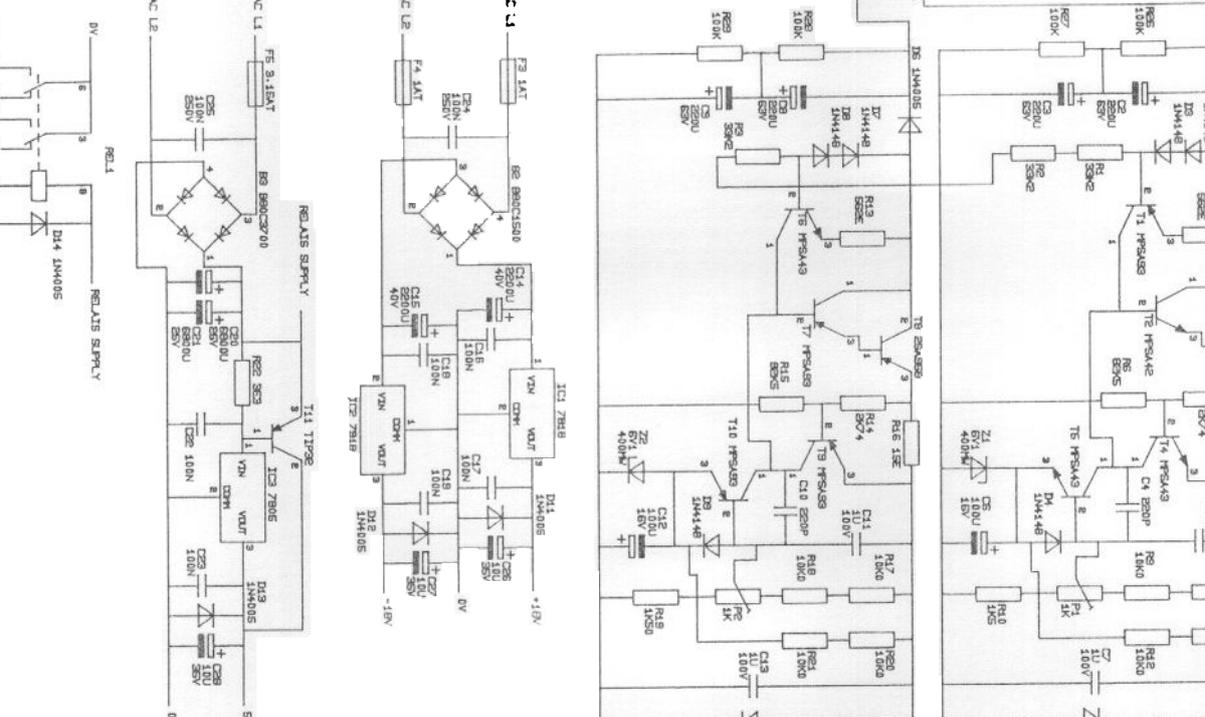
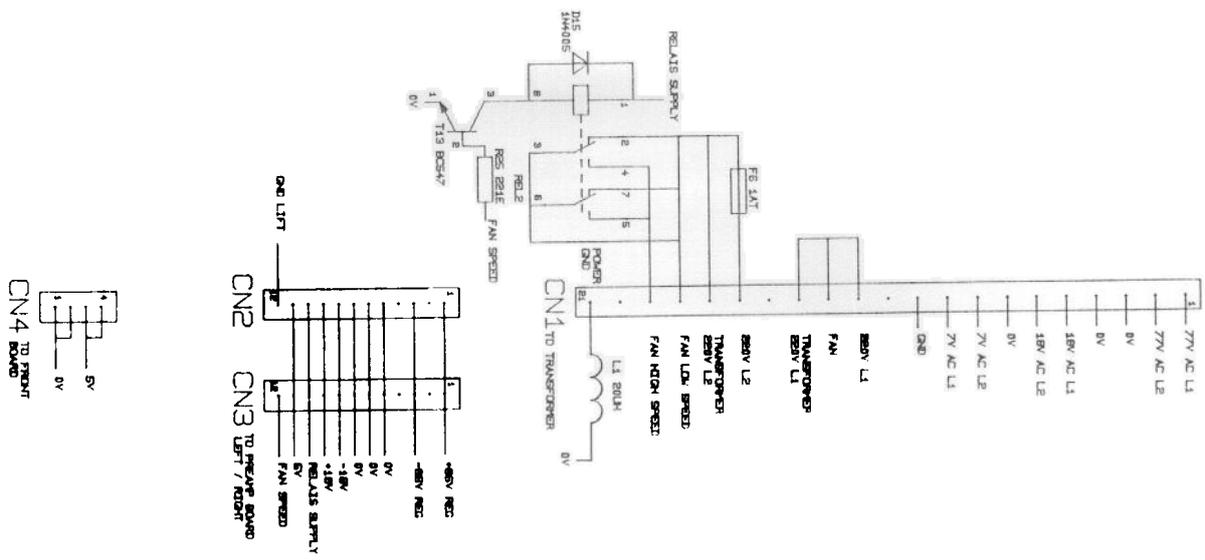
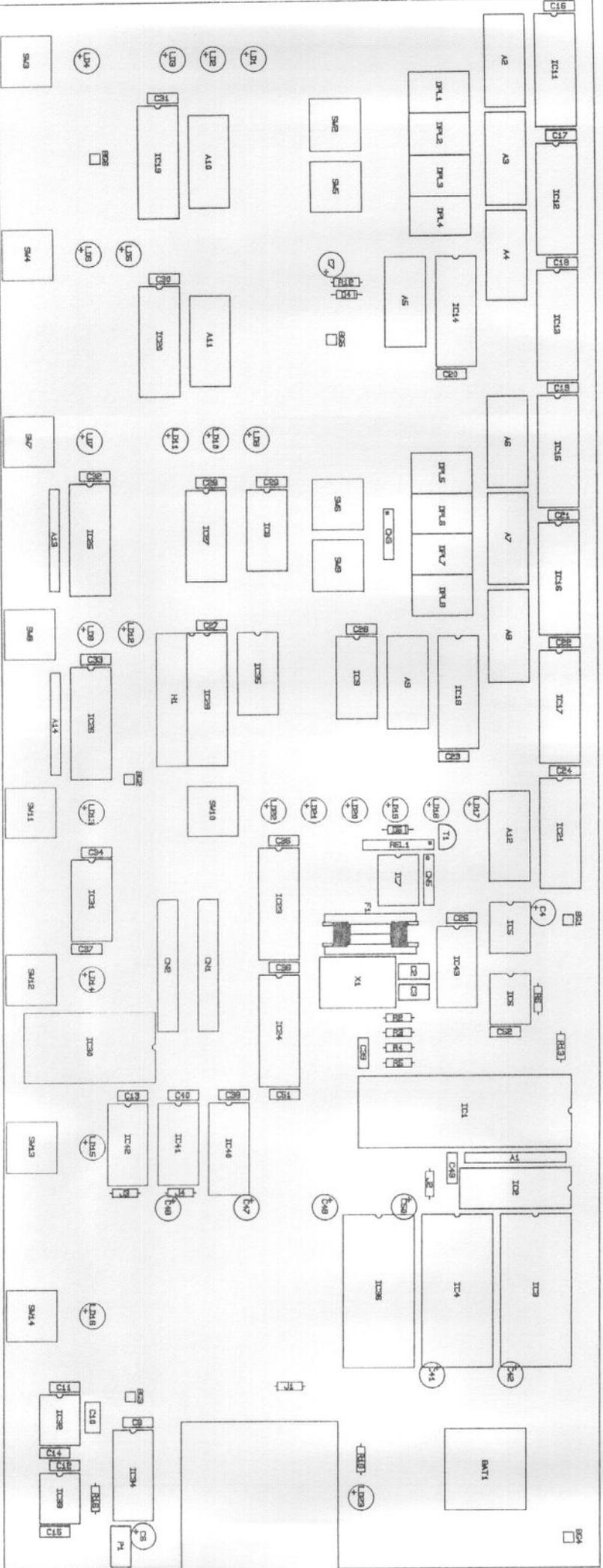
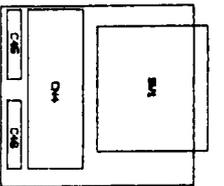
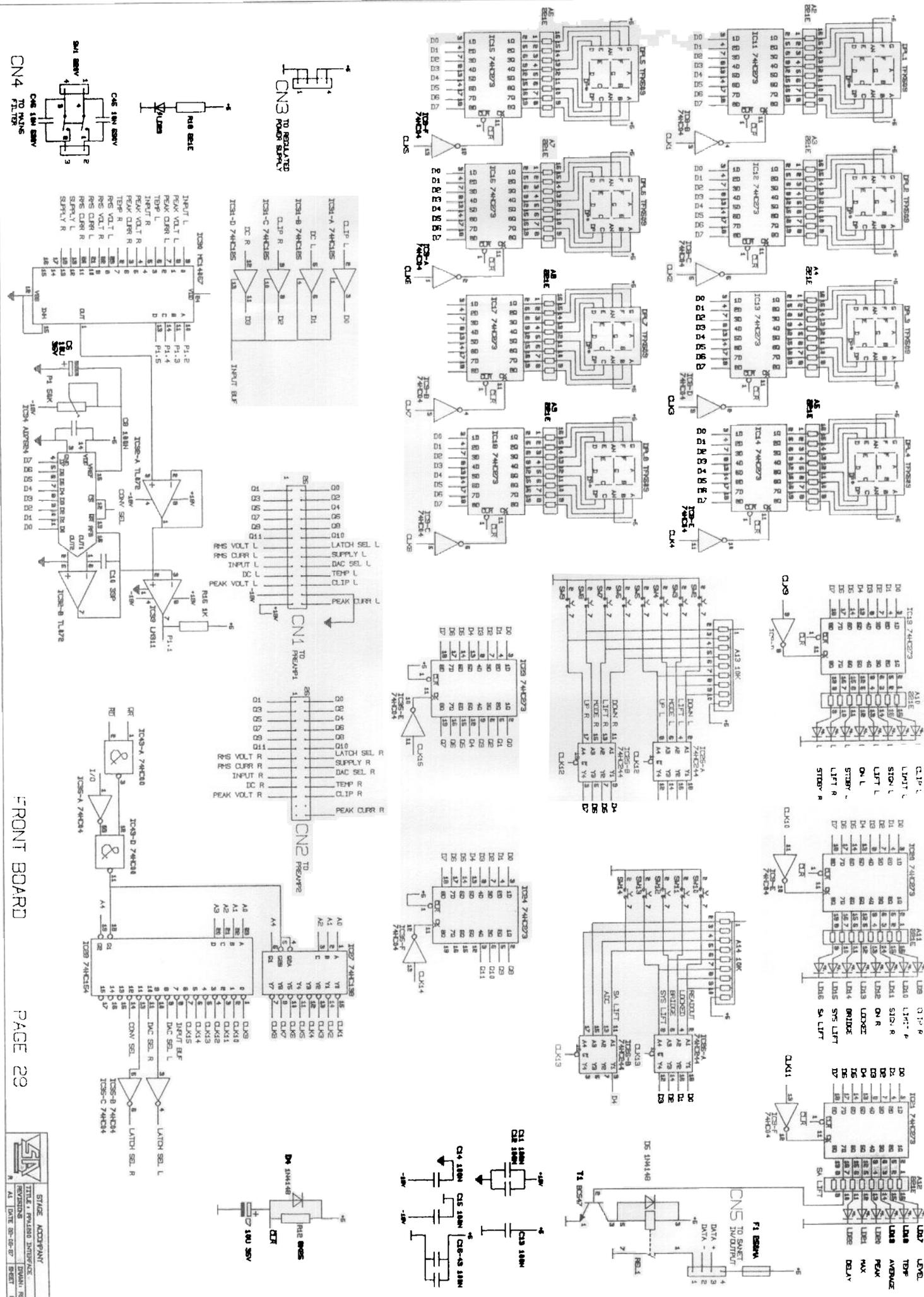


PAGE 26 REGULATED POWER SUPPLY BOARD

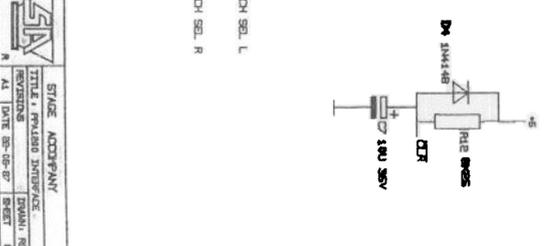
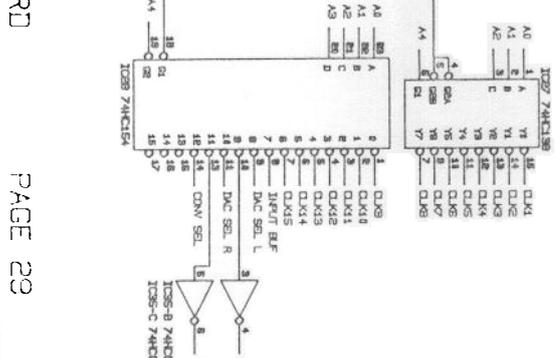
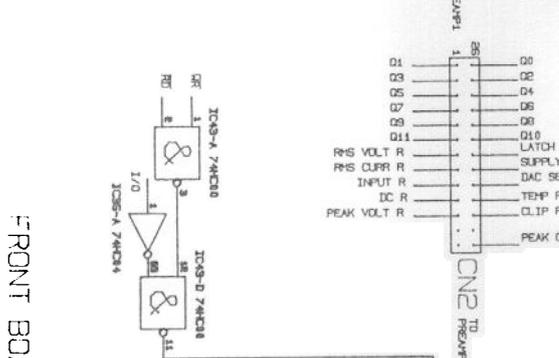
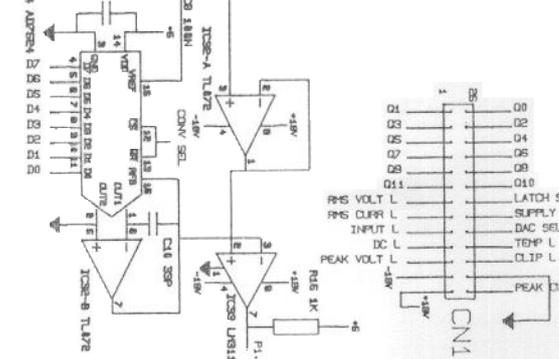
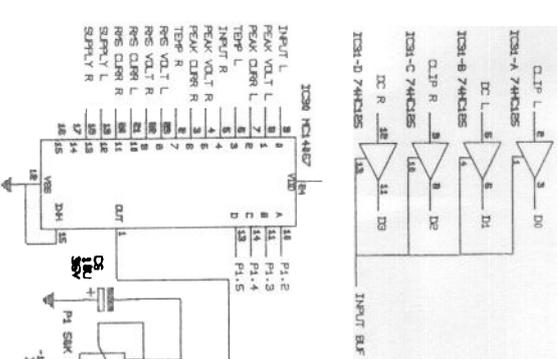




PAGE 29 FRONT BOARD

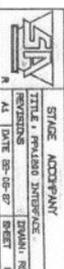


CN4 TO MAINS
CN4 FILTER



FRONT BOARD

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7 Basic operation of the software

Power turn on

First the regulated power supply is turned on. The processor circuit starts and checks the contents of the EEPROM memory. If the data is not ok, **BOOT E** is displayed and all actions stop. If the data is ok, the last settings of the amplifier before it was turned off are restored.

Power turn on with the SAnet ground and system ground buttons depressed simultaneously

The regulated power supply is turned on and the processor starts. **BOOT P** is displayed and the readout select leds are sequentially lit. The processor waits until data is offered at the SAnet interface. After downloading the software, the amplifier resets (see also chapter 8).

Power turn with the channel 1 down button depressed

The installed software version number is displayed in the channel 1 display. Return to normal use by turning the amplifier off and on again.

Power turn on with the channel 1 up button depressed

The identity code of the amplifier is shown in the channel 2 display. Return to normal use by turning the amplifier off and on again.

***** The next actions are always during normal use ! *****

The SAnet ground button

Led 16 is on, both pins 1 of the SAnet connectors are disconnected from the amplifiers internal ground by relay 1 on the front board. Pushing the button again reverses this procedure.

The system ground button

Led 15 is on, the amplifiers internal ground is disconnected from the chassis and the mains ground by relay 1 on the regulated power supply board. Pushing the button again reverses this procedure.

The lock button

By pushing the lock button, a lock code can be entered by means of the up/down buttons. After entering the desired code, system lock must be depressed again for definitely locking the amplifier and led 13 will then be lit.

Locking means the amplifier functions normally but no setting can be changed.

The processor ignores all buttons, except for two. Readout select can still be used to monitor a desired function and the lock button can be used to unlock the PPA 1200.

Unlocking is the reversed procedure, press lock, enter the right lock

code and press lock again. When the wrong code is entered, the amplifier remains locked and a new code can be entered.

The input ground buttons

Led 4 lights for channel 1, led 7 for channel 2. The amplifiers analog ground is disconnected from pin 1 of the channels input connector. Pushing the button again reverses this procedure.

The channel mode buttons

Led 5 lights for channel 1, led 12 for channel 2. IC13 (preamp board) mutes the input signal completely. Relay 1 and 2 are activated on the power supply board. After ± 3 seconds first relay 1 and 2 on the poweramp board are activated and shortly afterwards DDC relay 4 on the preamp board. IC13 (preamp board) restores the input signal slowly to its previous level.

Pushing channel mode when the power amp is on causes all relays to be released immediately and IC13 (preamp board) mutes the input signal.

The readout select button

This buttons changes the information source for the displays of channel 1 and 2.

When led 17 (level) is lit, the displays read the input attenuation in dB. Off means the input attenuation is infinite. The input level can only be changed when this mode is selected, except for the immediate mute function. Input attenuation is performed by IC13 on the preamp board.

When led 18 (temperature) is lit, the displays show the output devices temperature in degrees Celsius.

When led 19 (average power) is lit, the displays show the average power output delivered to the load. This power is the signal produced by the RMS output voltage converter multiplied with the signal of the RMS output current converter.

When led 20 (peak power) is lit, the displays show the peak power output delivered to the load. This power is a multiplication of peak output voltage and peak output current.

Led 21 (maximum power) indicates that the displays show the level at which the amplifier starts reducing its output power. The PPA 1200 measures the average output power and compares it with the selected level. When the measured level is higher than the selected level, the processor increases the input attenuation (IC13, preamp board) proportionally.

In case a preset for a Stage Accompany loudspeaker enclosure is chosen, the maximum power level is internally set. In this case the average output voltage is compared with the factory programmed level and reduced if necessary. This way, it is not necessary to select a new preset when more speaker enclosures are used parallel. Voltage conditions remain the same when using speakers parallel, only the current increases.

When led 22 (power amp on delay) is lit, the displays show the time after which the power amp turns on after the mains switch is turned on.

The up and down buttons

when level is selected at readout select:

down increases the input attenuation, up reduces it. The attenuation changes in steps of 1 dB from 0 dB to -59 dB and below -59 dB the last step is off which means complete attenuation. The input signal can be immediately muted by pushing the up and down buttons simultaneously.

-when temperature, average or peak power is selected at readout select:
Depressing either the up or down button changes the readout select immediately to level.

-when maximum power is selected at readout select:

Pushing the up button increases the maximum allowed average power to a maximum of 900 W, the down button reduces the power to a minimum of 30 W. The level can be set in steps of 10 W. When pushing the channel 1 down button at 30 W maximum power, the preset for Stage Accompany enclosures are selected. Relay 2 on the channel 2 preamp board and relay 3 on both the preamp boards are activated. This means that only the channel 1 input connector is active and used for both the channels and that a SA preset is always used for biamping an enclosure.

There is one exception, namely the PPA 1200's equipped with only the SA4549 low preset. Here relay 2 on the channel 2 preamp board is not activated and both the inputs have to be used.

-when power amp on delay is selected at readout select:

The down button reduces the time between power on and power amp on and the up button increases it. Minimum is 2.0 seconds, maximum is 99.9 seconds. The time can be set in steps 0.1 seconds.

-when the lock button is activated:

A lock code can be selected by means of the up/down buttons between 1 and 999.

The bridge mode button

The bridge mode button must be depressed for at least 1 second before any action takes place. The bridge mode button does not work in the preset mode.

After that, led 14 will be lit. Both amplifiers will be set stand by if they were on and all channel 2 controls and displays become inactive.

The input attenuator is muted. Relay 2 is activated on the channel 2 preamp board and the channel 1 input is the bridge mode input. All control and display is done in the channel 1 section.

Pushing the channel mode button causes both amplifiers to turn on with a 1s interval.

The input level shown in the channel 1 display is the level for both the channels.

When temperature is chosen at display select the temperature of the hottest output devices is displayed.

All displayed powers (average and peak) are the total powers delivered by the amplifier, so the power output of each channel is summed by the microprocessor and shown in the channel 1 display.

The maximum power range is increased to 1800 W.

Clipping of the output signal

Clipping is detected by the processor by comparing the peak output

voltage with the supply level. After detection, the input is attenuated at the input attenuator (IC13, preampboard).

This protection can be disabled by pushing the channel 1 input ground and the readout select buttons simultaneously while turning the amplifier on. The protection is automatically re-enabled by turning the amplifier off and on again.

In case the output power exceeds the maximum power

Output power is measured by multiplying the average output voltage with the average output current. When this power exceeds the programmed maximum power, the input signal will be proportionally reduced by the input attenuator.

This protection can be disabled by pushing the channel 2 input ground and the readout select buttons simultaneously while turning the amplifier on. The protection is automatically re-enabled by turning the amplifier off and on again.

In case the temperature reaches 50°C

When the temperature of the output devices of a channel reaches 50°C or more, relay 2 on the regulated powersupply board will be activated and the fan starts running at high speed. Low fan speed is restored when both temperatures have dropped under 45°C.

For the studio version of the PPA 1200 these temperatures are raised to 70°C and 65°C to minimise noise.

In case the temperature reaches 85°C

At a temperature of 85°C, the input signal of the corresponding channel will be muted by the input attenuator. The display will read the text 'ht'. The power amplifier however remains on. Input level is restored when the temperature drops under 80°C.

In case the temperature reaches 90°C

At 90°C, the power amp is set to stand by. The input was already muted at 85°C. The power amp turns on again at 80°C and the input level is restored to its previous level.

DC detection at the amplifiers output

When DC has been detected, the output breakers RL1 and RL2 on the power amp board and the DDC relay 4 on the preamp board are released immediately. The input level is muted and the poweramp is turned off after 3 seconds. The display reads the text 'dc'.

The amplifier can be activated again by pushing the channel mode button but this will result in 99% of the cases in another dc message. DC is nearly always caused by an internal fault.

Detection of a blown fuse

A blown fuse is detected through the power supply. When the situation 'power amp on' and supply voltage < 5 V occurs, the message 'Fb' is displayed. Note that this warning can also implicate that the fuse is ok, but the power supply has broken down or a wire is interrupted.

8 Downloading of the software

Downloading of the software can be necessary in three cases:

- when the EEPROM or Flash EPROM has broken down and been replaced.
- when a new software version has been released.
- when you want to change the PPA 1200 into a different version.

When the EEPROM or Flash EPROM has broken down, Stage Accompany can supply you with a programmed or an empty replacement. In the first case, a software download is not necessary.

A new version can contain corrections or improvements of a previous version but also new features that were not possible before.

To change the PPA into a different version, the software as well the filter PCB has to be changed!

For a software download you need:

- An IBM or IBM compatible personal computer fitted with a SANet interface card.
- Two files called PROGDEV.EXE and PPAx_x.DPF

PROGDEV.EXE is the program that contains the software for the communication between PC and EEPROM (or Flash) and PPAx_x.DPF contains the actual software for the PPA 1200. x_x tells you which software version this program contains. So PPA2_4.DPF contains software version 2.4.

The downloading contains the following procedure:

- * Go to the directory in which the program PROGDEV.EXE is located.
- * Make the connection between the PC and the PPA 1200's SANet connector.
- * Turn the amplifier off and turn it on again while pushing the SANet and system ground lift buttons simultaneously. Now the display will read "BOOT P" and the readout select leds will start to flicker.
- * Press "PROGDEV" followed by a "[carriage return]" ("[Enter]").
- * Follow the instructions of the PROGDEV user manual.
- * When the program is being loaded into the PPA 1200, the message "Boot P" changes into "Boot E" and the leds that normally indicate the readout selection will now flicker at a lower speed. When the downloading has finished, the amplifier's displays start flashing as an indication that the downloading has been succesfull. Turn the PPA off and on again and it is ready for use.

At the moment of this issue, four different software versions for the PPA 1200 are available:

- V 2.4 This is the standard version featuring the presets for the Champion, Leader en Master series enclosures, except the 4549 master studio monitor.
- V 10.4 This is the version for the low end of the master 4549 enclosure, featuring 100 Hz / 6 dB oct. filters. The

amplifier operates in the preset mode in stereo. Channel 1 is the low end amplifier for the left enclosure and channel 2 is the low end amplifier for the right enclosure.

- V 11.4 This is the version for the midrange and high end of the master 4549 enclosure featuring 1 kHz / 24dB oct. filters with special horn correction for the high pass amplifier.
- V 12.4 This version is for sublow application of the 4528 in combination with Blue Boxes. Crossover frequency is 100 Hz with 12dB / oct. slope. In preset mode, this PPA 1200 also works in stereo mode, so both channels have individual inputs.