

4.7 Remote Control

4.7.1 Characteristics of the interfaces

Using the remote control option, you can fully operate the GC 223 by remote control either via a series (RS 232 C) interface or a parallel (IEEE 488) interface.

This section first describes the basic characteristics of the built-in interfaces, the command syntax and the data format. Then detailed information is given about the registers and commands made available for remotely controlling the GC 223.

4.7.2 IEEE 488

The interface is characterised by the following facilities:

Handshake source function	SH1	Full capability
Handshake termination function	AH1	Full capability
Speaker function	T5	Basic speaker implementation; Series query; TON always false; end addressing at MLA
Listening function	L3	Basic listener implementation; LON always false; End addressing at MTA
Operating call function	SR1	Full function
Remote/self switchover function	RL2	No control with lock
Parallel query function	PP0	No capability
Reset function	DC0	No capability
Initiate function	DT0	No capability
Controller function	C0	No capability

In a deviation from the standard, the switchover between remote and automatic control takes place via the 'REN' or 'GTL' commands and not via the REN interface line.

The following parameters can be set in the GC 223 program under the menu item, "IEEE 488" interface options:

Address	0..30
End Character	CR LF CR + LF EOI EOI + LF

4.7.3 RS 232 C

The RS 232 C series interface uses both the TxD and RxD data lines for information exchange. The hardware protocol with the RTS and CTS lines is also supported. The connectors on the GC 223 are assigned as follows:

Connection	Function
2	TxD
3	RxD
4	RTS
5	CTS
7	GND

The following settings can be made in the System settings menu, "Remote settings":

Baud rate	1200 2400 4800 9600 19200
Data bits	7 8
Stop bits	1 2
Parity	none even odd
Protocol	none RTS/CTS XON/XOFF
End character	CR LF CR + LF

4.7.4 Command Syntax

The command syntax corresponds to that of the IEEE 488.2 standards. The following is an explanation of the terms, special characters and rules of syntax.

Terms, Characters	Explanation	Example
<EOS>	End character, sent as conclusion of a transmissions or serves to recognise the end of a transmission	Depends on the interface settings
Command header	Specifies the command to be executed.	
Argument	Contains the value to be input; can be transferred in various formats (also see the "Data Format" section.	

<SPACE>	Separates the command header from the argument.	
Command	Command header and argument together.	
:	Separates command headers from one another.	
,	Separates arguments from one another.	
?	Attached to the command header for interrogating an argument	
;	Separates individual commands from one another.	
Command sequence	Several commands one after another.	
' or "	Marks the beginning and the end of a string argument.	
" or '"	Immediate repetition of the ' or " character in a string argument. Accepts the character in the string without the argument being taken as closed.	

The GC 223 can process command sequences, whereby only one query is allowed per sequence which must be positioned at the end of the sequence.

You can transmit upper and lower case letters when transmitting command headers and arguments.

4.7.5 Data Format

All numerical input and outputs are in SI units (volts, amperes, ohms, V/V etc.). The following summary shows the formats used:

Format	Description	Examples
<NR1>	integer numbers	1, -8
<NR2>	Real numbers	1.4, -3.64
<NR3>	Real numbers with exponents	1.56E+1, -1.67E-12
<String>	Character sequences without CR (ASCII 13) and LF (ASCII 10). Also see the "Command Syntax" section	'Test character sequence'
<ARBITRARY ASCII RESPONSE DATA>	Character sequences of indefinite length, closed by the end character.	abcdefg.....zzzzzz and even more<EOS>
<DEFINITE LENGTH ARBITRARY BLOCK RESPONSE DATA>	Data byte sequence with definite length, closed with the end character	#10 0123456789<EOS>

4.7.6 Register

Various registers are used in GC 223 in order to interrogate the state of the device via the interface. Most registers are defined in the IEEE 488.2 Standard and are extended for the specific characteristics of the GC 223. The following table shows the relationship of all registers used together with the associated bit assignments and resulting values:

Register	Description
STB Status Byte Register	Bit 7 Not in use, always '0' 6 RQS/MSS Status of the RQS line, if queried over the hardware serial connection MSS (Master Summary Status), if queried via the *STB? Set to '1', if a message exists for the controller. 5 ESB Standard Event Status Bit Set, if since the last read or delete operation something has changed in the Event Status Register. 4 MAV Message Available Set if there is still data to read through the controller. 3 Not in use, always '0' 2 Not in use, always '0' 1 Not in use, always '0' 0 ISR Set if the internal status register has a changed contents. The internal status can be queried with ISR?
ESR Standard Event Status Register	Bit 15 - 8 Reserved— answer with '0' 7 PON Set to '1' when the GC 223 is switched on 6 URQ Not used 5 CME Shows the processing errors that are stored in the CMR register and can be queried with CMR? 4 EXE Shows an execution error that is stored in the EXR register and can be queried with EXR? 3 DDE Shows that a GC 223-specific error has occurred and which can be queried with DDR? 2 QYE Shows a query error that is stored in the QYR register and can be queried with QYR? 1 RQC Always '0' because the GC 223 is not able to take over bus control. 0 OPC Unused and always '1' if and *OPC is recognised because all commands are processed in a strictly one after another.

ESE	Event Status Enable Register	Is used to mask the ESR. If a bit is set to '1', an associated bit in ESR can be set and can initiate a collective alarm, otherwise nothing.
ISR	Internal Status Register	Bit 7 0 6 0 5 0 4 0 3 2 1 Set if a transmission error (time out) occurs. 0 Set if the device is in the 'local' state.
ISE	Internal Status Enable Register	Used to mask the bits in the ISR. If a bit is set to '1', then the associated bit in the ESR can be set and a collective alarm initiated, otherwise nothing.
CMR	Command Error Register	Holds the last syntax error that occurred while processing the interface buffer. Bit 7 0 6 0 5 0 4 0 3 General error 2 Disallowed syntax 1 Disallowed argument 0 Unknown command
EXR	Execution Error Register	Holds the last execution error 0 No error 1 Query in the 'Remote' state not allowed 2 A Query in the 'Local' state not allowed 3 Setting in the 'Remote' state not allowed 4 Setting in the 'Local' state not allowed 5 Argument outside the specified range 6 Too many or too few parameters 7 No data to transmit

DDR Device Dependent Register	Holds the last GC 223-specific error Bit 8 7 6 5 4 3 2 1 No measurement system connected 0 Command not allowed in this state
QYR Query Error Register	Holds the last error queried. 0 No error 1 Buffer overflow either for input or output

4.7.7 Command Set

The commands available for remotely controlling the GC 223 are summarised in the following sections.

Most of the commands have a short form and a long form. These are made clear by the selection of upper or lower case letters. The part of the command header written in upper case has to be transmitted so that the GC 223 can recognise the command. The part of the command written in lower case letters can also be transmitted, but need not be. It serves to enhance understanding.

In general, queries can take place locally. However, most of the set operations have to be carried out using remote control operation.

The command tables give information about the allowable operations. An 'x' marked in a column means:

- LS setting or executing is allowed in local state operation,
- LA querying in local state operation is allowed,
- RS setting or executing in remote control operation is allowed,
- RA querying in remote control operation is allowed.

4.7.7.1 General Commands

This section describes the "common commands" defined in the IEEE 488 standard as well as register queries and miscellaneous memory and loading commands.

			L	L	R	R	Commentary.
			S	A	S	A	
*IDN?	<ARBITRARY ASCII RESPONSE DATA>			x		x	Return of device identification in the format: <Companyname>, <Model>, 0, <Software-Version>, i.e., HAEFELY TRENCH AG, GC 223, 0, X.XX
*RST					x		Sets the standard configuration
*TST?	<NR1>			x		x	GC 223 returns a '1' for unavailable or defective hardware, otherwise a '0'
*OPC?	<NR1>			x		x	If all pending operations have been carried out, then the answered returned is ASCII 31 ('1'). The GC 223 always returns a '1' because all commands are processed strictly one after another.
*OPC			x			x	Sets the OPC bit in the ESR status register to True. Has no further effect on the GC 223
*WAI			x			x	Does not affect the GC 223 because all commands are processed strictly one after another.
*CLS			x			x	Clears all registers
*STB?	<NR1>			x		x	Calls up and then deletes, with exception of the MAV bit, the contents of the status register masked by the service request enable. Remotely controlled via the IEEE 488. Can also query the contents via serial poll. In this case bit 6 identifies the state of the RQS line instead of the Master Summary Status.
*SRE	<NR1>				x		Sets the Service Request Enable Register and determines which events initiate an RQS/MSS when using the IEEE 488 interface.
*SRE?	<NR1>			x		x	Returns the contents of the Service Request Enable Register.
*ESR?	<NR1>			x		x	Returns and then clears the contents of the Event Status Register.
*ESE	<NR1>				x		Sets the contents of the Event Status Enable Register and determines which events initiate a collective error.
*ESE?	<NR1>			x		x	Returns the contents of Event Status Enable Registers
ISR?	<NR1>			x		x	Returns and then clears the contents of the Internal Status Register
ISE	<NR1>				x		Sets the Internal Status Enable Register and determines which internal sequence should initiate a collective error.
ISE?	<NR1>			x		x	Returns the contents of the internal Status Enable Register.
CMR?	<NR1>			x		x	Returns and then clears the contents of the Command Error Register.
EXR?	<NR1>			x		x	Returns and then clears the contents of the Execution Error Register.
DDR?	<NR1>			x		x	Returns and then clears the contents of the Device Dependent Register.

QYR?	<NR1>		x		x	Returns and then clears the contents of the Query Error Register.
REN			x		x	Switchover to remote control.
GTL			x		x	Switchover automatic control.
HELP?	<ARBITRARY ASCII RESPONSE DATA>		x		x	Returns the available command headers.
SRQ SRQ?	ON OFF		x	x	x	Only functional if the IEEE 488 interface is used. In the 'ON' state a Service Request is initiated when a bit changes in the Serial Poll Byte.

4.7.7.2 Commands for Controlling the System

There are commands that can be activated only for a switched on or switched off high voltage. The RHE (Remote High Voltage ON) and RHA (Remote HV OFF) columns give information about the necessary states of the system. If a command is executed in an incorrect state, bit 0 in the DDR Register is set.

Remark:

LA = Local Answer

RA = Remote Answer

LS = Local Set

RS = Remote Set

Command header 1	Command header 2 or Arg.	Command header 3 or Argument	Arg.	L A	R A	L S	R S	Commentary
HV HV?	OFF ON READY			x	x		x	Switches the high voltage on or off. Before switching all alarms has to reset. In order to switch on the high voltage, the system must be in the READY state. The READY state may not last more than 5 seconds, otherwise the High Voltage Missing alarm is initiated. You can interrogate the state of the alarm with 'HV?'.
CHargVOLTage:	REF REF?	<Nx>		x	x		x	Sets or returns the charging voltage due to set control mode.
ControlMDe ControlMDe?	ChargVOLTage TotChargVOLT TEstVOLTage			x	x		x	Sets or returns control mode to charging voltage per stage, total charging voltage or Test-voltage. Testvoltage can only selected, if a measuring system is connected.
CHargTIme CHargTIme?	<NR2>			x	x		x	Sets or returns charging time. The minimal possible value is set according system specifications.
POLarity POLarity?	POSitive NEGative			x	x		x	Sets or returns polarity. If polarity is changing the answer will be CHG.
CHoPping CHoPping?	OFF ON			x	x		x	Sets or returns if the next impulse will chop or not.

CHoPpingSet: CHoPpingSet?	SouRCe SouRCe?	GEN CHP						Chopping source from Gen- erator or Checkpulse conden- sator.
	DElay DElay?	<NR2>						Chopping Delay. Range 0.1..4000 us
CRO CRO?	<NR1>							CRO Delay Range -4000..4000 us.
PHaseShift PHaseShift?	<NR1>							Phaseshift due to an AC- Signal. Range 0.1.. 360 degrees.
EFFiciency:	RESet						x	resets Efficiency Factor to Start Efficiency value
	STArT STArT?	<NR2>		x	x		x	sets or returns Start Effi- ciency Factor
	ACT?	<NR2>		x	x			returns actual Efficiency Factor
FLASH:	MODE MODE?	STOP CONT		x	x			continue or stop after a flash, only valid with measurement system.
	DURation DURation?	<NR1>		x	x			Time after a flash is detected as flash
TriggerMOde TriggerMOde?	MANual AUTO EXTErn			x	x		x	sets trigger mode to auto- matic, manual or extern.
TriGger							x	trigger generator
STABilized?	NO YES							if generator is stabilized on selected charging voltage, system returns YES
ImpCouNter:	MAX MAX?	<NR1>						sets or returns maximal im- pulse counter. If you set im- pulse counter, the actual counter is reset to zero. If maximum value is zero, the actual impulse counter runs for ever.
	ACT?	<NR1>						returns actual Impulse counter.
	RESet							sets the actual impulse counter to zero
FlashCouNter:	MAX MAX?	<NR1>						sets or returns maximal flash counter. If you set maximum flash counter, the actual counter resets to zero. If maximum value is zero, the actual flash counter runs for ever.
	ACT?	<NR1>						returns actual flash counter.
	RESet							sets the actual flash counter to zero
HORN	ON OFF							activates Horn before trigger- ing generator
DOHORN	<NR1>							activates HORN for <NR1> ms
RemoteWatchDog RemoteWatchDog ?	<NR1>							With a value greater zero , RemoteWatchDog is acti- vated. If GC223 does not receive a command during <NR1> s, it will switch off the high voltage. With a zero this function can be deactivated.

4.7.7.3 Trips and Measurements

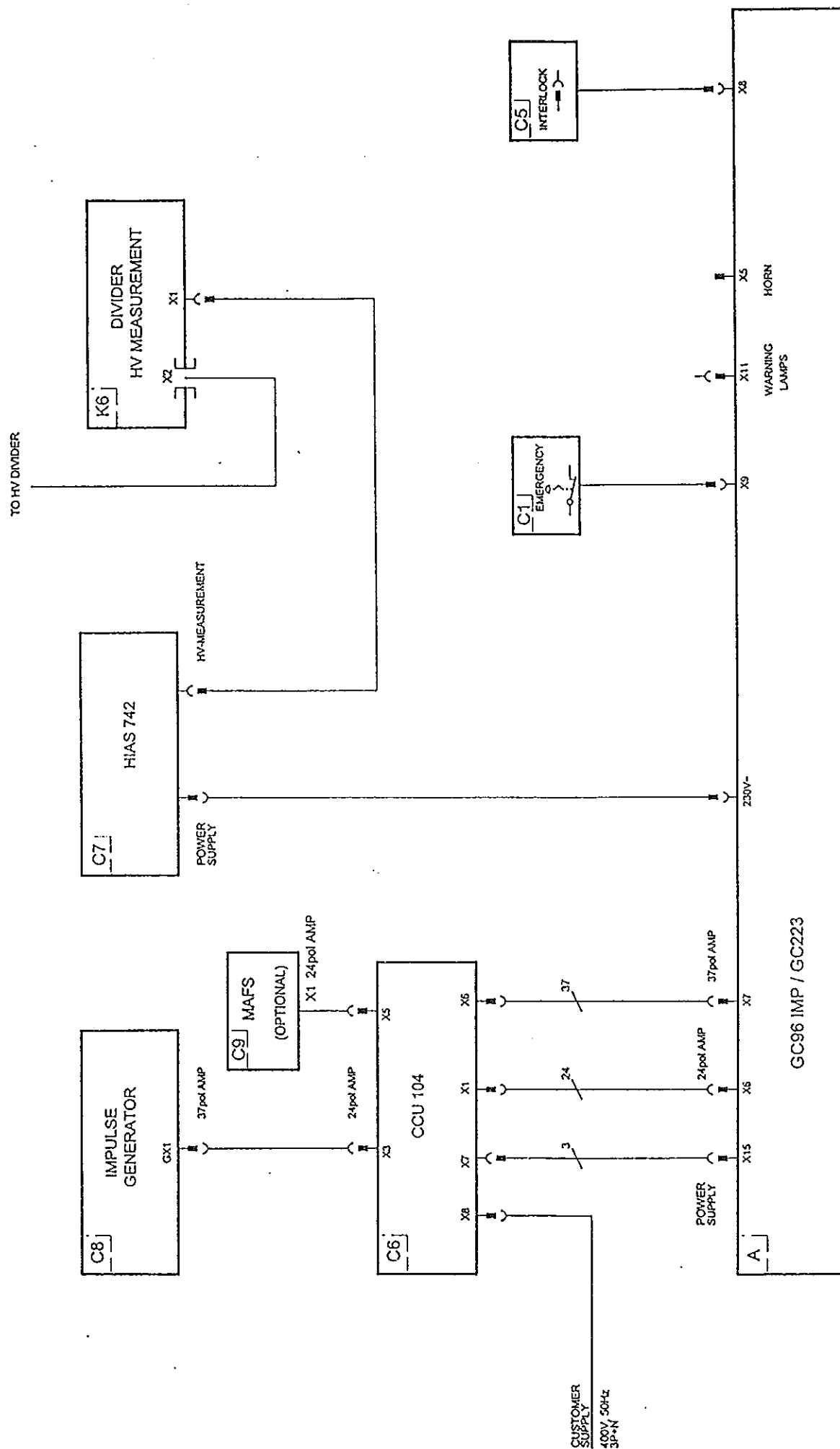
All values are in IS units ([A][V], etc.)

Command header1	Command header f2 or Arg.	Command header f3 or Argument	Arg	L A	R A	L S	R S	Commentary
ChargVollage:	TRIP TRIP?			x	x		x	sets or returns actual charging voltage trip.
	VAL?							returns actual charging voltage according to set control mode.
PRImCUrr:	TRIP TRIP?							sets or returns actual primary current trip
	VAL?							returns actual primary current
PeakValue?	<NR2>			x	x			returns measured peak value. This value is only available if a measuring system is connected.
ISFLASH?	NO YES			x	x			indicates if a flash has happened. This command is only valid if a measurement system as SV642, DIAS 73x or HIAS 74x is connected. With DMI 551 is a flash detection not possible.
GAPDistance?	<NR2>							measured gap distance in [m]
CHPDistance	<NR2>							measured chopping or sphere gap distance.

4.7.7.4 Alarms

Command header1	Command header2 or Arg.	Command header3 or Argument	Arg	L S	L A	R S	R A	Commentary
ALarMs:	RESet					x		Deletes all existing alarms if this is possible.
	ANY?	NO YES						If one or more alarm is present you will receive a [YES]
	EMerGency?	NO YES			x		x	Emergency off button is pressed [YES], or not pressed [NO].
	InterLock?	NO YES			x		x	Safety interlock is open[YES], or closed [NO].
	NOFiring?	NO YES			x		x	Voltage trip for regulating transformer [YES]
	SEIfFiring?	NO YES			x		x	Current trip for regulating transformer [YES]
	HVFail?	NO YES			x		x	High voltage missing. The time between the state READY and the state HVON may not be longer than 5 seconds.
	SCR?	NO YES						Static Voltage Difference
	Efficiency?	NO YES						Efficiency Error is happened

	MEASure- ment?	NO YES						Error on Measurement system. For example no Trigger, no Com- munication with measurement system
	CHargTRip?	NO YES						Charging Voltage Trip
	PRimCurTrip ?	NO YES						Primary Current Trip
	CCUPower?	NO YES						No 24V Power on CCU 104
	SafetyGND?	NO YES						Safety System is grounded or not



(

(

(

(

5 Specifications

5.1 General information

Data entry	Membrane keypad	31 keys
Processor	486 DX4	100 MHz
Monitor	Graphic LCD	240 x 128 pixels
Interfaces	2 Serial Ports	1 Printer Port
Dimensions	450 x 135 x 350 mm	W x H x D
Weight	6.6 kg	less packaging

5.2 Power requirements

Line voltage	85 to 264 V	auto-select
Line frequency	50/60 Hz	
Fusing	max. 2 AT	30 W power consumption

5.3 Operating conditions

Temperature	10 to 40° Celsius	
Humidity	35 to 80% RH	non-condensing

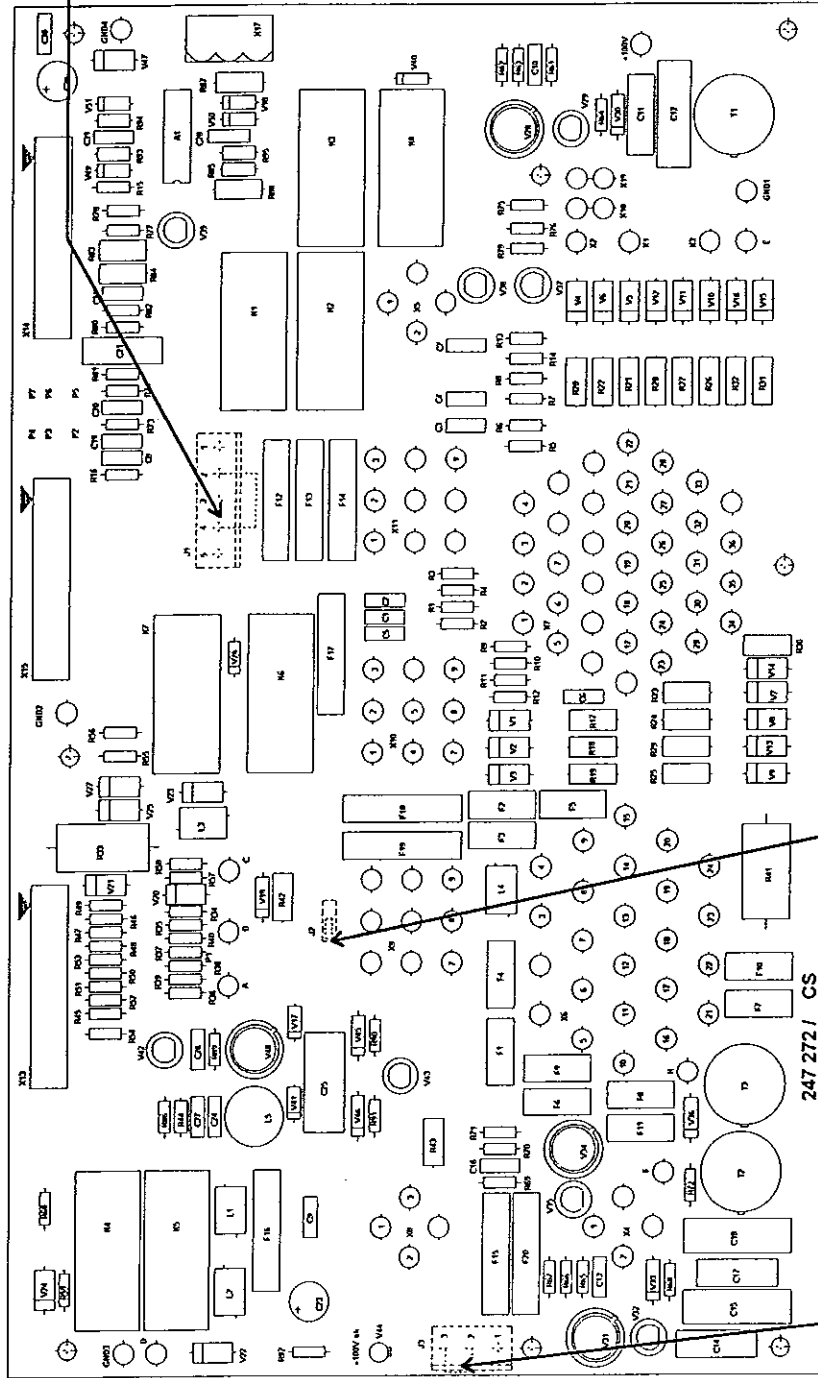
5.4 Hardware Configuration

For following operation you have to open the GC 223:

- Additional emergency contact
- Synchronisation on external AC Voltage
- Internal / external Warning lamp power



Before opening the system disconnect the power strip. Open GC 223 from bottom side, then you see a print with connectors



Power Line for Warning lamps
Jumper J1

Pos	Description
4-5	Internal 230 V
1-2	External Voltage (default)

Jumper J2

Pos	Description
1-2	External emergency contact on AX 10 Customer . For switch on the generator AX10:7 and AX10:8 has to be short circuited..
2-3	Internal emergency contact (default)

Jumper J3

Pos	Description
1-2	Trigger synchronised to an external AC signal
2-3	Trigger synchronised to internal line (default)

6 Index

A

AC-Sync	11
Alarm	25
24 V Power Supply	26
Charging Voltage Trip	25
Earth System	26
Efficiency Factor	26
Emergency	25
Flash	25
Flash Counter	26
Impulse counter	26
No Firing	25
Peakvoltmeter	25
Power Failure	26
Primary Current Trip	25
Self Firing	25
Static Voltage Difference	25
Alarms	
possible	25
Auto Gap	18

C

Charg. Volt/Stage	23
Charging	
Stop/Go	18
Time	23
Voltage	23; 27
Voltage Trip	25
Chopping	
Delay	28
from	27
Parameter	27
Chopping Gap	17; 18; 21; 30
Distance	32
Menu	29
Connectors	9
Control	
Display	23
Main	23
Menu	20; 23
Counter	24
Flash	24
Impulse	24
CRO	28

Customer	12
----------------	----

D

Display mode	30
--------------------	----

E

Efficiency	
Factor	26
Parameter	28
Start	28
Emergency	12; 13; 25
Additional contact	45

F

Flash	25
After	28
Counter	24; 26
Duration	28
Parameter	28
Function keys	16

G

Gap	
Selection	30
Generator Gap	17; 21; 29; 32
Generator Stages	30

H

Hardware Configuration	45
History	24
Hom	11; 30

I

Impulse	
Counter	24; 26
Interlock	12; 13; 25

K

Key	
Arrows	17

Chopping Gap	17
Control	16
Horn	18
HVOff	19
HVOn	18
Info	16
Manual Trigger	18
Numeric	17
Operating	17
Ready	18
Reset Alarms	16
Reset Counter	16
Setup	16
Keypad	15

L

Language	30
----------------	----

N

New	
Options	33
No Firing	25

O

Options	
New	33

P

Peak Voltmeter	25
RS232	31
Setup	31
Phaseshift	28
Polarity	23
Power	
Failure	26
switch	15

Primary	
Current	27
Current Trip	25; 27

R

Remote	
Setup	31
Remote Alarm	26
Remote Control	34
Reset Alarms	16

S

SCR Setup	33
Self Firing	25
Sequence	26
Setup	
Menu	22
Storage	31
Software Update	33
Static Voltage Difference	25
Synchronisation on external AC Voltage	45
System	
Menu	30

T

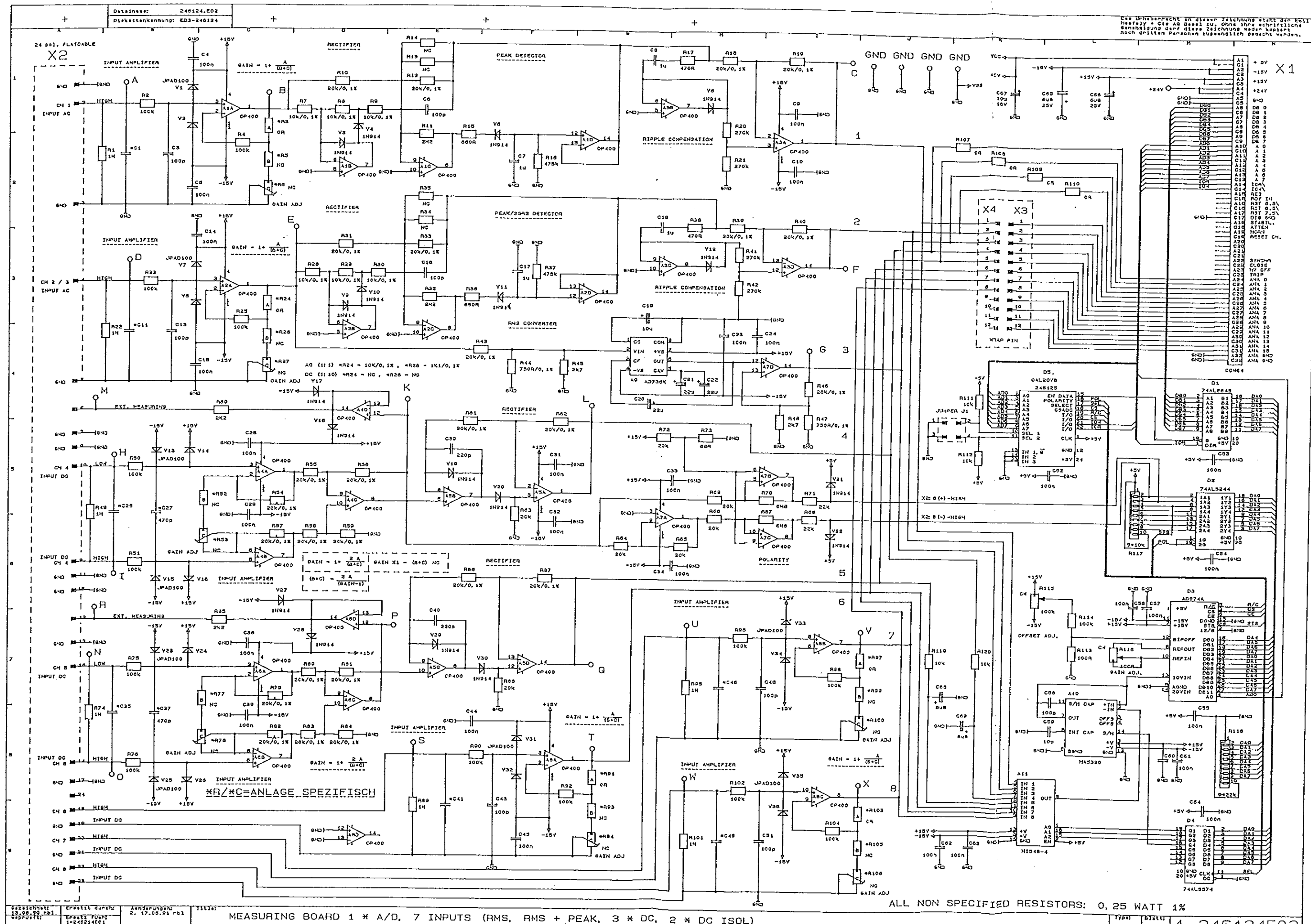
Test Voltage	23
Total Charging Voltage	23
Trigger	
mode	24
Parameter	27
Trips	27

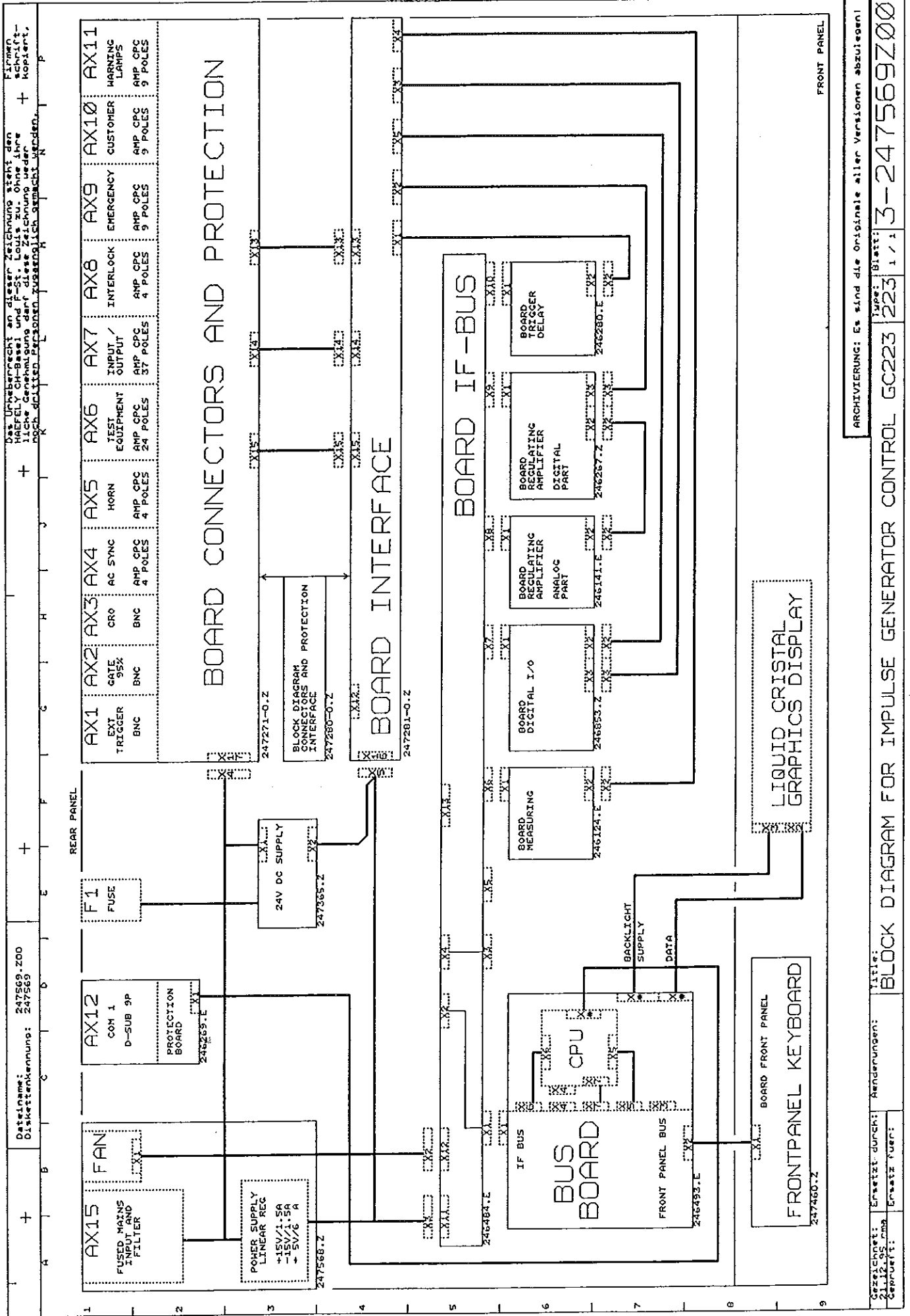
W

Warning lamp	12; 14
Internal / external power	45

List of diagrams GC223 IMPULSE

Name	Diagram No.	Sheets	Board No.	Partlist No.	Stock No.
Block Diagram for GC223 IMPULSE	3-247569Z00	1	-----		093262.1
Board Measuring	1-246124E02	1	246124	246124	096065.1
Board Regulating Amplifier Analog Part	3-246141E04	6	246141	246141	096067.1
Board Regulating Amplifier Digital Part	2-246267E03	1	246267	246267	096068.1
Protection Board LPT1	3-250414Z00	1	250415	250413	096295.1
Board Trigger Delay	3-246280E04	6	247600	247601	096070.1
Board CPU-Interface	3-247622Z01	1	247623	247624	
IF Bus	3-247895Z00	2	246896	246897	096200.1
Digital I/O for AC , DC ; Imp	3-246853Z04	3	246854	246855	096072.1
Board Connectors and Protection	3-247271Z03	5	247272	247273	096322.1
Block Diagram Boards Connect., Prot., & Interface	3-247280Z01	1	-----	-----	-----
Board Interface	3-247281Z00	4	247282	247283	096321.1
Board Fronpanel	3-247460Z01	1	-----	-----	-----
Mains Filter Power Supp and Fan GC223 & GC96	3-247568Z02	1	-----	-----	-----

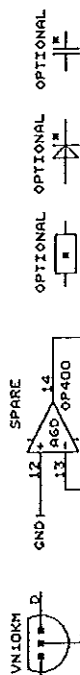
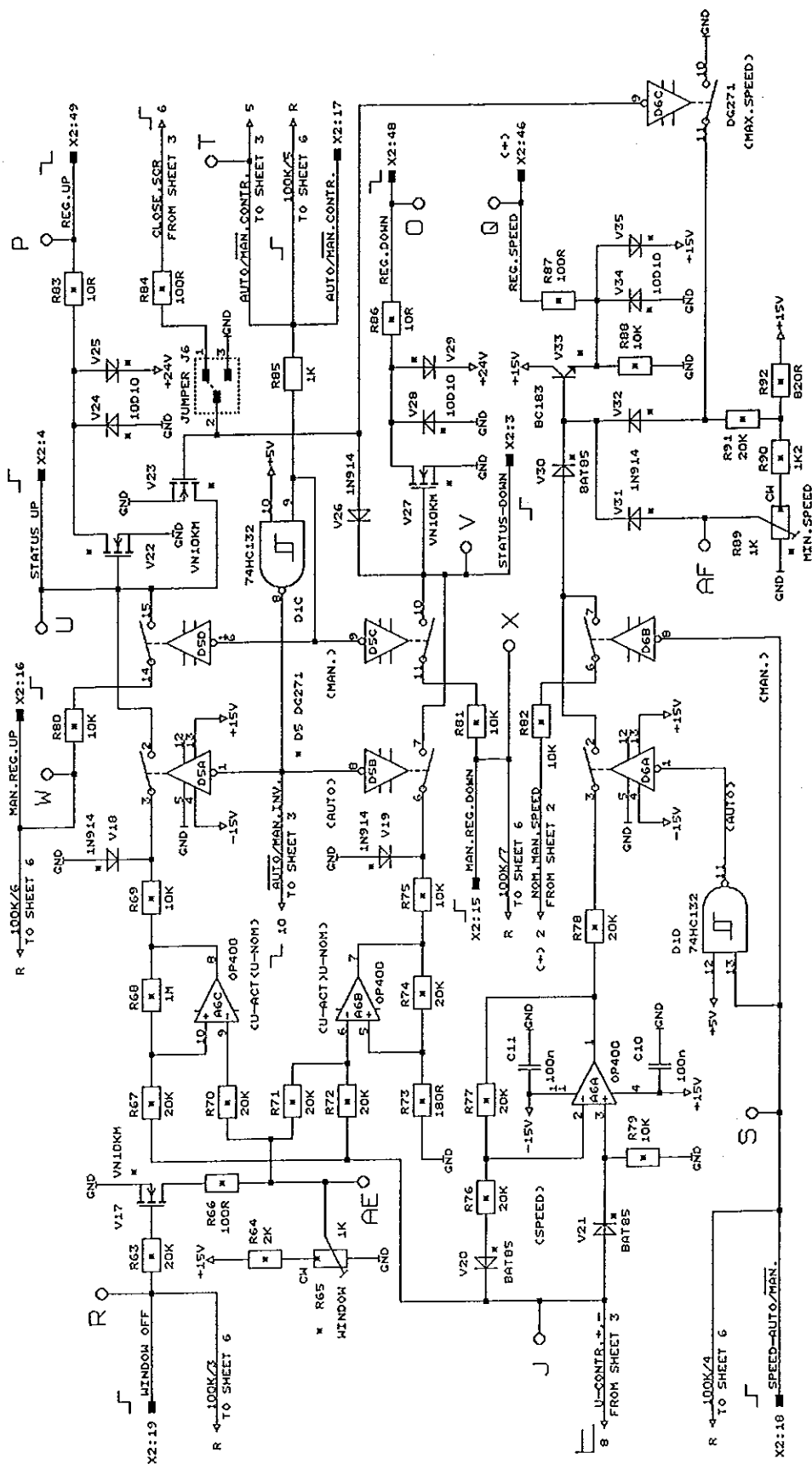




Detaillname: 246141-4.E04
Diskettenkennung: E03-246141

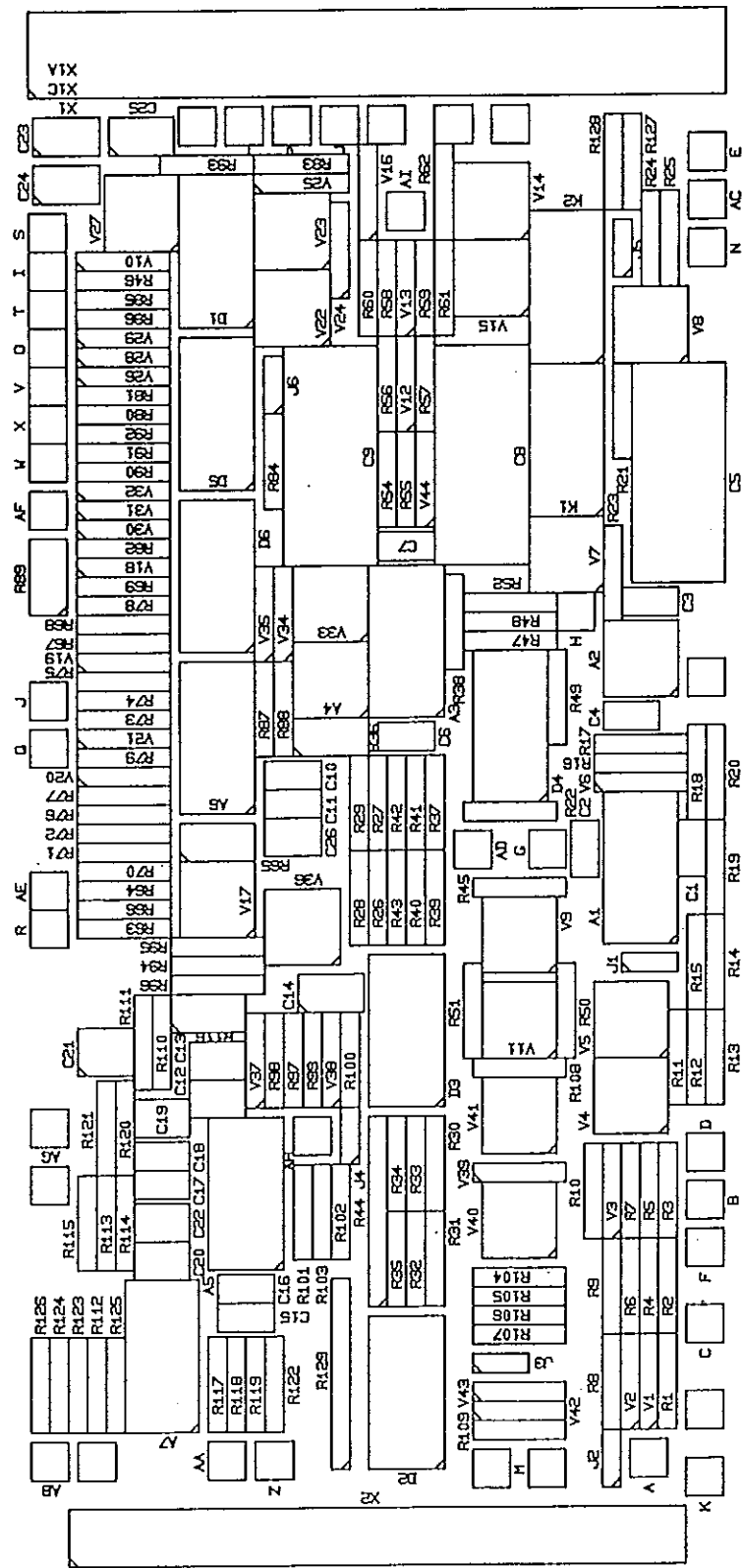
HAEFELY

Das Urheberrecht an dieser Zeichnung steht den
HAEFELY CH-Basel und F-St. Louis zu. Ohne ihre
schriftliche Genehmigung darf diese Zeichnung weder
noch durch Dritte in irgendeiner Form kopiert werden.

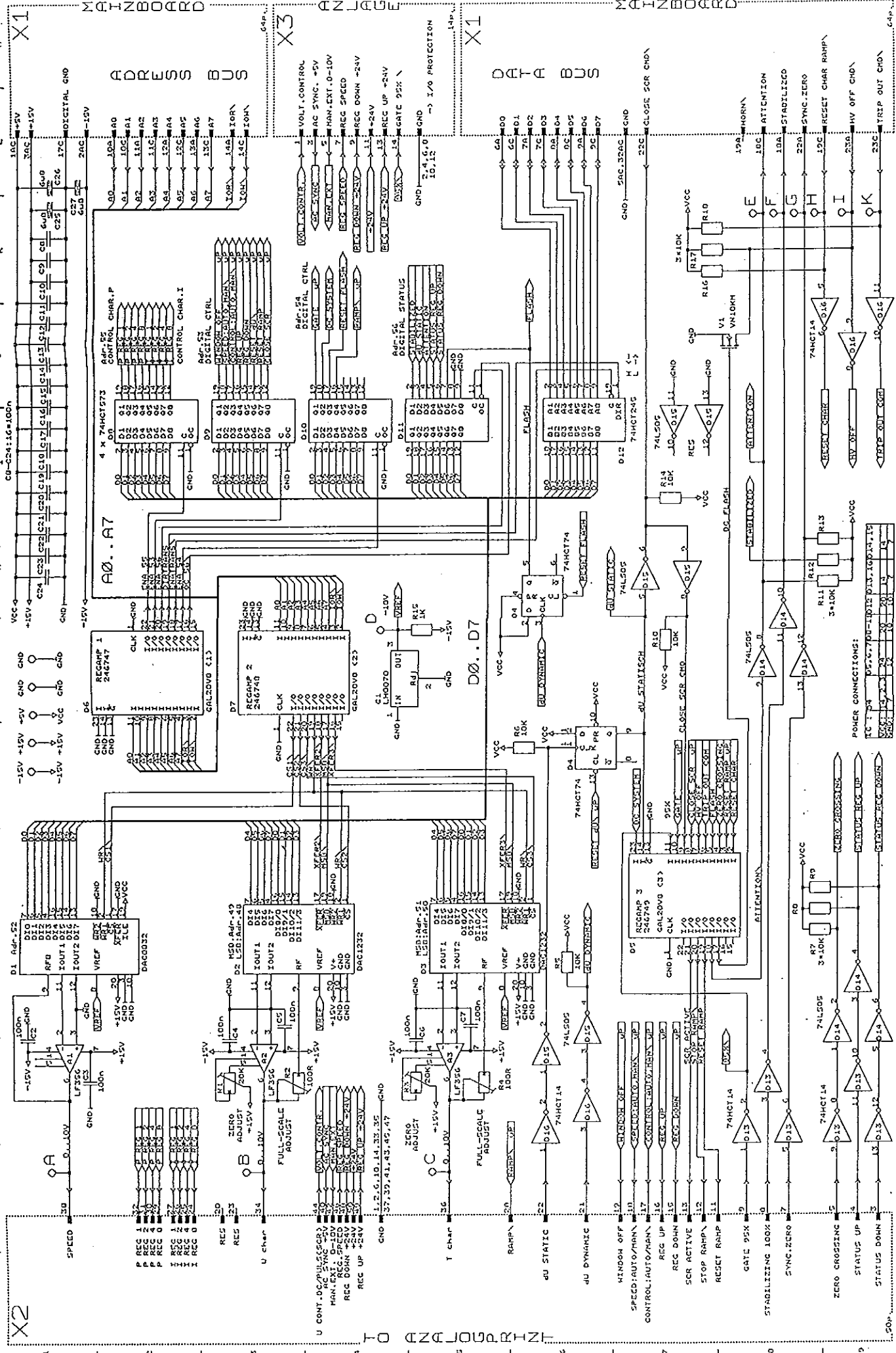


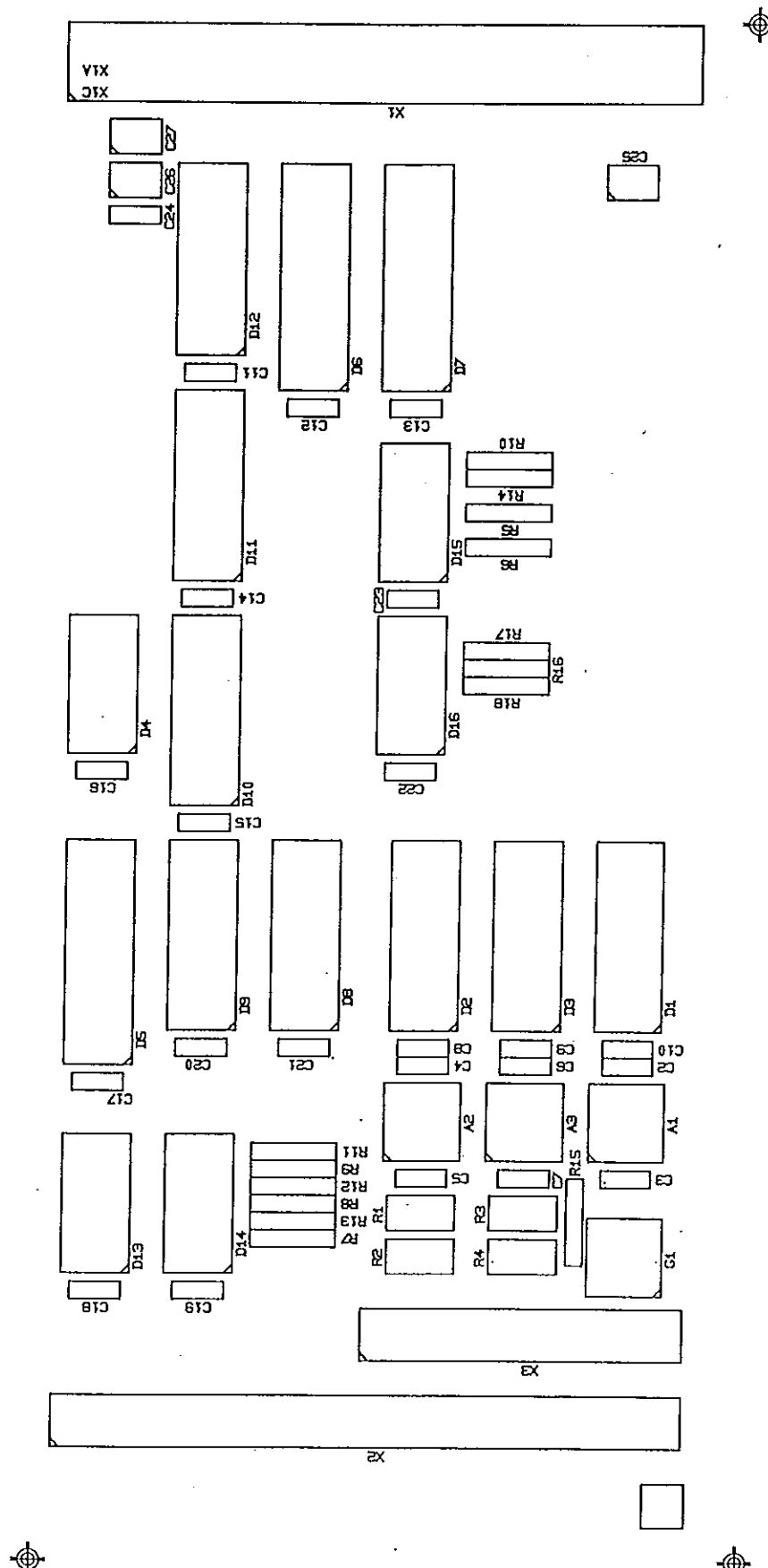
PCB: 246141/2 ALL NON SPECIFIED RESISTORS: 0,25 WATT 1%

Gezeichnet: RBL Geprüft: RBL Freigegeben: RBL	Erstellt durch: RBL Freigegeben: RBL Freigegeben: RBL	Title: 3-246141E04 Blatt: 5/6	Type: 3-246141E04
---	---	----------------------------------	-------------------

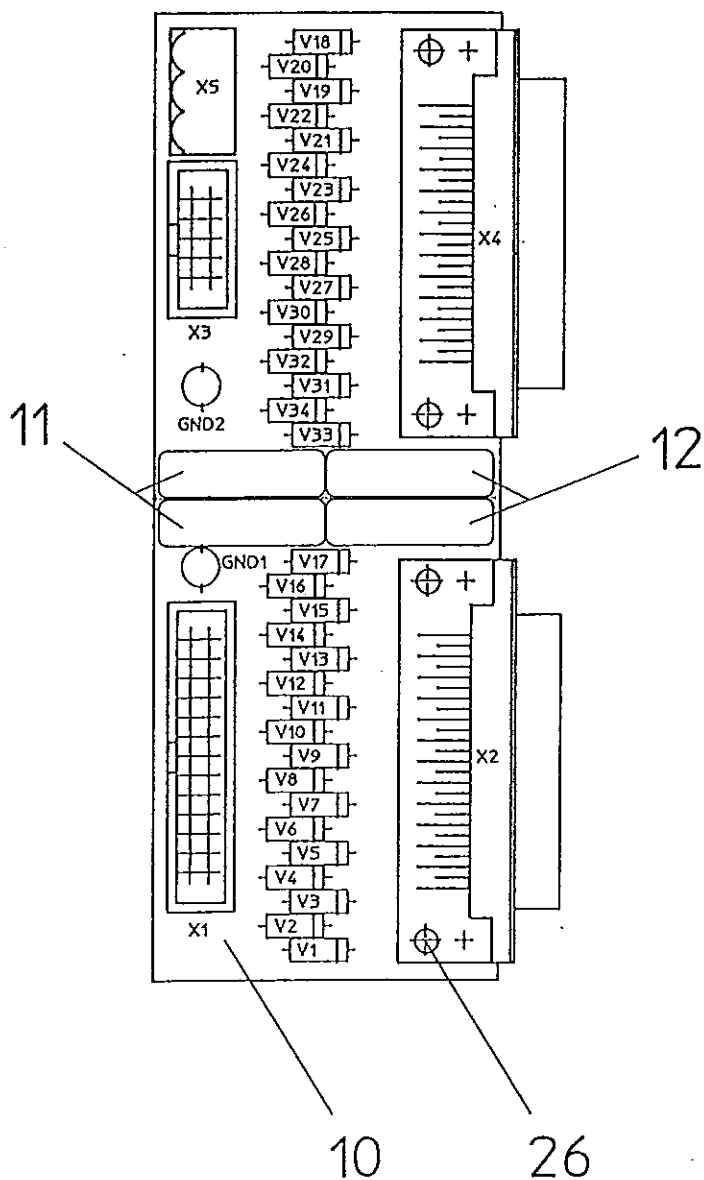


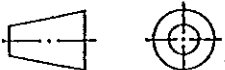
F E L A P B Z : 3-246 141/2 F N R :
DATUM : 12.05.1992 FORMAT : 220.00 X 100.00 WENN TEXT SCHWARZ
MIKROTECHNIK J O B : HYB261 LAYER : BEST.-AUFDRUCK DANN FILM POSITIV





F E L A P B Z : 3-246 267/1 F N R : SCHWARZ
 SPEED SA DATUM : 26.08.1991 WENN TEXT
 J O B : HYB151 LAYER : BEST.-AUFD RUCK DANN FILM POSITIV



Gezeichnet	22.11.95	ERR	Werkstoff :	Abmessungen :	Masse :	Lager-/ RK -Nr. :
Geprüft	23.11.95	EJR				
			Benennung : Print Parallel-Serial Protection P95			Allg. Toleranzen : -
Änderungen :						Stücklisten : KSL
Nr. :	Datum :	Visum :				Massstab : 1:1
01	02.10.96	EJR				HAEFELY  TRENCH
Geprüft	02.10.96	ERR	Lager-/ RK -Nr. :	096295.1	Sach-Code :	4-250413 Z
			Ersatz für :			
			Ersetzt durch :			

Das Urheberrecht an dieser Zeichnung steht den Firmen Haefely Trench AG, Basel (CH) und St.Louis (F) zu. Ohne ihre schriftliche Genehmigung darf diese Zeichnung weder kopiert noch dritten Personen zugänglich gemacht werden.



V1-V17: B2W 04 P5V8



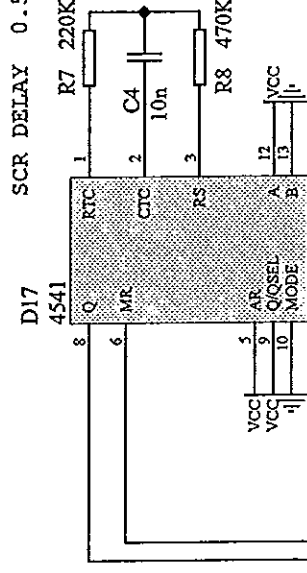
V18 :BZW 04 P5V8
V19-34: BZW 04 P15

TRIGGER LOGIC

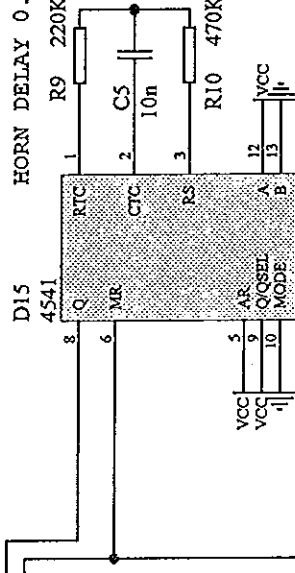


SYNC ON FALLING EDGE OF AC

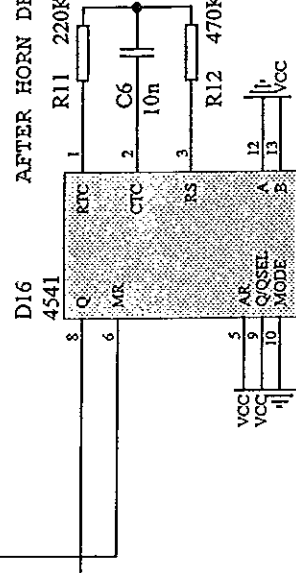
SCR DELAY 0.5"

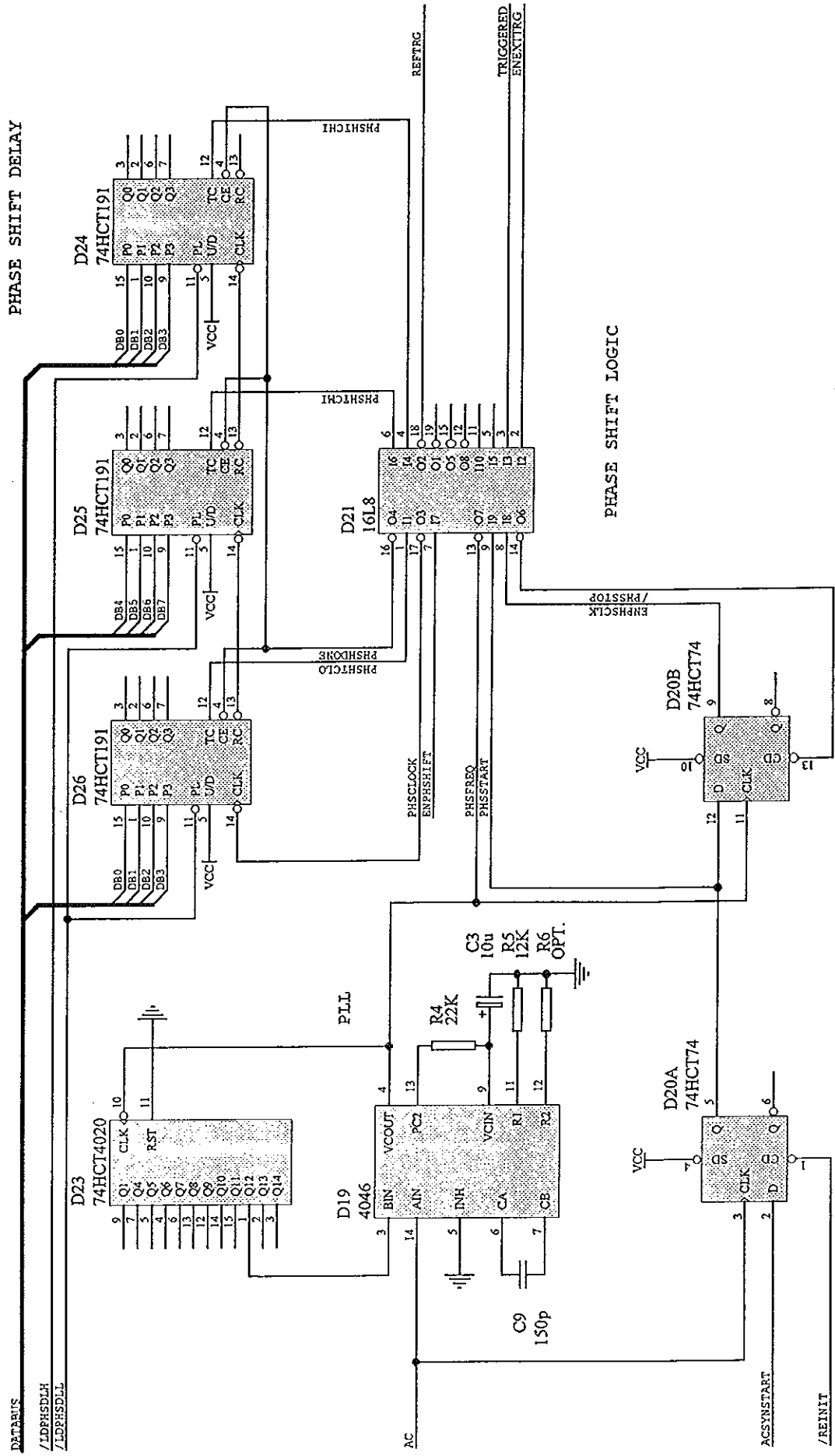


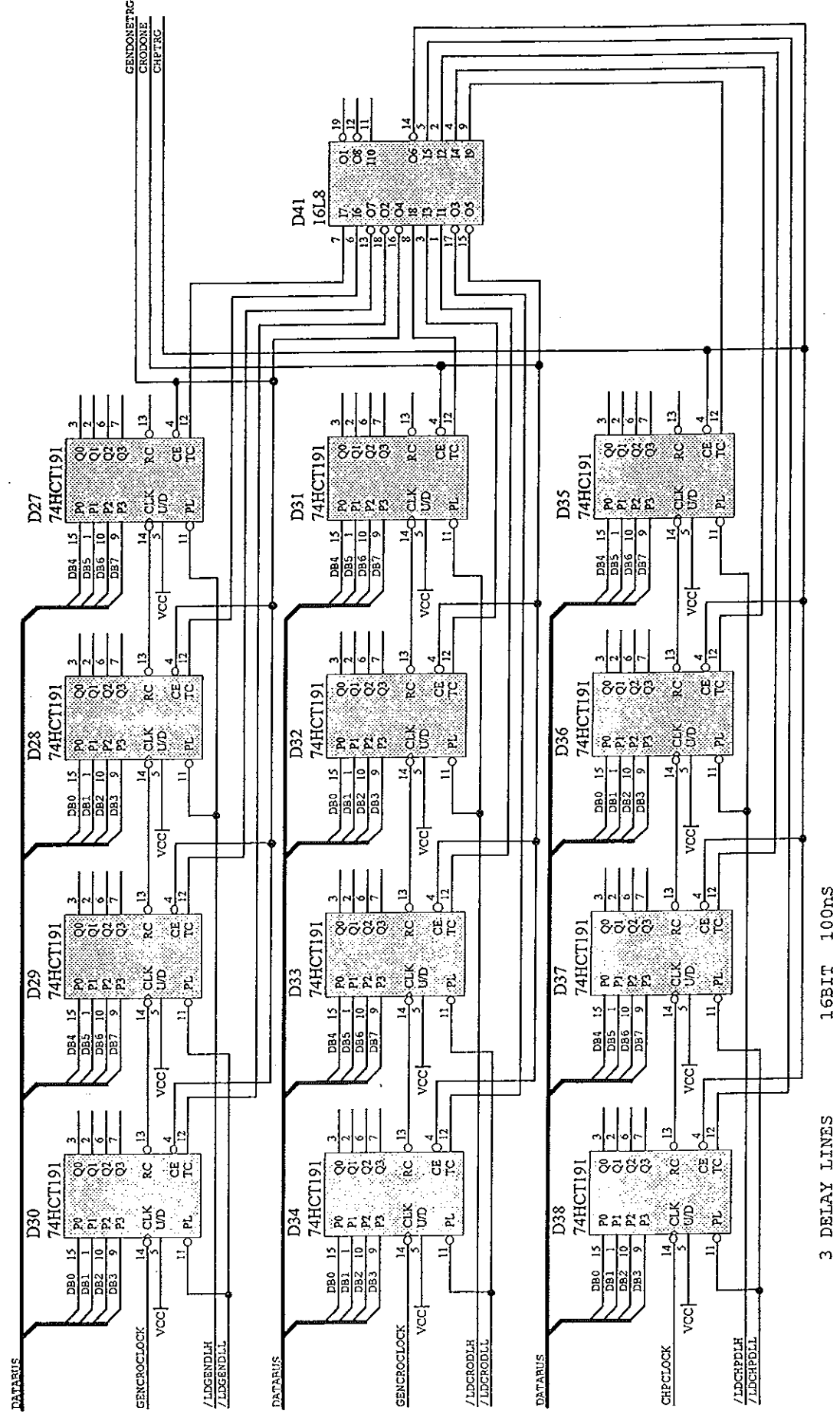
HORN DELAY 0.5"

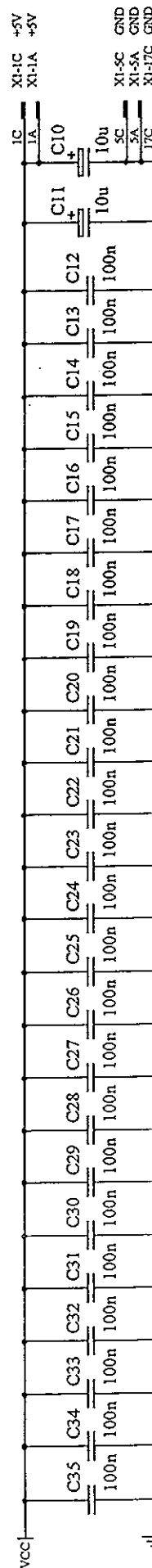
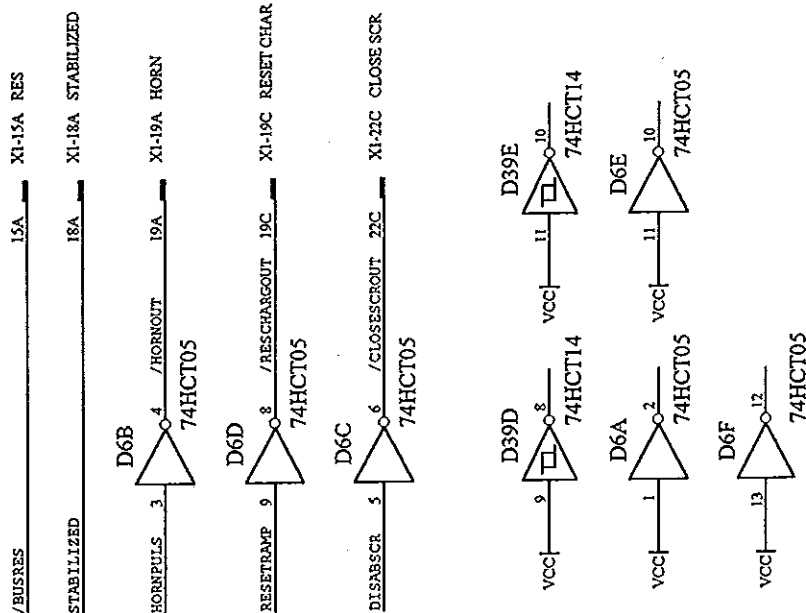
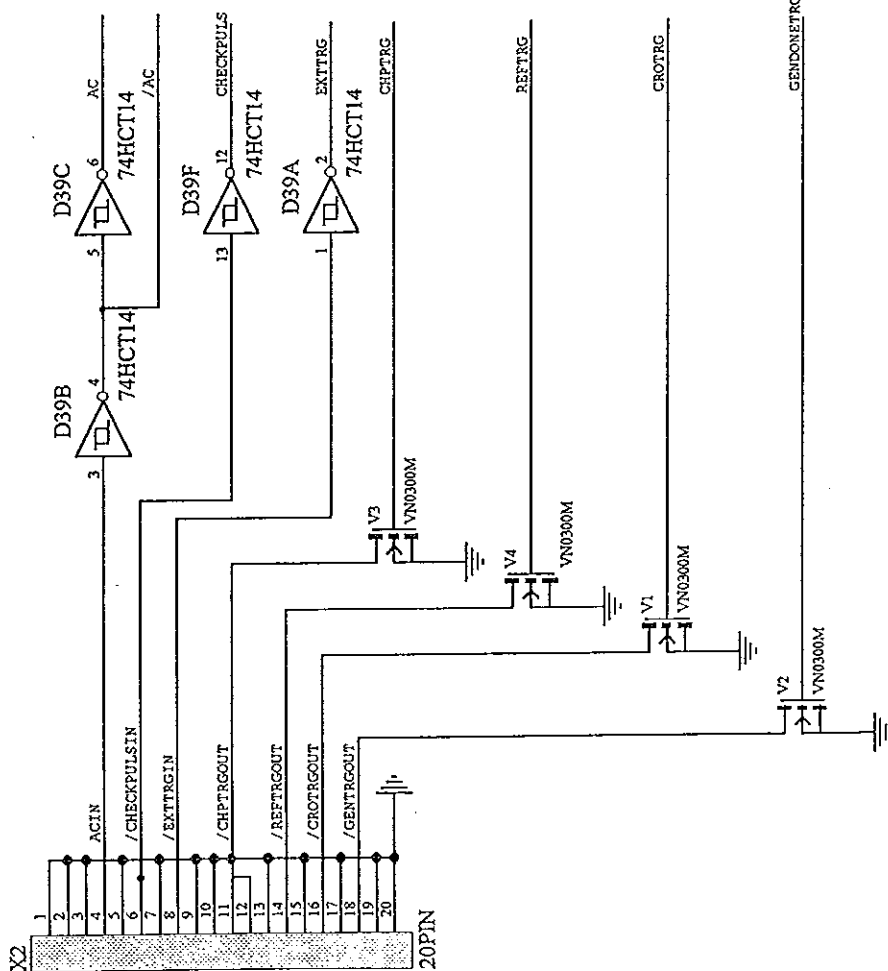


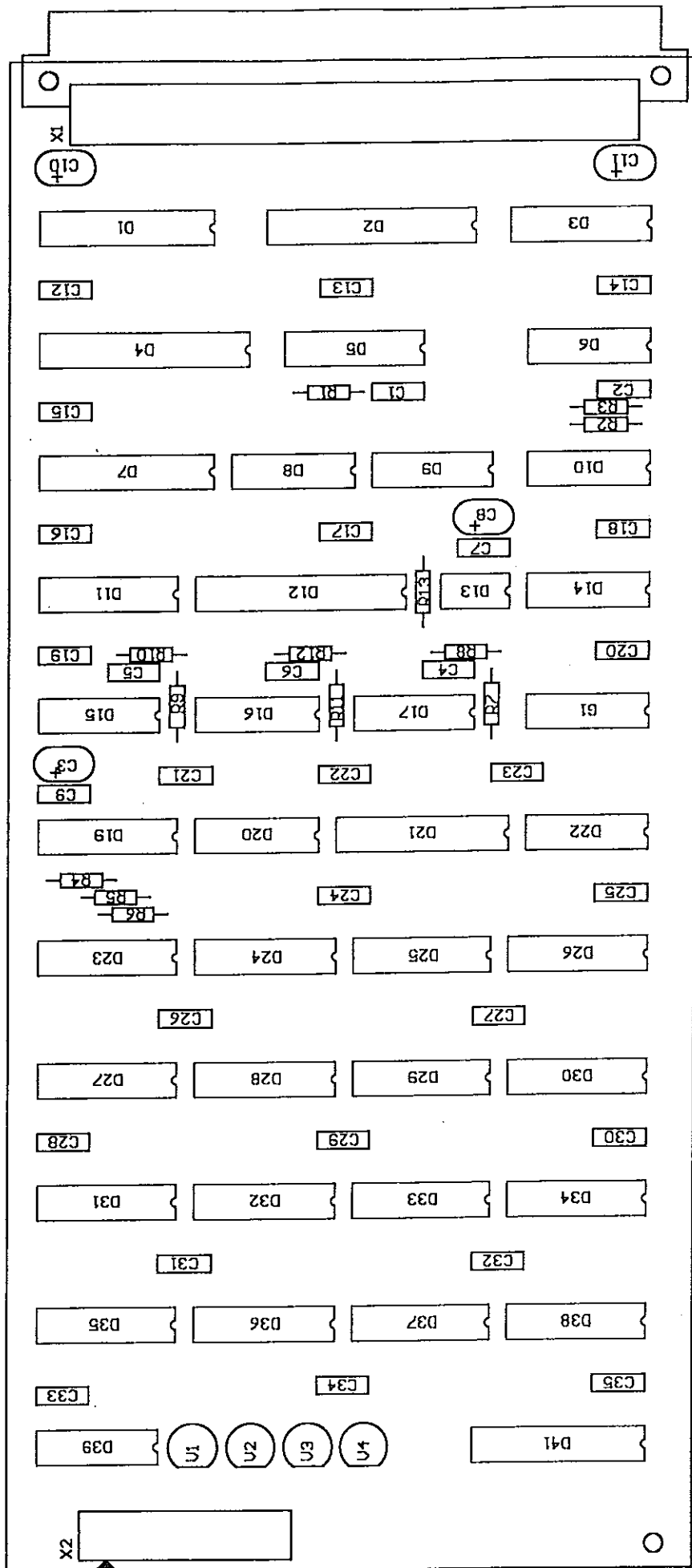
AFTER HORN DELAY











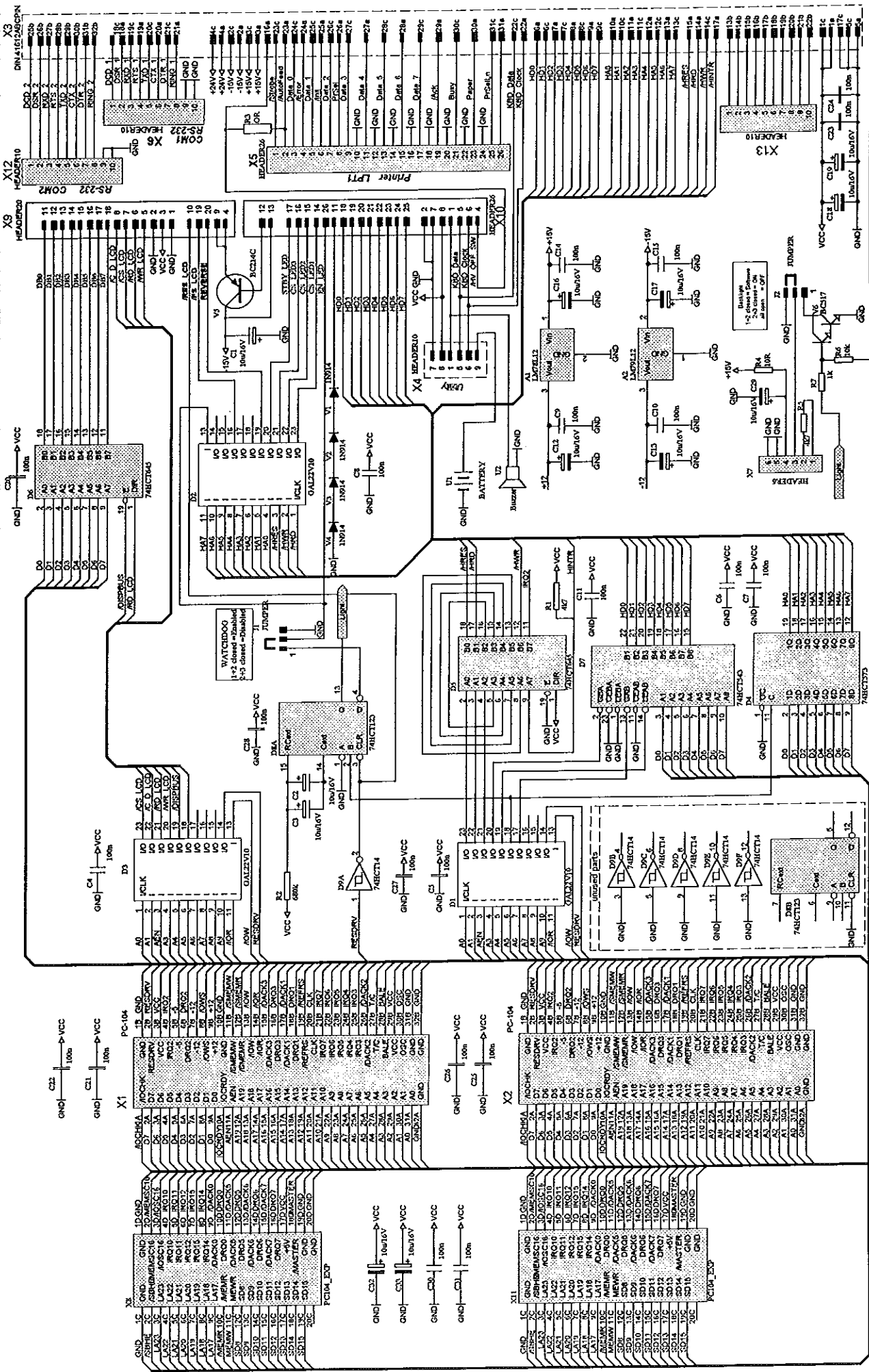
LEITERPLATTE TRIGGER DELAY

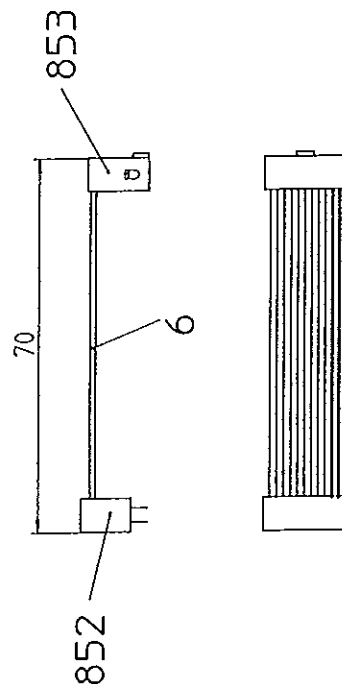
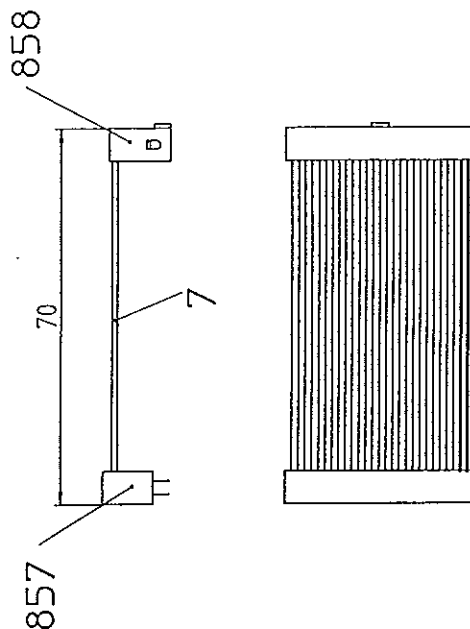
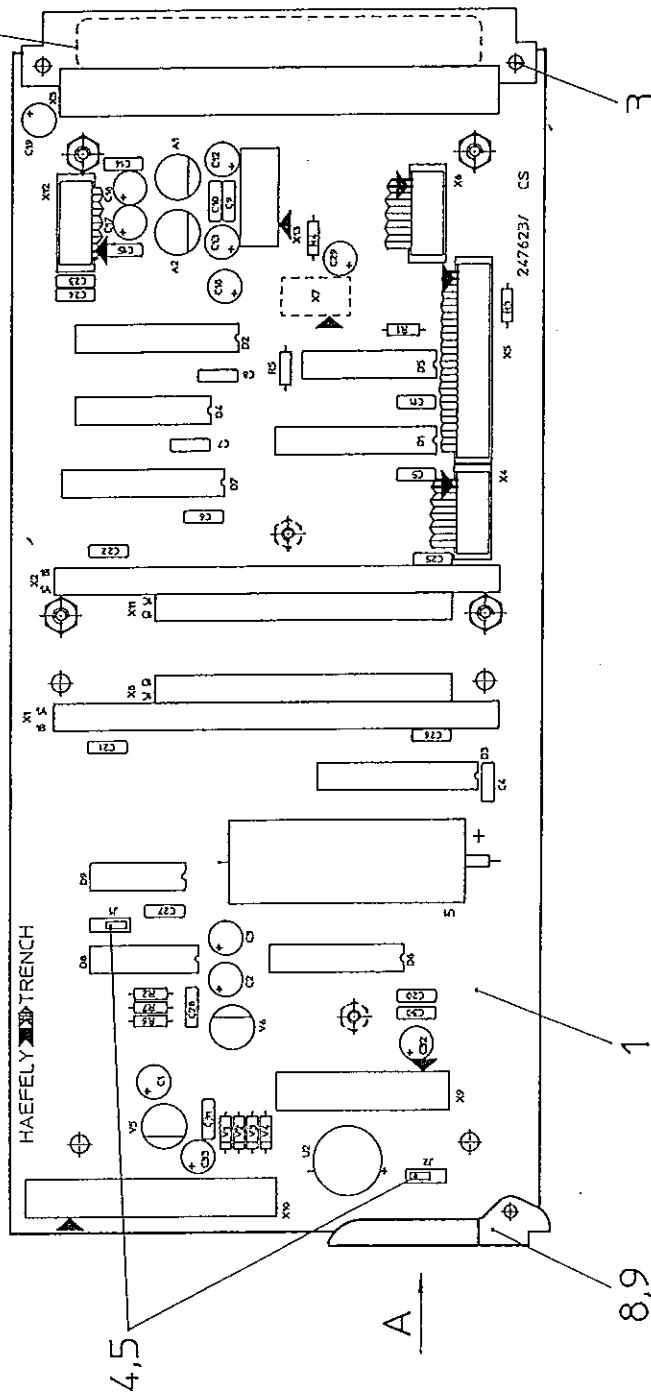
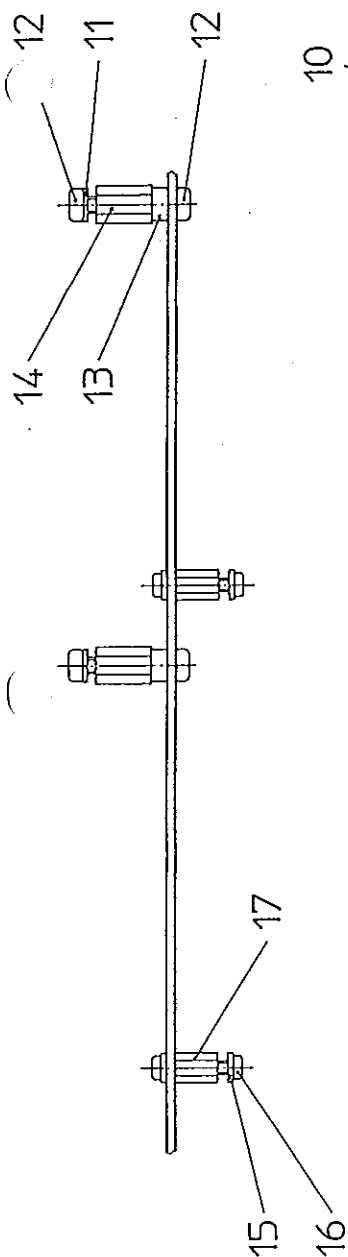
247 600 / 00

Gez: 26.01.96 rma

Aend:

Layer: BD Bestueckungsdruck
WENN TEXT SCHWARZ DANN FILM POSITIV

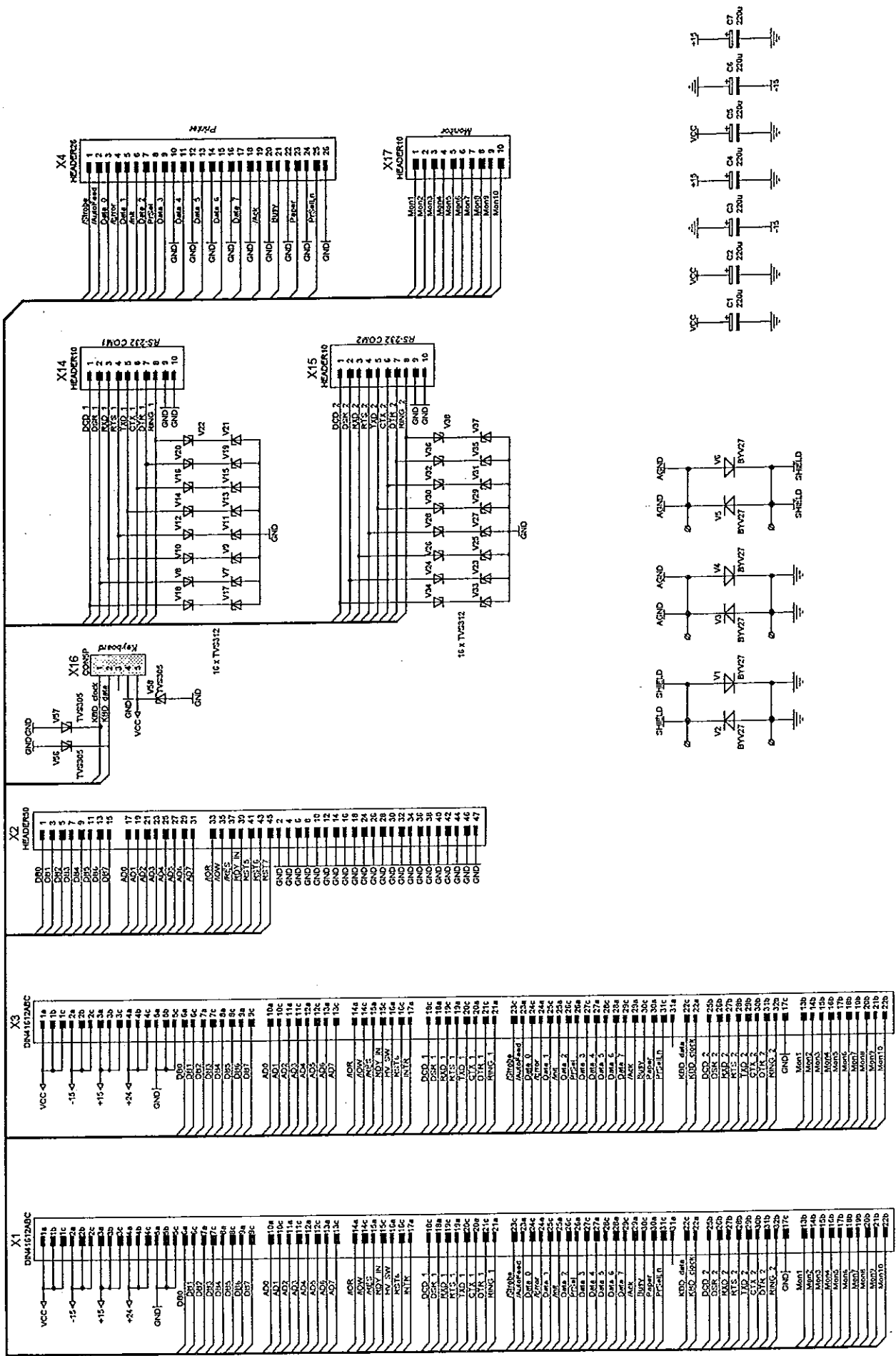


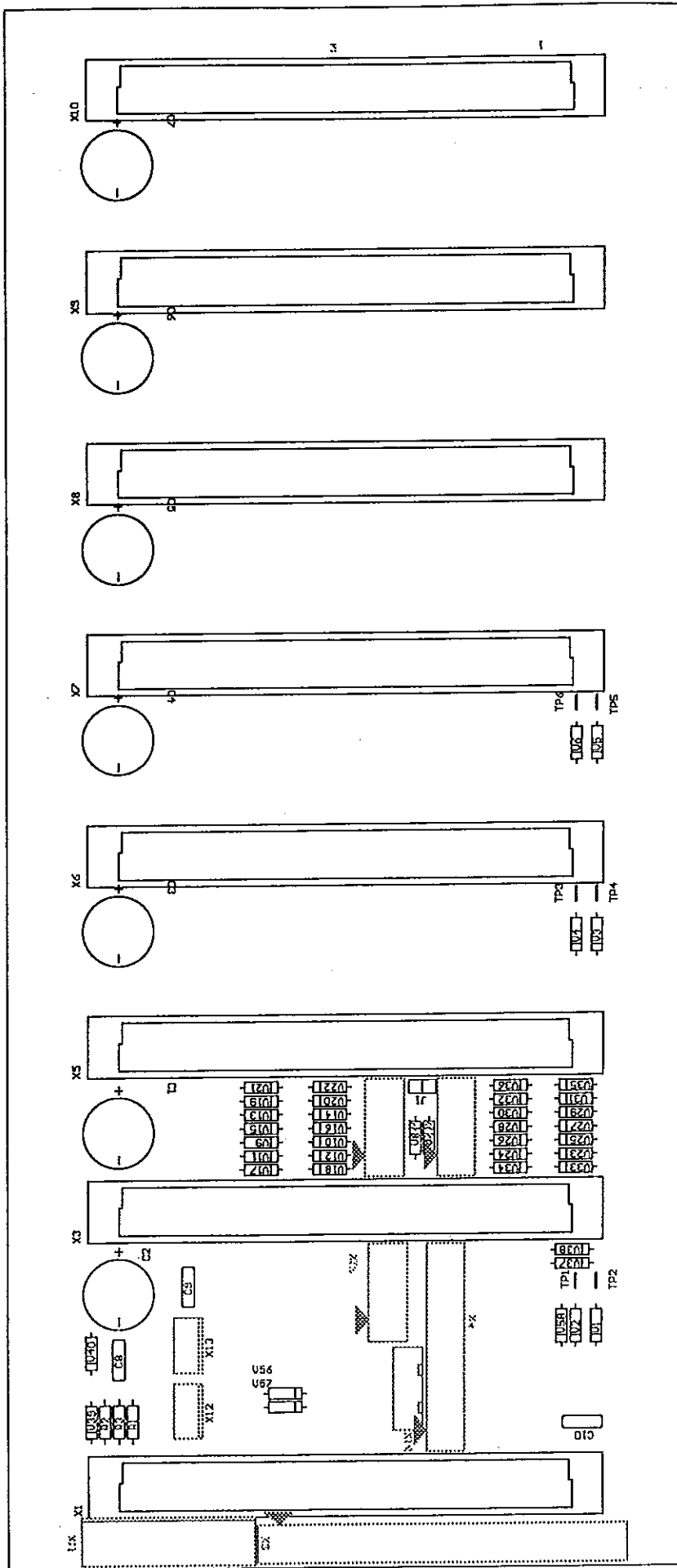


Archivierung: Es sind die Originale aller Versionen abzulegen.

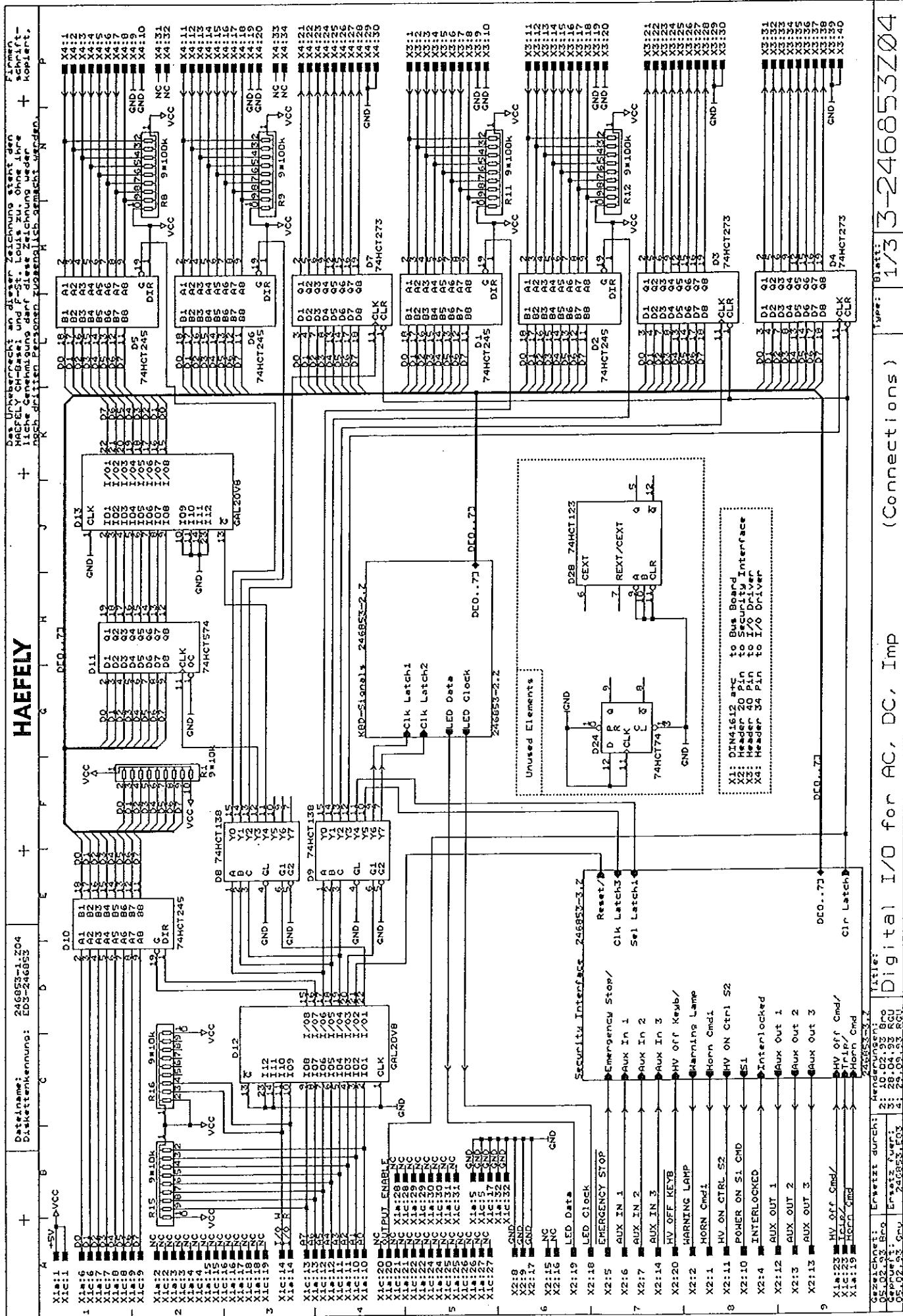
Gezeichnet	29.09.97	EBU	Werkstoff		Abmessungen		Masse		Lager-/ RK -Nr.:	
Geprüft	29.09.97	EJR								
Benennung										
Print CPU Interface kpl										
Allg. Toleranzen : 4-780167 Z										
Stücklisten : KSL										
Massstab : 1:1										
HAEFELY TRENCH										
Sach-Code :										
Änderungen :										
Nr.:	Datum :	Visum :								
03	08.04.98	EBU								
Geprüft	08.04.98	EJR								
Lager-/ RK -Nr. : 096323.1										
Ersatz für :										
Ersetzt durch :										

3-247624 Z

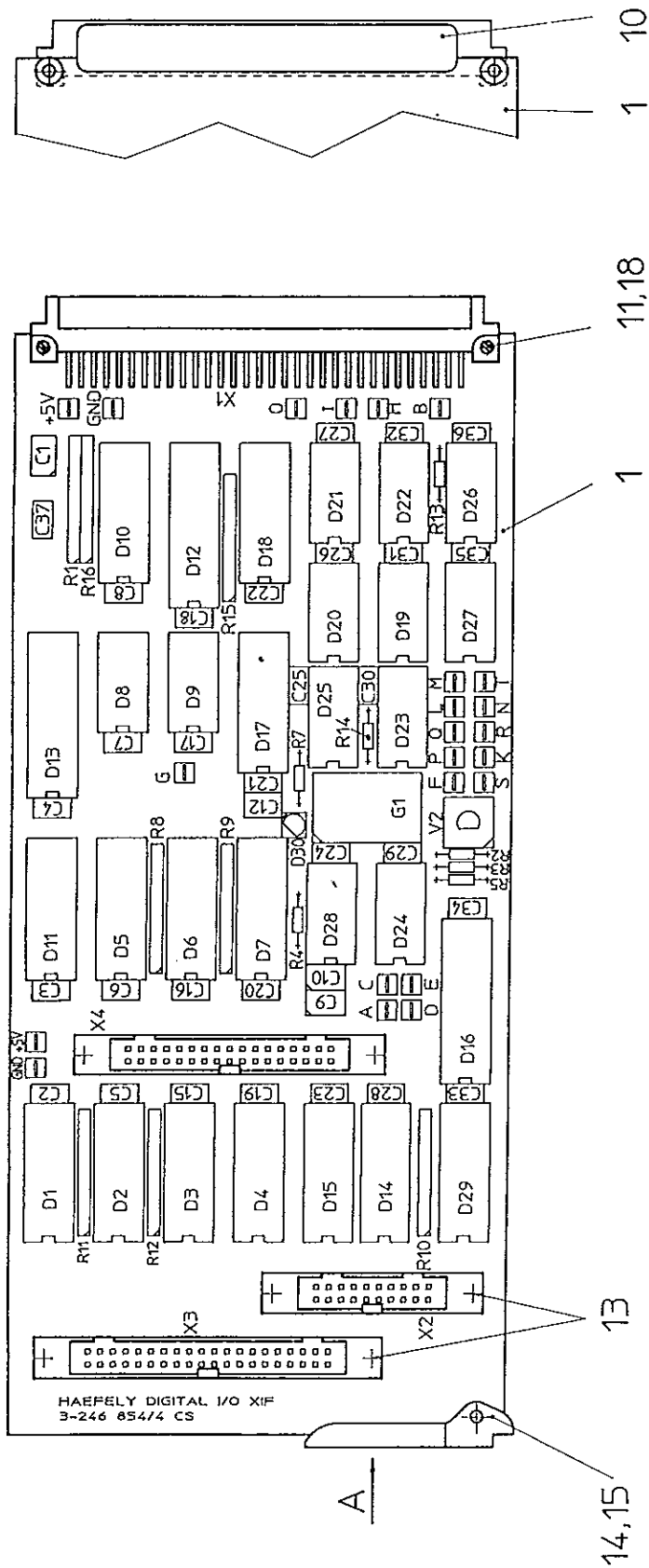




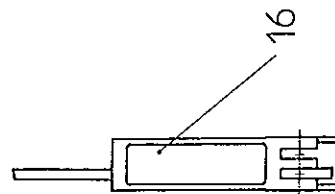
IF-BUS #223
 247896 / 00
 Gez: 29.12.97 R. Guerra
 Aend:
 Layer: Bestueckungsdruck (8D)
 Layerdarstellung: POSITIV



Ansicht von Hinten

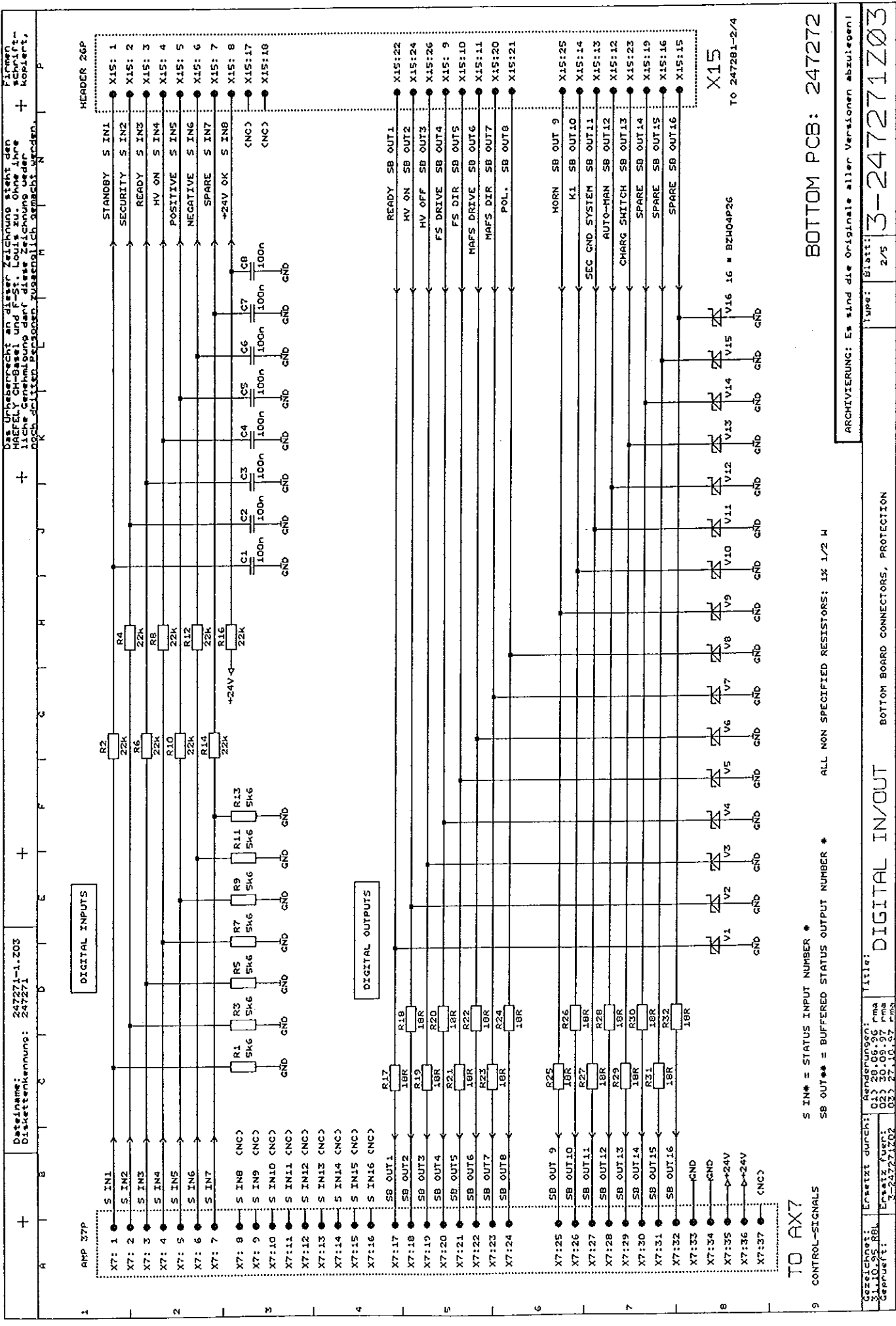


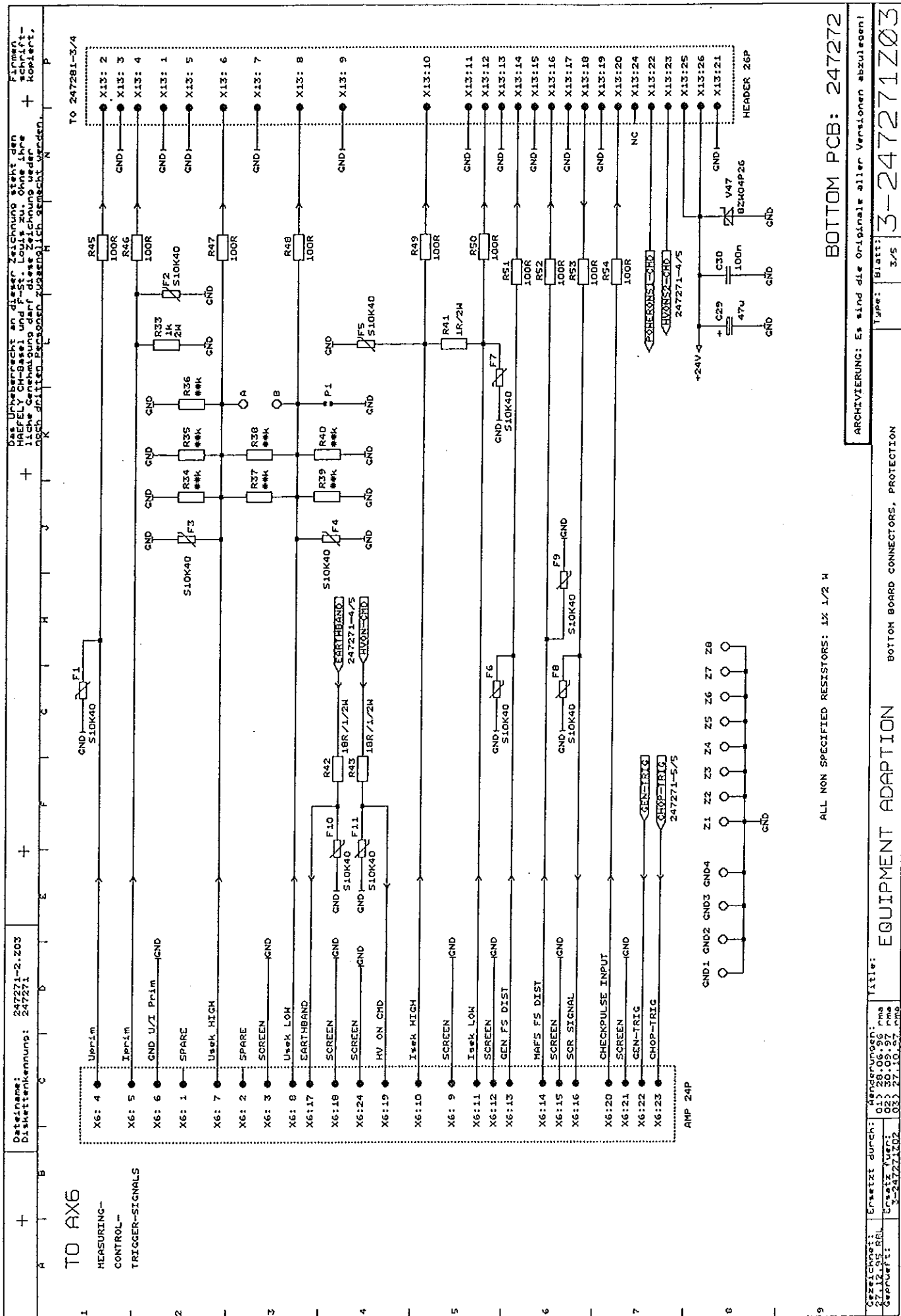
Ansicht A



Gezeichnet	28.10.93	EDT	Werkstoff:	Abmessungen:	Gewicht:	Mat.-Nr.:
Geprüft	28.10.93	ERD				
N. gepr.						
Benennung:						
Print Digital I/O KPL						
Freimasstoleranz : -						
Stücklisten : KSL						
Massstab : 1 : 1						
HAEFELY						
Sach-Code :						
Lager - Nr. : 096072.1						
Ersatz für : 3-246855Z1						
Ersetzt durch :						

3-246855 Z

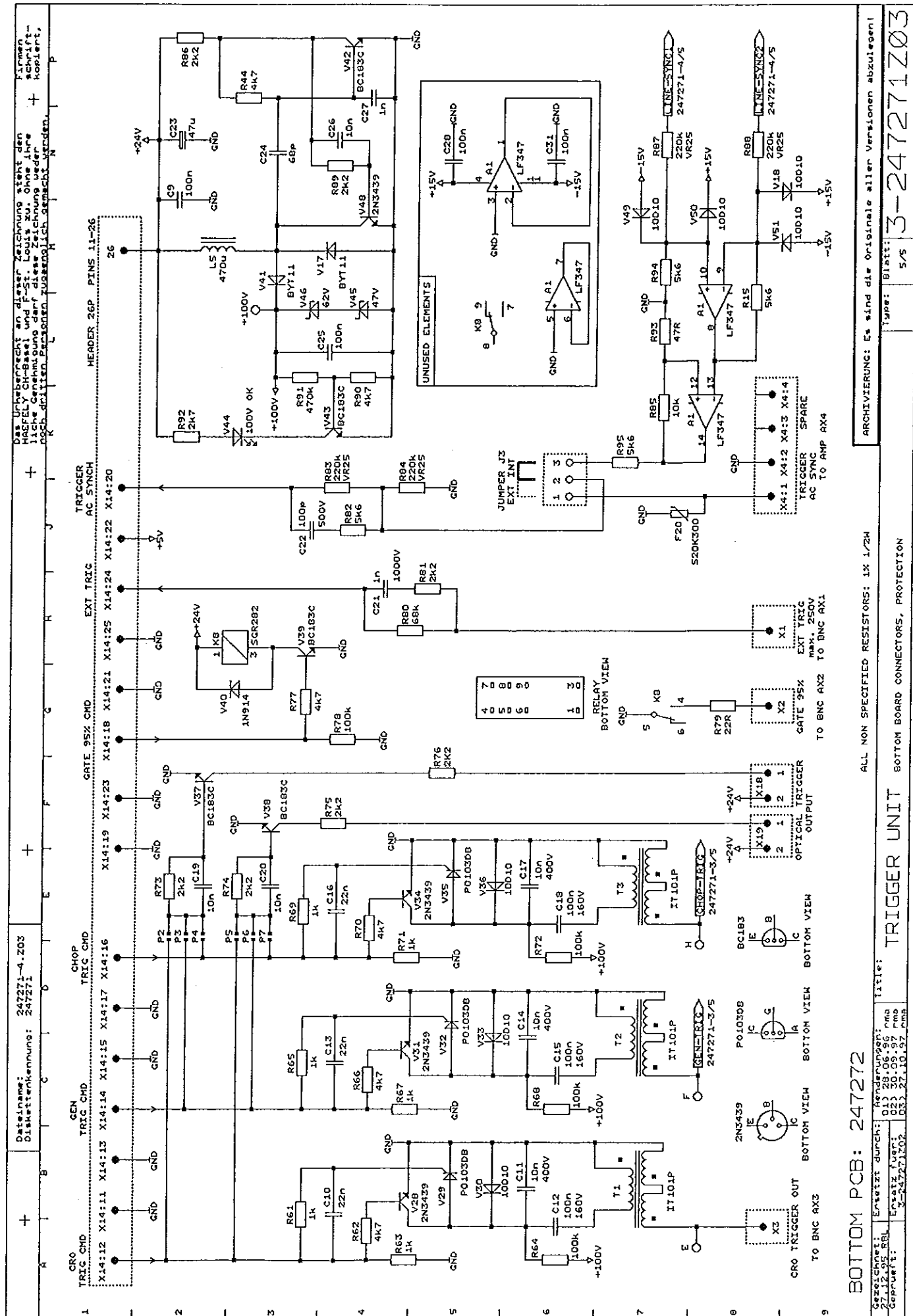


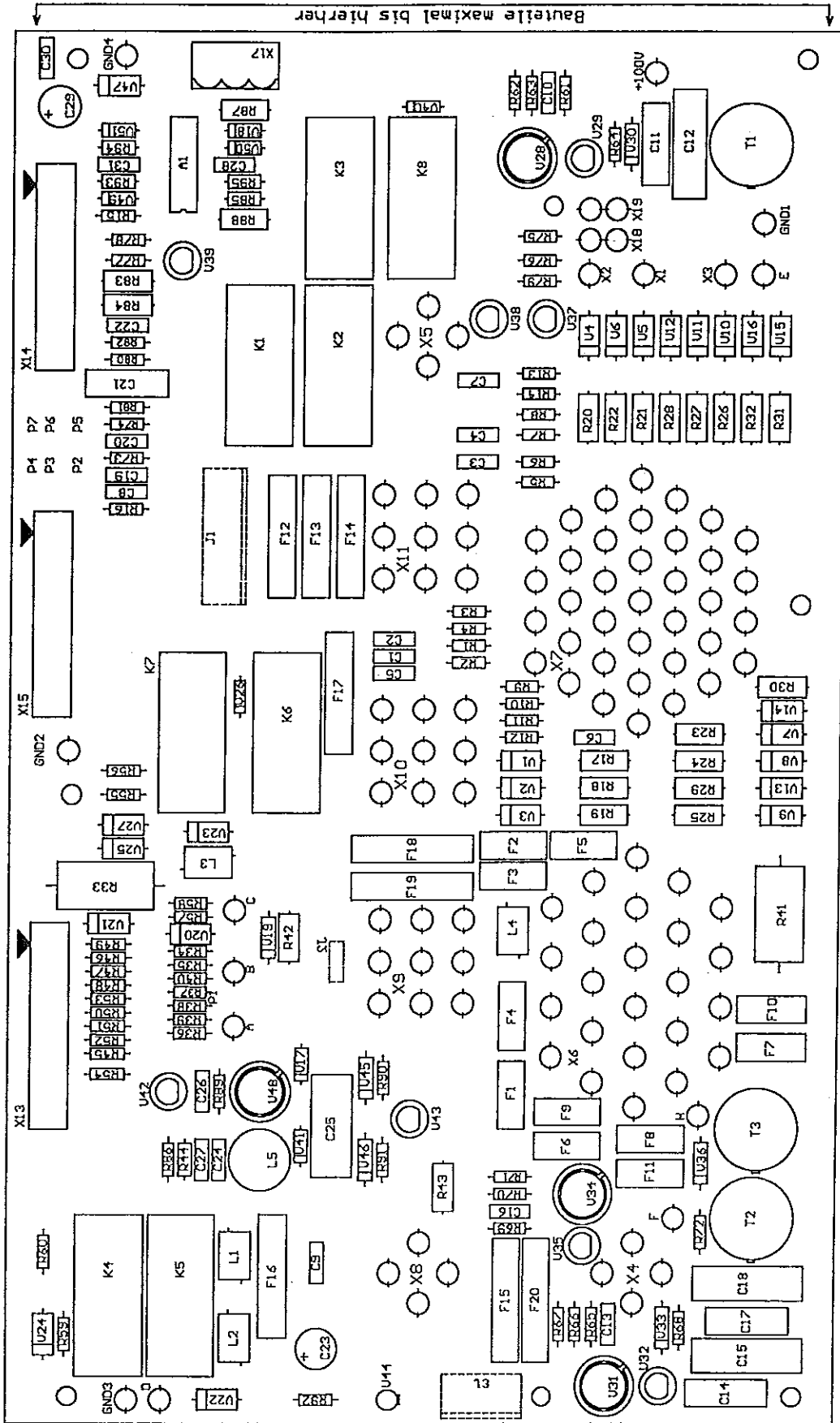


ALL NON SPECIFIED RESISTORS: 1% 1/2 W

BOTTOM PCB: 247272

Gezeichnet: 27.12.95 RBL		Ersetzt durch: 01.28.06.96 rma		Änderungen:		Titel:	
Geprüft:		Ersetzt fuer: 03.30.09.97 rma		Y-247271Z02		EQUIPMENT ADAPTION	
Archivierung: Es sind die Originale aller Versionen abzulegen!		Type: Blatt:		3/5		3-247271Z03	
Bottom Board Connectors, Protection							

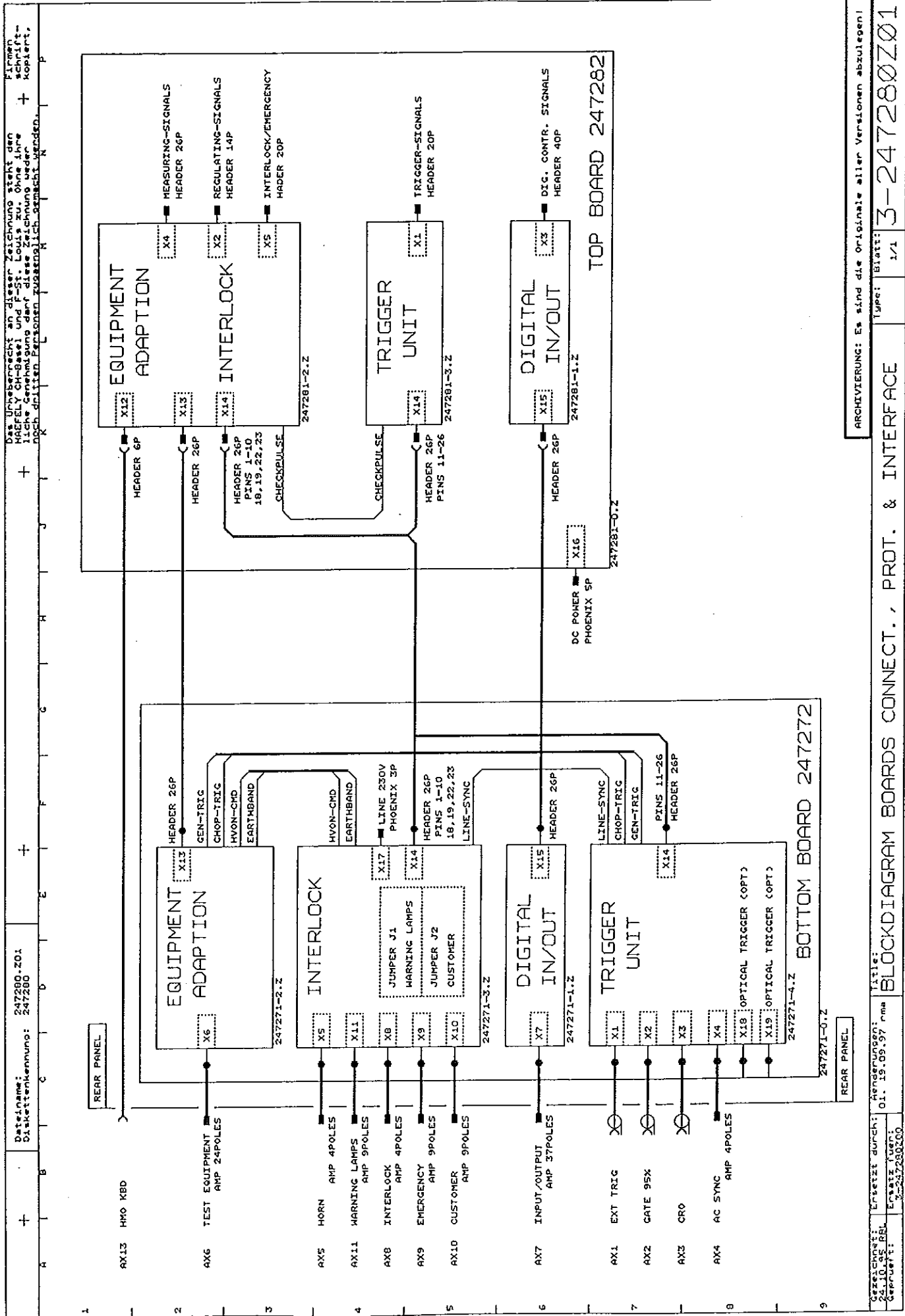




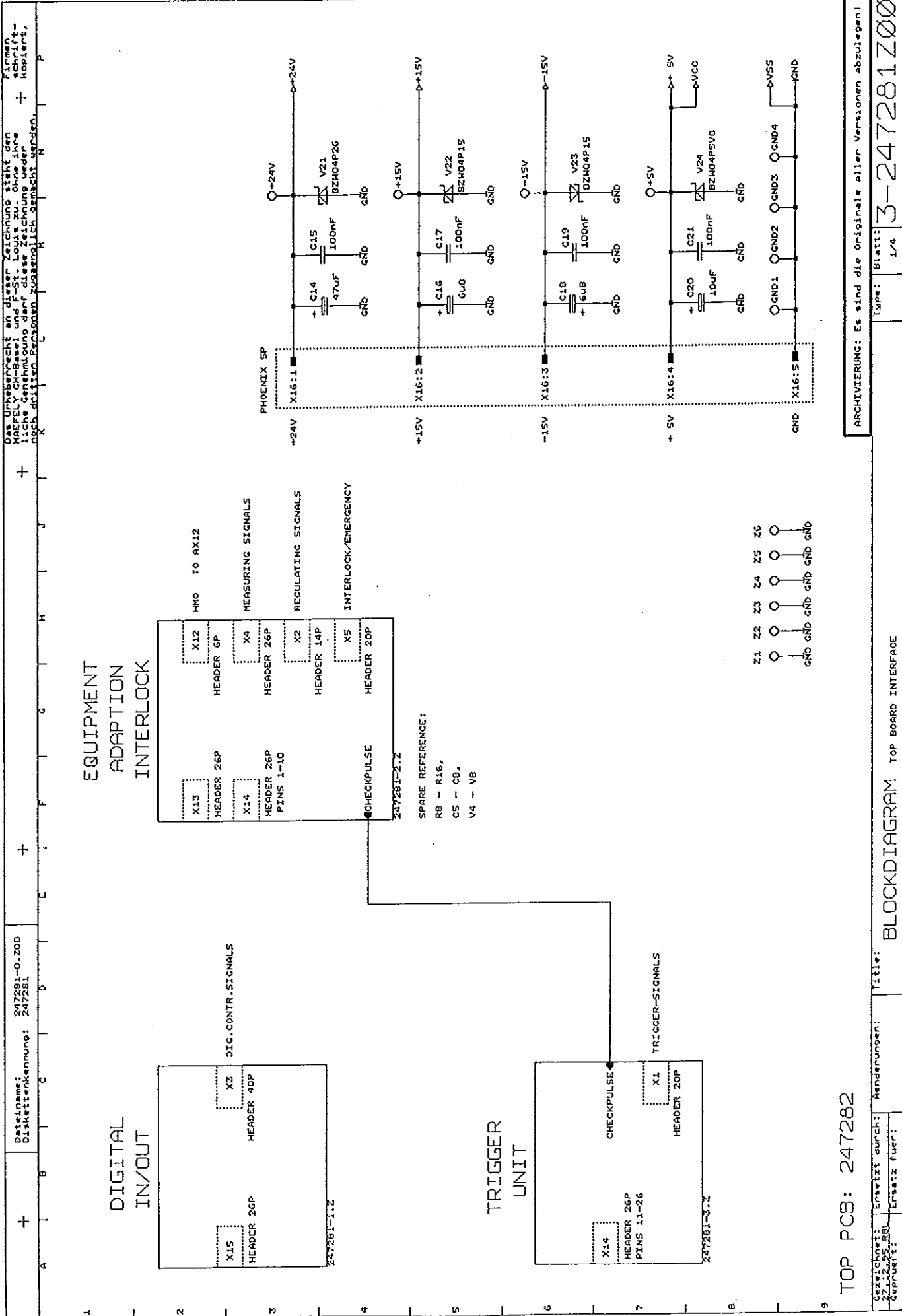
LEITERPLATTE CONNECTORS AND PROTECTION 247 272 / 01

Gez: 07.11.95 rgu
 Aend: 01) 01.07.96 rma

Layer: BD Bestueckungsdruck
 WENN TEXT SCHWARZ DANN FILM POSITIV



Das Urheberrecht an dieser Zeichnung steht dem Firm HAEFELY CH-Basel und P-St. Louis zu. Ohne ihre schriftliche Genehmigung darf diese Zeichnung weder kopiert, noch in irgendeiner Weise veröffentlicht werden.

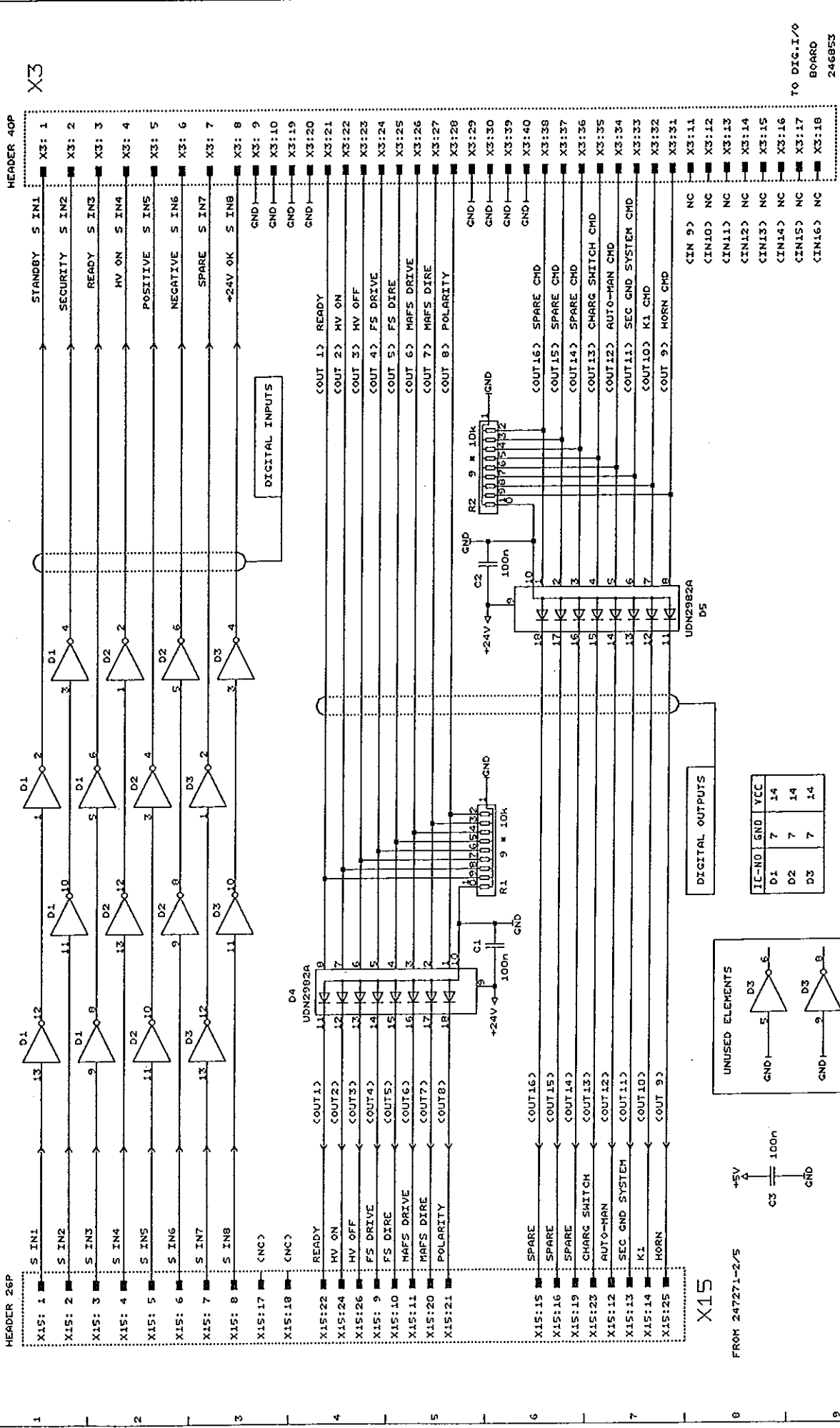


Das Urheberrecht an dieser Zeichnung steht den
HAEFELY OH-Basel und P-St. Louis zu. Ohne ihre
schriftliche Genehmigung darf diese Zeichnung weder
noch Dritten Eigentum übertragen werden.

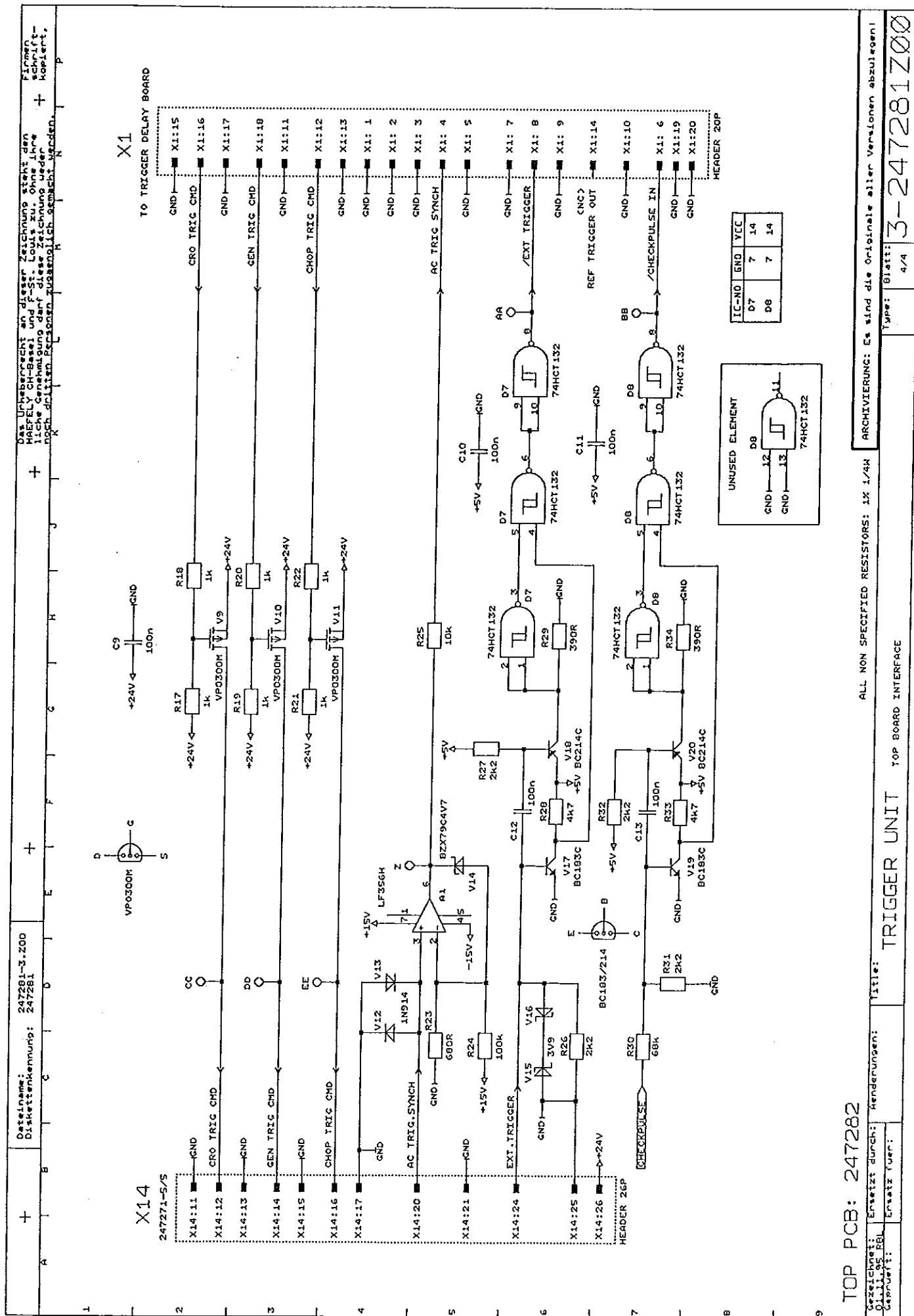
DATE: 247281-1.200
DISKETTE: 247281

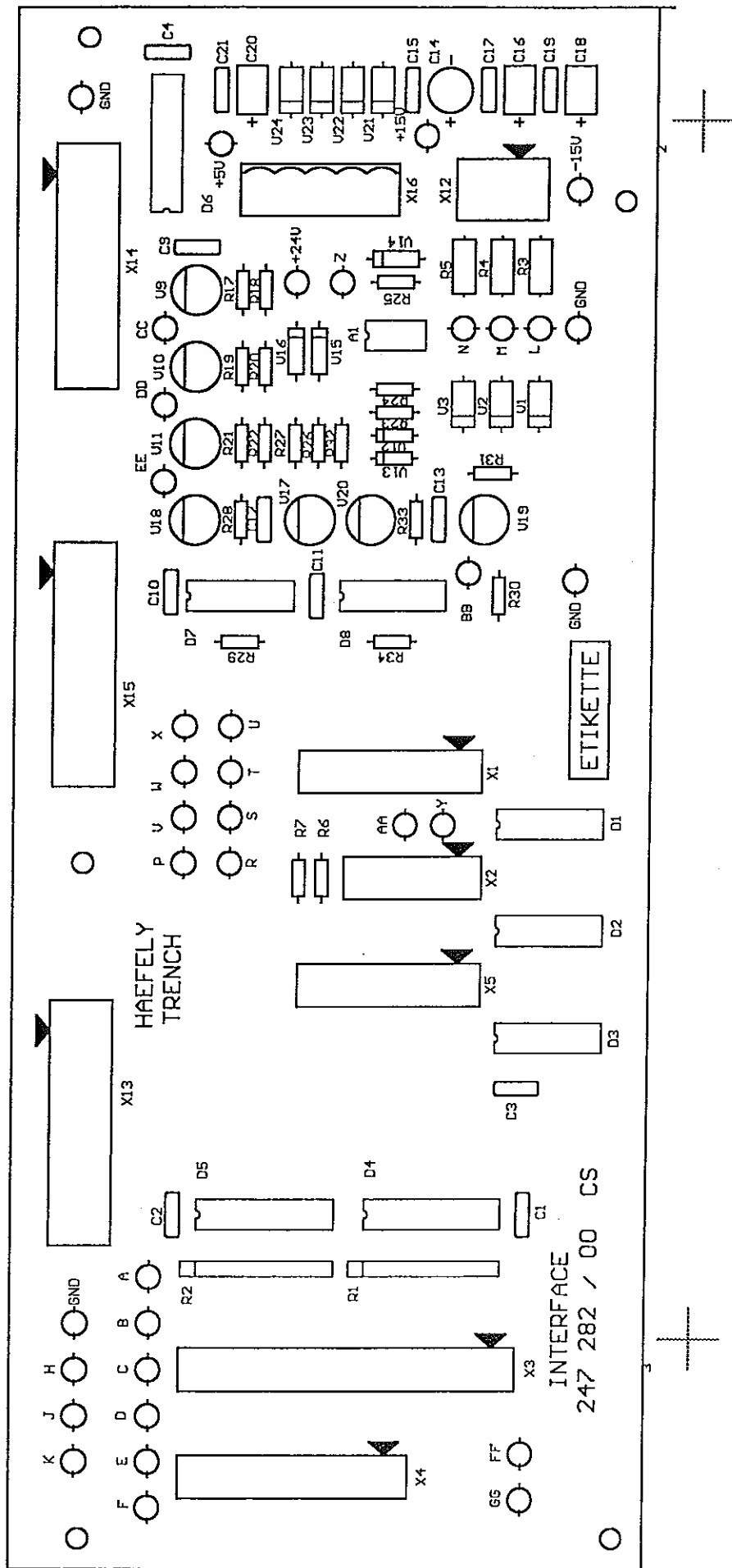
DATE: 247281-1.200
DISKETTE: 247281

DATE: 247281-1.200
DISKETTE: 247281



TO DIG.I/O
BOARD
246853





LEITERPLATTE INTERFACE GC223

247 282 / 00

Gez: 14.11.95 rbi

Aend:

Layer: BD Bestueckungsdruck
WENN TEXT SCHWARZ DANN FILM POSITIV

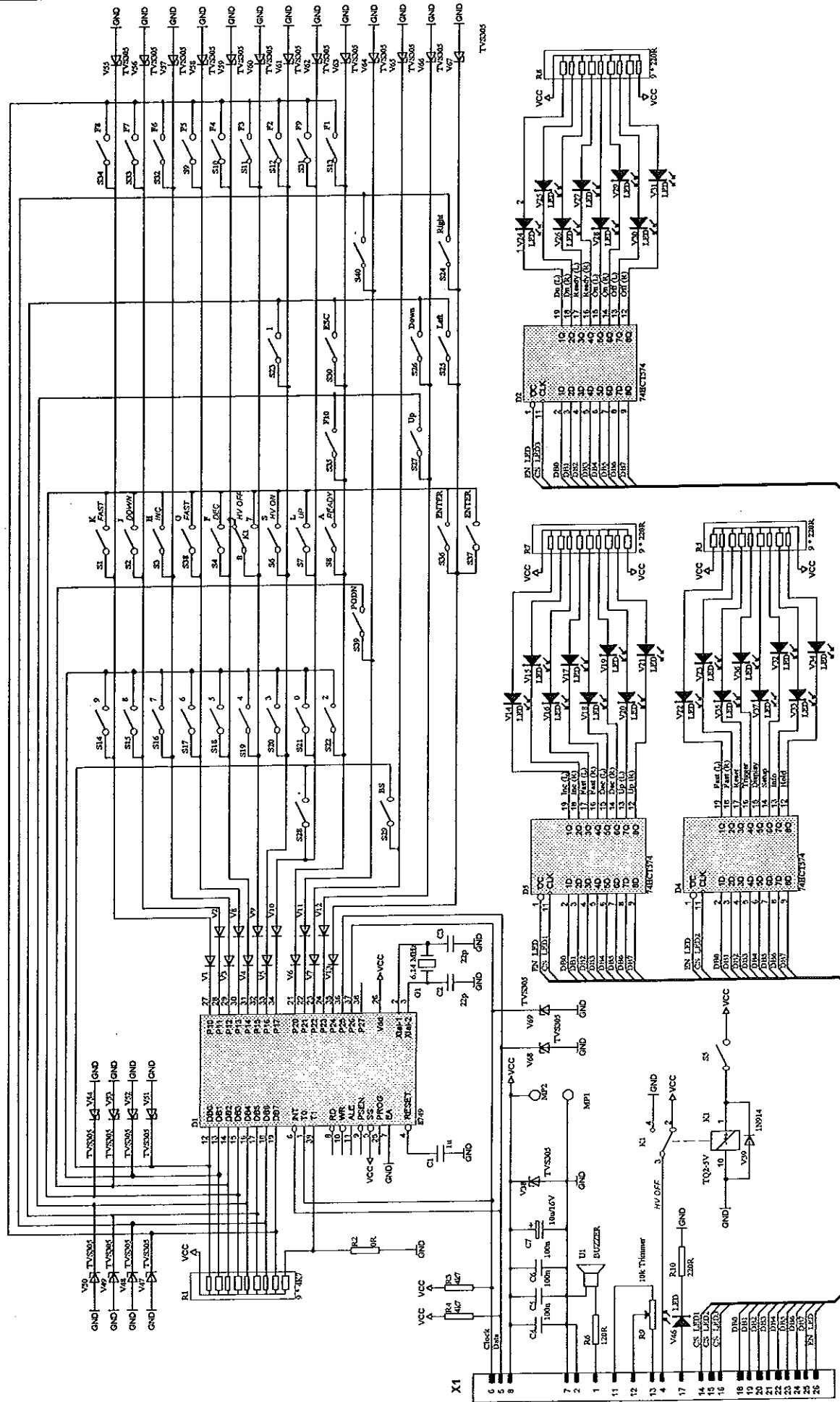
Dateiname: 247460 - Z01

Diskottenennung: 247460

HAEFELY TRENCH

HIGH VOLTAGE TECHNOLOGY

Das Urheberrecht an dieser Zeichnung steht dem Firmen
Haefely Trench AG, Basel (CH) und St. Louis (F) zu. Ohne ihre
schriftliche Genehmigung darf diese Zeichnung weder kopiert
noch Dritten Personen zugänglich gemacht werden.



Gezeichnet:
13.01.94 neu

Ersatz für:
3-247460 Z01

Änderungen:
01.02.94 neu

Title:

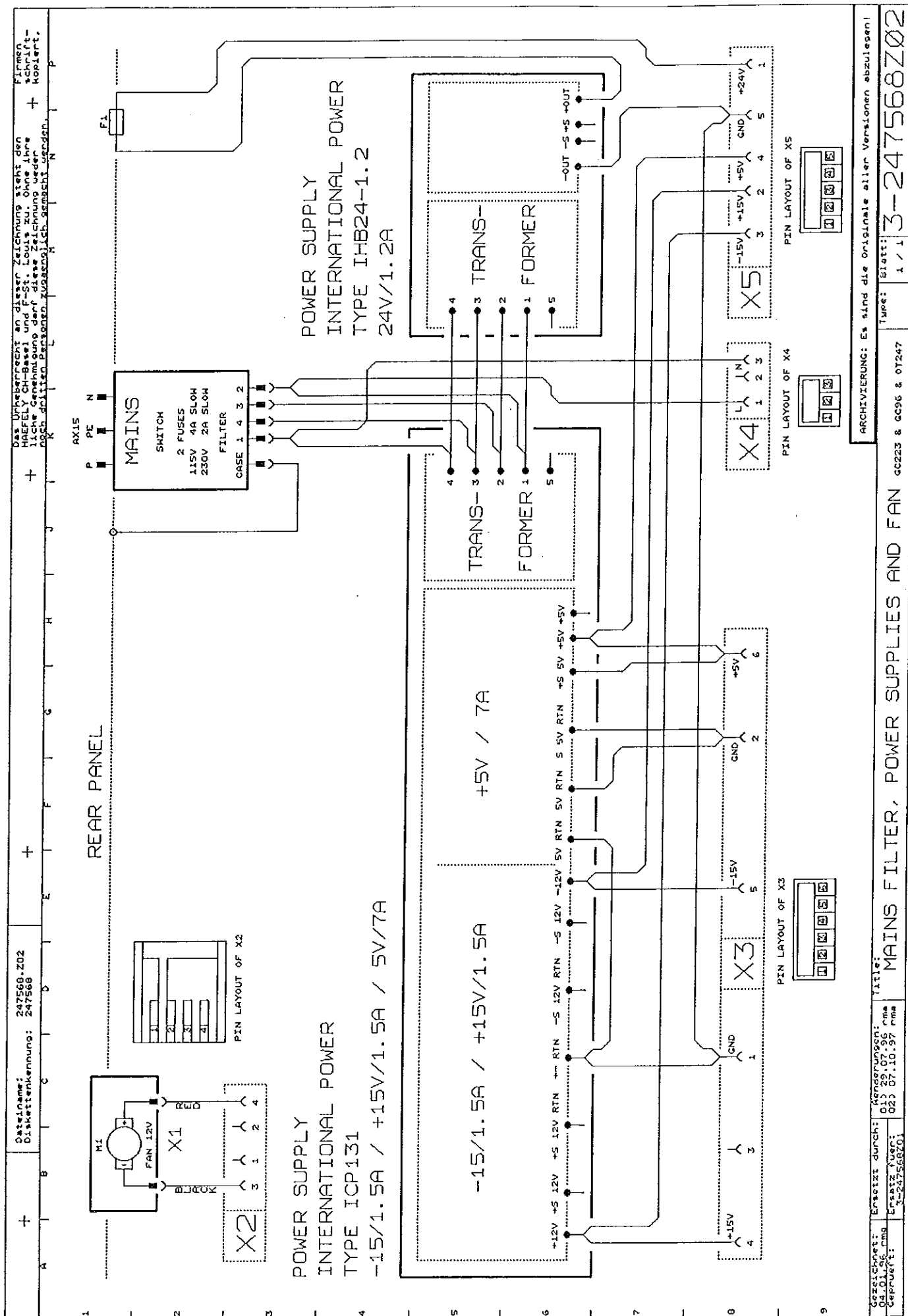
DMI Board Frontpanel

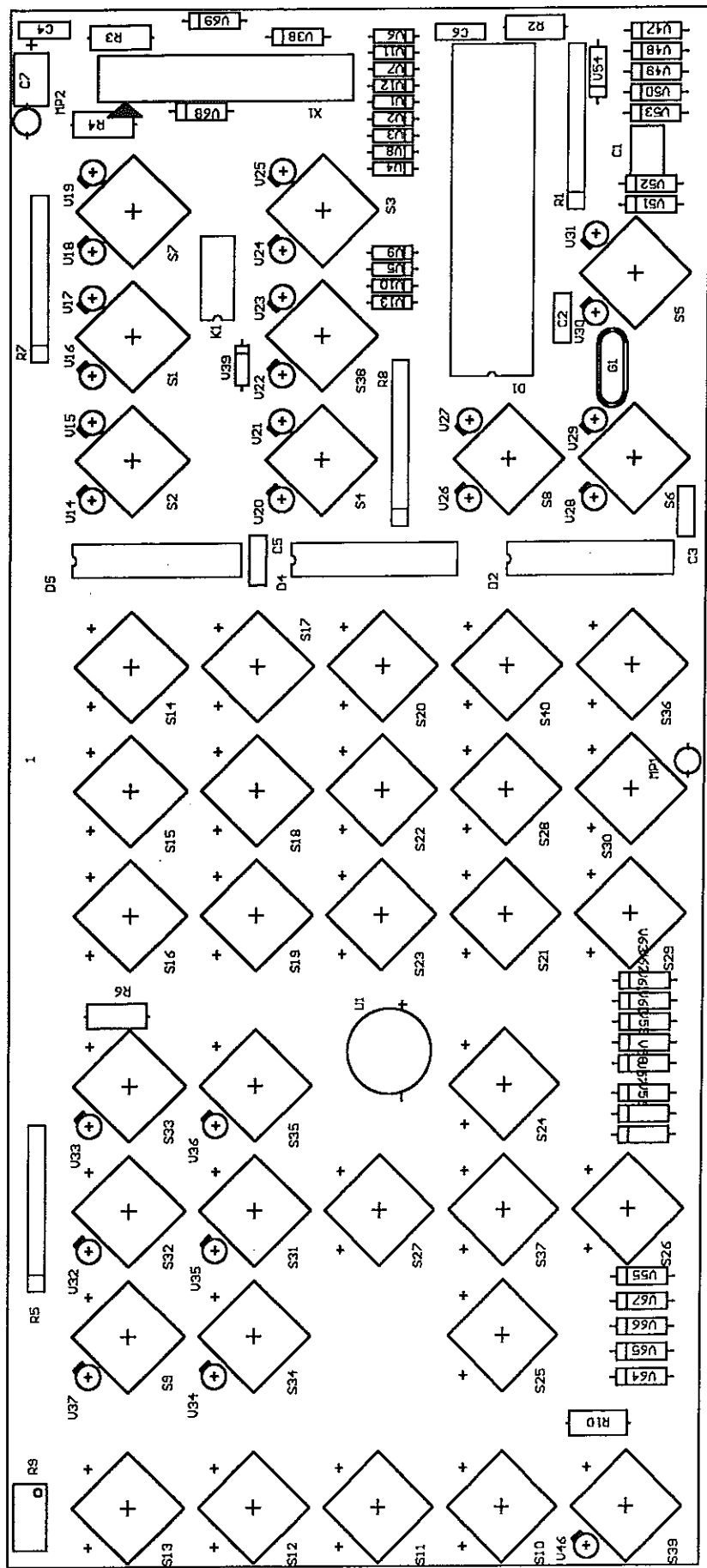
Type:
551

Blatt:
1/1

3-247460 Z01

Es sind die Originale aller Versionen abzulegen!





LEITERPLATTE TASTATUR DMI551 247 461 / 01

Gez: 06.01.95 RGU

Änd: 21.03.96 R.Guerra

Layer: Bestueckungsdruck (BD)
 WENN TEXT SCHWARZ DANN FILM POSITIV