NTP ELEKTRONIK A/S

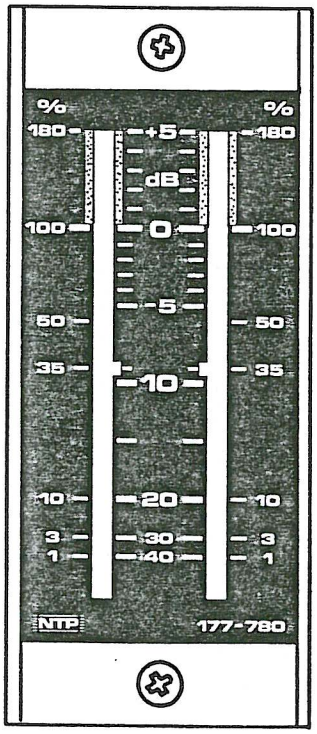
STEREO PEAK PROGRAMME METER

177-780

FRONT-PLATE LAY-OUT

177-7809-A-4

20.11.1979. tl.



General Specifications

Supply voltage	23-32V DC
Maximum ripple, 20 Hz to 20kHz	0.1V PP
Current consumption	approx. 100mA
Temperature range	0 to +45°C ambient temperature

Audio

Frequency range, 0.5dB points	20Hz to 20kHz
High frequency roll-off	at 50kHz greater than 6dB
Input inpedance	20kΩ ±15%, balanced floating
Input CMRR	better than 50dB at 15kHz
Input voltage for 0dB (+6dB) reading	1.55V rms sine (+6dBu)
Dynamic measuring range	45dB
Crosstalk between channels	less than 50dB at 15kHz

Measuring errors

	±5 to -10dB	-10 to -30dB
1kHz steady signal, 25°C	±0.5dB	±1 LED
Within full frequency range, 25°C	+0.5/-1dB	±1 LED
Within full temperature range, 1kHz	±1dB	±1 LED
Polarity shift of unsymmetrical wave	±0.5dB	±1 LED
10% change in supply voltage	±0.2dB	±1 LED

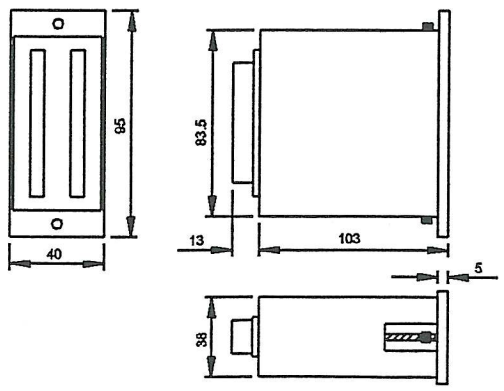
Integration and fall-back time

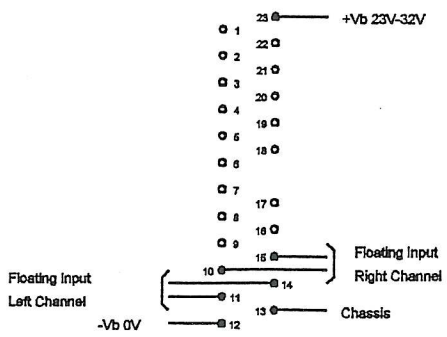
Integration time, conforming to DIN45406 and IEC268-10	10msec. for -1dB ±0.5dB 5msec. for -2 ±1dB 3msec. for -4 ±1dB 0.4msec for -15dB ±2dB
Fall-back time	1.5 sec for 0 to -20dB

General Data

Total scale length	61mm
Number of LEDs per channel	24 (5 red)
Standard scales, available in vertical and horizontal versions	+5dB to -40dB, DIN scale Scale blanking pin 1 and 5
Mechanical outline, N-module, B1 size	See below
Connector	Amphenol - Tuchel 2700-000
Weight	approx. 0.4kg

Note: Light-intensity adjustable from front.





NTP ELEKTRONIK A/S

STEREO PEAK PROGRAMME METER 177-780
TECHNICAL SPECIFICATIONS

177-7811-A-3

General specification:

Supply voltage	: 23-32V dc
Maximum ripple, 20 Hz to 20 kHz	: 0,1V PP
Current consumption	: approx. 100 mA
Temperature range	: 0 to +45°C ambient temp.

Input:

Frequency range, 0,5 dB points	: 20 Hz to 20 kHz
High frequency roll-off	: at 50 kHz greater than 6 dB
Input impedance	: 20 kOhms ±15%, balanced floating
Input CMRR	: better than 50 dB at 15 kHz
Input voltage for 0 dB (+6 dB) reading	: 1,55V rms sine (+6 dBu)
Dynamic measuring range	: 45 dB
Crosstalk between channels	: less than 50 dB at 15 kHz

Measuring errors:

	+5 to -10 dB	-10 to -30 dB
1 kHz steady signal, 25°C	: ±0,5 dB	±1 LED
within full frequency range, 25°C	: +0,5/-1 dB	
within full temperature range, 1 kHz	: ±1 dB	
Polarity shift of unsymmetrical wave	: ±0,5 dB	
10% change in supply voltage	: ±0,2 dB	

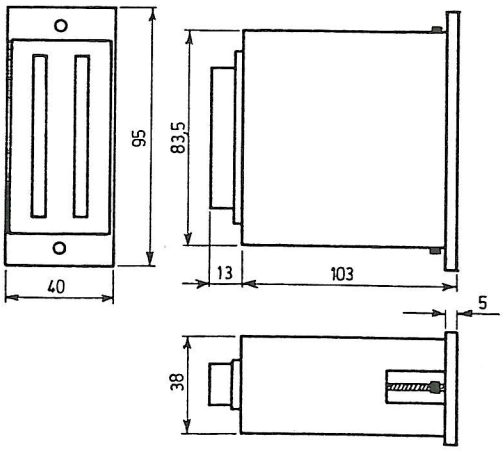
Integration and fall-back time:

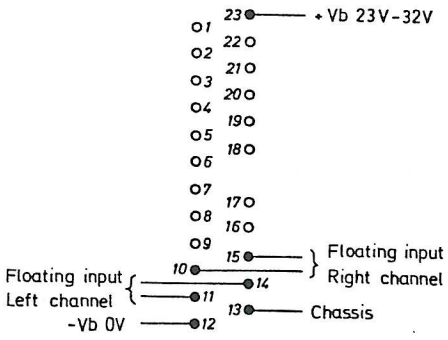
Integration-time, conforming to DIN 45406 and IEC 268-10 (measured with 5 kHz tone bursts)	: 10 mSec for -1 dB ±0,5 dB 5 mSec " -2 dB ±1 dB 3 mSec " -4 dB ±1 dB 0,4 mSec " -15 dB ±2 dB
Fall-back time	: 1,5 sec for 0 to -20 dB

General data:

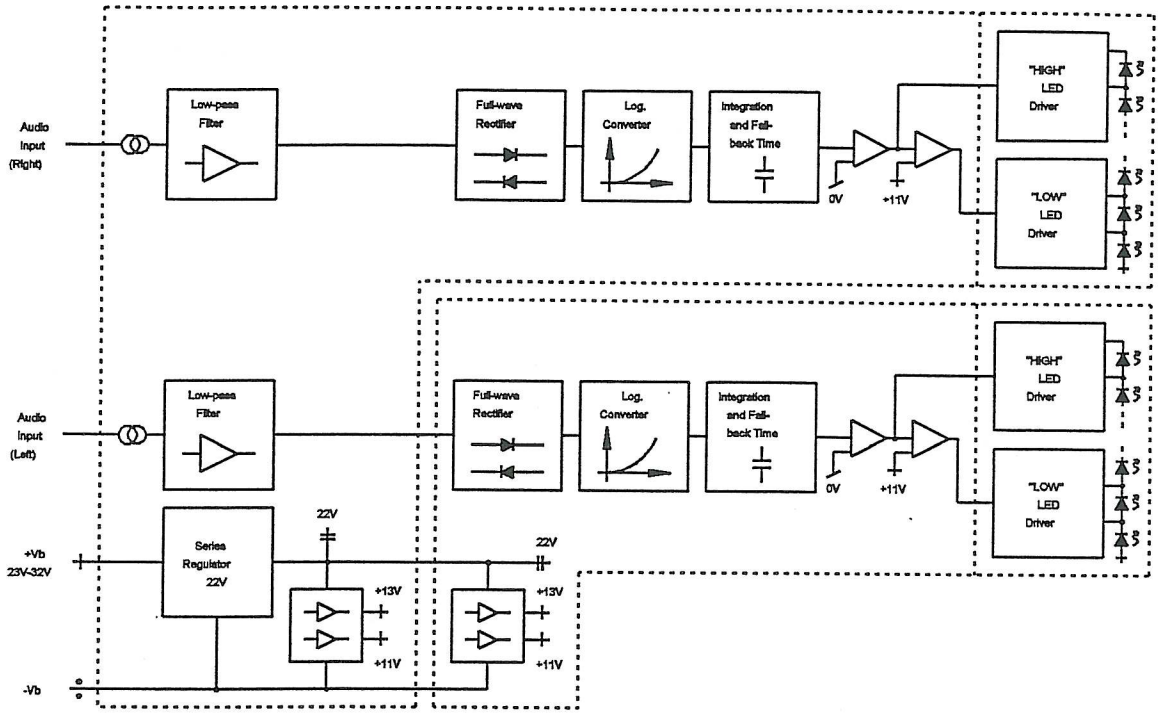
Total scale length	: 61 mm
Number of LEDs per channel	: 24 (5 red)
Standard scales, available in vertical and horizontal versions	: +5 dB to -40 dB, DIN scale +9 dB to -36 dB, Nordic scale
Mechanical outline, N-module, B1 size	: see below
Connector	: Amphenol - Tuchel 2700-000
Weight	: approx. 0,4kg

Note. Light-intensity adjustable from front





The compact stereo PPM, type 177-780, has two 61mm long scales, each with 19 green and 5 red LED's. It has recommendations regarding integration time, fall-back etc.



Description of function: Ref. diagram no. 177-7830-A-3.

The input stage is realized with a current transformer circuit combined with a 12dB/octave low-pass filter. Potentiometer P1 adjusts the reference level. The first half of IC3 and the transistors Q9-Q12 form the double peak rectifier. The second half of IC3 and the transistors Q13 and Q14 form the logarithmic circuit which permits measuring over a large dynamic range. Q15 and Q16 act like an unlinear voltage depending circuit which gives the correct integration time for charging the capacitor C11. The DC-voltage on C11 corresponds to the actual reading. The fall-back time corresponds to the discharge time of C11 and is adjusted by means of potentiometer P2. The potentiometer P3 in the feed-back loop of IC4 adjusts the low level reading. Output from the first half of IC4 drives the second half of IC4 and is used to switch on the LED's from D13 and upwards to D24, called HIGH output. The high output terminal is clamped to minimum +11V, and only when the amplifier output exceeds this voltage, a change in the high output occurs. The second half of IC4 refers to +11V, and the output called LOW is used to switch on the LED's D1 to D12. The change in reference is made in order to enable "vertical stacking" of the two IC's on the display board in order to save current for LED's instead of parallel connection which required higher current consumption. IC1 on the display board refers to 0V, while IC2 refers to +11V.

Potentiometer P4, accessible froma hole in the frontglass, allows adjustment of the light intensity.

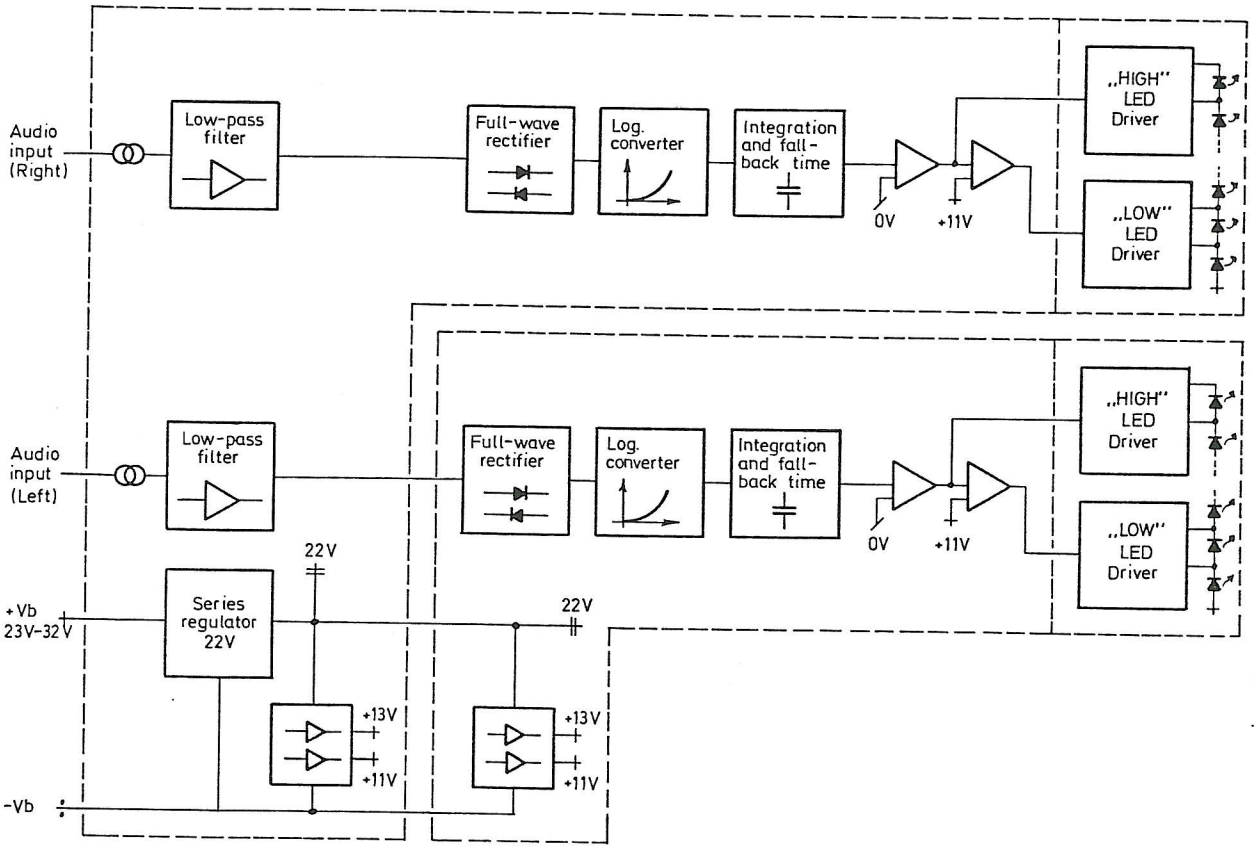
In order to obtain a high supply voltage operating range a series regulator consisting of Q1 and associate components are provided. This regulator gives a DC-output to 22V.
Two additional voltage followers consisting of IC1 givews +11V DC and +13V DC.

NTP ELEKTRONIK A/S

STEREO PEAK PROGRAMME METER 177-780
GENERAL DESCRIPTION

177-7812-A-3

The compact stereo PPM, Type 177-780, has two 61 mm long scales, each with 19 green and 5 red LED's. It has balanced floating transformer inputs and fully complies with DIN and IEC recommendations regarding integration-time, fall-back, etc.



Description of function: Ref. diagram no. 177-7830-A-3.

The input stage is realized with a current-transformer circuit combined with a 12 dB/octave low-pass filter. Potentiometer P1 adjusts the reference level. The first half of IC 3 and the transistors Q9-Q12 form the double peak rectifier. The second half of IC 3 and the transistors Q13 and Q14 form the logarithmic circuit which permits measuring over a large dynamic range. Q15 and Q16 act like an unlinear voltage depending circuit which gives the correct integration-time for charging the capacitor C11. The dc-voltage on C11 corresponds to the actual reading. The fall-back time corresponds to the discharge-time of C11 and is adjusted by means of potentiometer P2. The potentiometer P3 in the feedback loop of IC4 adjusts the low level reading. Output from the first half of IC4 drives the second half of IC4 and is used to switch on the LED's from D13 and upwards to D24, called HIGH output. The high output terminal is clamped to minimum +11V, and only when the amplifier output exceeds this voltage, a change in the high output occurs. The second half of IC4 refers to +11V, and the output called LOW is used to switch on the LED's D1 to D12. The change in reference is made in order to enable "vertical stacking" of the two IC's on the display board in order to save current for LED's instead of parallel connection which required higher current consumption. IC1 on the display board refers to 0V, while IC2 refers to +11V.

Potentiometer P4, accessible from a hole in the frontglass, allows adjustment of the light intensity.

In order to obtain a high supply voltage operating range a series regulator consisting of Q1 and associate components are provided. This regulator gives a dc-output to 22V. Two additional voltage followers consisting of IC1 gives +11V dc and +13V dc.

The instrument is factory adjusted, and no further adjustment should be necessary, unless a component has failed and been replaced.

Before attempting any adjustments, please note the permissible indication errors, etc., stated in the technical specification sheet no. 177-7811-A-4.

Supply Voltage Adjustment.
Connect an external DC-supply of approx. +24 volts to the supply terminals, +Vb on terminal 23 and -Vb on terminal 12. Resistor R8 is adjusted to give +21.5 to +22 volts internal supply voltage.

Reference Level Adjustment.
An input signal of 1kHz sine is applied to the audio input terminals 11-14 and 10-15. The level is set to +5.7dBm. Potentiometer P1 is adjusted, so that the LED at the reference level mark (100%) just goes on.

Low Level Adjustment.
The input signal is turned down 30dB to -24.3dBm. Potentiometer P3 is adjusted to -30dB reading on a DIN scale and -24dB reading on the Nordic scale.

Reference level- and low level adjustments are repeated two or three times to give exact reading at both ends of the scale.

Fall-back Time Adjustment.
Apply reference level signal to the input. Remove input signal and note the reading after 1.5 seconds fall-back time, - it should be 20dB below the reference mark. Potentiometer P2 is adjusted to the correct fall-back time.

The fall-back time adjustment does have some effect on the level adjustments, and therefore the reference level- and the low level adjustments should be carried out once more.

Common Mode Rejection Adjustment.
Both inputs (terminals 11-14 and 10-15) are connected together, and a 15kHz sine signal of +20dBm level is applied between inputs and reference (terminal 12).
Capacitor C7 (right) and C13 (left) are adjusted to minimum reading.

The instrument is factory adjusted, and no further adjustment should be necessary, unless a component has failed and been replaced.

Before attempting any adjustments, please note the permissible indication errors, etc., stated in the technical specification sheet no. 177-7811-A-3.

Supply Voltage Adjustment.

Connect an external dc-supply of approx. +24 volts to the supply terminals, +Vb on terminal 23 and -Vb on terminal 12. Resistor R8 is adjusted to give +21,5 to +22 volts internal supply voltage.

Reference Level Adjustment.

An input signal of 1kHz sine is applied to the audio input terminals 11-14 and 10-15. The level is set to +5,7 dBm. Potentiometer P1 is adjusted, so that the LED at the reference level mark (100%) just goes on.

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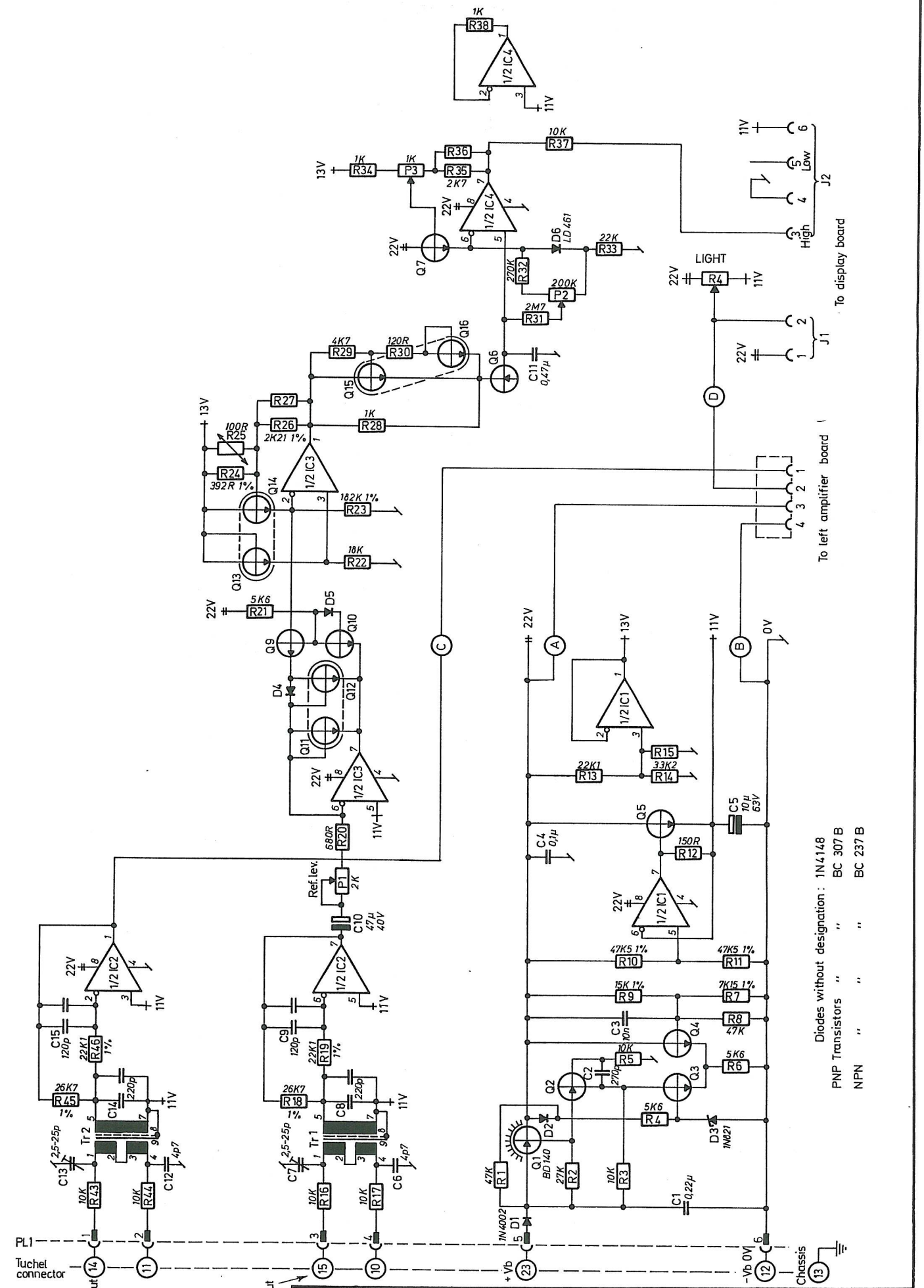
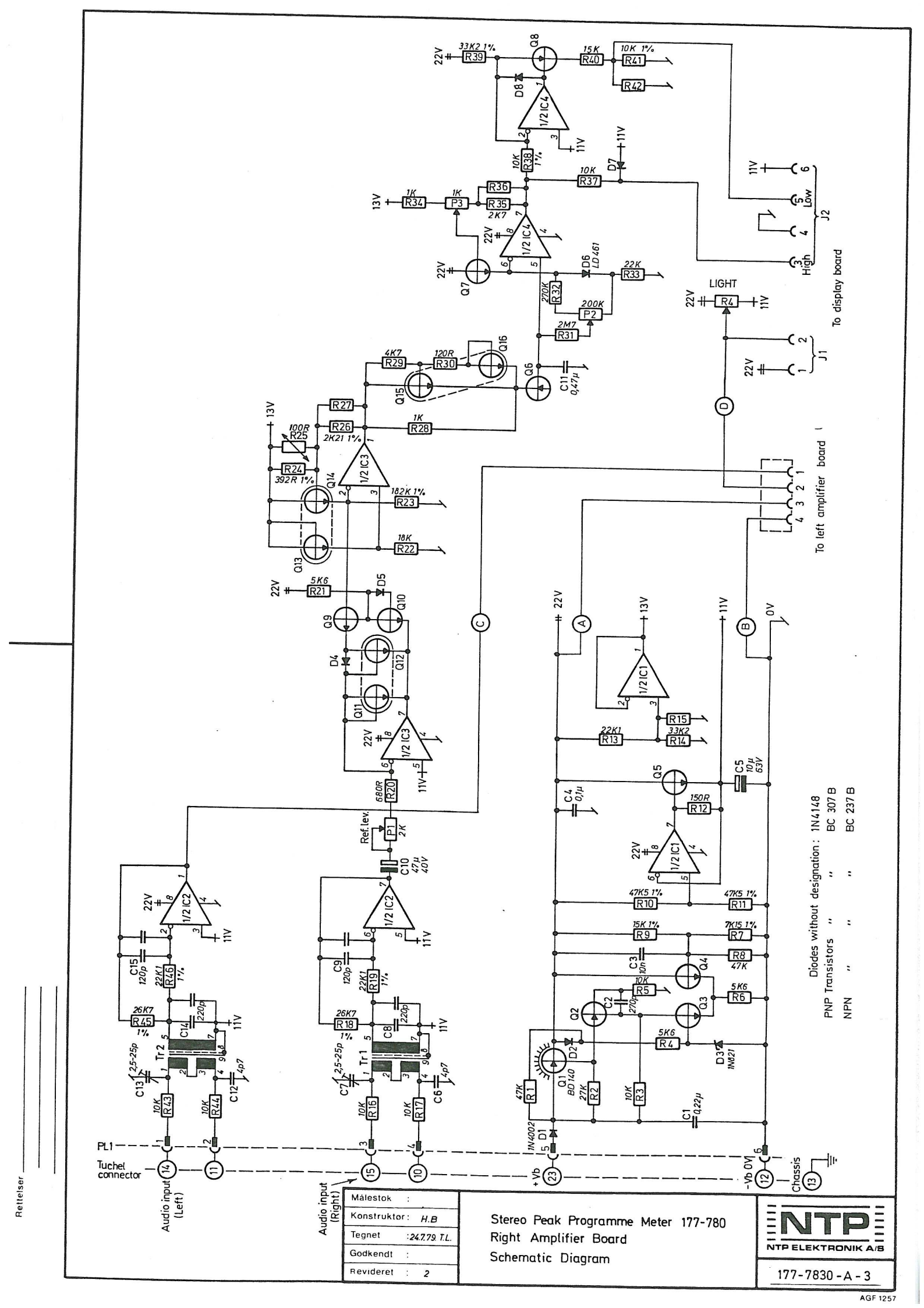
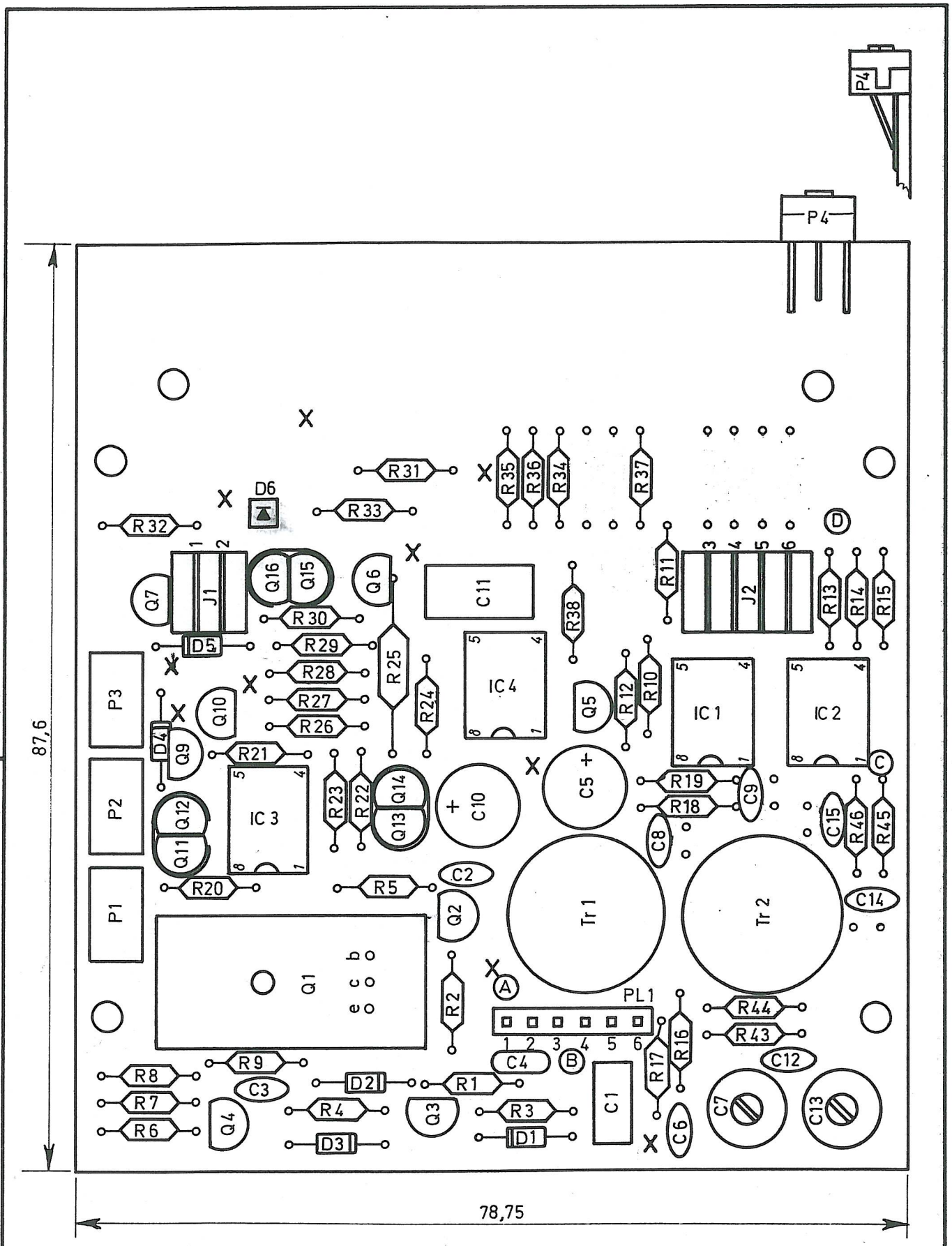

1K R38
1/2 IC4
11V
10K R37
1K R34
1K P3
R36
R35
2K7
13V
22V
Q7
D6 LD461
22K R33
270K R32
200K P2
2M7 R31
LIGHT
R4
11V
J2
Low
High
To display board
J1
4K7 R29
120R R30
Q16
Q15
Q6
C11 0,47µ
R27
R26 2K21 1%
1K R28
100R R25
R24 392R 1%
Q14
1/2 IC3
182K 1% R23
18K R22
Q13
5K6 R21
D5
Q10
Q9
D4
Q12
Q11
680R R20
Ref.lev.
P1 2K
C10 47µ 40V
To left amplifier board
Diodes without designation: 1N4148
PNP Transistors " " BC 307 B
NPN " " " BC 237 B
1/2 IC1
1/2 IC2
1/2 IC3
15K R15
22K1 R13
33K2 R14
C5 10µ 63V
C4 0,1µ
150R R12
47K5 1% R10
47K5 1% R11
15K 1% R9
7K15 1% R7
47K R8
C3 10n
10K R5
5K6 R6
Q5
Q4
Q3
Q2
C2 270p
5K6 R4
D2
D3 1N821
47K R1
Q1 BD140
27K R2
10K R3
C1 0,22µ
1N4002 D1
C15 120p
22K1 R46 1%
26K7 R45 1%
C14 220p
Tr 2
2,5-25p C13
4p7 C12
10K R43
10K R44
C9 120p
22K1 R19 1%
26K7 R18 1%
C8 220p
Tr 1
2,5-25p C7
4p7 C6
10K R16
10K R17
PL1
Tuchel connector
Audio input (Left)
Audio input (Right)
+Vb
-Vb 0V
Chassis
Målestok :
Konstruktør: H.B
Tegnet : 24.7.79. T.L.
Godkendt :
Revideret : 3/950321
Stereo Peak Programme Meter 177-780
Right Amplifier Board
Schematic Diagram
NTP
NTP ELEKTRONIK A/S
177-7830-A-3
AGF 1257
Rettelser


Stereo Peak Programme Meter 177-780
Right Amplifier Board
Schematic Diagram
NTP ELEKTRONIK A/S
177-7830-A-3
Målestok :
Konstruktør: H.B
Tegnet : 24.7.79. T.L.
Godkendt :
Revideret : 2
Retteiser
AGF 1257
Diodes without designation: 1N4148
PNP Transistors " " BC 307 B
NPN " " BC 237 B
To display board
To left amplifier board
LIGHT
Low
High
Ref.lev.
Audio input (Left)
Audio input (Right)
Tuchel connector
PL1
+Vb
-Vb 0V
Chassis



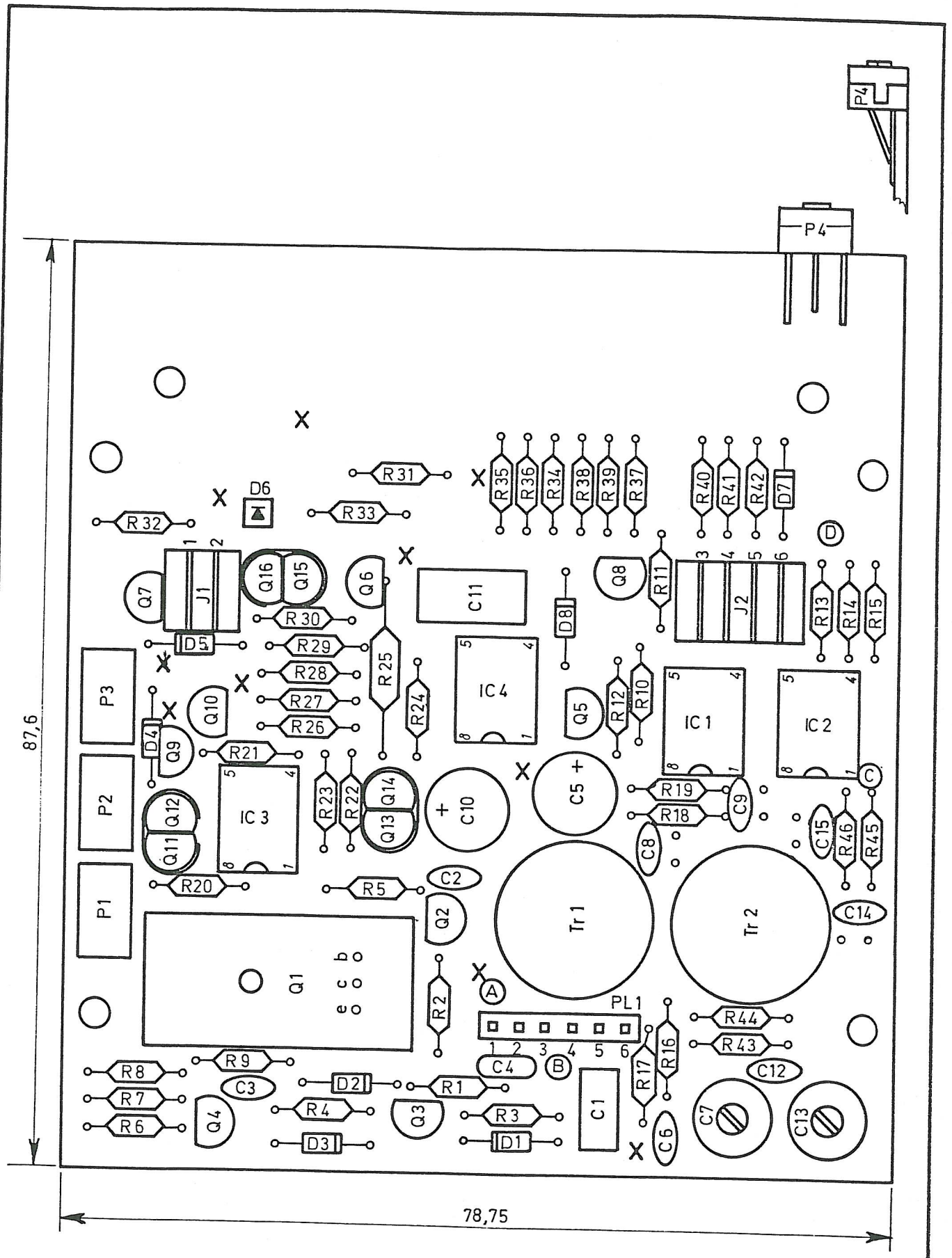
Målestok	:
Konstruktør:	H.B
Tegnet	: 20.7.79.T.L.
Godkendt	:
Revideret	: 1/950321

Stereo Peak Programme Meter
177-780
Right Amplifier Board
Components Lay-out

NTP ELEKTRONIK A/S

177-7841-A-4

AGF 1000



Målestok	:
Konstruktør:	H.B
Tegnet	: 20.7.79.T.L.
Godkendt	:
Revideret	:

Stereo Peak Programme Meter
177-780
Right Amplifier Board
Components Lay-out

NTP ELEKTRONIK A/S

177-7841-A-4