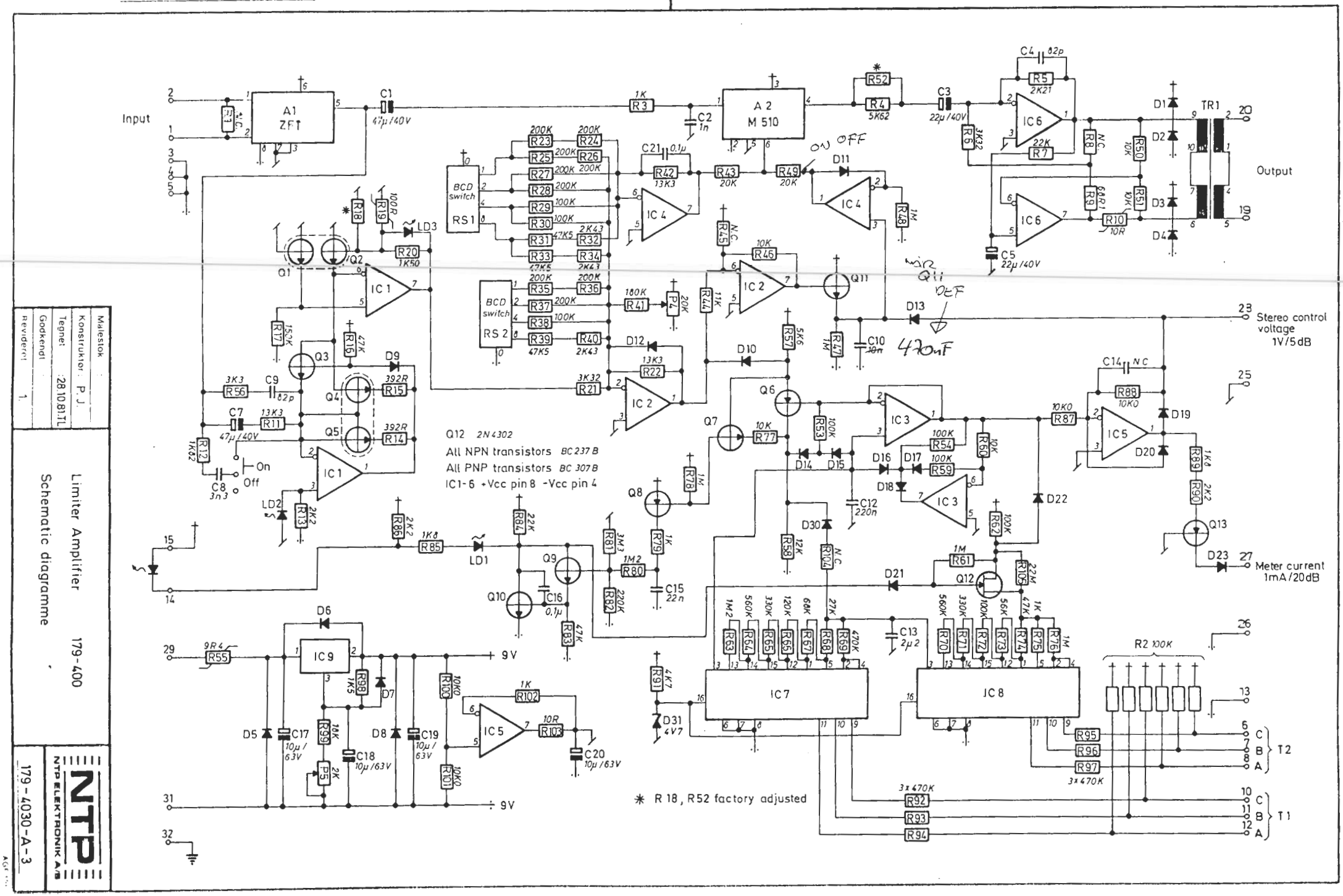
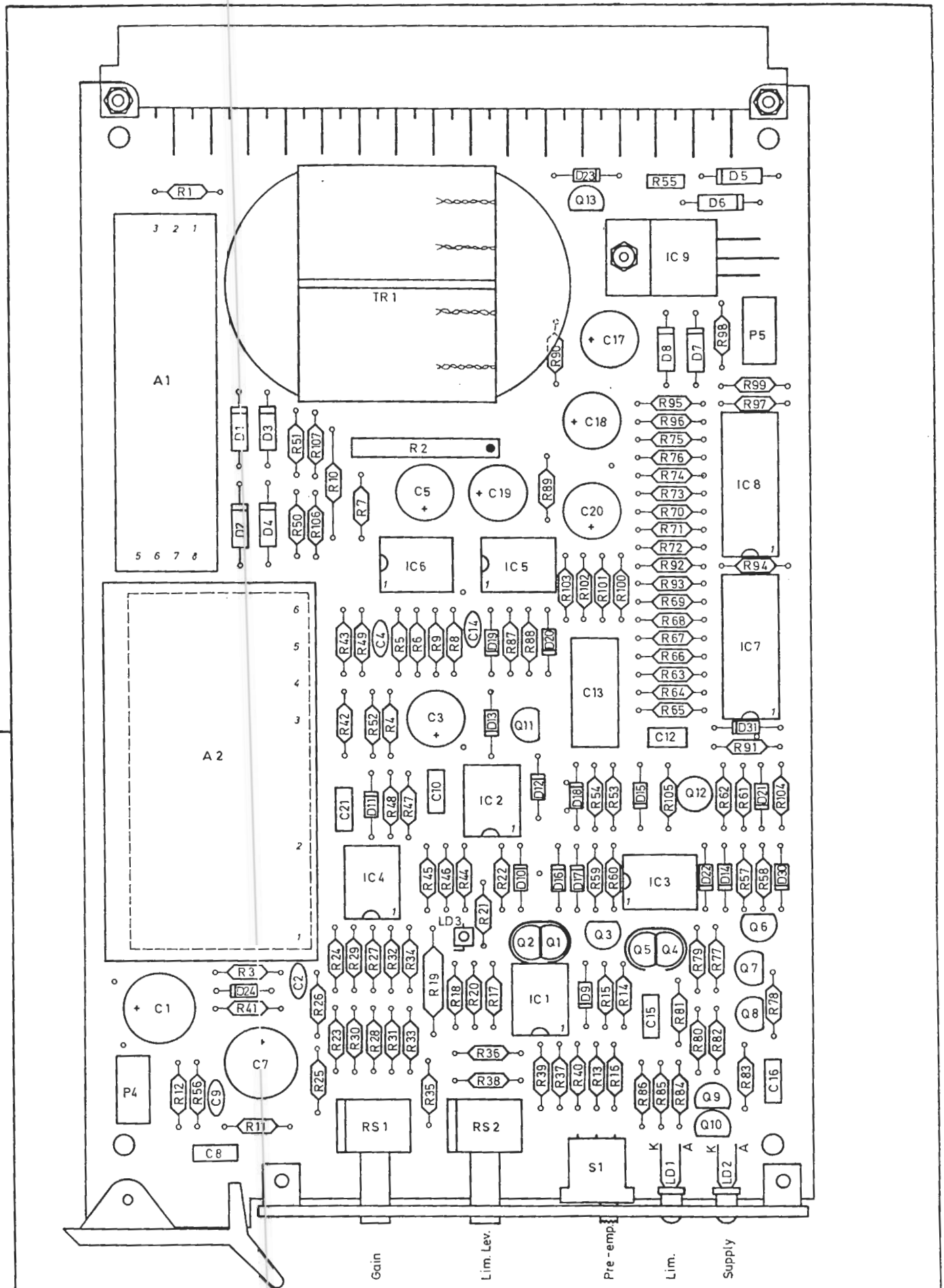

Input
A1 ZFT
A 2 M 510
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
IC 7
IC 8
IC 9
RS 1
RS 2
BCD switch
TR1
Output
Stereo control voltage 1V/5dB
Meter current 1mA/20dB
On
Off
LD1
LD2
LD3
Q12 2N4302
All NPN transistors BC 237 B
All PNP transistors BC 307 B
IC1-6 +Vcc pin 8 -Vcc pin 4
* R 18, R52 factory adjusted
+ 9V
÷ 9V
R2 100K
T1
T2
Limiter Amplifier 179-400
Schematic diagramme
Måleslok
Konstruktør P. J.
Tegnet 28 10 81 TL
Godkendt
Revideret 1.
NTP ELEKTRONIK A/B
179-4030-A-3



Mål	: 100 x 160
Konstruktør	: P. J.
Tegnet	: 30.10.81. T.L.
Godkendt	:
Revideret	: 1

Limiter Amplifier 179-400

Components Lay-out

NTP

NTP ELEKTRONIK A/S

179-4041-A-3

DK TECHNOLOGIES A/S
Marielundvej 37 D
DK-2730 Herlev
Denmark

DAG 2000

179-4000-E-4

User Guide

for

LIMITER AMPLIFIER

179-400E/F

Contents:

19991004

DAG 2000 ApS, Knapholm 7, DK-2730 Herlev
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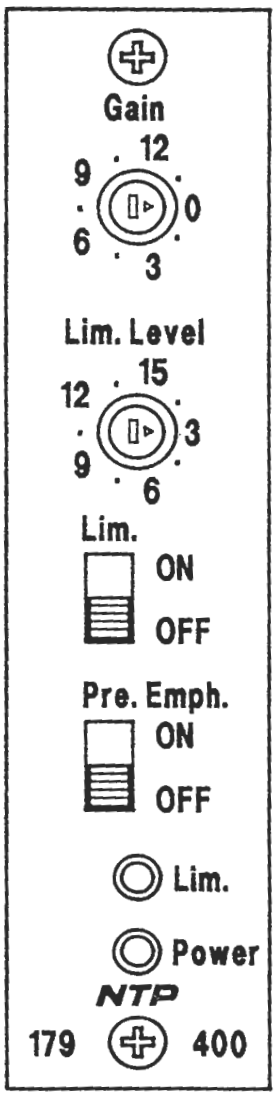
Tel.: +45 44 53 11 89 Fax: +45 44 53 11 92
www.dag2000.dk

Bank account: Unibank A/S, Copenhagen SWIFT Reg.No.2103 Account: 5903-759-838



Blank piece:	Material:	Treatment:	Page of
Scale : 2:1	Limiter Amplifier 179-400E Frontplate Lay-out		NTP
Tolerance :			
Design : PLJ			
Layout : 21.5.90.tl			179-4009-E-4
Revised :			

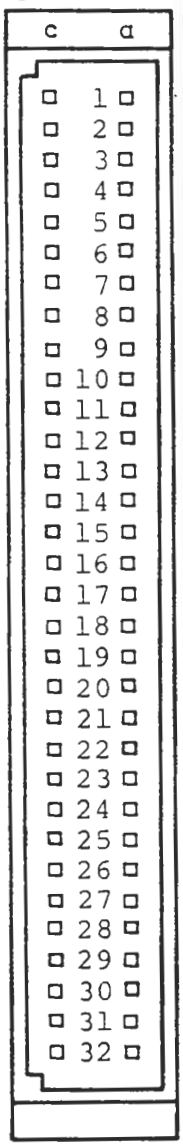
NTP ELEKTRONIK A/S	LIMITER AMPLIFIER 179-400 TECHNICAL SPECIFICATIONS	179-4011-A-4 page 1 of 8

The use of a high quality VCA in this limiter has made possible the use of the forward regulation principle in the side chain. This in turn is the key to achieving extremely good static as well as dynamic distortion performance. The limiter may easily be tailored by the user to almost any application as limiter threshold, as well as gain is selectable on the front edge, while the programme dependant dual time constant of the recovery function may be programmed on the connector.
The compact design (EURO-bord), the balanced floating input and output, and the wide supply voltage range only add to the versatibility of the design.

Supply voltage	:	22-32 V DC
Max. ripple voltage on supply	:	300 mV p.p.
Current consumption	:	55-80 mA
Input impedance, balanced floating	:	20 kOhms ±10%
Input CMRR (15 kHz)	:	> 60 dB
Input overload level	:	+21dBu
Output impedance, balanced floating	:	< 40 Ohms
Minimum load resistance	:	300 Ohms
Input gain, adjustable in 1,5dB steps	:	0-13,5 dB ±0,3dB
Frequency range -0,5dB	:	20Hz - 20kHz
Distortion 40Hz - 20kHz	:	< 0,1% THD
Output noise (fig. 6), 0dB gain		
unweighted, 23kHz bandwidth	:	RMS -87dBu
weighted (CCIR 468-1, 1976)	:	Peak -76dBu
Output threshold level, adjustable in 1,5dB steps	:	3-16,5dBu ±0,3dB
Limiting range	:	> 30dB
Attack time	:	1,5ms (note 1)
Recovery time (dual)	:	0,1s upon 20s
or with		
External switch T_1 (Note 2, fig. 2-5)	:	0,1-0,2-0,4-1-2-4s
T_2	:	off-1-2-4-10-20s
Recovery delay	:	50ms
"Bypass" control	:	Lim. function is disabled by connecting pin 16 to pin 31. Or by a switch in the E and F-versions.
Output overload level (Lim. function disabled)	:	+18dBu max.

Rettelser X 2. 21.4.88. jl.
3.29.90

Pre-emphasis on threshold level (switch-			
	(fig. 7) able)	:	50 us or off
Control voltage slope			
(stereo linking voltage)		:	1V/5dB Note 3.
Meter output		:	1 mA/20 dB
Meter impedance		:	< 5 kOhms
Lim.led current		:	approx. 10mA
Mechanical outlines		:	100 x 160 mm euroboard
Connector		:	64 pol. DIN pin conn.
			A-version, broad type.
			B-version, slim type.



0° } input
180° }

} input screen (-VCC)

C
B } recovery time 2
A

C
B } recovery time 1
A

-Vcc to recovery time switch
Cathode } Lim.led
Anode
Lim. off

0° } output
180° }

Int.ref. (-Vcc + 9V) (Not to be used)
- } compressor meter
+ }
Stereo control voltage (Ref. to pin no. 25)
+Vcc

-Vcc
Screen

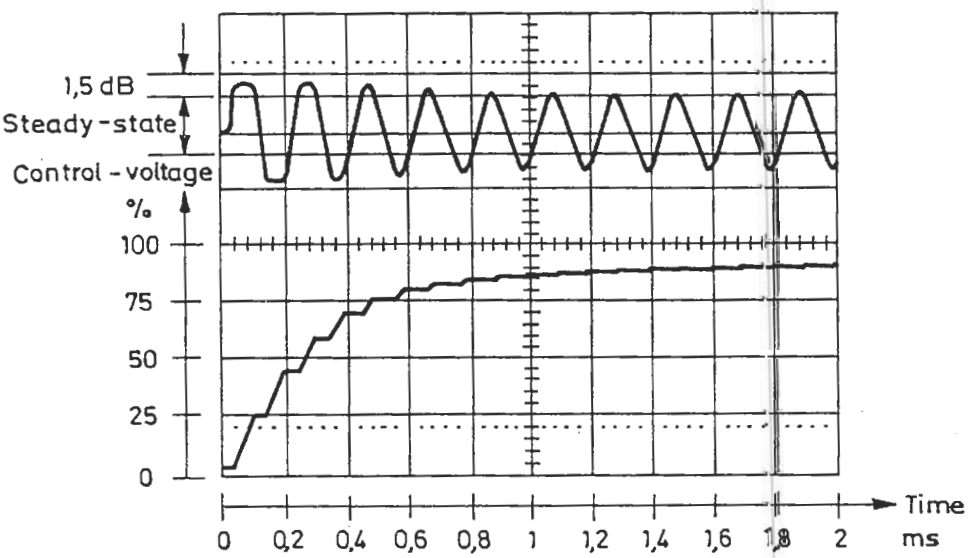
Row a and c connected in the A and E-version.
Both rows in the B and F-version connected.

Rettelser 1 - 2 - 3 - 4

Note 1:

The attack time is the period of time it takes the control voltage to reach 90% of its steady-ststе value, measured with 5kHz tone-bursts. Peaks shorter than 1,5 ms will be limited by a full-wave smooth clipping circuit to a value approximately 1,5dB higher than output threshold level with steady sinusodial input signal. Fig. 1.

Fig. 1: Output level and control voltage with 5 kHz tone-burst and input amplitude 10 dB above threshold level.



Retteiser

Note 2.

The recovery times are external switchable and follow the code-below:

Recovery time 1 Position		C	B	A
0	fixed	1	1	1
1	fixed	1	1	0
2	100 ms	1	0	1
3	200 ms	1	0	0
4	400 ms	0	1	1
5	1 s	0	1	0
6	2 s	0	0	1
7	4 s	0	0	0

Recovery time 2 Position		C	B	A
0	fixed	1	1	1
1	fixed	1	1	0
2	off	1	0	1
3	1 s	1	0	0
4	2 s	0	1	1
5	4 s	0	1	0
6	10 s	0	0	1
7	20 s	0	0	0

Logic levels:
1 = open or 15-32V, 0 = -Vcc (max. = -Vcc +3V)

Note 3.

The control voltage of two units may be linked together to obtain equal gain-reduction.

Rettelser

Fig. 2 Recovery vs time and settings of T_1.

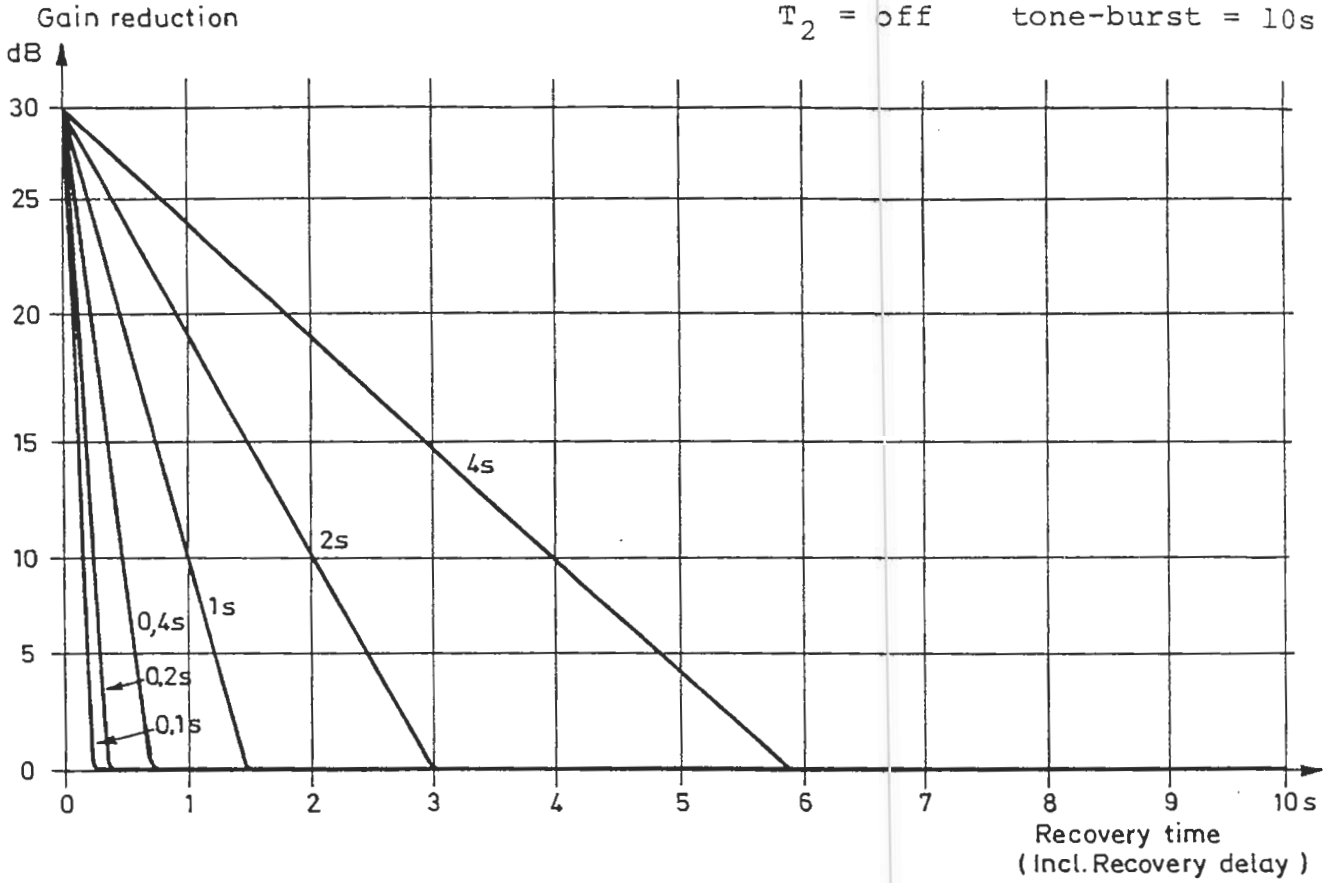
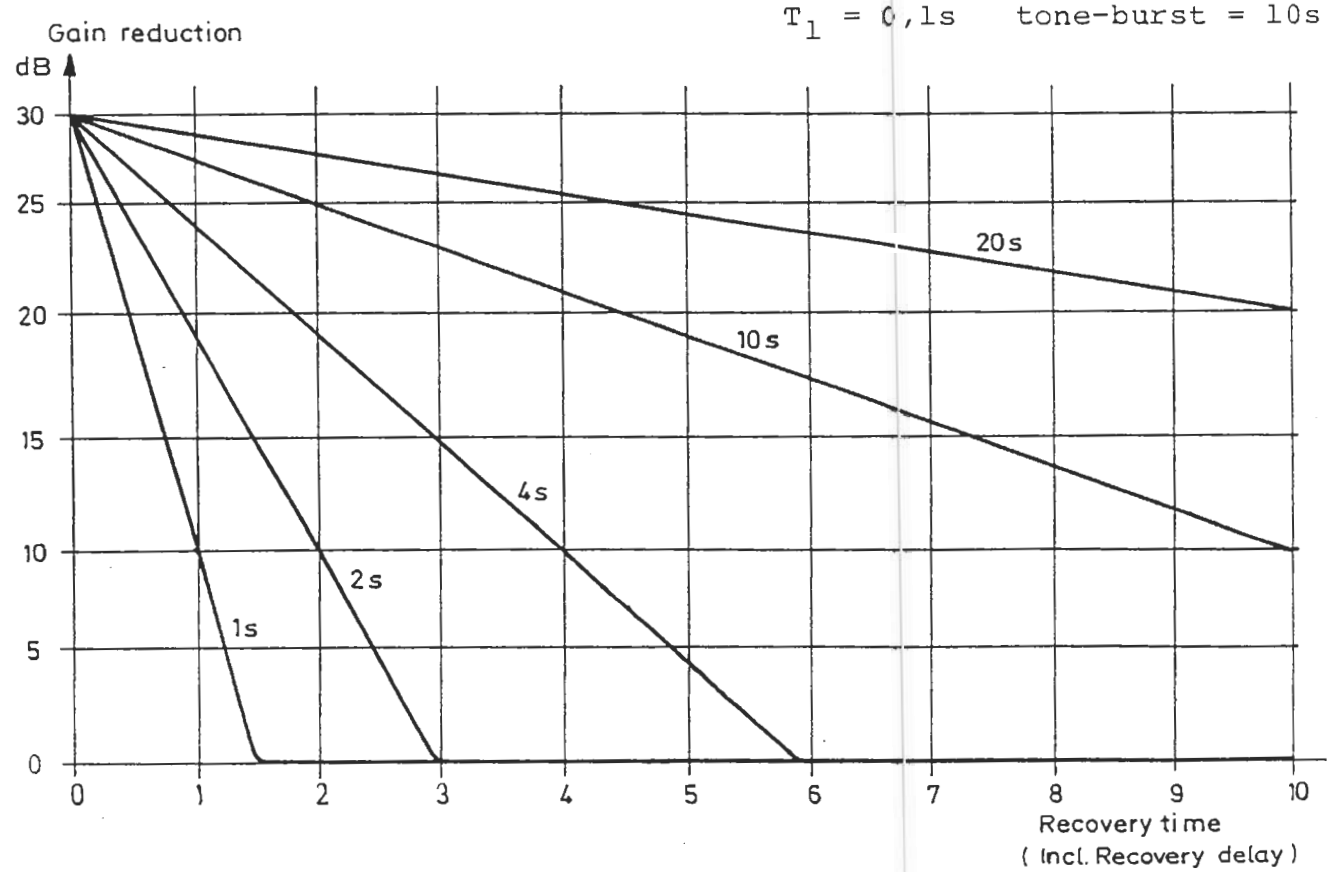


Fig. 3 Recovery vs time and settings of T_2.



Retteiser

Fig. 4 Recovery vs time and tone-burst length.

T_1 = 1s T_2 = 10s

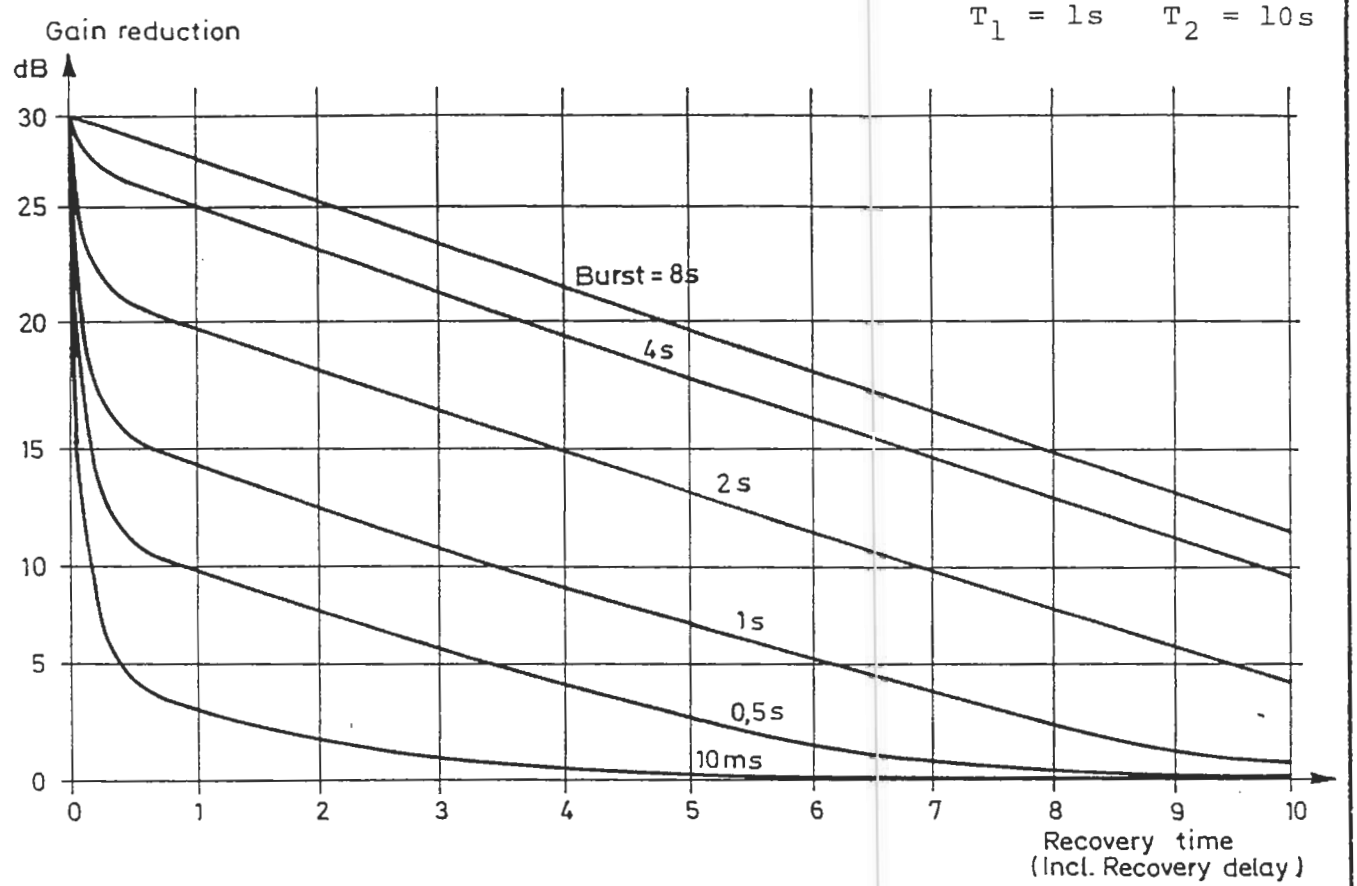
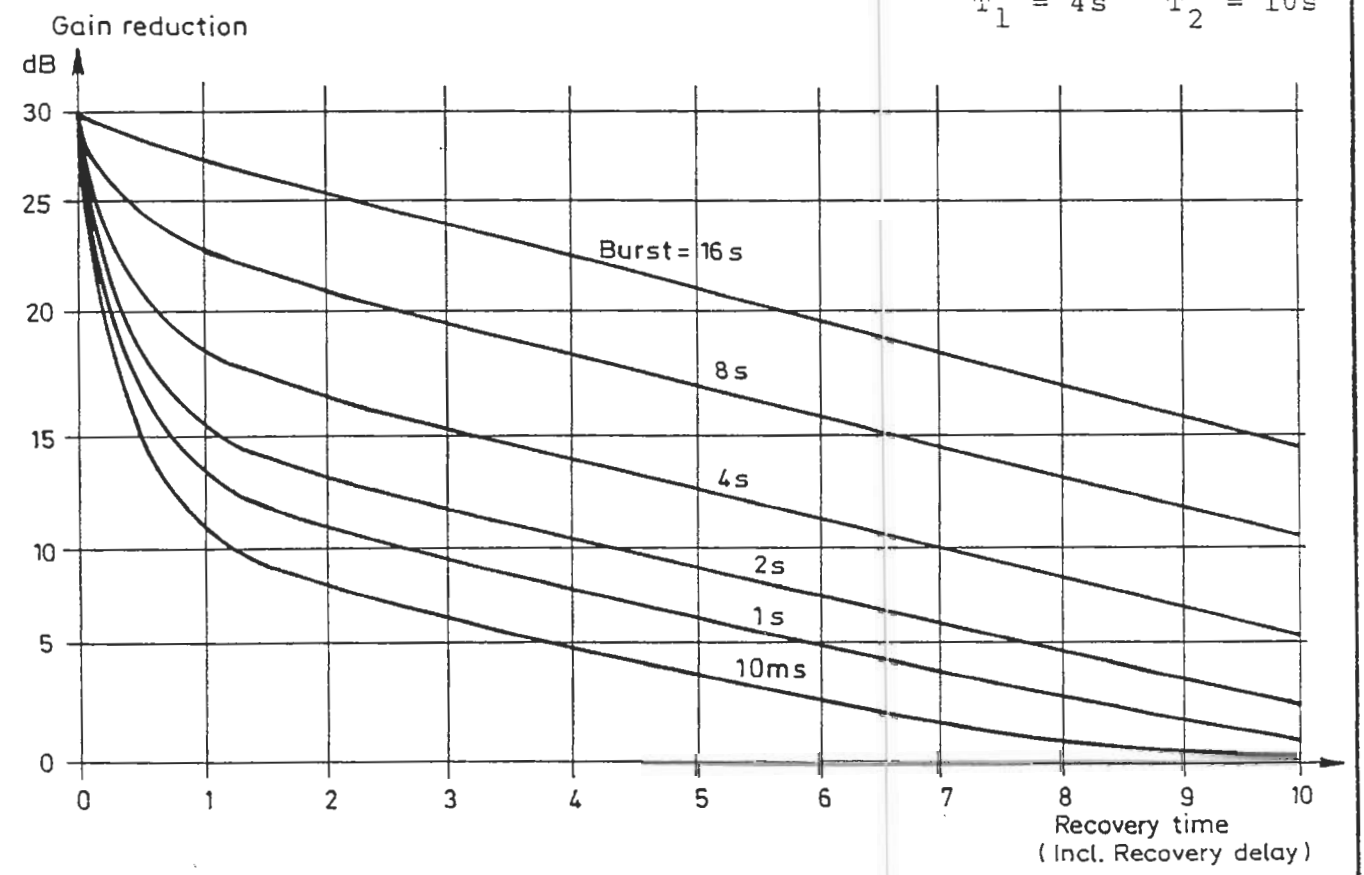


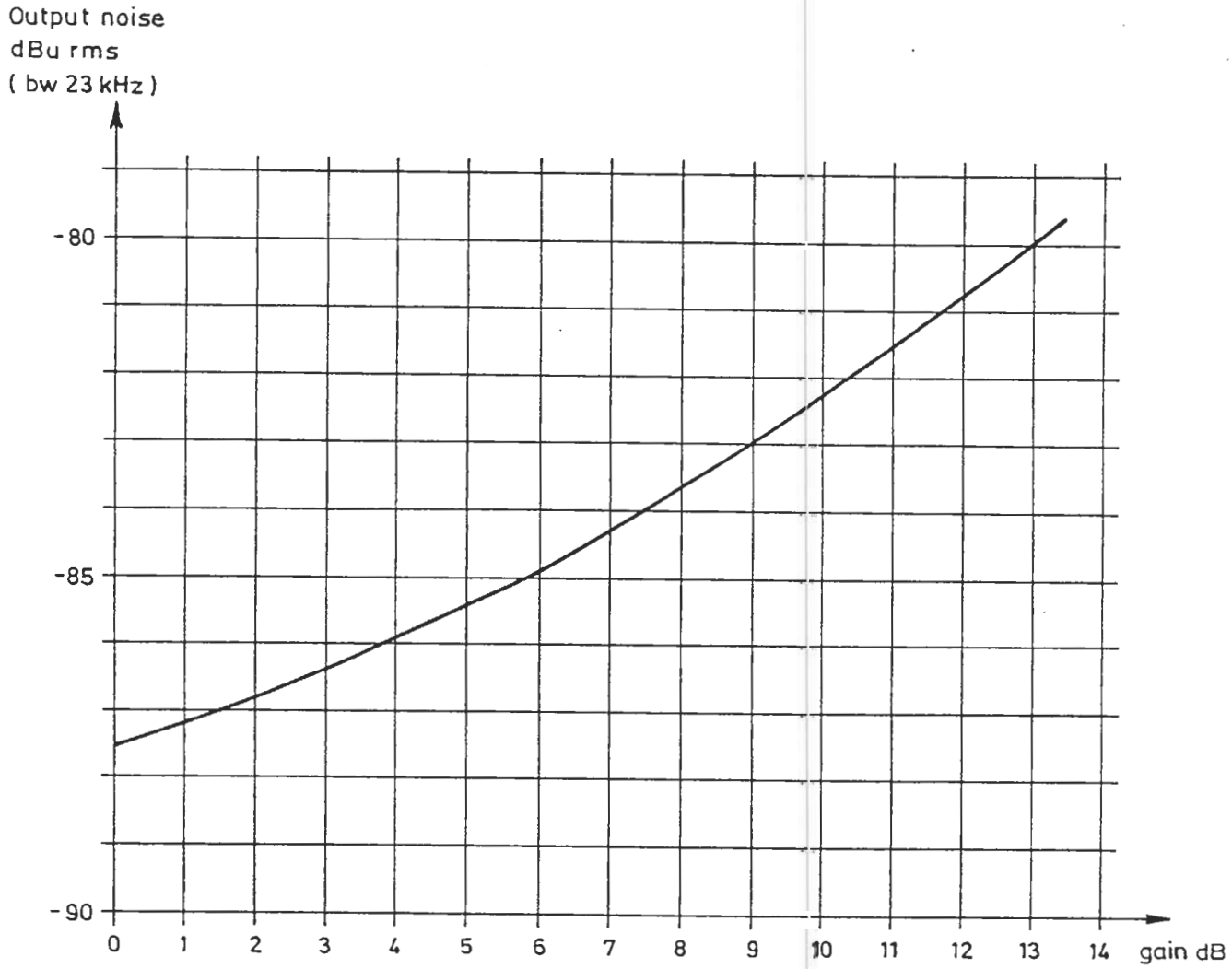
Fig. 5 Recovery vs time and tone-burst length.

T_1 = 4s T_2 = 10s



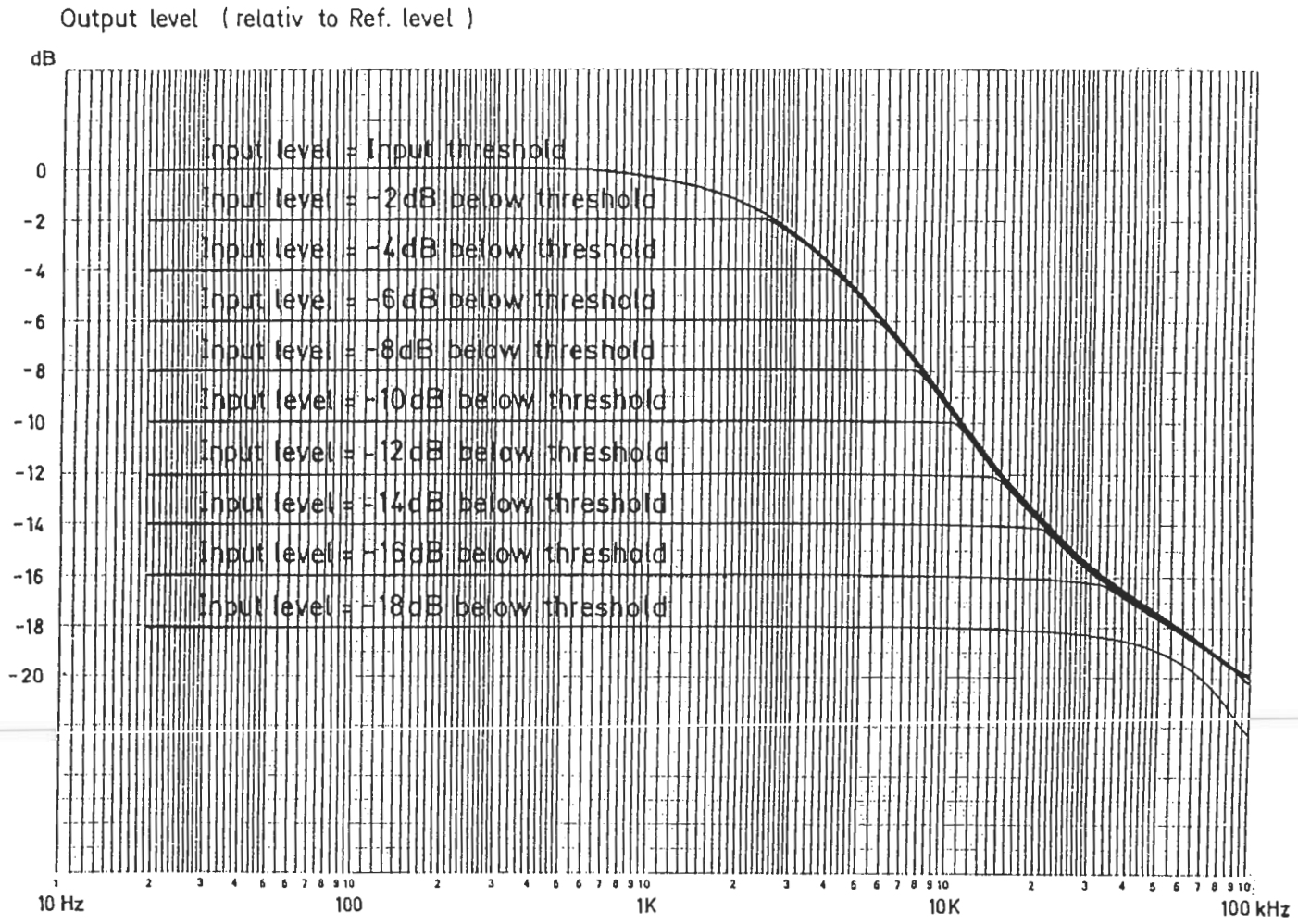
Rettelser

Fig. 6.



Retteiser

Fig. 7.



Threshold level with 50 µs pre-emphassis us. frequency and input level

NTP ELEKTRONIK A/S	LIMITER AMPLIFIER 179-400 INSTRUCTION FOR ALIGNMENT	179-4022-A-4

Normally the limiter amplifier will stay correctly adjusted, except when component has failed and has been replaced; then it may be necessary to make certain adjustments.

P_5 adjusts the supply voltage, 18V $\pm$0.1V

P_4 adjusts the limiting threshold

Rettelser

179-4700-A-4

DK TECHNOLOGIES A/S
Marielundvej 37 D
DK-2730 Herlev
Denmark

User Guide

for

DUAL LIMITER

179-470

Contents:

User Guide for Limiter 179-400E/F, enclosed.

19991004

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DK-2730 Herlev

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Telefax: +45 44 53 11 70
Email: ntp@post3.tele.dk

Cable address: Electrolab
Postal account: 5 11 52 80
Reg. no. 32426

DK TECHNOLOGIES A/S
Marielundvej 37 D
DK-2730 Herlev
Denmark

NTP

General:

Supply voltage	110/220V ±15%
Current consumption	approx. 100/50mA
Fuse	200/100mA slow
Temperature range	0-45°C ambient temperature

Mechanical Data:

The instrument is housed in a 19 inch 1E cabinet.

Width (frontplate)	483 mm (19")
Width (cabinet)	429 mm
Depth (total)	268 mm
Depth (frontplate)	5 mm
Height	43.6 mm
Weight	4500 g

Audio Data:

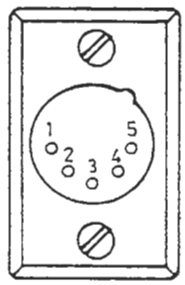
Se manual for 179-400E/F.

NTP ELEKTRONIK A/S

Dual Limiter 179-470
Terminals & Interconnections

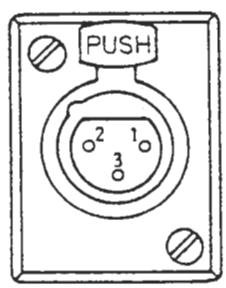
179-4702-A-4

Control voltage grouping



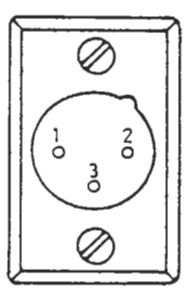
Pin 5 NC.
4 Control voltage left channel
3 Control voltage right channel
2 Control reference
1 Shield

Input connectors



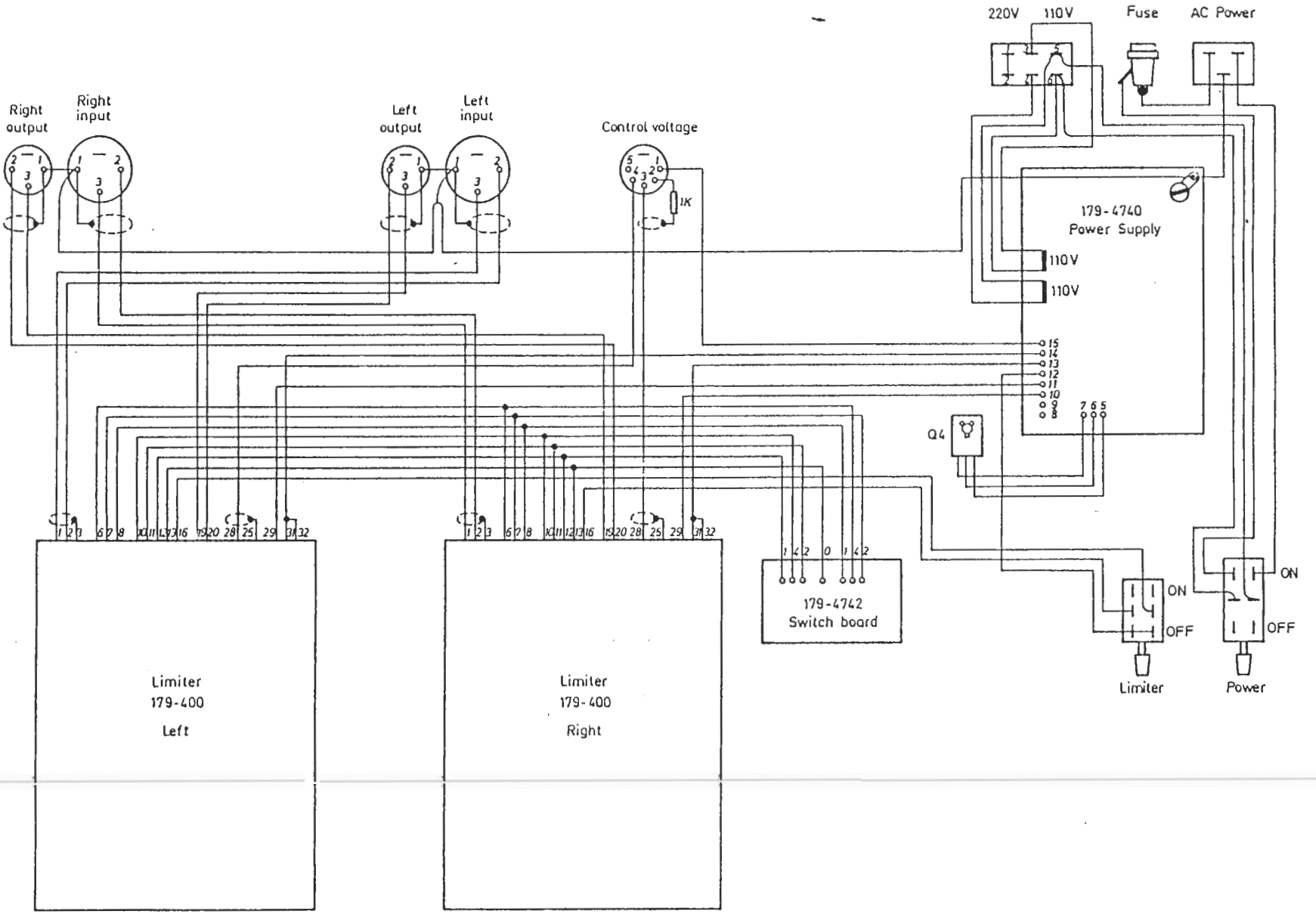
Pin 1 Shield
2 180° } floating input
3 0° }

Output connectors



Pin 1 Shield
2 180° } floating output
3 0° }

3.8.83. T.L.



Rettelser: Tegnet 1.gang 5.8.83. af TL.

Pos.:	Antal:	Materiale:	Behandl.	Del af
Målestok :		Dual Limiter 179-470		NTP ELEKTRONIK A/S
Tolerance: ± mm		Schematic diagram		179-4705-A-3
Tegnet : 14.11.85 JL.				
Godkendt:				
Revideret : 3/920901				