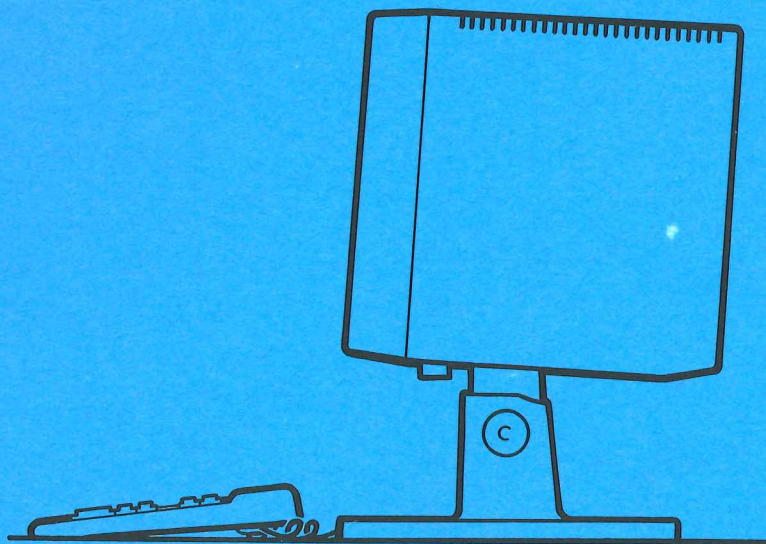


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TDV 2200 SERIES DISPLAY TERMINALS

TDV 2200 Hardware Manual



TDV 2200

Hardware Manual

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Part 1	Introduction	Part 7	Interface Adapters
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Part 4	Video board	Part 10	Updating
Part 5	Keyboard	Part 11	Spare
Part 6	Memory boards	Part 12	Spare

TANDBERG DATA A/S
P.O. Box 9 Korsvoll
OSLO 8, NORWAY

Phone (47-2) 23 20 80
Telex 17002 tdata n

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Hardware Manual
Ordering no. 961328
Publ. no. 5192
October 1980

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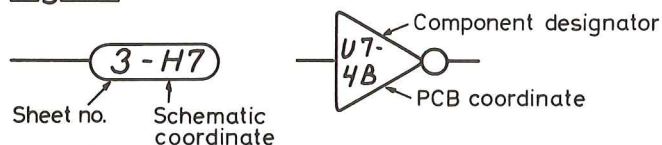
TDV 2200 SERIES DISPLAY TERMINALS

INTRODUCTION

The TDV 2200 Hardware Manual is a preliminary edition of the TDV 2200 Service Manual. It is intended to cover the need of service documentation until the Service Manual is available. It contains a complete set of schematic diagrams, an illustrated parts list, interconnections description and updating information.

The four different sheets of the Mainboard schematics are closely related to each other. The following identification system has been introduced:

Legend:

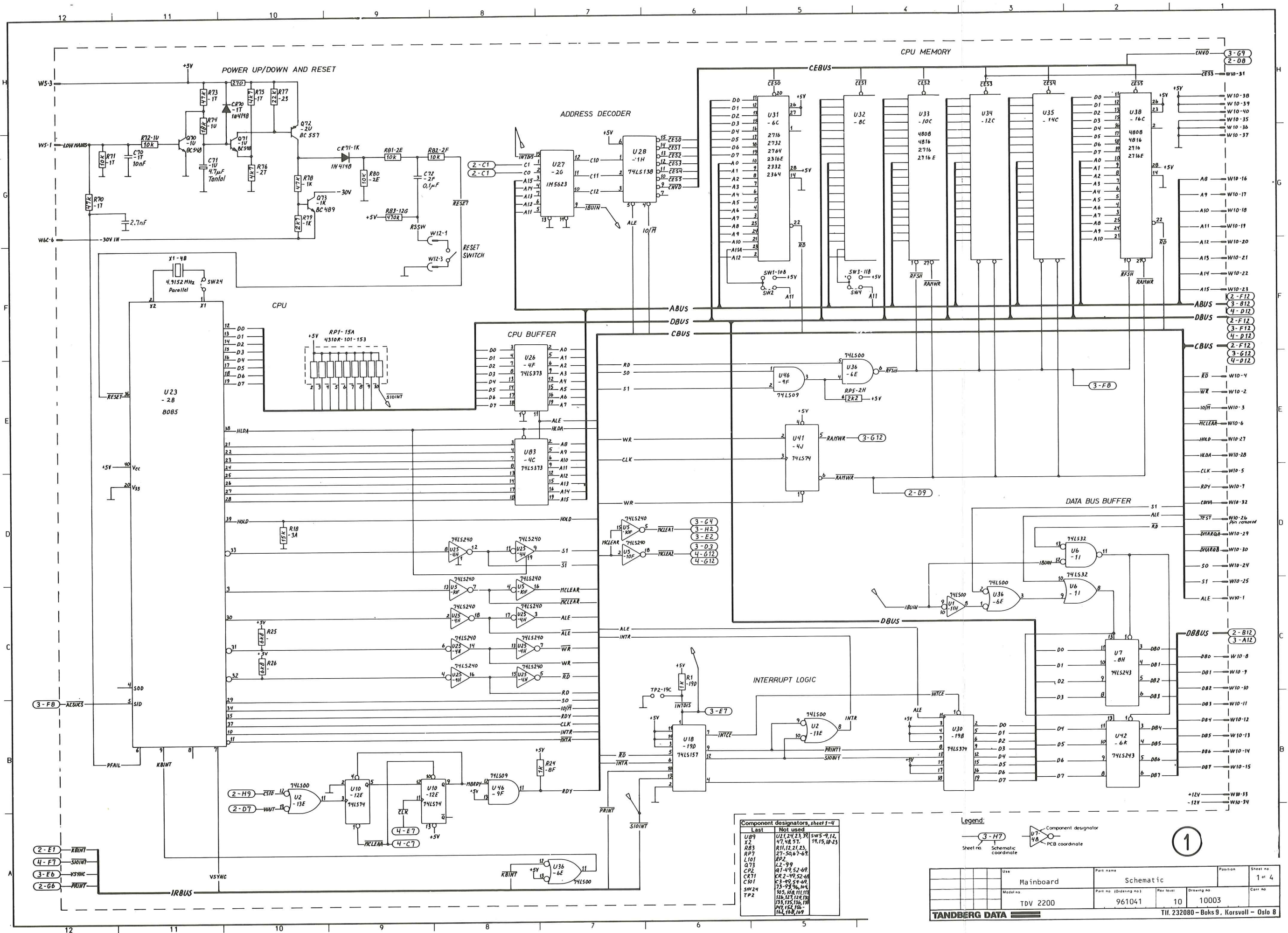


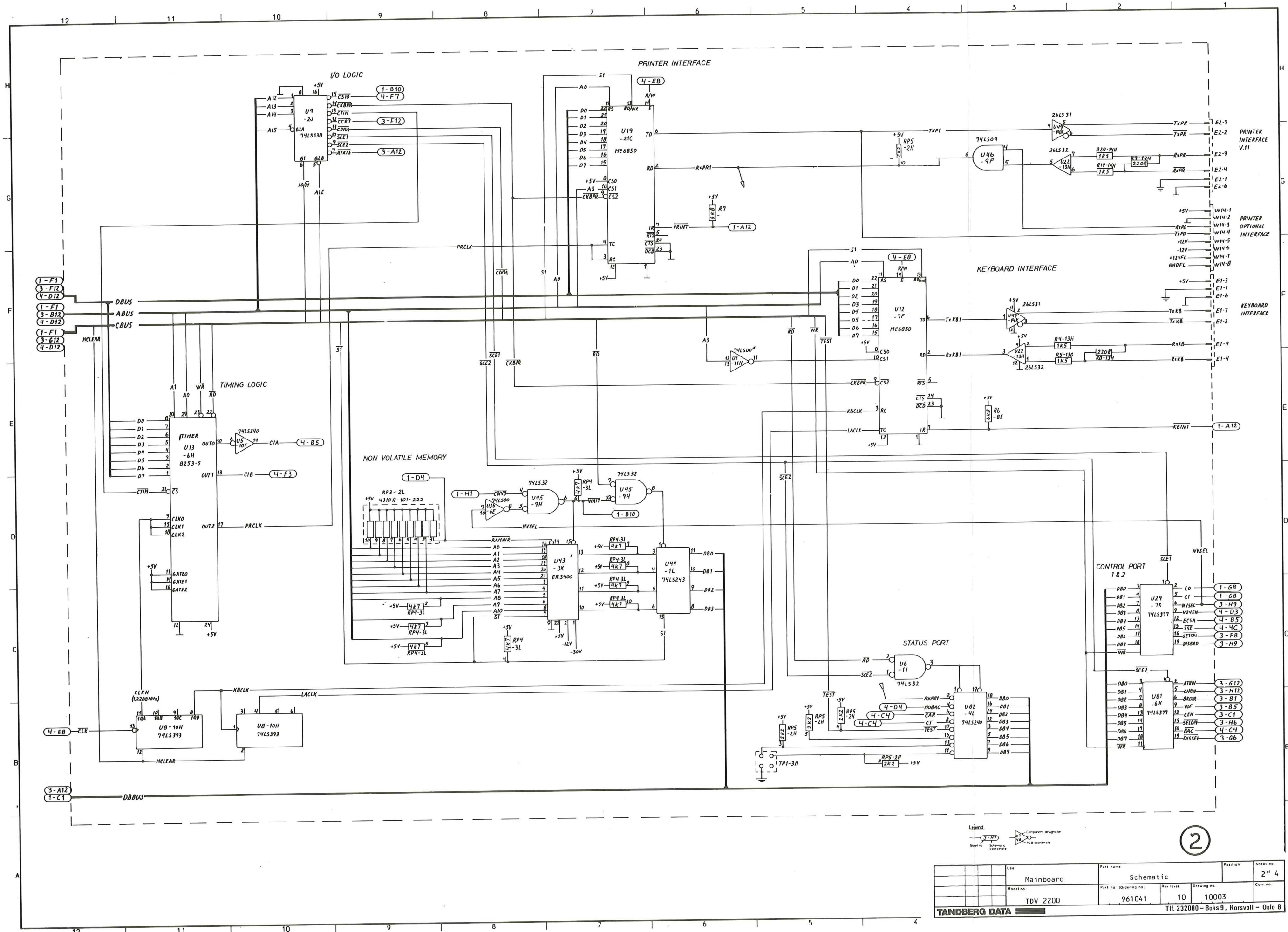
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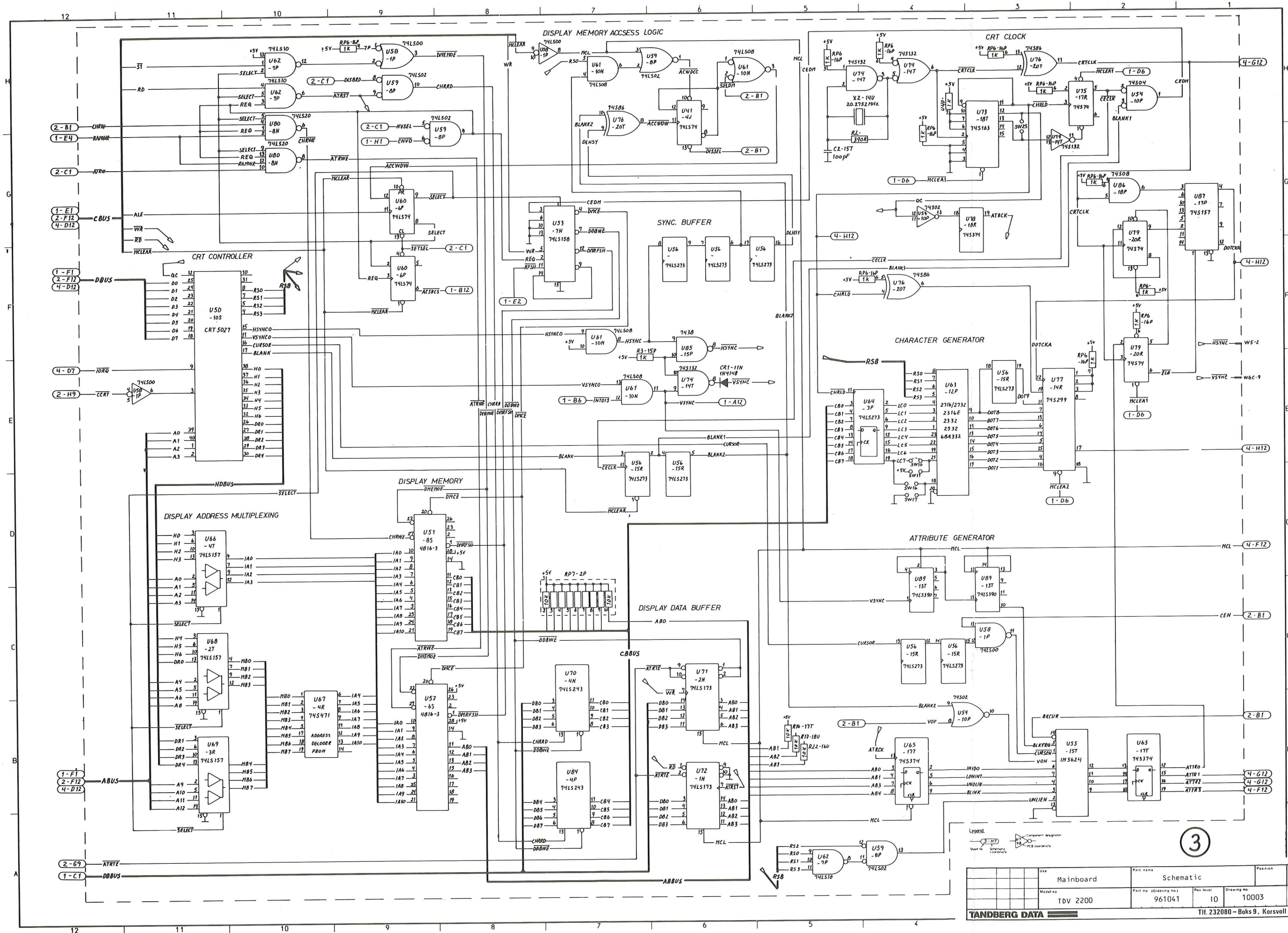
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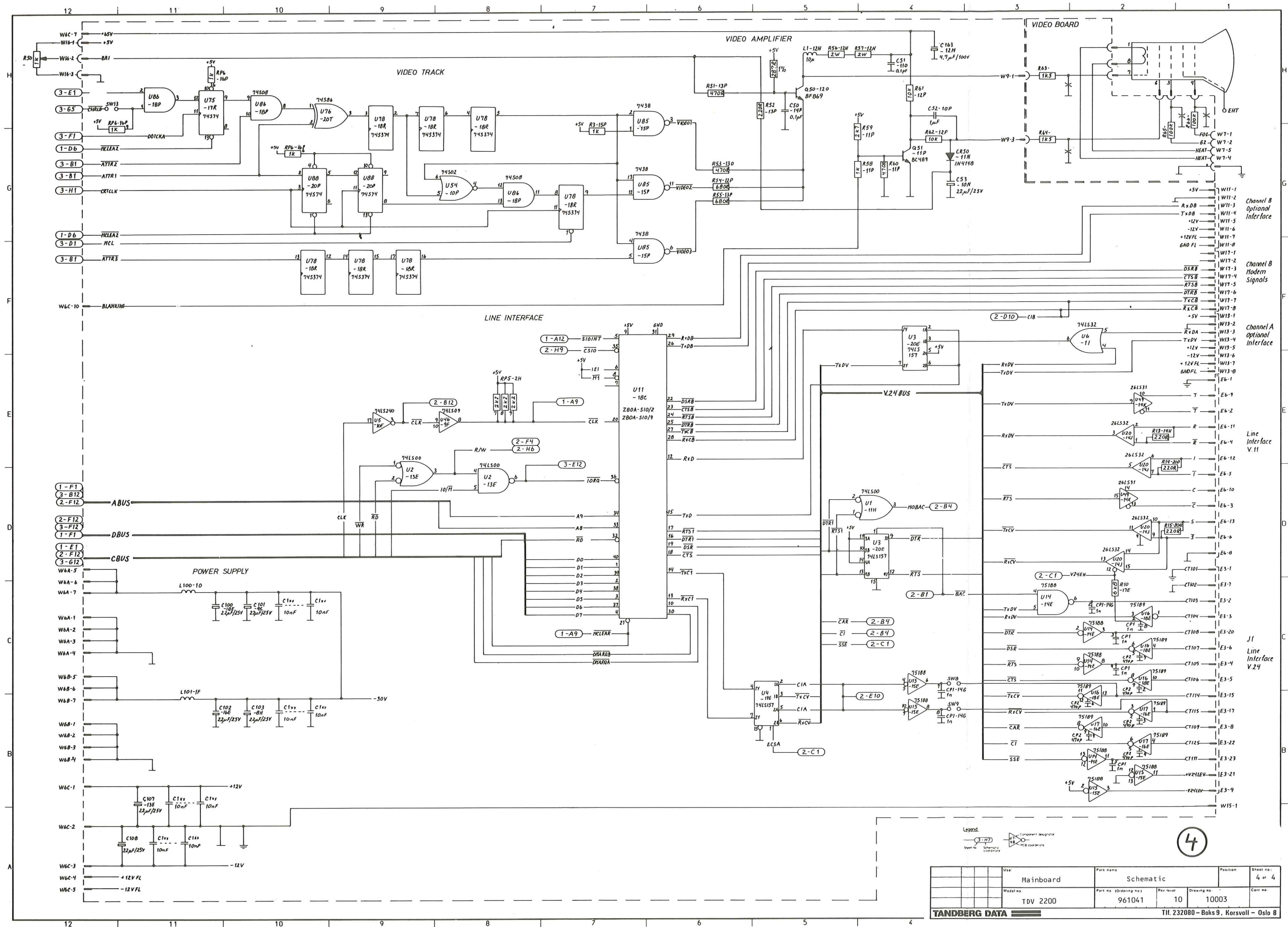
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(Available in the middle part of 1981).

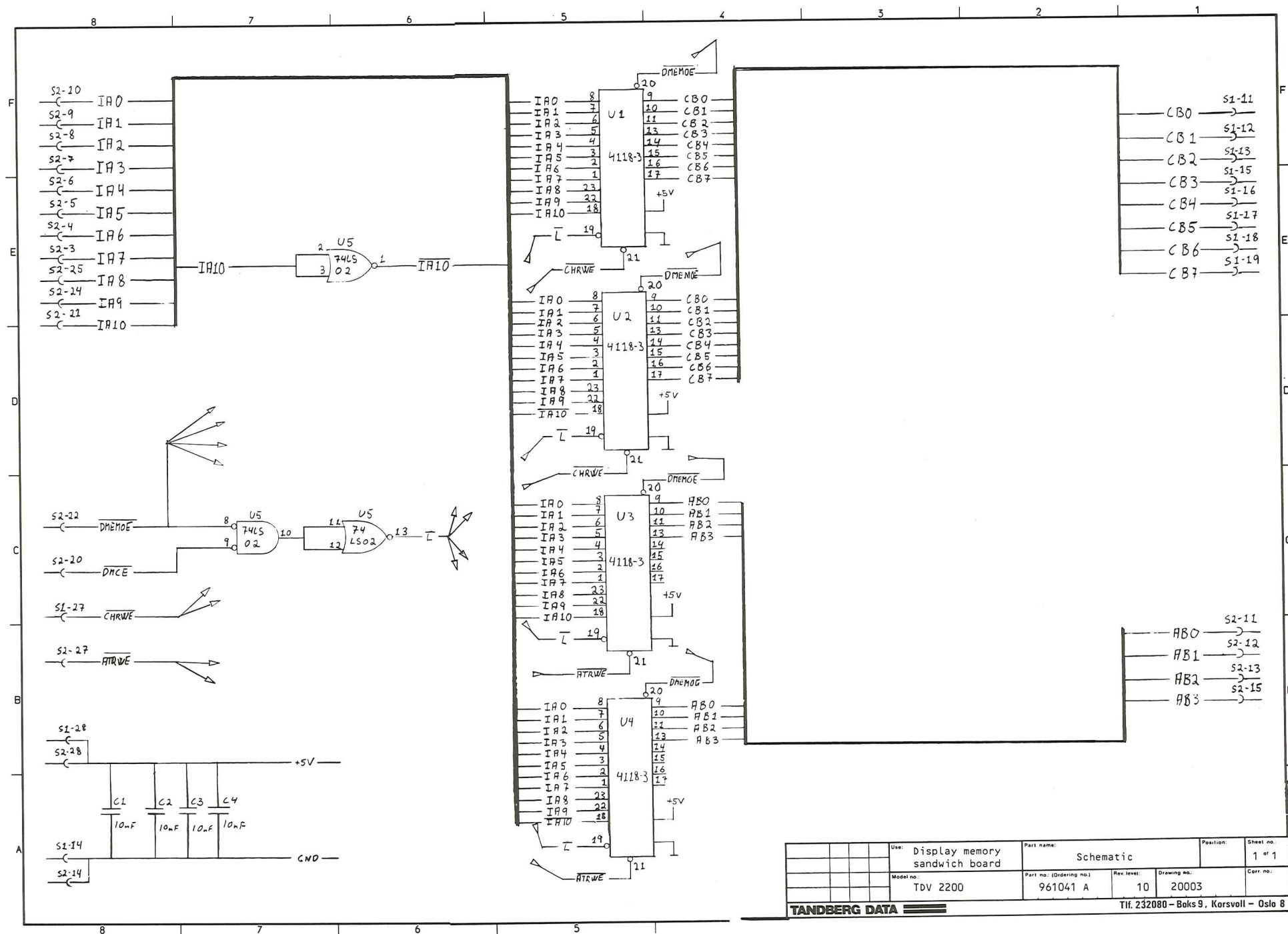
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October 1980
Revision no. 0

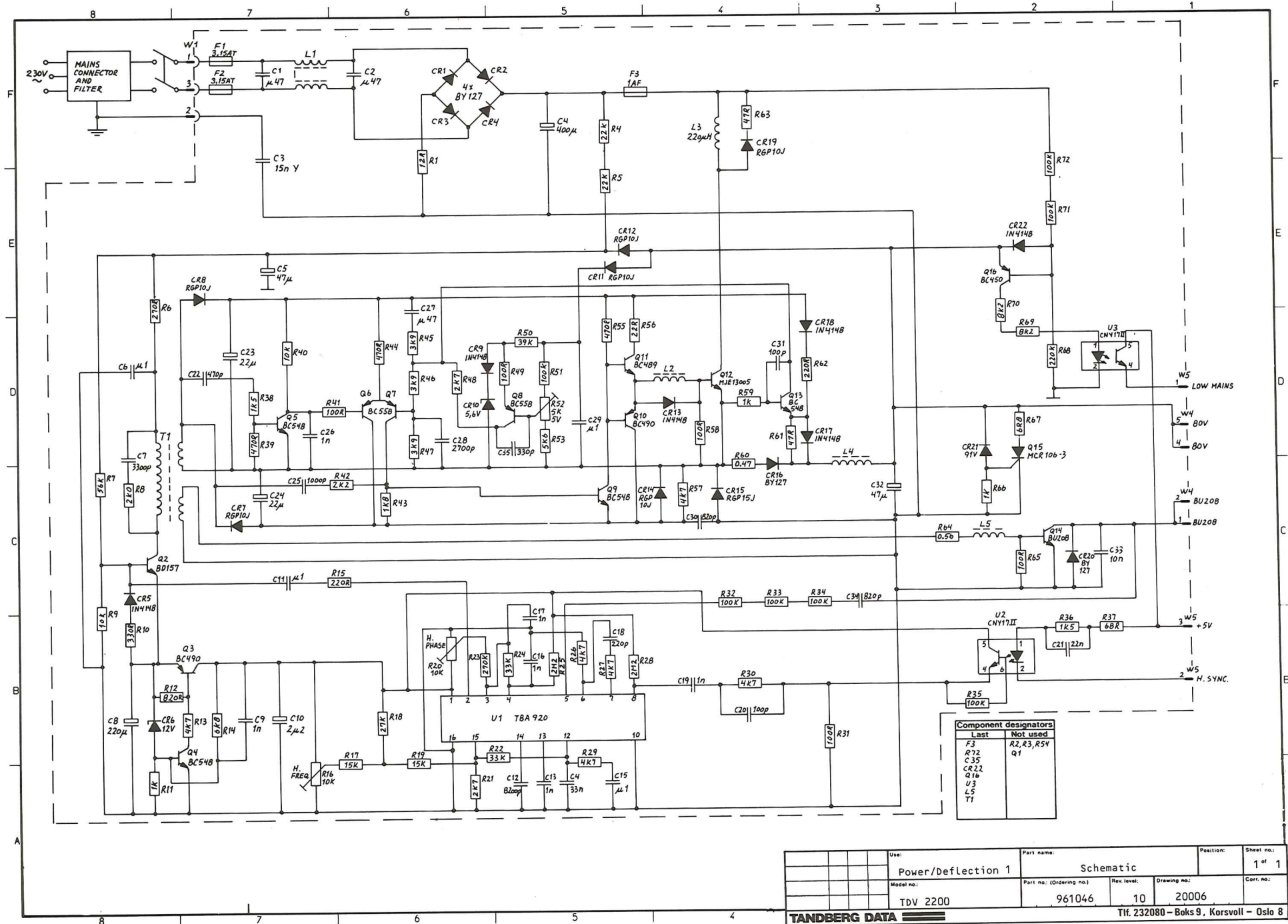


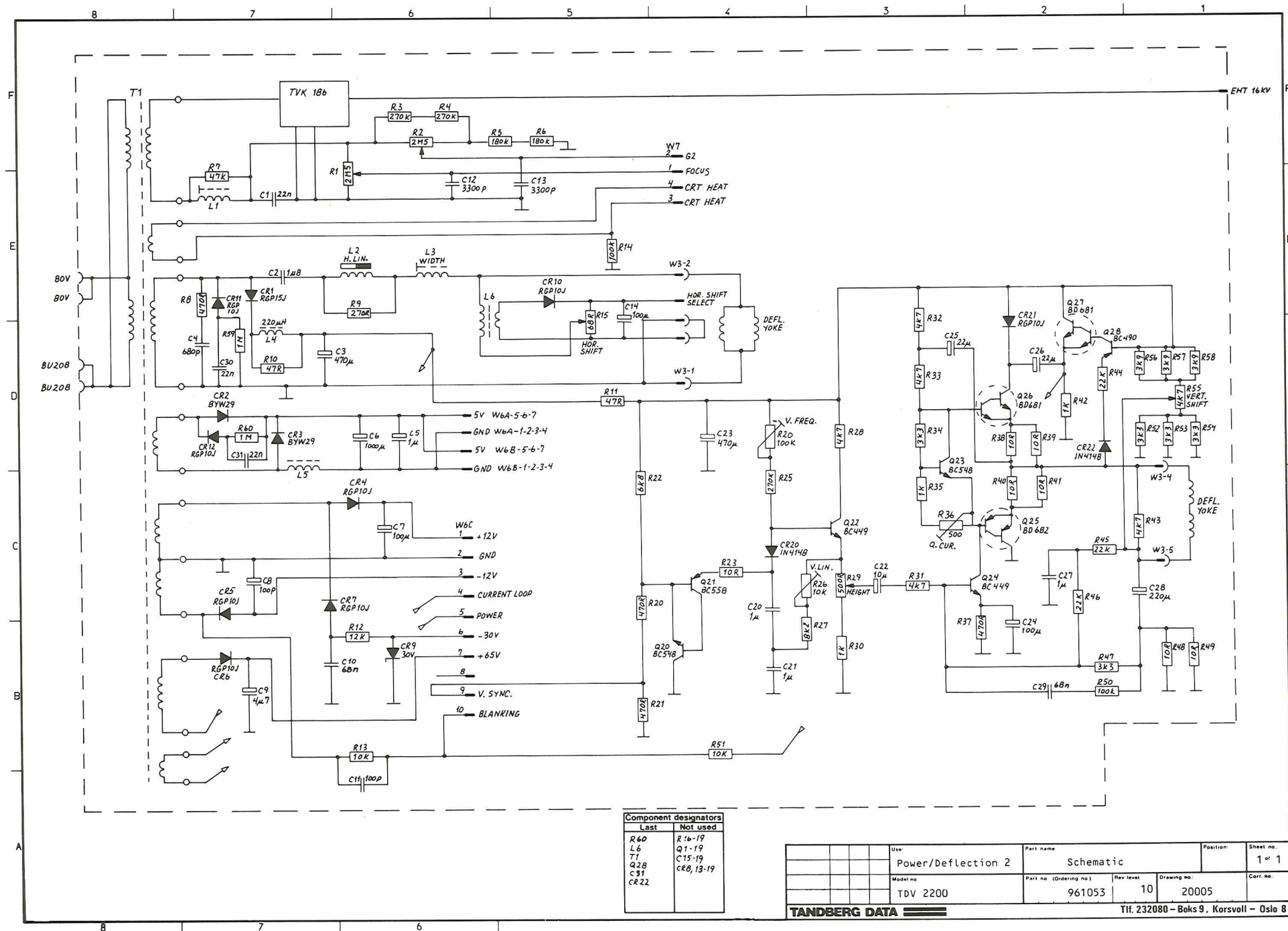




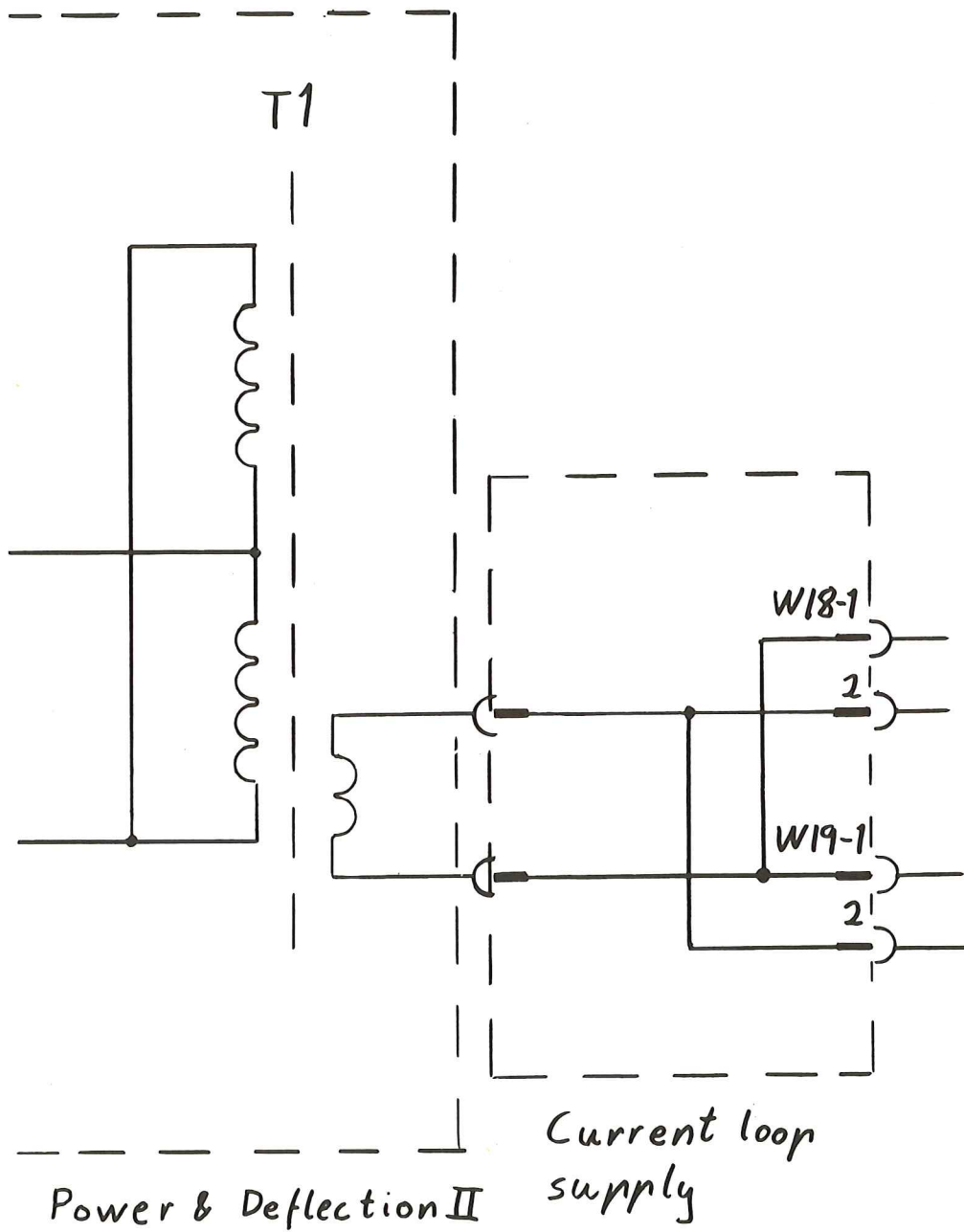




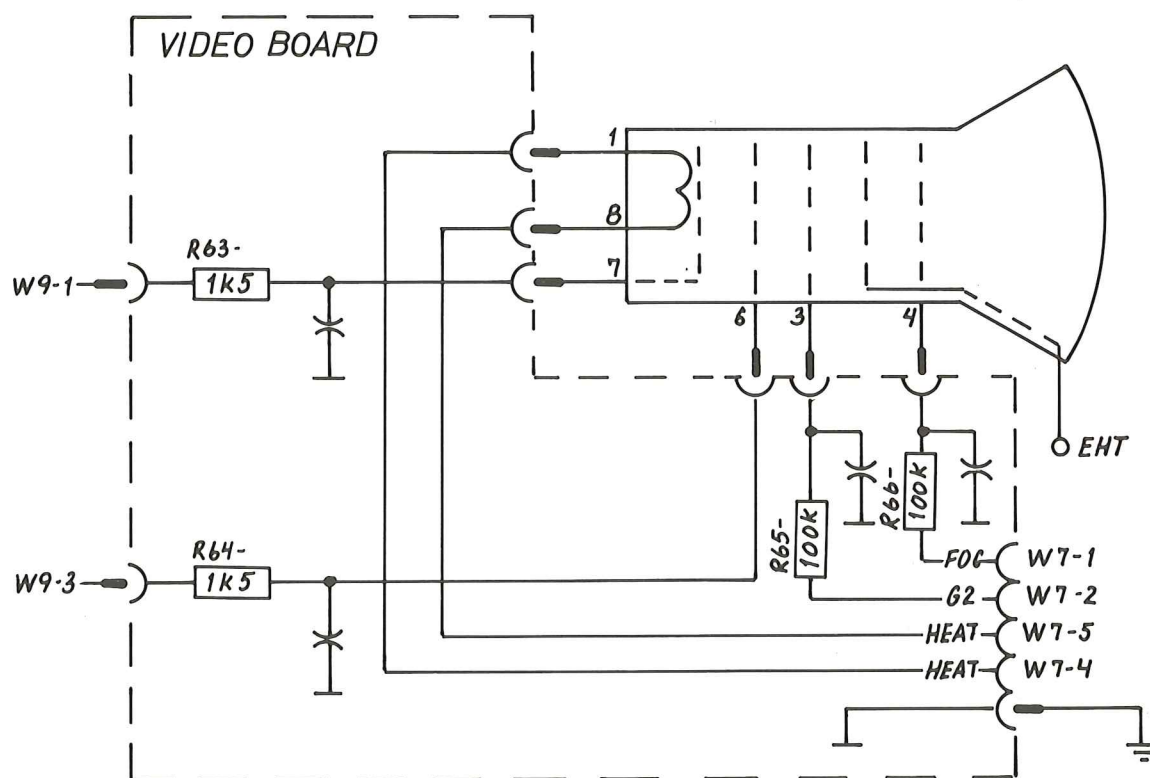




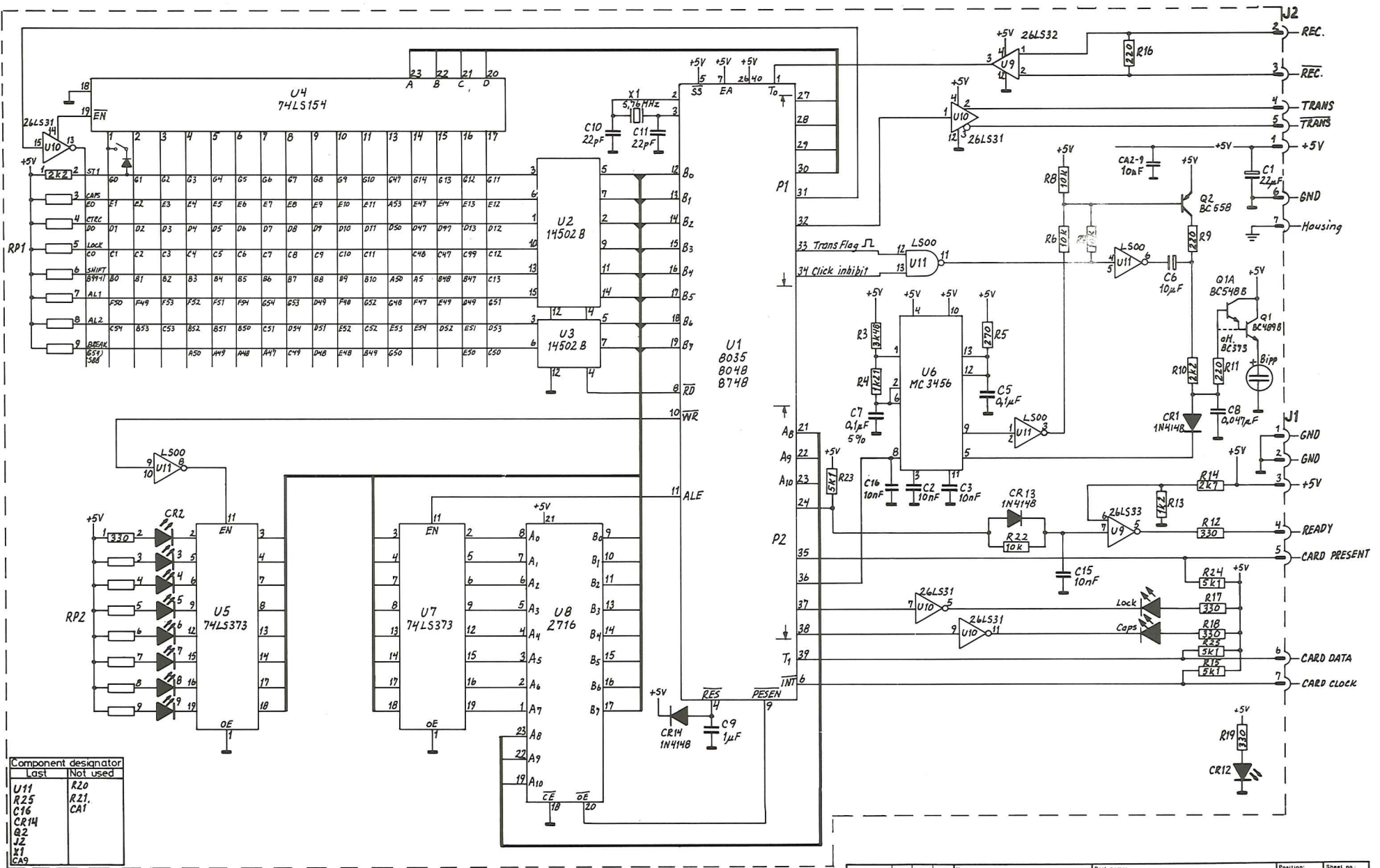
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TDV 2200	961053	10	20005	

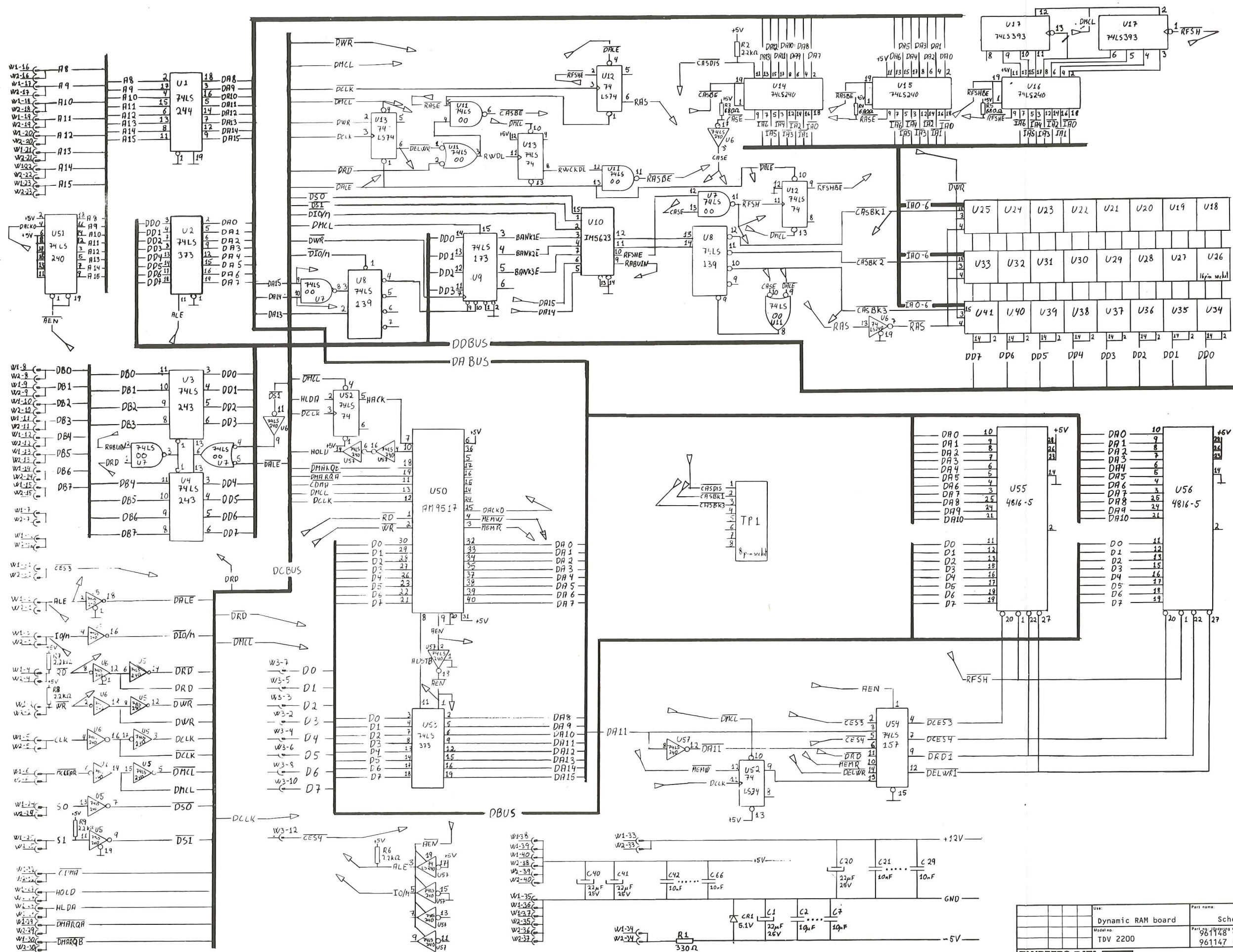


				Use:	Part name:		Position:	Sheet no.:
				Current loop supply	Schematic			1 st 1
				Model no.:	Part no. (Ordering no.)	Rev. level:	Drawing no.:	Corr. no.:
				TDV 2200	961315	10	40008	
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Use: Video board		Part name: Schematic		Position:	Sheet no.: 1 of 1
Model no: TDV 2200		Part no. (Ordering no): 961117	Rev. level: 10	Drawing no: 10003	Corr. no:
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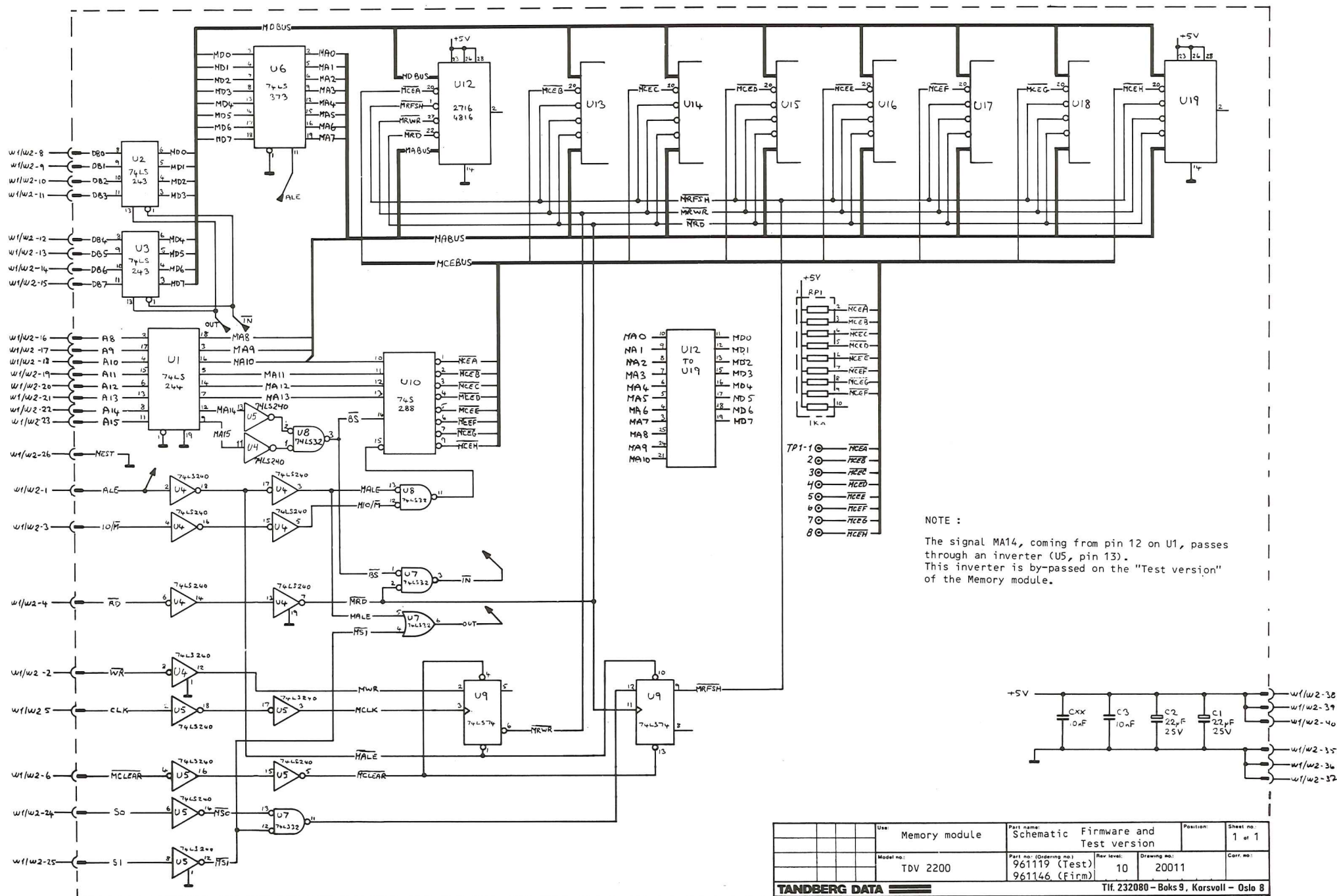




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Schematic				
Part no. 392851 (16k)				
961147 (32k)				

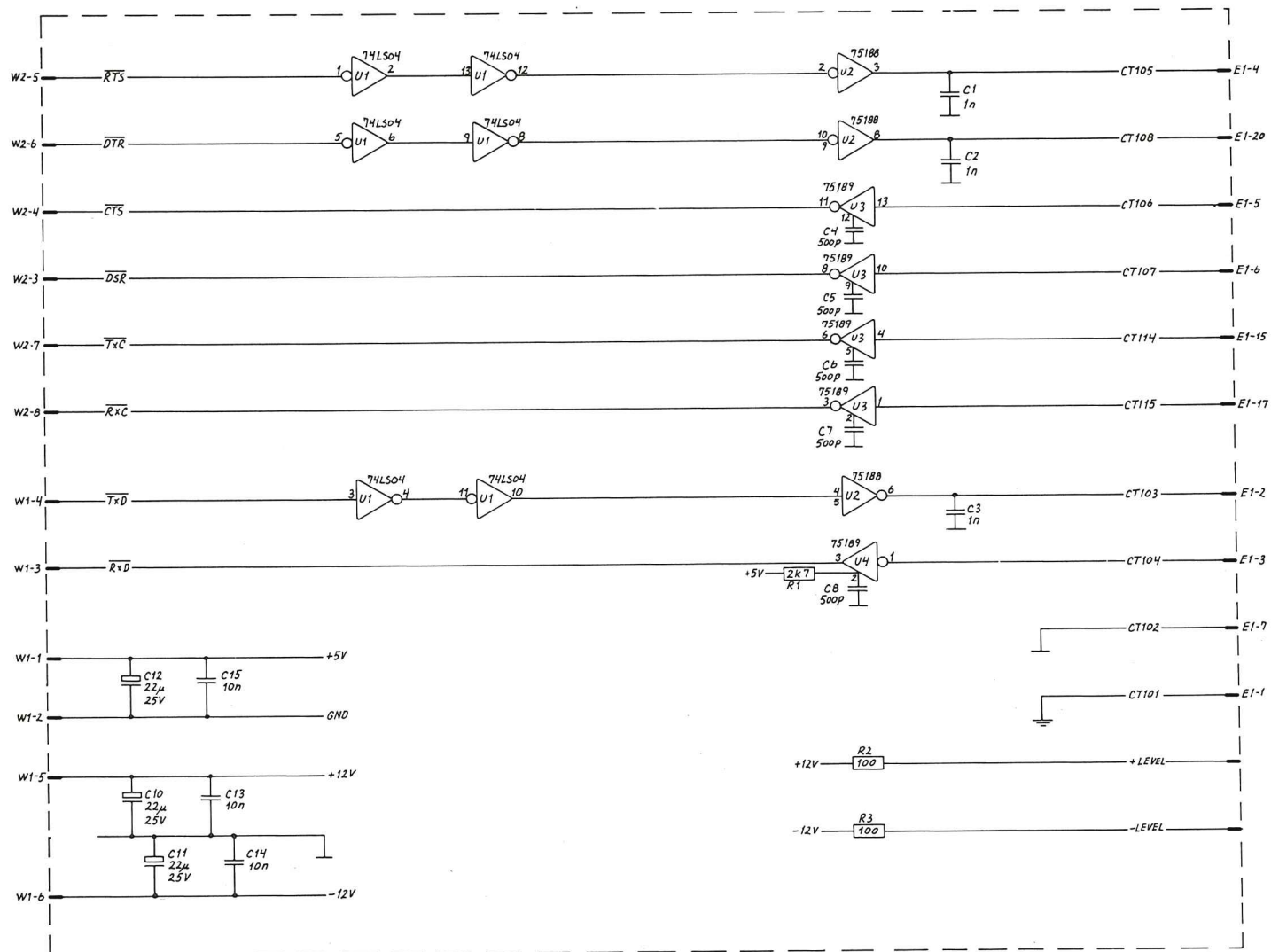
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Model no.	Part name	Part no. (Older no.)	Rev. level	Drawing no.	Sheet no.
TDV 2200	Memory module	961119 (Test)	10	20011	1 of 1
		961146 (Firm)			

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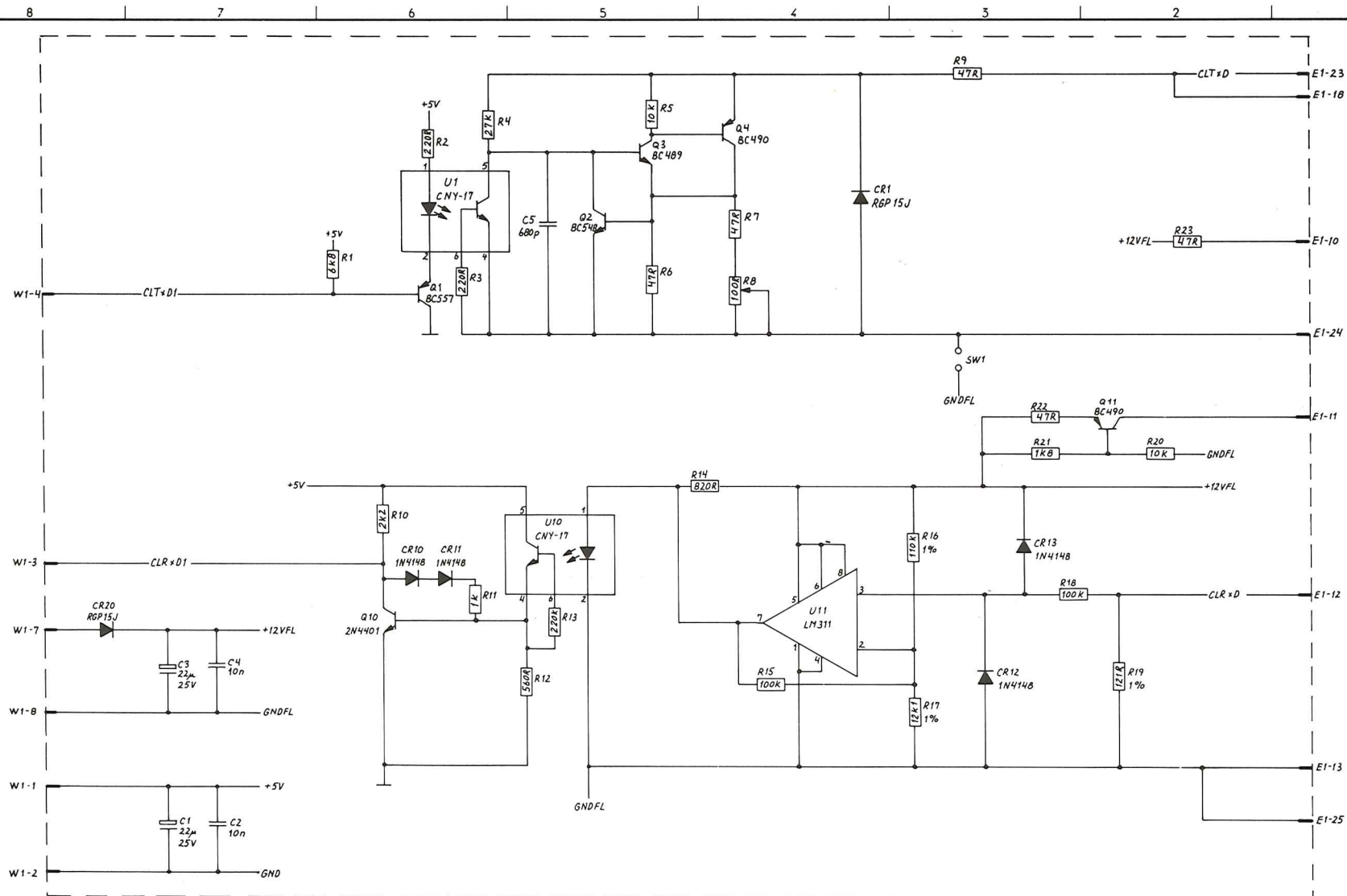


Component designators	
Last	Not used
U4	C9
R3	
C15	

Use		Part name:	Position:	Sheet no.:
V.24 Adapter		Schematic		1 of 1
Model no.:	Part no. (Ordering no.):	Rev. level:	Drawing no.:	Conn. no.:
TDV 2200	961120	10	20009	

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Component designators	
Last	Not used
R23	Q5-Q9
Q11	U2-U9
C5	CR2-CR9
U11	CR14-CR19
CR20	

Use		Part name	Position	Sheet no.
Current loop adapter		Schematic		1 of 1
Model no.	Part no. (Ordering no.)	Rev level	Drawing no.	Corr. no.
TDV 2200	961145	10	20008	

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**TDV 2200 SERIES
DISPLAY TERMINALS**

Interconnections

Interconnections

TANDBERG DATA A/S
P.O. Box 9 Korsvoll
OSLO 8, NORWAY

Phone (47-2) 23 20 80
Telex 17002 tdata n

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Every effort has been made to avoid errors in text and diagrams. However, Tandberg Data A/S assumes no responsibility for any errors which may have occurred in this publication.

It is the policy of Tandberg Data A/S to improve products as new techniques and components become available. Tandberg Data A/S therefore reserves the right to change specifications at any time.

We appreciate any comments on this publication.

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1. Introduction.

=====

This document describes the internal cabling and external connectors of a TDV 2200-series unit.

2. Structure.

Fig. 2.1, fig. 2.2 and fig. 2.3 shows block diagrams of the modules that can be present in the unit. Plugs are marked X , Y and Z to distinguish between the cable ends.

Fig 2.4 shows the layout of the connector panel.

Internal connections in the keyboard are shown in fig. 2.5

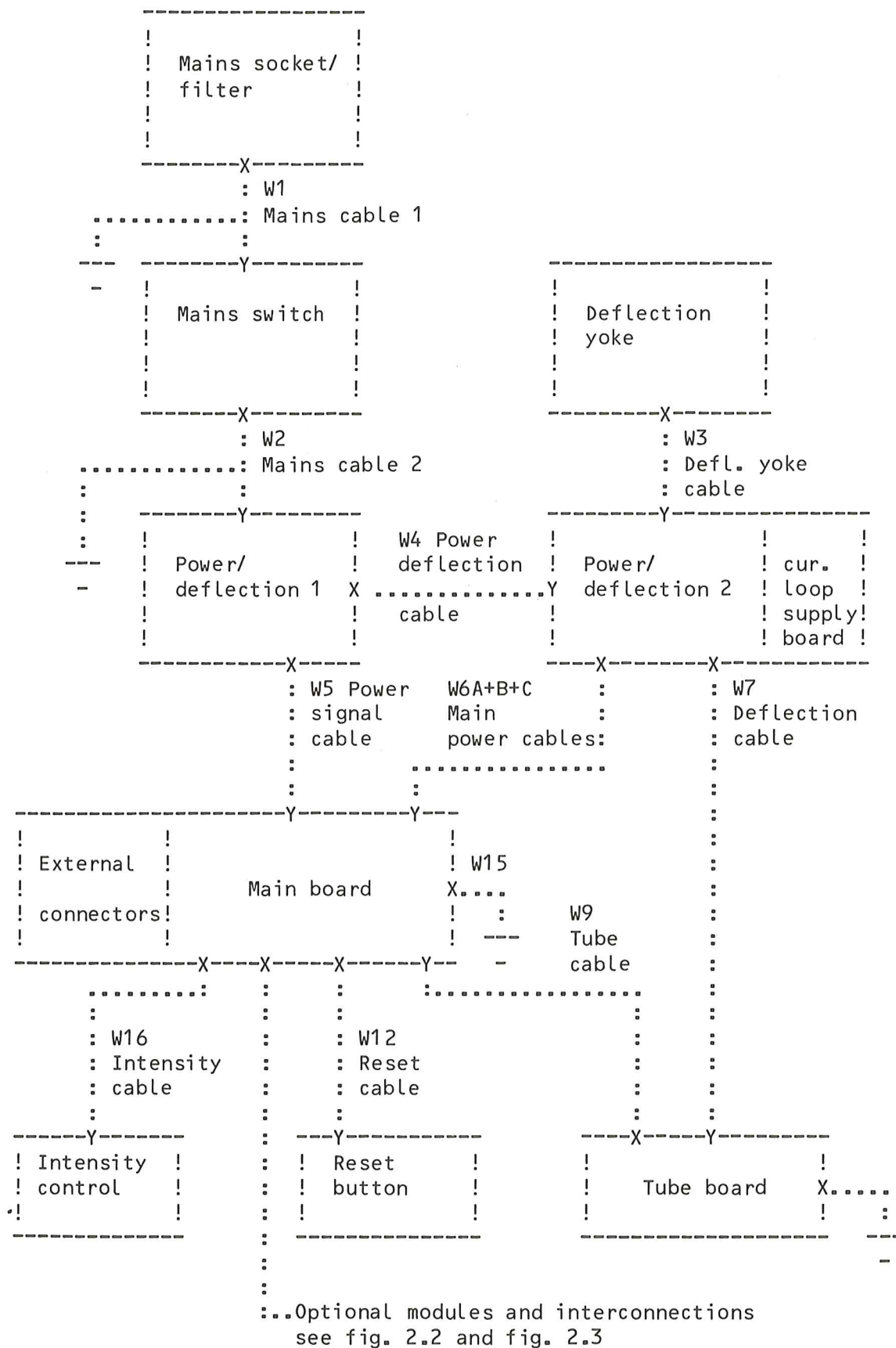


Fig 2.1 Block diagram showing modules and interconnections

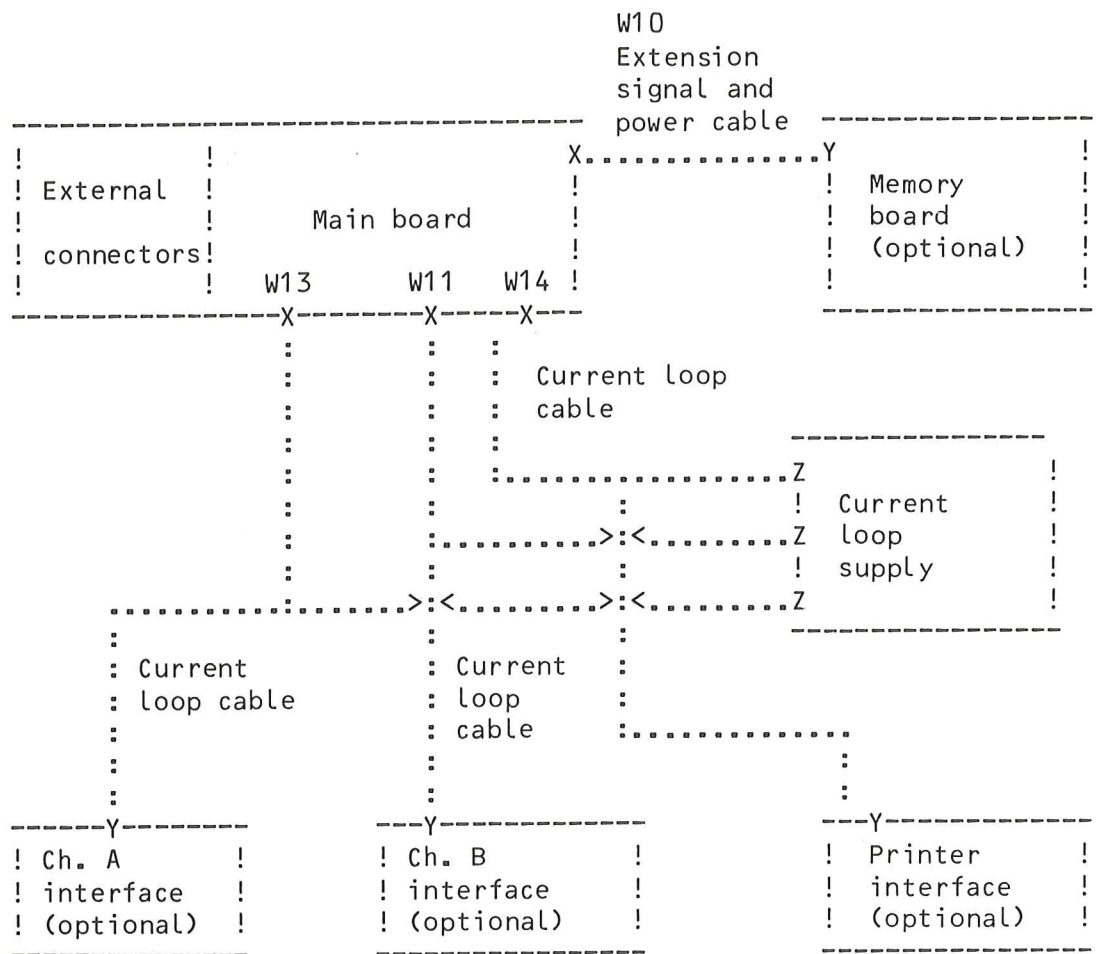


Fig 2.2 Block diagram showing optional modules with current loop, and interconnection

The Ch.A interface cable, the Ch.B interface cable and the Printer interface cable are identical, and are referred to as Current loop cable.

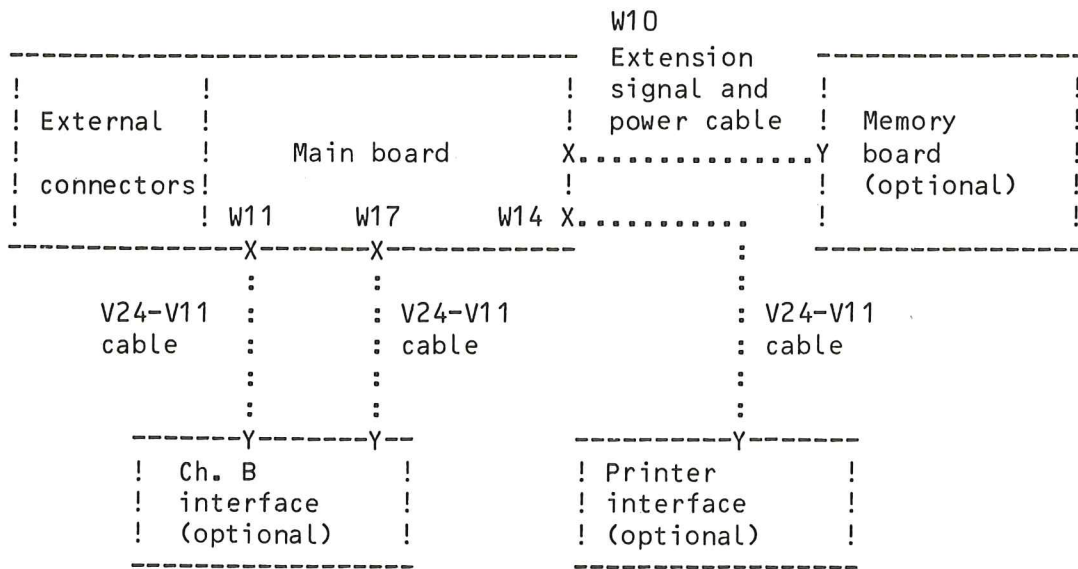


Fig. 2.3 Block diagram showing optional modules with V24 or V11, and interconnections.

The Ch.B interface cable, (connected to W11 on Main board), the Ch.B modem cable (connected to W17 on Main board) and the Printer interface cable (connected to W14 on Main board), are identical and are referred to as V24-V11 cable.

NOTE: When Ch. B interface is connected to modem, two V24-V11 cables are used. The Ch. B modem cable contains the modem control signals, and the Ch. B interface cable contains the supply voltages and data.

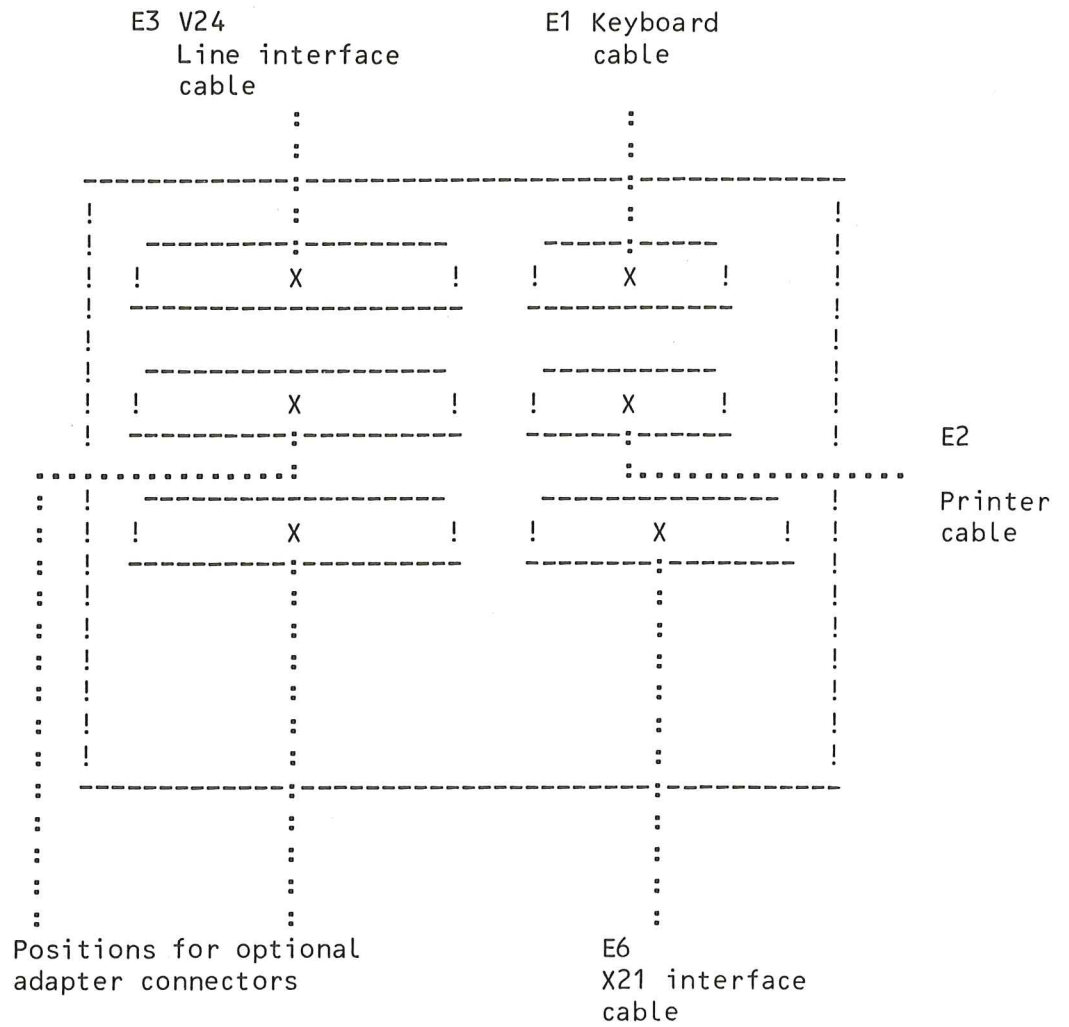


Fig. 2.4 External connections

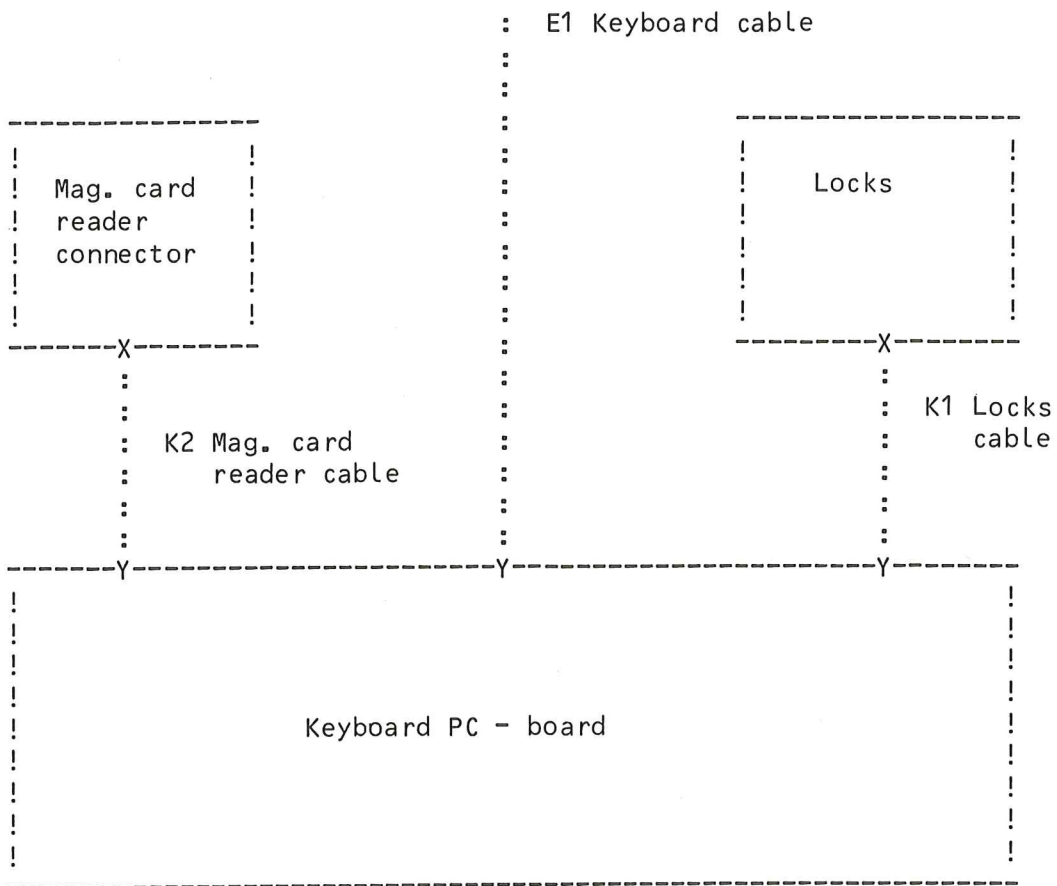


Fig. 2.5 Connections in keyboard.

3. Internal cables in main unit.

3.1 Mains cable 1 (W1)

! Pin	! Signal name	!Current!	Voltage!	Note!
!	! A220V	! 0.5A	! 220V	!
!	! B220V	! 0.5A	! 220V	!
!	! Chassis ground	!	!	!

Connector X end: Fast - on
Connector Y end: Solder and screw
Cable type : 220V : AWG 18
Ch.gnd. : AWG 16

3.2 Mains cable 2 (W2)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! C220V	! 0.5A	! 220V	!
! 2	! Chassis ground	!	!	!
! 3	! D220V	! 0.5A	! 220V	!

Connector X end: Solder and screw
Connector Y end: Fast on
Cable type : 220V : AWG 18
Ch.gnd. : AWG 16

3.3 Deflection yoke cable (W3)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Horizontal deflection A	! 8A pp	! 300V	!
! 2	! Horizontal deflection B	! 8A pp	! 0 V	!
! 3	! Vertical deflection A	! 0.5A	! 80V	!
! 4	! Vertical deflection B	! 0.5A	! 2V	!
! 5	! Not used	!	!	!

Connector X end: Solder
Connector Y end: MAXI MOLEX 5 pin
Cable type : AWG 20

3.4 Power deflection cable (W4)

! Pin	! Signal name	!Current!	!Voltage!	!Note!
! 1	! Not used	!	!	!
! 2	! P80V- (BU 208 COLL)	!	!	!
! 3	! P80V- (BU 208 COLL)	! 4 A	!600V pp!	!
! 4	! Not used	!	!	!
! 5	! P80V+	!	!	!
! 6	! P80V+	! 4 A	! 80 V	!
! 7	! not used	!	!	!

Connector X end: AMP-MTIS 7 pin, with pin 4 removed

Connector Y end: Solder

Cable type : AWG 24

3.5 Power signal cable (W5)

! Pin	! Signal name	!Current!	!Voltage!	!Note!
! 1	! Early warning LOW MAINS	! 1 mA	! 5V	!
! 2	! Horizontal sync HSYNC (BAR)	! 50 mA	! 5V	!
! 3	! +5V	! 50 mA	! 5V	!

Connector X end: AMP - MTIS 3 pin

Connector Y end: AMP - MTIS 3 pin

Cable type : AWG 24

3.6 Main power cables (W6A W6B W6C)

W6A:

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Ground for 5V GND	!	!	!
! 2	! Ground for 5V GND	!	!	!
! 3	! Ground for 5V GND	!	!	!
! 4	! Ground for 5V GND	!	!	!
! 5	! +5V	!	!	!
! 6	! +5V	!	!	!
! 7	! +5V	!	!	!

Connector X end: AMP - MTIS 7 pin
Connector Y end: AMP - MTIS 7 pin
Cable type : AWG 24

W6B:

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Ground for 5V GND	!	!	!
! 2	! Ground for 5V GND	!	!	!
! 3	! Ground for 5V GND	!	!	!
! 4	! Ground for 5V GND	!	!	!
! 5	! +5V	!	!	!
! 6	! +5V	!	!	!
! 7	! +5V	!	!	!

Connector X end: AMP - MTIS 7 pin
Connector Y end: AMP - MTIS 7 pin
Cable type : AWG 24

W6C:

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! +12	! 100 mA!	12 V	!
! 2	! Ground for +/-12V GND	! 300 mA!		!
! 3	! -12V	! 100 mA!	12 V	!
! 4	! Not used	!	!	!
! 5	! Not used	!	!	!
! 6	! -30 V For EAROM	! 50 mA!	27 V	!
! 7	! +65V	! 50 mA!	65 V	!
! 8	! Not connected	! 1 mA	5 V	!
! 9	! Vertical sync. VSYNC (BAR)	! 1 mA	5 V	!
! 10	! Blanking	! 1 mA	5 V	!

Connector X end: AMP - MTIS 10 pin
Connector Y end: AMP - MTIS 10 pin
Cable type : AWG 24

3.7 Deflection cable (W7)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Focus	! 1 μ A	900 V	!
! 2	! Not used	!	!	!
! 3	! Grid 2	! 1 μ A	900 V	!
! 4	! Not used	!	!	!
! 5	! Heat A	!300 mA	30 V	!
! 6	! Not used	!	!	!
! 7	! Heat B	!300 mA	30 V	!
! 8	! Not used	!	!	!

Connector X end: AMP - MTIS 8 pin
Connector Y end: Solder
Cable type : AWG 24

3.8 Tube cable (W9).

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Cathode	!100 μ A	! 70 V	! !
! 2	! Not connected	!	!	! !
! 3	! Grid 1	! 10 μ A	! 70 V	! !

Connector X end: Solder

Connector Y end: AMP - MTIS 3 pin

Cable type : AWG 24

3.9 Extension signal and power connection (W10)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Address latch enable ALE	!	!	!
! 2	! Write strobe WR(bar)	!	!	!
! 3	! In-out/mem status IO/M(bar)	!	!	!
! 4	! Read strobe RD(bar)	!	!	!
! 5	! Clock CLK	!	!	!
! 6	! Master clear MCLEAR(bar)	!	!	!
! 7	! Ready input RDY	!	!	!
! 8	! Data bus 0 DB0	!	!	!
! 9	! Data bus 1 DB1	!	!	!
! 10	! Data bus 2 DB2	!	!	!
! 11	! Data bus 3 DB3	!	!	!
! 12	! Data bus 4 DB4	!	!	!
! 13	! Data bus 5 DB5	!	!	!
! 14	! Data bus 6 DB6	!	!	!
! 15	! Data bus 7 DB7	!	!	!
! 16	! Address bus 8 A8	!	!	!
! 17	! Address bus 9 A9	!	!	!
! 18	! Address bus 10 A10	!	!	!
! 19	! Address bus 11 A11	!	!	!
! 20	! Address bus 12 A12	!	!	!
! 21	! Address bus 13 A13	!	!	!
! 22	! Address bus 14 A14	!	!	!
! 23	! Address bus 15 A15	!	!	!

(CONT)

!	24	!	CPU status 0	S0	!	!	!	!
!	25	!	CPU status 1	S1	!	!	!	!
!	26	!	Not used		!	!	!	!
!	27	!	CPU hold input	HOLD	!	!	!	!
!	28	!	Hold acknowledge	HLDA	!	!	!	!
!	29	!	DMA request ch.A	DMARQA(bar)	!	!	!	!
!	30	!	DMA request ch.B	DMARQB(bar)	!	!	!	!
!	31	!	Chip enable s3	CES3(bar)	!	!	!	!
!	32	!	Chip enable DMA	CDMA(bar)	!	!	!	!
!	33	!	+12V		!	!	!	!
!	34	!	-12V		!	!	!	!
!	35	!	GND		!	!	!	!
!	36	!	GND		!	!	!	!
!	37	!	GND		!	!	!	!
!	38	!	+5V		!	!	!	!
!	39	!	+5V		!	!	!	!
!	40	!	+5V		!	!	!	!

Connector X end: 2 x 20 pin pinrows with 0.1 spacing
Connector Y end: Receptacle for 2 x 20 pin pinrow with
0.1 spacing

3.10 Reset cable (W12)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Reset button	! 1 mA	! 5V	! !
! 2	! Not connected	!	!	! !
! 3	! GND	! 1 mA	! 0V	! !

Connector X end: AMP - MTIS 3 pin

Connector Y end: Solder

Cable type : AWG 24

3.11 Chassis ground cable(W15)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Chassis ground	CHGND !	! 0V	! !

Connector X end: solder
Connector Y end: MATE-N-LOCK
Cable : AWG 16

3.12 Intensity control cable (W16)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! +5V	!	! 5V	! !
! 2	! Brightness	BRI !	! 5V	! !
! 3	! GND	!	! 0V	! !

Connector X end: AMP - MTIS 3 pin
Connector Y end: solder
Cable : AWG 24

Cable type : AWG 24

3.13 Current loop cable

! Pin number !								
! Signal name	! X	! Y	! Z	!Current	!Voltage	!Note	!	!
! +5V	! 1	! 1	!	!	! 5V	!	!	!
! GND	! 2	! 2	!	!	! 0V	!	!	!
! Receive data	! 3	! 3	!	!	!	!	!	!
! Transmit data	! 4	! 4	!	!	!	!	!	!
! +12V	! 5	! 5	!	!	! +12V	!	!	!
! -12V	! 6	! 6	!	!	! -12V	!	!	!
! 12 volt floating	! NC	! 7	! 1	!	! 12V	! 1	!	!
! Ground floating	! NC	! 8	! 3	!	! 0V	! 1	!	!

Note 1: These voltages are floating referred to other voltages
on the board

Connector X end: AMP - MTIS 8 pin

Connector Y end: AMP - MTIS 8 pin

Connector Z end: AMP - MTIS 3 pin

Cable type : AWG 24

The Current loop cable may be used as Ch. A interface cable
(connected to W13 on Main board), as Ch. B interface cable
(connected to W11 on Main board), or as Printer interface
cable (connected to W14 on Main board).

3.14 V24-V11 cable

The V24-V11 cable used as Ch. B interface cable (connected to W11 on Main board) or as Printer interface cable (connected to W14 on Main board).

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! +5V	!	! 5V	!
! 2	! GND	!	! 0V	!
! 3	! Receive data	!	!	!
! 4	! Transmit data	!	!	!
! 5	! +12V	!	! +12V	!
! 6	! -12V	!	! -12V	!
! 7	! Not used	!	!	!
! 8	! Not used	!	!	!

The V24-V11 cable used as Ch.B modem cable (connected to W17 on Main board).

		! Adapter signal names !		
! Pin	! Signal name	! V24 signal!	V11 signal!	Note!
! 1	! Not used	!	!	!
! 2	! Not used	!	!	!
! 3	! Data set ready	! CT 107	! not used	!
! 4	! Clear to send	! CT 106	! I	!
! 5	! Request to send	! CT 105	! C	!
! 6	! Data terminal ready	! CT 108	! not used	!
! 7	! Transmit clock	! CT 114	! S	!
! 8	! Receive clock	! CT 115	! S	!

Connector X end: AMP - MTIS 8 pin
Connector Y end: AMP - MTIS 8 pin
Cable type : AWG 24

4. External connectors

These specifications concern the connectors on the back panel.
Unlisted pins are open.

4.1 Keyboard connector (E1)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Protective ground CHGND	!	! 0V	!
! 2	! Transmit to keyb. TXKB(bar)	!	!	!
! 3	! +5V	!	! 5 V	!
! 4	! Receive from keyb. RXKB(bar)	!	!	!
! 6	! GND	!	! 0 V	!
! 7	! Transmit to keyboard TXKB	!	!	!
! 9	! Receive from keyb. RXKB	!	!	!

Connector X end: Delta 9 pin (female on board)

Connector Y end: See 5.1

Cable type :

4.2 Printer connector (E2)

! Pin	! Signal name	!Current!	Voltage!	Note!
! 1	! Protective ground CHGND	!	!	!
! 2	! Transmit to printer TXPR(bar)	!	!	!
! 4	! Receive from printer RXPR(bar)	!	!	!
! 6	! GND	!	! 0 V	!
! 7	! Transmit to printer TXPR	!	!	!
! 9	! Receive from printer RXPR	!	!	!

Connector X end: Delta 9 pin (female on board)

Cable type :

4.3 V24 interface connector (E3)

! Pin	! Signal name	!Current	!Voltage	!Note
! 1	! CT101 Protective ground	!	!	!
! 2	! CT103 Transmitted data	!	!	!
! 3	! CT104 Received data	!	!	!
! 4	! CT105 Request to send	!	!	!
! 5	! CT106 Clear to send	!	!	!
! 6	! CT107 Data set ready	!	!	!
! 7	! CT102 Signal ground	!	!	!
! 8	! CT109 Carrier detect	!	!	!
! 9	! V24 -level	!	!	!
! 15	! CT114 Transmitter clock	!	!	!
! 17	! CT115 Receiver clock	!	!	!
! 20	! CT108 Data terminal ready	!	!	!
! 21	! V24 +level	!	!	!
! 22	! CT125 Calling indicator	!	!	!
! 23	! CT111 Speed select	!	!	!

Connector X end: Delta 25 pin (male on board)

Cable type :

4.4 V11 interface connector (E6)

! Pin	! Signal name	!Current	!Voltage	!Note!
! 1	! Protective ground	!	!	!
! 2	! T(A) Transmit(bar)	!	!	!
! 3	! C(A) Control(bar)	!	!	!
! 4	! R(A) Receive(bar)	!	!	!
! 5	! I(A) Indication(bar)	!	!	!
! 6	! S(A) Signal element timing(bar)		!	!
! 8	! G Signal ground	!	!	!
! 9	! T(B) Transmit	!	!	!
! 10	! C(B) Control	!	!	!
! 11	! R(B) Receive	!	!	!
! 12	! I(B) Indicator	!	!	!
! 13	! S(B) Signal element timing	!	!	!

Connector X end: Delta 15 pin (female on board)

Cable type :

5. Internal cables in the keyboard

5.1 Keyboard cable (E1)

! Pin	! Signal name	!Current!	!Voltage!	!Note!
! 1	! +5V	!	! 5 V	!
! 2	! Receive from mainb. REC	!	!	!
! 3	! Receive from mainb. REC(bar)	!	!	!
! 4	! Transmit to mainb. TRANS	!	!	!
! 5	! Transmit to mainb. TRANS(bar)	!	!	!
! 6	! Ground GND	!	! 0 V	!

Connector X end: See 4.1

Connector Y end: AMP - MTIS 7 pin

Screen (protective ground) is clamped to chassis.

Cable type :

5.2 Mag. card reader cable

! Pin	! Signal name	!Current!	!Voltage!	!Note!
! 1	! Ground GND	!	!	!
! 2	! Ground GND	!	!	!
! 3	! +5v	!	!	!
! 4	! READY	! 10mA	!	!
! 5	! Card present CP	!	!	!
! 6	! Card data CD	!	!	!
! 7	! Card clock CC	!	!	!

Connector X end: solder

Connector Y end: AMP - MTIS 7 pin

Cable type :

TANDBERG DATA



**TDV 2200 SERIES
DISPLAY TERMINALS**

Illustrated Parts List

Illustrated Parts List

**TANDBERG DATA A/S
P.O. Box 9 Korsvoll
OSLO 8, NORWAY**

**Phone (47-2) 23 20 80
Telex 17002 tdata n**

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Every effort has been made to avoid errors in text and diagrams. However, Tandberg Data A/S assumes no responsibility for any errors which may have occurred in this publication.

It is the policy of Tandberg Data A/S to improve products as new techniques and components become available. Tandberg Data A/S therefore reserves the right to change specifications at any time.

We appreciate any comments on this publication.

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FRONT VIEW OF CHASSIS

Retaining Spacer (Avstandsstykke)
p.no. 387651

Retaining Spacer (Avstandsstykke)
p.no. 385970 4 pieces (stk.)

Bracket (Brakett) p.no. 392183
4 pieces (stk.)

Screw (Skrue) p.no. 328190
4 pieces (stk.)

Strap (Klammer) p.no. 380897
2 pieces (stk.)

Potentiometer p.no. 387442

Bracket (Brakett) p.no. 387162

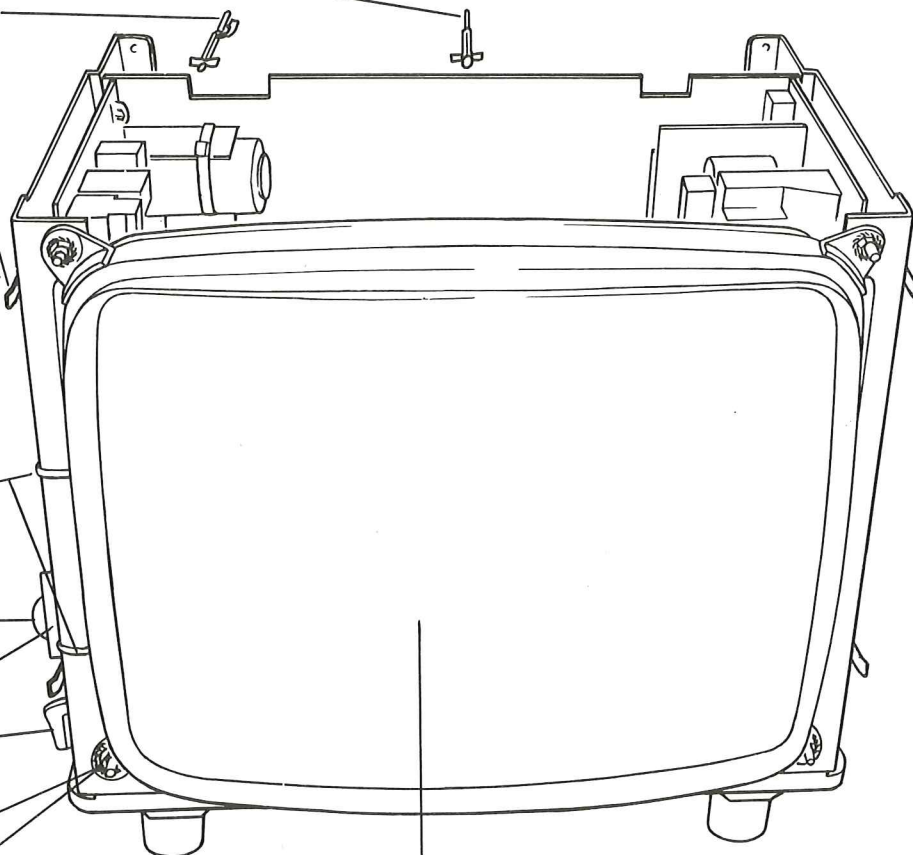
Mains switch (Bryter)
p.no. 387902

Nut (Mutter) p.no. 389583

Serrated lock washer
(Låseskive) p.no. 288313

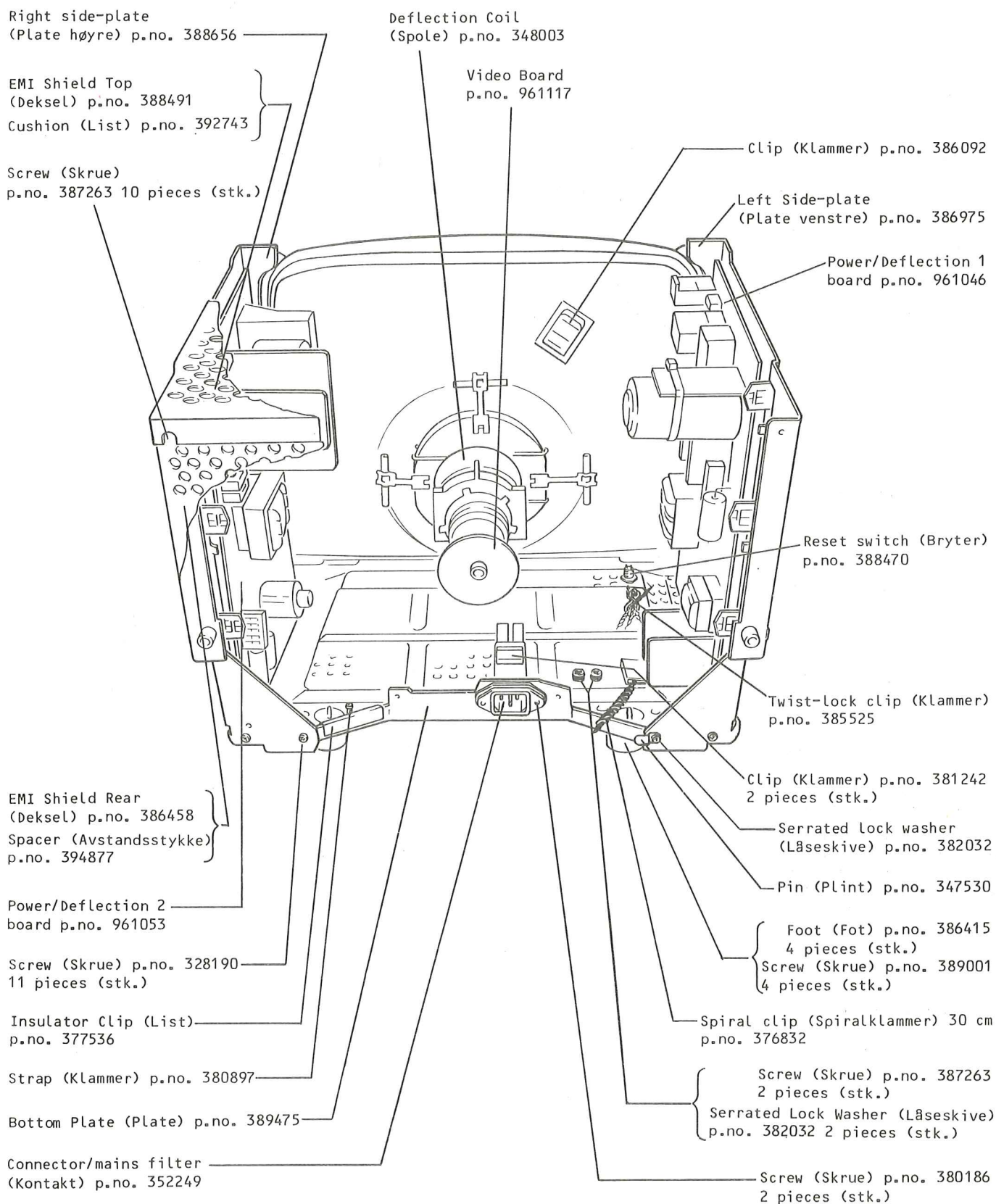
Correct spacers are packed
with replacement tubes.
(Korrekte monteringskiver
blir pakket med reservedelsrør)

Picture tube (Rør)
p.no. 385869



NOTE: Norwegian part names in brackets.

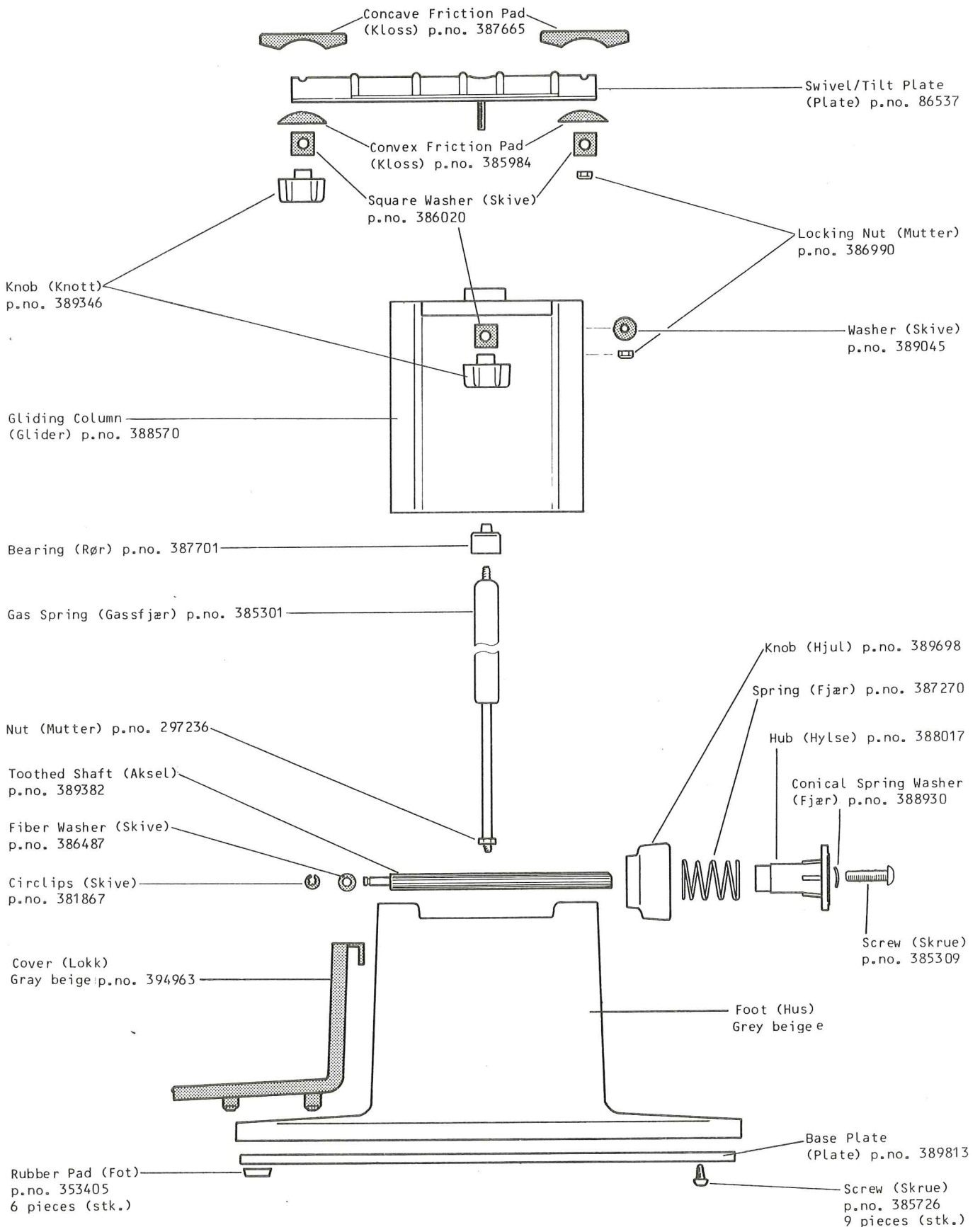
REAR VIEW OF CHASSIS



NOTE: Norwegian part names in brackets.

EXPLODED VIEW OF STAND

Shaded parts are shown in a different angle for easier identification.

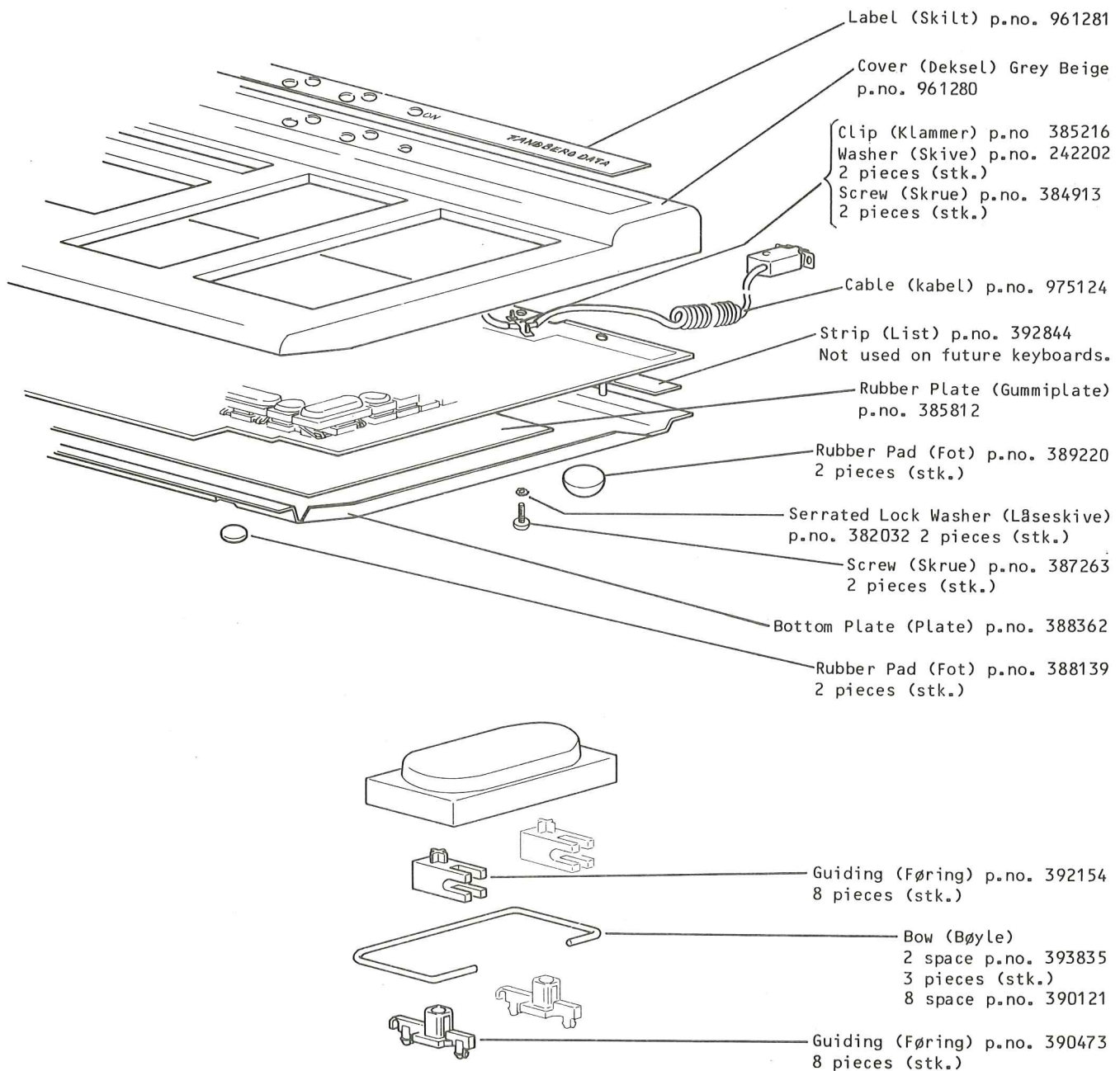


NOTE: Norwegian part names in brackets.

HOUSING

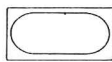
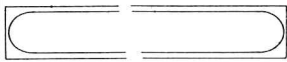
Part name	Colour	Part no.	Remarks
Cabinet (Kabinett)	Grey Beige	385639	
Cover (Lokk)	Grey Beige	385086	
Cabinet Front(Ramme)	Brown	390193	
Screw (Skrue)		377608	2 pieces (stk.)
Washer (Skive)		386897	2 pieces (stk.)
Ring (Ring)		385108	2 pieces (stk.)

EXPLODED VIEW OF KEYBOARD

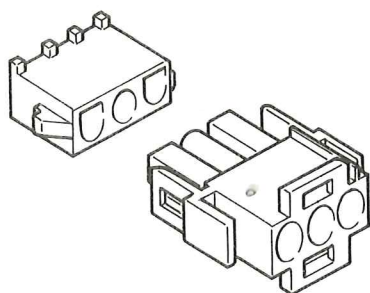


NOTE: Norwegian part names in brackets.

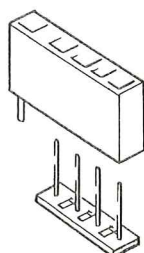
KEYTOPS

Keytop	Size	Colour	Part no.
	1 space	Grey	390107
	1 space	Ochre	391788
	1 space	Green	393469
	1 space	Grey	394870
	1 space	Ochre	391156
	1 space	Green	392837
	1 1/4 space	Grey	394173
	1 1/4 space	Grey	390452
	1 1/2 space	Grey	392492
	1 1/2 space	Grey	394518
	1 1/2 space	Ochre	390804
	1 3/4 space	Grey	393821
	2 space	Grey	393462
	2 space	Ochre	391429
	8 space	Grey	390459

CONNECTORS



Connector (Kontakt) ordering no. 961339
 Consists of
 Housing (Hus) p.no. 388225
 Spring (Fjær) p.no. 384288 3 pieces (stk.)
 Socket (Plint) p.no. 387206



Connector (Kontakt) ordering no. 961338
 Consists of
 Housing (hus) p.no. 384719
 Spring (Fjær) p.no. 383261 4 pieces (stk.)
 Pin (Stift) p.no. 385322
 Socket (Kontakt) p.no. 387105

NOTE: Norwegian part names in brackets.

The cable numbers refer to the block diagram in chapter Interconnections and corresponding connectors on the various boards.

Most of the cables are identified by numbered tape markers.

Cable number	Cable name	Ordering number	Comments
W1 + W2	Mains cable assembly (Including yellow/-green ground wire)	961343	From mains connector via mains switch to Power/Deflection 1.
W3	Deflection yoke cable	961344	Soldered on deflection yoke.
W4	Power/Deflection cable	975122	Soldered on Power/Deflection 2
W5	Power signal cable	961345	
W6A	Main board power cable	961346	
W6B	Main board power cable	961347	
W6C	Main board power cable	961347	
W7 + W9	Deflection/Video cable (Including black ground wire)	975123	Soldered on Tube board
W8	Not used		
W10	Extension signal and power cable	961336	Used with Memory Extension board 961146.
W10	Extension signal and power cable	961337	Used with Test board 961119.
W11, W14 and W17	V24/V11 cable (W11, W14, and W17 are identical in this application)	975135	Used with optional V24 Interface board 961120 and V11 Interface board 961149.
W11, W13 and W14	Current loop cable (W11, W13 and W14 are identical in this application)	975137	Used with optional Current Loop Adapter board 961145.
W12	Reset cable	961350	Soldered on Reset button.
W15	Chassis ground cable	961041	Soldered on Main board
W16	Intensity cable	961349	Soldered on Intensity potentiometer.
---	Back-to-back cable	961300	TDV 2200 to TDV 2114
---	V24/VT100 Tail	961159	
E1	Keyboard cable	975124	See keybd. description

SPARE MODULES

BOARDS

Name/Description	Ordering number
Main board (bare bones)	961041
Power/Deflection 1 board	961046
Power/Deflection 2 board	961053
Tube board	961117
14 k PROM + 2 k RAM Test board	961119
Current Loop Adapter	961145
Memory Module	961146
RAM board 16 k	961148
RAM board 32 k	961147
V24 Interface Adapter	961120

KEYBOARD

Name/Description	Ordering number
Printed circuit board with 110 switches	961121
Printed circuit board with 101 switches	961290

CHARACTER GENERATORS

Name/Description	Ordering number
German, 2 k PROM	961134
German semigraphic, 4 k PROM	961135
International, 2 k PROM	961130
International semigraphic, 2 k PROM	961131
Norwegian, 2 k PROM	961132
Norwegian semigraphic, 4 k PROM	961133
Swedish, 2 k PROM	961136
Swedish semigraphic, 4 k PROM	961137
TDV 2230 International, 2 k PROM	961142
TDV 2230 Norwegian, 2 k PROM	961143
TDV 2230 Swedish, 2 k PROM	961144

LINE INTERFACE

Name/Description	Ordering number
Circuit SIO/9 Channel A	387499
Circuit SIO/2 Channel A + B	389180

FIRMWARE *

Name/Description	Ordering number
Primitives 4 x 2 k PROM	961153
Primitives and application program TDV 2215	961340
Primitives and application program TDV 2220	961341
Primitives and application program TDV 2230	961342
RAM 2 k	387586
TDV 2215 Firmware; consists of: Primitives and application prog. RAM 2 k Memory Module	961150
TDV 2220 Firmware; consists of: Primitives and application prog. RAM 2 k Memory Module	961151
TDV 2230 Firmware; consists of: Primitives and application prog. RAM 2 k Memory Module	961154

* See table on the next page for correct mounting of the various circuits.

The firmware circuits are labelled when leaving Tandberg Data.
They should be mounted according to the table below:

Label	Socket no.	Board
xxxxxx - 1	U31	Main board
" - 2	U32	Main board
" - 3	U33	Main board
" - 4	U34	Main board
" - 5	U35	Main board
" - 6	U38	Main board
xxxxxx - M1	U12	Memory module
" - M2	U13	Memory module
" - M3	U14	Memory module
" - M4	U15	Memory module
" - M5	U16	Memory module
" - M6	U17	Memory module
" - M7	U18	Memory module
" - M8	U19	Memory module

Note : "xxxxxx" are 5- or 6-digit numbers, depending on
which version of the TDV 2200 series the circuits
are intended for.