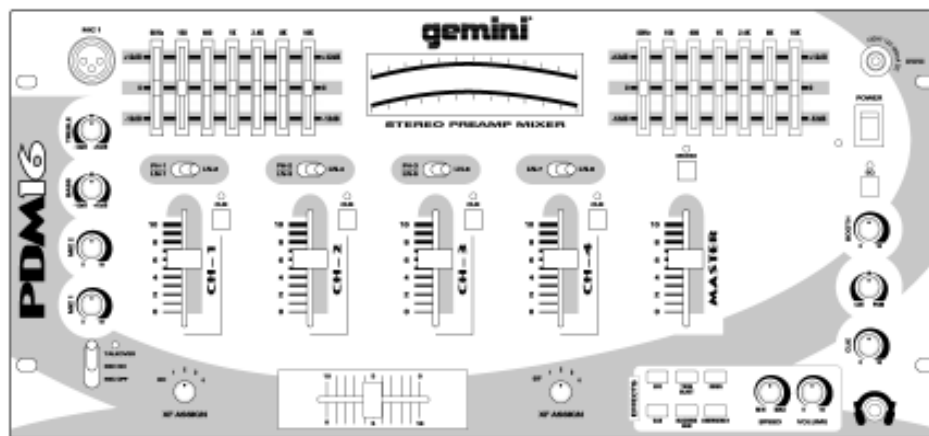




SERVICE manual

PDM-16

Stereo Preamp Mixer



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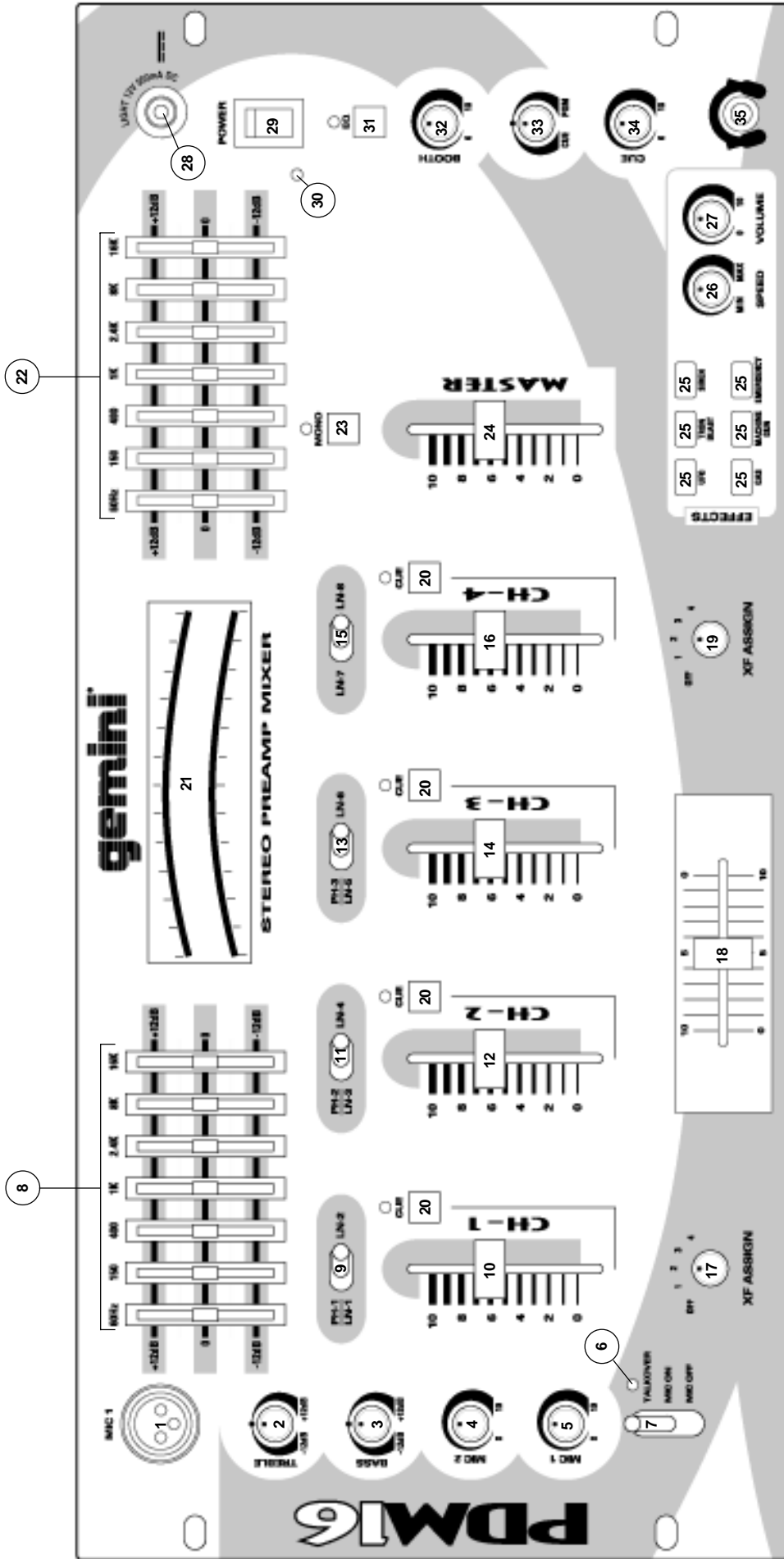


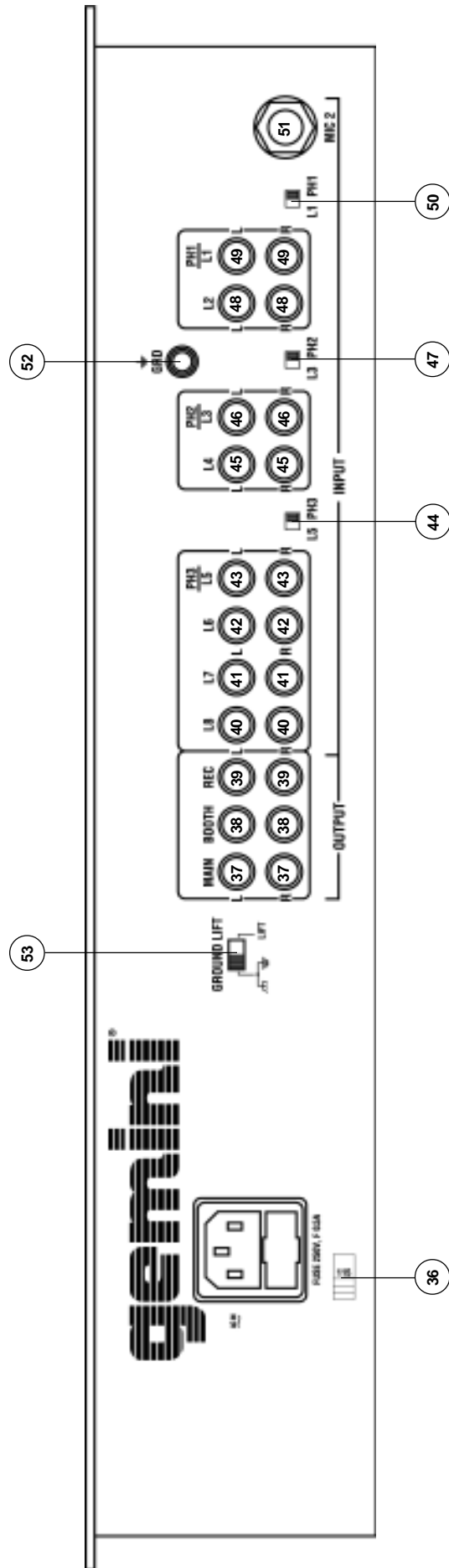
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Connections

1. Before plugging in the power cord, make sure that the **VOLTAGE SELECTOR (36)** switch is set to the correct voltage.
- NOTE:** This product is double insulated and not intended to be grounded.
2. Make sure that the **POWER (29)** switch is in the off position. The **POWER LED (30)** will be off.
 3. The PDM-16 is supplied with 3 sets of amp output jacks. The **MAIN OUTPUT (37)** jacks are unbalanced and used to connect to your main amplifier. The **REC OUTPUT (39)** jacks can be used to connect the mixer to the record input of your recorder enabling you to record your mix. The **BOOTH OUTPUT (38)** jacks allow you to hook up an additional amplifier.
 4. The **MIC 1 (1)** input (found on the front panel) accepts a 1/4" or XLR connector. The **MIC 2 (51)** input (found on the rear panel) accepts 1/4" connectors. All accept balanced and unbalanced microphones.
 5. On the rear panel are 3 stereo **PHONO/LINE (43, 46, 49)** inputs and 5 stereo **LINE (40, 41, 42, 45, 48)** inputs. The **PHONO/LINE SWITCH (44)** enables you to set the (43) input to Phono or Line. The **PHONO/LINE SWITCH (47)** enables you to set the (46) input to Phono or Line. The **PHONO/LINE SWITCH (50)** enables you to set the (49) input to Phono or Line. The phono inputs will accept only turntables with a magnetic cartridge. A **GROUND SCREW (52)** for you to ground your turntables is located on the rear panel. The stereo line inputs will accept any line level input such as a CD player, a cassette player, etc.
 6. Headphones can be plugged into the front panel mounted **HEADPHONE (35)** jack.
 7. The PDM-16 comes with a front panel **BNC LIGHT (28)** jack. This jack is for use with a gooseneck light like the Gemini GNL-700.

Using the Ground Lift Switch

Depending on your system configuration, sometimes applying the ground will create a quieter signal path. Sometimes lifting the ground can eliminate ground loops and hum to create a quieter signal path.

1. With the mixer on, listen to the system in idle mode (no signal present) with the ground applied (the **GROUND LIFT SWITCH (53)** in the left position).
2. **Then turn the power off before moving the GROUND LIFT SWITCH (53).** Lift the ground by moving the **GROUND LIFT SWITCH (53)** to the right, turn the power back on and listen to determine which position will provide a signal devoid of background noise and hum. Keep the **GROUND LIFT SWITCH** in the ground position if the noise level remains the same in either position.

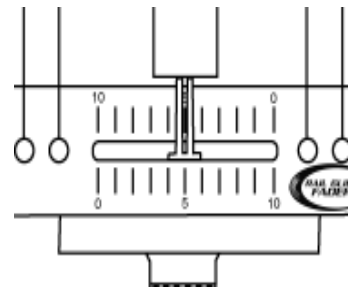
CAUTION: DO NOT TERMINATE THE AC GROUND ON THE POWER MIXER IN ANY WAY. TERMINATION OF THE AC GROUND CAN BE HAZARDOUS.

Operation

1. **POWER ON:** Once you have made all the equipment connections to your mixer, press the **POWER SWITCH (29)**. The power will turn on and the **POWER LED (30)** will glow RED.
2. **CHANNEL 1:** Switch # (9) allows you to select the **PHONO 1/LINE 1 (49)** or the **LINE 2 (48)** input. The **CHANNEL SLIDE (10)** controls the input level of this channel.
3. **CHANNEL 2:** Switch # (11) allows you to select the **PHONO 2/LINE 3 (46)** or the **LINE 4 (45)** input. The **CHANNEL SLIDE (12)** controls the input level of this channel.

4. **CHANNEL 3:** Switch # (13) allows you to select the **PHONO 3/LINE 5 (43)** or the **LINE 6 (42)** input. The **CHANNEL SLIDE (14)** controls the input level of this channel.
5. **CHANNEL 4:** Switch # (15) allows you to select the **LINE 7 (41)** or the **LINE 8 (40)** input. The **CHANNEL SLIDE (16)** controls the input level of this channel.
6. **CROSSFADER SECTION:** The **CROSSFADER (18)** allows the mixing of one source into another. The PDM-16 features an assignable crossfader. The **ASSIGN (17, 19)** switches allow you to select which channel will play through each side of the crossfader. The **ASSIGN (17)** switch has 5 settings (OFF, 1, 2, 3 or 4) and allows you to select channel 1, 2, 3 or 4 to play through the left side of the crossfader. The **ASSIGN (19)** switch has 5 settings (OFF, 1, 2, 3 or 4) and allows you to select channel 1, 2, 3 or 4 to play through the right side of the crossfader. With the **ASSIGN** switch in the off position, that side of the crossfader will be inactive. The **CROSSFADER (18)** in your unit is removable and if the need arises can be easily replaced. Crossfader units are available in three varieties. Part # RF-45 (which is identical to the crossfader supplied with the mixer) has a 45 mm travel from side to side. Part # RF-30 is available with a 30 mm travel distance. Also available is the PSF-45 with a special curve designed for scratch mixing. Just purchase one of these crossfader units from your Gemini dealer and follow these instructions:

1. Unscrew the outside **FADER PLATE SCREWS (B)**. Do not touch the **INSIDE SCREWS (C)**.
2. Carefully lift the fader and unplug the **CABLE (D)**.
3. Plug the new fader into the cable and place it back in the mixer.
4. Screw the fader to the mixer.



7. **EQUALIZER SECTION:** This unit features dual 7 band **GRAPHIC EQUALIZERS (8, 22)** to allow you to adjust the sound for any room. To activate the equalizer, press the **EQ BUTTON (31)** (the EQ LED will light). By adjusting any of the 7 left equalizer slide controls (8), you can cut or boost the tonal characteristics of the sound coming from the left speaker by ± 12 dB. By adjusting any of the 7 right equalizer slide controls (22), you can cut or boost the tonal characteristics of the sound coming from the right speaker by ± 12 dB. Deactivate the equalizer by pressing the **EQ BUTTON (31)** again (the EQ LED will turn off).
8. **OUTPUT CONTROL SECTION:** The level of the **MAIN OUTPUT (37)** is controlled by the **MASTER (24)** slide. Activating the **MONO (23)** button (the mono LED will light) makes the overall output mono. The **BOOTH (32)** control adjusts the level of the **BOOTH OUTPUT (38)**. **HINT:** The **BOOTH OUTPUT** is used by some DJs to run monitor speakers in their DJ Booth. You can also use it as a second **ZONE** or **AMP** output.

NOTE: The **REC OUTPUT (39)** has no level control. The level is set by the channel slides of the selected channel. The tonal qualities can be controlled by the equalizers.

9. **TALKOVER SECTION:** The purpose of the talkover section is to allow the program playing to be muted so that the mic can be heard above the music. The **MIC/TALKOVER SWITCH (7)** controls MIC 1 and MIC 2 and has three settings. When the **MIC/TALKOVER SWITCH (7)** is

in the bottom position, MIC 1 and MIC 2 and talkover are off. When the **MIC/TALKOVER SWITCH (7)** is in the center position MIC 1 and MIC 2 are on, the **MIC INDICATOR (6)** will glow, but talkover is off. When the **MIC/TALKOVER SWITCH (7)** is in the top position, MIC 1 and MIC 2 and talkover will be on and the volume of all sources except the Mic inputs are lowered by 16 dB. The **TREBLE (2)** and **BASS (3)** controls allow you to fully adjust the tone of MIC 1 and MIC 2. **MIC 1 LEVEL (5)** controls the level of MIC 1. The **MIC 2 LEVEL (4)** controls the level of MIC 2.

10. CUE SECTION: By connecting a set of headphones to the **HEADPHONE (35)** jack, you can monitor any or all of the channels. Press the **CUE ASSIGN (20)** buttons for channels 1 - 4 to select the channel or channels to be monitored and their respective LED indicators will glow. Use the **CUE LEVEL (34)** control to adjust the cue volume without effecting the overall mix. By moving the **CUE PGM PAN (33)** control to the left you will be able to monitor the assigned cue signal. Moving the control to the right will monitor the PGM (program) output. Moving to the right will monitor the PGM (program) output.

11. DISPLAY: The **DISPLAY (21)** indicates the **MASTER** output left and right levels.

12. SOUND EFFECTS SECTION: Six different sound effects (UFO, TRON BLAST, SIREN, GAS, MACHINE GUN and EMERGENCY) may be added to your mix by depressing the **SOUND EFFECTS CONTROL BUTTONS (25)**. The volume of the effects can be adjusted using the **EFFECTS LEVEL CONTROL (27)**. The pitch of the effects can be increased or decreased using the **EFFECTS SPEED CONTROL (26)**.

Specifications

INPUTS:

DJ Mic.....1.5mV 2Kohm balanced
Phono.....3mV 47Kohm
Line.....150 mV 27Kohm

OUTPUTS:

Amp/Booth.....0 dB 1V 400ohm
Max.....20V Peak to Peak
Rec.....225mV 5Kohm

MIC 1 & MIC 2:

DJ Mic.....1.5mV 2Kohm balanced
Bass.....± 12dB
High.....± 12dB

GENERAL:

Frequency Response.....20Hz - 20KHz +/- 2dB
Distortion.....0.02%
S/N Ratio.....better than 80dB
Talkover Attenuation.....-16dB
Headphone Impedance.....16ohm
Power Source.....115/230V 50/60Hz 10W
Dimensions.....19"w x 4"h x 9"d
Weight.....10.17 lbs

Parts Lists

Cabinet Parts and Packing

Item #	Description	Part #
1	PANEL CONTROL	002-210
2	PANEL REAR	034-001
4	COVER BOTTOM	032-018
5	BRACKET VR	021-763
6	HOLDER X-FADER	022-322
7	PROTECTOR PLATE FOR 115/230V SWITCH	022-305
8	SOUND CONTROL KEY	049-199
9	SWING LEVEL	023-674
10	KNOB PUSH (SMALL)	002-531
11	BUSHING FOR KNOB (SMALL)	002-532
12	KNOB SLIDE (BIG)	002-704
13	KNOB SLIDE	002-715
14	KNOB ROTARY (ASSIGN)	003-102
15	KNOB ROTARY (B)	003-110
16	KNOB INLAY (BLACK)	148-236
17	KNOB INLAY (GRAY)	148-239
18	EQ VR INLAY	003-994
19	TRIM VR	003-970
20	INLAY PLATE	003-373
21	HOLDER LED 3f LED(17mm)	003-969
22	HOLDER LED	003-986
23	HOLDER LED	003-975
24	WASHER XLR	003-564
25	PCB SPACER SUPPORT	047-474
26	PAD FOOT	049-206
27	BNC DUST PROOF CLOTH	159-201
28	DUST PROOF CLOTH (KNOB-SWING)	156-216
29	DUST PROOF CLOTH (VR)	159-171
30	FADER DUST PROOF CLOTH	159-196
31	GND SCREW	146-710
32	PAN-HEAD MACHINE SCREW; PMS 2X4(B)	102-007
33	FLAT-HEAD MACHINE SCREW; FMS 2X4 (Y)	101-008
34	PAN-HEAD MACHINE SCREW; PMS 2.6X4(B)	102-025
35	BAND-HEAD MACHINE SCREW; BMS 3X2X4	107-015
36	BAND-HEAD TAPPING SCREW/TWIN SCREW; BTS-2 3X8(AB) TWIN	110-172A
37	FLAT-HEAD TAPPING SCREW; FTS-3 3X6(AB)	111-043A
38	BAND-HEAD TAPPING SCREW; BTS-3 3X10(AB)	111-044A
39	BAND-HEAD TAPPING SCREW; BTS-3 3X6(AB)	111-046A
40	FLAT-HEAD TAPPING SCREW; FTS-3 3X12(AB)	111-049A
41	FLAT-HEAD TAPPING SCREW; FTS-3 3X12(Y)	111-050
42	BAND-HEAD TAPPING SCREW; BTS-3 3X5(AB)	111-051A
43	BAND-HEAD TAPPING SCREW/TW-E; BTS-3/TW-E 3X6(AB)	111-053A
44	NUT/WASHER 3mm	131-081

Printed Circuit Boards

Item #	Description	Part #
1	PRINTED CIRCUIT BOARD PDM-24S-1: IN/OUT	262-044
2	PRINTED CIRCUIT BOARD PDM-24S-2: MAIN	262-045
3	PRINTED CIRCUIT BOARD PDM-18-3: EFFECT	262-047
4	PRINTED CIRCUIT BOARD PDM-24S-4: FADER	262-046
5	PRINTED CIRCUIT BOARD PDM-18-5: PHONES	262-048
6	PRINTED CIRCUIT BOARD PDM-18-6	262-049

Parts Lists - PCB1 Input/Output

ICs

Item #	Designators	Description	Part #
1	IC1-4	INTEGRATED CIRCUIT NJM2068LD	074-145
2	IC6	INTEGRATED CIRCUIT NJM7812FA	074-107
3	IC7	INTEGRATED CIRCUIT NJM7912FA	074-114

Transistors

Item #	Designators	Description	Part #
1	Q2-5	TRANSISTOR 2SC2878	076-095
2	Q1	TRANSISTOR 2SA1048 (2SA1317)	076-104

Electrical Parts

Item #	Designators	Description	Part #
1	D3-8, D507, D508	RECTIFIER DIODE 1N4002 (1N4003,1N4004)	079-027
2	D1, D2	SILICON DIODE 1N4148	079-003
3	SW1-3	SLIDE SWITCH 2P2C PH/LINE	081-027
4	J1	PHONE JACK 6.3	092-078
5	J2-5	4P RCA JACK P=14mm	161-105
6	J6	6P RCA JACK P=14mm	161-106

Parts Lists - PCB2 Main

ICs

Item #	Designators	Description	Part #
1	IC11	INTEGRATED CIRCUIT NJM4558LD(M5218AL,BA4558N)	074-104
2	IC8-10	INTEGRATED CIRCUIT NJM2068LD	074-145
3	IC12	INTEGRATED CIRCUIT M5229P	074-115
4	IC13-16	INTEGRATED CIRCUIT LB1403N	074-022

Electrical Parts

Item #	Designators	Description	Part #
1	SW4-7	LEVER SW 4P2C P=18 PH/LN, LN/LN	082-019
2	SW9-10	ROTARY SWITCH 1-2-5 L=17 FAD ASSIGN	082-028
3	SW12-15	PUSH SWITCH 2P2C L=12.5 CUE, MONO	083-069
4	SW8	SWITCH 4P2C L=12.5	083-097
5	VR1-4	SLIDE VR 45mm L=20 CH VOL MASTER 50KA×2	072-035
6	VR7-13	SLIDE VR 30mm L=15 EQ 20KW C.C	072-107
7	A1	SLIDE VR 45mm L=20 FADER 100KB×2	072-081
8	VR14-15	ROTARY VR 16f L=20 TREBLE, BASS 10KB C.C	071-101
9	VR5-6	ROTARY VR 16f L=20 MIC LEVEL 10KA	071-159
10	Red 3.15	LIGHT EMITTING DIODE (RED)	080-091
11	Green 2.5x6.5	LIGHT EMITTING DIODE (GREEN)	080-079
12	Yellow 2.5x6.5	LIGHT EMITTING DIODE (YELLOW)	080-080
13	Red 2.5x6.5	LIGHT EMITTING DIODE (RED)	080-078

Parts Lists - PCB3 Phono

ICs

Item #	Designators	Description	Part #
1	IC18-20	INTEGRATED CIRCUIT NJM4558LD(M5218AL,BA4558N)	074-104
2	IC26	INTEGRATED CIRCUIT NJM4556L	074-113
3	IC25	INTEGRATED CIRCUIT NJM2068LD	074-145
4	IC17	INTEGRATED CIRCUIT M5229P	074-115
5	IC21	INTEGRATED CIRCUIT VM8080	074-141
6	IC22	INTEGRATED CIRCUIT GEMNI-01	074-140

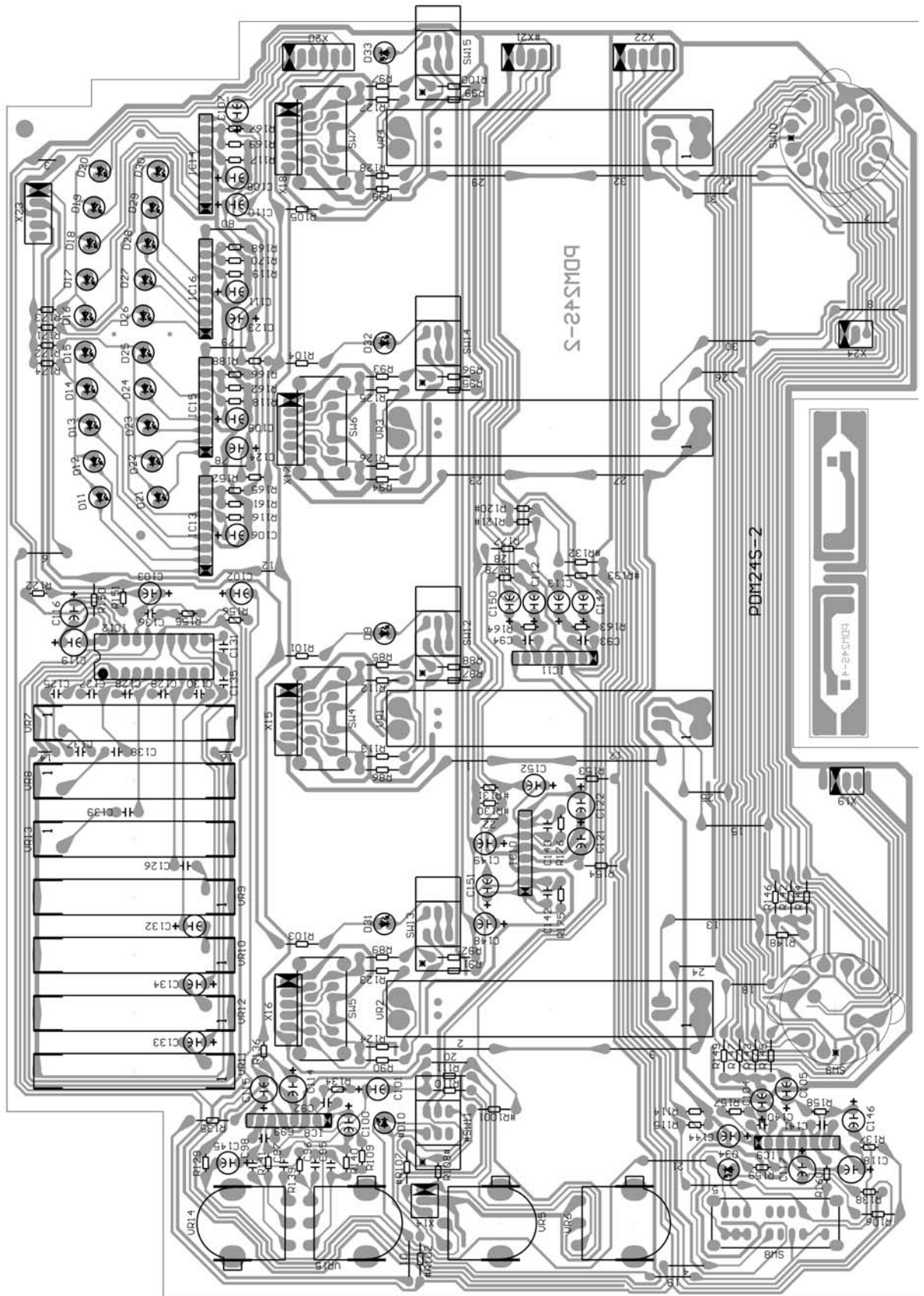
Diodes

Item #	Designators	Description	Part #
1	D37	ZENER DIODE 3.6V 1/2W	
2	D10, D36, D40	LIGHT EMITTING DIODE (RED) 3.15f	080-091

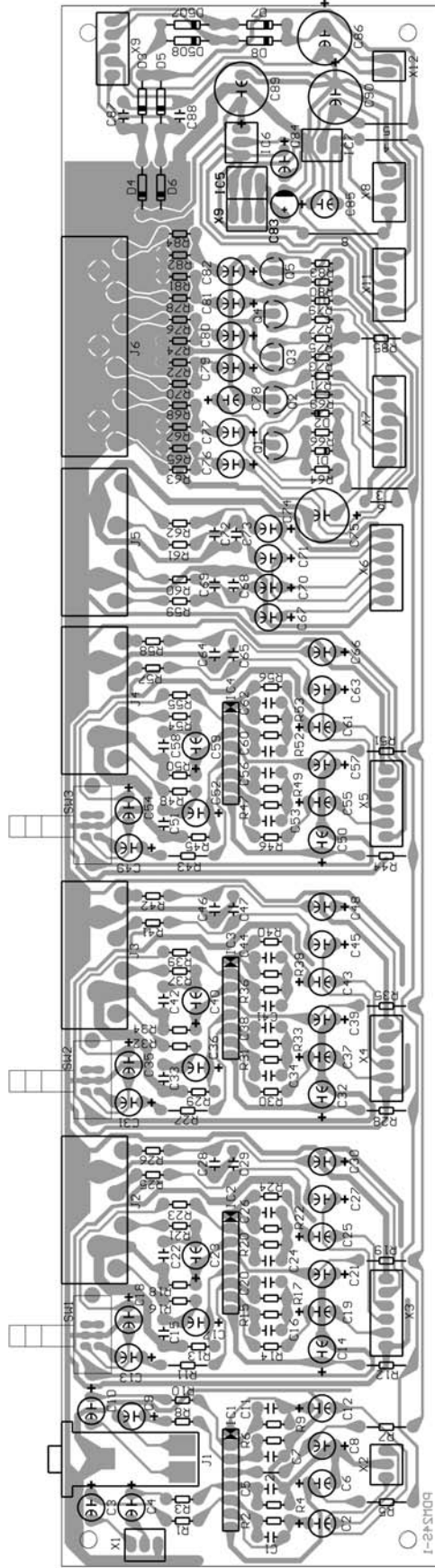
Electrical Parts

Item #	Designators	Description	Part #
1	J10	PHONE JACK 6.3f	092-078
2	SW20	PUSH SWITCH 2P2C L=12.5 CUE,MONO	083-069
3	SW22	PUSH SWITCH 4P2C L=12.5 EQ	083-097
4	VR30	SLIDE VR 45mm L=20 CH VOL MASTER 50KA×2	072-035
5	VR20-26	SLIDE VR 30mm L=15 EQ 20KW C.C	072-107
6	VR17	ROTARY VR 16f L=20 CUE LEVEL 50KA×2	071-084
7	VR16	ROTARY VR 16f L=20 VOLUME 50KA	071-066
8	VR31	ROTARY VR 16f L=20 BOOTH 10KA×2	071-161
9	VR32	ROTARY VR 16f L=20 CUE PGM 20KW×2	071-178
10	VR27	ROTARY VR 16f L=20 SPEED 250KB×2CC	071-176

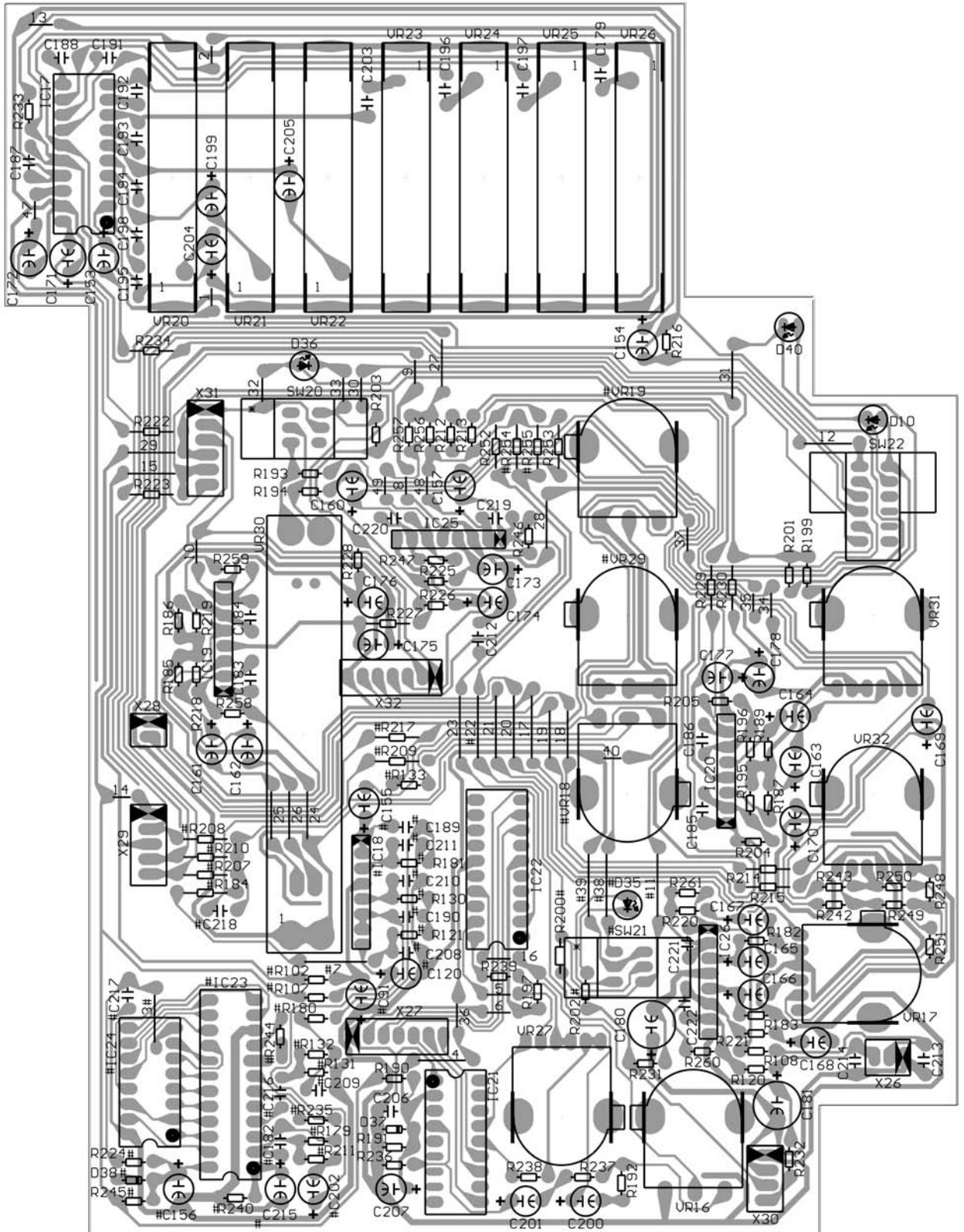
PCB2 - Main



PCB1 - Input/Output



PCB3 - Phono



Schematic

