VOLTAGE CONTROLLED ATTENUATOR 184-140

Contents:

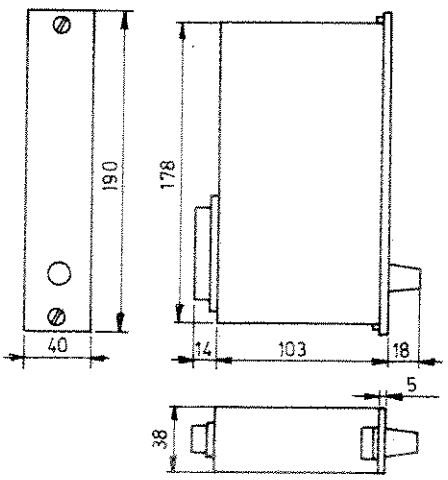
NTP
N. TØNNES PEDERSEN A/S

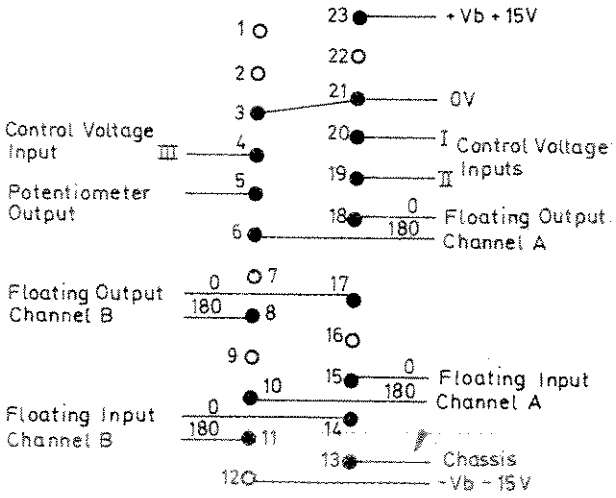
VOLTAGE CONTROLLED ATTENUATOR 184-140

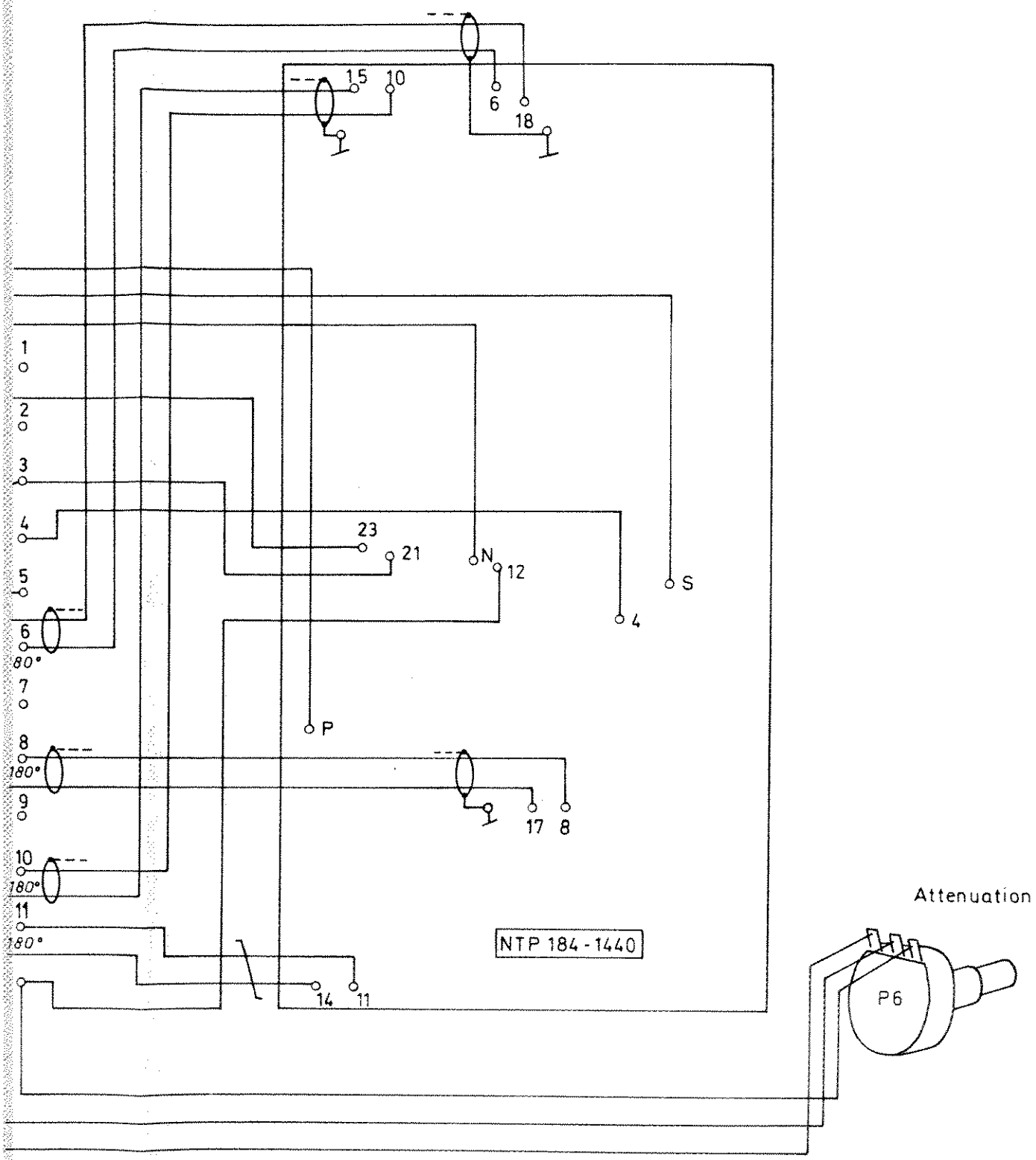
TECHNICAL SPECIFICATIONS

184-1411-A-4

Supply Voltage	± 15V dc ± 10%
Current Consumption	Approx. 80 mA
Temperature Range	-20 to +60°C (-4 to +140°F)
Frequency Range (0,5 dB points)	20 Hz to 20 kHz
Input Impedance within freq.range	22 kohms ± 15%
Input Overload Level	Balanced Floating + 21 dBu (8,6 Vrms)
Output Impedance within freq.range	less than 40 ohms
Output Overload Level	Balanced Floating + 21 dBu (8,6 Vrms)
Minimum Load Impedance	200 ohm
Attenuation time konstant	approx. 60 milliseconds.
Maximum Attenuation within freq.range.	100 dB
Channel Seperation 1kHz	Better than 100 dB
Channel Seperation 15 kHz	Better than 80 dB
Tracking Channel A Channel B	0,5 dB fra 0-40 dB 1dB 0-80dB
Attenuation versus controlvoltage	3 dB ± 5% per Volt see curve
Distortion 40 Hz to 200 Hz	Less than 0,5%
Distortion 200 Hz	Less than 0,2%
Output noise at 0dB Attenuation	-93 dBu A-curve
Output noise at 100 dB Attenuation	-98 dBu A-curve







Attenuation

Pos.:	Antal:	Materiale:	Behandl.:	Del af
Målestok :		VOLTAGE CONTROLLED ATTENUATOR 184 - 140		NTP N. TØNNES PEDERSEN A/S
Tolerance: ± mm				
Tegnet : 15-11-74 G.J.		Terminals & Interconnections		
Godkendt: H.B				184-1402-A-3
Revideret : 1.				

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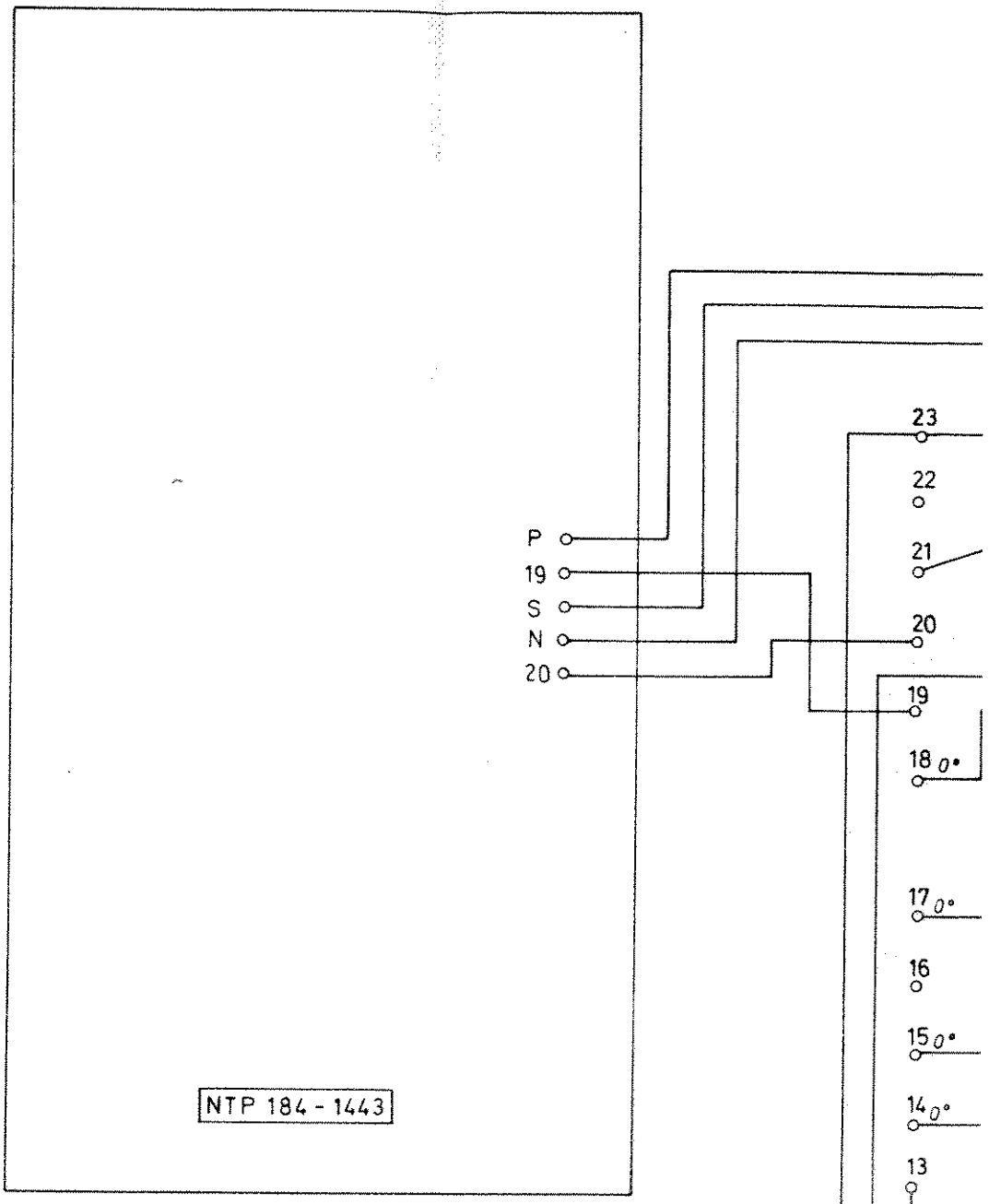
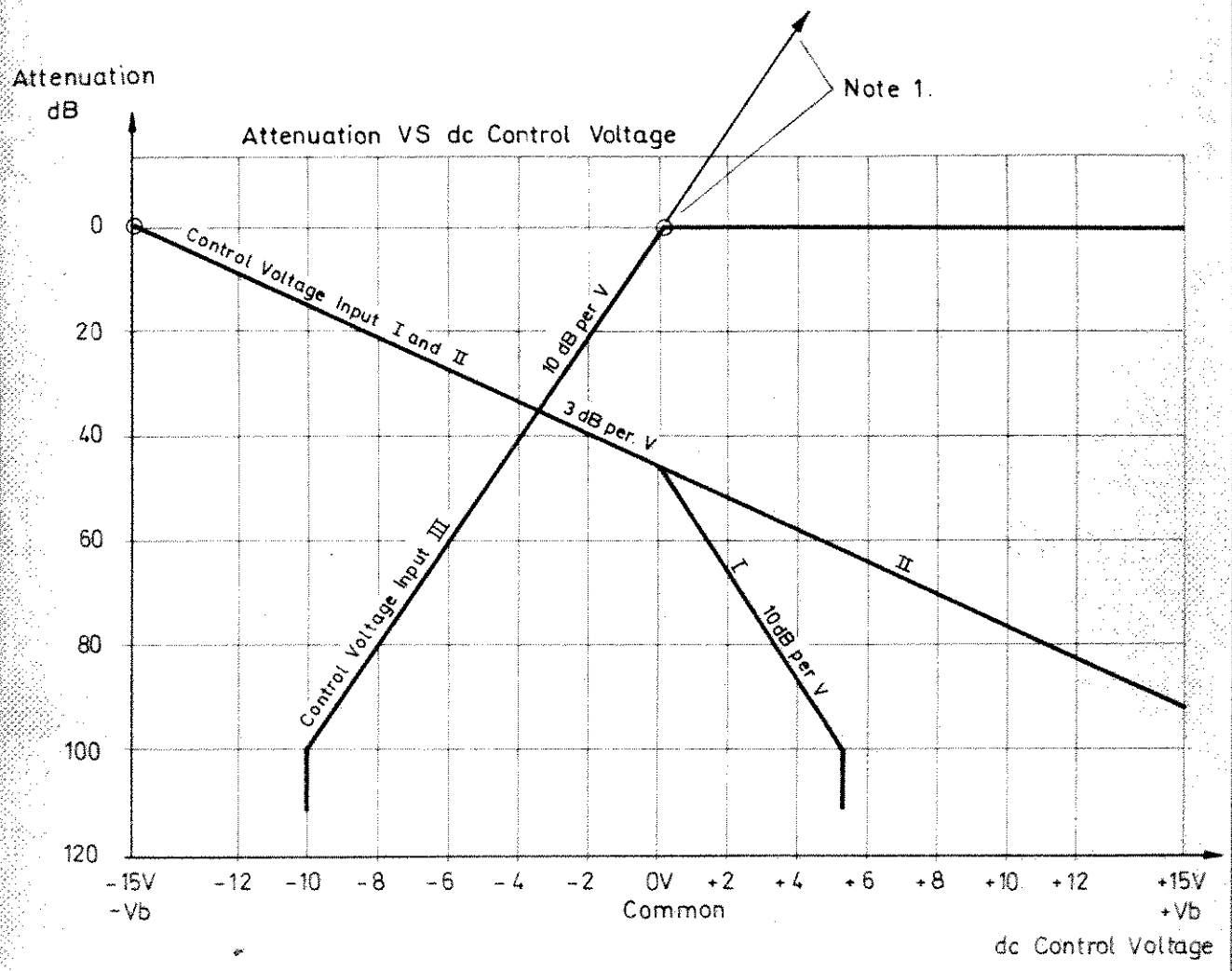


Terminal	23:	+Vb +15V
"	11&14:	Floating Input Channel B
"	10&15:	" " " A
"	8&17:	" Output " B
"	6&18:	" " " A
"	20:	Control Voltage Input I
"	19:	" " " II
"	4:	" " " III
"	5:	Potentiometer Output
"	12:	-Vb -15V
"	3 &21:	OV, Common
"	13:	Connected to Chassis



Note 1. With a positive (ref. to 0V-Common) dc control voltage on input III, the 184-140 will work as a voltage-controlled amplifier. Beware of output-overload and raise in noise.

Pos.:	Antal:	Materiale:	Behandl.:	Del af:
Målestok:		VOLTAGE CONTROLLED ATTENUATOR 184-140		NTP N. TØNNES PEDERSEN A/S
Tolerance: ± mm				
Tegnet: 18-11-74 G.J.				
Godkendt: H.B.		Attenuation vs Control Voltage		184-1419-A-4
Revideret:				

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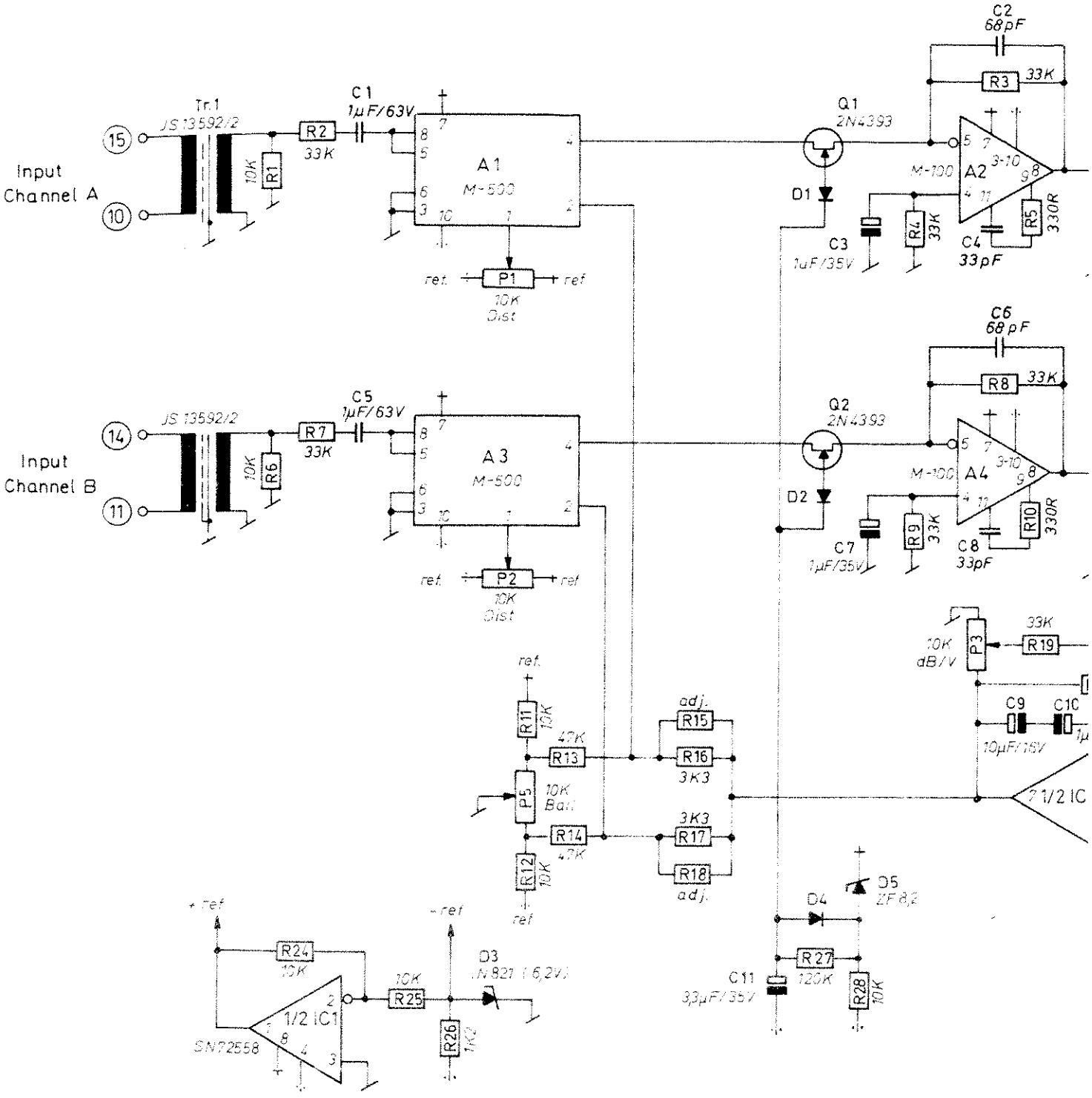
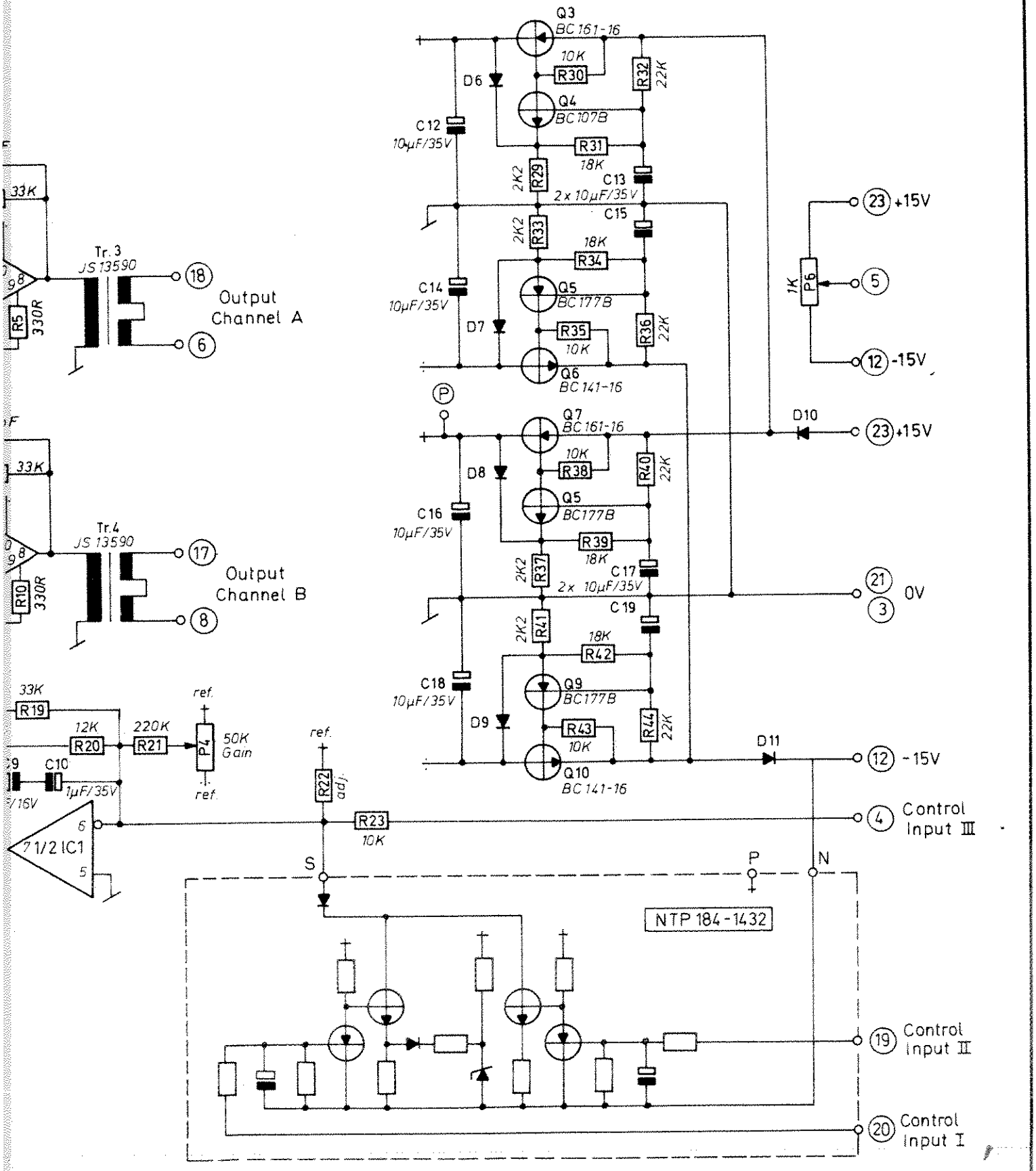

Input Channel A
Input Channel B
Tr.1
JS 13592/2
JS 13592/2
15
10
14
11
R1
10K
R6
10K
R2
33K
R7
33K
C1
1µF/63V
C5
1µF/63V
A1
M-500
A3
M-500
P1
10K
Dist
P2
10K
Dist
ref.
Q1
2N4393
Q2
2N4393
D1
D2
C2
68pF
C6
68pF
R3
33K
R8
33K
A2
M-100
A4
M-100
3-10
C3
1uF/35V
C7
1µF/35V
R4
33K
R9
33K
C4
33pF
C8
33pF
R5
330R
R10
330R
P3
10K
dB/V
R19
33K
C9
C10
10µF/16V
R11
10K
R13
47K
P5
10K
Bal.
R14
47K
R12
10K
adj.
R15
R16
3K3
3K3
R17
R18
adj.
+ ref
- ref
R24
10K
1/2 IC1
SN72558
R25
10K
D3
1N821 (6,2V)
R26
1K2
D4
D5
ZF 8,2
R27
120K
R28
10K
C11
3,3µF/35V
? 1/2 IC



Pos.:	Antal:	Materiale:	Behandl.:	Del af:
Målestok:		Voltage Controlled Attenuator 184-140		NTP N. TØNNES PEDERSEN A/S
Tolerance: ~ mm				
Tegnet: 5.7.74 IW		Diagram		184-1430-A-3
Godkendt: H.B				
Revideret:				

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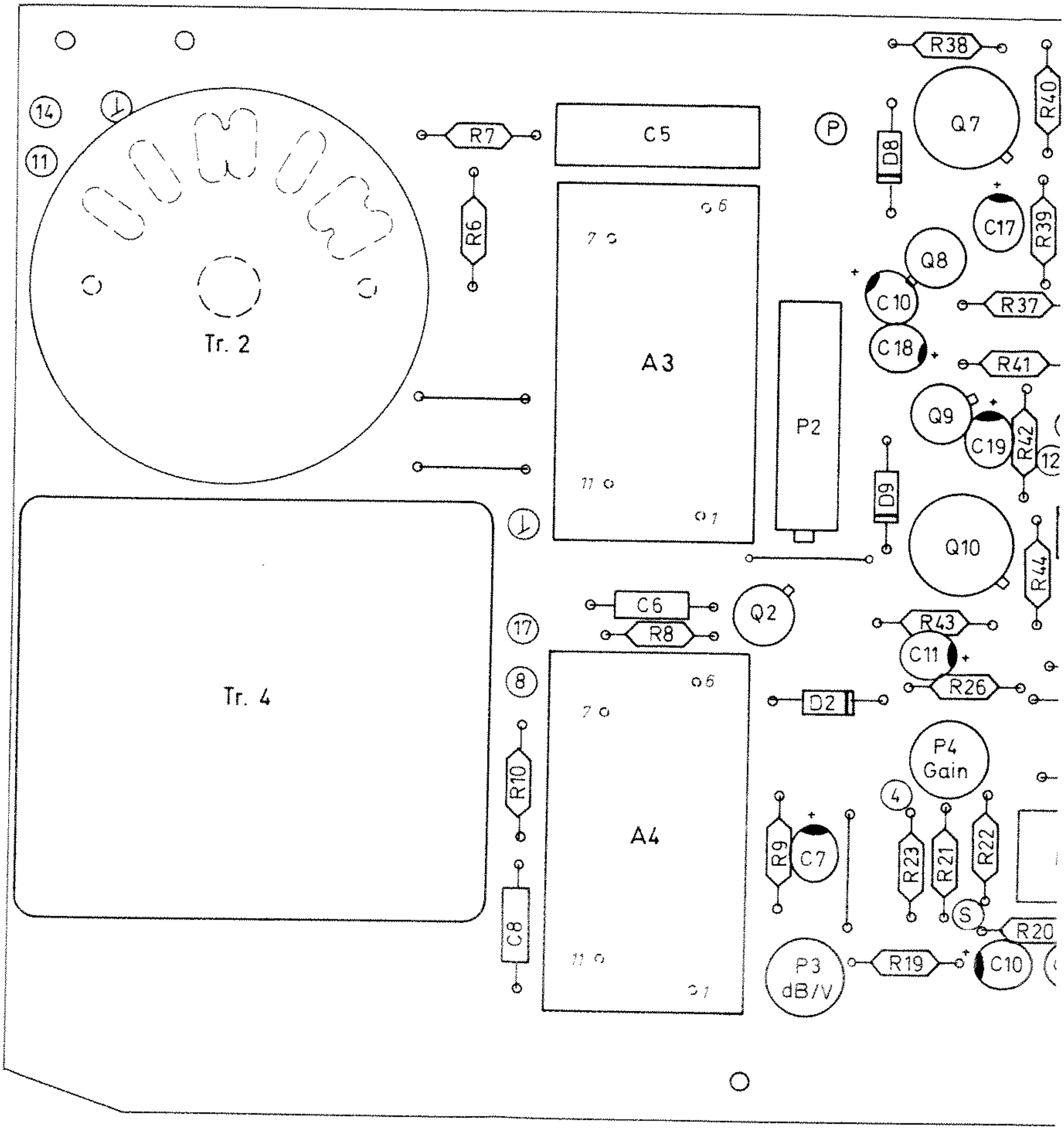
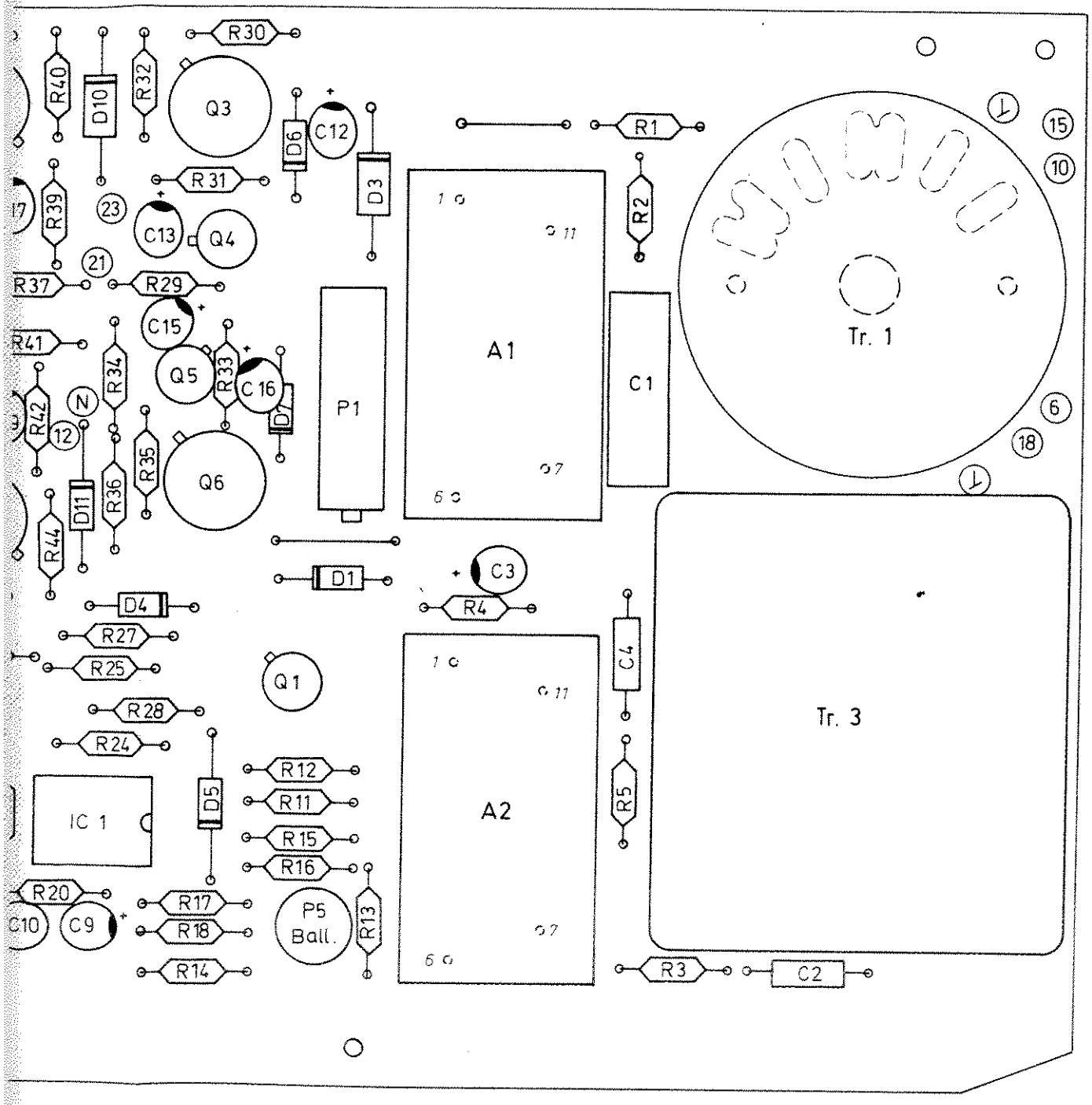


R38
R40
Q7
14
11
P
D8
R7
C5
R6
C17
R39
Q8
C10
R37
Tr. 2
A3
C18
R41
P2
Q9
C19
R42
12
D9
Q10
R44
C6
Q2
17
R8
R43
C11
8
R26
D2
Tr. 4
P4
Gain
R10
A4
R9
C7
4
R23
R21
R22
S
R20
C8
P3
dB/V
R19
C10



Pos.:	Antal:	Materiale:	Behandl.:	Del af
Målestok : 2:1		Voltage Controlled Attenuator 184-140		NTP N. TØNNES PEDERSEN A/S
Tolerance: – mm		Component Lay-out		
Tegnet : 2.7.74 IW				184-1441-A-3
Godkendt: HB				
Revideret :				

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POS. / DESIGN. REF.	ANT. / QTY.	BETEGNELSE / DESCRIPTION				LEV. FABRIKAT / SUPPL. MANUFACT.
R1		Resistor	10K	5%	1/8W	Resista SK2
R2		"	33K	"	"	"
R3		"	33K	"	"	"
R4		"	33K	"	"	"
R5		"	330R	"	"	"
R6		"	10K	"	"	"
R7		"	33K	"	"	"
R8		"	33K	"	"	"
R9		"	33K	"	"	"
R10		"	330R	"	"	"
R11		"	10K	"	"	"
R12		"	10K	"	"	"
R13		"	47K	"	"	"
R14		"	47K	"	"	"
R15		"	Factory Adj.	"	"	"
R16		"	3K3	"	"	"
R17		"	3K3	"	"	"
R18		"	Factory Adj.	"	"	"
R19		"	33K	"	"	"
R20		"	12K	"	"	"
R21		"	220K	"	"	"
R22		"	Factory Adj.	"	"	"
R23		"	10K	"	"	"
R24		"	10K	"	"	"
R25		"	10K	"	"	"
R26		"	1K2	"	"	"
R27		"	120K	"	"	"
R28		"	10K	"	"	"
R29		"	2K2	"	"	"
R30		"	10K	"	"	"
R31		"	18K	"	"	"
R32		"	22K	"	"	"
R33		"	2K2	"	"	"
R34		"	18K	"	"	"
R35		"	10K	"	"	"
R36		"	22K	"	"	"
R37		"	2K2	"	"	"
R38		"	10K	"	"	"
R39		"	18K	"	"	"
R40		"	22K	"	"	"
R41		"	2K2	"	"	"
R42		"	18K	"	"	"
R43		"	10K	"	"	"
R44		"	22K	"	"	"
C1		Polyester Cap.	1uF/63V	20%	MKT 1822	ERO
C2		Styroflex Cap.	68pF/160V	5%		Siemens
C3		Tantan Cap.	1uF/35V		ETPI	ERO
C4		Styroflex Cap.	33pF/160V	5%		Siemens
C5		Polyester Cap.	1uF/63V	20%	MKT 1822	ERO
C6		Styroflex Cap.	68pF/160V	5%		Siemens
C7		Tantal Cap.	1uF/35V		ETPI	ERO
C8		Styroflex Cap.	33pF/160V	5%		Siemens
C9		Tantal Cap.	10uF/16V		ETP2	ERO

DATE SIGN

NTP ELEKTRONIK A/S

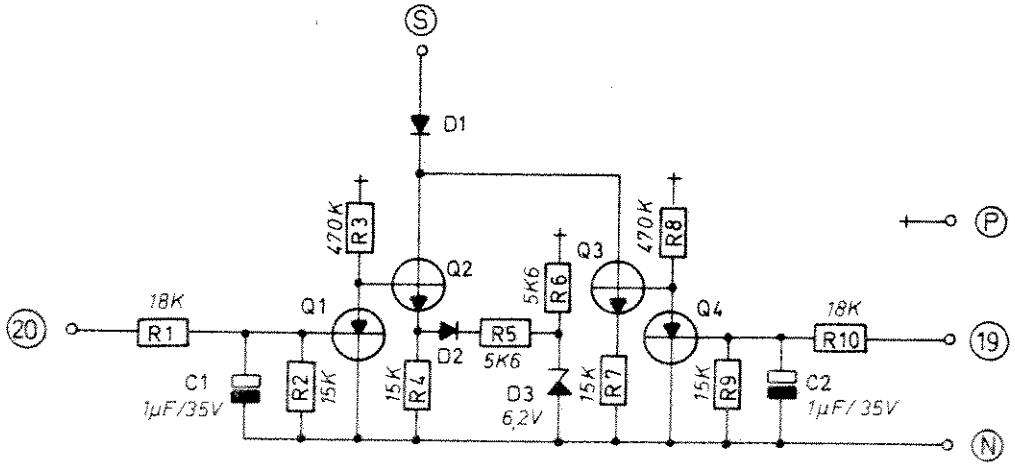
VOLTAGE CONTROLLED ATTENUATOR 184-140

PARTSLIST

STYKLISTE/PARTS LIST

No. 184-1431-A-4

POS. / DESIGN. REF.	ANT. / QTY	BETEGNELSE / DESCRIPTION	LEV. FABRIKAT / SUPPL. MANUFACT.
C10		Tantal Cap. 1uF/35V ETP1	ERO
C11		" " 3,3uF/35V ETP2	"
C12-C19	8	" " 10uF/35V ETP2	"
P1		Trimmepotentiometer 3009-103 10K	Bourns
P2		" " " 10K	"
P3		" 3329-H 10K	"
P4		" " " 50K	"
P5		" " " 10K	"
D1-2	2	Si.diode 1N4148	Miniwatt
D3		Ref.diode 1N821	Motorola
D4		Si.diode 1N4148	Miniwatt
D5		Zenerdiode ZPD 8,2 (ZF 8,2)	ITT
D6-9	4	Si.diode 1N4148	"
D10		" " 1N4001	JR
D11		" " 1N4001	"
Q1		FET 2N4393	Siliconix
Q2		" 2N4393	"
Q3		Transistor BC327-16 (BC161-16)	Siemens
Q4		" BC237B (BC107B)	"
Q5		" BC307B (BC177B)	"
Q6		" BC337-16 (BC141-16)	"
Q7		" BC327-16 (BC161-16)	"
Q8		" BC237B (BC107B)	"
Q9		" BC307B (BC177B)	"
Q10		" BC337-16 (BC141-16)	"
IC1		DUAL LIN.AMP. RC4558	RAYTHEON
A1		VCA M-500	NTP
A2		Lin. amp. M-100	"
A3		VCA M-500	"
A4		Lin. amp. M-100	"
		184-1440A Print	NTP
P6		Potentiometer 3852-G-282=1K	Bourns



Pos.	Antal:	Materiale:	Behandl.:	Del af:
Målestok				
Tolerance ±	mm			
Tegnet	37.74 IW			
Godkendt	H B			
Revideret				

Voltage Controlled Attenuator 184-140
Control Unit
Diagram

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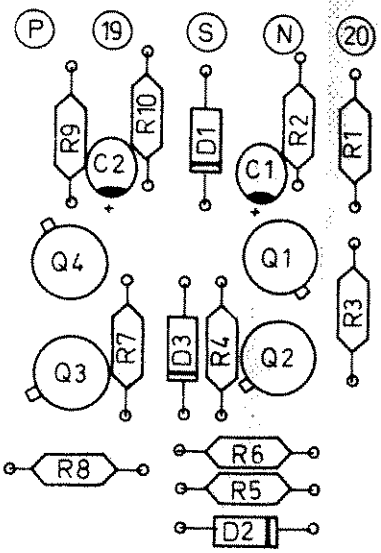
184-1/22 A /



Pos.:	Antal:	Materiale:	Behandl.:
Målestok : 2:1		Voltage Controlled Attenuator	
Tolerance: ~ mm		Control Unit	
Tegnet : 3.7.74 IW		Component Lay out	
Godkendt:			
Revideret :			

POS / DESIGN REF	ANT / QTY	DESCRIPTION			SUPPLIER / MANUFACT.
R1		Resistor	15K	1/8W	Resista SK2
R2		"	15K	"	" "
R3		"	470K	"	" "
R4		"	15K	"	" "
R5		"	5K6	"	" "
R6		"	5M6	"	" "
R7		"	15K	"	" "
R8		"	470K	"	" "
R9		"	15K	"	" "
R10		"	18K	"	" "
C1		Tantal cap.	1uF/16V	ERIE	EMO
C2		" "	1uF/35V	"	"
D1		Si-diode	1N4148		Philiwatt
D2		" "	1N4148		"
D3		Zenerdiode	1N961 (1N828-1N829)		Motorola
Q1		Transistor	BC307B	(BC177B)	Siemens
Q2		"	BC307B	(BC177B)	"
Q3		"	BC307B	(BC177B)	"
Q4		"	BC307B	(BC177B)	"
184-1442-A		Print			NTP