

NTP

179-1610-B-4

COMPRESSOR

179-160B

Contents:

Frontplate Layout	179-1609-A-4
Technical Specifications	179-1611-B-3
User's Manual	179-1613-C-3
Instruction for Alignment	179-1622-A-3
Schematic Diagram, Components Layout Parts List	Mother Board, Right 179-16A30-A-2 179-16A41-A-3 179-16A31-A-4
Schematic Diagram, Components Layout Parts List	Mother Board, Left 179-16B30-B-4 179-16B41-B-3 179-16B31-B-4
Schematic Diagram, Components Layout Parts List	Limiter 179-16C30-B-3 179-16C41-B-3 179-16C31-B-4
Schematic Diagram, Components Layout Parts List	Compressor 179-16D30-A-3 179-16D41-A-3 179-16D31-A-4
Schematic Diagram, Components Layout Parts List	Noise Gate 179-16E30-B-3 179-16E41-B-4 179-16E31-A-4
Schematic Diagram, Components Layout Parts List	Meter Module 179-16F30-A-4 179-16F41-A-4 179-16F31-A-4
Mechanical Parts List	179-1604-A-4

2/260291.

NTP Elektronik A/S
Knapholm 7
DK-2730 Herlev, Denmark

Telephone: +45 44 53 11 88
Telefax: +45 44 53 11 70
Telex: 16378 ntp dk

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



COMPRESSOR

179-160 B

Contents:

Frontplate layout

Draw.No.:

179-1609-A-4

Technical specifications

179-1611-B-3

User's manual

179-1613-C-3

Instruction for alignment

179-1622-A-3

Schematic diagram, motherboard right

179-16A30-A-2

Components layout

179-16A41-A-3

Partslist

179-16A31-A-3

Schematic diagram, motherboard left

179-16B30-B-4

Components layout

179-16B41-B-3

Partslist

179-16B31-B-3

Schematic diagram, limiter

179-16C30-B-3

Components layout

179-16C41-B-3

Partslist

179-16C31-B-3

Schematic diagram, compressor

179-16D30-A-3

Components layout

179-16D41-A-3

Partslist

179-16D31-A-3

Schematic diagram, noise gate

179-16E30-B-3

Components layout

179-16E41-B-3

Partslist

179-16E31-A-4

Schematic diagram, meter module

179-16F30-A-4

Components layout

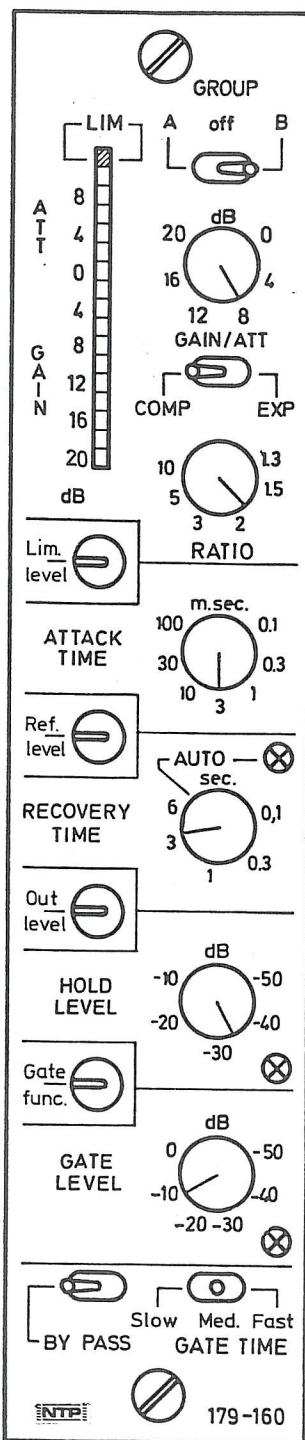
179-16F41-A-4

Partslist

179-16F31-A-3

Mechanical parts

179-1604-A-3



Pos.:	Antal:	Materiale:	Behandl.:	Del af
Målestok :				
Tolerance: \pm mm				
Tegnet : 22-2-79 JS				
Godkendt :				
Revideret :	1			
Compressor 179 160				NTP ELEKTRONIK A/S
Frontplate Lay-out.				179-1609-A-4

General:

Supply voltage	:	22 - 32V DC
Current consumption	:	approx. 130 mA
Input impedance, balanced floating	:	10 kOhms $\pm 10\%$
Input common mode rejection ratio	:	> 60 dB
Input overload level	:	+21 dBu
Output impedance, balanced floating	:	less than 40 Ohms, typ 30 Ohms
Min. load impedance	:	300 Ohms (U_{out} max. = +19 dBu)
Output overload level at $f \geq 30Hz$:	+21 dBu ($R_L > 1k\Omega$)
" " " " f = 15Hz	:	+15 dBu
Basic gain, adjustable	:	0 to +12dB
Frequency range (0.3 dB points)	:	40 Hz to 15 kHz
Distortion (40 Hz to 15 kHz)	:	less than 0.1% THD (Gain < 15dB, $U_{out} < +15dBu$)
Output noise (0dB gain)	:	-89 dBu rms 20 Hz to 22kHz (See Note 1) -78 dBu psh. Peak (CCIR-468-1)

Compressor section:

Ref. level, adjustable	:	-8 dBu to +15 dBu
Max. gain/attenuation below threshold, adjustable	:	0 to 20 dB
Compression ratio, adjustable	:	1.3:1 to 20:1
Expansion ratio, adjustable	:	1.25 to 1:1.9
Attack time, adjustable	:	0.1 ms to 100 ms
Recovery time, adjustable	:	0.1s to 6 s
Auto position, dual time constants	:	programme dependant
Recovery delay	:	programme controlled, frequency dependant.
Recovery hold level, adjustable	:	10 dB to 50 dB below actual operating level
Control voltage, output/input	:	1 V per 5 dB; Maximum number of compressors connected in a group = 10

Limiter section:

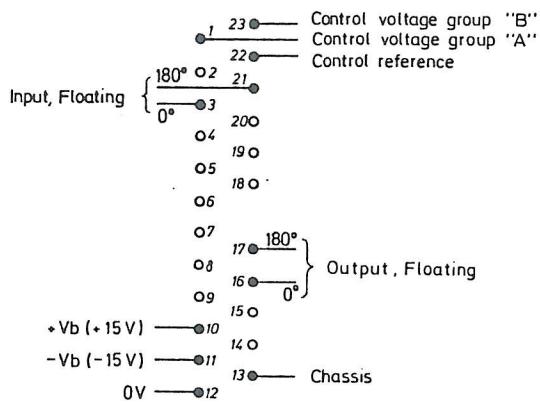
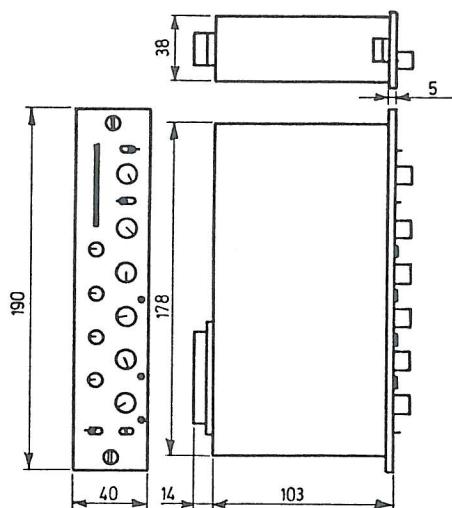
Lim. threshold level adjustable	:	0 dBu to +15 dBu output level
Peak limitation level	:	3 dB above threshold level (at 10 dB lim.)
Attack time	:	1.5 ms combined with clipping circuit
Recovery time	:	0,5 s per 10 dB

Gate, section

Threshold level, adjustable	:	0 dBu to -50 dBu input level
Gate attenuation, adjustable	:	0 dB to 20 dB
Expansion ratio	:	1 : 2
Attack time (for increasing input level)	:	approx. 1 ms
Recovery time (for decreasing input level)	:	selectable 20 ms, 100 ms, 500 ms.

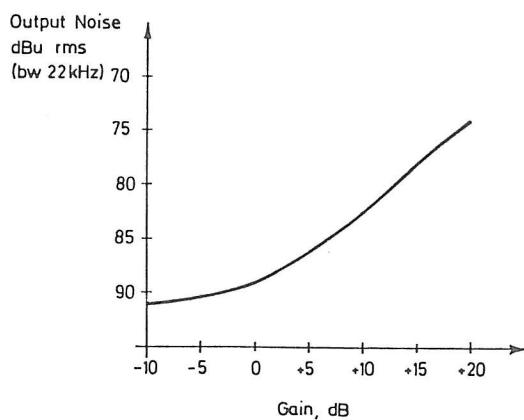
Mechanical:

Connector : Tuchel 2700-000
Mechanical outline : See drawing



Mating connector: Tuchel 2701-000
seen from soldering side

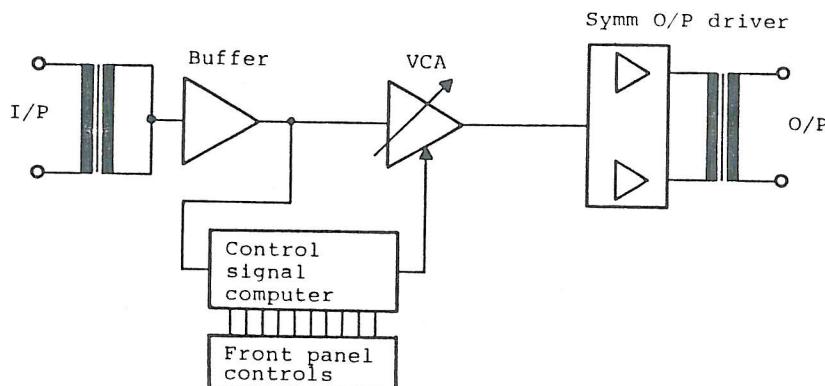
Note 1.



The NTP compressor 179-160B combines functions not normally found in one single unit. The heart of the compressor is a very high quality voltage controlled amplifier, (VCA). Because of the extremely precise regulation characteristics of the VCA used, advantage can be taken of the "forward regulation" principle. That is to say, the control voltage can be derived from the input signal, rather than from the output signal; which allows for a more complex and accurate control voltage computation.

The simplified block-schematic diagram below, shows this principle.

Fig. 1



For ease of use as a "users reference manual", the following text, describing the individual functions of the compressor refers to the mechanical lay-out as shown on page 5.
At the end of each section in the text, there is a suggested setting to be used as a "start-point".

1. "BY PASS".

The BY PASS switch simply disconnects the VCA control voltage from the VCA. In this way, a click free switch-off of all the dynamic gain control functions is achieved.

As all the gain computing electronics remain connected to the input signal, the att/gain meter and the dynamic controls, (with the exception of OUT LEVEL), may be adjusted without affecting the signal path. Also, the control voltage is still active and can be used to control another compressor or other device.

Setting: ON.

2. "GAIN/ATT"

The GAIN/ATT control sets the maximum gain or attenuation imposed on signals below the compressor threshold level, in the range 0dB to 20dB.

Most compressors have controls only for "threshold", "ratio" and "output level". The amount of compression or expansion required is thus primarily adjusted by "ear".

However, with the NTP 179-160, the amount of gain or attenuation required for a particular input signal, can be predicted by the operator. If for instance the console level meter indicates that the low level passages need 8dB of gain, then the GAIN/ATT control is simply set at 8dB. See figure 4 and section 7.

Suggested setting: 8dB.

3.4. "ATT/GAIN METER" ; "LIM"

The 16 segment LED meter monitors the VCA voltage and thus reads relative gain or attenuation caused by any or all functions in the module.

Gain caused by the output level control is not indicated.

The uppermost LED (the red LED) is not part of the meter, but is purely an indicator for, when the limiter is in operation.

5. "COMP/EXP".

The COMP/EXP switch selects either compression mode or expansion mode of operation. Theoretically, expansion, is the inversion of compression. So that, if a certain signal level at the input causes a gain of 6 dB when the unit is switched to the compression mode, then the same signal level at the input will cause an attenuation of 6dB, when the unit is switched to the expansion mode. Note that due to mathematical reasons, an exact inversion of the ratio slopes cannot be achieved. (See figure 4, e.g. the +10dB slope in the compression mode is different from the -10dB in the expansion mode).

Suggested setting: "COMP"

6. "RATIO"

The RATIO control, sets the compression or expansion slope, in the range 1.3:1 to 10:1 for compression and 1:1.25 to 1:1.9 for expansion. The scale marked on the front panel of the module is true for compression only, and the table below shows the relationship between the printed scale and the actual expansion ratios.

Compression Ratio	1.3:1	1.5:1	2:1	5:1	10:1
Expansion Ratio	1:1.25	1:1.3	1:1.5	1:1.8	1:1.9

Also refer to figure 4 on the curve sheet and section 5.

Suggested setting: 2:1

7. "REF LEVEL"

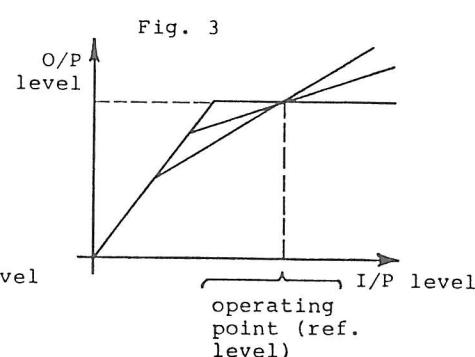
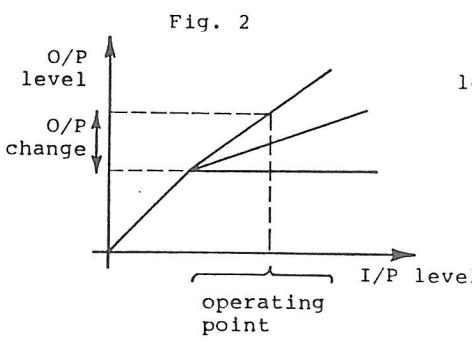
REF LEVEL is defined as the input signal level for which the compressor will impose no relative gain or attenuation (independant of ratio setting). Therefore the REF LEVEL control is set such that the att/gain meter reads 0dB for a normal input level being sent from the preceding equipment. During this adjustment, "LIM LEVEL" should be set at a level high enough to prevent activating the lim. function (see 4. "LIM").

The REF LEVEL should be set before the module is used for any programme control.

Suggested setting: Ref. mark (+6dBu).

Additional information.

While most compressors have a threshold and a ratio control, for a particular operating point, a change in the ratio control will cause a change in the output level. This means that the operator will have to compensate for this change by readjusting the output level control. This is shown in figure 2 below.



In contrast to this, the 179-160 electronics allow the output to remain constant for any ratio setting, as the characteristic curves all pass through the same point, for a given operating point, provided that the input operating level is equal to the REF LEVEL.

8. "OUT LEVEL"

The OUT LEVEL control provides 0 to 12dB of gain and is used as a normal "gain-make-up" control, so that the output from the module will "level match" the succeeding system.

Suggested setting: Ref. mark (0dB).

9. "LIM LEVEL"

The threshold level of the limiter can be set by the LIM LEVEL control. The attack and recovery times of the limiter are fixed and are quite independant of all the selected compressor time constants.

The limiter function is provided with an instant clipping circuit which ensures "soft" clipping of fast signal peaks and will only overshoot 3dB above the static limiter threshold.

The LIM LEVEL is not dependant on the output level setting.

Suggested setting: Ref. mark (+9dBu).

10. "ATTACK TIME"

The ATTACK TIME control, sets the time taken by the compressor or expander to respond to an input signal which is suddenly applied, before the function takes effect. This can be varied from 0.1 milliseconds (very fast) to 100 milliseconds (slow). If the attack time is fast, the function will be applied almost immediately, even to a signal of short duration.

The figures printed on the scale are derived from the following definition:

The duration of a tone-burst required for 7dB of gain reduction, provided that the tone burst amplitude is such that a continuous signal having the same amplitude would cause 10dB of gain reduction.

Suggested setting: 3mS.

11.12. "RECOVERY TIME".

The RECOVERY TIME can be varied between 0.1 seconds and 6 seconds. Within this range, the recovery takes place linearly. When the RECOVERY TIME control is set at the maximum clockwise position, a programme dependant dual time constant recovery function is selected. When this occurs, the light emitting diode (LED), marked AUTO is illuminated.

Generally, when the input signal has a short duration, the recovery time can also be short. But when the input signal is of long duration, the recovery time should be set slow, or in the AUTO mode which will accomodate a wide range of input signal duration.

Additional Notes:

Normally, in a compressor, short recovery times are to be avoided when low frequencies are present, due to distortion. To overcome this problem and to some extend allow for short recovery times on low frequency signals, an automatic, frequency dependant, recovery delay circuit has been incorporated. This circuitry inhibits the recovery function for a time equivalent to 2½ periods of the predominant frequency content of the signal. In this way distortion is minimized on most signals containing low frequencies when a short recovery time is required for artistic reasons.

Note that the printed scale for recovery times is derived from the same definition as in section 10.

Suggested setting: 3S or "AUTO"

13.14. "HOLD LEVEL".

The HOLD LEVEL function is particularly useful on programme material such as speech, etc. When a compressor is being used on speech, in the normal way, and the speaker stops to breath or to turn over a page in the script, then the compressor will start to recover before the speech begins again. This can cause the "pumping" effects so often associated with speech recording. However, if a HOLD LEVEL is selected such that it is just below the total dynamic range of speaker, (before compression is introduced), then the normal recovery function is inhibited, and the gain will remain constant. The selected recovery function is re-established when the speech continues.

The threshold level selected by the HOLD LEVEL control operates with a "floating" or "dynamic" reference. This means that even if the average level of the incoming signal varies above or below the initial average level, the setting of the HOLD LEVEL can remain the same, as this setting is not level dependant.

The associated LED 14, indicates when the hold function is activated. The threshold of this function is variable from -10dB to -50dB.

Suggested setting: -10dB for speech, -30dB for music.

15. "GROUP"

The internal gain control voltage generated by the unit may, (by means of the GROUP switch), be connected to one of two terminals on the rear connector. The terminal to which the control voltage is connected is denoted by position "A" or "B". The switch is "centre-off".

If two or more compressors are interconnected in this way, a control voltage "group" is made, within which the gain of all the compressors involved is defined by the one that generates the highest control voltage. The polarity of the control voltage is unaffected by the COMP/EXP switch and therefore the "grouping" can be used either to achieve conventional gain tracking, (by equal settings of GAIN/ATT control on each unit), or one compressor operating on COMP mode, can be used to gate another compressor in EXP mode.

It should be noted that the gain control voltage is generated by the compressor section only, and that gain variations caused by the limiter or gate sections within a specific unit do not effect the gain in the "grouping".

The compressor operates as a control voltage source, even if the compressor function itself is switched "off" by the BY PASS switch.

The maximum number of units connected in the group should not exceed ten.

Suggested setting: "OFF"

16.17. "GATE LEVEL"

The gate threshold level is set by the GATE LEVEL control, in the range, 0dB to -50dB, and the LED indicates, when the modulation level is below the threshold level, i.e. the LED is "on", when the gate turns the incoming programme "off".

See figure 6 in the curve sheet.

Suggested setting: -50dB.

18. "GATE FUNCTION"

The GATE FUNCTION control sets the maximum attenuation imposed on input signals below the gate threshold level. The actual over all gain/attenuation will be the sum of compressor gain (set by control 2) and the gate attenuation. Figure 7 on the curve sheet shows the static input/output characteristics obtainable for various settings of the GATE FUNCTION control.

Suggested setting: Ref. Mark 10dB.

19. "GATE TIME"

The three position toggle switch for GATE TIME controls the speed, with which the gate becomes active again (closes) after a signal which has opened the gate, decays below the gate threshold. If the signal decays quickly, then the gate time can be fast. But if the signal decays slowly, then the gate time should be slow, unless a special effect is required.

The attack time for the gate is fixed and is extremely fast.

Suggested setting: "MED"

FIG. 4

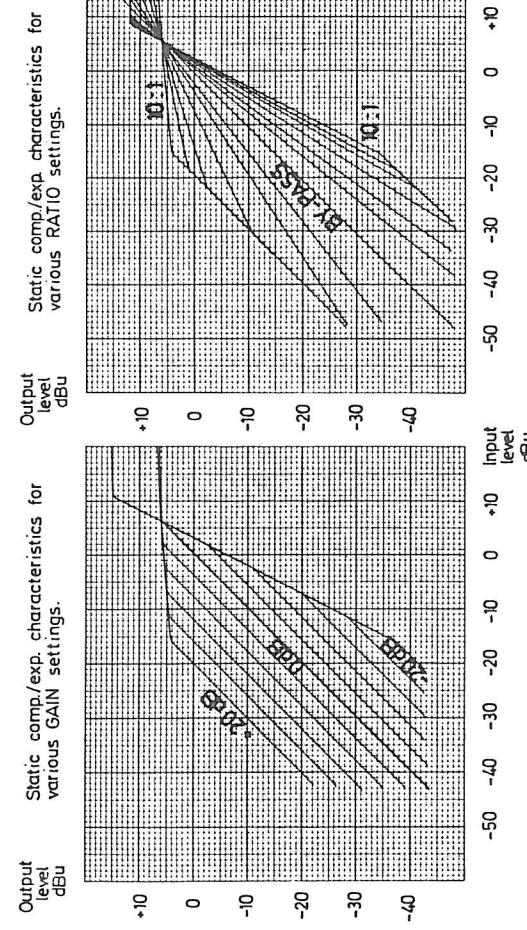


FIG. 5

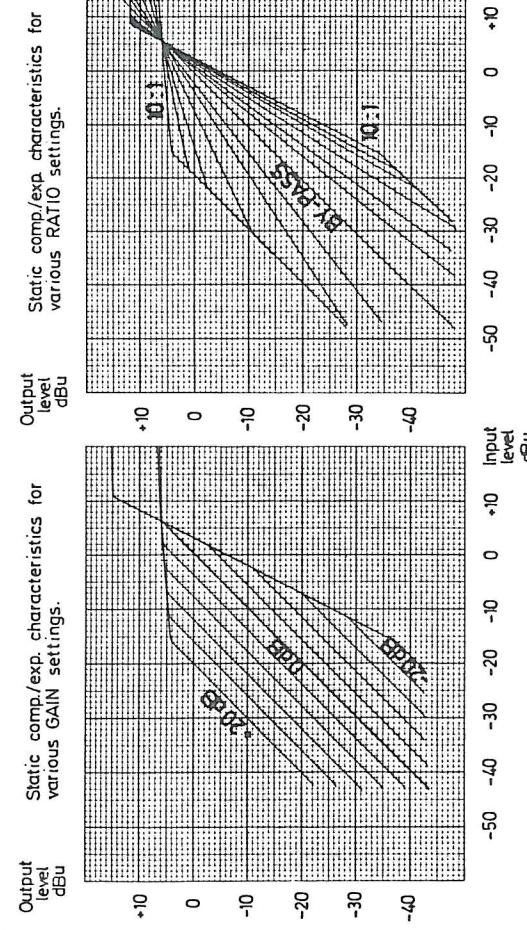
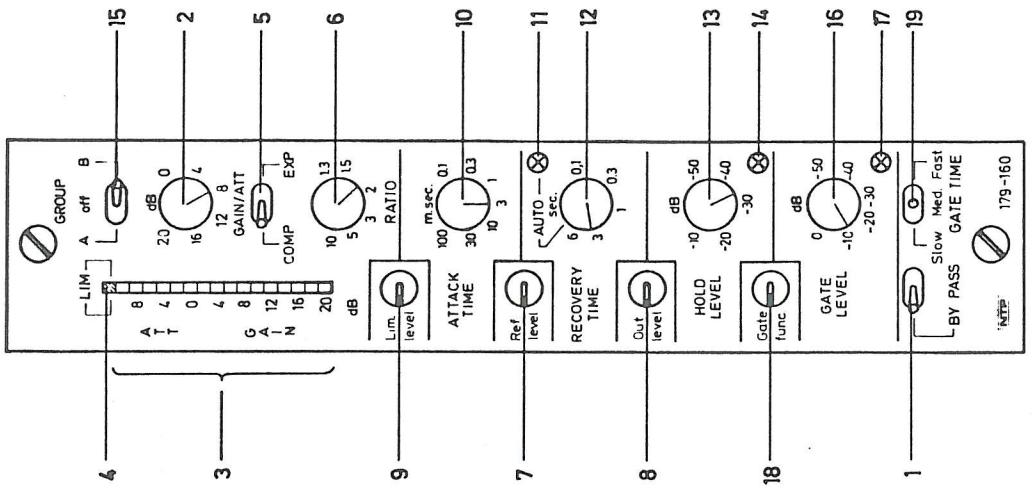


FIG. 6

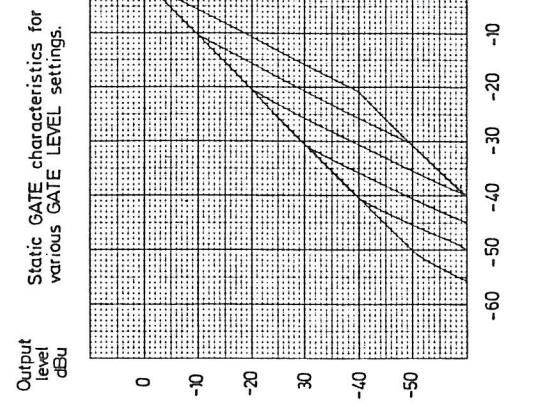
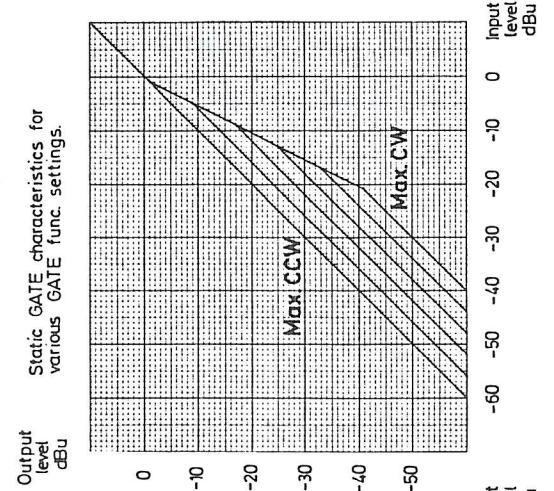


FIG. 7



Retteleser

Compressor

179-160 B

Users manual, page 5 of 5.

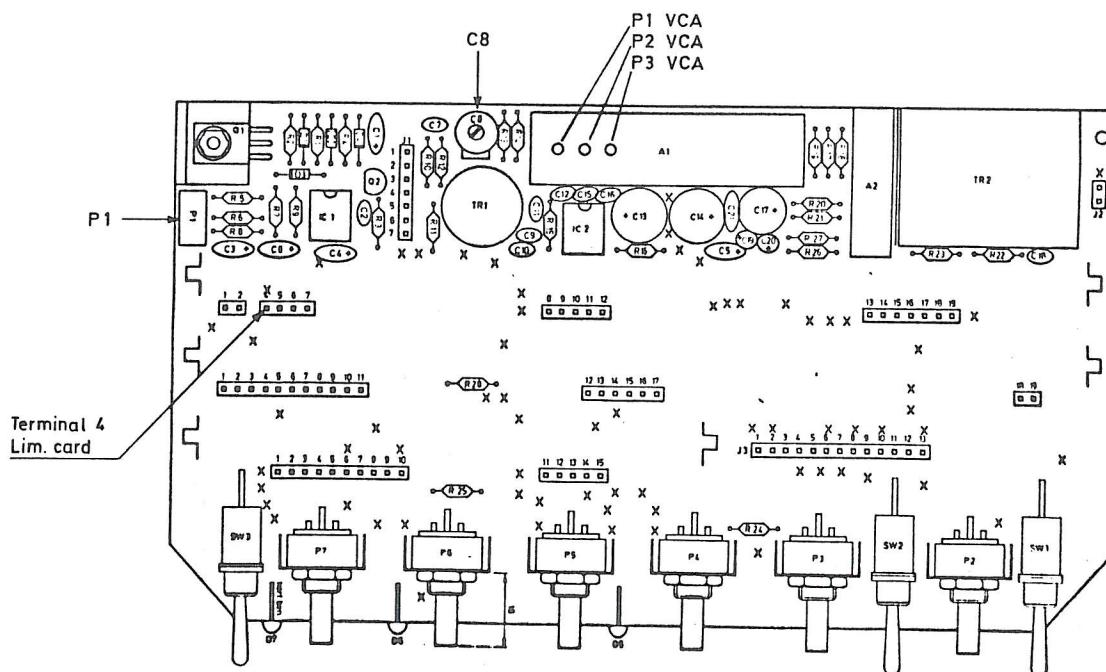
Mälestok :
Tolerance : <input type="text"/> mm
Tegnet : 31.10.80 JS
Godkendt:
Revideret:

NTTP
NTTP ELEKTRONIK A/S
179-1613-C-3

Normally the compressor/expander will stay correctly adjusted after it leaves the factory.

When a component has failed and been replaced, it may be necessary to make certain adjustments.

Positions of adjustment points:



Internal supply voltage adjustment.

The internal supply voltage is adjusted on P1 to 20.00 volt measured at terminal 4 on the lim.card. Check that the internal center voltage is $10V \pm 20\text{ mv}$, measured at the housing of the input transformer TR1.

Common mode rejection ratio adjustment.

This adjustment should be carried out with the compressor in "By-pass" mode. Input signal +20dBu (7.75v) 15kHz is connected to both input terminals (3 and 21) which are shorted together, referring to terminal 11 (- supply). Capacitor C8 is adjusted to minimum output, i.e. best CMRR.

VCA adjustments.

These adjustments should be carried out with the compressor in "By-pass" mode. Input signal +6 dBu (1.55v) 1kHz.

Sequence for adjustment: P2, P1 and P3.

P2 adjustment.

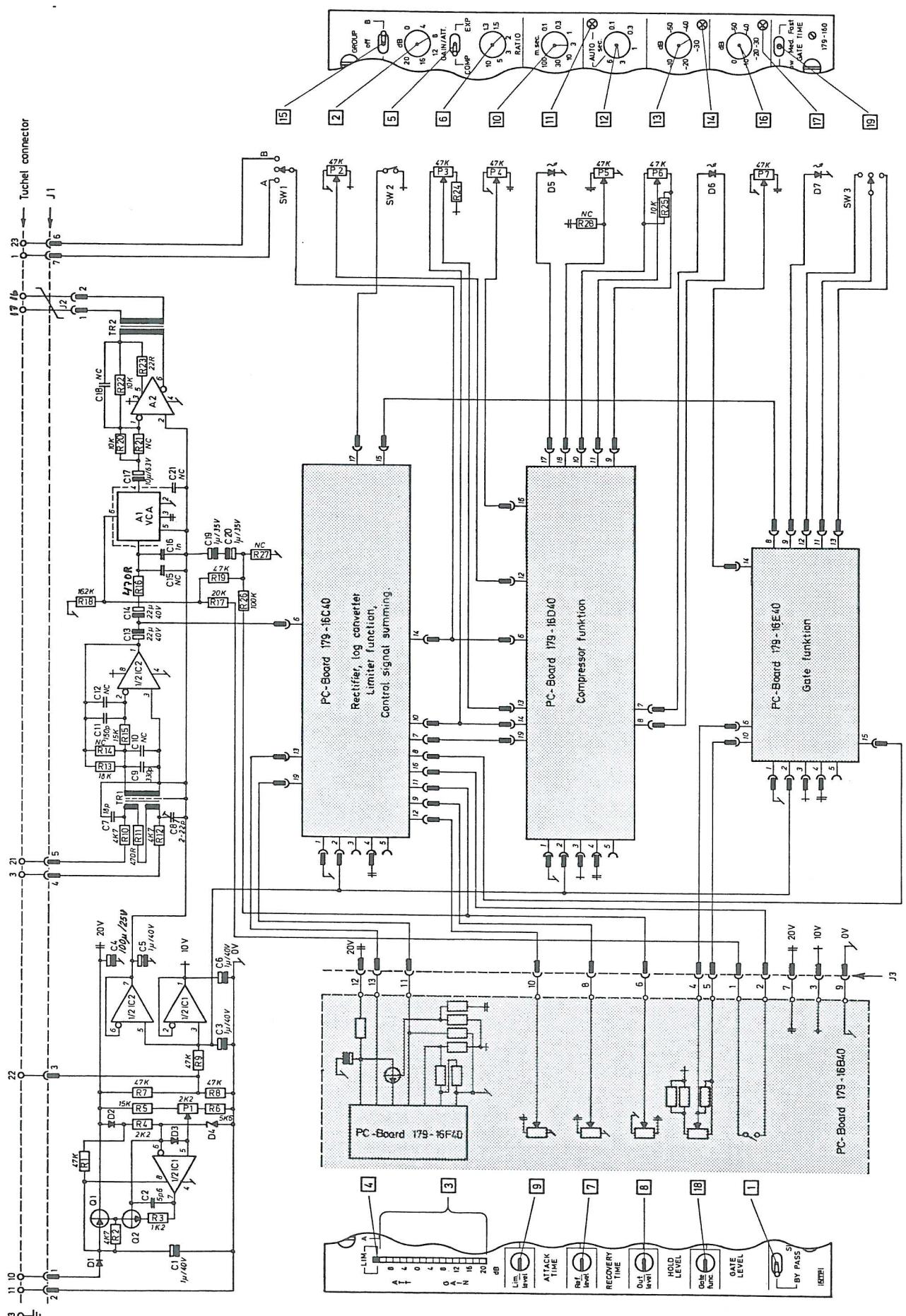
Output level control is set to max. CCW position (0dB gain), and P2 is adjusted to minimum distortion (THD).

P1 adjustment.

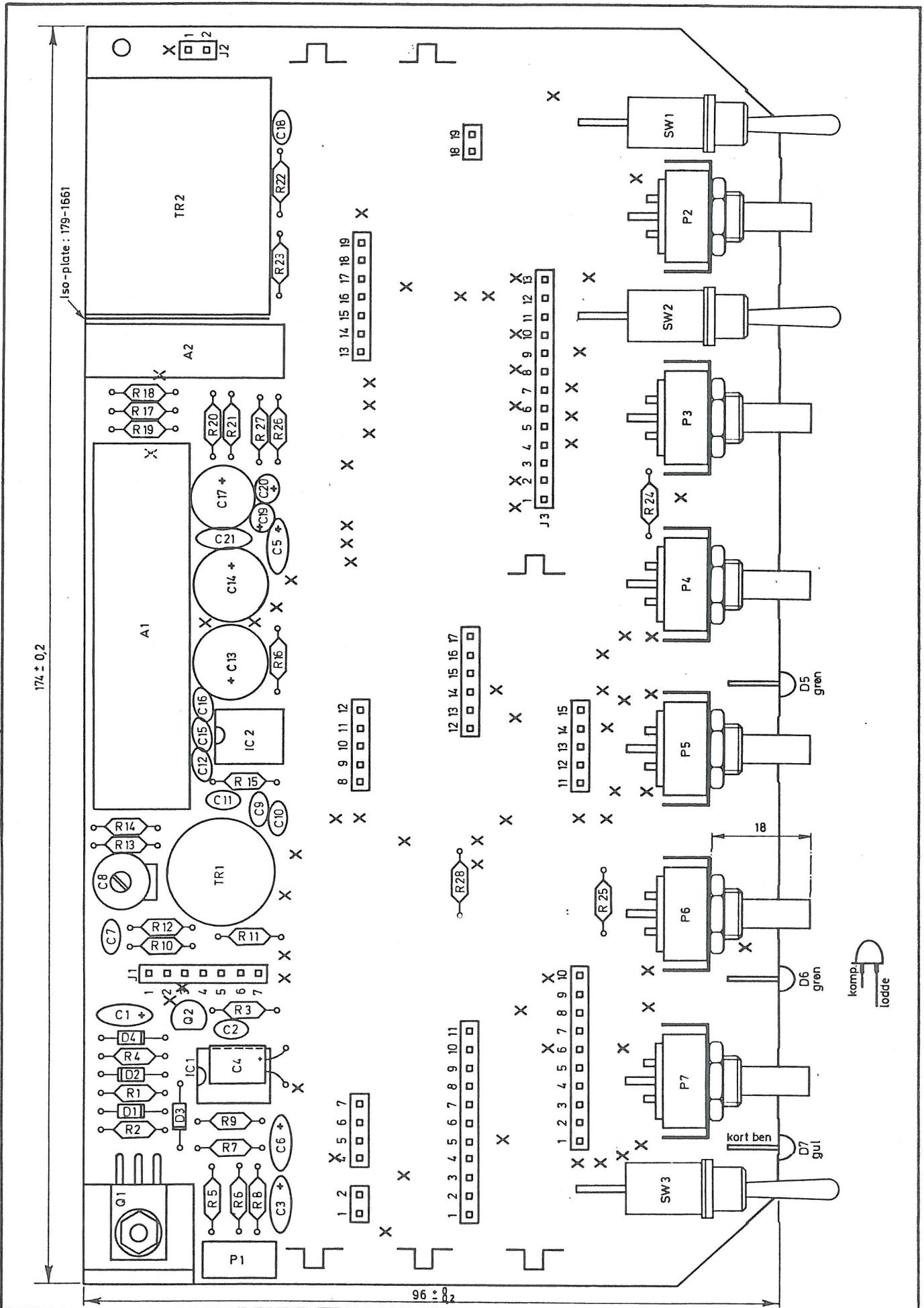
Output level control is turned fully CW (12dB gain), and P1 is adjusted to minimum distortion (THD).

P3 adjustment.

Output level control in fully CW position (12dB gain). P3 is adjusted to minimum second harmonic distortion.



Pos.	Antal	Materiale	Behandl.	Del af
Målestok:				
Tolerancé:	± mm			
Tegnet:	3.7.79 JS			
Godkendt:				
Revideret:	6			
Compressor 179-160				
Motherboard, right				
Schematic Diagram				
NTP NTP ELEKTRONIK A/B				
179-16A 30-A-2				



Målestok :	
Konstruktør :	BJ.
Tegnet :	5.7.79 JS
Godkendt :	
Revideret :	1

Compressor 179-160
Motherboard, right
Component Lay-out

Multi v3.09.92 15: 0

Side 1

NTP 179-16A31 MOTHERBOARD RIGHT

PARTS LIST

REF. NO.	NTP-ID.	DESCRIPTION	QTY	PARTS LIST	179-16A31	Side 1
1	KMM-0245	MODULE CONNECTOR, 2-PIN MALE	3	CANNON G09 A4.5	KMM-0245	
2	KMM-0445	MODULAR CONNECTOR 4-P PIN MALE	1	CANNON G09 4.5	KMM-0445	
3	KMM-0545	MODULAR CONNECTOR 5-PIN MALE	2	CANNON G09 A4.5	KMM-0545	
4	KMM-0645	MODULAR CONNECTOR, 6-PIN MALE	1	CANNON G09 A4.5	KMM-0645	
5	KMM-0745	MODULAR CONNECTOR 7-P PIN MALE	2	CANNON G09 A4.5	KMM-0745	
6	KMM-1045	MODULE CONNECTOR, 10-PIN MAL	1	CANNON G09 A4.5	KMM-1045	
7	KMM-1145	MODULE CONNECTOR, 11-PIN MALE	1	CANNON G09 A4.5	KMM-1145	
8	KMM-1345	MODULAR CONNECTOR, 13-PIN MAL	1	CANNON G09 A4.5	KMM-1345	
9	179-1653	CARD GUIDE FOR SUBUNITS	6	179-1653-A-4	179-1653	
10	179-1659	SCREEN FOR VCA MODULE	1	179-1659-A-4	179-1659	
11	179-1660	COOLING SQUARE	1	179-1660-A-4	179-1660	
12	179-1661	ISO PLATE	1	179-1661-A-4	179-1661	
13	179-16A40	P.C.BOARD	1	179-16A40-A-4	179-16A40	
14	250-5150	INSULATIONSPLATE	1	250-5150-A-4	250-5150	
15	MSC-2508	SCREW 2,5 X 8 CHUZ	1	HFC 9033	2.5 X 8 CHJ	
16	MMA-0025	NUT STEEL 2.5 MM	1	HFC-9032	6 KT	
17	QBA-0025	ISOLATION WASHER TO-126	1	DENKA	BFG-20D5	
A 1	250-520	VCA MODULE	1	250-5241-A-4	250-520	
A 2	250-2031D	OUTPUT DRIVER, PCB UNIT	1	250-2041-D-4	250-2031D	
C 1	CFI-0710	CAP ELECTROLYTIC 1UF / 40V	1	PH 2222 122	2222 122	57108
C 2	CCB-0156	CAP CERAMIC 5.6PF / 100V	1	PH 2222 632	2222 632	57568
C 3	CFI-0710	CAP ELECTROLYTIC 1UF / 40V	1	PH 2222 122	2222 122	57108
C 4	CGG-0910	CAP ELECTROLYTIC 100UF / 25V	1	PANASONIC SU	100UF / 25V	
C 5	CFI-0710	CAP ELECTROLYTIC 1UF / 40V	1	PH 2222 122	2222 122	57108
C 6	CFI-0710	CAP ELECTROLYTIC 1UF / 40V	1	PH 2222 122	2222 122	57108
C 7	CCB-0218	CAP CERAMIC 18PF / 100V	1	PH 2222 632	2222 632	58189
C 8	CVB-0001	TRIMCAPACITOR 2-22PF	1	PH 2222 808	2222 808	11229
C 9	CCB-0333	CAP CERAMIC 330PF / 100V	1	PH 2222 632	2222 632	70331
C 11	CCB-0315	CAP CERAMIC 150PF / 100V	1	PH 2222 632	2222 632	70151
C 13	CFG-0822	CAP ELECTROLYTIC 22UF / 40V	1	SIEMENS B41316	B41316 A7226 V	
C 14	CFG-0822	CAP ELECTROLYTIC 22UF / 40V	1	SIEMENS B41316	B41316 A7226 V	
C 16	CCA-0410	CAP CERAMIC 1NF / 63V	1	PH 2222 629	2222 629	02102
C 17	CFH-0810	CAP ELECTROLYTIC 10UF / 63V	1	SIEMENS B41316	B41316 A8106 V	

NTP Parts List
as of date 3 - 9 1992.
Page 1 of 3.

List No.: 179-16A31-A-4

NTP 179-16A31 MOTHERBOARD RIGHT

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
C 19	CTF-0710	CAP TANTALUM	1UF / 35V	1	ERO ETP
C 20	CTF-0710	CAP TANTALUM	1UF / 35V	1	ERO ETP
D 1	QDS-4002	DIODE, SILICONIUM		1	F-126
D 2	QDS-4148	DIODE, SILICONIUM		1	QDS-4148
D 3	QDS-4148	DIODE, SILICONIUM		1	QDS-4148
D 4	QZR-0062	REFERENCE DIODE		1	DO-34
D 5	OES-0108	LED GREEN	1x1	1	SIEMENS CQV 15
D 6	OES-0108	LED GREEN	1x1	1	SIEMENS CQV 15
D 7	OES-0107	LED YELLOW	1x1	1	SIEMENS CQV 13
IC 1	ILA-4559	OP-AMP		1	RAYTH. 4559NB
IC 2	ILA-353	OP-AMP		1	NAT. LF353
P 1	RFD-4200	TRIM POTENTIOMETER	2K	1	BOURNS 3386
P 2	RFN-5470	POTENTIOMETER	4.7K LIN 5%	1	RUWIDO 620-312
P 3	RFN-5470	POTENTIOMETER	4.7K LIN 5%	1	RUWIDO 620-312
P 4	RFN-5470	POTENTIOMETER	4.7K LIN 5%	1	RUWIDO 620-312
P 5	RFN-5470	POTENTIOMETER	4.7K LIN 5%	1	RUWIDO 620-312
P 6	RFN-5470	POTENTIOMETER	4.7K LIN 5%	1	RUWIDO 620-312
P 7	RFN-5470	POTENTIOMETER	4.7K LIN 5%	1	RUWIDO 620-312
Q 1	QBP-14010	TRANSISTOR, PNP		1	TO-126
Q 2	QBN-0237	TRANSISTOR, NPN		1	TO-92
R 1	RCA-5470	RESISTOR CARBON	47K 0.66W 5%	1	MBB 0207
R 2	RCA-4470	RESISTOR CARBON	4K7 0.66W 5%	1	MBB 0207
R 3	RCA-4120	RESISTOR CARBON	1K2 0.66W 5%	1	MBB 0207
R 4	RCA-4120	RESISTOR CARBON	1K2 0.66W 5%	1	MBB 0207
R 5	RCA-5150	RESISTOR CARBON	1.5K 0.66W 5%	1	MBB 0207
R 6	RCA-4560	RESISTOR CARBON	5K6 0.66W 5%	1	MBB 0207
R 7	RCA-5470	RESISTOR CARBON	47K 0.66W 5%	1	MBB 0207
R 8	RCA-5470	RESISTOR CARBON	47K 0.66W 5%	1	MBB 0207
R 9	RCA-5470	RESISTOR CARBON	4.7K 0.66W 5%	1	MBB 0207
R 10	RCA-4470	RESISTOR CARBON	4K7 0.66W 5%	1	MBB 0207
R 11	RCA-3470	RESISTOR CARBON	470R 0.66W 5	1	MBB 0207
R 12	RCA-4470	RESISTOR CARBON	4K7 0.66W 5%	1	MBB 0207
R 13	RCA-5180	RESISTOR CARBON	18K 0.66W 5%	1	MBB 0207

NTP Parts List
as of date 3-9-1992.
Page 2 of 3.

List No.: 179-16A31-A-4
Page 2 of 3.

Multi 03.09.92 15: 0

NTP 179-16A31 PARTS LIST 179-16A31

Side 3

NTP MOTHERBOARD RIGHT

PARTS LIST

REF. NO. NTP-ID. DESCRIPTION QTY MANUFACT/DRW.NO. PART NO.

R 15	RCA-5150	RESISTOR CARBON 1.5K 0.66W 5%	1	MBB 0207
R 16	RCA-3470	RESISTOR CARBON 4.70R 0.66W 5	1	MBB 0207
R 17	RMA-5200	RESISTOR METAL 2.0K 0.4W 1%	1	PHILLIPS MR25
R 18	RMA-6162	RESISTOR METAL 1.62K 0.4W 1%	1	PHILLIPS MR25
R 19	RCA-5470	RESISTOR CARBON 4.7K 0.66W 5%	1	MBB 0207
R 20	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207
R 22	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207
R 23	RCA-2220	RESISTOR CARBON 22R 0.66W 5%	1	MBB 0207
R 24	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207
R 25	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207
R 26	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207
SW 1	STC-0131	TOGGLE SWITCH 3PDT	1	APR 5439
SW 2	STC-0121	TOGGLE SWITCH SPDT	1	APR 5436
SW 3	STC-0131	TOGGLE SWITCH 3PDT	1	APR 5439
TR 1	LTB-0003	TRANSFORMER PLUGIN 1:3	1	BEYER 310
TR 2	LTL-0001	OUTPUTTRANSFORMER	1.2	LUNDHAL 5001

NTP Parts List

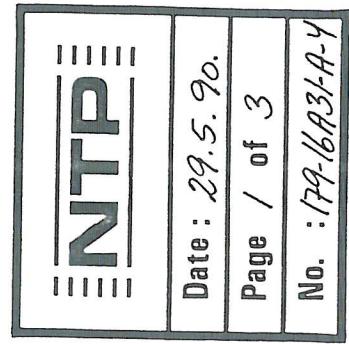
as of date 3-9-1992.

Page 3 of 3.

List No.: 179-16A31-A4

NTP 179-16A31 MOTHERBOARD RIGHT

REF. NO	NTP-ID.	DESCRIPTION	QTY	PARTS LIST	PARTS LIST	MANUFACT/DRW.NO.	PART NO.
R 23	RCA-2220	RESISTOR CARBON 22R 0.66W 5%	1	MBB 0207	MBB 0207	22R	
R 11	RCA-3470	RESISTOR CARBON 470R 0.66W 5%	1	MBB 0207	MBB 0207	470R	
R 16	RCA-3470	RESISTOR CARBON 470R 0.66W 5%	1	MBB 0207	MBB 0207	470R	
R 3	RCA-4120	RESISTOR CARBON 1K2 0.66W 5%	1	MBB 0207	MBB 0207	1K2	
R 4	RCA-4120	RESISTOR CARBON 1K2 0.66W 5%	1	MBB 0207	MBB 0207	1K2	
R 2	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207	4K7	
R 10	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207	4K7	
R 12	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207	4K7	
R 6	RCA-4560	RESISTOR CARBON 5K6 0.66W 5%	1	MBB 0207	MBB 0207	5K6	
R 20	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	MBB 0207	10K	
R 22	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	MBB 0207	10K	
R 24	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	MBB 0207	10K	
R 25	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	MBB 0207	10K	
R 5	RCA-5150	RESISTOR CARBON 1.5K 0.66W 5%	1	MBB 0207	MBB 0207	1.5K	
R 15	RCA-5150	RESISTOR CARBON 15K 0.66W 5%	1	MBB 0207	MBB 0207	15K	
R 13	RCA-5180	RESISTOR CARBON 18K 0.66W 5%	1	MBB 0207	MBB 0207	18K	
R 1	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207	47K	
R 7	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207	47K	
R 8	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207	47K	
R 9	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207	47K	
R 19	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207	47K	
R 26	RCA-6100	RESISTOR CARBON 100K 0.66W 5%	1	PHILIPS MR25	PHILIPS MR25	2322 151 52003	
R 17	RMA-5200	RESISTOR METAL 20K 0.4W 1%	1	PHILIPS MR25	PHILIPS MR25	2322 151 51624	
R 18	RMA-6162	RESISTOR METAL 162K 0.4W 1%	1	BOURNS 3386	BOURNS 3386	3386H-1-202	
P 1	RFD-4200	TRIMPOTENTIOMETER 2K	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
P 2	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
P 3	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
P 4	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
P 5	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
P 6	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
P 7	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	RUWIDO 620-312	620 312 47KLIN	
C 2	CCB-0156	CAP CERAMIC 5.6PF/100V	1	PH 2222 632	PH 2222 632	2222 632 57568	
C 7	CCB-0218	CAP CERAMIC 18PF/100V	1	PH 2222 632	PH 2222 632	2222 632 58189	



Date : 29.5.90.

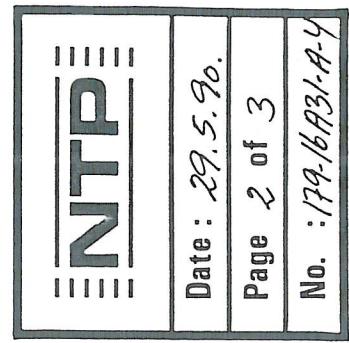
Page / of 3

No. : 179-16A31-A-4

NTP 179-16A31 MOTHERBOARD RIGHT

PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO. PART NO.
C 11	CCB-0315	CAP CERAMIC 150PF/100V	1	PH 2222 632
C 9	CCB-0333	CAP CERAMIC 330PF/100V	1	PH 2222 632
C 16	CCA-0410	CAP CERAMIC 1NF /63V	1	PH 2222 629
C 1	CFI-0710	CAP ELECTROLYTIC 1UF /40V	1	PH 2222 122
C 3	CFI-0710	CAP ELECTROLYTIC 1UF /40V	1	PH 2222 122
C 5	CFI-0710	CAP ELECTROLYTIC 1UF /40V	1	PH 2222 122
C 6	CFI-0710	CAP ELECTROLYTIC 1UF /40V	1	PH 2222 122
C 19	CTF-0710	CAP TANTALUM 1UF /35V	1	ERO ETP
C 20	CTF-0710	CAP TANTALUM 1UF /35V	1	ERO ETP
C 17	CFH-0810	CAP ELECTROLYTIC 10UF /63V	1	SIEMENS B41316
C 13	CFG-0822	CAP ELECTROLYTIC 22UF /40V	1	SIEMENS B41316
C 14	CFG-0822	CAP ELECTROLYTIC 22UF /40V	1	SIEMENS B41316
C 4	CGH-0910	CAP ELECTROLYTIC 100UF /25V	1	PANASONIC SU
C 8	CVB-0001	TRIMCAPACITOR 2-22PF	1	PH 2222 808
D 1	QDS-4002	DIODE, SILICON	1	F-126
D 2	QDS-4148	DIODE, SILICON	1	QDS-4148
D 3	QDS-4148	DIODE, SILICON	1	QDS-4148
D 4	QZR-0062	REFERENCE DIODE	1	DO-34
D 7	OES-0107	LED YELLOW 1x1	1	SIEMENS CQV 13
D 5	OES-0108	LED GREEN 1x1	1	SIEMENS CQV 15
D 6	OES-0108	LED GREEN 1x1	1	SIEMENS CQV 15
Q 2	QBN-0237	TRANSISTOR, NPN	1	TO-92
Q 1	QBP-14010	TRANSISTOR, PNP	1	TO-126
IC 2	LLA-353	OP-AMP	1	NAT. LF353
IC 1	LLA-4559	OP-AMP	1	RAYTH. 4559NB
A 2	250-2031D	OUTPUT DRIVER, PCB UNIT	1	250-2041-D-4
A 1	250-520	VCA MODULE	1	250-5241-A-4
TR 1	LTB-0003	TRANSFORMER PLUGIN 1:3	1	BEYER 310
TR 2	LTL-0001	OUTPUTTRANSFORMER	1.2	LUNDAHL 5001
SW 2	STC-0121	TOGGLE SWITCH SPDT	1	APR 5436
SW 1	STC-0131	TOGGLE SWITCH 3PDT	1	APR 5439
SW 3	STC-0131	TOGGLE SWITCH 3PDT	1	APR 5439
1	KMM-0245	MODULE CONNECTOR, 2-PIN MALE	3	CANNON G09 A45



Date : 29.5.90.

Page 2 of 3

No. : 179-16A31-A-4

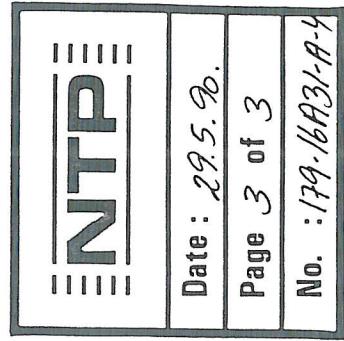
Multi 29.05.90 9: 9

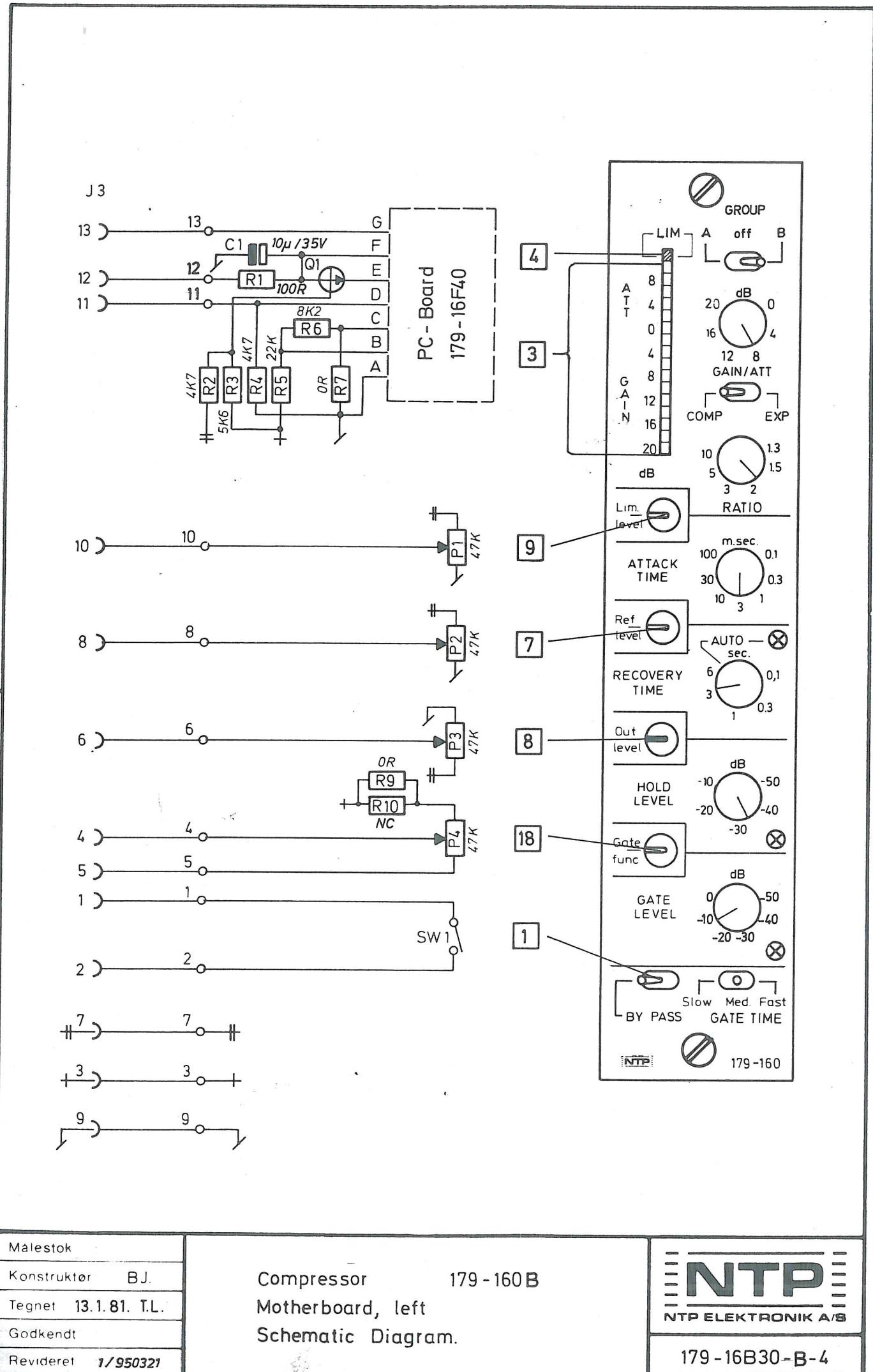
PAGE 3

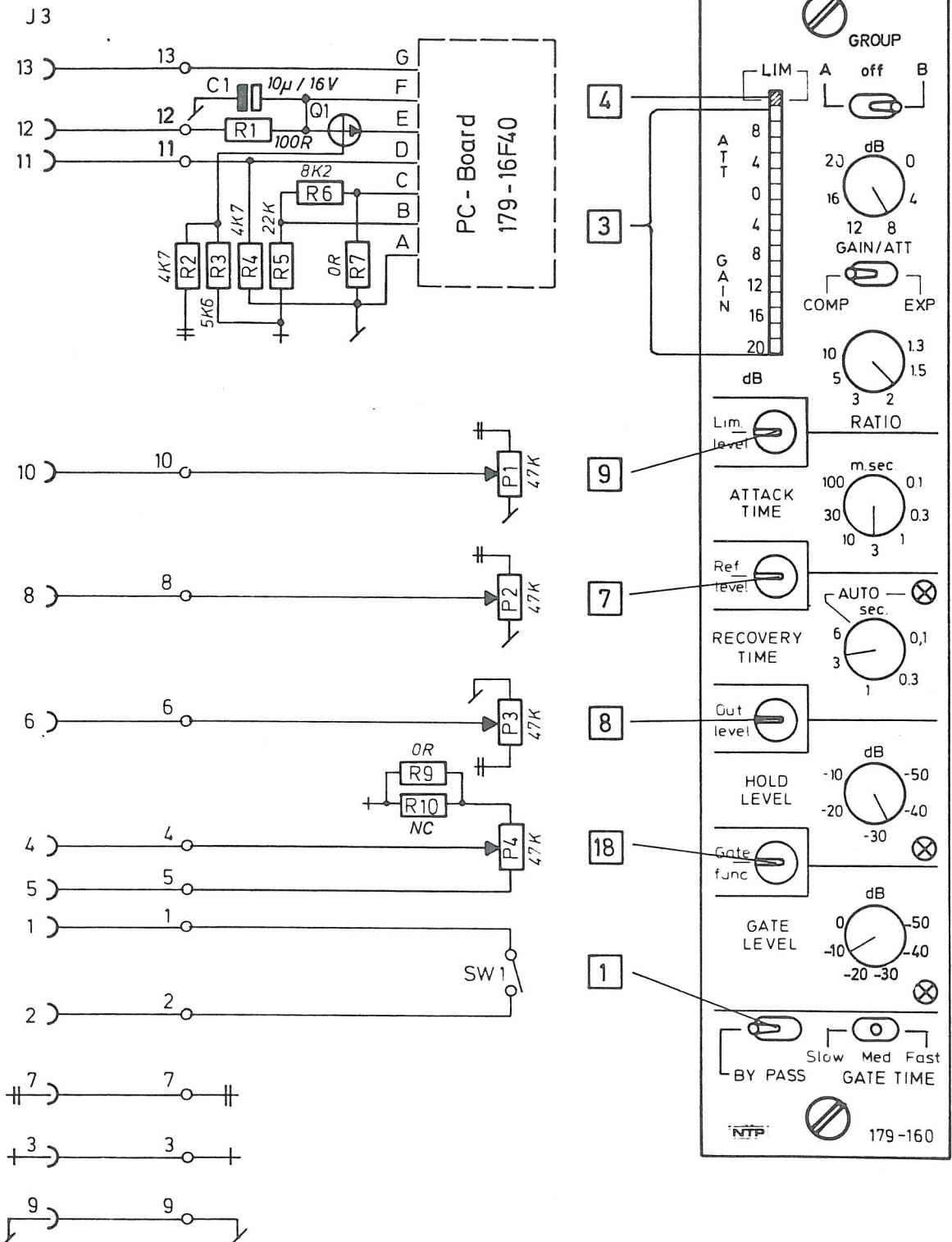
NTP 179-16A31 MOTHERBOARD RIGHT

REF. NO NTP-ID. DESCRIPTION QTY MANUFACT/DRW.NO. PART NO.

2	KMM-0445	MODULAR CONNECTOR 4-P MALE	1	CANNON G09 A45	KMM-0445
3	KMM-0545	MODULAR CONNECTOR 5-PIN MALE	2	CANNON G09 A45	KMM-0545
4	KMM-0645	MODULAR CONNECTOR, 6-PIN MALE	1	CANNON G09 A45	KMM-0645
5	KMM-0745	MODULAR CONNECTOR 7-P MALE	2	CANNON G09 A45	KMM-0745
6	KMM-1045	MODULE CONNECTOR, 10-PIN MALE	1	CANNON G09 A45	KMM-1045
7	KMM-1145	MODULE CONNECTOR, 11-PIN MALE	1	CANNON G09 A45	KMM-1145
8	KMM-1345	MODULAR CONNECTOR, 13-PIN MALE	1	CANNON G09 A45	KMM-1345
9	179-1653	CARD GUIDE FOR SUBUNITS	6	179-1653-A-4	179-1653
10	179-1659	SCREEN FOR VCA MODULE	1	179-1659-A-4	179-1659
11	179-1660	COOLING SQUARE	1	179-1660-A-4	179-1660
12	179-1661	ISO PLATE	1	179-1661-A-4	179-1661
13	179-16A40	P.C. BOARD	1	179-16A40-A-3	179-16A40







Malestok

Konstruktør BJ

Tegnet 13.1.81. T.L.

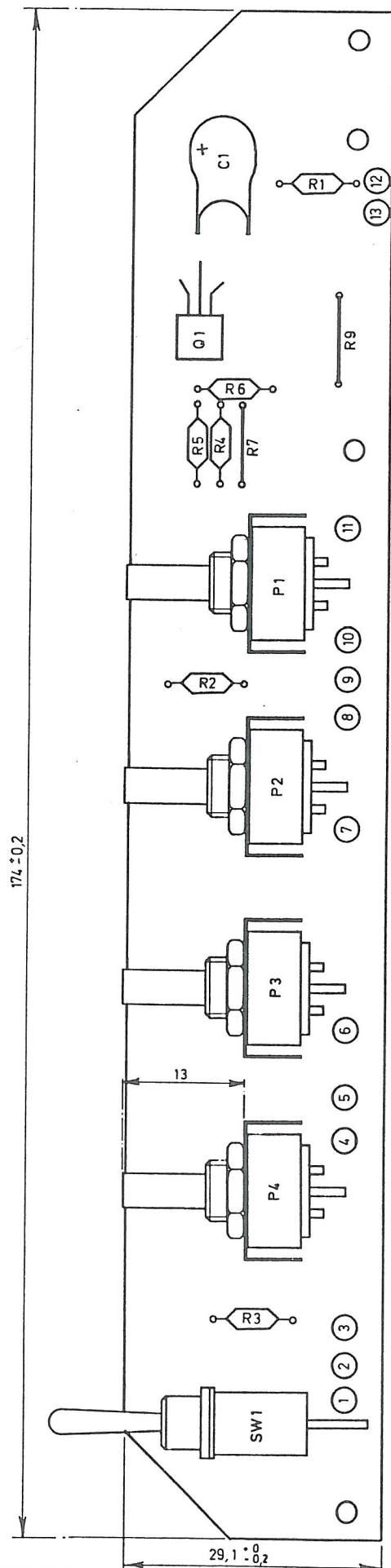
Godkendt

Revidert

Compressor 179-160B
Motherboard, left
Schematic Diagram.

NTP
NTP ELEKTRONIK A/B

179-16B30-B-4



Mølestok :	
Konstruktør:	BJ.
Tegnet :	13.1.81. T.L.
Godkendt :	
Revideret :	

Compressor 179-160 B
Motherboard, left
Component Lay-out.

NTP
NTP ELEKTRONIK A/S

179-16B41-B-3

NTP 179-16B31 MOTHERBOARD LEFT

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW. NO.	PART NO.
1	235-9001	KNOB	4	235-9001-A-4	235-9001
2	179-1690	BUSHING	2	179-1690-A-4	179-1690
3	KMB-0003	CRIMP W/GOLD FOR MOLEX CONN	13	MOLEX 2759GL 1	2759GL 1
4	KMF-1301	MOLEX CONN. 13P FEM	1	MOLEX 6471-13	6471 22-1-2136
5	179-16B40	P.C. BOARD	1	179-16B40-A-4	179-16B40
6	MSC-3003	SCREW 3 X 3 CHJZ	1	HFC 9033	3 X 3 CHJ
7	MSB-3006	SCREW BIX 3 X 6	2	BIX	LKCS 3 X 6
C 1	CGI-0810	CAP ELECTROLYTIC 10UF / 35V	1	PANASONIC K	10UF / 35V Ø5X7
P 1	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO	620-312 47KLIN
P 2	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO	620-312 47KLIN
P 3	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO	620-312 47KLIN
P 4	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO	620-312 47KLIN
Q 1	QBN-33716	TRANSISTOR, NPN	1	RUWIDO	620-312 47KLIN
R 1	RCA-3100	RESISTOR CARBON 100R 0.66W 5	1	TO-92	BC337-16
R 2	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207 100R
R 3	RCA-4560	RESISTOR CARBON 5K6 0.66W 5%	1	MBB 0207	MBB 0207 4K7
R 4	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207 5K6
R 5	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	MBB 0207 4K7
R 6	RCA-4820	RESISTOR CARBON 8K2 0.66W 5%	1	MBB 0207	MBB 0207 22K
R 7	RWA-0000	STRAP 0.0 OHMS	1	RWA-0000	RWA-0000
R 9	RWA-0000	STRAP 0.0 OHMS	1	RWA-0000	RWA-0000
SW 1	STC-0121	TOGGLE SWITCH SPDT	1	CD WW 13, 5	CD WW 13, 5

NTP Parts Listas of date 14-3 1995Page / of /List No.: 179-16B31-B4

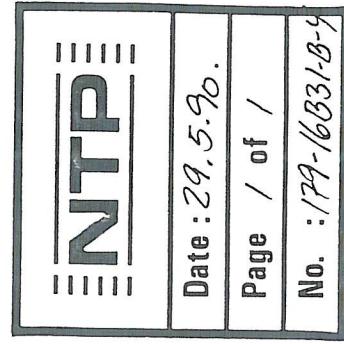
Multi 29.05.90 9: 4 PARTS LIST 179-16B31

PAGE 1

NTP 179-16B31 MOTHERBOARD LEFT

PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
R 1	RCA-3100	RESISTOR CARBON 100R 0.66W 5%	1	MBB 0207	MBB 0207 100R
R 2	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207 4K7
R 4	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207 4K7
R 3	RCA-4560	RESISTOR CARBON 5K6 0.66W 5%	1	MBB 0207	MBB 0207 5K6
R 6	RCA-4820	RESISTOR CARBON 8K2 0.66W 5%	1	MBB 0207	MBB 0207 8K2
R 5	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	MBB 0207 22K
R 7	RWA-0000	STRAP 0.0 OHMS	1	RWA-0000	RWA-0000
R 9	RWA-0000	STRAP 0.0 OHMS	1	RWA-0000	RWA-0000
P 1	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	620 312 47KLIN
P 2	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	620 312 47KLIN
P 3	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	620 312 47KLIN
P 4	RFN-5470	POTENTIOMETER 47K LIN 5%	1	RUWIDO 620-312	620 312 47KLIN
C 1	CFI-0810	CAP ELECTROLYTIC 10UF/16V	1	PH 2222 122	2222 122 55109
Q 1	QBN-33716	TRANSISTOR, NPN	1	TO-92	BC337-16
SW 1	STG-0121	TOGGLE SWITCH SPDT	1	APR 5436	CD WW 13,5
1	235-9001	KNOB	4	235-9001-A-4	235-9001
2	179-1690	BUSHING	2	179-1690-A-4	179-1690
3	KMB-0003	CRIMP W/GOLD FOR MOLEX CONN	13	MOLEX 2759GL 1	2759GL 1
4	KMF-1301	MOLEX CONN. 13P FEM	1	MOLEX 6471-13	6471 22-1-2136
5	179-16B40	P.C.BOARD	1	179-16B40-A-3	179-16B40



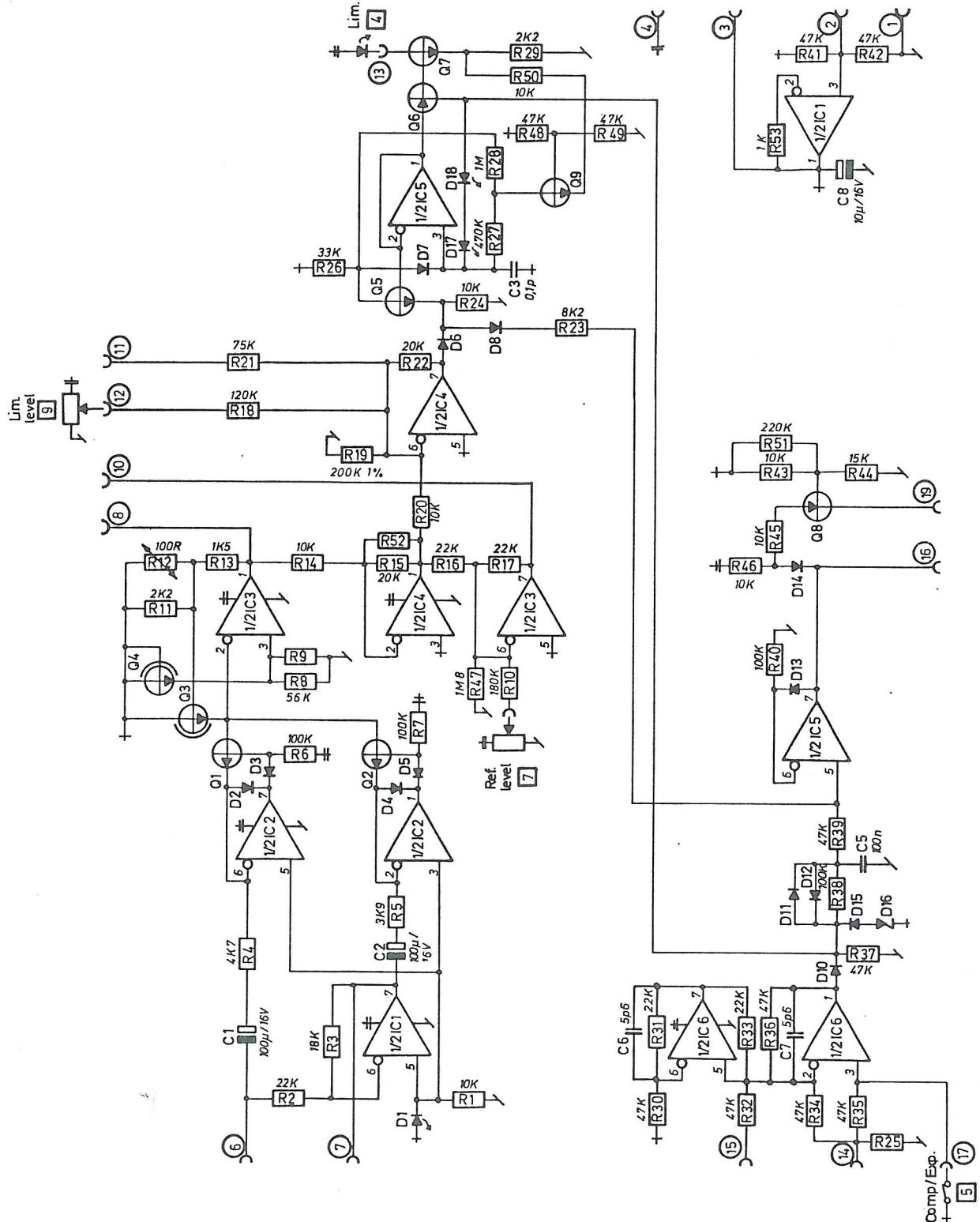
Date : 29.5.90.

Page / of /

No. : 179-16B31-B-4

SLUT

PARTS LIST 179-16B31

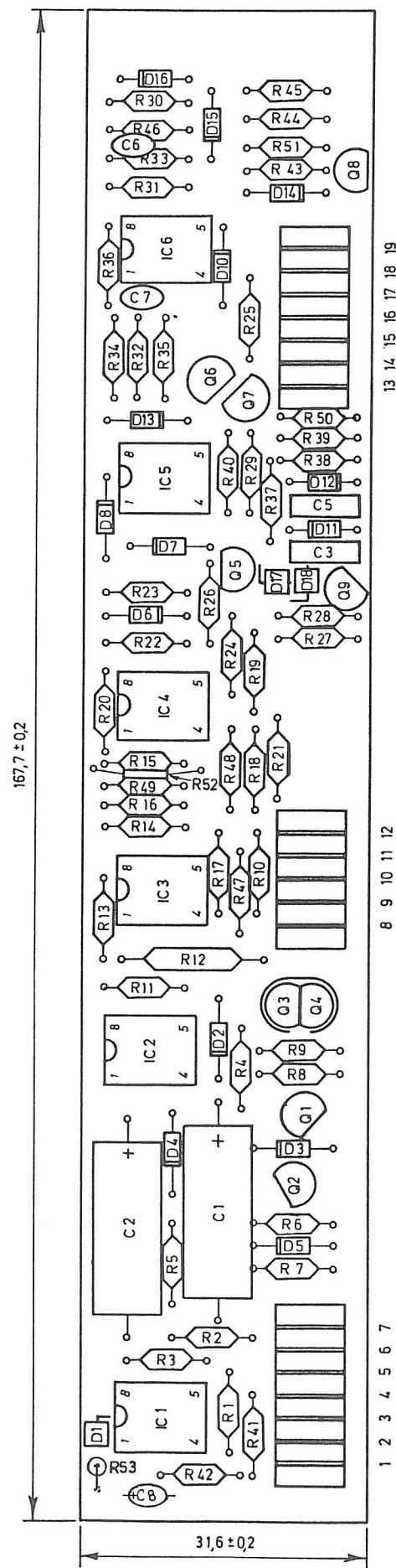


Målestok :	
Konstruktør :	BJ.
Tegnet :	13.1.81. T.L.
Godkendt :	
Revideret :	3.

Compressor 179-160 B
Limiter Module
Schematic diagramme

NTP
NTP ELEKTRONIK A/S

179-16C30 - B-3



Målestok :	
Konstruktør:	BJ.
Tegnet :	13.1.81. T.L.
Godkendt :	
Revideret :	3

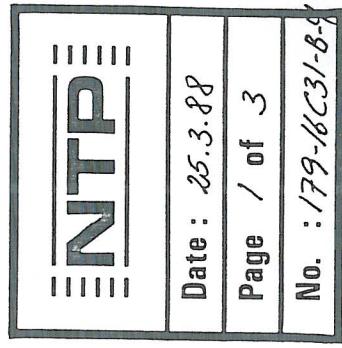
Compressor
Limiter Module
Component Lay-out.

NTP
NTP ELEKTRONIK A/S

179-16C41-B-3

NTP 179-16C31 LIMITER MODULE

REF. NO.	NTP ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO. PART NO.
1	KMF-0545	MODULAR CONNECTOR 5 P. FEMALE	1	CANNON G09 A45
2	KMF-0745	MODULAR CONNECTOR 7-P FEMALE	1	CANNON G09 A45
3	179-16C40	P.C. BOARD	1	179-16C40-A-3
4	CRB 0310	CAP ELECTROLYTIC 100U/16V	1	ROE EB
5	CRB 0910	CAP ELECTROLYTIC 100U/16V	1	ROE EB
6	CKH 0610	CAP POLYESTER 100NF/100V	1	SIEMENS B32560
7	CKH 0610	CAP POLYESTER 100NF/100V	1	SIEMENS B32560
8	CCB 0156	CAP CERAMIC 5.GPF/100V	1	PH 2222 632
9	CCB 0156	CAP CERAMIC 5.GPF/100V	1	PH 2222 632
10	CFI 0810	CAP ELECTROLYTIC 100U/16V	1	PH 2222 122
11	OES 0117	LED RED	1x1	SIEMENS LD 461
12	QDS 4143	DIODE, SILICON	1	QDS 4143
13	QDS 4143	DIODE, SILICON	1	QDS 4143
14	QDS 4143	DIODE, SILICON	1	QDS 4143
15	QDS 4143	DIODE, SILICON	1	QDS 4143
16	QDS 4143	DIODE, SILICON	1	QDS 4143
17	QDS 4143	DIODE, SILICON	1	QDS 4143
18	QDS 4143	DIODE, SILICON	1	QDS 4143
19	QDS 4143	DIODE, SILICON	1	QDS 4143
20	QDS 4143	DIODE, SILICON	1	QDS 4143
21	QDS 4143	DIODE, SILICON	1	QDS 4143
22	QDS 4143	DIODE, SILICON	1	QDS 4143
23	QDS 4143	DIODE, SILICON	1	QDS 4143
24	QDS 4143	DIODE, SILICON	1	QDS 4143
25	QDS 4143	DIODE, SILICON	1	QDS 4143
26	QZD-0056	ZENERDIODE 5,6V	1	ZPD 5,6
27	OES 0117	LED RED	1x1	SIEMENS LD 461
28	OES 0117	LED RED	1x1	SIEMENS LD 461
29	ILA-5532	OP AMP	1	NE5532P
30	ILA 4553	OP AMP	1	TEX. NE5532P
31	ILA 4553	OP AMP	1	RAYTH. 4553NB
32	ILA 4553	OP AMP	1	RAYTH. 4553NB
33	ILA 4553	OP AMP	1	RAYTH. 4553NB
34	ILA 4553	OP AMP	1	RAYTH. 4553NB
35	ILA 672	OP AMP	1	TEX. TL072CP
36	ILA 4553	OP AMP	1	RAYTH. 4553NB
37	QBN-0495	TRANSISTOR, NPN	1	QBN-0495
38	QBN-0495	TRANSISTOR, NPN	1	QBN-0495
39	QBM-0237-2	TRANSISTORPAIR,NPN	1	T0-92
40	QBN-0237	TRANSISTOR, NPN	1	T0-92
41	QBP-0307	TRANSISTOR, NPN	1	T0-92
42	QBN-0237	TRANSISTOR, NPN	1	T0-92
43	QBP-0307	TRANSISTOR, NPN	1	T0-92

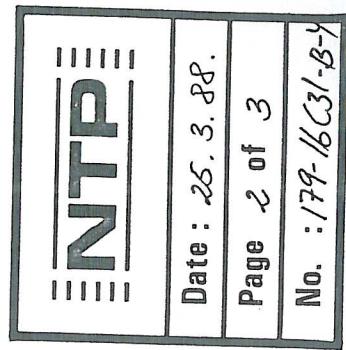


Date : 26.3.88

Page / of 3

No. : 179-16C31-8-8

REF. NO.	NTP ID.	DESCRIPTION	QTY	MANUFACT/DRW. NO. PART NO.
R 1	RCA 5100	TRANSISTOR, NPN RESISTOR CARBON 10K 0.66W 5%	1	TO-92 BC237 B SBB 0207 10K
R 2	RCA 5220	RESISTOR CARBON 22K 0.66W 5%	1	SBB 0207 22K
R 3	RCA-5120	RESISTOR CARBON 18K 0.66W 5%	1	SBB 0207 18K
R 4	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	SBB 0207 4K7
R 5	RCA-4390	RESISTOR CARBON 3K9 0.66W 5%	1	SBB 0207 3K9
R 6	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	SBB 0207 100K
R 7	RCA C100	RESISTOR CARBON 100K 0.66W 5	1	SBB 0207 100K
R 8	RCA 5560	RESISTOR CARBON 50K 0.66W 5%	1	SBB 0207 50K
R 9	RXX 9999	UNSPECIFIED RESISTOR	1	RXX -9999 SBB 0207 180K
R 10	RCA C180	RESISTOR CARBON 180K 0.66W 5	1	SBB 0207 180K
R 11	RCA 4220	RESISTOR CARBON 2K2 0.66W 5%	1	SBB 0207 2K2
R 12	RWB 3100	RESISTOR WIRE WOUND 100R 1W	1	VITREUM 253 253-9 100R
R 13	RCA 4150	RESISTOR CARBON 1K5 0.66W 5%	1	SBB 0207 1K5
R 14	RCA 5100	RESISTOR CARBON 10K 0.66W 5%	1	SBB 0207 10K
R 15	RMA 5200	RESISTOR METAL 20K 0.4W 1%	1	PHILIPS MR25 2322 151 52003
R 16	RCA 5220	RESISTOR CARBON 22K 0.66W 5%	1	SBB 0207 22K
R 17	RCA 5220	RESISTOR CARBON 22K 0.66W 5%	1	SBB 0207 22K
R 18	RCA C120	RESISTOR CARBON 120K 0.66W 5	1	SBB 0207 120K
R 19	RMA C200	RESISTOR METAL 200K 0.4W 1%	1	PHILIPS MR25 2322 151 52004
R 20	RCA 5100	RESISTOR CARBON 10K 0.66W 5%	1	SBB 0207 10K
R 21	RCA C150	RESISTOR CARBON 15K 0.66W 5	1	SBB 0207 15K
R 22	RMA 5200	RESISTOR METAL 20K 0.4W 1%	1	PHILIPS MR25 2322 151 52003
R 23	RCA-4820	RESISTOR CARBON 8K2 0.66W 5%	1	SBB 0207 8K2
R 24	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	SBB 0207 10K
R 25	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	SBB 0207 22K
R 26	RCA-5330	RESISTOR CARBON 33K 0.66W 5%	1	SBB 0207 33K
R 27	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	SBB 0207 470K
R 28	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	SBB 0207 1M
R 29	RCA-4220	RESISTOR CARBON 2K2 0.66W 5%	1	SBB 0207 2K2
R 30	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K
R 31	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	SBB 0207 22K
R 32	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K
R 33	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	SBB 0207 22K
R 34	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K
R 35	RCA 5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K
R 36	RCA 5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K
R 37	RCA 5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K
R 38	RCA C100	RESISTOR CARBON 100K 0.66W 5	1	SBB 0207 100K
R 39	RCA 5470	RESISTOR CARBON 47K 0.66W 5%	1	SBB 0207 47K



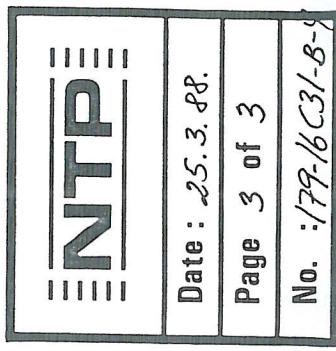
Date : 26. 3. 88.

Page 2 of 3

No. : 179-16C31-B-1

NTP 179 16C31 LIMITER MODULE

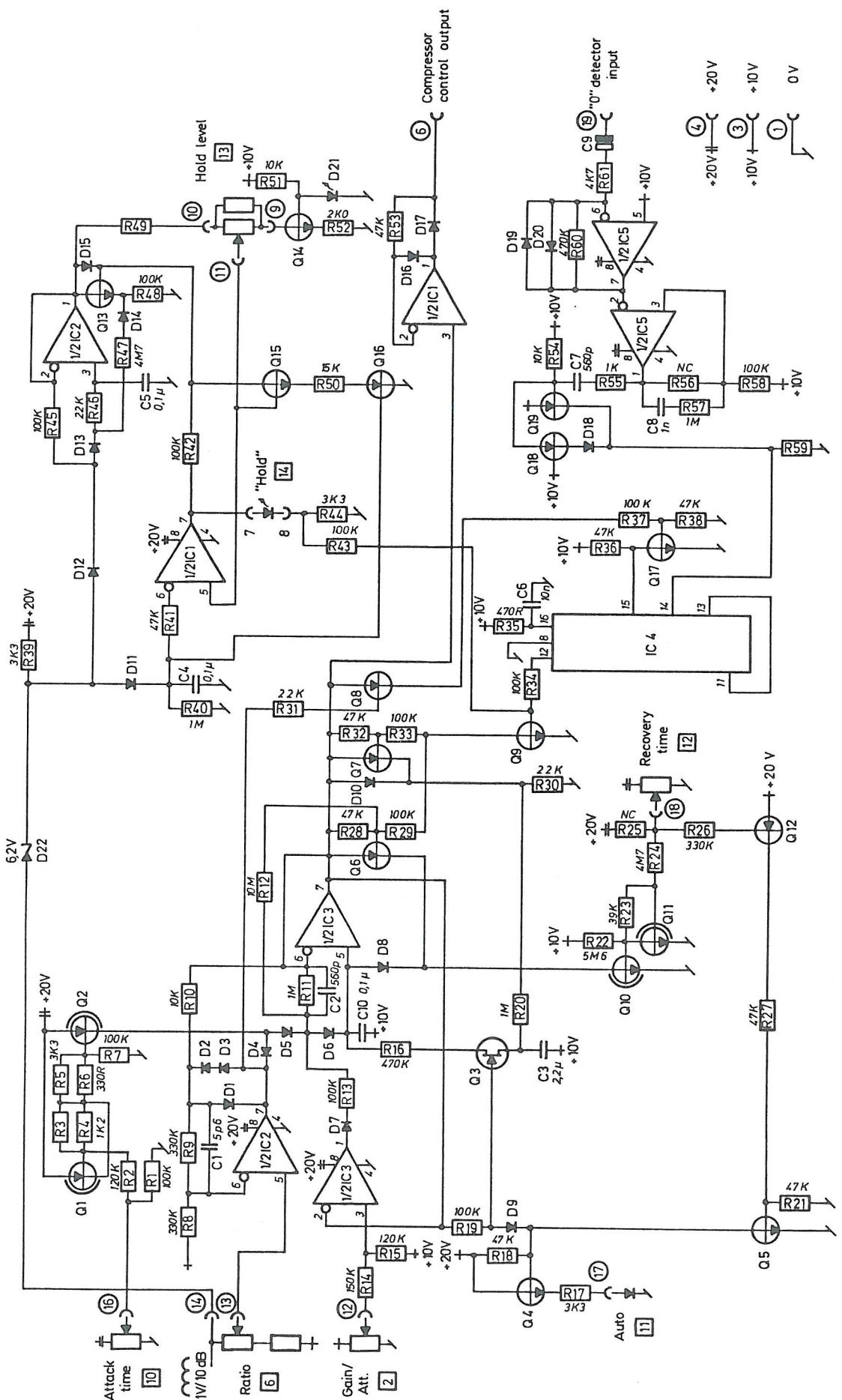
REF. NO.	NTP ID.	DESCRIPTION	QTY	MANUFACT/DRW. NO.	PART NO.
R 40	RCA C100	RESISTOR CARBON 1.00K 0.6GW 5%	1	SBB 0207	CBB 0207 100K
R 41	RCA 5470	RESISTOR CARBON 4.7K 0.6GW 5%	1	SBB 0207	SBB 0207 47K
R 42	RCA 5470	RESISTOR CARBON 4.7K 0.6GW 5%	1	SBB 0207	SBB 0207 47K
R 43	RCA 5100	RESISTOR CARBON 10K 0.6GW 5%	1	SBB 0207	SBB 0207 10K
R 44	RCA-5150	RESISTOR CARBON 15K 0.6GW 5%	1	SBB 0207	SBB 0207 15K
R 45	RCA 5100	RESISTOR CARBON 10K 0.6GW 5%	1	SBB 0207	SBB 0207 10K
R 46	RCA 5100	RESISTOR CARBON 10K 0.6GW 5%	1	SBB 0207	SBB 0207 10K
R 47	RCA 7150	RESISTOR CARBON 1M5 0.6GW 5%	1	SBB 0207	SBB 0207 1M5
R 48	RCA 5470	RESISTOR CARBON 4.7K 0.6GW 5%	1	SBB 0207	SBB 0207 47K
R 49	RCA 5470	RESISTOR CARBON 4.7K 0.6GW 5%	1	SBB 0207	SBB 0207 47K
R 50	RCA 5100	RESISTOR CARBON 10K 0.6GW 5%	1	SBB 0207	SBB 0207 10K
R 51	RCA C220	RESISTOR CARBON 220K 0.6GW 5%	1	SBB 0207	SBB 0207 220K
R 52	RXX 2222	UNSPECIFIED RESISTOR	1	RXX 2222	RXX 2222
R 53	RCA 4100	RESISTOR CARBON 1K 0.6GW 5%	1	SBB 0207	SBB 0207 1K



Date : 25.3.88.

Page 3 of 3

No. : 179-16C31-8-2



Målestok :

Konstruktør : BJ.

Tegnet : 11.6.79 JS

Godkendt :

Revideret : 3

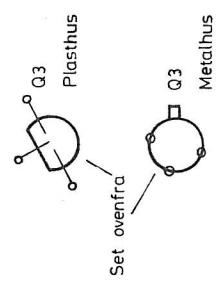
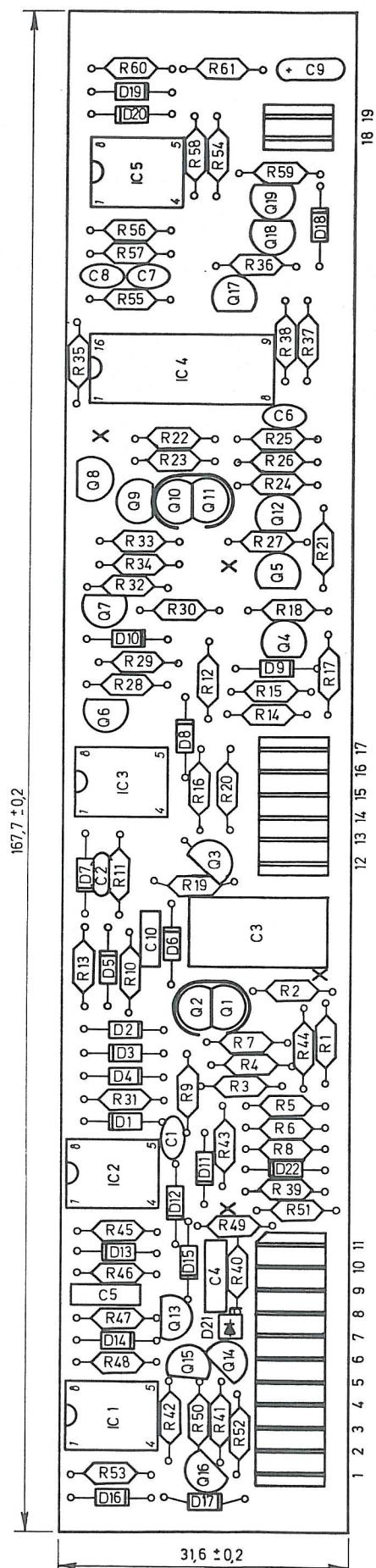
Compressor 179-160

Compressor Module

Schematic Diagram

NTP
NTP ELEKTRONIK A/S

179-16D30-A-3

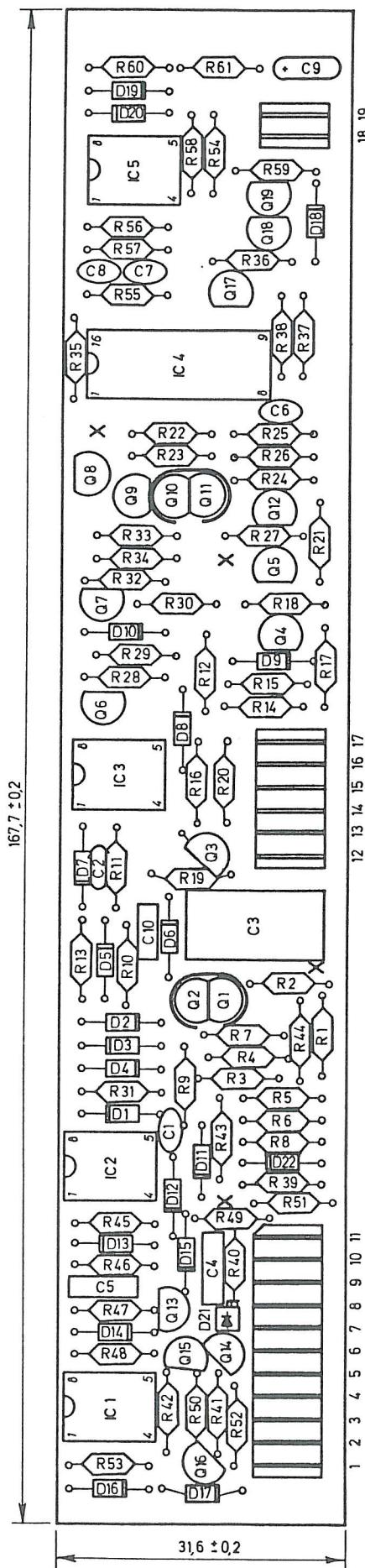


Mødestok :	
Konstruktør :	BJ.
Tegnet :	8.6.79 JS
Godkendt :	
Revideret :	3/931015

Compressor 179-160
Compressor Module
Component Lay-out.

NTP
NTP ELEKTRONIK A/S

179-16D41-A-3



Målestok :	
Konstruktør:	BJ.
Tegnet :	8.6.79 JS
Godkendt :	
Revideret :	2

Compressor 179-160
Compressor Module
Component Lay-out.

NTP
NTP ELEKTRONIK A/S

179-16D41-A-3

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
1	KMF-0245	MODULE CONNECTOR 2-P FEMALE	1	CANNON G09 A45	KMF-0245
2	KMF-0645	MODULAR CONNECTOR 6-P FEMALE	1	CANNON G09 A45	KMF-0645
3	KMF-1145	11-POLE FEMALE G09 CONNECTOR	1	CANNON G09 A45	KMF-1145
4	179-16D40	P.C.BOARD	1	179-16D40-A-3	179-16D40
C 1	CCB-0156	CAP CERAMIC 5 .6PF/100V	1	PH 2222 632	2222 632 57568
C 2	CCB-0356	CAP CERAMIC 560PF/100V	1	PH 2222 632	2222 632 70561
C 3	CKQ-0722	CAP POLYESTER 2.2UF/100V	1	SIEMENS B32562	B32562 D1225 J
C 4	CKH-0610	CAP POLYESTER 100NF/100V	1	SIEMENS B32560	B32560 D1104 J
C 5	CKH-0610	CAP POLYESTER 100NF/100V	1	SIEMENS B32560	B32560 D1104 J
C 6	CCA-0510	CAP CERAMIC 10NF/63V	1	PH 2222 629	2222 629 02103
C 7	CCB-0356	CAP CERAMIC 560PF/100V	1	PH 2222 632	2222 632 70561
C 8	CCA-0410	CAP CERAMIC 1NF/63V	1	PH 2222 629	2222 629 02102
C 9	CFI-0810	CAP ELECTROLYTIC 10UF/16V	1	PH 2222 122	2222 122 55109
C 10	CKC-0610	CAP POLYESTER 100NF/50V	1	WTMA MKS	MKS 2 100NF
D 1	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 2	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 3	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 4	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 5	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 6	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 7	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 8	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 9	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 10	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 11	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 12	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 13	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 14	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 15	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 16	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 17	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 18	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148
D 19	QDS-4148	DIODE, SILICITUM	1	QDS-4148	1N 4148

NTP Parts List

as of date 30-1 199 /.

Page / of 4.

List No.: 179-16D31-A-4

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
D 20	QDS-4148	DIODE, SILICIUM	1	QDS-4148	LN 4148
D 21	OES-0117	LED RED 1x1	1	SIEMENS LD 461	Q62703-Q79
D 22	QZD-0056	ZENERDIODE 5,6V	1	DO-35	ZPD 5,6
IC 1	ILA-353	OP-AMP	1	NAT. LF353	LF 353
IC 2	ILA-353	OP-AMP	1	NAT. LF353	LF 353
IC 3	ILA-353	OP-AMP	1	NAT. LF353	LF 353
IC 4	ICA-4017	5-STAGE JOHNSON DECADE COUNT	1	RCA CD4017BE	CD 4017BE
IC 5	ILA-4559	OP-AMP	1	RAYTH. 4559NB	RC 4559NB
Q 1	QBM-0307-2	TRANSISTORPAIR, PNP	1	TO-92	BC 307 PAR
Q 3	QFN-4393	FET	1	QFN-4393	2N 4393
Q 4	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 5	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 6	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
Q 7	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
Q 8	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
Q 9	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 10	QBM-0237-2	TRANSISTORPAIR, NPN	1	TO 92	BC 237 PAR
Q 12	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
Q 13	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 14	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 15	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 16	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
Q 17	QBN-0237	TRANSISTOR, NPN	1	TO-92	BC237 B
Q 18	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
Q 19	QBP-0307	TRANSISTOR, PNP	1	TO-92	BC307
R 1	RCB-6100	RESISTOR CARBON 100K 0.33W 5	1	MBA 0204	MBA 0204 100K
R 2	RCA-6120	RESISTOR CARBON 120K 0.66W 5	1	MBB 0207	MBB 0207 120K
R 4	RCA-4120	RESISTOR CARBON 1K2 0.66W 5%	1	MBB 0207	MBB 0207 1K2
R 5	RCB-4330	RESISTOR CARBON 3K3 0.33W 5%	1	MBA 0204	MBA 0204 3K3
R 6	RCB-3330	RESISTOR, CARBON 330R 0.33W	1	MBA 0204	MBA 0204 330R
R 7	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207 100K
R 8	RCB-6330	RESISTOR CARBON 330K 0.33W 5	1	MBA 0204	MBA 0204 330K
R 9	RCA-6330	RESISTOR CARBON 330K 0.66W 5	1	MBB 0207	MBB 0207 330K

NTP Parts List

as of date 30-1-1991.

Page 2 of 4.

List No.: 179-16D31-A-Y

REF. NO.	NTP-ID.	DESCRIPTION	QTY	PARTS LIST	PAGE
R 10	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	10K
R 11	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	1M
R 12	RXA-8100	RESISTOR HIGHVOLT 10M 0.25W	1	PHILIPS VR25	2322 241 13106
R 13	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 14	RCA-6150	RESISTOR CARBON 150K 0.66W 5	1	MBB 0207	150K
R 15	RCA-6120	RESISTOR CARBON 120K 0.66W 5	1	MBB 0207	120K
R 16	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207	470K
R 17	RCA-4330	RESISTOR CARBON 3K3 0.66W 5%	1	MBB 0207	3K3
R 18	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 19	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 20	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	1M
R 21	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 22	RXA-7560	RESISTOR HIGHVOLT 5M6 0.25W	1	PHILIPS VR25	2322 241 13565
R 23	RCA-5390	RESISTOR CARBON 39K 0.66W 5%	1	MBB 0207	39K
R 24	RCA-7470	RESISTOR CARBON 4M7 0.66W 5%	1	MBB 0207	4M7
R 25	RCA-6330	RESISTOR CARBON 330K 0.66W 5	1	MBB 0207	330K
R 27	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 28	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 29	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 30	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	22K
R 31	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	22K
R 32	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 33	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 34	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 35	RCA-3470	RESISTOR CARBON 470R 0.66W 5	1	MBB 0207	470R
R 36	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 37	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 38	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 39	RCB-4330	RESISTOR CARBON 3K3 0.33W 5%	1	MBA 0204	3K3
R 40	RCB-7100	RESISTOR CARBON 1M 0.33W 5%	1	MBA 0204	1M
R 41	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 42	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 43	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K

NTP Parts Listas of date 30-1-1994.Page 3 of 4.List No.: 179-16D31-A4

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
R 44	RCB-4330	RESISTOR CARBON 3K3 0.33W 5%	1	MBA 0204	MBA 0204 3K3
R 45	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207 100K
R 46	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	MBB 0207 22K
R 47	RCA-7470	RESISTOR CARBON 4M7 0.66W 5%	1	MBB 0207	MBB 0207 4M7
R 48	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207 100K
R 49	RCB-4150	RESISTOR CARBON 1K5 0.33W 5%	1	MBA 0204	MBA 0204 1K5
R 50	RCA-5150	RESISTOR CARBON 15K 0.66W 5%	1	MBB 0207	MBB 0207 15K
R 51	RCB-5100	RESISTOR CARBON 10K 0.33W 5%	1	MBA 0204	MBA 0204 10K
R 52	RMA-4200	RESISTOR METAL 2K 0.4W 1%	1	PHILIPS MR25	2322 151 52002
R 53	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207 47K
R 54	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	MBB 0207 10K
R 55	RCA-4100	RESISTOR CARBON 1K 0.66W 5%	1	MBB 0207	MBB 0207 1K
R 57	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	MBB 0207 1M
R 58	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207 100K
R 59	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207 100K
R 60	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207	MBB 0207 470K
R 61	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	MBB 0207 4K7

NTP Parts Listas of date 30-1 1991.Page 4 of 4.List No.: 179-16D31-A-Y

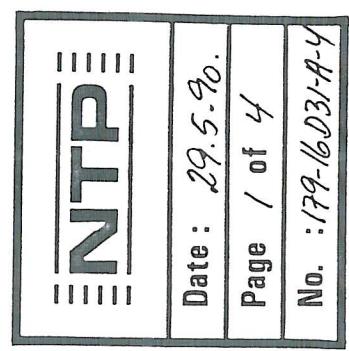
Multi 29.05.90 9: 5 PARTS LIST 179-16D31

PAGE 1

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
R 6	RCA-3330	RESISTOR CARBON 330R 0.66W 5	1	MBB 0207	330R
R 35	RCA-3470	RESISTOR CARBON 470R 0.66W 5	1	MBB 0207	470R
R 55	RCA-4100	RESISTOR CARBON 1K 0.66W 5%	1	MBB 0207	1K
R 4	RCA-4120	RESISTOR CARBON 1K2 0.66W 5%	1	MBB 0207	1K2
R 49	RCA-4150	RESISTOR CARBON 1K5 0.66W 5%	1	MBB 0207	1K5
R 5	RCA-4330	RESISTOR CARBON 3K3 0.66W 5%	1	MBB 0207	3K3
R 17	RCA-4330	RESISTOR CARBON 3K3 0.66W 5%	1	MBB 0207	3K3
R 39	RCA-4330	RESISTOR CARBON 3K3 0.66W 5%	1	MBB 0207	3K3
R 44	RCA-4330	RESISTOR CARBON 3K3 0.66W 5%	1	MBB 0207	3K3
R 61	RCA-4470	RESISTOR CARBON 4K7 0.66W 5%	1	MBB 0207	4K7
R 10	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	10K
R 51	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	10K
R 54	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207	10K
R 50	RCA-5150	RESISTOR CARBON 15K 0.66W 5%	1	MBB 0207	15K
R 30	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	22K
R 31	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	22K
R 46	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207	22K
R 23	RCA-5390	RESISTOR CARBON 39K 0.66W 5%	1	MBB 0207	39K
R 18	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 21	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 27	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 28	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 32	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 36	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 38	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 41	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 53	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	47K
R 1	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 7	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 13	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 19	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 29	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K
R 33	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	100K



Date : 29.5.90.

Page / of 4

No. : 179-16D31-A-4

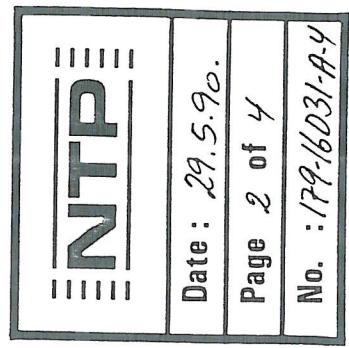
Multi 29.05.90 9: 5

PAGE 2

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	PARTS LIST	MANUFACT/DRW.NO.	PART NO.
R 34	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 37	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 42	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 43	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 45	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 48	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 58	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 59	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207	MBB 0207	100K
R 2	RCA-6120	RESISTOR CARBON 120K 0.66W 5	1	MBB 0207	MBB 0207	120K
R 15	RCA-6120	RESISTOR CARBON 120K 0.66W 5	1	MBB 0207	MBB 0207	120K
R 14	RCA-6150	RESISTOR CARBON 150K 0.66W 5	1	MBB 0207	MBB 0207	150K
R 8	RCA-6330	RESISTOR CARBON 330K 0.66W 5	1	MBB 0207	MBB 0207	330K
R 9	RCA-6330	RESISTOR CARBON 330K 0.66W 5	1	MBB 0207	MBB 0207	330K
R 26	RCA-6330	RESISTOR CARBON 330K 0.66W 5	1	MBB 0207	MBB 0207	330K
R 16	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207	MBB 0207	470K
R 60	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207	MBB 0207	470K
R 11	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	MBB 0207	1M
R 20	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	MBB 0207	1M
R 40	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	MBB 0207	1M
R 57	RCA-7100	RESISTOR CARBON 1M 0.66W 5%	1	MBB 0207	MBB 0207	1M
R 24	RCA-7470	RESISTOR CARBON 4M7 0.66W 5%	1	MBB 0207	MBB 0207	4M7
R 47	RCA-7470	RESISTOR CARBON 4M7 0.66W 5%	1	MBB 0207	MBB 0207	4M7
R 22	RXA-7560	RESISTOR HIGHVOLT 5M6 0.25W	1	PHILLIPS VR25	2322 241	13565
R 12	RXA-8100	RESISTOR HIGHVOLT 10M 0.25W	1	PHILLIPS VR25	2322 241	13106
R 52	RMA-4200	RESISTOR METAL 2K 0.4W 1%	1	PHILLIPS MR25	2322 151	52002
C 6	CCA-0510	CAP CERAMIC 10NF/63V	1	PH 2222	2222 629	02103
C 1	CCB-0156	CAP CERAMIC 5.6PF/100V	1	PH 2222	2222 632	57568
C 2	CCB-0356	CAP CERAMIC 560PF/100V	1	PH 2222	2222 632	70561
C 7	CCB-0356	CAP CERAMIC 560PF/100V	1	PH 2222	2222 632	70561
C 8	CCA-0410	CAP CERAMIC 1NF/63V	1	PH 2222	2222 629	02102
C 9	CFI-0810	CAP ELECTROLYTIC 10UF/16V	1	PH 2222	2222 122	55109
C 10	CRC-0610	CAP POLYESTER 100NF/50V	1	WIMA MRS	MKS 2	100NF
C 4	CKH-0610	CAP POLYESTER 100NF/100V	1	SIEMENS B32560	B32560	D1104 J



Date : 29.5.90.

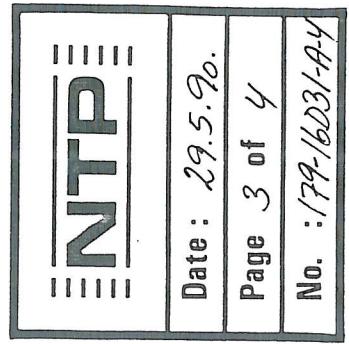
Page 2 of 4

No. : 179-16D31-A-4

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO. PART NO.
C 5	CKH-0610	CAP POLYESTER 100NF/100V	1	SIEMENS B322560 D1104 J
C 3	CKQ-0722	CAP POLYESTER 2.2UF/100V	1	SIEMENS B322562 D11225 J
D 21	OES-0117	LED RED 1x1	1	SIEMENS LD 461 Q62703-Q79
D 1	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 2	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 3	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 4	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 5	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 6	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 7	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 8	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 9	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 10	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 11	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 12	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 13	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 14	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 15	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 16	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 17	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 18	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 19	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 20	QDS-4148	DIODE, SILICUM	1	QDS-4148 1N 4148
D 22	QZD-0056	ZENERDIODE 5 ,6V	1	DO-35 ZPD 5 ,6 BC 237 PAR
Q 10	QBM-0237-2	TRANSISTORPAIR, NPN	1	T0 92 BC 237 PAR
Q 1	QBM-0307-2	TRANSISTORPAIR, PNP	1	T0-92 BC 307 PAR
Q 4	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B
Q 5	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B
Q 9	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B
Q 13	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B
Q 14	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B
Q 15	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B
Q 17	QBN-0237	TRANSISTOR, NPN	1	T0-92 BC237 B



Date : 29.5.90.

Page 3 of 4

No. : 179-16D31-A4

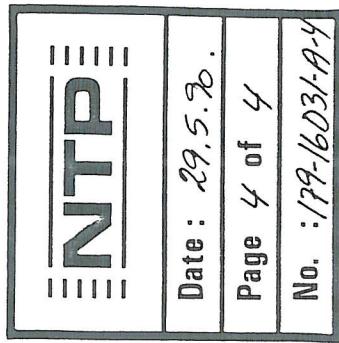
Multi 29.05.90 9: 5 PARTS LIST 179-16D31

PAGE 4

NTP 179-16D31 COMPRESSOR MODULE

PARTS LIST

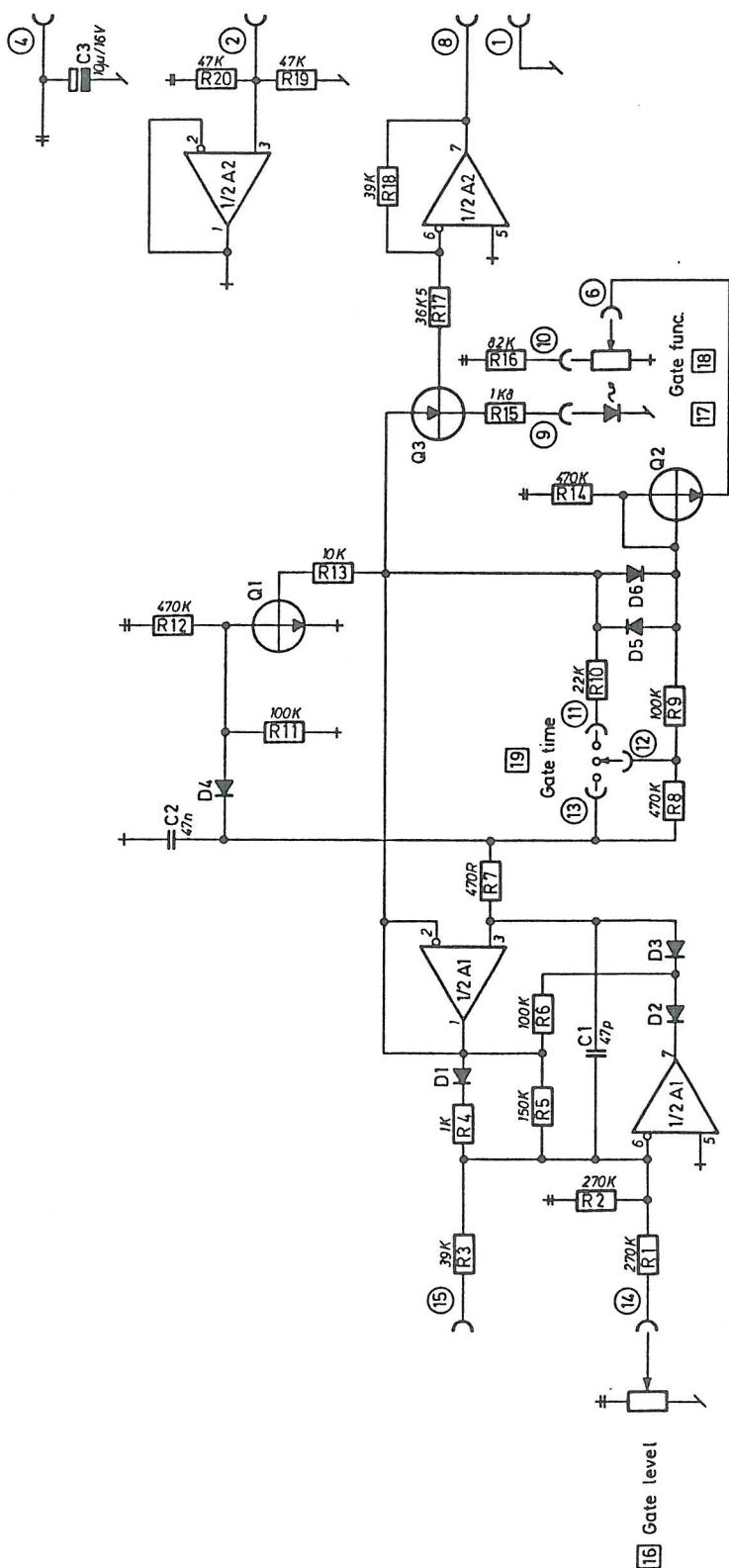
REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO. PART NO.
Q 6	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 7	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 8	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 12	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 16	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 18	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 19	QBP-0307	TRANSISTOR, PNP	1	TO-92 BC307
Q 3	QFN-4393	FET	1	QFN-4393 2N 4393
IC 4	ICA-4017	5-STAGE JOHNSON DECADE COUNT	1	RCA CD4017BE CD 4017BE
IC 1	ILA-353	OP-AMP	1	NAT. LF353 LF 353
IC 2	ILA-353	OP-AMP	1	NAT. LF353 LF 353
IC 3	ILA-353	OP-AMP	1	NAT. LF353 LF 353
IC 5	ILA-4559	OP-AMP	1	RAYTH. 4559NB RC 4559NB
KMF-0245	KMF-0245	MODULE CONNECTOR 2-P FEMALE	1	CANNON G09 A45 KMF-0245
2	KMF-0645	MODULAR CONNECTOR 6-P FEMALE	1	CANNON G09 A45 KMF-0645
3	KMF-1145	11-POLE FEMALE G09 CONNECTOR	1	CANNON G09 A45 KMF-1145
4	179-16D40	P.C.BOARD	1	179-16D40-A-3 179-16D40



Date : 29.5.20.
Page 4 of 4
No. : 179-16D31-A-4

SLUT

PARTS LIST 179-16D31

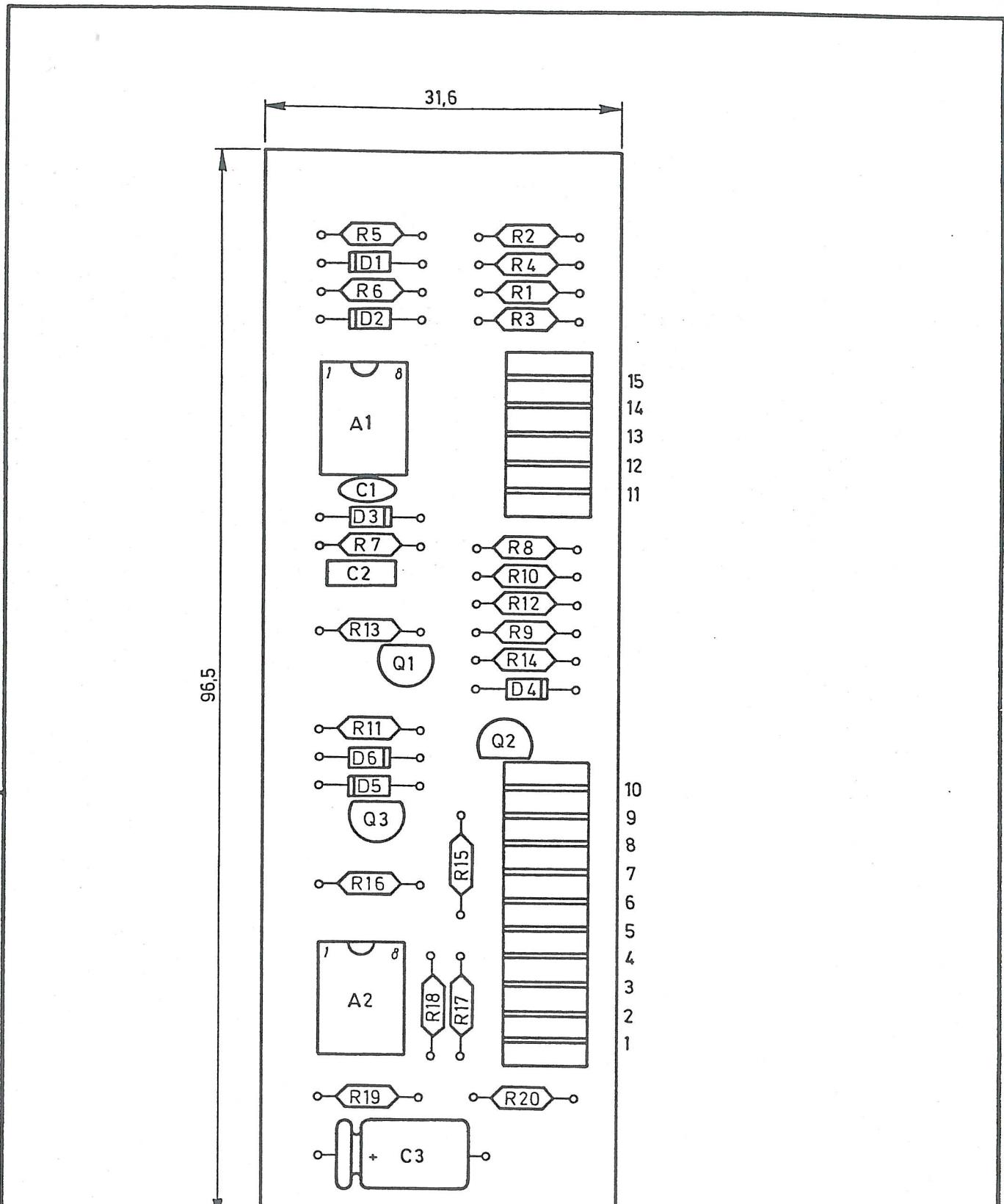


Målestok :	
Konstruktør :	B.S.
Tegnet :	12.12.80.T.L.
Godkendt :	
Revideret :	

Compressor 179-160 B
Noise - Gate Module
Schematic diagramme



179-16E 30-B-3



Itelser

Målestok :	
Konstruktør:	B.S.
Tegnet :	9.12.80. T.L.
Godkendt :	
Revideret :	

Compressor 179-160 B
Noise-Gate Module
Components Lay-out

NTP
NTP ELEKTRONIK A/S

179-16E 41-B-4

NTP 179-16E31 NOISE GATE MODULE

REF. NO	NTP-ID.	DESCRIPTION	QTY	PARTS LIST
1	KMF-0545	MODULAR CONNECTOR 5-P. FEMAL	1	CANNON G09 A45
2	KMF-1045	10-POLLE FEMALE G09 CONNECTOR	1	CANNON G09 A45
3	179-16E40	P.C. BOARD	1	179-16E40-B-4
A 1	ILA-353	OP-AMP	1	NAT. LF353
A 2	ILA-353	OP-AMP	1	NAT. LF353
C 1	CCB-0247	CAP CERAMIC 47PF/100V	1	PH 2222 632
C 2	CKI-0547	CAP POLYESTER 47NF/250V	1	SIEMENS B32560
C 3	CFD-0810	CAP ELECTROLYTIC 10UF/40V	1	ROE EB 15UF
D 1	QDS-4148	DIODE, SILICITUM	1	QDS-4148
D 2	QDS-4148	DIODE, SILICITUM	1	QDS-4148
D 3	QDS-4148	DIODE, SILICITUM	1	QDS-4148
D 4	QDS-4148	DIODE, SILICITUM	1	QDS-4148
D 5	QDS-4148	DIODE, SILICITUM	1	QDS-4148
D 6	QDS-4148	DIODE, SILICITUM	1	QDS-4148
Q 1	QBN-0237	TRANSISTOR, NPN	1	TO-92
Q 2	QBN-0237	TRANSISTOR, NPN	1	TO-92
Q 3	QBP-0307	TRANSISTOR, PNP	1	TO-92
R 1	RCA-6270	RESISTOR CARBON 270K 0.66W 5	1	MBB 0207
R 2	RCA-6270	RESISTOR CARBON 270K 0.66W 5	1	MBB 0207
R 3	RCA-5390	RESISTOR CARBON 39K 0.66W 5%	1	MBB 0207
R 4	RCA-4100	RESISTOR CARBON 1K 0.66W 5%	1	MBB 0207
R 5	RCA-6150	RESISTOR CARBON 150K 0.66W 5	1	MBB 0207
R 6	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207
R 7	RCA-3470	RESISTOR CARBON 470R 0.66W 5	1	MBB 0207
R 8	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207
R 9	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207
R 10	RCA-5220	RESISTOR CARBON 22K 0.66W 5%	1	MBB 0207
R 11	RCA-6100	RESISTOR CARBON 100K 0.66W 5	1	MBB 0207
R 12	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207
R 13	RCA-5100	RESISTOR CARBON 10K 0.66W 5%	1	MBB 0207
R 14	RCA-6470	RESISTOR CARBON 470K 0.66W 5	1	MBB 0207
R 15	RCA-4180	RESISTOR CARBON 1K8 0.66W 5%	1	MBB 0207
R 16	RCA-5820	RESISTOR CARBON 82K 0.66W 5%	1	MBB 0207

NTP Parts Listas of date 13-7-1990.Page 1 of 2.List No.: 179-16E31-A-4

Multi 13.07.90 11: 4 PARTS LIST 179-16E31 PAGE 2

NTP 179-16E31 NOISE GATE MODULE

PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
R 17	RMA-5365	RESISTOR METAL 36K5 0.4W 1%	1	PHILIPS MR25	2322 151 53653
R 18	RCA-5390	RESISTOR CARBON 39K 0.66W 5%	1	MBB 0207	MBB 0207 39K
R 19	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207 47K
R 20	RCA-5470	RESISTOR CARBON 47K 0.66W 5%	1	MBB 0207	MBB 0207 47K

PARTS LIST 179-16E31 SLUT

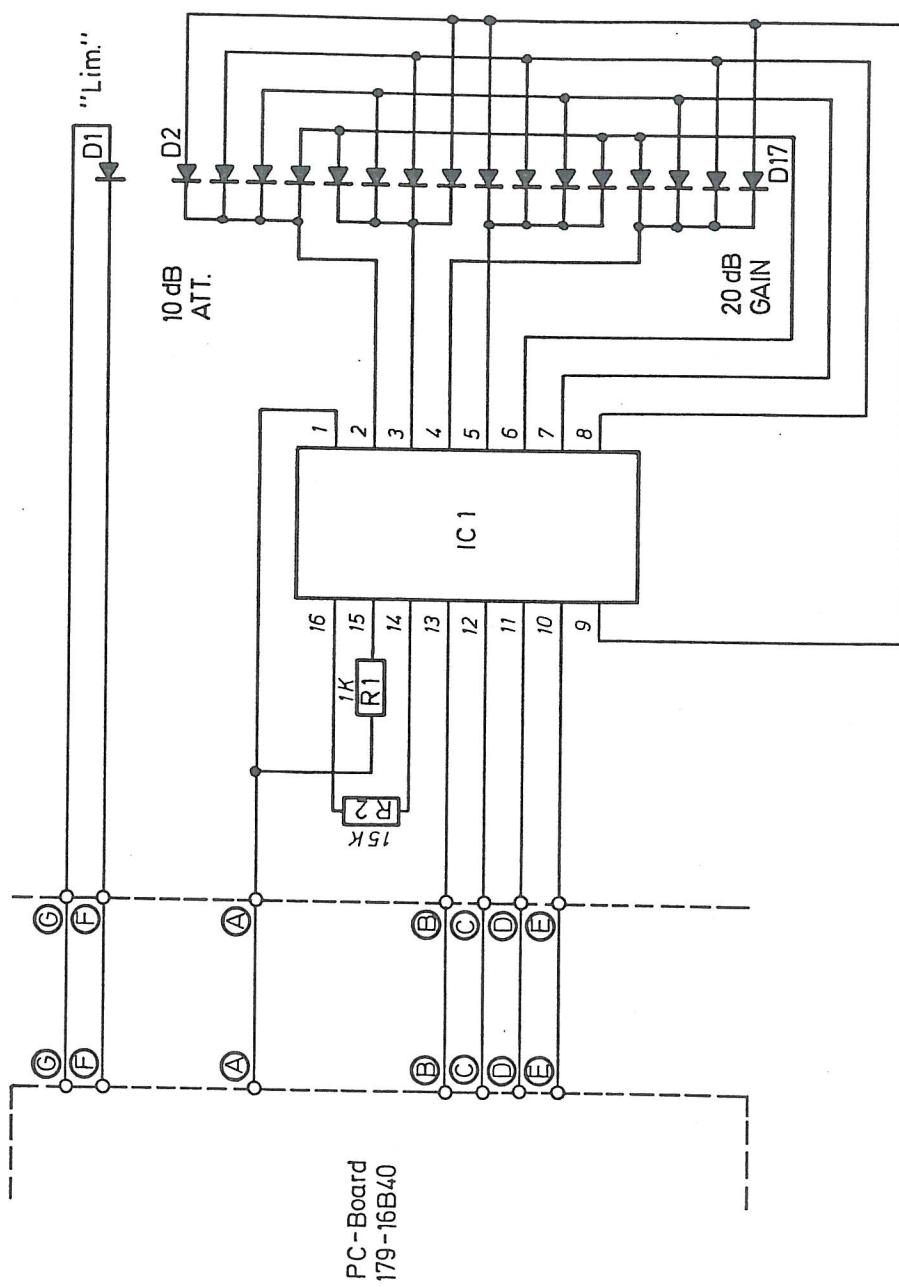
SLUT

NTP Parts List

as of date 13-7 1990.

Page 2 of 2.

List No.: 179-16E31-A-Y



Rettelser

Målestok :

Konstruktør: BJ.

Tegnet : 3.7.79 JS

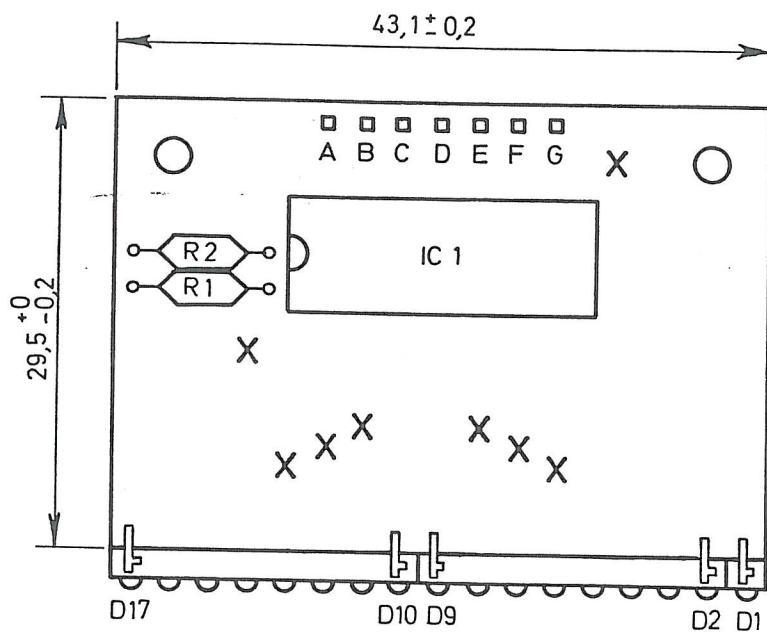
Godkendt :

Revideret :

Compressor 179 - 160
Meter - Module
Schematic Diagram.



179 - 16F30-A-4



Rettelser

Målestok :	
Konstruktør:	BJ.
Tegnet :	27.6.79 JS
Godkendt :	
Revideret :	

Compressor 179-160
Meter Module
Component Lay-out.

NTP
NTP ELEKTRONIK A/S

179-16F41-A-4

Multi 29.05.90 9: 7

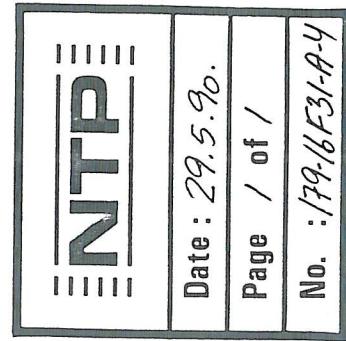
PARTS LIST 179-16F31

PAGE 1

NTP 179-16F31 METER MODULE

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
R 1	RCA-4100	RESISTOR CARBON 1K 0.66W 5%	1	MBB 0207	MBB 0207 1K
R 2	RCA-5150	RESISTOR CARBON 15K 0.66W 5%	1	MBB 0207	MBB 0207 15K
D 1	OES-0117	LED RED 1x1	1	SIEMENS LD 461	Q62703-Q79
D 2	OES-0801	LED GREEN 8x1	1	SIEMENS LD478	Q62703-Q109
D 10	OES-0801	LED GREEN 8x1	1	SIEMENS LD478	Q62703-Q109
IC 1	TIL-170	LED-ARRAY DRIVER	1	SIEMENS UUA170	UAA 170
1	179-16F40	P.C. BOARD	1	179-16F40-A-4	179-16F40



Date : 29.5.90.

Page / of /

No. : 79-16F31-A-4

SLUT

PARTS LIST 179-16F31

NTP 179-160B COMPRESSOR AMPLIFIER

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO.	PART NO.
1	179-16A31	MOTHERBOARD RIGHT	1	179-16A41-A-4	179-16A31
2	179-16B31	MOTHERBOARD LEFT	1	179-16B41-B-3	179-16B31
3	179-16C31	LIMITER MODULE	1	179-16C41-B-3	179-16C31
4	179-16D31	COMPRESSOR MODULE	1	179-16D41-A-4	179-16D31
5	179-16E31	NOISE GATE MODULE	1	179-16E41-B-4	179-16E31
6	179-16F31	METER MODULE	1	179-16F41-A-4	179-16F31
7	179-1656	CHASSIS	1	179-1656-A-3	179-1656
9	179-1651	SUPPORT PLATE	1	179-1651-A-4	179-1651
10	235-1014	SIDE PLATE	2	235-1014-A-4	235-1014
11	235-1015	ISO PLATE	2	235-1015-A-4	235-1015
13	KMF-0201	MOLEX CONN. 2P FEM	1	MOLEX 6471-2	6471 22-1-2026
14	KMF-0701	MOLEX CONN. 7P FEM	1	MOLEX 6471-7	6471 22-1-2076
15	KMB-0003	CRIMP W/GOLD FOR MOLEX CONN	9	MOLEX 2759GL	1 2759GL 1
16	KPM-2301	TUCHEL CONNECTOR, 23P, MALE	1	TUCHEL T2700	T2700 .000
17	MKK-0040	KNOB	6	RITEL	23 10 403
18	MKD-0012	CAP FOR KNOB, RED	1	RITEL	30 10 014
19	MKD-0014	CAP FOR KNOB, YELLOW	1	RITEL	30 10 016
20	MKD-0015	CAP FOR KNOB, GREEN	2	RITEL	30 10 017
21	MKD-0016	CAP FOR KNOB, BLUE	1	RITEL	30 10 015
22	MKD-0018	CAP FOR KNOB GREY	1	RITEL	30 10 011
23	MNA-0001	RIVET ALUMINUM 2 X 4 MM	4	FN	SMS 1441
24	179-1690	BUSHING	2	179-1690-A-4	179-1690
25	MTP-3035	SCREW CROSS HEAD 3 X 35 PHJX	2	HFC 9041	3 X 35 PHJX
26	235-9005	SPRING FOR LOCKING DEVICE	2	235-9005-A-4	235-9005
27	MMS-0160	NUT FOR LOCKING DEVISE	2	DANNER ZZ-0160	
28	MSC-3003	SCREW 3 X 3 CHJZ	4	HFC 9033	3 X 3 CHJ
29	MSC-3006	SCREW 3 X 6 CHJZ	1	HFC 9033	3 X 6 CHJZ
30	MSC-3008	SCREW 3 X 8 CHJZ	1	HFC 9033	3 X 8 CHJZ
31	MSU-3008	SCREW 3 X 8 UHJZ	4	HFC 9030	3 X 8 UHJZ
32	MMJ-0030	NUT IRON 3 MM	1	HFC 9805	DIN 555
33	MFD-0003	WASHER THREADED 3 MM	1	HFC 1226	3MM INDV.FORT.
34	MHL-0001	SOLDERING LUG 3.2MM Ø HOLE	1	RP 305005	3.2MM Ø HUL

NTP**Parts List**

as of date 10-9 1990.

Page / of /.

List No.: 179-1604-A-4

Multi 29.05.90 9: 8

PARTS LIST 179-160B

PAGE 1

NTP 179-160B COMPRESSOR AMPLIFIER

PARTS LIST

REF. NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW. NO.	PART NO.
---------	---------	-------------	-----	-------------------	----------

1	179-16A31	MOTHERBOARD RIGHT	1	179-16A41-A-4	179-16A31
2	179-16B31	MOTHERBOARD LEFT	1	179-16B41-B-4	179-16B31
3	179-16C31	LIMITER MODULE	1	179-16C41-B-4	179-16C31
4	179-16D31	COMPRESSOR MODULE	1	179-16D41-A-4	179-16D31
5	179-16E31	NOISE GATE MODULE	1	179-16E41-B-4	179-16E31
6	179-16F31	METER MODULE	1	179-16F41-A-4	179-16F31
7	179-1656	CHASSIS	1	179-1656-A-3	179-1656
9	179-1651	SUPPORT PLATE	1	179-1651-A-4	179-1651
10	235-1014	SIDE PLATE	2	235-1014-A-4	235-1014
11	235-1015	ISO PLATE	2	235-1015-A-4	235-1015
13	KMF-0201	MOLEX CONN. 2P FEM	1	MOLEX 6471-2	6471 22-1-2026
14	KMF-0701	MOLEX CONN. 7P FEM	1	MOLEX 6471-7	6471 22-1-2076
15	KMB-0003	CRIMP W/GOLD FOR MOLEX CONN	9	MOLEX 2759GL 1	2759GL 1
16	KPM-2301	TUCHEL CONNECTOR, 23P, MALE	1	TUCHEL T2700	T2700.000
17	MRK-0040	KNOB	6	RITEL	23 10 403
18	MKD-0012	CAP FOR KNOB, RED	1	RITEL	30 10 014
19	MKD-0014	CAP FOR KNOB, YELLOW	1	RITEL	30 10 016
20	MKD-0015	CAP FOR KNOB, GREEN	2	RITEL	30 10 017
21	MKD-0016	CAP FOR KNOB, BLUE	1	RITEL	30 10 015
22	MKD-0018	CAP FOR KNOB GREY	1	RITEL	30 10 011
23	MNA-0001	RIVET ALUMINUM 2 X 4 MM	4	FN	SMS 1441
24	179-1690	BUSHING	2	179-1690-A-4	179-1690
25	MTP-3035	SCREW CROSS HEAD 3 X 35 PHJX	2	HFC 9041	3 X 35 PHJX
26	235-9005	SPRING FOR LOCKING DEVICE	2	235-9005-A-4	235-9005
27	MMS-0160	NUT FOR LOCKING DEVISE	2	DANNER	ZZ-0160

NTP	
Date : 29.5.90.	Page / of /
No. : 179-1604-A-4	

SLUT

PARTS LIST 179-160B

PARTS LIST