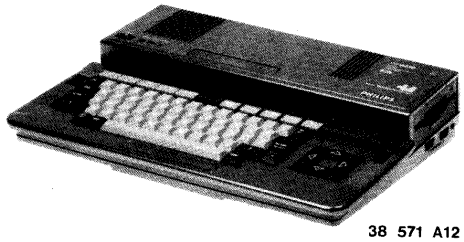
# Home computer VG8230/00

Service
Service
**Service**



38 571 A12

# Service Manual

**See also:**
**VY0010/0011 supplement**

**(GB) SPECIFICATION**

| | |
|---|---|
| Micro processor | : Z80A |
| Memory | : 48k ROM<br>16k Disk-ROM<br>128k video RAM<br>64k user RAM |
| Video processor | : V9938 |
| MSX controller | : S-3527 |
| Floppy-disc drive | : 3.5", 0.5 MB |
| Interfaces | : RF output<br>(UHF channel E36)<br>Monitor output<br>SCART<br>Audio cassette recorder<br>2 joysticks<br>Printer<br>2 cartridge slots<br>External disk drive |
| Keyboard | : QWERTY |
| Power supply voltage | : 220 V ± 10%, 50 Hz |

**(NL) SPECIFICATIE**

| | |
|---|---|
| Micro processor | : Z80A |
| Geheugen | : 48k ROM<br>16k Disk-ROM<br>128k video RAM<br>64k gebruikers RAM |
| Video processor | : V9938 |
| MSX controller | : S-3527 |
| Floppy-disc drive | : 3.5", 0.5 MB |
| Interfaces | : RF uitgang<br>(UHF kanaal E36)<br>Monitor uitgang<br>SCART<br>Audio cassette recorder<br>2 handbedieningen<br>Printer<br>2 cartridge sleuven<br>Externe disk drive |
| Toetsenbord | : QWERTY |
| Voedingsspanning | : 220 V ± 10%, 50 Hz |

**(F) CARACTERISTIQUES TECHNIQUES**

| | |
|---|---|
| Micro processeur | : Z80A |
| Mémoire | : 48k ROM<br>16k ROM à disque<br>128k RAM vidéo<br>64k RAM utilisateur |
| Processeur vidéo | : V9938 |
| Controle MSX | : S-3527 |
| Lecteur de disquette | : 3.5", 0.5 MB |
| Interfaces | : Sortie RF<br>(Canal UHF E36)<br>Sortie monitor<br>SCART<br>Audio cassette<br>2 poignées<br>Imprimante<br>2 "slots" cartouche<br>Lecteur externe |
| Clavier | : QWERTY |
| Tension d'alimentation | : 220 V ± 10%, 50 Hz |

**(D) TECHNISCHE DATEN**

| | |
|---|---|
| Mikro Prozessor | : Z80A |
| Speicher | : 48k ROM<br>16k Disk-ROM<br>128k Video RAM<br>64k Gebrauchers-RAM |
| Video Prozessor | : V9938 |
| MSX Steuereinheit | : S-3527 |
| Floppy-Disk-Laufwerk | : 3.5", 0.5 MB |
| Schnittstellen | : RF Ausgang<br>(UHF kanal E36)<br>Monitor Ausgang<br>SCART<br>Audio Kassette Recorder<br>2 Handbedienungen<br>Drucker<br>2 Kassettenschlitze<br>Externes Disk-Laufwerk |
| Tastatur | : QWERTY |
| Versorgungsspannung | : 220 V ± 10%, 50 Hz |

**(I) DATA TECNICI**

| | |
|---|---|
| Microprocessore | : Z80A |
| Memoria | : 48k ROM<br>16k ROM a disco<br>128k RAM video<br>64k RAM utilizzatori |
| Processore video | : V9938 |
| MSX di controllo | : S-3527 |
| Lettore di dischetto | : 3.5", 0.5 MB |
| Interfaccie | : Uscita RF<br>(Canale UHF E36)<br>Uscita monitore<br>SCART<br>Registratore audio a cassetta<br>2 leve manuali<br>Stampa<br>2 scanelature per cartuccia<br>Lettore esterno |
| Tastiera | : QWERTY |
| Tensione d'aliment. | : 220 V ± 10%, 50 Hz |

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

Subject to modification
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## (GB) WARNING

The cassettes should be exchanged with the set switched off.

**Adjustments**

**VDP clock frequency**

- Connect via a 10:1 probe a frequency meter to 8-U28.
- Adjust TC3 for a frequency of 3.554685 MHz.

**FDC clock frequency**

- Connect via a 10:1 probe a frequency meter to 24-U7.
- Adjust TC1 for a frequency of 1 MHz.

**RTC clock frequency**

- Connect via a 10:1 probe a frequency meter to 17-U24.
- Adjust TC2 for a frequency of 32.768 kHz.

**Encoder unit**

- Connect a resistor (75 Ω 1/4 W) to 5-CN2.
- Enter the program of table 1.
- Adjust VR1 for 1 Vpp across 5-CN2.

- Connect a resistor (75 Ω 1/4 W) to 4-CN2.
- Enter the program of table 1.
- Adjust VR2 for 1 Vpp across U-CN2.

**Power supply voltage**

- Adjust on the supply PCB VR1 for a voltage of -11.9 V across the output (CN2-1). Check CN2-6 (+5 V) and CN2-8 (+12 V).

## (NL) WAARSCHUWING

Het uitwisselen van cartridges dient plaats te vinden bij een uitgeschakeld apparaat.

**Instellingen**

**VDP klokfrequentie**

- Sluit via een 10:1 probe een frequentiemeter aan op 8-U28.
- Regel TC3 af op een frequentie van 3,554685 MHz.

**FDC klokfrequentie**

- Sluit via een 10:1 probe een frequentiemeter aan op 24-U7.
- Regel TC1 af op een frequentie van 1 MHz.

**RTC klokfrequentie**

- Sluit via een 10:1 probe een frequentiemeter aan op 17-U24.
- Regel TC2 af op een frequentie van 32,768 kHz.

**Encoder unit**

- Sluit een weerstand (75 Ω 1/4 W) aan op 5-CN2.
- Voer het programma van tabel 1 in.
- Regel VR1 af op 1 Vtt over 5-CN2.

- Sluit een weerstand (75 Ω 1/4 W) aan op 4-CN2.
- Voer het programma van tabel 1 in.
- Regel VR2 af op 1 Vtt over 4-CN2.

**Voedingsspanning**

- Stel op het voedingsspanningspaneel VR1 in op een spanning van -11,9 V over de uitgang (CN2-1). Controleer nu CN2-6 (+5 V) en CN2-8 (+12 V).

## (F) ATTENTION

Le remplacement de cartouches doit avoir lieu lorsque l'appareil est hors service.

**Réglages**

**Fréquence d'horloge VDP**

- A travers une sonde 10:1 brancher un fréquencemètre sur 8-U28.
- Ajuster TC3 à une fréquence de 3,554685 MHz.

**Fréquence d'horloge FDC**

- A travers une sonde 10:1 brancher un fréquencemètre sur 24-U7.
- Ajuster TC1 à une fréquence de 1 MHz.

**Fréquence d'horloge RTC**

- A travers une sonde 10:1 brancher un fréquencemètre sur 17-U24.
- Ajuster TC2 à une fréquence de 32,768 kHz.

**Ensemble codeur**

- Brancher une résistance (75 Ω 1/4 W) sur 5-CN2.
- Introduire le programme du tableau 1.
- Aligner VR1 a 1 Vcc sur 5-CN2.

- Raccorder une résistance (75 Ω 1/4 W) sur 4-CN2.
- Introduire le programme du tableau 1.
- Ajuster VR2 à 1 Vcc sur 4-CN2.

**Tension d'alimentation**

- Sur la platine de tension d'alimentation VR1 ajuster pour une tension de -11,9 V sur la sortie (CN2-1). Contrôler CN2-6 (+5 V) et CN2-8 (+12 V).

## (D) WARNUNG

Cassetten müssen bei ausgeschaltetem Gerät ausgewechselt werden.

**Einstellungen**

**VDP Taktfrequenz**

- Über einen Taster 10:1 einen Frequenzmesser an 8-U28 schalten.
- TC3 auf eine Frequenz von 3,554685 MHz einstellen.

**FDC Taktfrequenz**

- Über einen Taster 10:1 einen Frequenzmesser an 24-U7 schalten.
- TC1 auf eine Frequenz von 1 MHz einstellen.

**RTC Taktfrequenz**

- Über einen Taster 10:1 einen Frequenzmesser an 17-U24 schalten.
- TC2 auf eine Frequenz von 32,768 kHz einstellen.

**Encoder Abstimmeinheit**

- Einen Widerstand (75 Ω 1/4 W) an 5-CN2 anschliessen.
- Das Programm der Tabelle 1 einführen.
- VR1 über 5-CN2 auf 1 Vs-s abreglen.

- Einen Widerstand (75 Ω 1/4 W) an 4-CN2 anschliessen.
- Das Programm der Tabelle 1 einführen.
- VR2 über 4-CN2 auf 1 Vs-s abreglen.

**Versorgungsspannung**

- An der Versorgungsspannungsplatte VR1 auf eine Spannung von -11,9 V an dem Ausgang (CN2-1) einstellen. Jetzt CN2-6 (+5 V) und CN2-8 (+12 V) überprüfen.

## (I) AVVERTIMENTO

La sostituzione delle cartuccie deve farsi quando l'apparecchio è fuori servizio

**Regolazioni**

**Frequenza d'orologio VDP**

- Tramite una sonda 10:1 collegare un frequenziometro su 8-U28.
- Regolare TC3 per una frequenza di 3,554685 MHz.

**Frequenza d'orologio FDC**

- Tramite una sonda 10:1 collegare un frequenziometro su 24-U7.
- Regolare TC1 per una frequenza di 1 MHz.

**Frequenza d'orologio RTC**

- Tramite una sonda 10:1 collegare un frequenziometro su 17-U24.
- Regolare TC2 per una frequenza di 32,768 kHz.

**Unità codificatore**

- Collegare una resistenza (75 Ω 1/4 W) su 5-CN2.
- Introdurre il programma della tavola 1.
- Aggiustare VR1 a 1 Vcc su di 5-CN2.

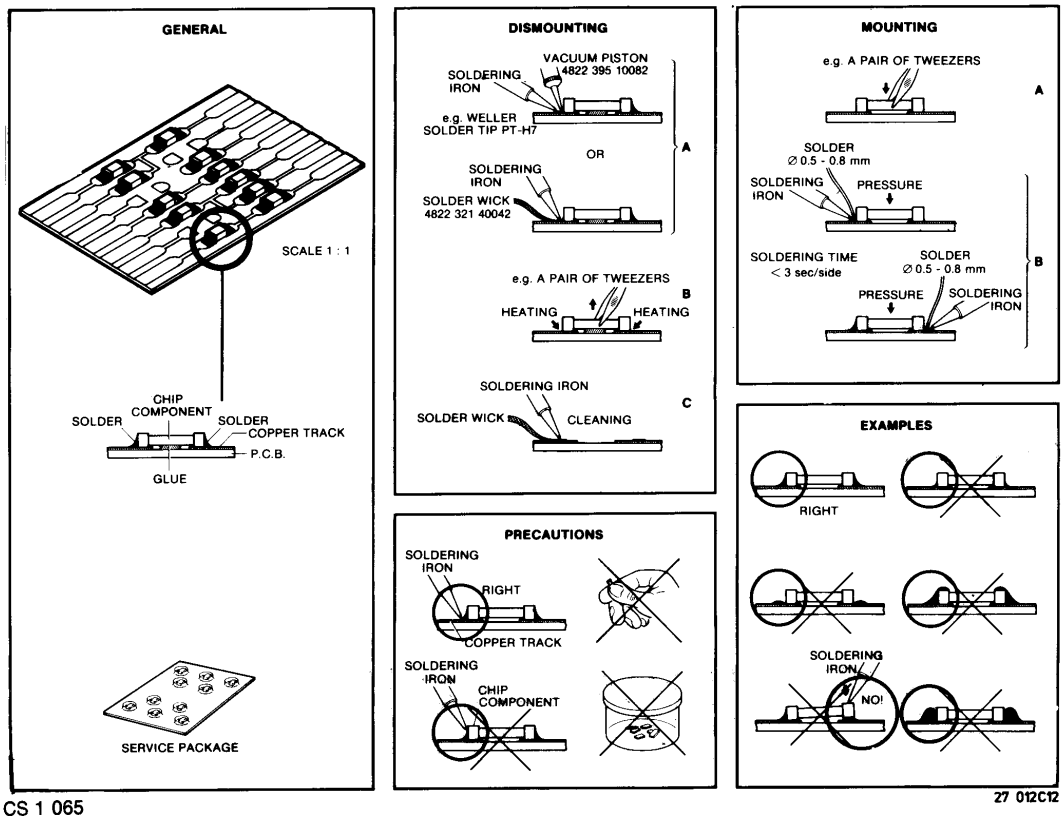
- Collegare una resistenza (75 Ω 1/4 W) su 4-CN2.
- Introdurre il programma della tavola 1.
- Aggiustare VR2 per 1 Vcc su di 4-CN2.

**Tensione di alimentazione**

- Sulla piastra di tensione di alimentazione VR1, regolare per una frequenza di -11,9 V sull'uscita (CN2-1). Verificare CN2-6 (+5 V) e CN2-8 (+12 V).

```
  5   REM ENCODER ADJUSTMENT
 10   CLEAR 100, &H9FFF
 20   FOR I=0 TO 36
 30   AD=&HA000+I
 40   READ Z
 50   POKEAD, Z
 60   NEXT I
 70   DEF USR0=&HA000
 80   SCREEN2
 90   COLOR ,,2
100   FOR I=1 TO 8
110   X=32*(I-1) : XX=X+31
120   LINE (X,0)-(XX,191), I,BF
130   NEXT I
140   Y=USR0 (0)
150   GOTO 150
160   DATA &HF3, &H3E, &H1, &HD3, &H99
170   DATA &H3E, &H90, &HD3, &H99, &HE
180   DATA &H9A, &H26, &HA0, &H2E, &H15
190   DATA &H6, &H10, &HED, &HB3, &HFB
200   DATA &HC9, &HFF, &HF, &HF0, &HF
210   DATA &HF, &HF, &H0, &HF, &HFF
220   DATA &H0, &HF0, &H0, &HF, &H0
230   DATA &H0, &H0
```

TABLE 1

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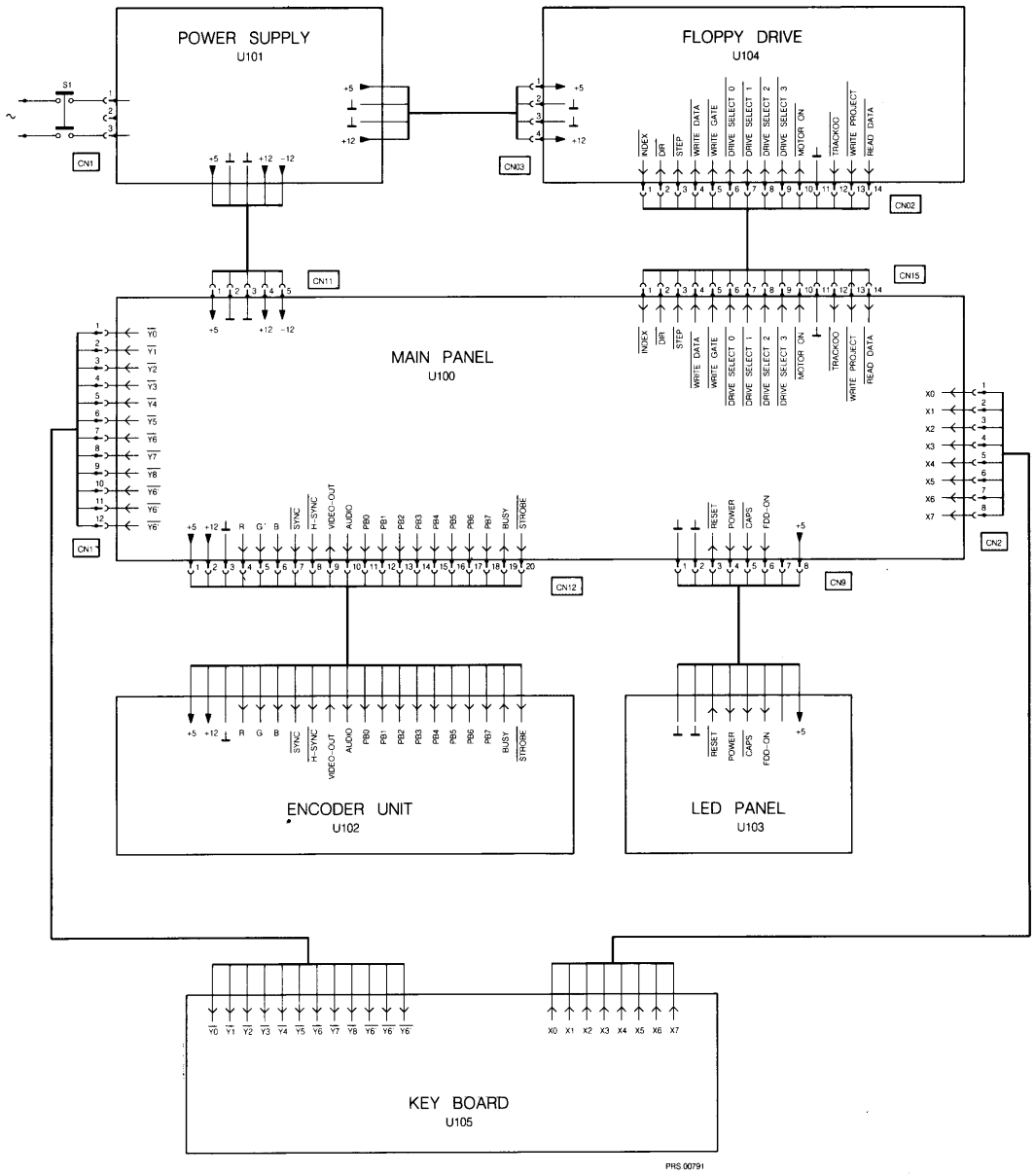
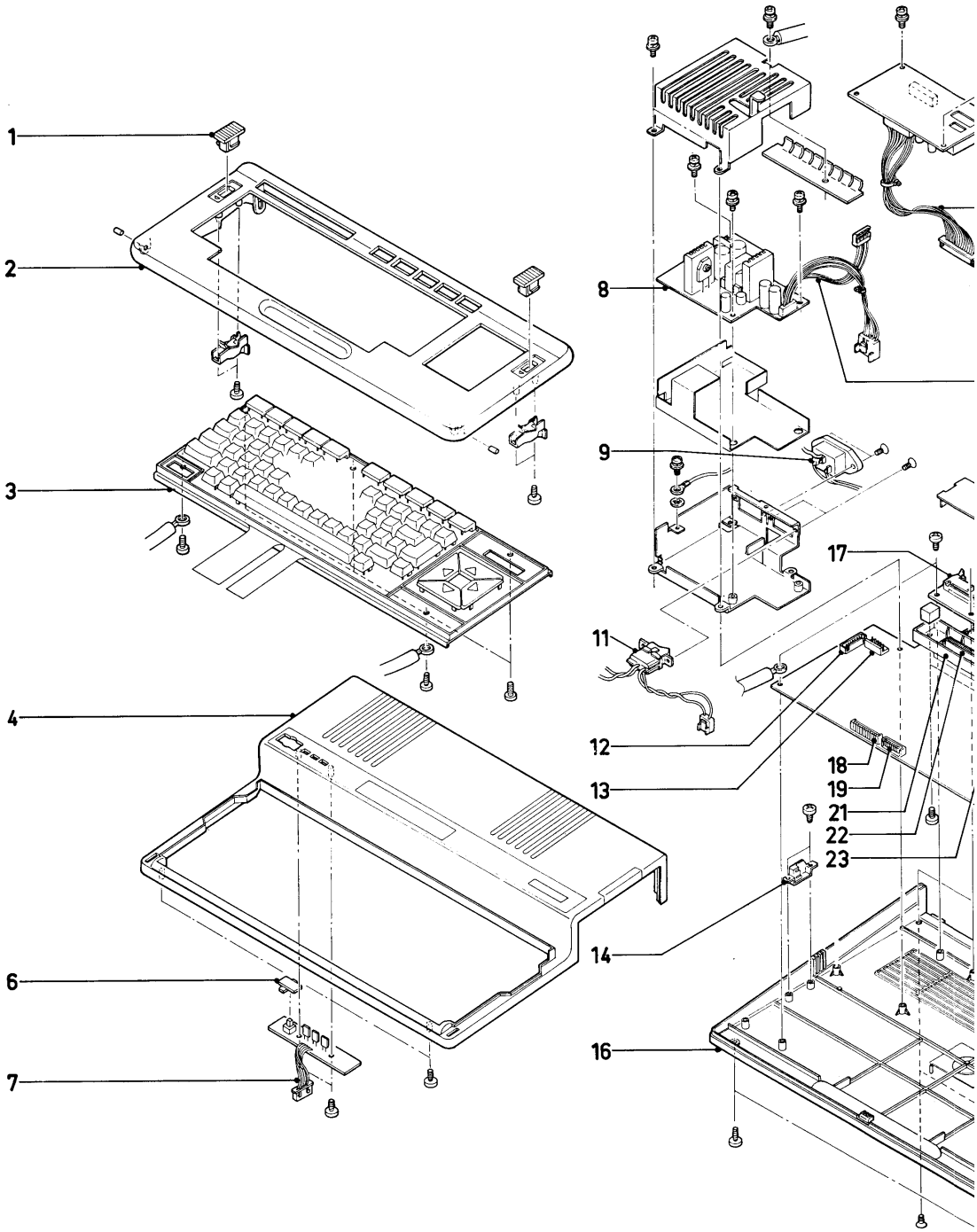
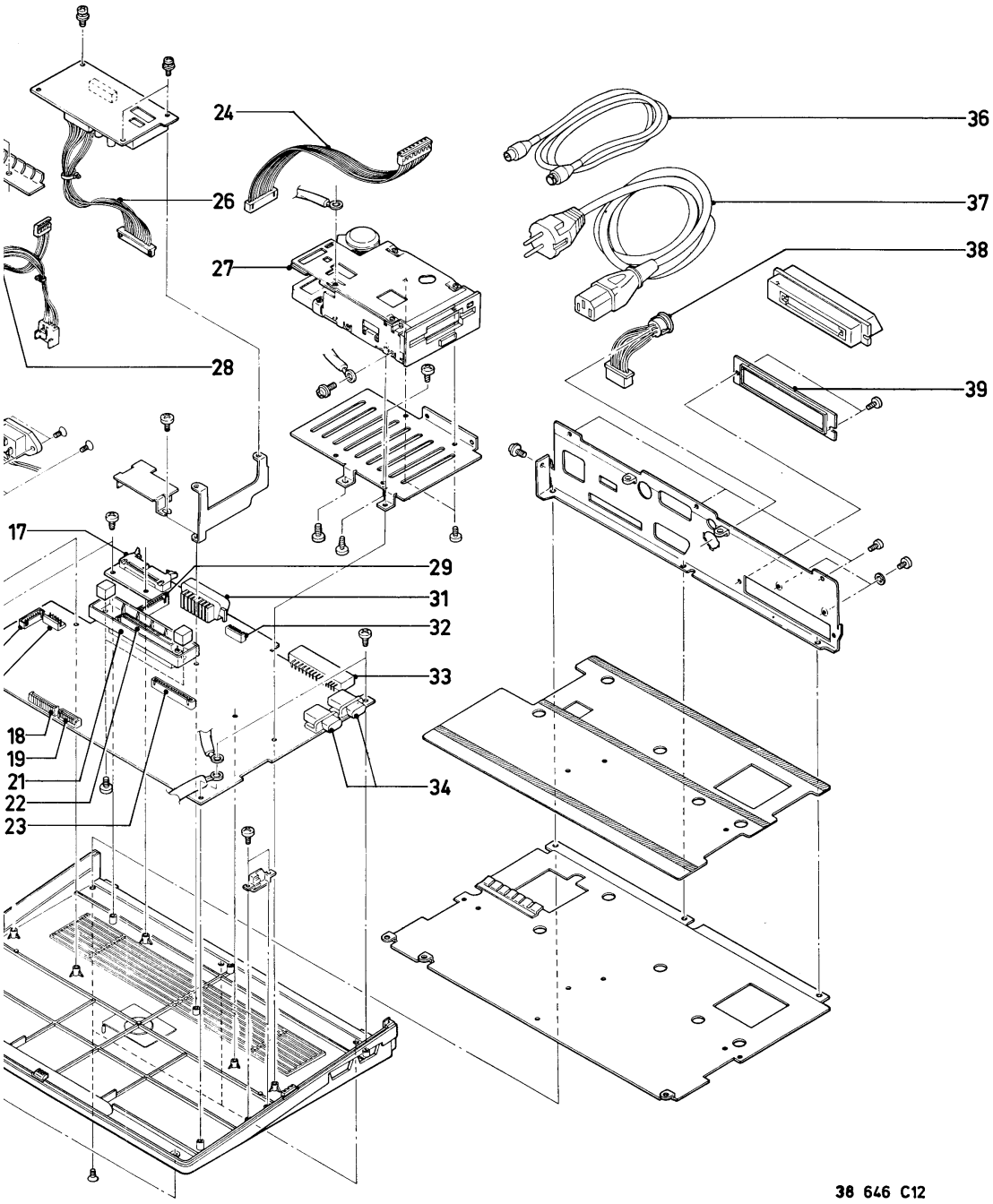
27 012C12


POWER SUPPLY
U101
FLOPPY DRIVE
U104
MAIN PANEL
U100
ENCODER UNIT
U102
LED PANEL
U103
KEY BOARD
U105
CN1
CN03
CN02
CN11
CN15
CN12
CN9
CN2
S1
INDEX
DIR
STEP
WRITE DATA
WRITE GATE
DRIVE SELECT 0
DRIVE SELECT 1
DRIVE SELECT 2
DRIVE SELECT 3
MOTOR ON
TRACK00
WRITE PROJECT
READ DATA
SYNC
H-SYNC
VIDEO-OUT
AUDIO
BUSY
STROBE
RESET
POWER
CAPS
FDD-ON
PRS 00791

## MECHANICAL PARTS LIST

| | | |
|---|---|---|
| 1 | 4822 417 50206 | Lock knob |
| 2 | 4822 219 80662 | Keyboard case |
| 3 | 4822 219 80661 | Keyboard assy |
| 4 | 4822 432 10546 | Cabinet top case |
| 6 | 4822 410 24402 | Reset knob |
| 7 | 4822 267 40633 | Connector assy LED |
| 8 | 4822 212 22406 | Power supply |
| 9 | 4822 265 20274 | AC inlet |
| 11 | 4822 276 11708 | Mains switch |
| 12 | 4822 267 40632 | Connector LED |
| 13 | 4822 267 40591 | Connector power supply |
| 14 | 4822 417 50207 | Lock catch |
| 16 | 4822 432 10547 | Cabinet bottom case |
| 17 | 4822 267 50605 | Connector external drive |
| 18 | 4822 267 50603 | Connector keyboard (12p) |
| 19 | 4822 267 50602 | Connector keyboard (8p) |
| 21 | 4822 417 50203 | Slot guide |
| 22 | 4822 267 60167 | Connector 2×25 fold |
| 23 | 4822 267 60166 | Connector (20p) |
| 24 | 4822 267 30685 | Connector assy FDD |
| 26 | 4822 267 50622 | Connector assy tuner unit |
| 27 | 4822 693 90446 | Floppy drive unit |
| 28 | 4822 321 21452 | Connector assy power supply |
| 29 | 4822 267 30687 | Connector FDD |
| 31 | 4822 267 50604 | SCART connector |
| 32 | 4822 267 40632 | Connector (8p) |
| 33 | 4822 267 70168 | Connector 2×25 fold |
| 34 | 4822 267 50553 | Connector joystick |
| 36 | 4822 321 10394 | Video cable |
| 37 | 4822 321 10393 | AC cable |
| 38 | 4822 267 30686 | Connector assy |
| 39 | 4822 432 91854 | Slot rear cover |


1
2
3
4
6
7
8
9
11
12
13
14
16
17
18
19
21
22
23

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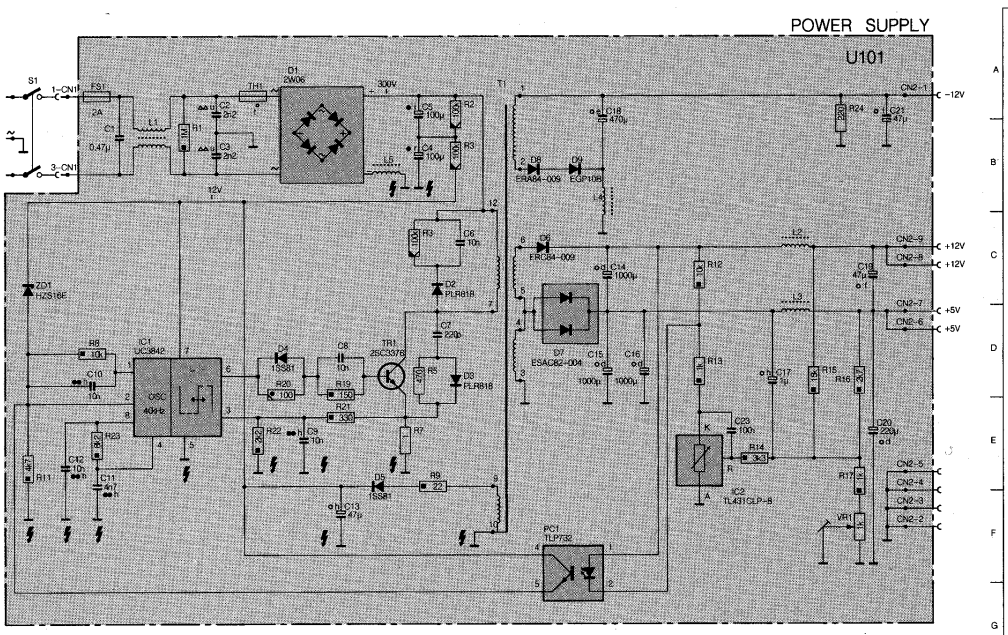
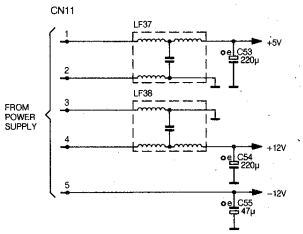
CS 1 066

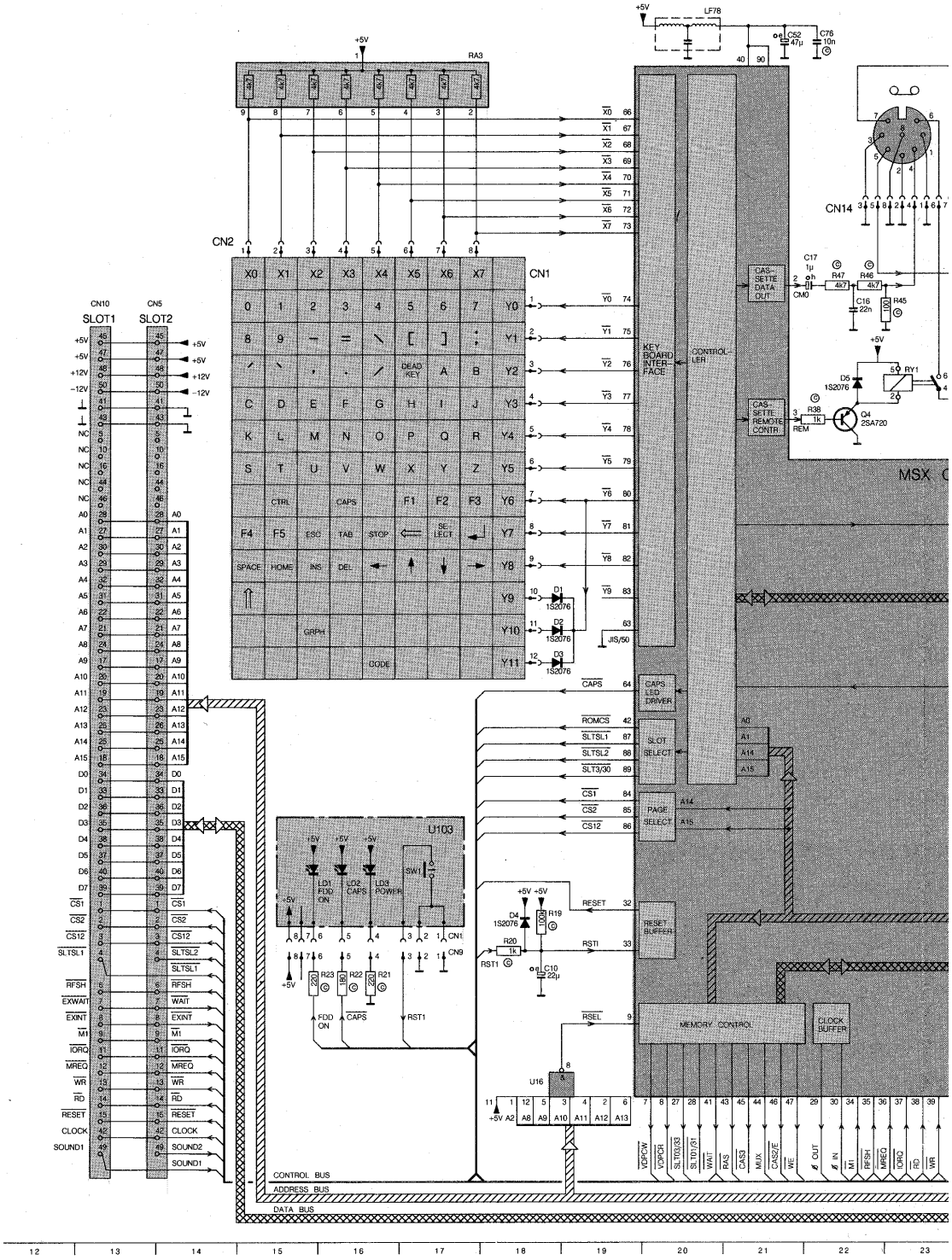


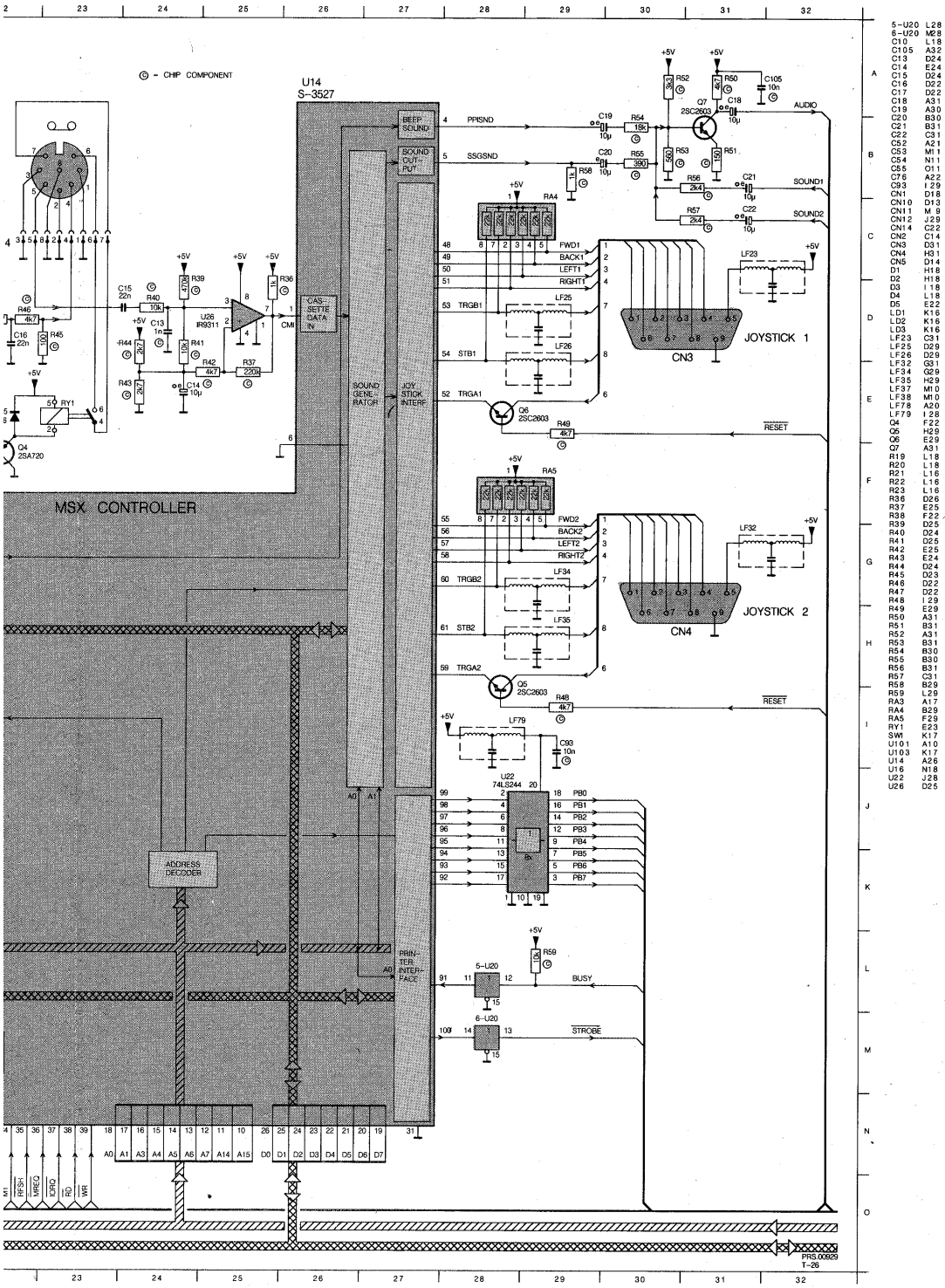

## TYPENUMBERS AND POWERSUPPLY–CONNECTIONS OF IC'S

| POS.NR. | TYPE | DESCRIPTION | +5V | ⊥ | DECOUPLING CAPACITOR | Vcc FILTER |
|---|---|---|---|---|---|---|
| U10 | 74LS74 | 2 FOLD D FLIP/FLOP | 14 | 7 | C81 – 10n Ⓒ | |
| U16 | 74LS30 | 8-INPUT NAND | 14 | 7 | C71 – 10n Ⓒ | LF85 – C=22n |
| U23 | 74LS30 | 8-INPUT NAND | 14 | 7 | C79 – 10n Ⓒ | |
| U27 | 74LS133 | 13-INPUT NAND | 16 | 8 | C89 – 10n Ⓒ | LF84 – C=22n |
| U34 | 7438 | 4 2-INPUT NAND | 14 | 7 | C96 – 10n Ⓒ | |
| U35 | 74LS368 | 6 3-STATE INV. | 16 | 8 | | |
| U36 | 74LS04 | 6 INVERTERS | 14 | 7 | C101 – 10n Ⓒ | |
| U37 | 74LS32 | 4 2-INPUT OR | 14 | 7 | C102 – 10n Ⓒ | |
| U38 | 74LS08 | 4 2-INPUT AND | 14 | 7 | C92 – 10n Ⓒ | LF90 – C=22n |
| U39 | 74LS32 | 4 2-INPUT OR | 14 | 7 | C103 – 10n Ⓒ | |
| U40 | 74LS32 | 4 2-INPUT OR | 14 | 7 | | |
| U41 | 74LS32 | 4 2-INPUT OR | 14 | 7 | | |
| U42 | 7438 | 4 2-INPUT NAND | 14 | 7 | C94 – 10n Ⓒ | |
| U43 | 74LS14 | 6 INVERTER | 14 | 7 | C95 – 10n Ⓒ | LF81 – C=22n |
| U44 | 74LS00 | 4 2-INPUT NAND | 14 | 7 | C97 – 10n Ⓒ | LF83 – C=22n |
| U45 | 74LS32 | 4 2-INPUT OR | 14 | 7 | | |
| U46 | 74LS04 | 6 INVERTER | 14 | 7 | C104 – 10n Ⓒ | |

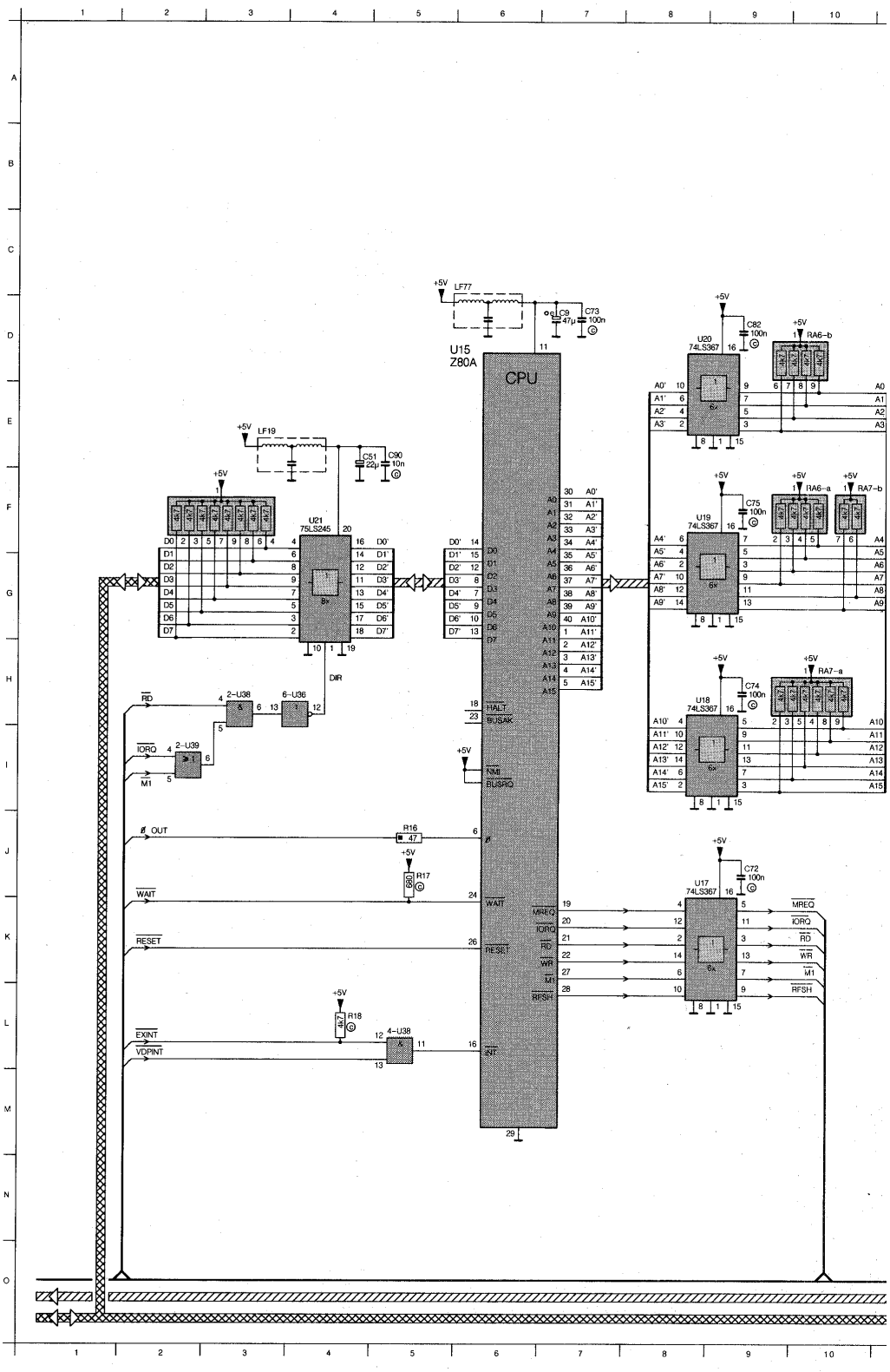


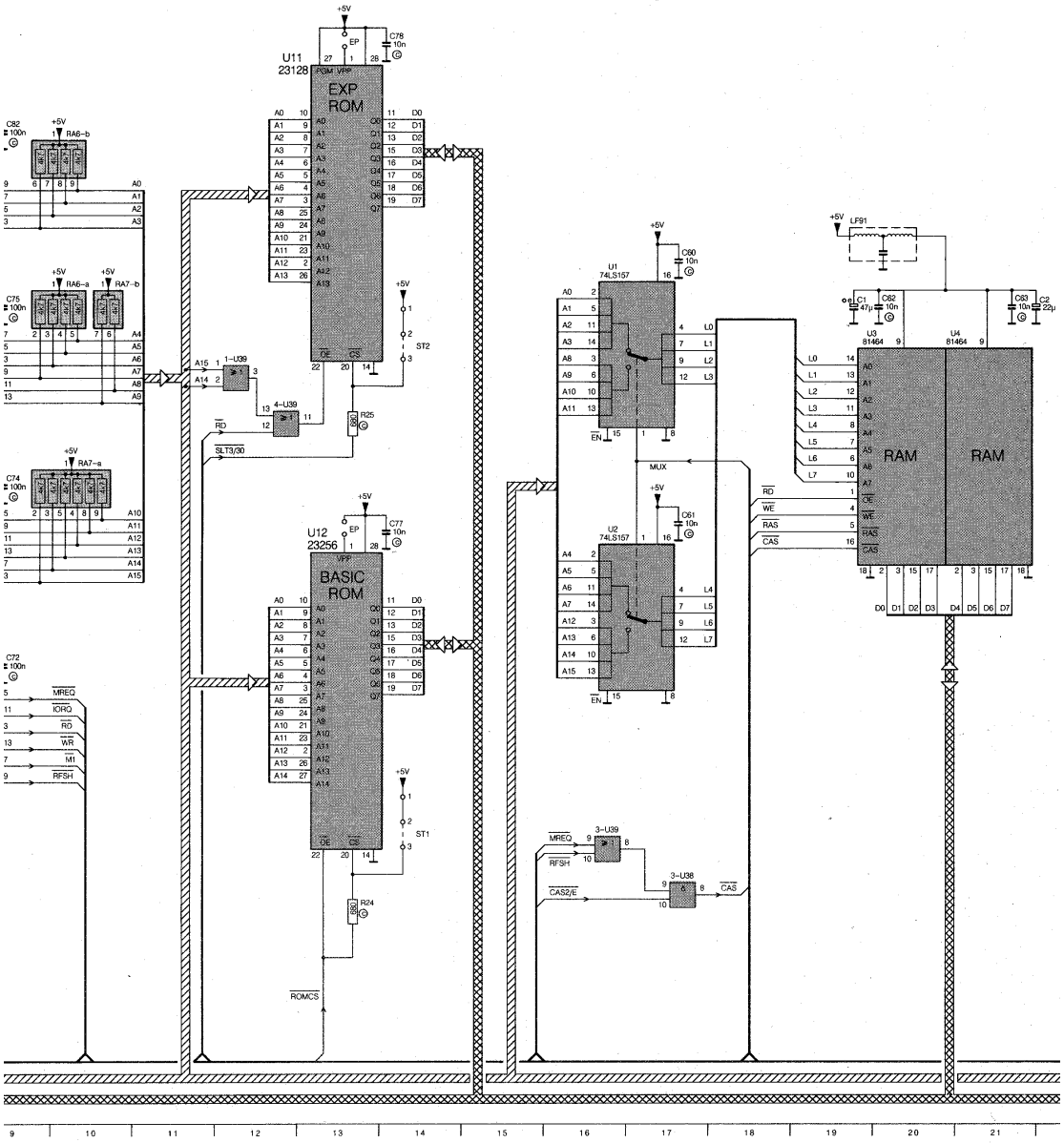

CS 1 067

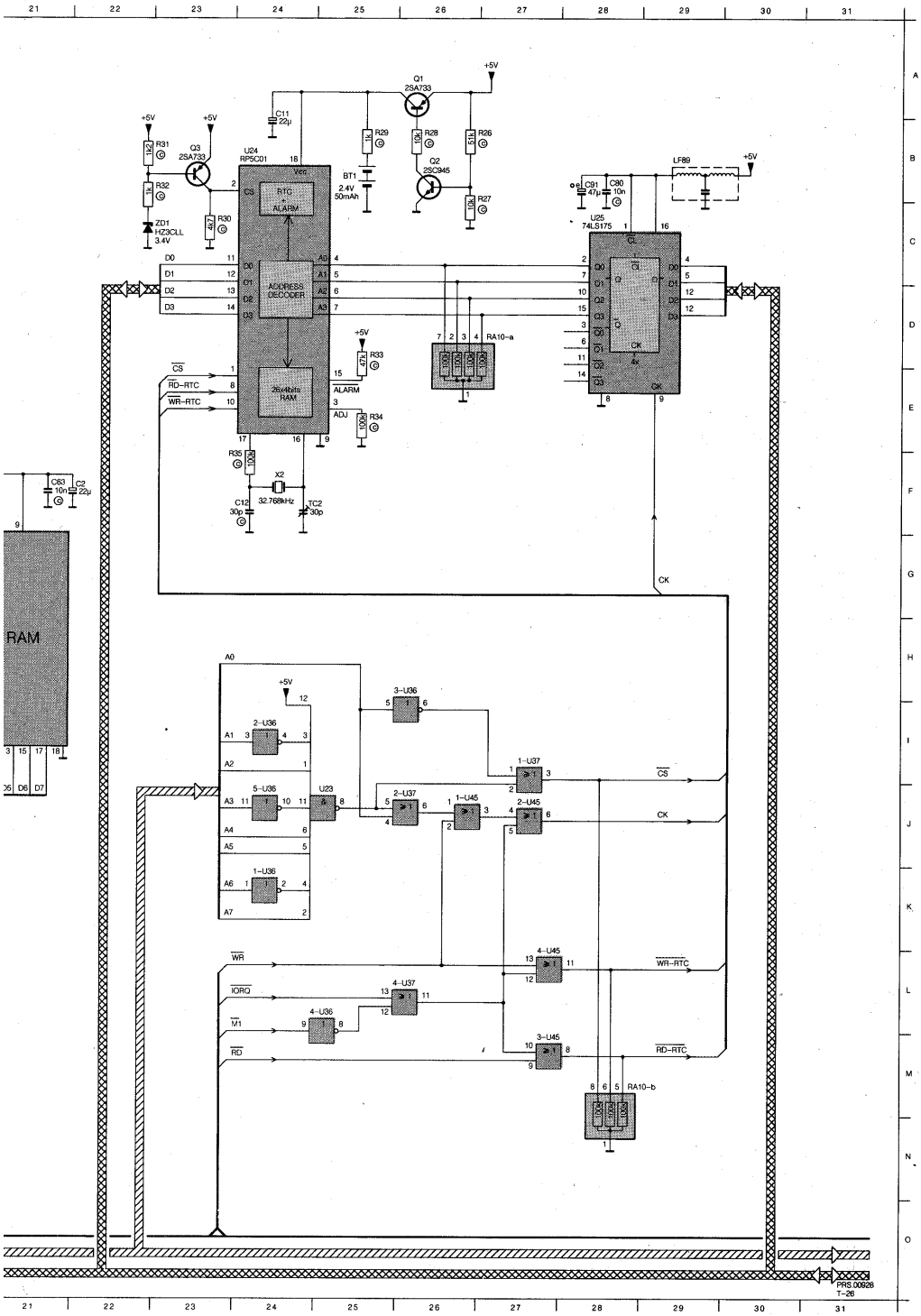

RA3
CN2
CN1
CN14
CN10
SLOT1
CN5
SLOT2
U103
LF78
KEY BOARD INTER-FACE
CONTROL-LER
CAS-SETTE DATA OUT
CAS-SETTE REMOTE CONTR.
CAPS LED DRIVER
SLOT SELECT
PAGE SELECT
RESET BUFFER
MEMORY CONTROL
CLOCK BUFFER
CONTROL BUS
ADDRESS BUS
DATA BUS
MSX




| | |
|---|---|
| 5-U20 | L28 |
| 6-U20 | M28 |
| C10 | L18 |
| C105 | A32 |
| C13 | D24 |
| C14 | E24 |
| C15 | D24 |
| C16 | D22 |
| C17 | D22 |
| C18 | A31 |
| C19 | A30 |
| C20 | B30 |
| C21 | B31 |
| C22 | C31 |
| C52 | A21 |
| C53 | M11 |
| C54 | N11 |
| C55 | O11 |
| C76 | A22 |
| C93 | I29 |
| CN1 | D18 |
| CN10 | D13 |
| CN11 | M9 |
| CN12 | J29 |
| CN14 | C22 |
| CN2 | C14 |
| CN3 | D31 |
| CN4 | H31 |
| CN5 | D14 |
| D1 | H18 |
| D2 | H18 |
| D3 | I18 |
| D4 | L18 |
| D5 | E22 |
| LD1 | K16 |
| LD2 | K16 |
| LD3 | K16 |
| LF23 | C31 |
| LF25 | D29 |
| LF26 | D29 |
| LF32 | G31 |
| LF34 | G29 |
| LF35 | H29 |
| LF37 | M10 |
| LF38 | M10 |
| LF78 | A20 |
| LF79 | I28 |
| Q4 | F22 |
| Q5 | H29 |
| Q6 | E29 |
| Q7 | A31 |
| R19 | L18 |
| R20 | L18 |
| R21 | L16 |
| R22 | L16 |
| R23 | L16 |
| R36 | D26 |
| R37 | E25 |
| R38 | F22 |
| R39 | D25 |
| R40 | D24 |
| R41 | D25 |
| R42 | E25 |
| R43 | E24 |
| R44 | D24 |
| R45 | D23 |
| R46 | D22 |
| R47 | D22 |
| R48 | I29 |
| R49 | E29 |
| R50 | A31 |
| R51 | B31 |
| R52 | A31 |
| R53 | B31 |
| R54 | B30 |
| R55 | B30 |
| R56 | B31 |
| R57 | C31 |
| R58 | B29 |
| R59 | L29 |
| RA3 | A17 |
| RA4 | B29 |
| RA5 | F29 |
| RY1 | E23 |
| SW1 | K17 |
| U101 | A10 |
| U103 | K17 |
| U14 | A26 |
| U16 | N18 |
| U22 | J28 |
| U26 | D25 |

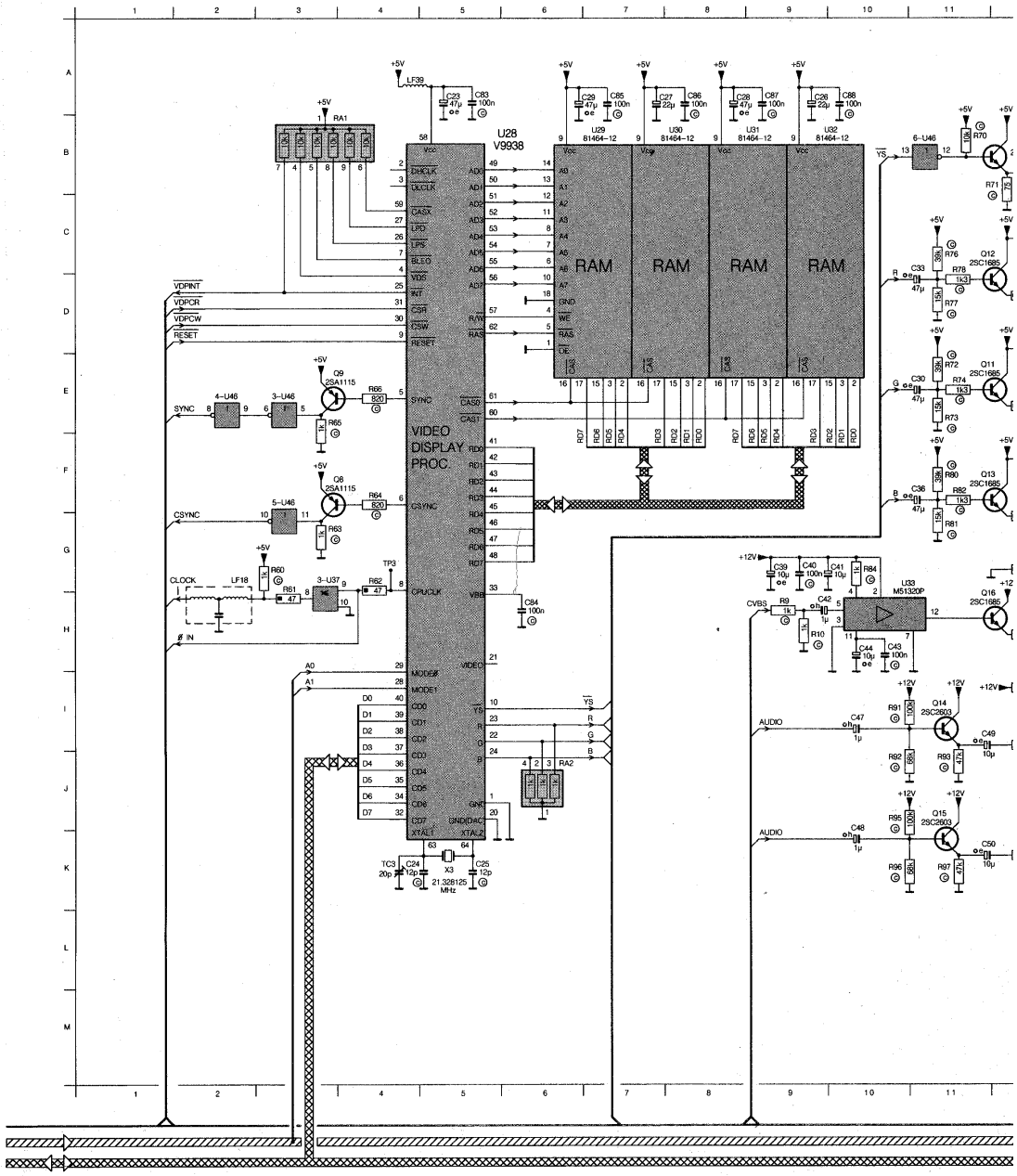

U15
Z80A
CPU
U21
75LS245
U20
74LS367
U19
74LS367
U18
74LS367
U17
74LS367
LF77
LF19
C9
47µ
C73
100n
C51
22µ
C90
10n
C82
100n
C75
100n
C74
100n
C72
100n
RA6-b
RA6-a
RA7-b
RA7-a
DIR
RD
IORQ
M1
WAIT
RESET
EXINT
VDPINT
HALT
BUSAK
NMI
BUSRQ
MREQ
IORQ
RD
WR
M1
RFSH
R16
47
R17
680
R18
4k7
+5V

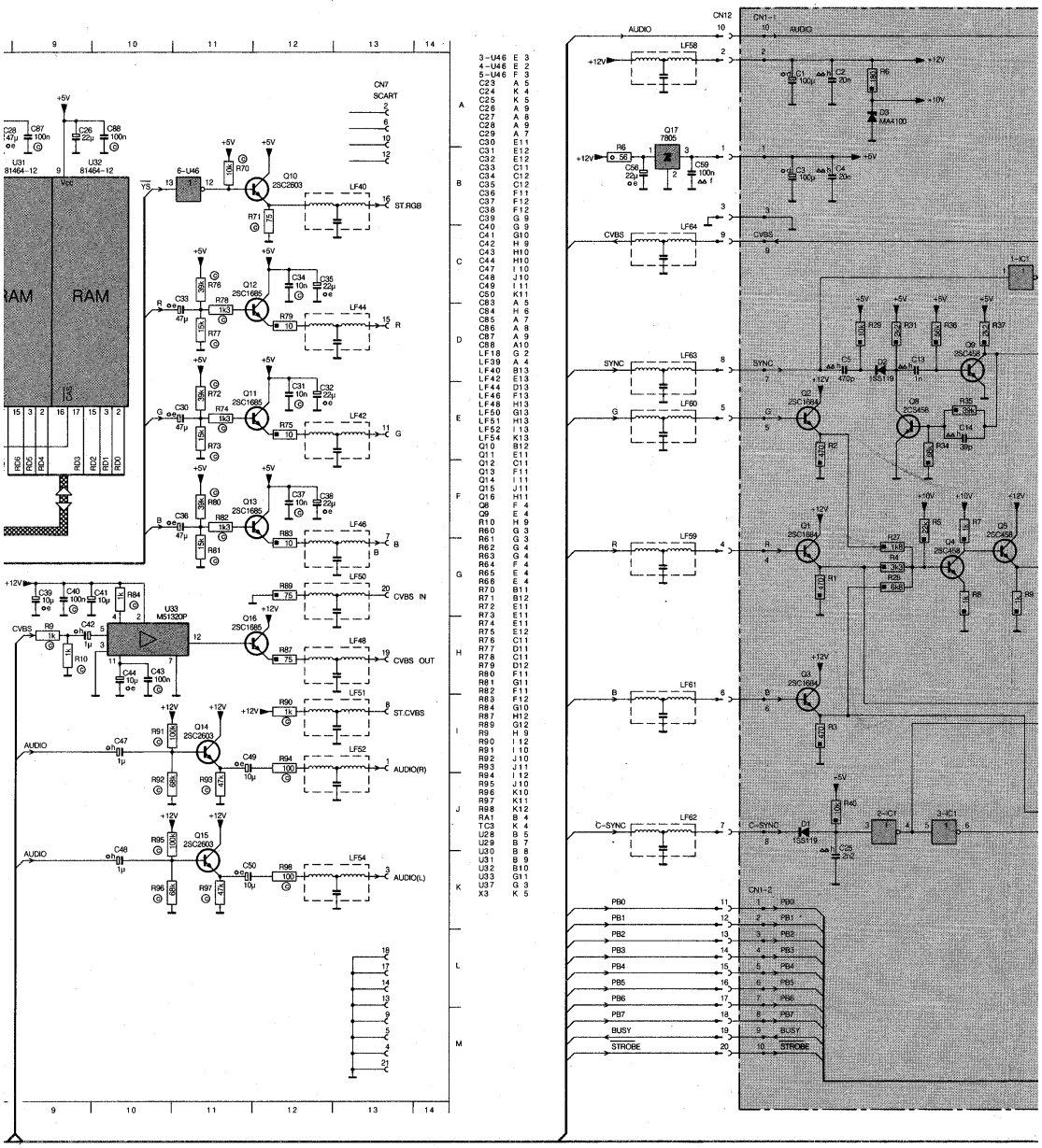

U11
23128
EXP
ROM
U12
23256
BASIC
ROM
U1
74LS157
U2
74LS157
U3
81464
U4
81464
RAM
RAM
LF91
C1
47µ
C2
22µ
C60
10n
C61
10n
C62
10n
C63
10n
C72
100n
C74
100n
C75
100n
C78
10n
C77
10n
C82
100n
RA6-b
RA7-a
RA6-a
RA7-b
ST1
ST2
R24
R25
1-U39
4-U39
3-U39
3-U38
MUX
SLT3/0
ROMCS
MREQ
IORQ
RD
WR
M1
RFSH
CAS2/E
CAS
WE
RAS
OE




1-U36 K24
1-U39 G12
2-U36 I 24
2-U38 H 3
2-U39 I 2
3-U36 H26
4-U36 L25
4-U38 L 5
4-U39 G12
5-U36 J 24
6-U36 H 4
BT1 B25
C1 F19
C11 A24
C12 F24
C2 F22
C51 E 5
C60 E17
C61 H17
C62 F20
C63 F21
C72 J 9
C73 D 7
C74 H 9
C75 F 9
C77 I 14
C78 C14
C80 B28
C82 D 9
C9 D 7
C90 E 5
C91 B28
LF89 B29
LF91 E19
Q1 A26
Q2 B26
Q3 B23
R16 J 5
R17 J 5
R18 L 4
R24 M13
R25 G13
R26 B27
R27 B27
R28 B26
R29 B25
R30 C23
R31 B23
R32 B23
R33 D25
R34 E25
R35 F24
RA10 D27
RA10 M28
RA6 F10
RA6 D10
RA7 F10
RA7 H10
TC2 F25
U1 F16
U11 C13
U12 I 13
U15 D 6
U17 J 9
U18 H 9
U19 F 9
U2 I 16
U20 D 9
U21 F 4
U24 B24
U25 C28
U3 F20
U4 F21
X2 F24
ZD1 C23

CS 1 068

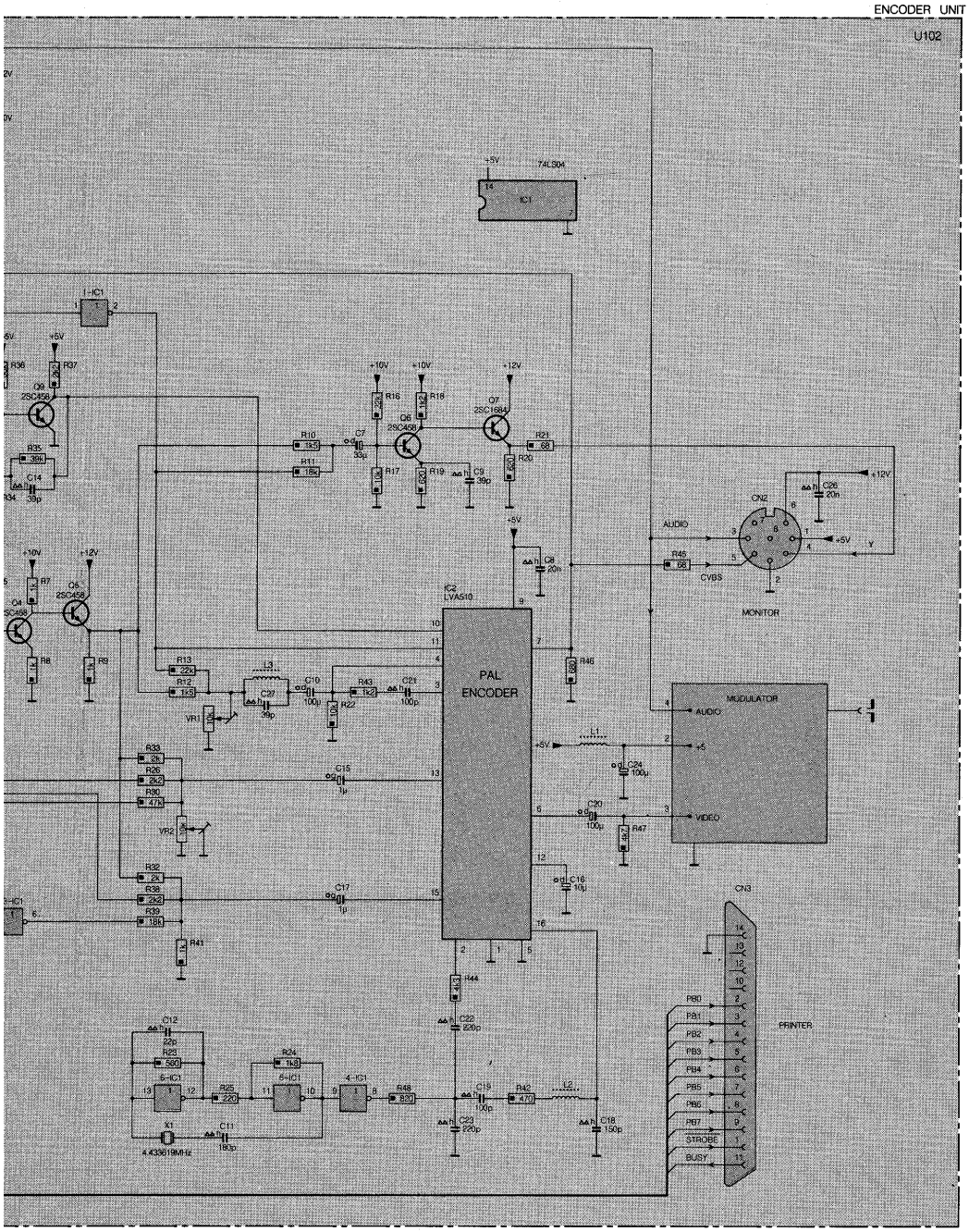

U28
V9938
VIDEO
DISPLAY
PROC.
U29
81464-12
U30
81464-12
U31
81464-12
U32
81464-12
RAM
RAM
RAM
RAM
RA1
RA2
LF39
LF18
X3
21.326125
MHz
U33
M51320P
Q8
2SA1115
Q9
2SA1115
Q11
2SC1685
Q12
2SC1685
Q13
2SC1685
Q14
2SC2603
Q15
2SC2603
Q16
2SC1685
SYNC
CSYNC
CLOCK
CVBS
AUDIO
VDPINT
VDPDR
VDPDW
RESET
+5V
+12V




| | | |
|---|---|---|
| 3-U46 | E | 3 |
| 4-U46 | E | 2 |
| 5-U46 | F | 3 |
| C23 | A | 5 |
| C24 | K | 4 |
| C25 | K | 5 |
| C26 | A | 9 |
| C27 | A | 8 |
| C28 | A | 9 |
| C29 | A | 7 |
| C30 | E | 11 |
| C31 | E | 12 |
| C32 | E | 12 |
| C33 | C | 11 |
| C34 | C | 12 |
| C35 | C | 12 |
| C36 | F | 11 |
| C37 | F | 12 |
| C38 | F | 12 |
| C39 | G | 9 |
| C40 | G | 9 |
| C41 | G | 10 |
| C42 | H | 9 |
| C43 | H | 10 |
| C44 | H | 10 |
| C47 | I | 10 |
| C48 | J | 10 |
| C49 | I | 11 |
| C50 | K | 11 |
| C83 | A | 5 |
| C84 | H | 6 |
| C85 | A | 7 |
| C86 | A | 8 |
| C87 | A | 9 |
| C88 | A | 10 |
| LF18 | G | 2 |
| LF39 | A | 4 |
| LF40 | B | 13 |
| LF42 | E | 13 |
| LF44 | D | 13 |
| LF46 | F | 13 |
| LF48 | H | 13 |
| LF50 | G | 13 |
| LF51 | H | 13 |
| LF52 | I | 13 |
| LF54 | K | 13 |
| Q10 | B | 12 |
| Q11 | E | 11 |
| Q12 | C | 11 |
| Q13 | F | 11 |
| Q14 | I | 11 |
| Q15 | J | 11 |
| Q16 | H | 11 |
| Q8 | F | 4 |
| Q9 | E | 4 |
| R10 | H | 9 |
| R60 | G | 3 |
| R61 | G | 3 |
| R62 | G | 4 |
| R63 | G | 4 |
| R64 | F | 4 |
| R65 | E | 4 |
| R66 | E | 4 |
| R70 | B | 11 |
| R71 | B | 12 |
| R72 | E | 11 |
| R73 | E | 11 |
| R74 | E | 11 |
| R75 | E | 12 |
| R76 | C | 11 |
| R77 | D | 11 |
| R78 | C | 11 |
| R79 | D | 12 |
| R80 | F | 11 |
| R81 | G | 11 |
| R82 | F | 11 |
| R83 | F | 12 |
| R84 | G | 10 |
| R87 | H | 12 |
| R89 | G | 12 |
| R9 | H | 9 |
| R90 | I | 12 |
| R91 | I | 10 |
| R92 | J | 10 |
| R93 | J | 11 |
| R94 | I | 12 |
| R95 | J | 10 |
| R96 | K | 10 |
| R97 | K | 11 |
| R98 | K | 12 |
| RA1 | B | 4 |
| TC3 | K | 4 |
| U28 | B | 5 |
| U29 | B | 7 |
| U30 | B | 8 |
| U31 | B | 9 |
| U32 | B | 10 |
| U33 | G | 11 |
| U37 | G | 3 |
| X3 | K | 5 |

ENCODER UNIT

U102




PRS.00927

**MAIN PRINTED BOARD**

| | | |
|---|---|---|
| U100 | Main printed board | 4822 212 22407 |

| | | |
|---|---|---|
| U1,U2 | 74LS157P | 5322 209 81521 |
| U3,U4 | 81464-12 | 4822 209 83426 |
| U5 | 74LS139P | 5322 209 81631 |
| U6 | 74LS175P | 5322 209 84999 |
| U7 | 1793-02P | 4822 209 11193 |
| U8 | 74145AN | 5322 209 80236 |
| U9 | SED9421C03 | 4822 209 83441 |
| U10 | 74LS74AP | 5322 209 81647 |
| U11 | Exp. ROM | 4822 209 50576 |
| U12 | BASIC ROM | 4822 209 50575 |
| U13 | FDC ROM | 4822 209 50577 |
| U14 | S-3527 | 4822 209 11097 |
| U15 | Z80A | 4822 209 10569 |
| U16 | 74LS30P | 4822 209 83428 |
| U17-U20 | 74LS367AP | 5322 209 85558 |
| U21 | 74LS245 | 5322 209 82215 |
| U22 | 74LS244 | 5322 209 86017 |
| U23 | 74LS30P | 4822 209 83428 |
| U24 | RP5C01 | 4822 209 83431 |
| U25 | 74LS175P | 5322 209 84999 |
| U26 | IR9311 | 5322 209 85503 |
| U27 | 74LS133 | 4822 209 83429 |
| U28 | V9938 | 4822 209 83425 |
| U29-U32 | 81464-12 | 4822 209 83426 |
| U33 | M51320 | 4822 209 83432 |
| U34 | 7438P | 5322 209 84285 |
| U35 | 74LS368AP | 4822 209 81433 |
| U36 | 74LS04P | 5322 209 81625 |
| U37 | 74LS32P | 5322 209 81634 |
| U38 | 74LS08P | 5322 209 81626 |
| U39-U41 | 74LS32P | 5322 209 81634 |
| U42 | 7438P | 5322 209 84285 |
| U43 | 74LS14P | 4822 209 83427 |
| U44 | 74LS00P | 5322 209 81623 |
| U45 | 74LS32P | 5322 209 81634 |
| U46 | 74LS04P | 5322 209 81625 |

| | | |
|---|---|---|
| RA1 | 10k x 8 | 4822 116 90189 |
| RA2 | 1k x 8 | 4822 111 90934 |
| RA3 | 4k7 x 8 | 4822 116 90191 |
| RA4,RA5 | 22k x 8 | 4822 111 90935 |
| RA6-RA8 | 47k x 8 | 4822 116 90223 |
| RA9 | 330Ω x 4 | 4822 116 90234 |
| RA10 | 100k x 8 | 4822 111 90936 |

| | | |
|---|---|---|
| Q1,Q3 | 2SA733 | 4822 130 42758 |
| Q2 | 2SC945A | 4822 130 42761 |
| Q4 | 2SA720 | 4822 209 11045 |
| Q5,Q6,Q10, Q14,Q15 | 2SC2603 | 4822 130 42545 |
| Q8,Q9 | 2SA1115 | 4822 130 42759 |
| Q11,Q12, Q13,Q16 | 2SC1685 | 4822 130 42568 |

| | | |
|---|---|---|
| D1-D5 | 1S2076 | 4822 130 31304 |
| ZD1 | Zener HZ3CLL | 4822 130 33009 |

| | | |
|---|---|---|
| C2,C11,C26 C27,C51 | Tantal 22 µF 16 V | 4822 124 10527 |
| C4,C5 | Cer. chip C 560 pF 50 V | 4822 116 90233 |
| C6 | Mylar 100 nF 50 V | 4822 121 90044 |
| C8 | Cer. chip C 10 pF 50 V | 4822 116 90228 |
| C12 | Cer. chip C 30 pF 50 V | 4822 122 32731 |
| C13 | Cer. chip C 1 nF 50 V | 4822 116 90229 |
| C15,C16 | Mylar 22 nF 50 V | 4822 121 42417 |
| C24,C25 | Cer. chip C 12 pF 50 V | 4822 122 32804 |
| C31,C34, C37,C61-C65,C68, C69,C71, C76-C81, C89,C90, C92-C97, C101-C105 | Cer. chip C 10 nF 50 V | 4822 122 32803 |
| C40,C43, C67,C70, C72,C75, C82,C88, | Cer. chip C 100 nF 25 V | 4822 116 90227 |
| C41 | Tantal 10 µF 16 V | 4822 124 10523 |
| TC1,TC3 | Trimmer 20 pF | 4822 125 50298 |
| TC2 | Trimmer 30 pF | 4822 125 50299 |

| | | |
|---|---|---|
| LF1-LF16, LF18,LF25, LF26,LF34, LF35,LF40, LF42,LF44, LF46,LF48, LF50,LF51, LF52,LF54, LF59-LF64 | Filter C = 100 pF | 4822 157 52361 |
| LF19,LF23, LF32,LF58, LF91 | Filter C = 22 nF | 4822 157 52359 |
| LF37,LF38 | Line filter | 4822 158 10755 |
| LF39 | Filter | 4822 158 10756 |
| LF77-LF86, LF89,LF90 | Filter C = 22 nF | 4822 157 52666 |

**Various**

| | | |
|---|---|---|
| RY1 | Relay | 4822 280 20166 |
| X1 | Crystal 16 MHz | 4822 242 71346 |
| X2 | Crystal 32.768 kHz | 4822 242 71347 |
| X3 | Crystal 21.32812 MHz | 4822 242 71345 |
| | NI-CD accumulator | 4822 138 30036 |
| ST1,ST2 | Service jumper | 4822 276 11572 |

## POWER SUPPLY

| | | |
|---|---|---|
| U101 | Power supply | 4822 212 22406 |
| IC1 | UC3842 | 4822 209 83909 |
| IC2 | TLP431CLP-B | 4822 209 83911 |
| D1 | 2W06 1.8 A 600 V | 4822 130 33259 |
| D2,D3 | PLR818 1 A 1000 V | 4822 130 33266 |
| D4,D5 | 1SS81 0.2 A 150 V | 4822 130 33267 |
| D6 | ERC84-009 3 A 90 V | 4822 130 33262 |
| D7 | ESA82-004 10 A 40 V | 4822 130 33263 |
| D8 | ERA84-009 1 A 90 V | 4822 130 33264 |
| D9 | EGP10B 1 A 100 V | 4822 130 33265 |
| ZD1 | HSZ16E 0.4 W zener | 4822 130 33261 |
| R5 | 470 Ω 2 W | 4822 113 60171 |
| R7 | 1 Ω 2 W | 4822 113 60168 |
| R24 | 220 Ω 2 W | 4822 113 60169 |
| VR1 | 1k 0.5 W variable | 4822 111 20382 |
| C1 | 0.47 µF 250 V polyester | 4822 121 42553 |
| C6 | 0.01 µF 250 V polyester | 4822 121 42554 |
| C7 | 220 pF 2 kV ceramic | 4822 122 50089 |
| C8,C23 | 0.1 µF 63 V polyester | 4822 121 42555 |
| L1 | 10 mH 1 A | 4822 157 52467 |
| L2 | 47 mH 2.2 A | 4822 157 52468 |
| L3 | 8 mH 5 A | 4822 157 52469 |
| L4,L5 | 100 mH 1.5 A | 4822 157 52471 |

**VARIOUS**

| | | |
|---|---|---|
| TR1 | 2SC3376 transistor | 4822 130 43505 |
| TH1 | 16D-9 16 Ω thermistor | 4822 138 30037 |
| T1 | Transformer | 4822 146 21114 |

## FLOPPY DISC DRIVE

| | | |
|---|---|---|
| U104 | Floppy disc drive | 4822 693 90446 |

## LED PANEL

| | | |
|---|---|---|
| LD1 | LED yellow | 4822 130 32984 |
| LD2 | LED green | 4822 130 32983 |
| LD3 | LED red | 4822 130 32982 |

**VARIOUS**

| | | |
|---|---|---|
| SW1 | Reset switch | 4822 277 10862 |
| | Reset knob | 4822 410 24402 |

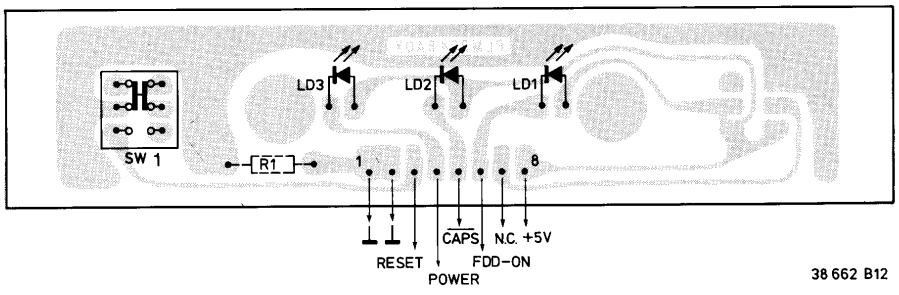
## ENCODER UNIT

| | | |
|---|---|---|
| IC1 | 74LS04 | 5322 209 81625 |
| IC2 | LVA510 | 4822 209 83582 |
| Q1-Q3 | 2SC1684 | 4822 130 42814 |
| Q4-Q6 | 2SC458 | 4822 130 42815 |
| Q7 | 2SC1684 | 4822 130 42814 |
| Q8,Q9 | 2SC458 | 4822 130 42815 |
| D1,D2 | 1SS119 | 4822 130 33038 |
| D3 | MA4100 | 4822 130 33039 |
| VR1 | Variable 2k | 4822 116 21084 |
| VR2 | Variable 10k | 4822 116 21085 |

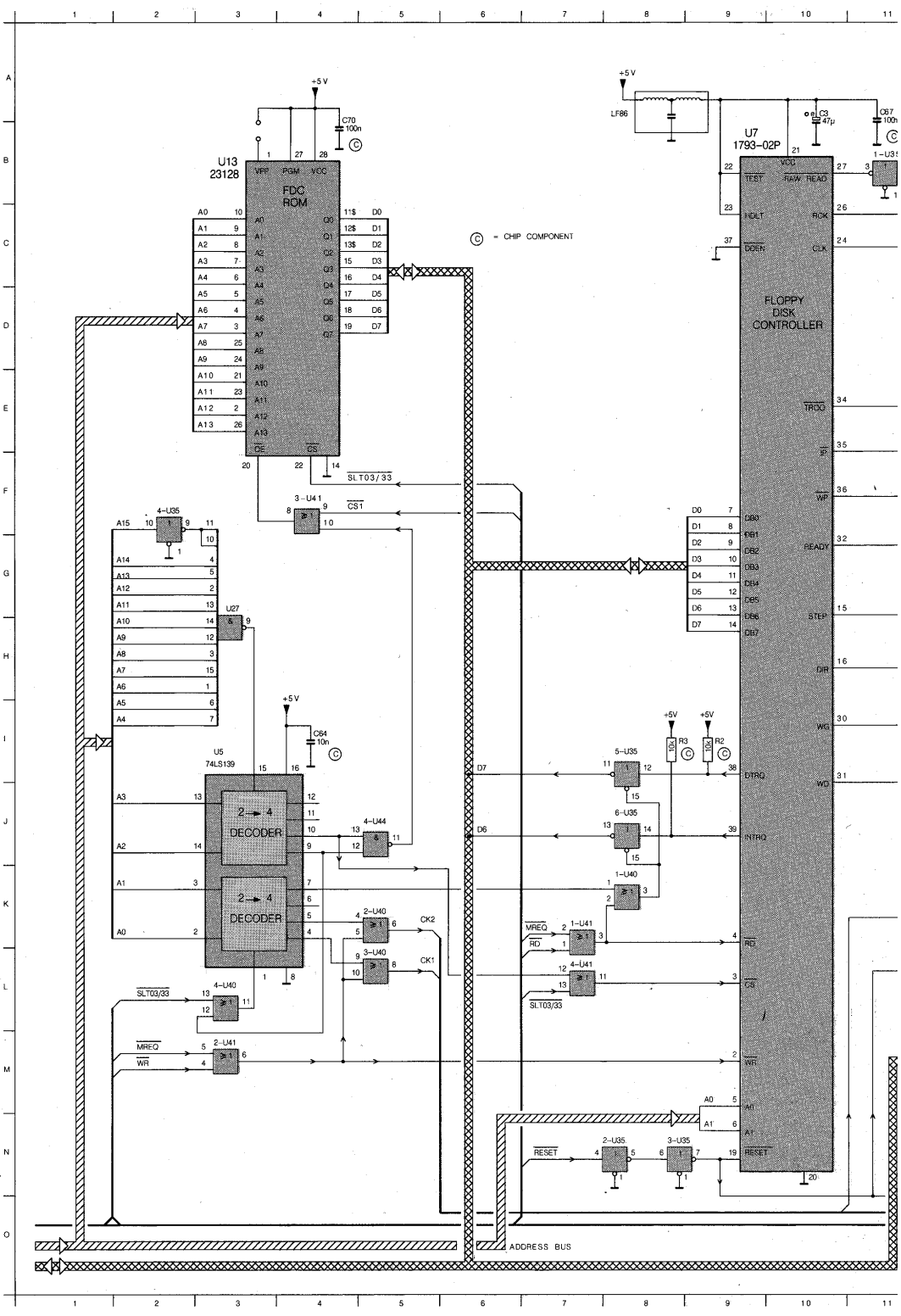
**VARIOUS**

| | | |
|---|---|---|
| L1,L2 | 22 µ | 4822 157 52419 |
| L3 | 33 µ | 4822 157 52421 |
| X1 | 4.433619 MHz | 4822 242 71393 |
| | Modulator | 4822 218 20547 |

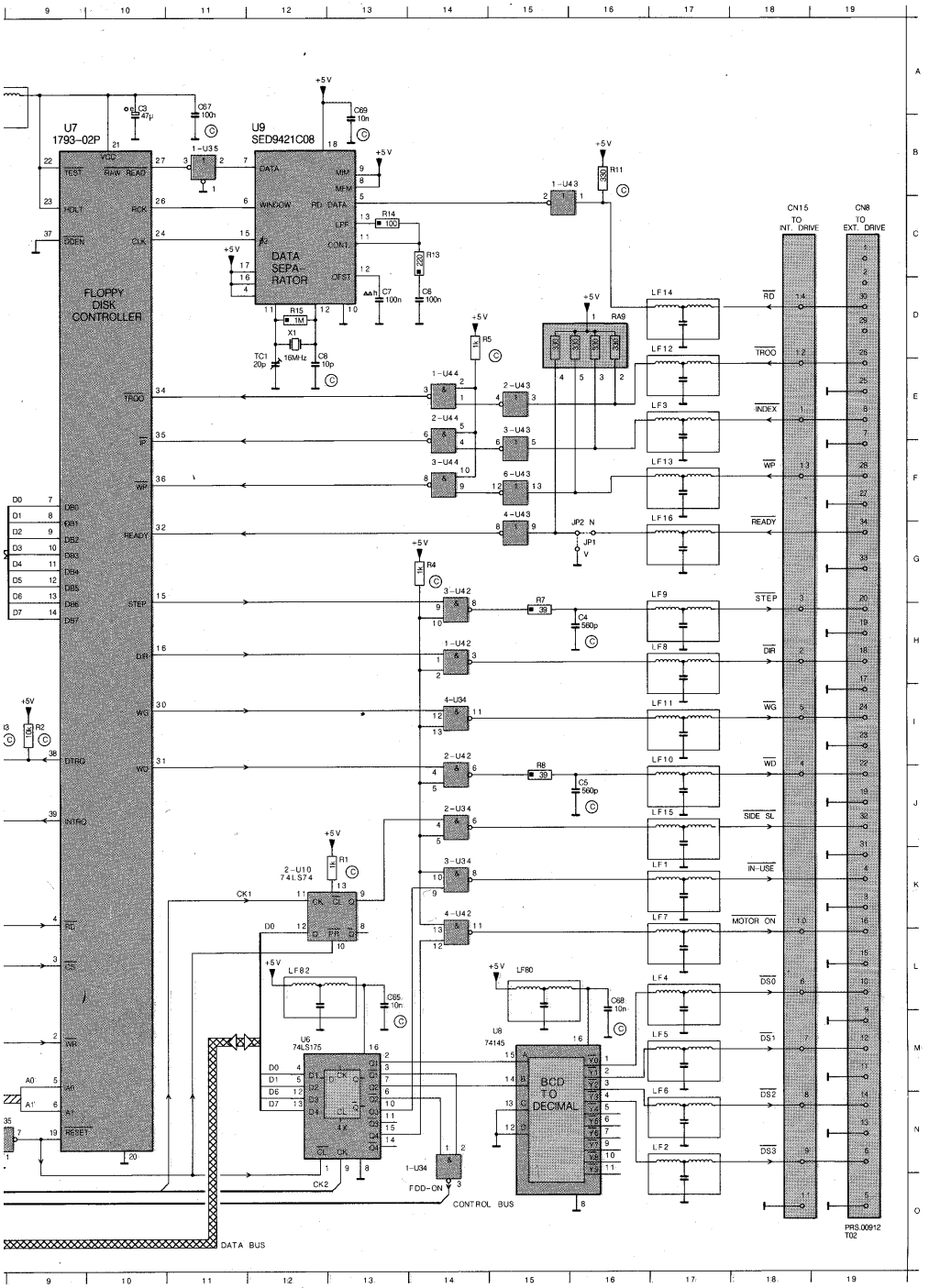
## LED PANEL




38 662 B12

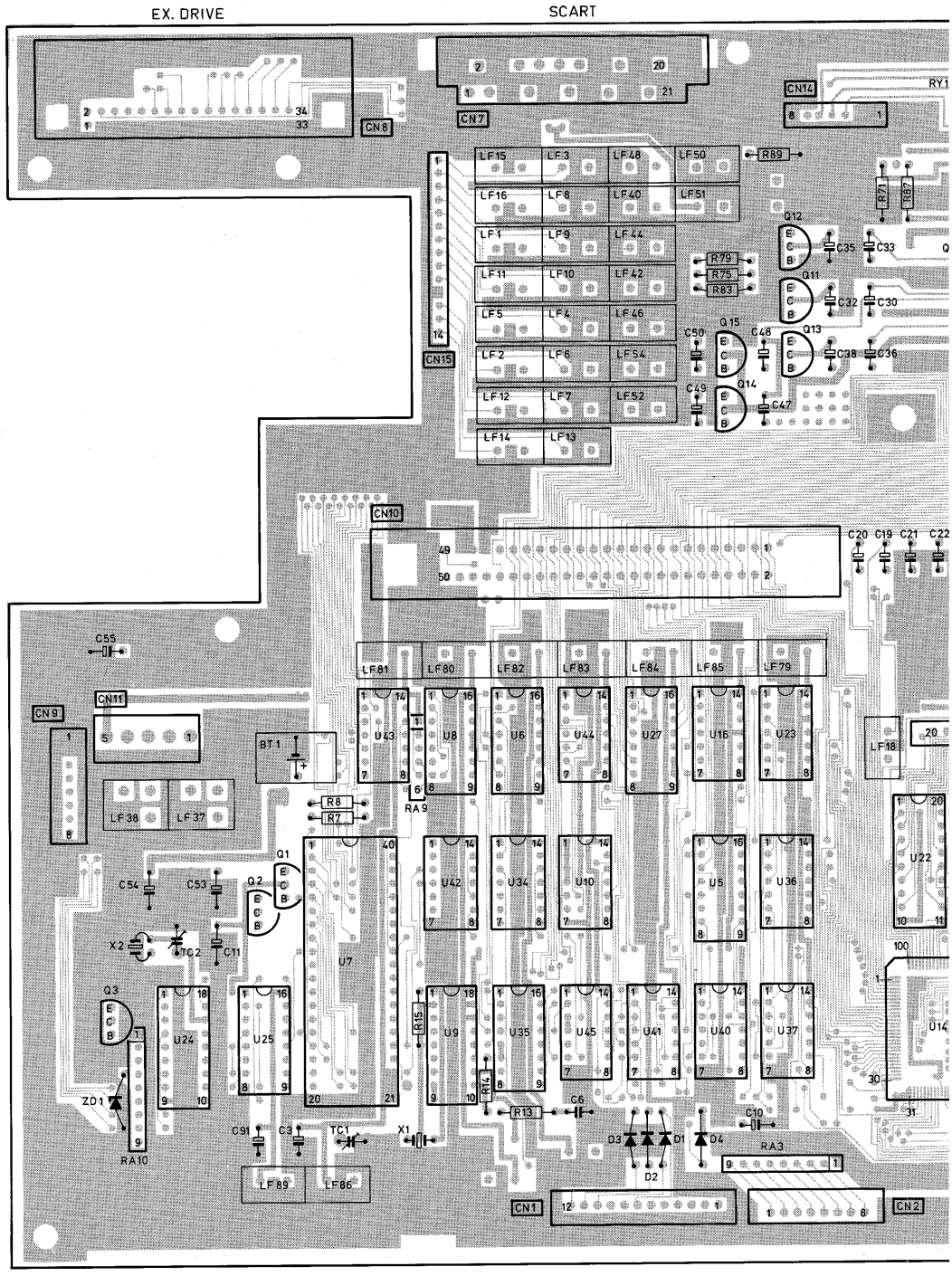


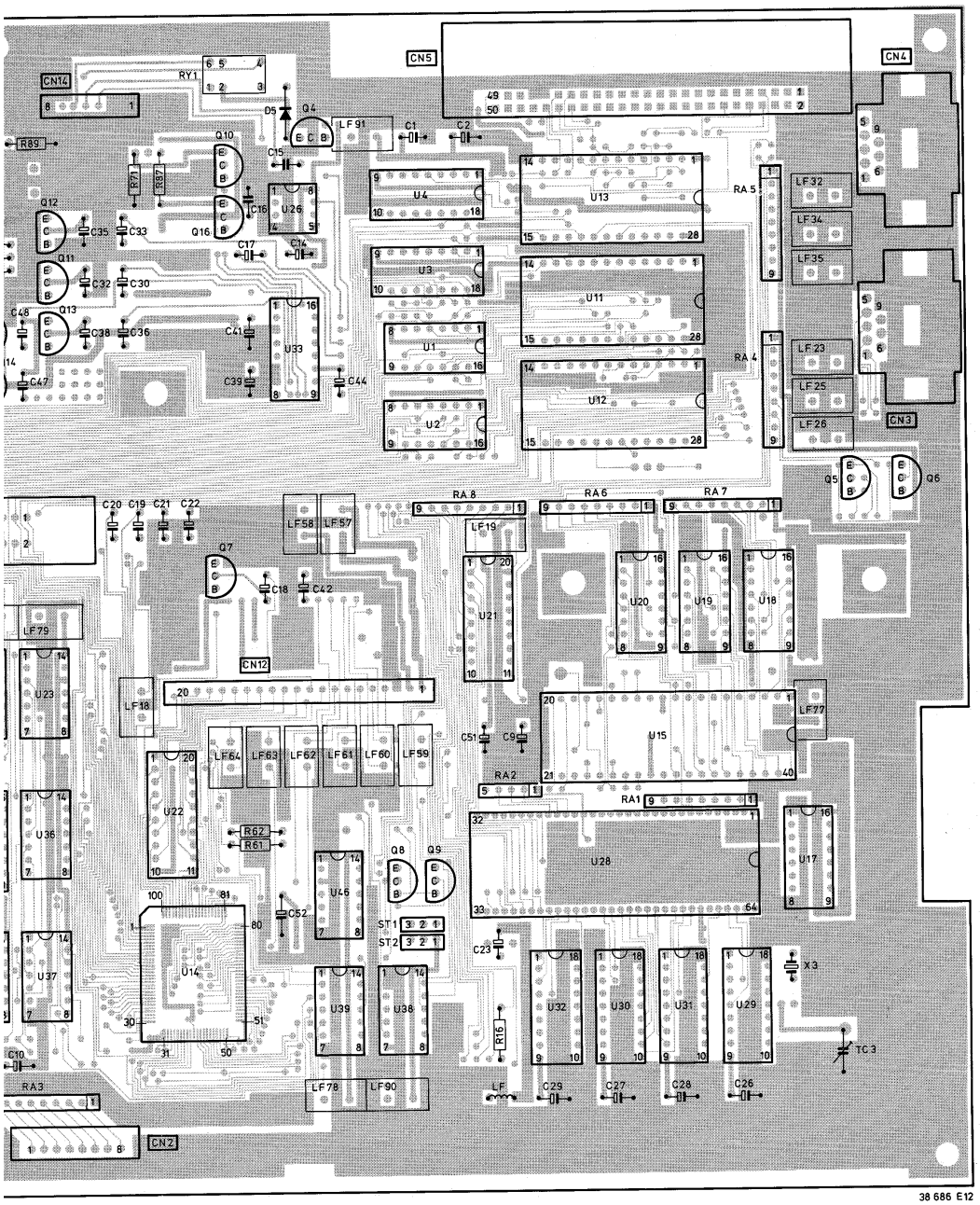
U13
23128
FDC
ROM
VPP
PGM
VCC
C70
100n
+5V
C = CHIP COMPONENT
U7
1793-02P
FLOPPY
DISK
CONTROLLER
LF86
C3
47µ
C67
100n
TEST
HOLT
DDEN
VCC
RAW
READ
RDK
CLK
TRQO
IP
WP
READY
STEP
DIR
WG
WD
DTRQ
INTRQ
RD
CS
WR
A0
A1
RESET
SLT03/33
CS1
3-U41
4-U35
U27
U5
74LS139
DECODER
DECODER
C64
10n
4-U44
2-U40
3-U40
CK2
CK1
4-U40
2-U41
MREQ
WR
5-U35
6-U35
1-U40
1-U41
4-U41
2-U35
3-U35
R3
R2
10k
ADDRESS BUS




1-U34 N14
1-U35 B11
1-U40 K 8
1-U41 K 7
1-U42 H14
1-U43 B15
1-U44 E14
2-U10 K12
2-U34 J14
2-U35 N 8
2-U40 K 5
2-U41 M 3
2-U42 I 14
2-U43 E15
2-U44 E14
3-U34 K14
3-U35 N 8
3-U40 L 5
3-U41 F 4
3-U42 G14
3-U43 E15
3-U44 F14
4-U34 I 14
4-U35 F 2
4-U40 L 3
4-U41 L 7
4-U42 K14
4-U43 F15
4-U44 J 5
5-U35 I 8
6-U35 J 8
6-U43 F15
C3 A10
C4 H16
C5 J16
C6 D14
C64 I 4
C65 L13
C67 A11
C68 L16
C69 A13
C7 D13
C70 A 4
C8 D13
CN15 C18
CN8 C19
LF10 I 17
LF11 I 17
LF12 D17
LF13 F17
LF14 D17
LF15 J17
LF16 F17
LF2 N17
LF3 E17
LF4 L17
LF5 M17
LF6 M17
LF7 K17
LF8 H17
LF80 L15
LF82 L12
LF86 A 8
LF9 G17
R1 K13
R11 B16
R13 C14
R14 C13
R15 D12
R2 I 9
R3 I 9
R4 G14
R5 D15
R7 G15
R8 I 15
RA9 D16
TC1 D12
U13 B 3
U27 G 3
U5 I 3
U6 M12
U7 B 9
U8 M15
U9 B12
X1 D12

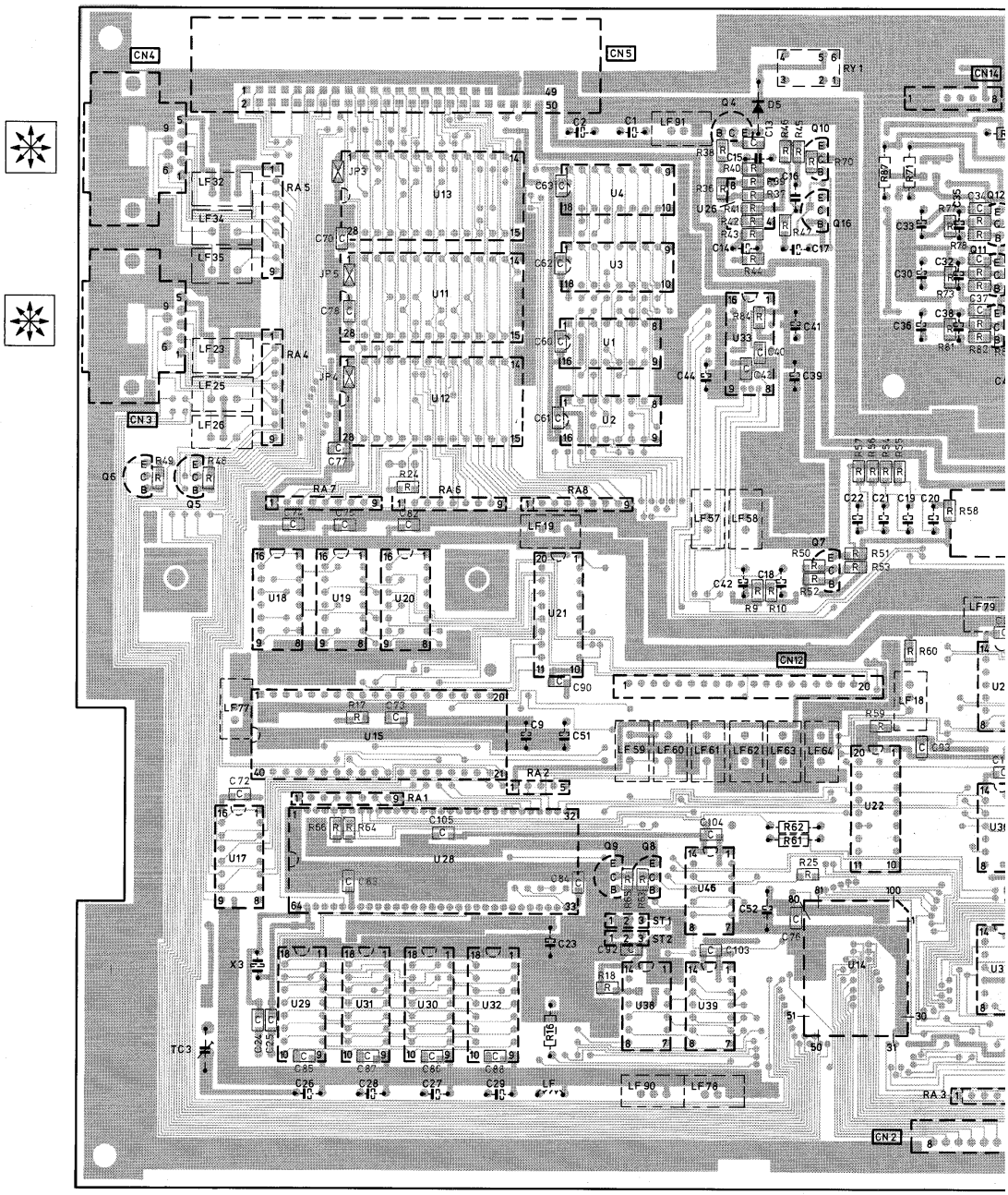
**MAIN PRINTED BOARD**



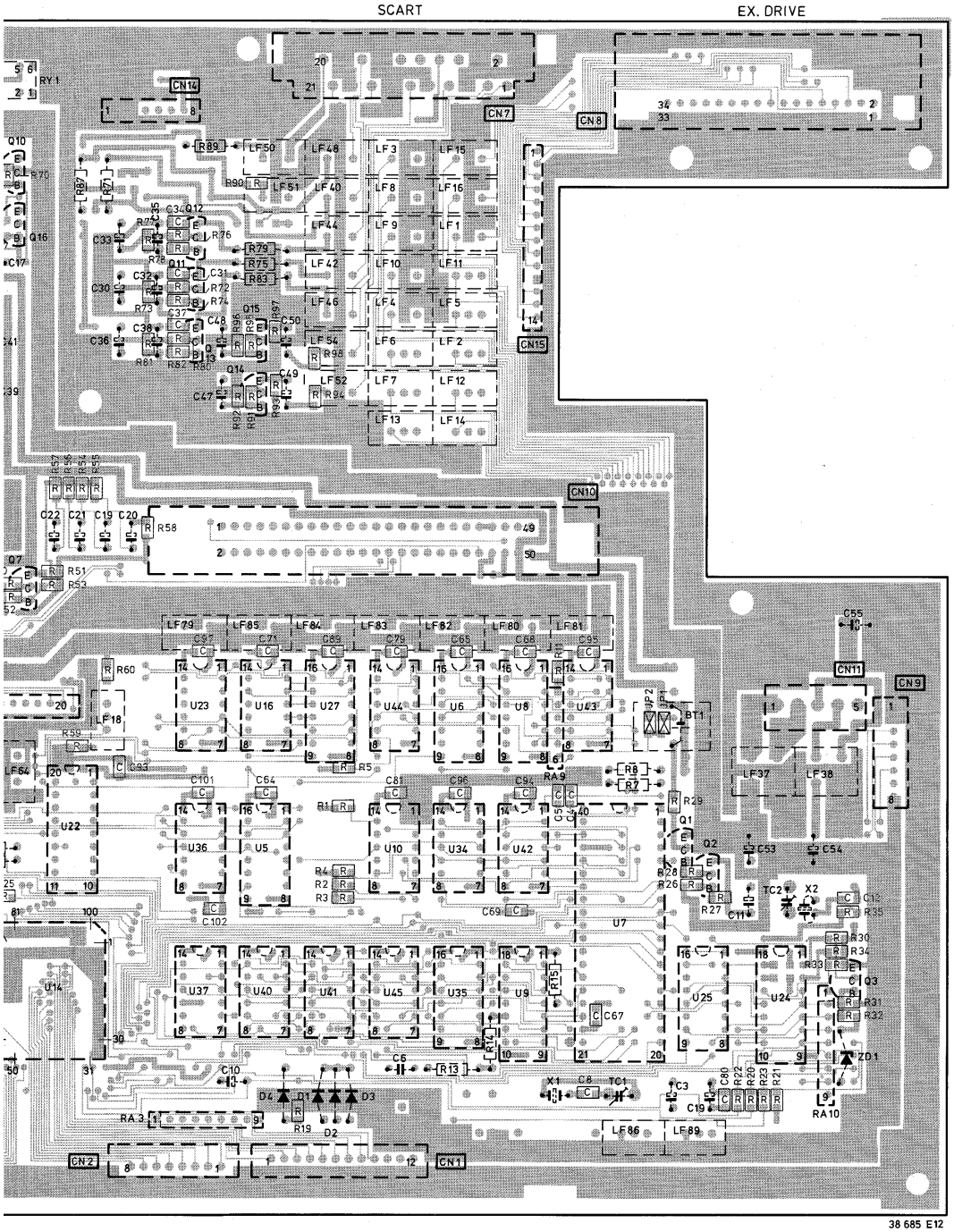

CN14
RY1
CN5
CN4
D5
Q4
LF91
C1
C2
R89
Q10
C15
RY2
RY3
Q12
C35
C33
Q16
C16
U26
C17
C14
Q11
C32
C30
Q13
C48
C38
C36
C41
U33
C39
C44
C47
U4
U13
RA 5
LF32
LF34
LF35
U3
U11
U1
U12
RA 4
LF23
LF25
LF26
CN3
Q5
Q6
U2
C20
C19
C21
C22
LF58
LF57
RA 8
RA 6
RA 7
LF19
Q7
C18
C42
U21
U20
U19
U18
LF79
CN12
U23
LF18
LF64
LF63
LF62
LF61
LF60
LF59
C51
C9
U15
LF77
RA 2
RA1
U22
R62
R61
Q8
Q9
U28
U17
U46
C52
ST1
ST2
C23
X3
U14
U32
U30
U31
U29
R16
TC3
C10
U39
U38
RA3
LF78
LF90
LF
C29
C27
C28
C26
CN2

38 686 E12

**MAIN PRINTED BOARD**

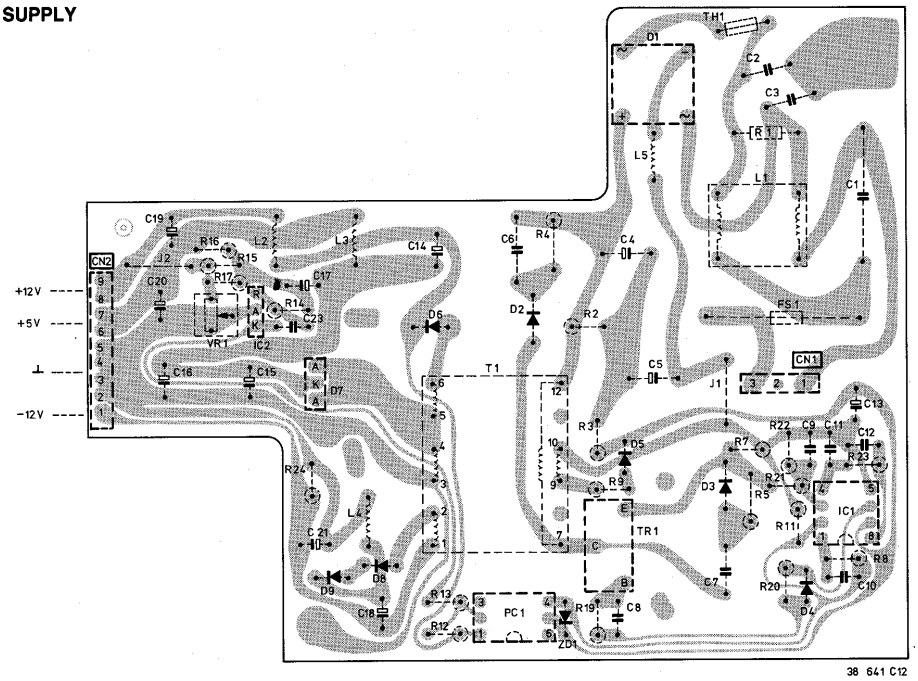



CS 1 073

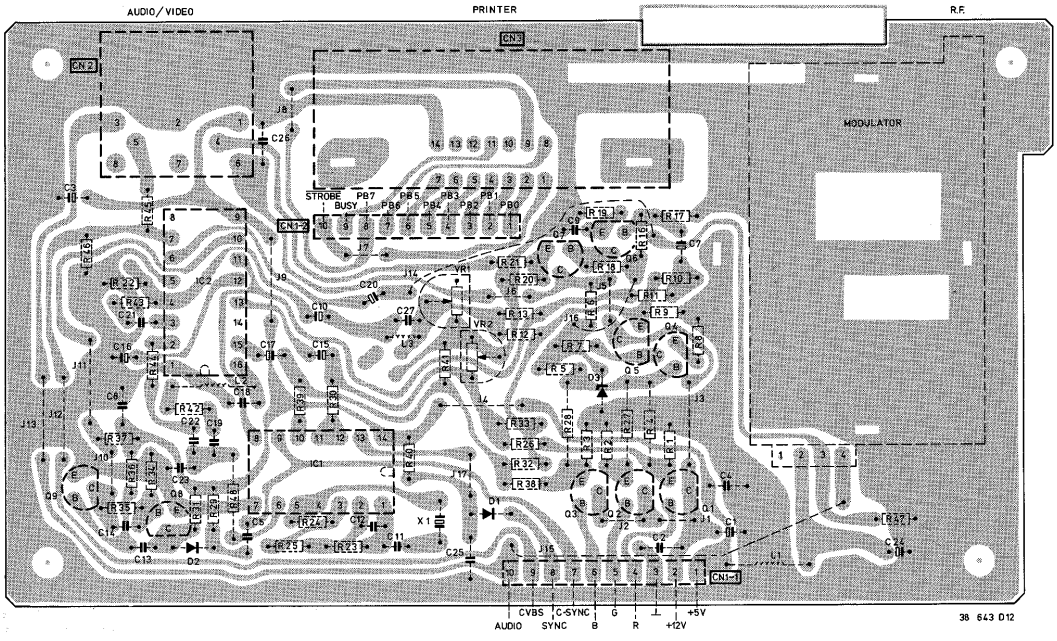

SCART
EX. DRIVE
CN14
CN7
CN8
CN15
CN10
CN11
CN9
CN2
CN1
RY1
U23
U16
U27
U44
U6
U8
U43
U22
U36
U5
U10
U34
U42
U14
U37
U40
U41
U45
U35
U9
U7
U25
U24
BT1
X1
X2
TC1
TC2
ZD1
RA3
RA9
RA10
LF79
LF85
LF84
LF83
LF82
LF80
LF81
LF50
LF48
LF3
LF15
LF51
LF40
LF8
LF16
LF44
LF9
LF1
LF42
LF10
LF11
LF46
LF4
LF5
LF54
LF6
LF2
LF52
LF7
LF12
LF13
LF14
LF18
LF64
LF37
LF38
LF86
LF89

38 685 E12

## POWER SUPPLY




## ENCODER UNIT



**SYMBOLS USED IN CIRCUIT DIAGRAMS**

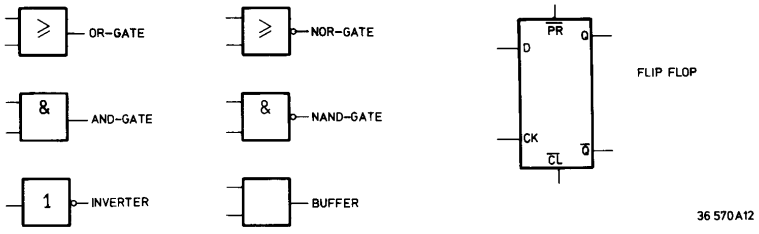
| SYMBOL | TYPE | $P_{t\ amb}$ 70° | TOLERANCE | SERIES | RANGE 2322... |
|---|---|---|---|---|---|
| | SFR16 | 0.2 | 10Ω – 1M 5% | E24 | 180 |
| | SFR25 | 0.33 | 1Ω – 10M 5% | E24 | 181 |
| | SFR30 | 0.5 | 1Ω – 10M 5% | E24 | 182 |
| | CR52 | 0.67 | 1Ω – 1M 5% | E24 | 213 |
| | MR25 | 0.4 | 1Ω – 1M 1% (2%) | E24 | 151 |
| | MR30 | 0.5 | 1Ω – 1M 1% (2%) | E24 | 152 |
| | VR37 | 0.5 | 220k – 33M 5% | E24 | 242 |
| | VR68 | 1 | 100k – 68M 5% | E24 | 244 |

| SYMBOL | TYPE | VOLTAGE DC | TOLERANCE | RANGE 2222... |
|---|---|---|---|---|
| ●●* | POLYESTER FLATFOIL | SEE NOTE | 10% | 342 ÷ 352<br>365 ÷ 368 |
| △△* | PLATE CERAMIC | SEE NOTE | DEPENDING ON CAPACITY | 629 ÷ 683 |
| ○* | ELCO MINIATURE SINGLE | SEE NOTE | −10+50% | 015 ÷ 033<br>041 ÷ 043 |
| ●* | ELCO SINGLE ENDED | SEE NOTE | ± 20% | 035 |

NOTE :
*

a = 2.5V
b = 4V
c = 6.3V
d = 10V
e = 16V
f = 25V
g = 40V
h = 63V
j = 100V
l = 125V
m = 150V
n = 160V
q = 200V
r = 250V
s = 300V
t = 350V
u = 400V
v = 500V
w = 630V
x = 1000V
z = 1600V
A = 1.6V
B = 6V
C = 12V
D = 15V
E = 20V
F = 35V
G = 50V
H = 75V
I = 80V

34 498 A12




36 570A12

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

# Service Information

1986-01-31

VG8230

HC86-2

## Home computer

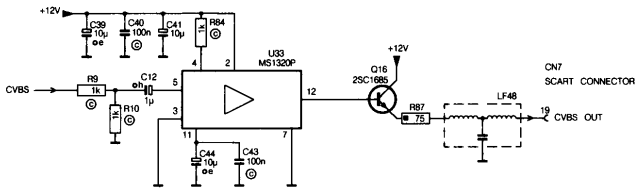
(GB)

When a monitor connected to a VG8230, shows sync problems the current circuit must be changed into the circuit modified.

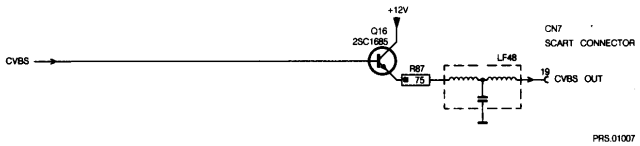
(NL)

Wanneer een monitor, aangesloten op een VG8230 synchronisatie problemen geeft moet de huidige schakeling naar de gemodificeerde schakeling gewijzigd worden.

CURRENT CIRCUIT




MODIFIED CIRCUIT

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