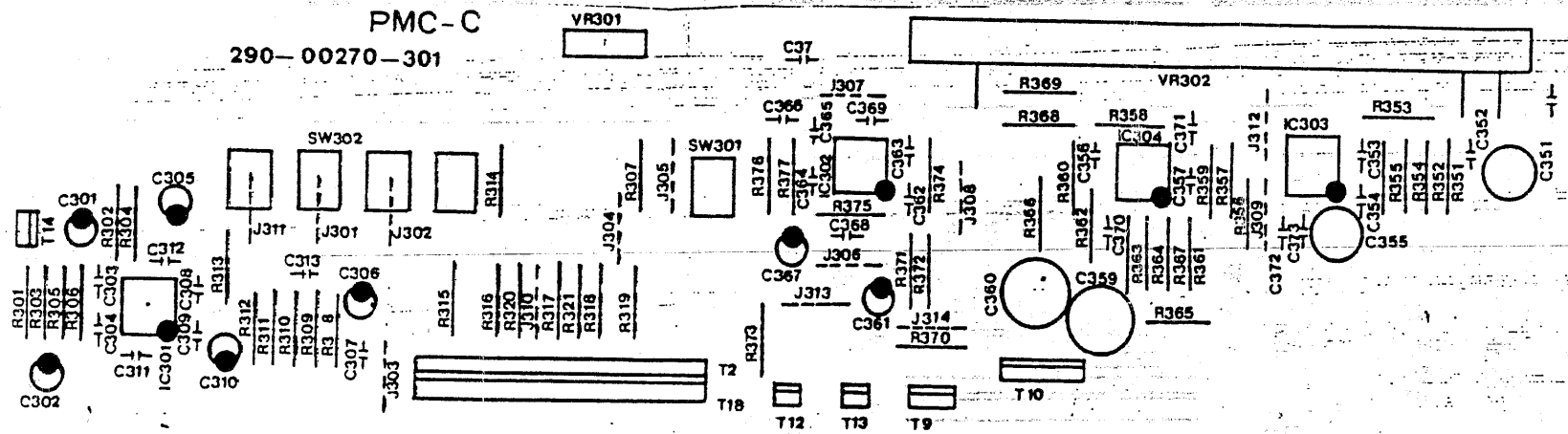
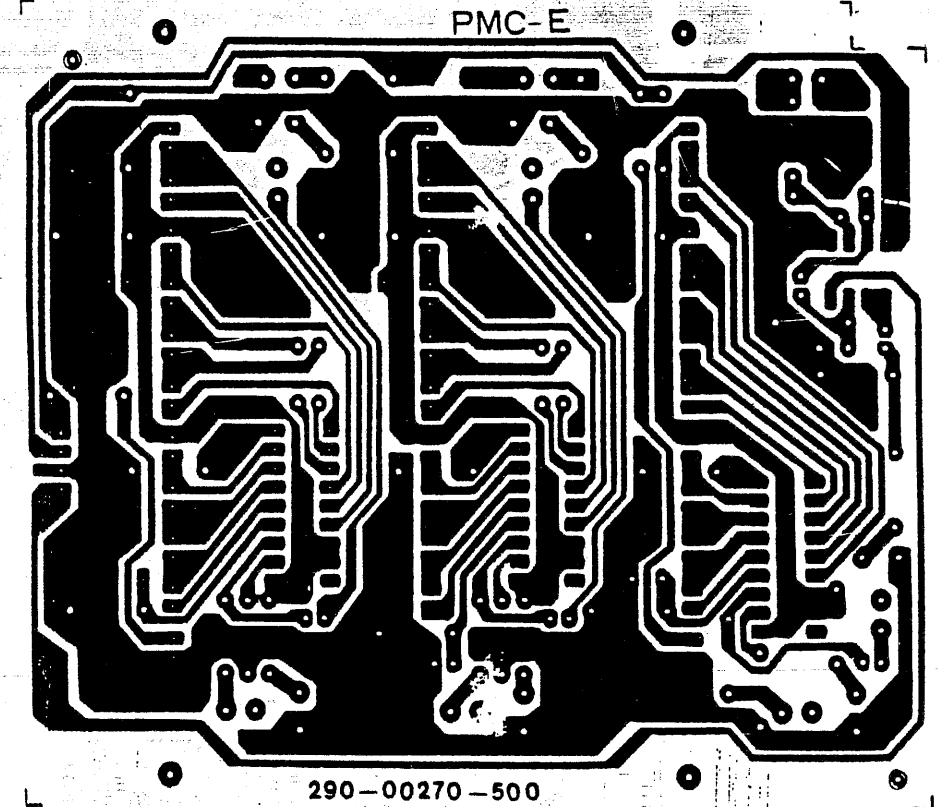
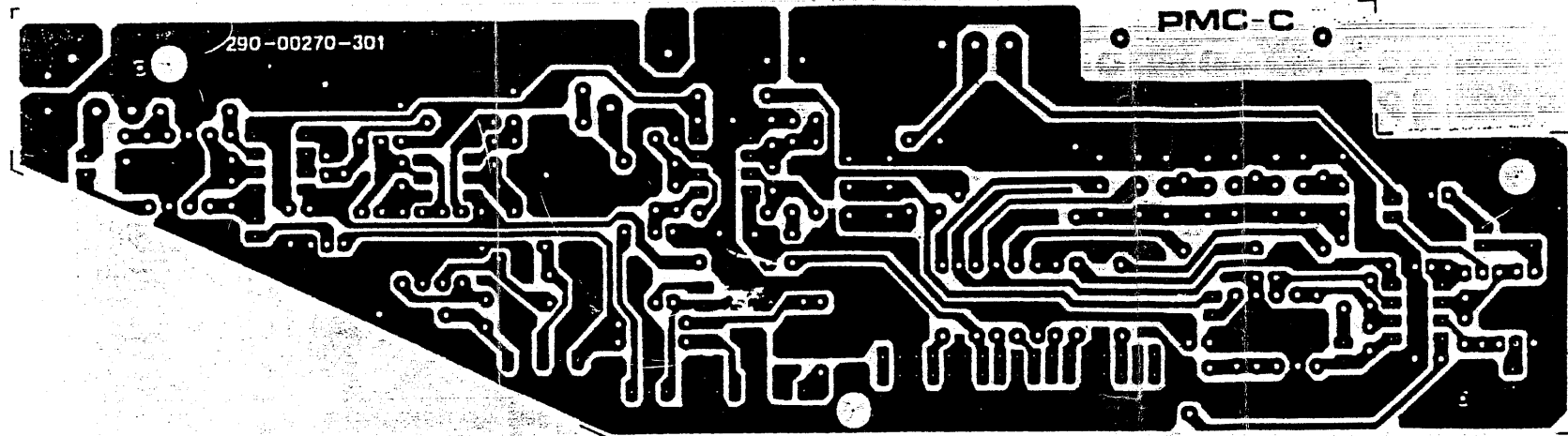


FIGURE 4, PAGE 9
 LBB 1149/00
 PCB, C,D,E, COMPONENT-, TRACK-, LAYOUT

