



Microphone Amplifier  
and Limiter

179-270

179-2710-A-4

Microphone Amplifier  
and Limiter  
179-270

Contents:

Draw. No.:

Technical Specifications	179-2711-C-4
Terminals and Interconnections	179-2702-A-4
Instruction for Alignment	179-2722-A-4
Circuit Diagram	179-2730-A-5
Component Lay-out	179-2741-A-5
Parts List	179-2751-A-4
Front Plate Lay-out	179-2759-B-4

Supply Voltage	-24V $\pm$ 10%, plus to ground
Max. Ripple Voltage	0,1V pp 50Hz - 20kHz
Current Consumption	approx. 55/80 mA incl. LED
Temp. Range	0° - 60° C
Frequency Response, -3dB points	100Hz - 10kHz
Gain below Limiting, a/b Input	58dB - 82dB $\pm$ 1dB (screwdriver adjustment on front plate)
x) Lim. level ref. to output. 200Ω load	+15dBu $\pm$ 0,5dB (term. 25 connected to term. 24) +6dBu $\pm$ 0,5dB (term. 26 connected to term. 24)
Lim. Range	> 30dB
Input Impedance a/b, 100Hz - 10kHz	> 2KΩ balanced floating
Output Impedance, 1kHz	< 40Ω balanced floating
Min. Load Impedance	200Ω
Distortion below Limiting 100Hz-10kHz	< 0,3%
Distortion at 20dB Limiting 1kHz	< 0,3%
Distortion at 20dB Limiting 100Hz	< 2%
Noise, ref. to input a/b, Rg = 200Ω	-128 dBu A-curve
x) Attack Time	1,5mS combined with a fullwave logarithmic clipping circuit
Recovery time, double time constants	200mS upon 15 secs.
LED Indicator current	approx. 10mA
Connector	33 pole ISEP
Connector coding	term. 13 and 21
Mechanical Outline	ISEP ZAG/SRG 40mm
a/b-Input and Output are connected to the amplifier through 5 pin STR-connectors on the front plate.	
x) Peaks shorter than 1,5mS duration are limited to a level max. 3dB above steady state lim. level.	



Normally the Limiter 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:

- P3 Compensates for individual pinch-off of the FET (Q1)  
P4 Adjustment for minimum distortion of the FET Attenuator

a. Pinch-off adjustment of P3

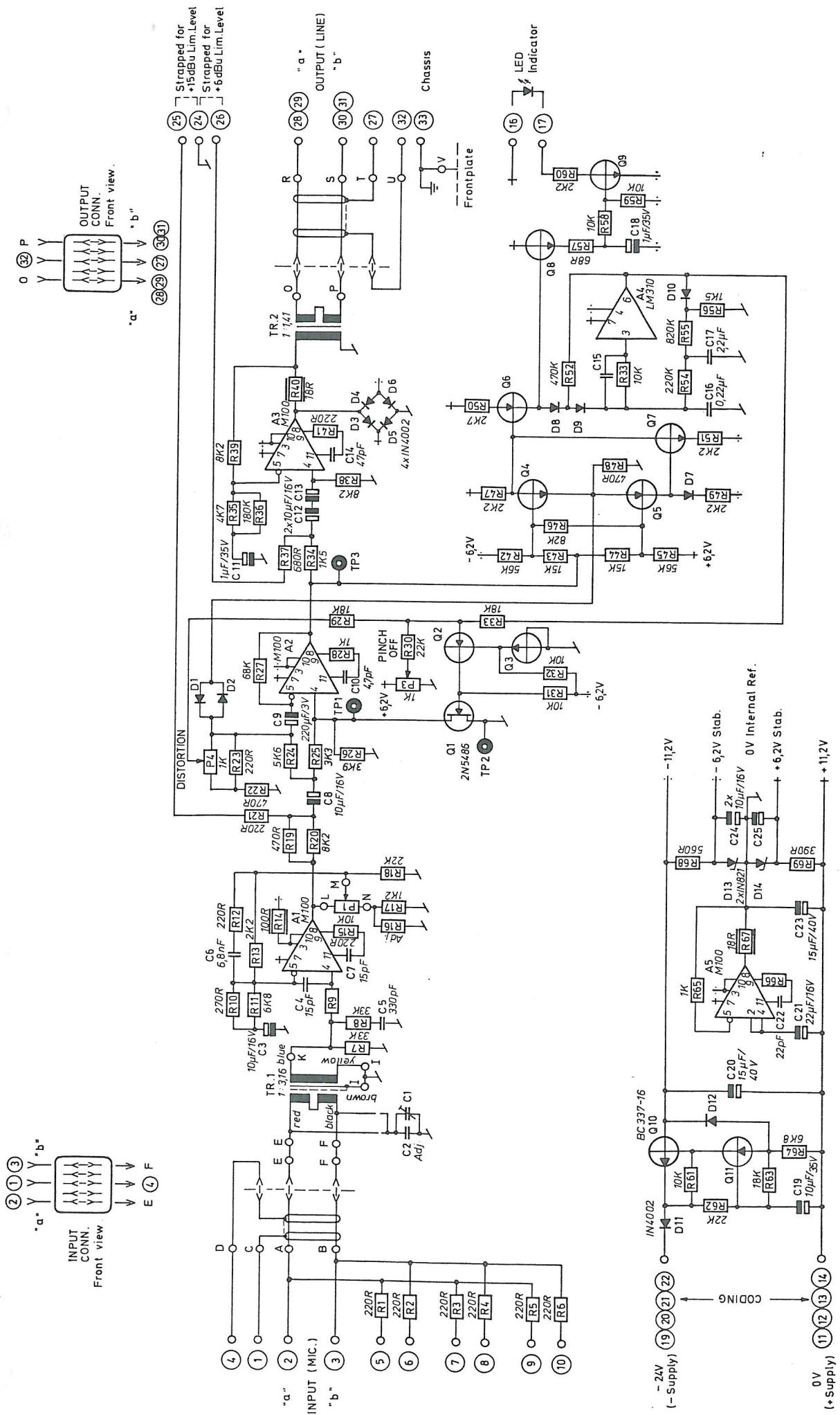
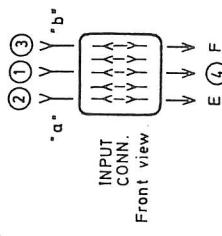
Conditions: Min. gain, +15 dBu lim. level, 200 Ohms load  
Input signal -48 dBu 1kHz.

P3 is adjusted until the output voltage is +10dBu (58dB gain)

b. Distortion adjustment of P4

Conditions: Min. gain, +15 dBu lim. level.  
Input signal -23 dBu 1kHz.

P4 is adjusted to minimum distortion.



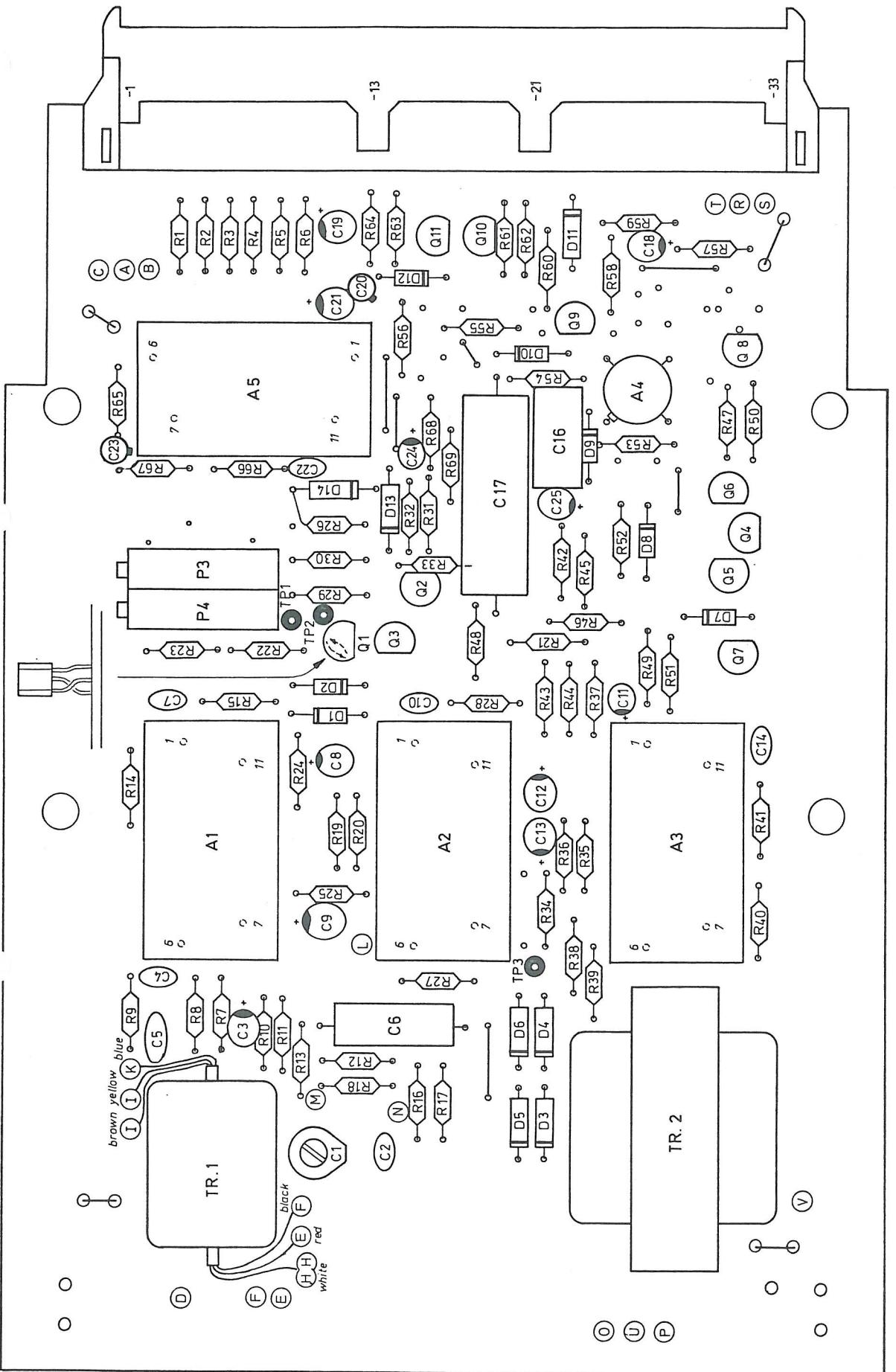
All PNP transistors without designation : BC 307 B  
 • NPN " " : BC 237 B  
 • Diodes " " : IN 4/48  
 Numbers in circles refer to ISEP-connector pin no.

Pos.:	Aantal:	Materiale:	Behandl.:	Del af
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Microphone Amplifier and Limiter  
 Diagram  
 179-270

N. TØNNES PEDERSEN & SØNS  
 179-2730-A:3

**NTP**  
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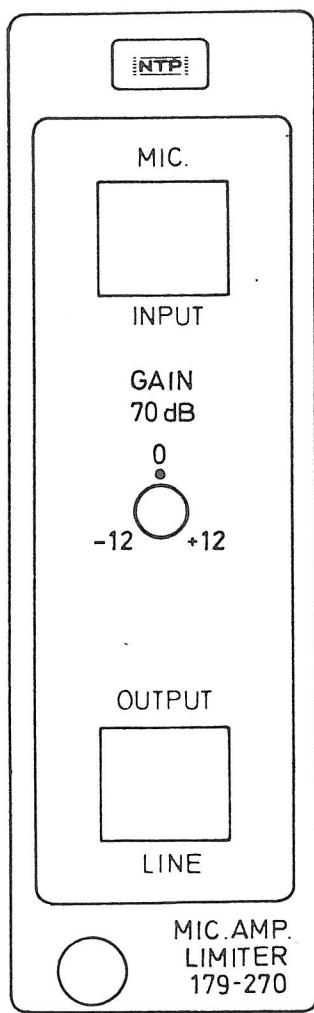
Pos.:	Antal:	Materiale:	Behandl.:	Delt af:
Malestok :	2:1	mm		
Toleranc.:	+ mm			
Tegnet :	25.6.75 IW			
Godkendt:				
Revideret :	2			

NTP  
N. TØNNES PEDERSEN A/S  
179-2741-A-3

ST 1 7 EUR

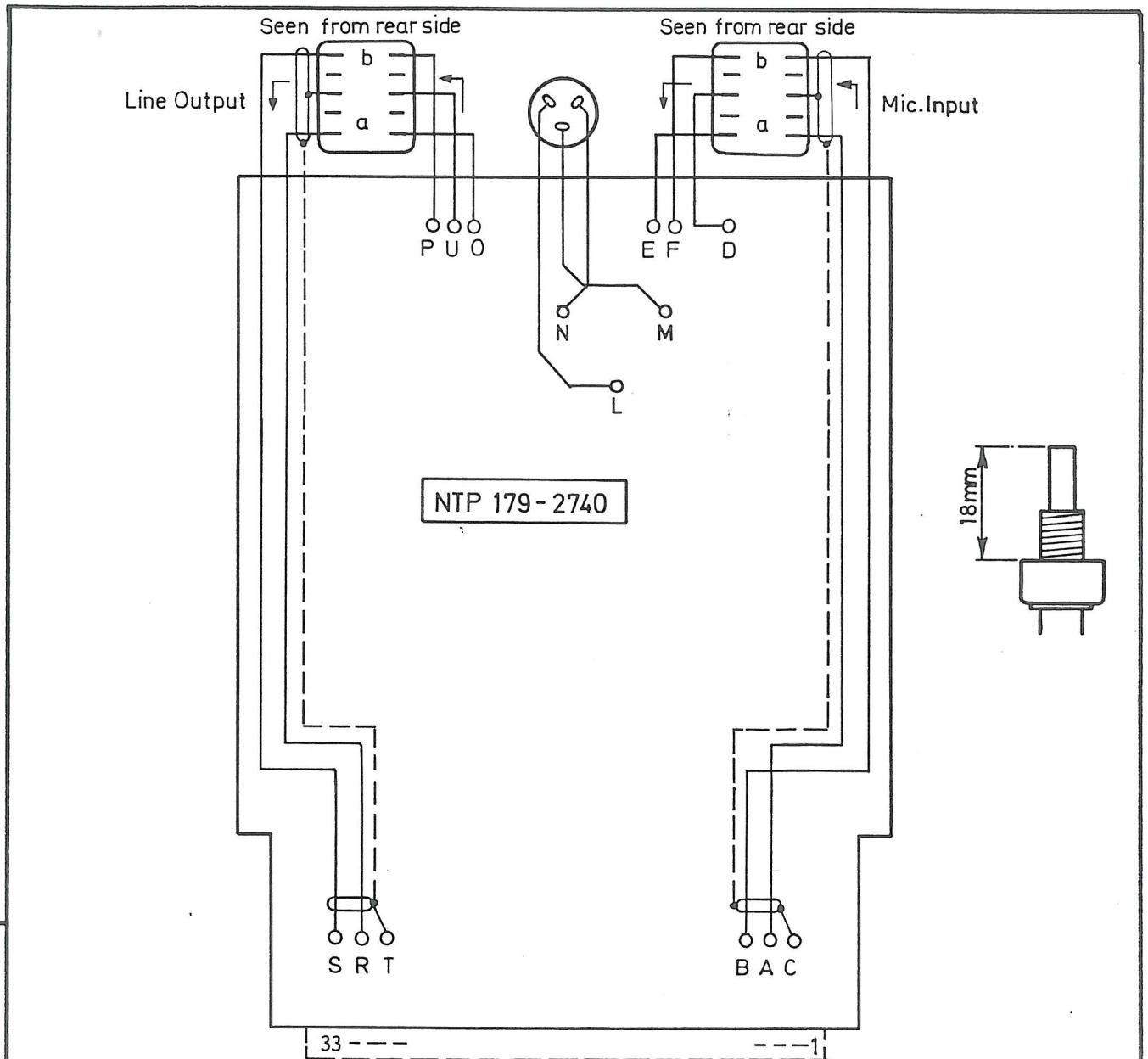
Ref. no.	Qty.	Description	Value / Size			Type no.	Manufacturer
R57	1	Resistor, carbon	68R	1/8W	5%	SBB 0207	Beyschlag
R 9	1	" "	100R	"	"	"	"
R 1, 2, 3, 4,5,6,12, 15,21,23, 41	11	" "	220R	"	"	"	"
R10	1	" "	270R	"	"	"	"
R69	1	" "	390R	"	"	"	"
R19,22,48	3	" "	470R	"	"	"	"
R68	1	" "	560R	"	"	"	"
R37	1	" "	680R	"	"	"	"
R28,65,66	3	" "	1k	"	"	"	"
R17	1	" "	1k2	"	"	"	"
R34,56	1	" "	1k5	"	"	"	"
R13,47,49, 51,60	5	" "	2k2	"	"	"	"
R50	1	" "	2k7	"	"	"	"
R25	1	" "	3k3	"	"	"	"
R26	1	" "	3k9	"	"	"	"
R35	1	" "	4k7	"	"	"	"
R24	1	" "	5k6	"	"	"	"
R11,64	2	" "	6k8	"	"	"	"
R20,38,39	3	" "	8k2	"	"	"	"
R31,32,53, 58,59,61	6	" "	10k	"	"	"	"
R43,44	2	" "	15k	"	"	"	"
R29,33,63	3	" "	18k	"	"	"	"
R18,30,62	3	" "	22k	"	"	"	"
R 7, 8	2	" "	33k	"	"	"	"
R27	1	" "	68k	"	"	"	"
R42,45	2	" "	56k	"	"	"	"
R46	1	" "	82k	"	"	"	"
R36	1	" "	180k	"	"	"	"
R54	1	" "	220k	"	"	"	"
R52	1	" "	470k	"	"	"	"
R55	1	" "	820k	"	"	"	"
R40,67	2	Resistor, safety	18R	1/8"	5%	CRS 25	Philips
R14	1	" "	100R	"	"	CRS 25	"
P 3, 4	2	Resistor, trim	1k			3006P	Bourns
P 1	1	Potentiometer	10k	lin		620-000	Ruwido
C 6	1	Capacitor, styroflex	6n8/63V		5%	2222-424-46802	Philips
C16	1	" , polyester	220n/100V		10%	MKT 1822	ERO
C17	1	" "	2u2/100V		10%	MKT 1813	"
C10	1	" "	4p7/100V			2222 632 58478	Philips
C 4, 7	2	" , ceramic	15p/100V		2%	2222 632 58159	"
C22	1	" "	22p/100V		2%	2222 632 70229	"
C14	1	" "	47p/100V		2%	2222 632 70479	"
C 5	1	" "	330p/100V		2%	2222 632 70331	"
C11,18	2	Capacitor, tantal	1u/35V			ETP 1	ERO
C 3, 8,12, 13,24,25	6	" "	10u/16V			ETP 2	ERO
C19	1	" "	10u/35V			ETP 3	"

Ref. no.	Qty.	Description	Value / Size	Type no.	Manufacturer
C21	1	Capacitor, tantal	22u/16V	ETP 3	ERO
C 9	1	" "	220u/3V	ETO 5	"
C20,23	2	" , electrolytic	15u/40V	2222-015-87159	Philips
C 1	1	" , trim	2-25p	2222-808-11229	"
D 3, 4, 5, 6,11	5	Diode	1N4002		
D 1, 2, 7, 8, 9,10, 12	7	"	1N4148		
D13,14	2	" , zener	1N821		Motorola
Q 3, 4, 7, 8, 9	5	Transistor	BC 237		
Q 2, 5, 6, 11	4	"	BC 307		
Q10	1	"	BC 337-16		
Q 1	1	" , FET	2N5486		National
A 4	1	Op-amp	LM 310 RH		National
A 1, 2, 3,	4	"	M 100 C		NTP
TR1	1	Transformer		TR 1BV352-303-002D	Beyer
TR2	1	"		13 955	J. Schou
	1	Connector		G20-A33-A5-BFBM	ITT
	1	Isolating sheet		14-007-002	ITT
	2	Rivets		14-014-002	ITT
	1	Coding strip		14-022-037	ITT
	2	Male connector		STR-B-17174	STR
	2	Female connector		STR-B-17156	"
	4	Guides for box		211-009	Zellweger
	1	Fastening screw		211-010	"
	1	Screen box		211-020-216	"
		Modified according to		179-2555-A-4	
	1	Front plate		351-1058-A-4	Dansett
		Engraving of frontplate		179-2759-B-4	Søren Christi- ansen
	1	Mounting plate		351-1057-C-4	Dansett
	2	Mounting piece		179-2552-A-4	"
	4	Stand off		179-2554-A-4	Hillebrandt
	1	Rivet		351-1054-A-4	"
	3	Copper tube rivet		S 6086	United Shoe
	1	PC Board		179-2740-A-3	Poxy-Print
	1	Button for ø 4 mm		235-9001-A-4	Hillebrandt



Module 16 M  
Painted : G16

Pos	Antal	Materiale	Behandl	Del af
Målestok	1:1			
Tolerance	mm			
Tegnet	26.6.75 IW			
Godkendt				
Revideret				
Microphone Amplifier and Limiter 179- 270 ISEP - Cassette Front plate Lay -out				NTP N. TONNES PEDERSEN A/S
				179- 2759 -B- 4



Terminal:

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| 1: Input cable screen, isolated. | 18: not used                         |
| 2: "a" wire input (MIC.)         | 19: }                                |
| 3: "b" wire input (MIC.)         | 20: } -24V (- supply)                |
| 4: term. 1 through input plug.   | 21: }                                |
| 5: term. 2 through 220Ω          | 22: }                                |
| 6: " 3 " "                       | 23: not used                         |
| 7: " 2 " "                       | 24: to term. 25 or term. 26          |
| 8: " 3 " "                       | 25: +15dBu Lim. Level, alternatively |
| 9: " 2 " "                       | 26: + 6dBu connected to term. 24     |
| 10: " 3 " "                      | 27: Output cable screen, isolated.   |
| 11: }                            | 28: } "a" wire output (LINE)         |
| 12: } OV (+ supply)              | 29: } "b" wire output (LINE)         |
| 13: }                            | 30: } "b" wire output (LINE)         |
| 14: }                            | 31: }                                |
| 15: not used                     | 32: term. 27 through output plug     |
| 16: + LED indicator              | 33: chassis                          |
| 17: - LED indicator              | Coding: term. 13 and term. 21        |

Læselser 1) 7.7.77 BM/IW  
2) 26.2.81 BS/TL

Pos.:	Antal:	Materiale:	Behandl.:	Del af:			
Målestok :							
Tolerance: ± mm							
Tegnet : 26.6.75 IW							
Godkendt:							
Revideret : 3							
Microphone Amplifier and Limiter 179-270 Terminals and Interconnections							
NTP N. TØNNES PEDERSEN A/S							
179-2702-A-4							