COMPRESSOR AMPLIFIER

179-140

CONTENTS:

Rettelser

NTP	COMPRESSOR AMPLIFIER 179-130 Technical Specifications	179-1311-A-4

Supply Voltage	: ± 15V dc ± 10%
Maximum Ripple Voltage	: 0.1 V pp
Current Consumption, steady state	: approx. 100mA
Current Consumption, during heat-up	: approx. 275mA in 45 seconds
Temperature Range	: -20 to +60°C (-4 to +140°F)
Frequency Range (0.5dB points)	: 20 c s to 20.000 c s
Input Filter	: see fig. 4
Input Impedance within freq. range	: see Input Terminations fig. 1
Output Impedance within freq. range	: see Output Terminations fig. 2
Minimum Load Impedance	: 100 ohms
Basic Amplification	: see fig. 3 Characteristics
Compression Range	: see fig. 3 Characteristics
Compression Ratio	: adjustable 1:1 2:1 3:1 5:1 20:1
Attack Time	: adjustable 100 microseconds 20dB to 200 milliseconds 20dB (11 steps)
Recovery Time	: adjustable 60 milliseconds 20dB to 4 seconds 20dB and one "Auto" position (11steps)
"Auto" dual time constants	: 200 msec. upon 15 seconds
Recovery Delay	: switchable 0 or 50 milliseconds
Distortion under static conditions	: less than 0.5% up to 20dB gain reduction
Signal to noise ratio at compression threshold	: 80 dB A-curve
Instrument Output	: 0 to 1 mA for 0 to 20dB compression Linear dB scale

Limiter Function

Attack Time	: 1.5 millisecond combined with a full-wave logarithmic clipping circuit
Recovery Time	: following the recovery time set for the compressor
Limitation Threshold "Normal" Note 1	: +6 dBu output with any of the three output-terminations shown in fig. 2
Limitation Thresnold "High" Note 1	: +19 dBu output when using the 0.7 : 1 output transformer +16 dBu output when using the direct output or the 1:1 output transformer

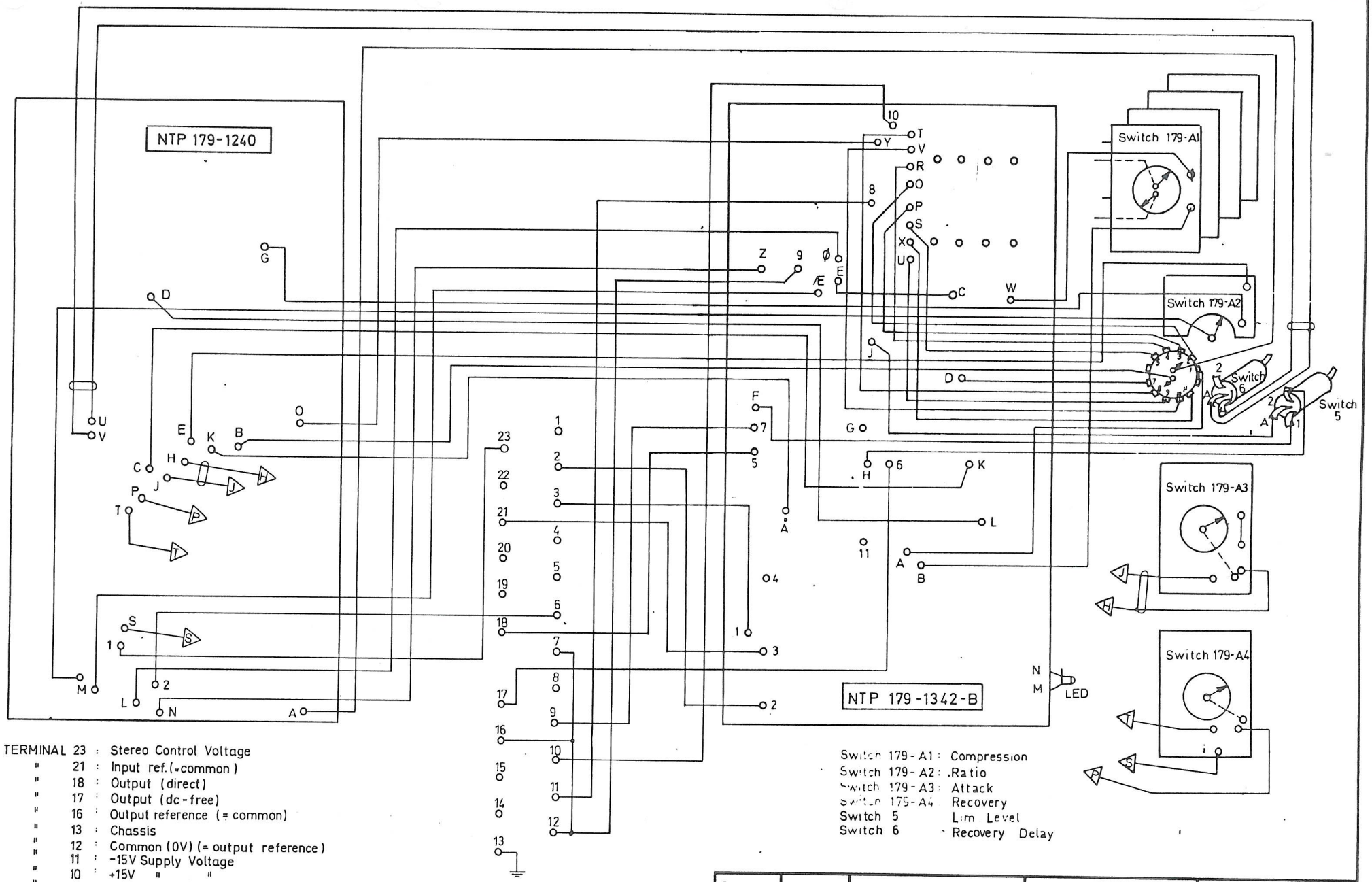
Stereo Operation

The control voltages of two units may be linked so as to obtain equal gain reduction in the two stereo channels. The control voltage is accessible at the connector.

Connector : Tuchel T2700 Standard Colour : Dull Black
Mechanical Outline : A1-module
Front 40x190mm (1.58x7.5")
Depth 105 mm (4.1") Weight : approx. 1 kg (approx. 35 oz.)

Note 1: The limitation level stated above applies to steady state conditions. Peaks shorter than 1.5mS will be limited at a level max. 3dB above steady state conditions.

5.71



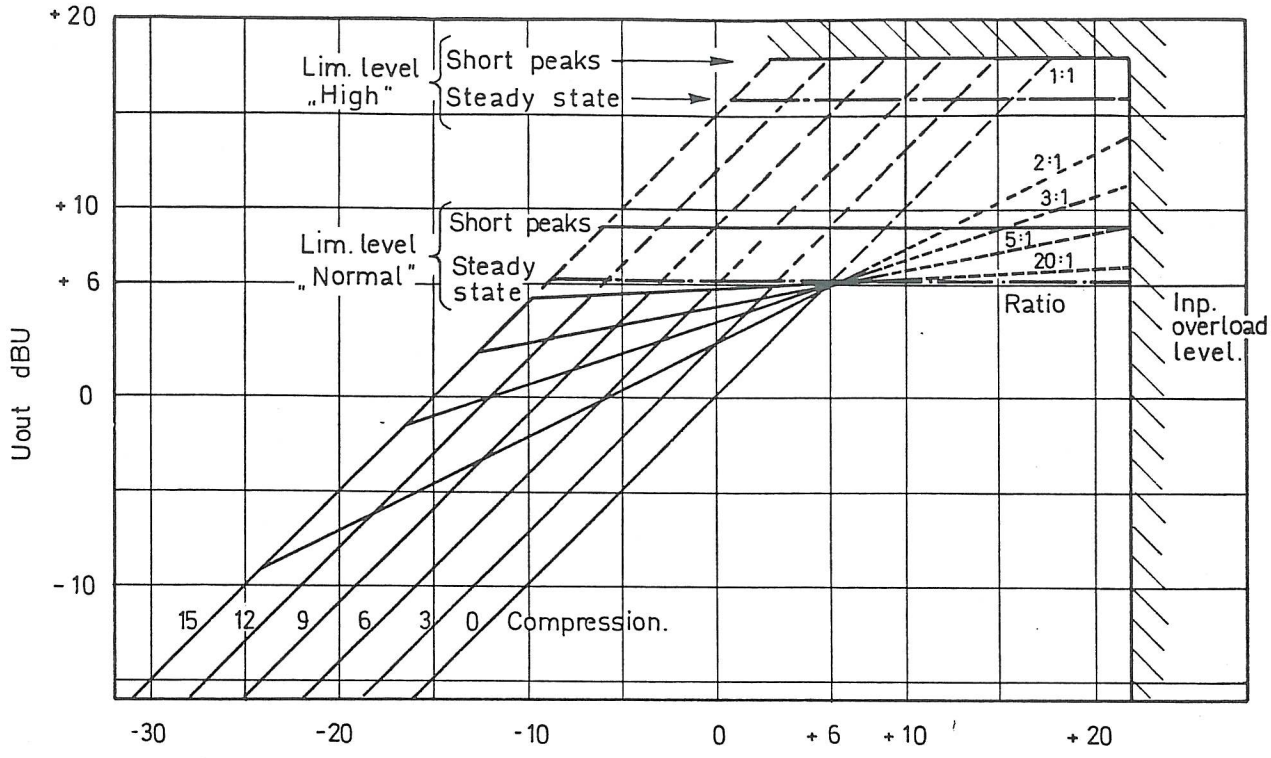
TERMINAL 23 : Stereo Control Voltage
" 21 : Input ref. (= common)
" 18 : Output (direct)
" 17 : Output (dc-free)
" 16 : Output reference (= common)
" 13 : Chassis
" 12 : Common (0V) (= output reference)
" 11 : -15V Supply Voltage
" 10 : +15V " "
" 7 : Instrument Output negative
" 6 : " " positive
" 3 : Input (dc-free)
" 2 : " (direct)
" 9 : Gain reduction term. (-3dB when shorted to term. 18)

Switch 179-A1 : Compression
Switch 179-A2 : Ratio
Switch 179-A3 : Attack
Switch 179-A4 : Recovery
Switch 5 : Lim Level
Switch 6 : Recovery Delay

Rettelser 11.9.75 (term 9 & 16) HB/IW
66.77 (term 9 + 3dB ↔ -3dB) BH/IU

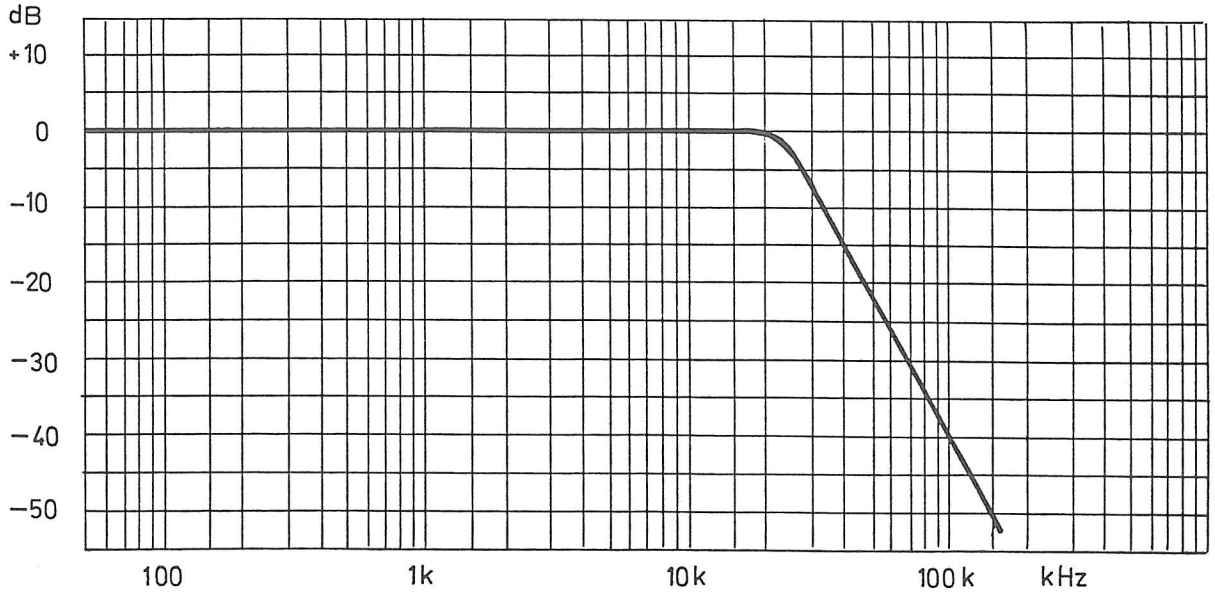
Pos:	Antal:	Materiale:	Behandl:	Del af
Målestok:		Compressor Amplifier 179-140		NTP N. TØNNES PEDERSEN A/S
Tolerance: ± mm				
Tegnet: 26.4.74 IW				
Godkendt:		Terminals and Interconnections		179-1402-B-3
Revideret: I.				

Fig. 3



Short peaks < 1,5ms
Steady state > 3 ms

Fig. 4



INPUT FILTER CURVE

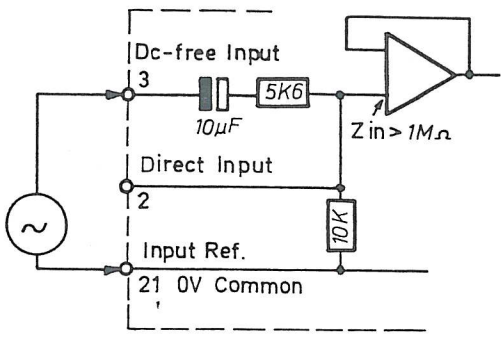
NTP ELEKTRONIK A/S

COMPRESSOR AMPLIFIER 179-140
INPUT - OUTPUT TERMINATIONS

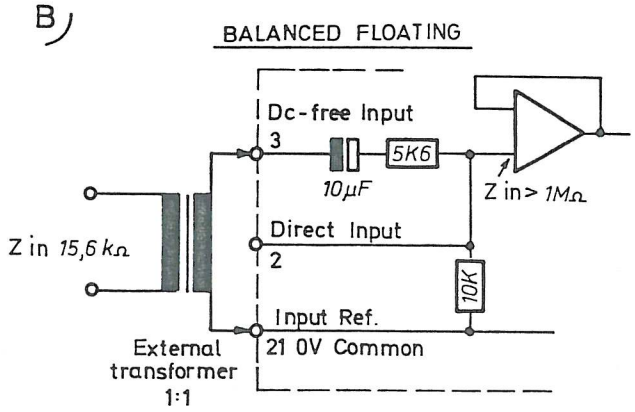
179-1420-A-4

INPUT TERMINATIONS fig. 1

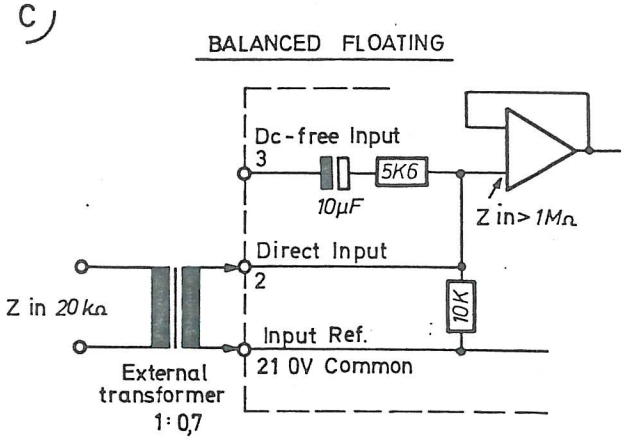
A)



B)

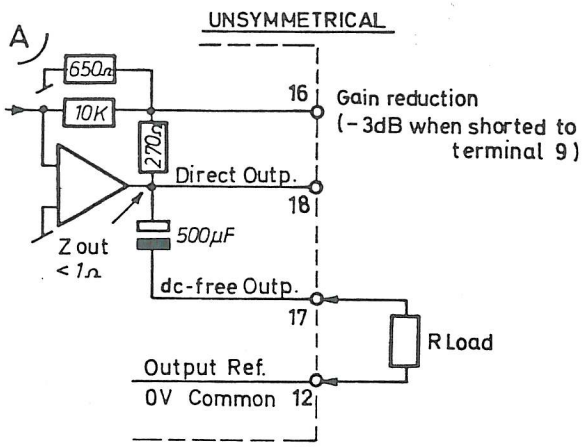


C)

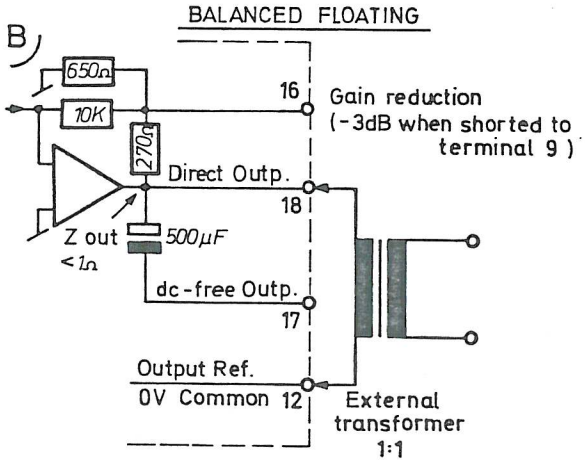


OUTPUT TERMINATIONS fig. 2

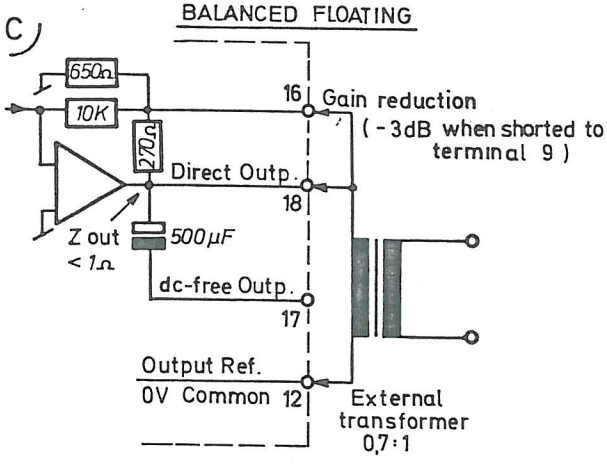
A)



B)



C)



Denne tegning gælder for følgende SN.
leveret til Kajaani og DR.
7380-7414, 7477-7480, 7848-7870, 8101-8105.

1) 10.9.75 HB/IW
2) Ny tegn. 15.9.76 HB/IW
elser

25.4.74 BM/IW

Normally the Compressor Amplifier will stay correctly adjusted, except when a component has failed and has been replaced; then it may be necessary to make certain adjustments. Before attempting to make any adjustments, note the permissible indication errors stated in Technical Specifications.

The functions of the trimpotentiometers are as follows:

P1 Bias adjustment of Op. amp A1

P2 Compensates for individual pinch-off of the F.E.T. (Q1)

P3 Compensates for individual slope $\frac{\Delta R_{SD}}{\Delta V_{GD}}$ of the F.E.T.

P4 Linearity adjustment of the FET Attenuator circuit.

P5 Adjusts for minimum distortion of the FET attenuator.

P6 Adjusts the threshold level.

Do not attempt to make any adjustments untill the current consumption has fallen to a steady level approx. 100 mA after 60 sec. Correct sequence of adjustments is as follows:

a. Bias adjustment of P1

Conditions: No input signal.
Recovery switch in pos. 0.06 sec.

Connect a DC voltmeter (or DC-oscilloscope sens. approx. 20mV/div.) between TP7 and TP1.
P1 is adjusted until the voltage measured is the same whether TP2 is connected to TP9 or not.

b. Pinch-off adjustment of P2

Conditions: Input signal +6dBu 1kHz
Ratio switch in pos. 1:1
Lim. level switch in pos. "high"

P2 is adjusted until the output voltage is +6dBu (0dB amplification).
The adjustment range can be altered by connecting or disconnecting R15 and/or R16.

c. Slope dB/V and Linearity adjustment of P3 and P4

Conditions: Like referred under pos. b.

A floating external DC-source 0-6 V is connected between term. 3 and 5, term. 3 positive. The DC voltage is set to 3.0 Volt, and P3 is adjusted so that the output level is -9dBu (15 dB attenuation). Now the DC voltage is set to

6.0 Volt, and P4 is adjusted until the output level is -24 dBu (30 dB attenuation). Because of mutual dependence between P3 and P4 the adjustments are repeated until correct output level is obtained.

d. Threshold level adjustment of P6

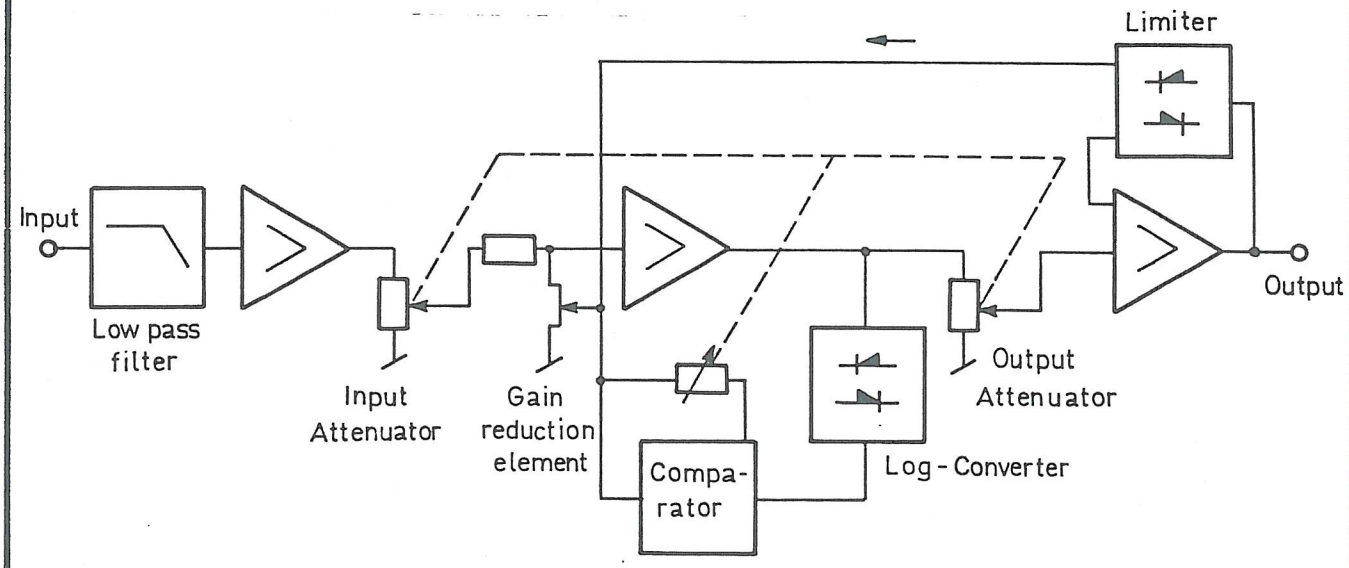
Conditions: Input signal +6 dBu 1kHz
Ratio switch in pos. 20:1
Lim. level switch in pos. "high"
Compression switch in pos. 15 dB

P6 is adjusted to an output level of +6 dBu

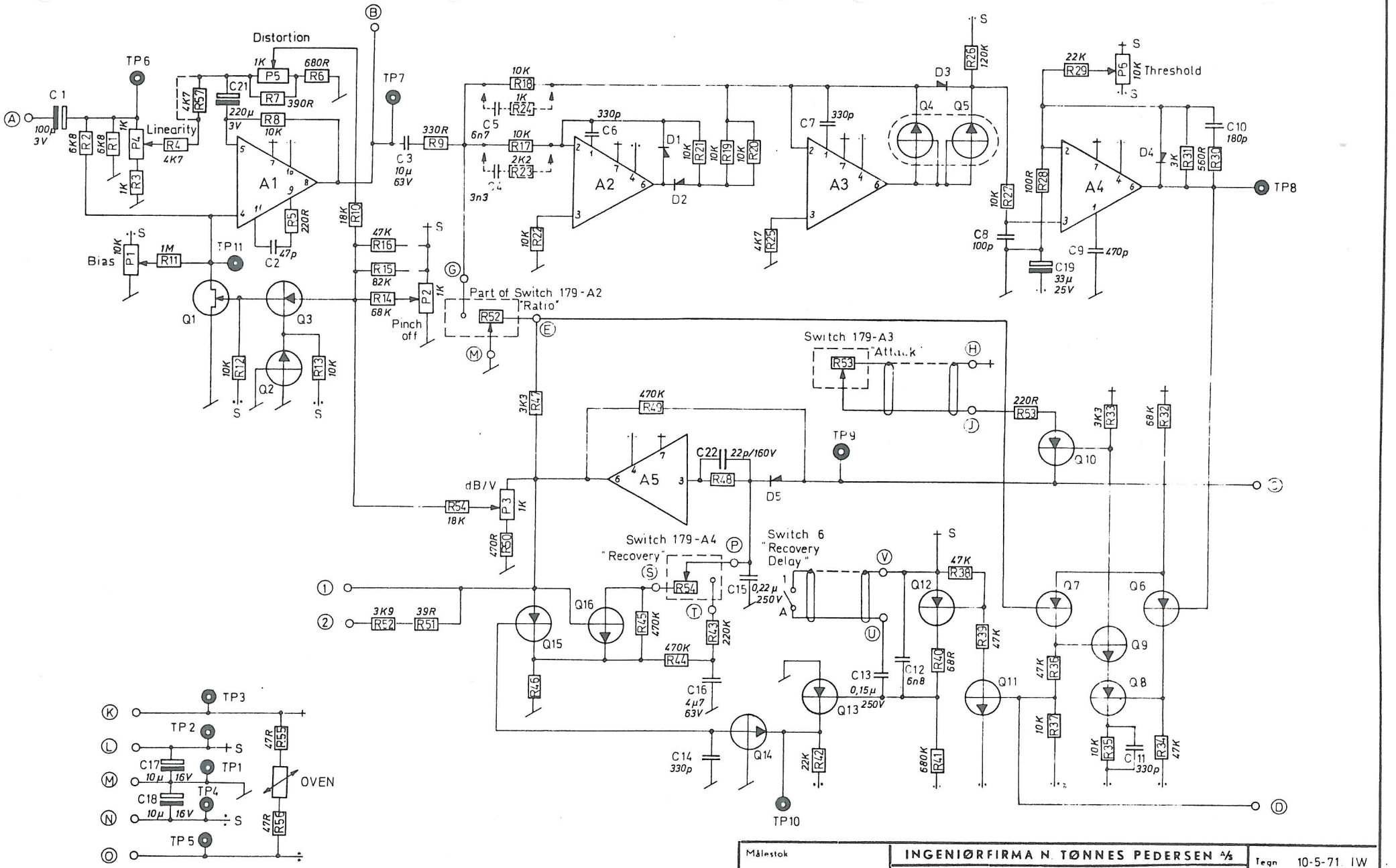
e. Distortion adjustment of P5

Conditions: Ratio switch in pos. 2:1
Input level and the other controls are set like under pos. d.

P5 is adjusted to minimum distortion.
Because of interaction between P5 and P2, the adjustment mentioned under pos. b is carried out once more.



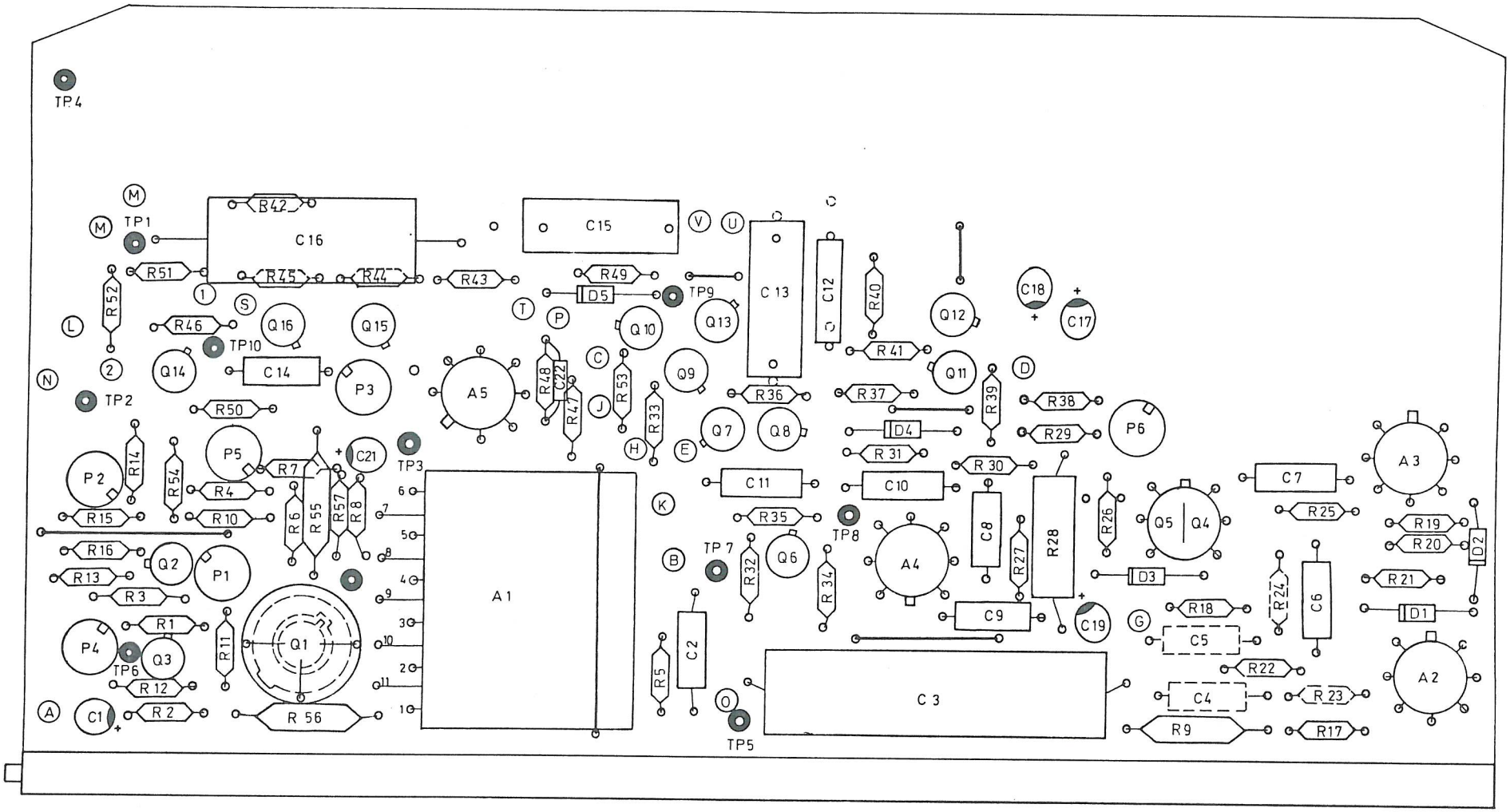
BLOCK DIAGRAM



Målestok	INGENIØRFIRMA N. TØNNES PEDERSEN A/S	Tegn 10-5-71 IW
Tolerance mm	Compressor Amplifier 179 - 130 (179-140)	Godk.
Materiale	Compressor Card 179 - 1240 Diagram	TEGNING NR 179-1330-A-3
Behandl.		
Del af		
Antal		

Kettelser 10/10-11 IW 10/12-71 BM/IW

AGF 2648

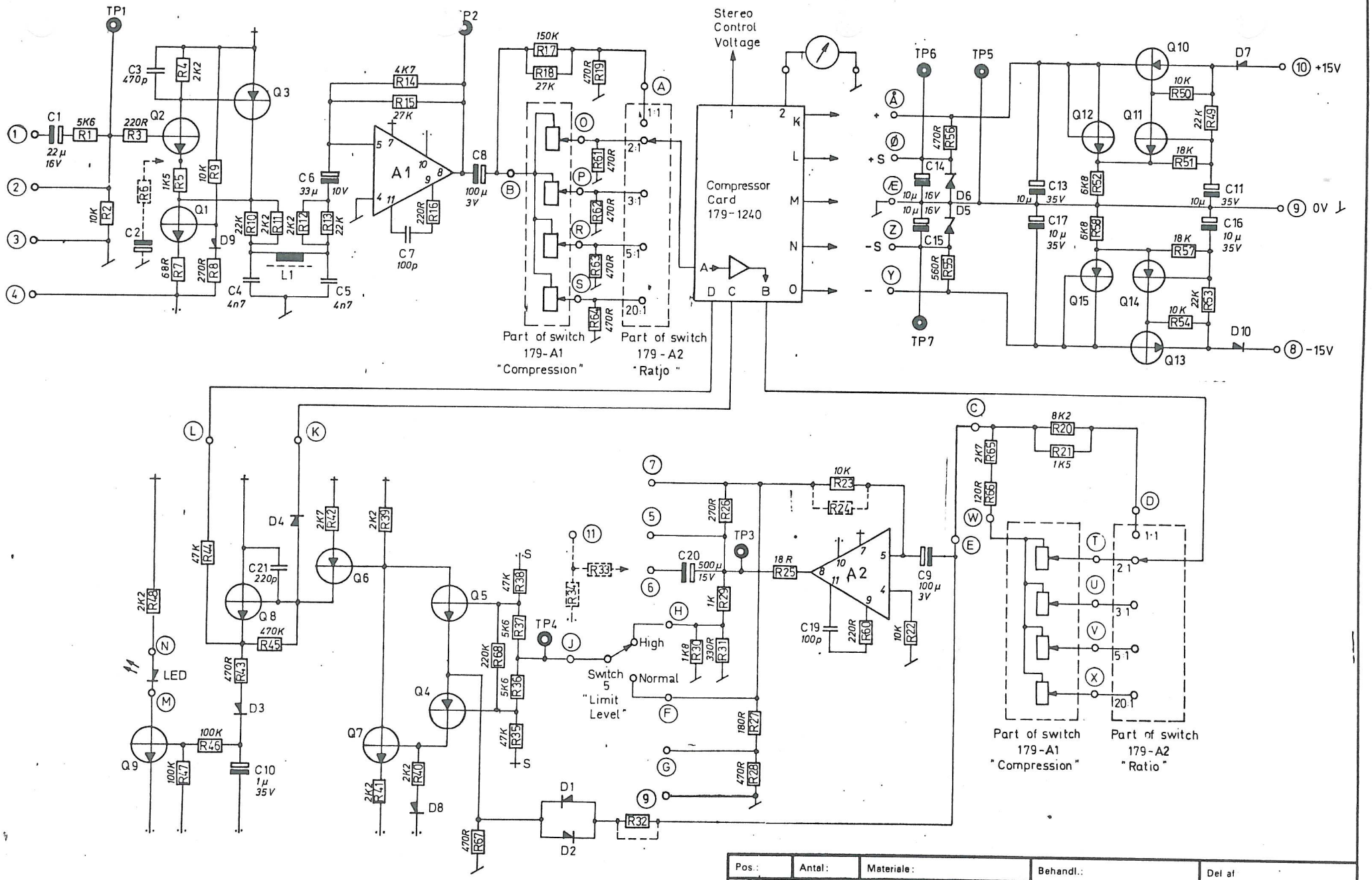


Målestok 2:1	INGENIØRFIRMA N. TØNNES PEDERSEN A/S	Tegn. 9-6-71 IW
Tolerance + mm +	Compressor Amplifier 179-130 (179-140)	Godk. B.M.
Materiale	Compressor Card 179-1240	TEGNING NR.
Behandl.	Component Layout.	179-1341-A-3
Del af		
Antal		

Kettelser 19.4.14 IW

Ref. no.	Qty.	Description	Value / Size			Type no.	Manufacturer
R51	1	Resistor, carbon	39R	1/8W	5%	SBB 0207	Beyschlag
R40	1	" "	68R	"	"	" "	"
R 5,53	2	" "	220R	"	"	" "	"
R 7	1	" "	390R	"	"	" "	"
R30	1	" "	560R	"	"	" "	"
R 6	1	" "	680R	"	"	" "	"
R 3	1	" "	1k	"	"	" "	"
R46	1	" "	2k2	"	"	" "	"
R31	1	" "	3k	"	"	" "	"
R33,47	2	" "	3k3	"	"	" "	"
R52	1	" "	3k9	"	"	" "	"
R 4,25,57	3	" "	4k7	"	"	" "	"
R 1, 2	2	" "	6k8	"	"	" "	"
R 8,12,13, 17-22,27, 35,37,48	13	" "	10k	"	"	" "	"
R10,54	2	" "	18k	"	"	" "	"
R29,42	2	" "	22k	"	"	" "	"
R16,34,35, 38,39	5	" "	47k	"	"	" "	"
R14,32	2	" "	68k	"	"	" "	"
R15	1	" "	82k	"	"	" "	"
R26	1	" "	120k	"	"	" "	"
R43	1	" "	220k	"	"	" "	"
R44,45,49	3	" "	470k	"	"	" "	"
R50	1	" "	470R	"	"	" "	"
R11	1	" "	1M	"	"	" "	"
R55,56	2	" "	47R	1/3W	"	SBD 0411	"
R 9	1	" "	330R	"	"	" "	"
R28	1	" "	100R	1W	"	253-9	Vitrohm
R41	1	" "	680k	1/8W	"	SBB 0207	Beyschlag
P 2- 5	4	Potmeter, trim	1k			3329H-102	Bourns
P 1, 6	2	" "	10k			3329H-103	"
C22	1	Capacitor, styroflex	22p	160V	5%	B 31310	Siemens
C 2	1	" "	47p		"	B 31310	"
C 8	1	" "	100p		"	B 31310	"
C10	1	" "	180p		"	B 31310	"
C 6, 7,11, 14	4	" "	330p		"	B 31310	"
C 9	1	" "	470p		"	B 31310	"
C12	1	" , polycarbon.	6n8	63V		2222-424-46802	Philips
C13	1	" , polyester	0,15u	250V	10%	B 32234	"
C15	1	" "	0,22u	"	"	B 32234	"
C16	1	" "	4,7u	63V	"	MKT1813-547/06	Eromet
C 3	1	" "	10u	"	"	MKT1813-547/06	"
C17,18	2	" , tantal	10u	16V		ETP 2	ERO
C19	1	" "	33u	25V		ETP 3	"
C 1	1	" "	100u	3V		ETP 3	"
C21	1	" "	220u	"		ETP 4	"
D 1- 5	5	Diode				1N4148	Texas
Q 1	1	Transistor	Si 216N spec.			179-1218-A	NTP
Q 2, 9,11, 14,16	5	"				BC 237 B	Siemens

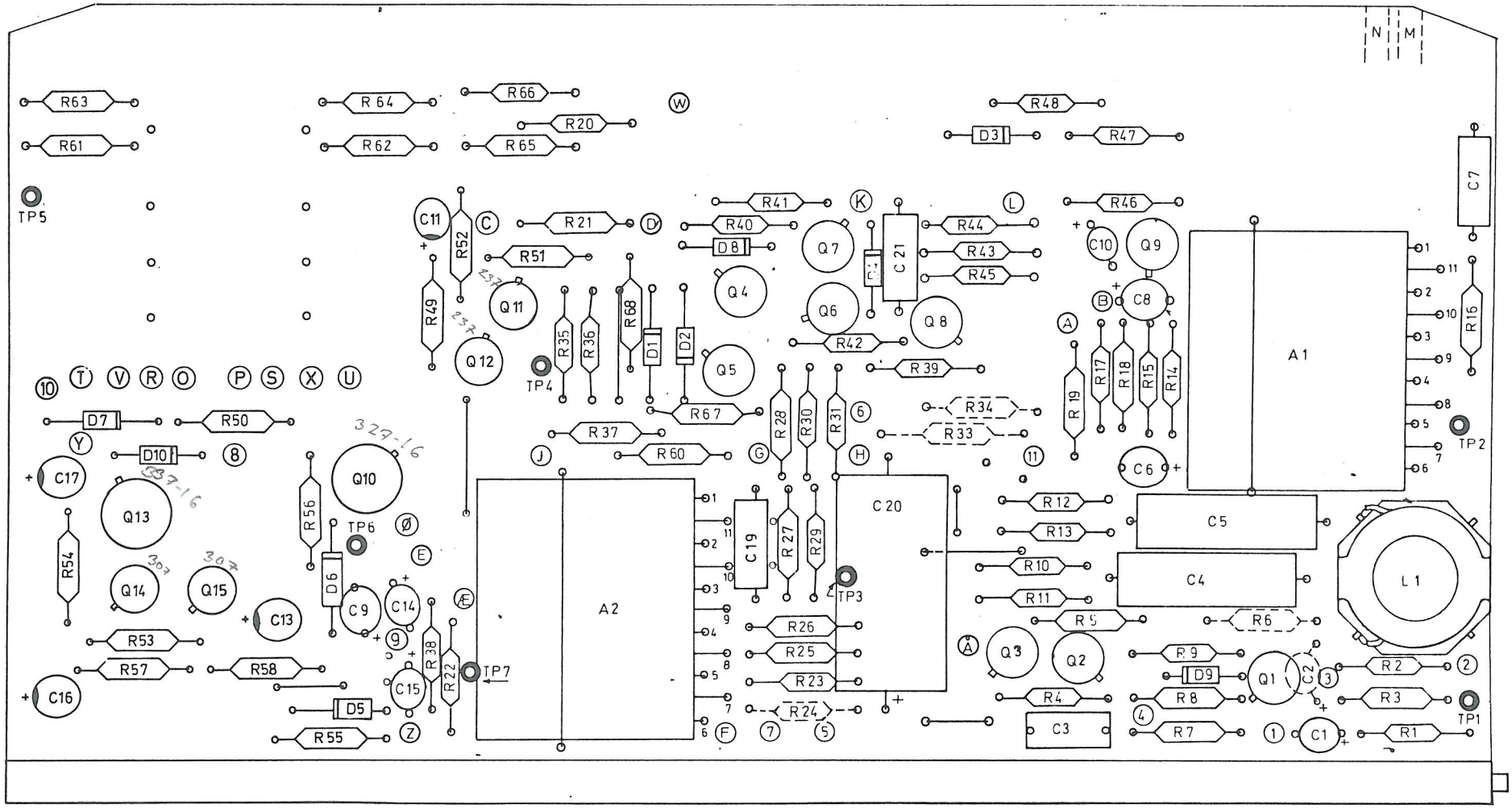
Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
Q 3, 6, 7, 8,10,12, 13,15	8	Transistor		BC 307 B	Siemens
Q 4, 5	1	" , dual		MD 8001	Motorola
	1	Transistor, oven		5 ST 1-2(To-18)80°	JERMYN
	12	" , spacers		To 18-002	
	10	Copper tube rivets		S 6086	United Shoe
A 1	1	Lin. amp.		M100C	NTP
A 2- 4	3	Op. amp.		LM301AH	National
A 5	1	" "		LM310AH	"
	1	P.C. Board		179-1240-B	NTP



Pos.:	Antal:	Materiale:	Behandl.:	Del af
Målestok :		Compressor Amplifier 179-130(179-140) Amplifier Card 179-1342-B Diagram		NTP N. TØNNES PEDERSEN A/S
Tolerance: + mm				
Tegnet : 30.1.74 IW				179-1332-B-3
Godkendt:				
Revideret :				

Rettelser

AGF 268P



Pos.:	Antal:	Materiale:	Behandl.:	Del af:
Målestok : 2:1		Compressor Amplifier 179-130 (179-140)		NTP N. TØNNES PEDERSEN A/S
Tolerance: ± mm		Amplifier Card 179-1342-B		
Tegnet : 30.1.74 IW		Component Layout		179-1343-B-3
Godkendt:				
Revideret :				

Ref. no.	Qty.	Description	Value / Size			Type no.	Manufacturer
R25	1	Resistor, carbon	18R	1/8W	5%	SBB 0207	Beyschlag
R 7	1	" "	68R	"	"	" "	"
R66	1	" "	120R	"	"	" "	"
R27	1	" "	180R	"	"	" "	"
R 3,16,60	3	" "	220R	"	"	" "	"
R 8,26	2	" "	270R	"	"	" "	"
R19,28,43, 56,61-64,67	9	" "	470R	"	"	" "	"
R55	1	" "	560R	"	"	" "	"
R29	1	" "	1k	"	"	" "	"
R5,21	2	" "	1k5	"	"	" "	"
R30	1	" "	1k8	"	"	" "	"
R 4,11,12, 39-41,48	7	" "	2k2	"	"	" "	"
R42,65	2	" "	2k7	"	"	" "	"
R14	1	" "	4k7	"	"	" "	"
R 1,36,37	3	" "	5k6	"	"	" "	"
R52,58	2	" "	6k8	"	"	" "	"
R20	1	" "	8k2	"	"	" "	"
R 2, 9,22, 23,50,54	6	" "	10k	"	"	" "	"
R51,57	2	" "	18k	"	"	" "	"
R10,13,49, 53	4	" "	22k	"	"	" "	"
R15,18	2	" "	27k	"	"	" "	"
R35,38,44	3	" "	47k	"	"	" "	"
R46,47	2	" "	100k	"	"	" "	"
R17	1	" "	150k	"	"	" "	"
R68	1	" "	220k	"	"	" "	"
R31	1	" "	330R	"	"	" "	"
R45	1	" "	470k	"	"	" "	"
C 7,19	2	Capacitor, styroflex	100p		5%	B31310	Siemens
C21	1	" "	220p		"	B31310	"
C 3	1	" "	470p		"	B31310	"
C 4, 5	2	" , polycarbon.	4n7	250V		2222-426-44702	Philips
C10	1	" , tantal	1u	35V		ETP 1	ERO
C14,15	2	" "	10u	16V			"
C11,13,16, 17	4	" "	10u	35V		ETP 1	"
C 1	1	" "	22u	16V		ETP 3	"
C 6	1	" "	33u	10V		ETP 3	"
C 8, 9	2	" "	100u	3V		ETP 3	"
C20	1	" , ellyt	470u	16V		EB	"
D 7, 10	2	Diode				1N4002	
D 3, 4, 8, 9	4	"				1N4148	
D 1, 2	2	"				BAX 13	Texas
D 5, 6	2	"				1N821	
Q 1, 2, 5, 7- 9,11, 12	8	Transistor				BC 237 B	Siemens

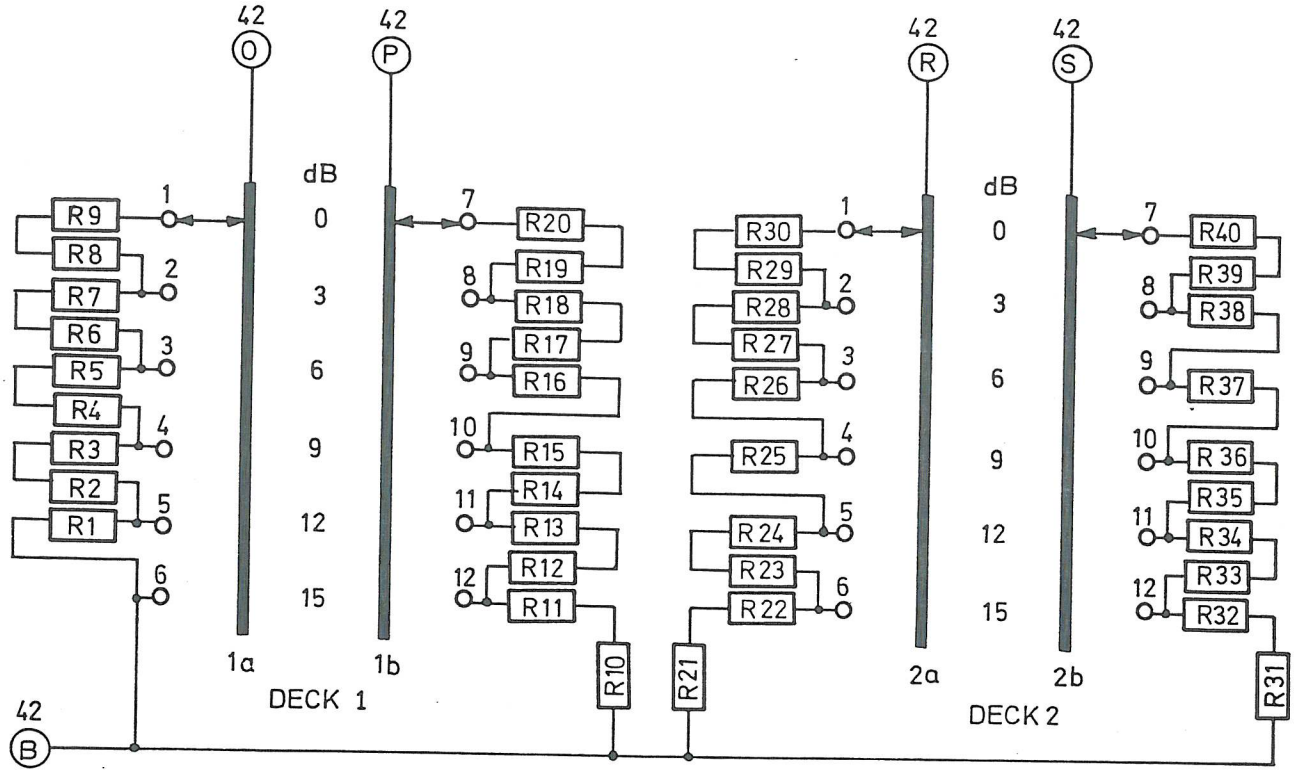
NTP ELEKTRONIK A/S

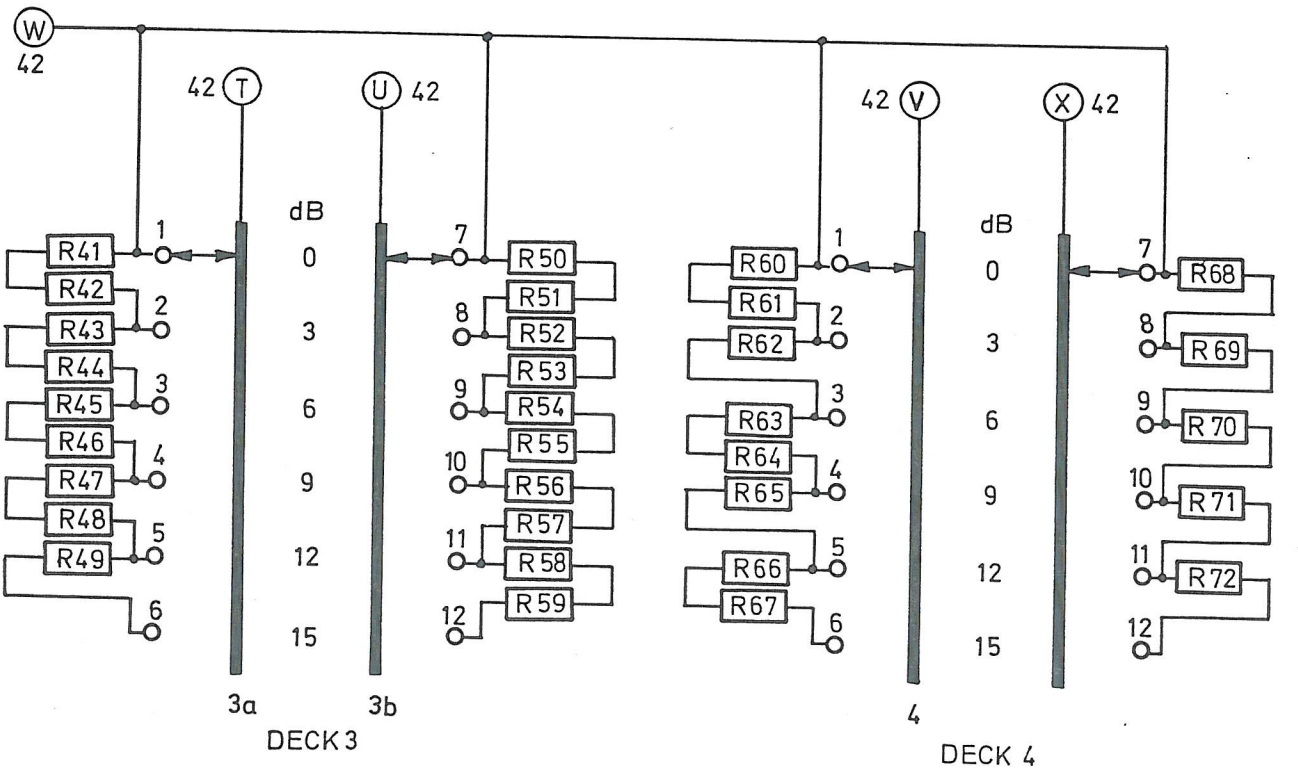
COMPRESSOR AMPLIFIER 179-140
AMPLIFIER CARD 179-1242B
ELECTRICAL PARTSLIST

Partslist

No.: 179-1433-A-3

Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
Q 5, 4 6, 14,15	5	Transistor		BC 307 B	Siemens
Q10	1	"		BC 327-16	"
Q13	1	"		BC 337-16	"
A 1, 2	2	Op.amp.		M 100 C	NTP
L 1	1	Coil consists of		179-1217-A-4	
		Potcore:	B65651-K0250-A022		Siemens
		Bobin:	B65652-A0000-M001		"
		Tag plate:	B65655-A0007-X000		"
		Spring:	8 x 11		"
	7	Copper tube rivets		S 6086	United Shoe
	11	Transistor spacers		TO 18-002	
	1	" "		TO 518-003	
	1	P.C. Board		179-1342-B-3	NTP

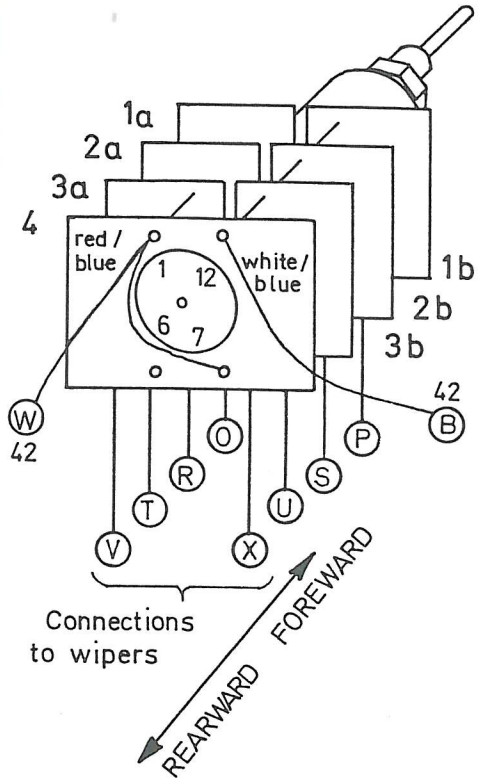


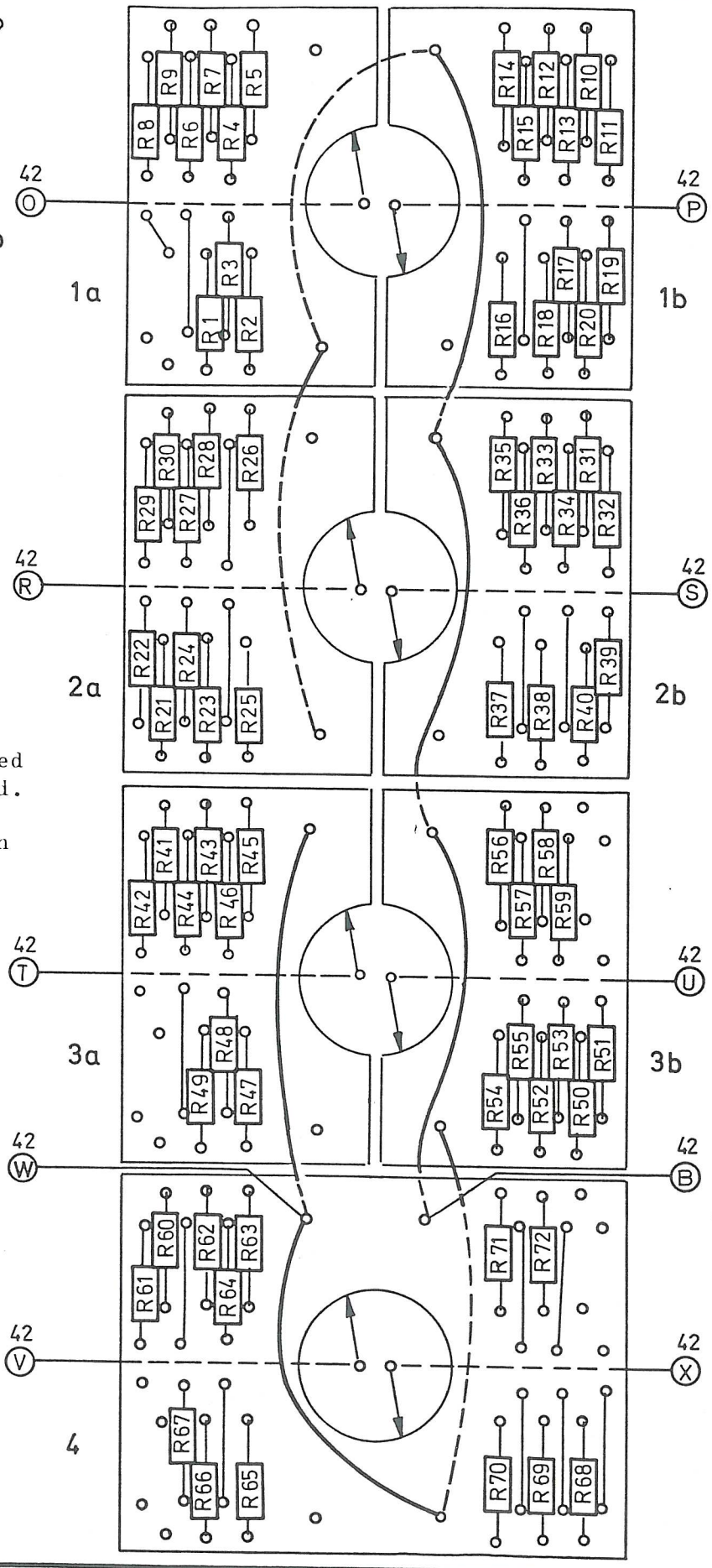


Målestok		INGENIØRFIRMA N. TØNNES PEDERSEN A/s	Tegn. 13-5-71 I.W.
Tolerance	± mm ± 0	Switch Unit 179-A1 (part of 179-120)	Godk.
Materiale			
Behandl.		Function : Compression	TEGNING NR.
Del af		Diagram	179-A130-A-4
Antal			

A 4

AGF 2687





Component side of printed circuits facing rearward.

Switch unit assembled in the following order:

1 : wires soldered to wipers

2 : deck 4

3 : decks 3b and 3a

4 : decks 2b and 2a

5 : decks 1b and 1a

6 : interconnections between decks connected.

Målestok	2:1	INGENIØRFIRMA N. TØNNES PEDERSEN A/s	Tegn. 12-5-71. IW
Tolerance	± mm ± °	Switch Unit 179-A1 (part of 179-120)	Godk.
Materiale			
Behandl.		Function: Compression	TEGNING NR.
Del af		Component Lay-out	179-A141-A-4
Antal			

A 4

AGF 2687

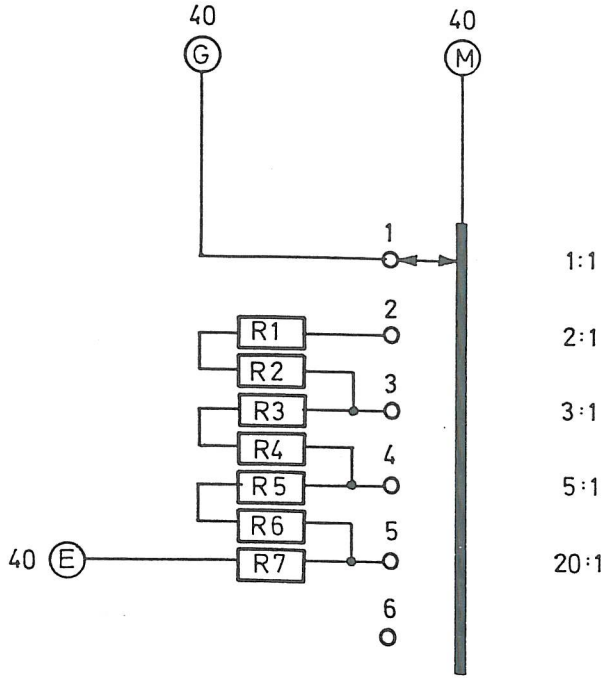
Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
R61	1	Resistor, carbon	33R 1/8W 5%	SBB 0207	Beyschlag
R64	1	" "	39R " "	" "	"
R34,69	2	" "	47R " "	" "	"
R15,22,51, 57,68,70, 71,72	8	" "	56R " "	" "	"
R11,13,36, 53,67	5	" "	68R " "	" "	"
R55,59	2	" "	82R " "	" "	"
R 4,24	2	" "	100R " "	" "	"
R46	1	" "	120R " "	" "	"
R42,44	2	" "	150R " "	" "	"
R32	1	" "	180R " "	" "	"
R27,60	2	" "	220R " "	" "	"
R19,62,63	3	" "	270R " "	" "	"
R 1, 2, 3, 17,29,65	6	" "	330R " "	" "	"
R 6,10,66	3	" "	390R " "	" "	"
R12,39,48, 50	4	" "	470R " "	" "	"
R 8,23,52	3	" "	560R " "	" "	"
R33,54	2	" "	680R " "	" "	"
R14,21,56	3	" "	820R " "	" "	"
R25,35,41, 58	4	" "	1k " "	" "	"
R 5,31	2	" "	1k2 " "	" "	"
R16,26,37, 43	4	" "	1k5 " "	" "	"
R 7,18,28, 38,45	5	" "	2k2 " "	" "	"
R40,47	2	" "	2k7 " "	" "	"
R30	1	" "	3k3 " "	" "	"
R20	1	" "	3k9 " "	" "	"
R 9,49	2	" "	4k7 " "	" "	"
RS	1	Switch		Mx4/8x6k, t = 12	EBE
PC	4	P.C. Boards		182-9040	NTP

3 of the P.C. Boards are divided into halves.

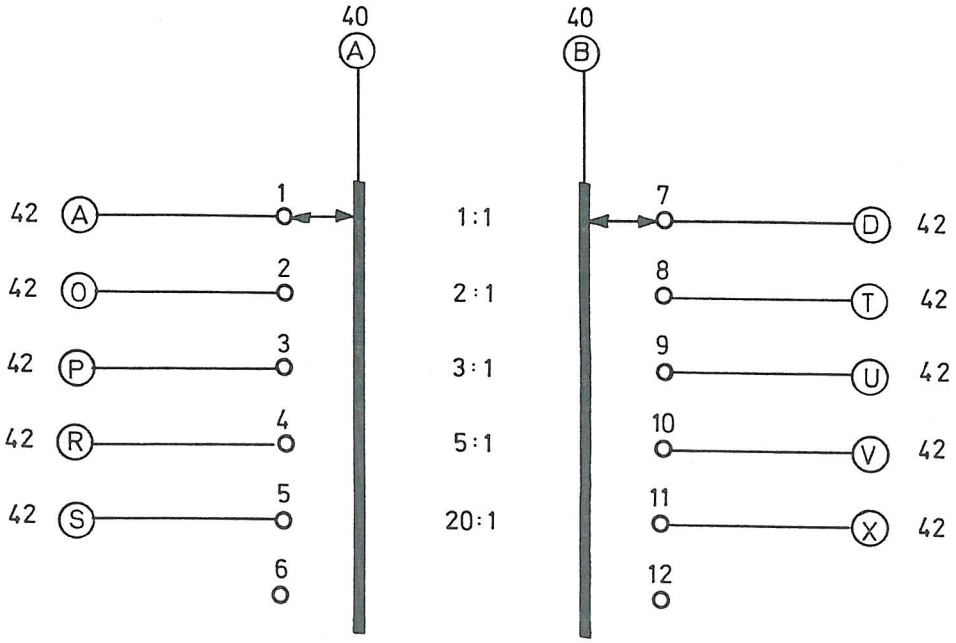
NTP ELEKTRONIK A/S

SWITCH UNIT, 179-A1 (part of 179-120)
ELECTRICAL PARTSLIST

Partslist
Page 1 of 1
No.: 179-A131-A-3



DECK 1



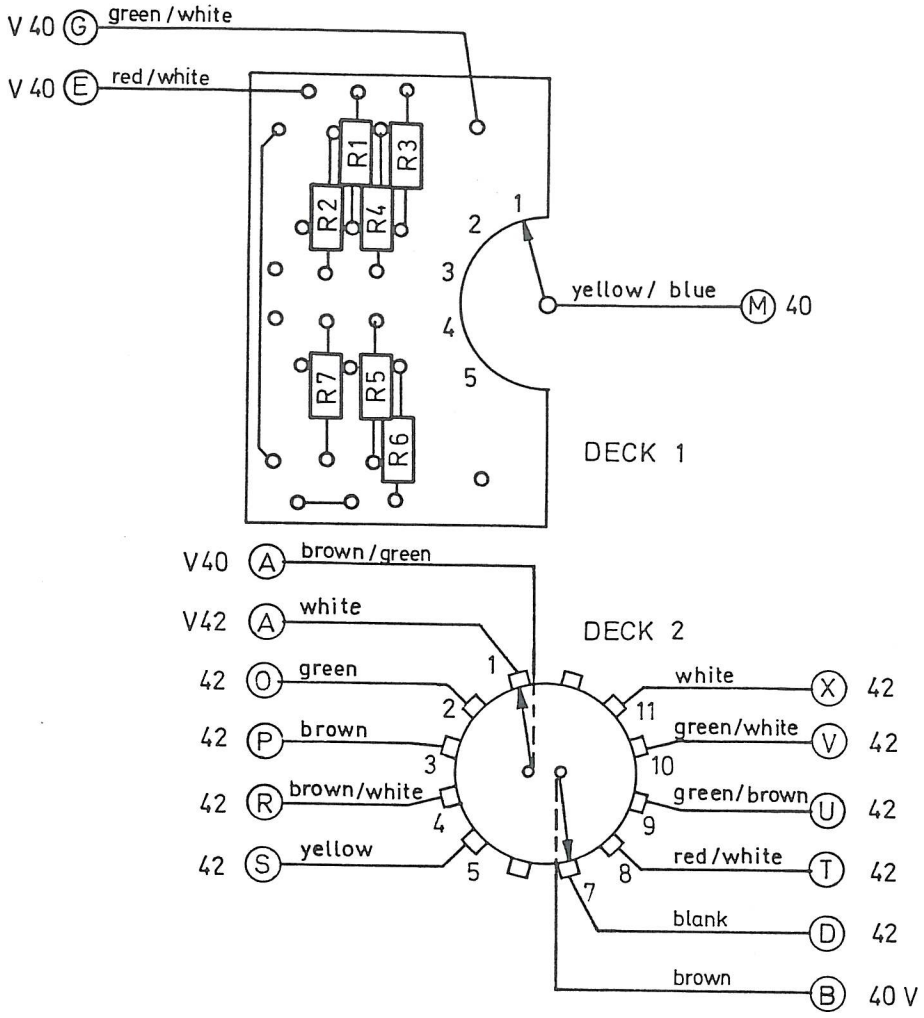
DECK 2

Målestok		INGENIØRFIRMA N. TØNNES PEDERSEN A/S	Tegn. 12-5-71. IW
Tolerance	± mm ± 0	Switch Unit 179-A2 (part of 179-120)	Godk.
Materiale			
Behandl.		Function: Ratio Diagram	TEGNING NR. 179-A230-A-4
Del af			
Antal			

R lser 8/6-71 IW

A 4

AGF 2687



Målestok	2:1	INGENIØRFIRMA N. TØNNES PEDERSEN A/s		Tegn.	11-5-71 IW
Tolerance	± mm ± 0	Switch Unit 179-A2 (part of 179-120)		Godk.	
Materiale					
Behandl.		Function: Ratio		TEGNING NR.	
Del af		Component Lay - out		179-A241-A-4	
Antal					

A 4

AGF 2687

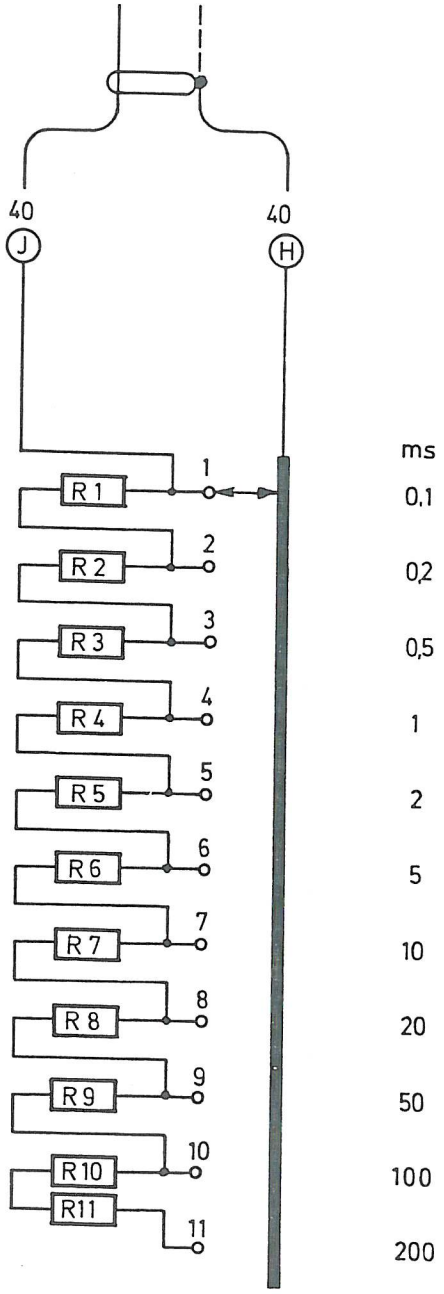
R lser 3/6-71 IW 6-1-76. T.L.

Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
R 6	1	Resistor, carbon	33R 1/8W 5%	SBB 0207	Beyschlag
R 4, 7	2	" "	82R " "	" "	"
R 2	1	" "	150R " "	" "	"
R 5	1	" "	330R " "	" "	"
R 3	1	" "	470R " "	" "	"
R 1	1	" "	1k8 " "	" "	"
RS	1	Switch		Mx2/4x5k, T = 12	EBE
PC	1/2	P.C. Board		182-9040	NTP

NTP ELEKTRONIK A/S

SWITCH UNIT 179-A2 (part of 179-120)
ELECTRICAL PARTSLIST

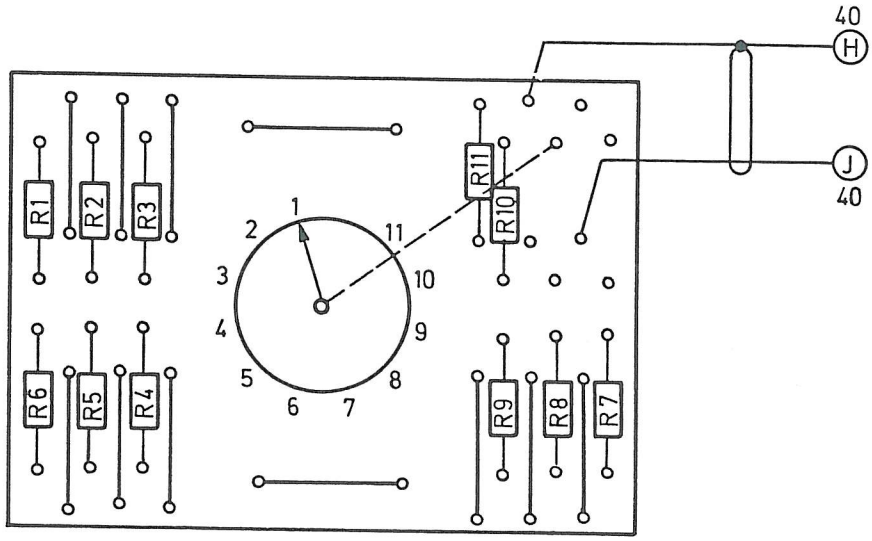
Partslist
Page 1 of 1
No.: 179-A231-A-3



Note !
R11 is only used in 179-140 !
Strap in 179-120

Pos.:	Antal:	Materiale:	Behandl.	Del af
Målestok :		Switch Unit 179 - A3 (Part of 179-140)		NTP ELEKTRONIK A/S
Tolerance: ± mm		Funcion: Attack		
Tegnet : 2-2-77 TL		Diagram		179 — A330 - A - 4
Godkendt:				
Revideret :				

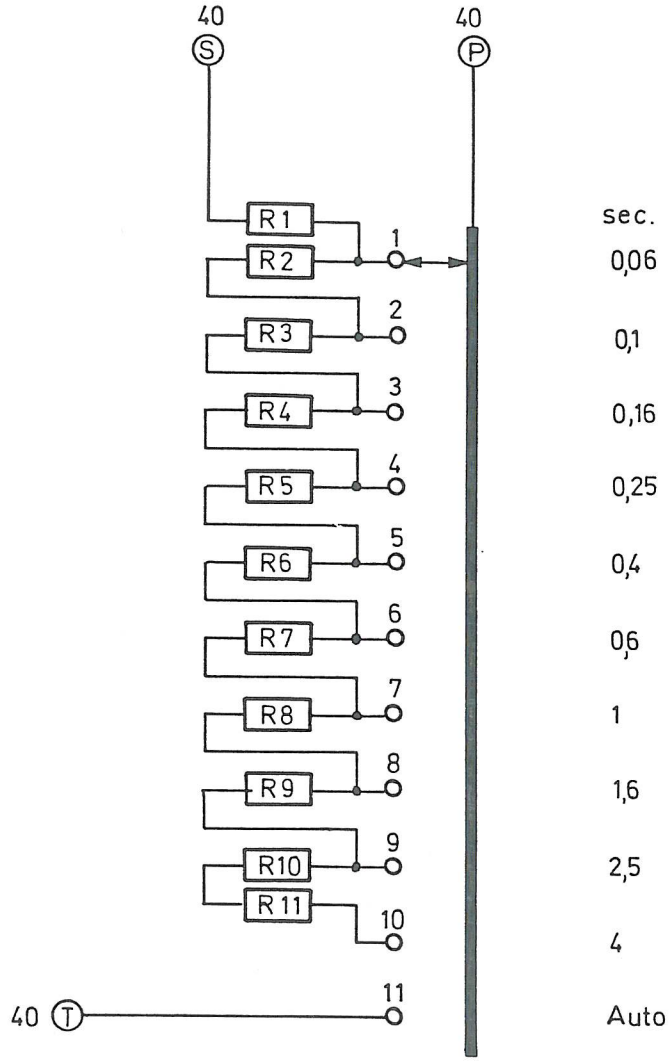
Rettelser



Pos.:	Antal:	Materiale:	Behandl.	Del af
Målestok :		Switch Unit 179-A3 (Part of 179-140)		NTP ELEKTRONIK A/S
Tolerance: ± mm		Function: Attack		
Tegnet : 2-2-77 TL		Components Lay-out		179-A341-A-4
Godkendt :				
Revideret :				

AGF 2687

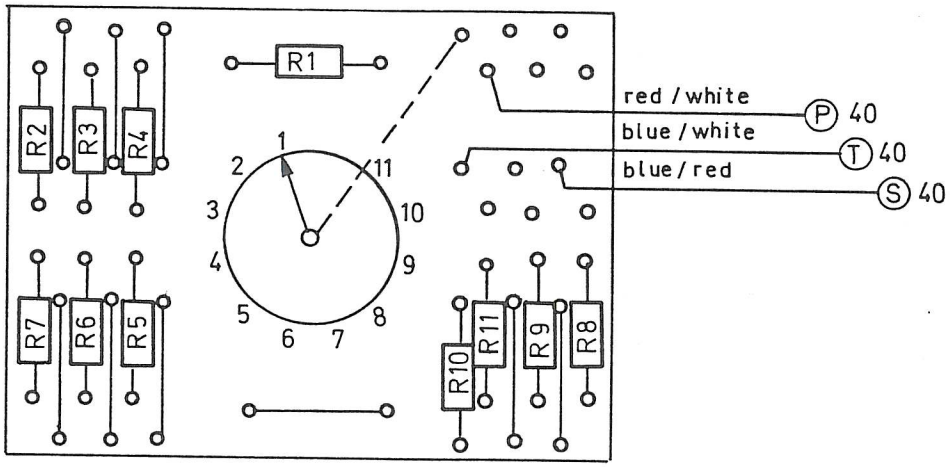
Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
R 1	1	Resistor, carbon	220R 1/8W 5%	SBB 0207	Beyschlag
R 2	1	" "	680R " "	" "	"
R 3	1	" "	1k2 " "	" "	"
R 4	1	" "	2k2 " "	" "	"
R 5	1	" "=	6k8 " "	" "	"
R 6	1	" "	12k " "	" "	"
R 7	1	" "	27k " "	" "	"
R 8	1	" "	82k " "	" "	"
R 9	1	" "	180k " "	" "	"
R11	1	" "	270k " "	" "	"
R10	1	" "	330k " "	" "	"
RS	1	Switch		Mx1/1x11k; T = 12	EBE
PC	1	P.C.Board		182-9040	NTP
		Note: R11 is only used	in 179-140 !		
		Strap	in 179-120.		



Målestok		INGENIØRFIRMA N. TØNNES PEDERSEN A/s	Tegn. 12-5-71 IW
Tolerance	± mm ± 0	Switch Unit 179-A4 (part of 179 120)	Godk.
Materiale			
Behandl.		Function : Recovery Diagram	TEGNING NR. 179-A430-A-4
Del af			
Antal			

A 4

AGF 2687



Målestok	2:1	INGENIØRFIRMA N. TØNNES PEDERSEN A/s		Tegn.	11-5-71-IW
Tolerance	± mm ± 0	Switch Unit 179-A4 (part of 179-120)		Godk.	
Materiale					
Behandl.		Function: Recovery		TEGNING NR.	
Del af		Component Lay-out		179-A441-A4	
Antal					

A 4

R ser

AGF 2687

Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
R 2	1	Resistor, carbon	33k 1/8W 5%	SBB 0207	Beyschlag
R 3	1	" "	39k " "	" "	"
R 1	1	" "	47k " "	" "	"
R 4	1	" "	68k " "	" "	"
R 5	1	" "	120k " "	" "	"
R 6	1	" "	180k " "	" "	"
R 7	1	" "	390k " "	" "	"
R10	1	" "	470k " "	" "	"
R 8	1	" "	560k " "	" "	"
R 9	1	" "	680k " "	" "	"
R11	1	" "	1M " "	" "	"
RS	1	Switch		Mx1/1x11k; T = 12	EBE
PC	1	P.C. Board		182-9040	NTP

NTP ELEKTRONIK A/S

SWITCH UNIT, 179-A4 (part of 179-120)
ELECTRICAL PARTSLIST

Partslist
Page 1 of 1
No.: 179-A431-A-3