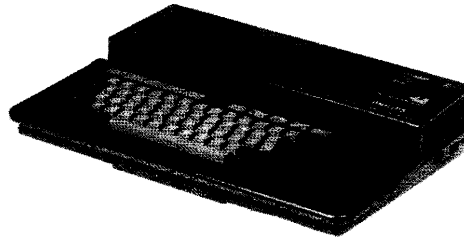


Service
Service
Service



38 571 A12

Service Manual

See also: VY0010/0011 supplement

(GB) SPECIFICATION

Microprocessor	: Z80A
Memory	: 48k ROM 16k disk ROM 128k video RAM 128k user RAM
Video processor	: V9938
MSX controller	: S-3527
Floppy-disk drive	: 3.5", 0.5 MB
Interfaces	: RF output (UHF channel E36) Monitor output SCART Cassette recorder 2 joysticks Printer 2 cartridge slots External disk drive
Keyboard	: QWERTY /00 QWERTZ /02 AZERTY /19
Power supply voltage	: 220V ± 10%, 50 Hz

(NL) SPECIFICATIE

Microprocessor	: Z80A
Geheugen	: 48k ROM 16k disk ROM 128k video RAM 128k gebruikers RAM
Videoprocessor	: V9938
MSX controller	: S-3527
Floppy-disk drive	: 3.5", 0.5 MB
Interfaces	: RF uitgang (UHF kanaal E36) Monitor uitgang SCART Cassette recorder 2 handbedieningen Printer 2 cartridge sleuven Externe disk drive
Toetsenbord	: QWERTY /00 QWERTZ /02 AZERTY /19
Voedingsspanning	: 220V ± 10%, 50 Hz

(F) CARACTERISTIQUES TECHNIQUES

Micro processeur	: Z80A
Mémoire	: 48k ROM 16k ROM à disque 128k RAM vidéo 128k RAM utilisateur
Processeur vidéo	: V9938
Controle MSX	: S-3527
Lecteur de disquette	: 3.5", 0.5 MB
Interfaces	: Sortie RF (Canal UHF E36) Sortie monitor SCART Magnétophone cassette 2 poignées Imprimante 2 "slots" cartouche Lecteur externe
Clavier	: QWERTY /00 QWERTZ /02 AZERTY /19
Tension d'alimentation	: 220V ± 10%, 50 Hz

(D) TECHNISCHE DATEN

Mikroprozessor	: Z80A
Speicher	: 48k ROM 16k Disk-ROM 128k Video-RAM 128k Gebrauchers-RAM
Videoprozessor	: V9938
MSX-Steuereinheit	: S-3527
Floppy Disk-Laufwerk	: 3.5", 0.5 MB
Schnittstellen	: RF Ausgang (UHF Kanal E36) Monitorausgang SCART Cassettensrecorder 2 Handbedienungen Drucker 2 Kassettenschlitze Externes Disk-Laufwerk
Tastatur	: QWERTY /00 QWERTZ /02 AZERTY /19
Versorgungsspannung	: 220V ± 10%, 50 Hz

(I) DATA TECNICI

Microprocessore	: Z80A
Memoria	: 48k ROM 16k ROM a disco 128k RAM video 128k RAM utilizzatori
Processore video	: V9938
MSX di controllo	: S-3527
Letture di dischetto	: 3.5", 0.5 MB
Interfacce	: Uscita RF (Canale UHF E36) Uscita monitor SCART Registratore a cassetta 2 leve manuali Stampa 2 connettore per cartuccia Connettore disk drive
Tastiera	: QWERTY /00 QWERTZ /02 AZERTY /19
Tensione d'aliment.	: 220V ± 10%, 50 Hz

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



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

Subject to modification

4822 727 15562

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PHILIPS

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Service Consumer Electronics

GB

CAUTION

1. The exchange of cartridges should take place with the set turned off.

2. ESD



All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.

ADJUSTMENTS

VDP Clock frequency

- Connect a frequency meter to 8-U25 via a 10:1 probe.
- Adjust TC3 for a frequency of 3.554685 MHz on 8-U25.

FDC clock frequency

- Connect a frequency meter to 24-U3 via a 10:1 probe.
- Adjust TC2 for a frequency of 1 MHz on 24-U3.

For the adjustments of the floppy disk drive, reference is made to the service manual VY0010/0011 supplement.

RTC clock frequency

- Connect a frequency meter to 17-U1 via a 10:1 probe.
- Adjust TC1 for a frequency of 32.768 KHz on 17-U1.

Encoder unit

- Connect a resistor ($75 \Omega \frac{1}{4} W$) between 5-CN2 and ground.
- Connect a voltmeter between 5-CN2 and ground.
- Enter the programme of table 1.
- Adjust the voltage on 5-CN2 for 1Vpp by means of VR1.

- Connect a resistor ($75 \Omega \frac{1}{4} W$) between 4-CN2 and ground.
- Connect a voltmeter between 4-CN2 and ground.
- Enter the programme of table 1.
- Adjust the voltage on 4-CN2 for 1 Vpp by means of VR2.

Supply voltage

- Connect a voltmeter between CN2-1 and ground on the supply voltage panel.
- Adjust VR1 for a voltage of -11,9V on CN2-1.
- Check the voltage between CN2-6 and ground (+5V).
- Check the voltage between CN2-8 and ground (+12V).

NL

WAARSCHUWING

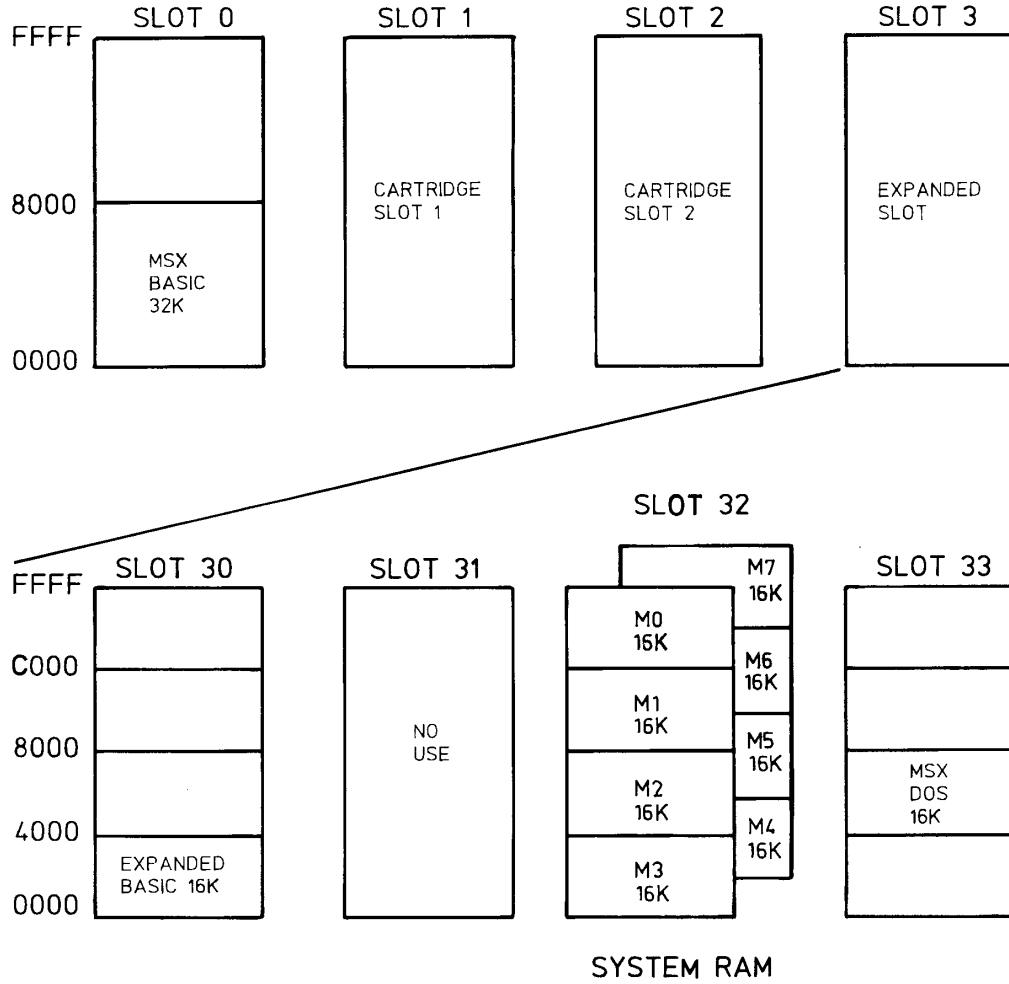
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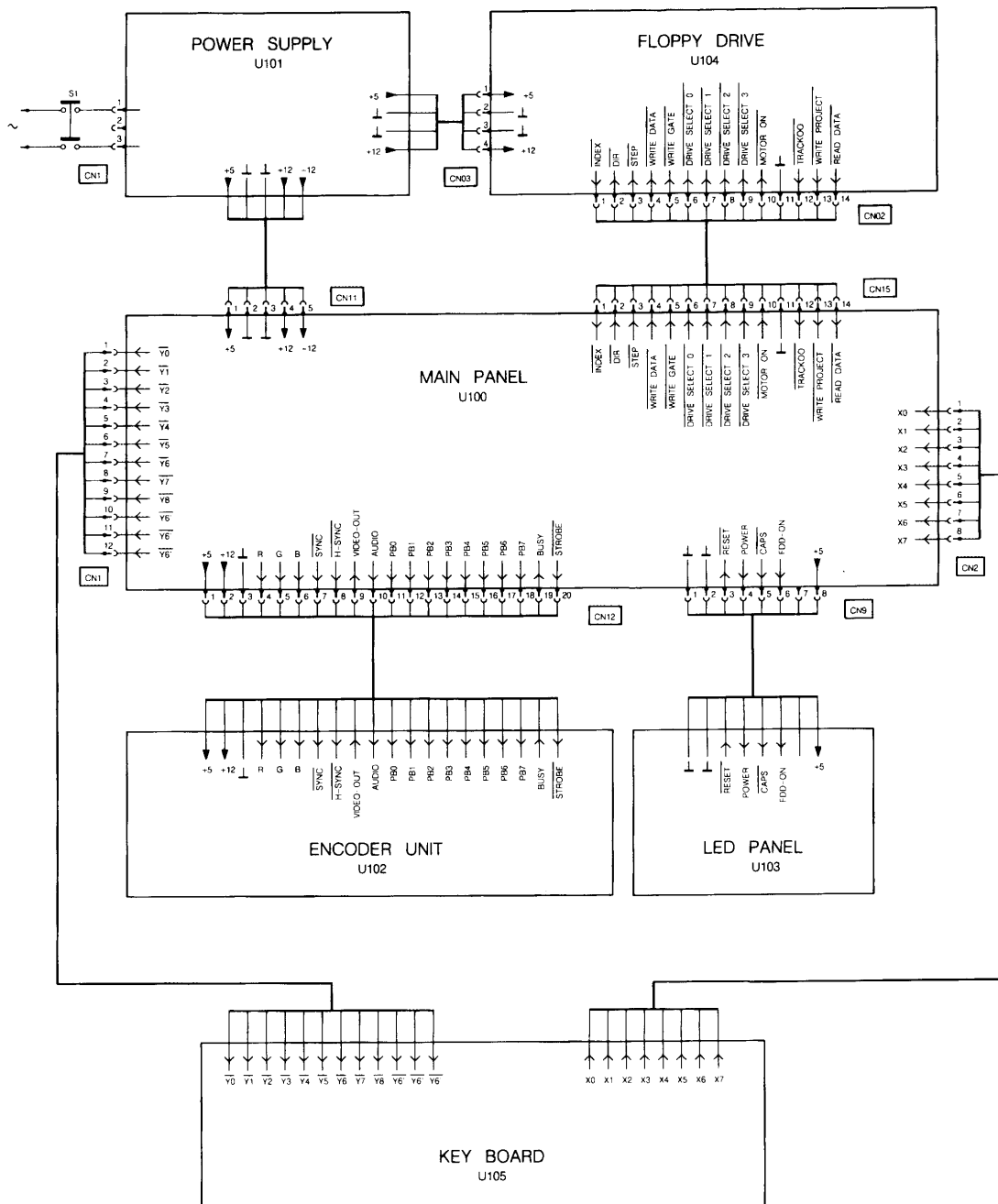
5    REM ENCODER ADJUSTMENT
10   CLEAR 100, &H9FFF
20   FOR I=0 TO 36
30   AD=&HA000+1
40   READ Z
50   POKEAD, Z
60   NEXT I
70   DEF USR0=&HA000
80   SCREEN2
90   COLOR,,2
100  FOR I=1 TO 8
110  X=32*(I-1) : XX=X+31
120  LINE (X,0)-(XX,191), I, BF
130  NEXT I
140  Y=USR0 (0)
150  GOTO 150
160  DATA &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

```

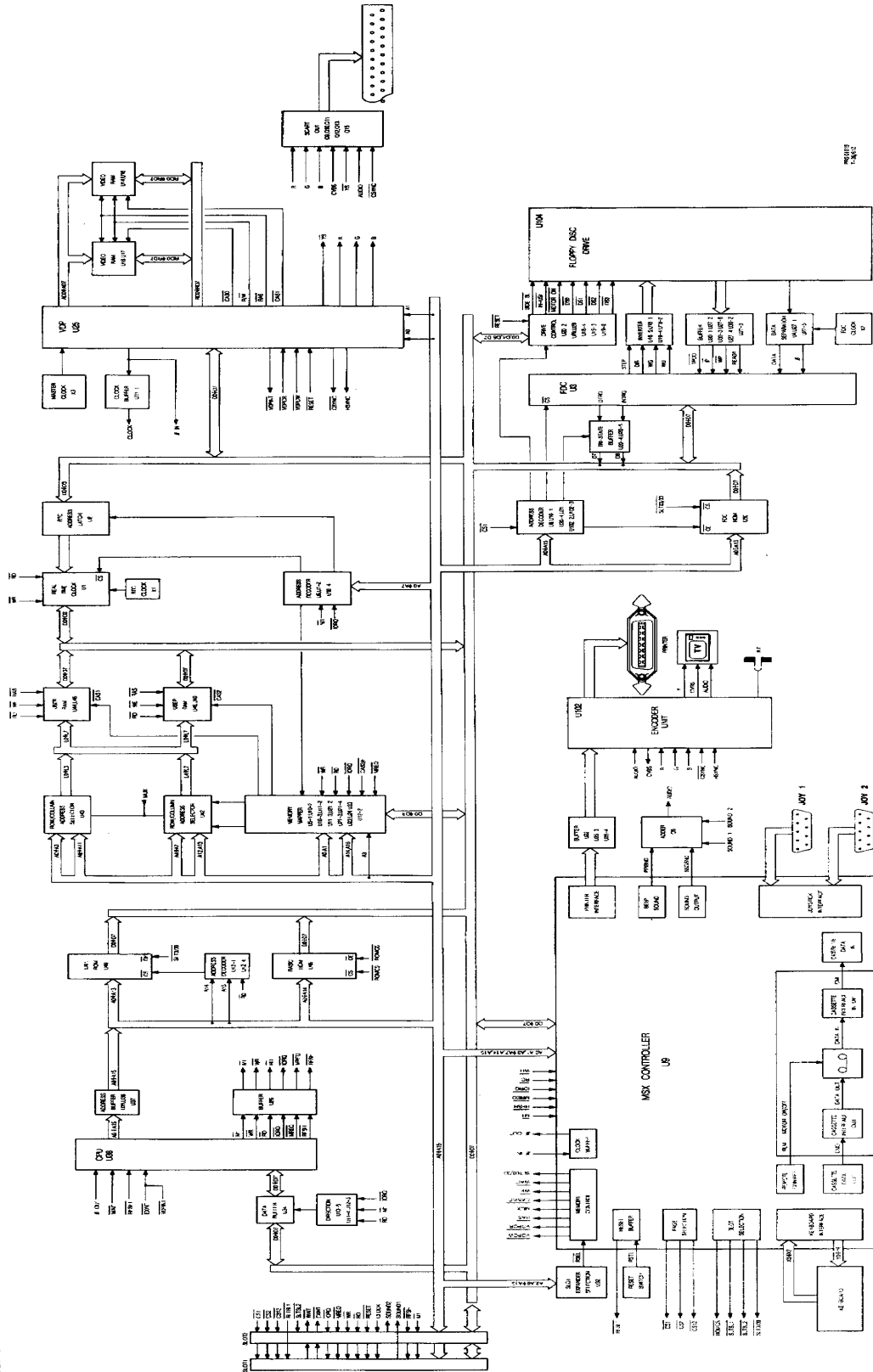
TABLE 1

MEMORY LAY-OUT





FUNCTIONAL DIAGRAM



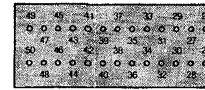
LAY-OUT KEYBOARD MATRIX FOR FRENCH VERSION

X0	X1	X2	X3	X4	X5	X6	X7	
D	1	2	3	4	5	6	7	Y0
B	9	0	-	>	DEAD KEY	*	M	Y1
%	É	.	/	+	Q	B		Y2
C	D	E	F	G	H	I	J	Y3
K	L	T	N	O	P	A	R	Y4
S	T	U	V	Z	X	Y	W	Y5
CTRL		⏏		F1	F2	F3		Y6
F4	F5	ESC	TAB	STOP	←	←	←	Y7
SPACE	HOME	INS	DEL	←	↑	↓	→	Y8
↑								Y9
		GRILL						Y10
				CODE				Y11

LAY-OUT KEYBOARD MATRIX FOR GERMAN VERSION

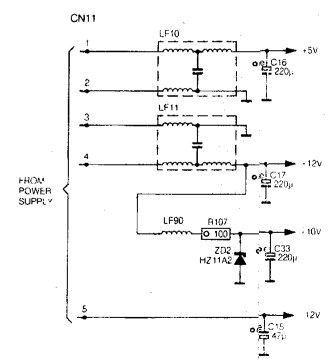
X0	X1	X2	X3	X4	X5	X6	X7	
D	1	2	3	4	5	6	7	Y0
B	9	0	DEAD KEY	>	Ü	*	Ö	Y1
A	Ä	.	.	-	A	B		Y2
C	D	E	F	G	H	I	J	Y3
K	L	M	N	O	P	Q	R	Y4
S	T	U	V	W	X	Z	Y	Y5
CTRL		⏏		F1	F2	F3		Y6
F4	F5	ESC	TAB	STOP	←	←	←	Y7
SPACE	HOME	INS	DEL	←	↑	↓	→	Y8
↑								Y9
		GRILL						Y10
				CODE				Y11

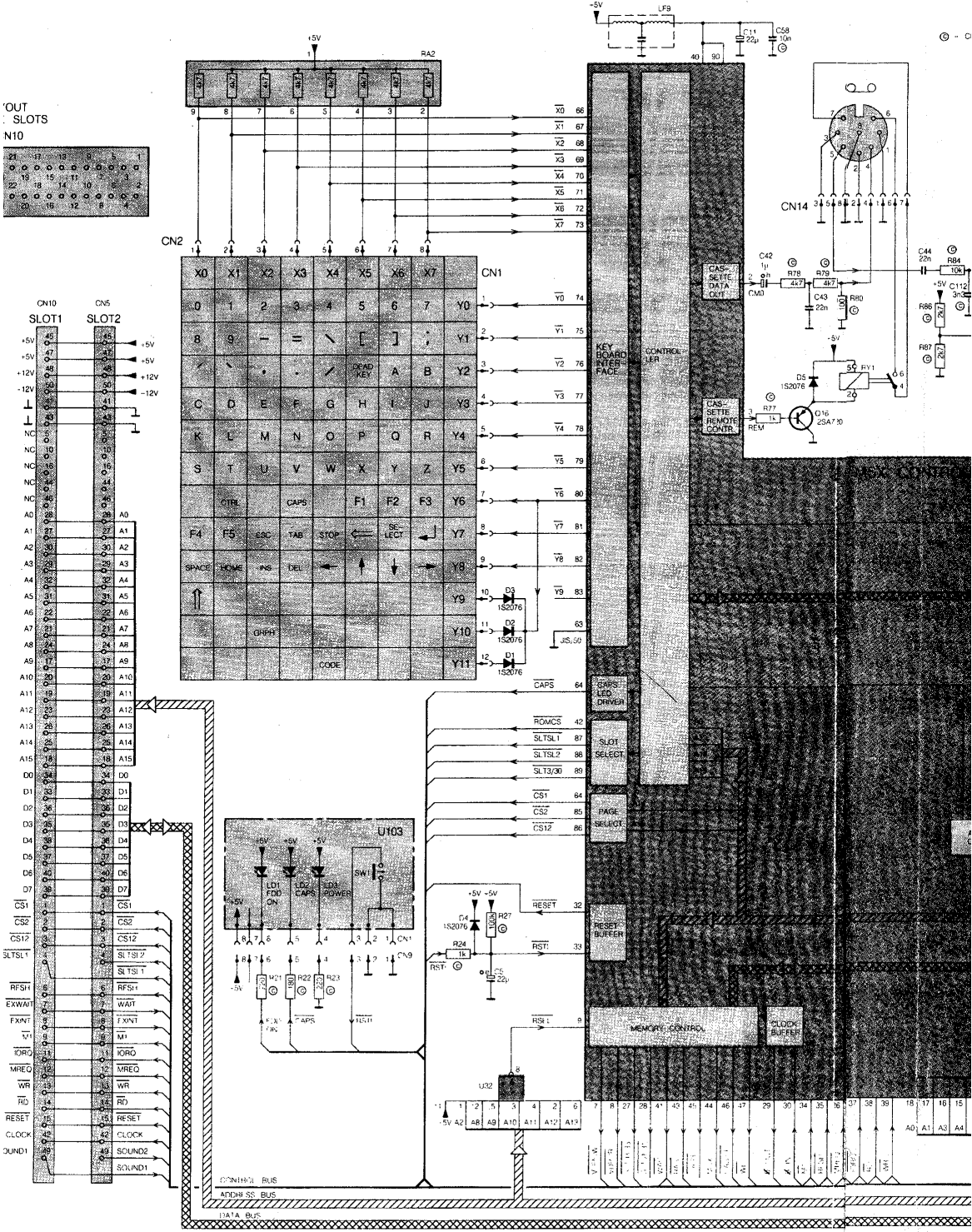
PIN L CARTRID CN1

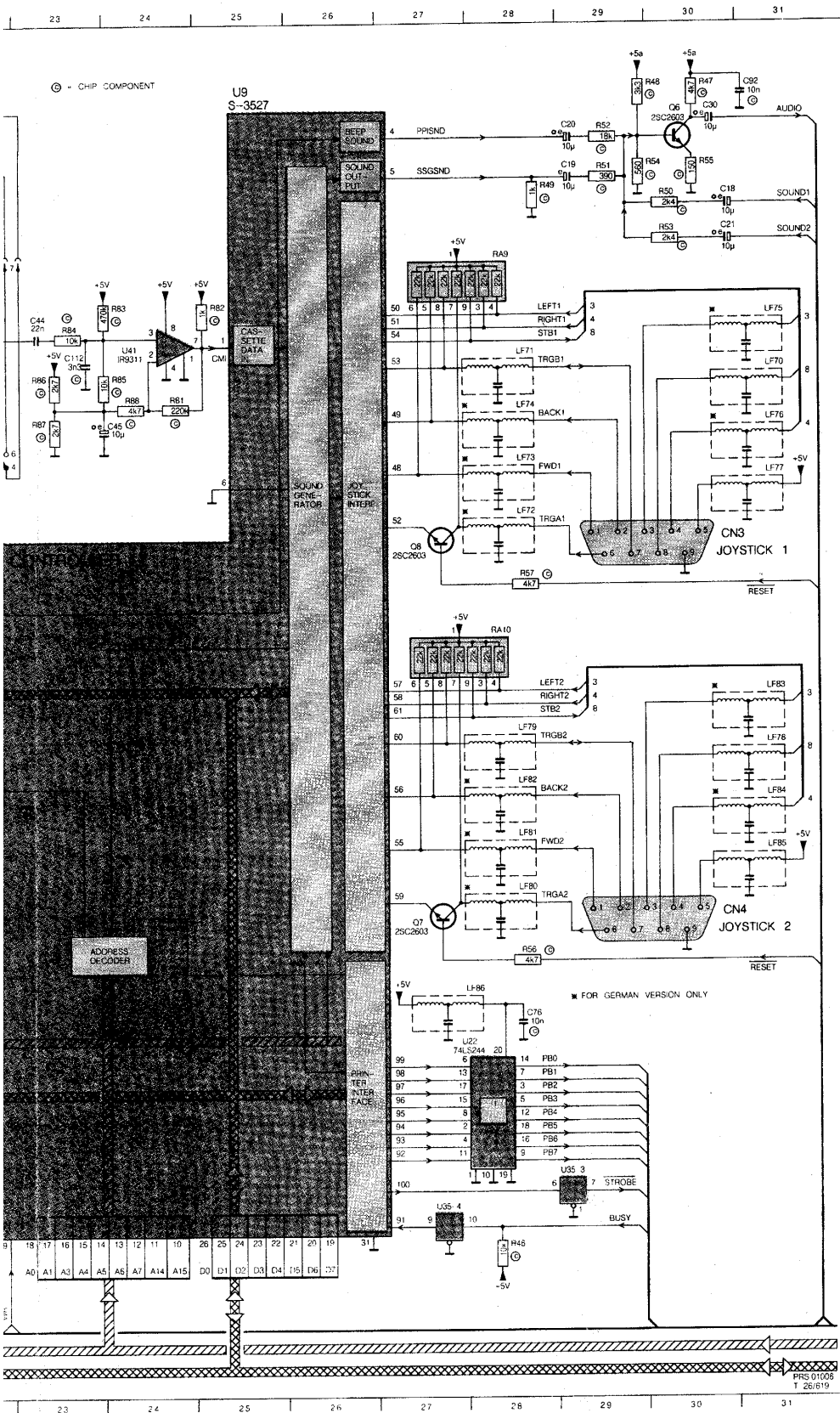


TYPENUMBERS AND POWERSUPPLY-CONNECTIONS OF IC'S

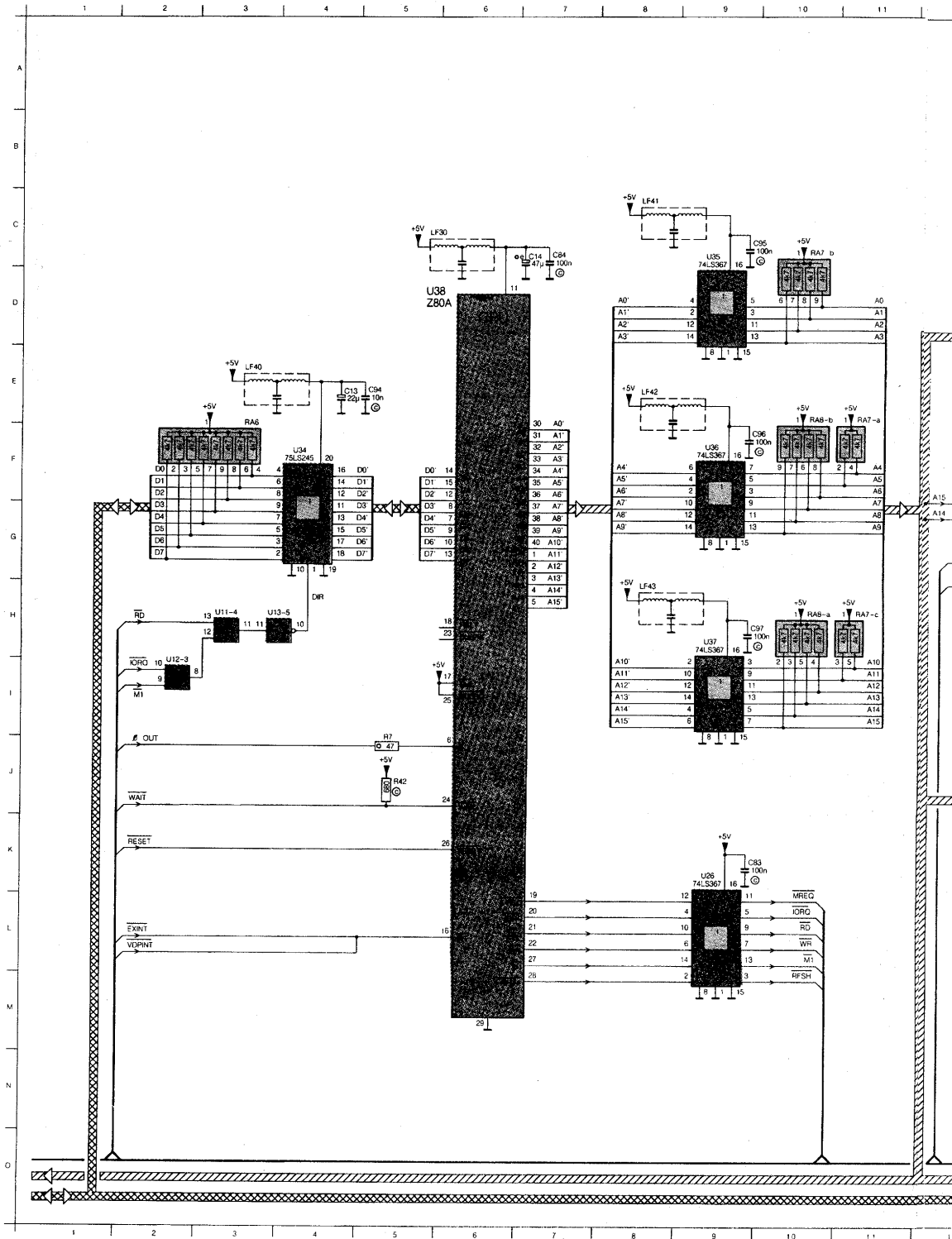
POS.NR.	TYPE	DESCRIPTION	+5V	⊥	DECOUPLING CAPACITOR	FILTER
U5	74LS368	6 3-STATE INV.	16	6	C54 - 10n	⊙
U7	74LS20	2 4-INPUT NAND	14	7	C56 - 10n	⊙
U10	74LS32	4 2-INPUT OR	14	7	C59 - 10n	⊙
U11	74LS08	4 2-INPUT AND	14	7	C60 - 10n	⊙
U12	74LS32	4 2-INPUT OR	14	7	C61 - 10n	⊙
U13	74LS04	6 INVERTERS	14	7	C62 - 10n	⊙
U18	7438	4 2-INPUT NAND	14	7	C72 - 10n	⊙
U19	7438	4 2-INPUT NAND	14	7	C73 - 10n	⊙
U20	74LS74	2 FOLD D FLIP-FLOP	14	7	C74 - 10n	⊙
U21	74LS125	4 3-STATE BUFFERS	14	7	C75 - 10n	⊙
U27	74LS14	6 INVERTERS	14	7	C85 - 10n	⊙
U30	74LS00	4 2-INPUT NAND	14	7	C88 - 10n	⊙
U31	74LS133	13-INPUT NAND	16	8	C89 - 10n	⊙
U32	74LS30	8 INPUT NAND	14	7	C90 - 10n	⊙
U35	74LS367	6 BUFFERS	16	8	C95 - 100n	⊙
U102	74LS86	4 2 INPUT EXOR	14	7	C102 - 10n	⊙

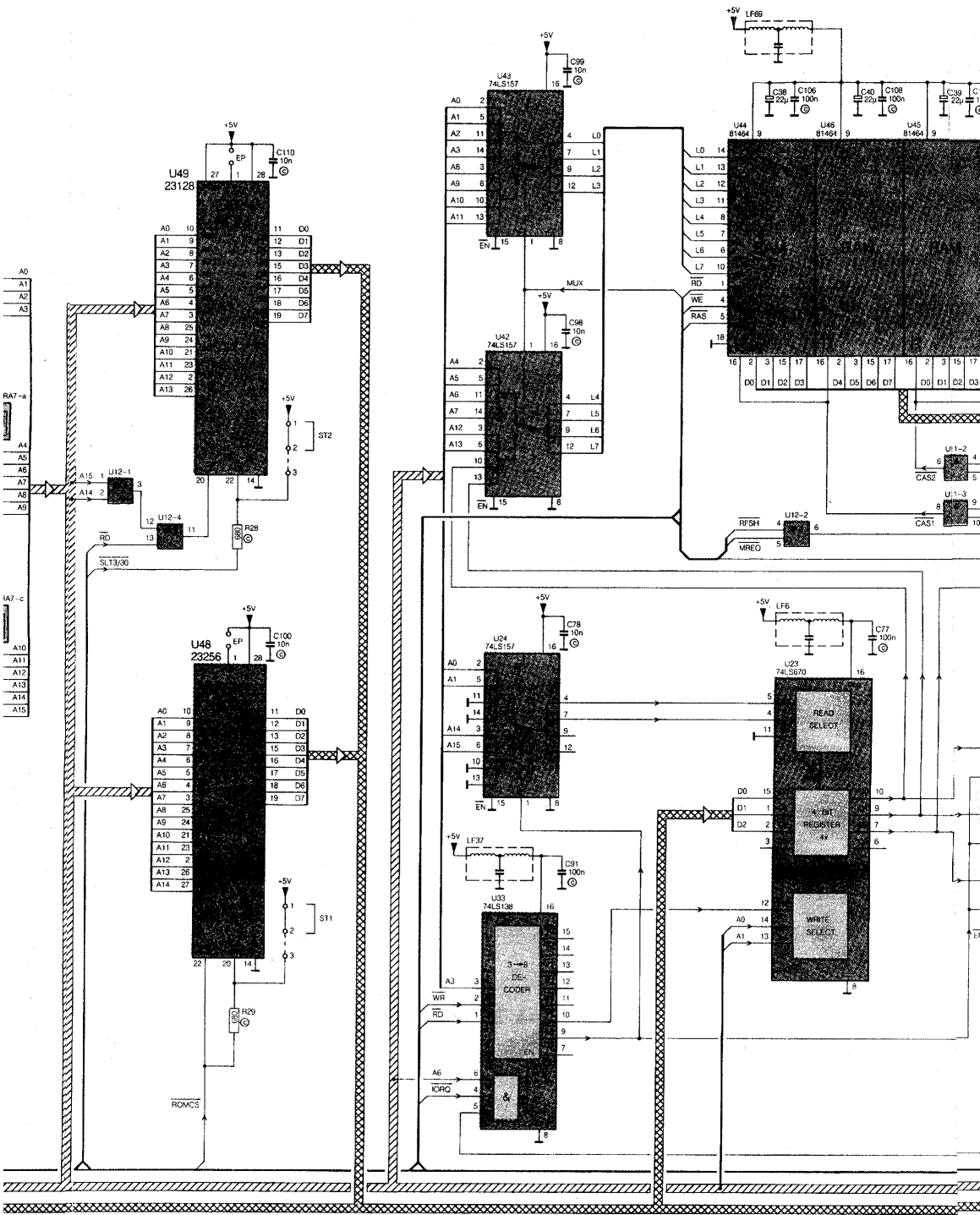


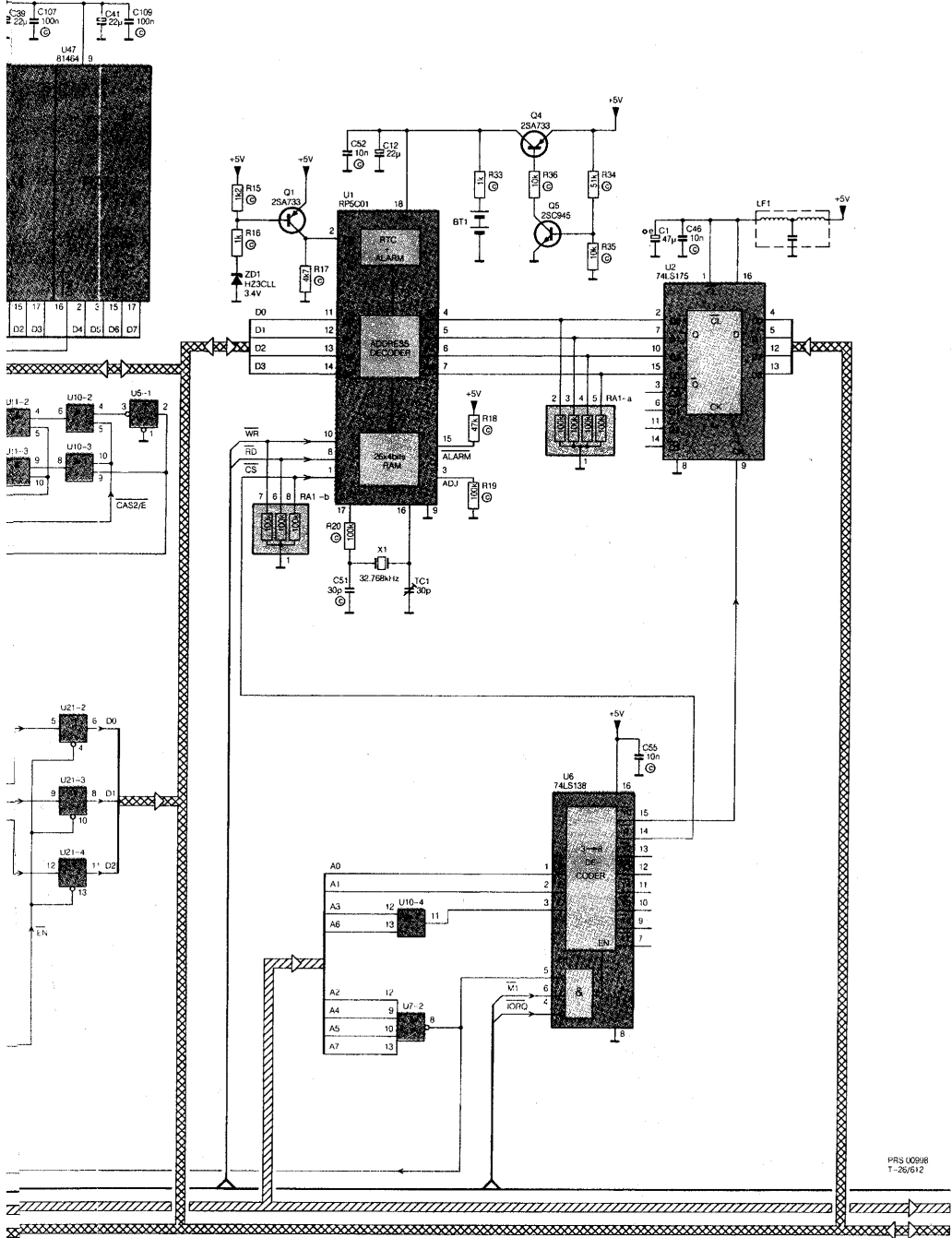




- A1 A21
- C11 D23
- C12 D23
- C15 O10
- C16 L10
- C17 M10
- C18 B30
- C19 B29
- C20 A29
- C21 G30
- C30 A30
- C33 N10
- C42 D21
- C43 D22
- C44 D23
- C45 E24
- C5 A16
- C58 A21
- C76 K28
- C92 A3
- CN1 D18
- CN10 D12
- CN11 K 8
- CN14 C21
- CN2 C14
- CN3 F31
- CN4 J31
- CN5 D13
- D1 H18
- D2 H18
- D3 H18
- D4 L17
- D5 E21
- LD1 K15
- LD2 K15
- LD3 K16
- LF10 L 9
- LF11 L 9
- LF70 D31
- LF71 D28
- LF72 F28
- LF73 E28
- LF74 E28
- LF75 D31
- LF76 E31
- LF77 E31
- LF78 H31
- LF79 H28
- LF80 J28
- LF81 I28
- LF82 I28
- LF83 H31
- LF84 I31
- LF85 J31
- LF86 K28
- LF9 A20
- LF90 N 9
- O16 F22
- Q6 A30
- Q7 J27
- Q8 F27
- R107 N10
- R21 L15
- R22 L15
- R23 L16
- R24 L17
- R27 L18
- R46 N28
- R47 A30
- R48 A30
- R49 B28
- R50 B30
- R51 B29
- R52 A29
- R53 C30
- R54 B30
- R55 B30
- R56 K28
- R57 F28
- R77 E21
- R78 D21
- R79 D22
- R80 D22
- R81 E24
- R82 C25
- R83 C24
- R84 D23
- R85 D24
- R86 D23
- R87 E23
- R88 E24
- RA10 G28
- RA2 A17
- RA6 C28
- RV1 E22
- SW K16
- U1 D3
- U22 L28
- U32 N18
- U55.3 M29
- U55.4 N27
- U41 D24
- U9 A25
- ZD2 N10

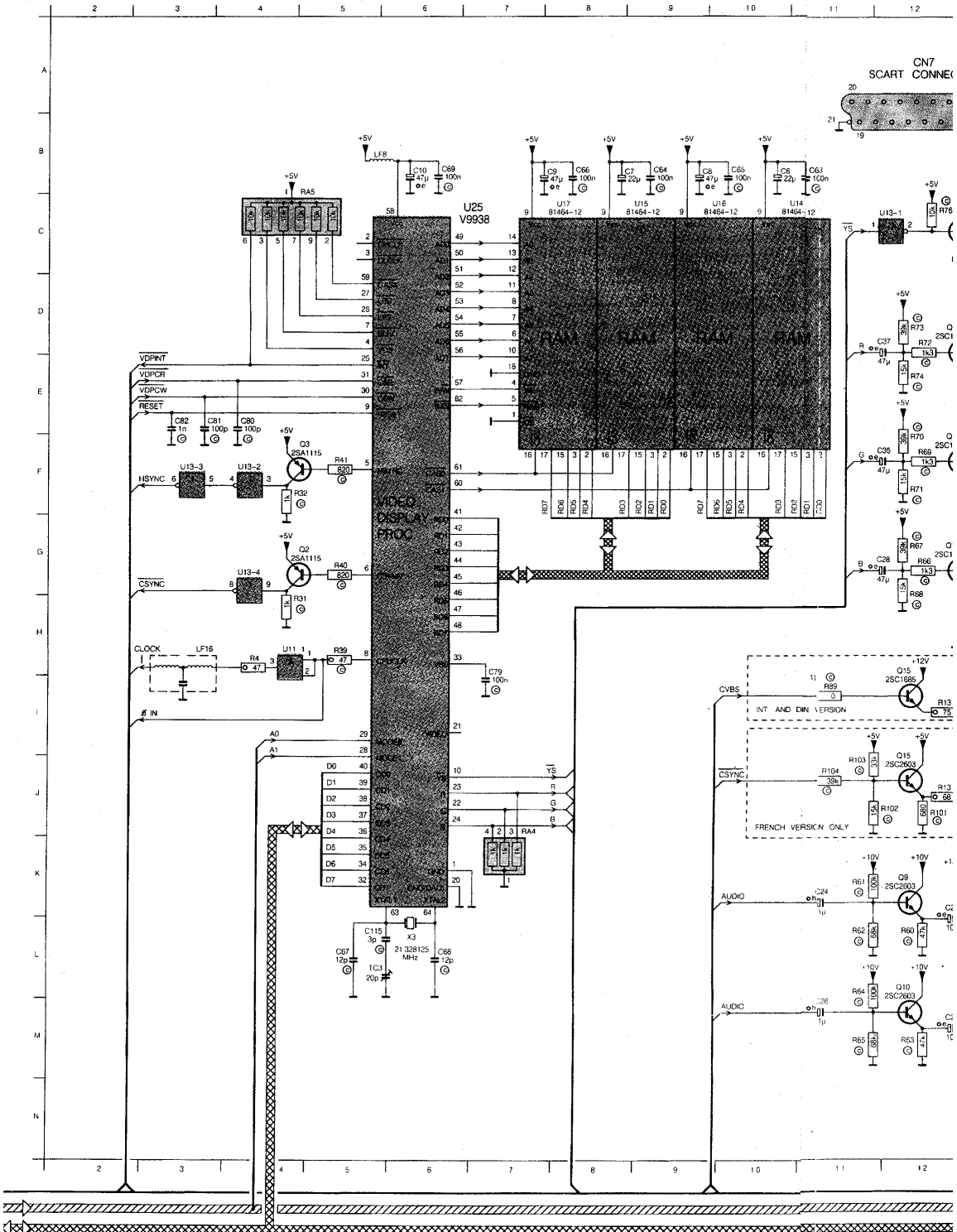


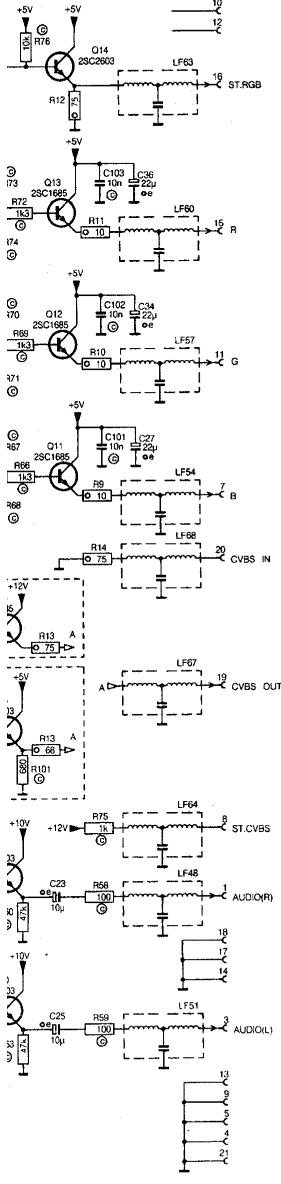
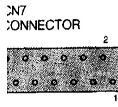




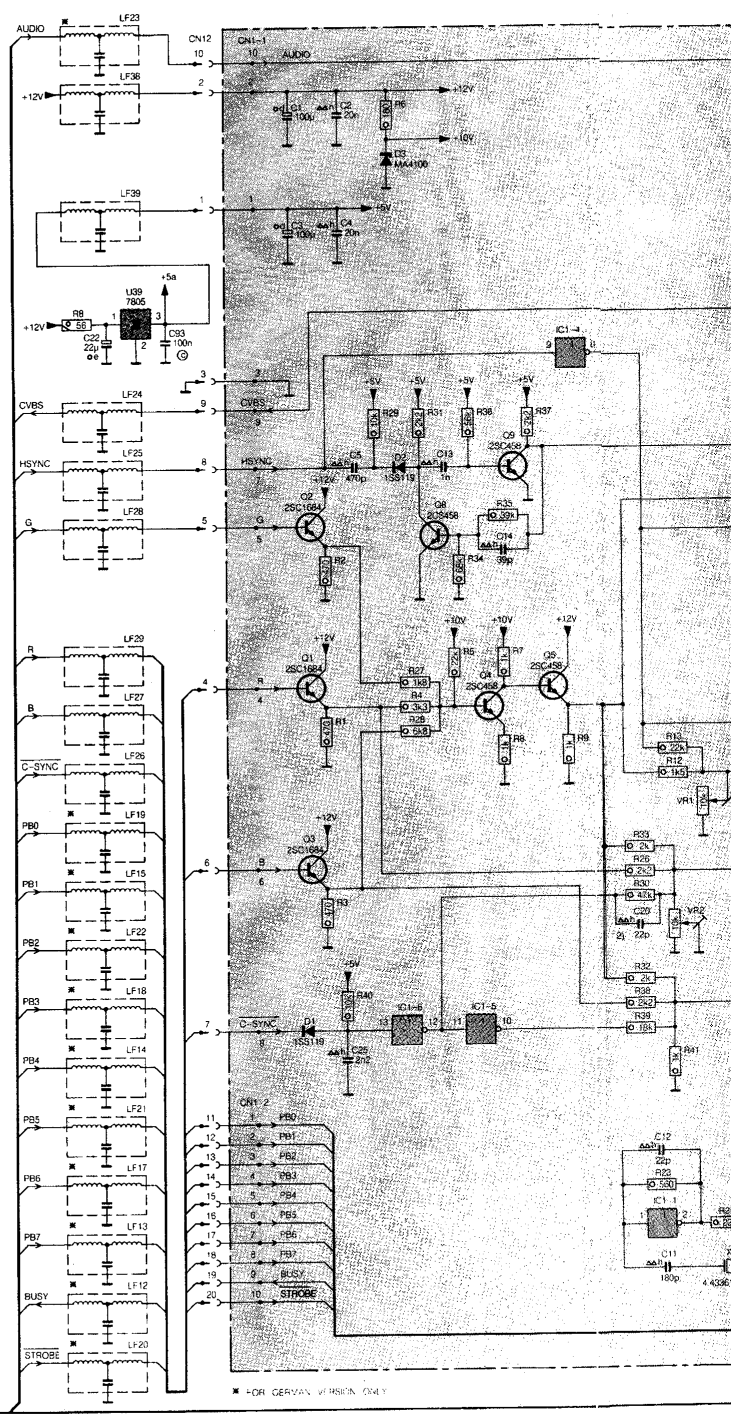
B11	D27
C1	D29
C100	H14
C105	B20
C107	B23
C108	B21
C109	B24
C110	B14
C12	C26
C13	F 4
C14	C 7
C38	B20
C39	B22
C40	B21
C41	B23
C46	D30
C51	H28
C52	C26
C55	J29
C77	H21
C78	H18
C83	K10
C84	C 7
C91	K18
C94	E 5
C95	C10
C96	F10
C97	H10
C98	D19
C99	A18
LF1	D30
LF37	H16
LF6	H20
LF69	A20
Q1	D25
Q4	C28
Q5	D28
Q5	D25
R15	D25
R16	D25
R17	E26
R18	F27
R19	G27
R20	G26
R28	G14
R29	M14
R33	C27
R34	C29
R35	D29
R36	C28
R42	J 5
R7	F 5
RA1	G25
RA5	E 3
RA7	H11
RA7	C10
RA7	E11
RA8	H10
RA8	E10
TC1	H27
U1	D26
U10-2	F23
U10-3	G23
U10-4	J27
U11-2	F22
U11-3	G22
U11-4	H 3
U12 1	F12
U12-3	I 2
U12-4	G13
U13 5	H 3
U2	E29
U21-2	I23
U21-3	J23
U21-4	K23
U23	I20
U24	H17
U26	K 9
U34	F 4
U35	C 7
U36	F 5
U37	H 9
U38	D 5
U33	L17
U42	E17
U43	A17
U44	B20
U45	B22
U46	B21
U47	B23
U48	H13
U49	C13
U5-1	F24
U6	J28
U7-2	M27
X1	H26
ZD1	E25
U12-2	G20

PRS 0098
T-26/612

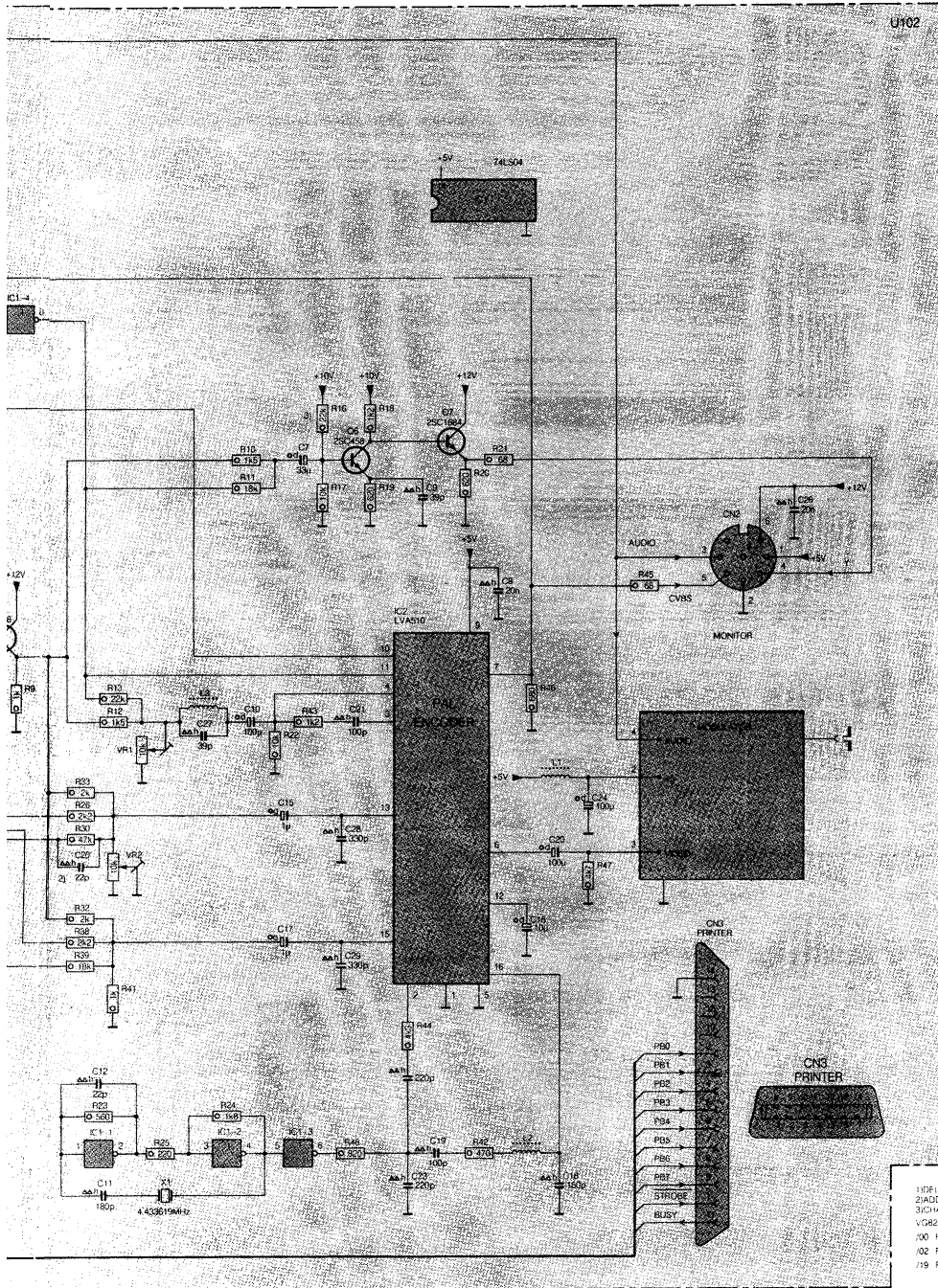




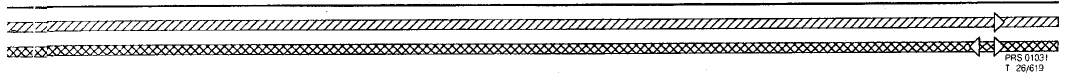
- C10 B 6
- C101 G13
- C102 E13
- G103 D13
- C115 L 5
- C23 K12
- C24 K11
- C25 M12
- C26 M11
- C27 G13
- C28 G12
- C34 E13
- C35 F12
- C36 D13
- C37 G13
- C8 B11
- C83 B11
- C84 B 9
- C85 B10
- C86 B 9
- C87 L 5
- C88 B 6
- C89 B 9
- C79 H17
- C8 B10
- C80 E 4
- C81 E 4
- C82 G 3
- C9 B 8
- C16 H 6
- LF48 K14
- LF51 M14
- LF64 G14
- LF57 F14
- LF60 D14
- LF63 C14
- LF64 K14
- LF67 I14
- LF68 H14
- LF8 B 6
- C10 L12
- C11 G12
- Q12 F12
- Q14 C13
- Q15 M12
- Q15 I12
- Q2 G 5
- Q3 F 5
- Q9 K12
- R10 F13
- R101 J12
- R102 J12
- R103 J11
- R104 J11
- R11 E13
- R12 C13
- R13 I12
- R14 H13
- R31 H 5
- R32 F 5
- R39 H 5
- R4 H 4
- R40 G 5
- R41 F 5
- R58 M13
- R60 L12
- R61 K11
- R62 L11
- R63 M12
- R64 L11
- R65 M11
- R66 Q12
- R67 G12
- R68 Q12
- R69 F12
- R70 F12
- R71 F12
- R72 D12
- R73 D12
- R74 F12
- R75 K13
- R76 C12
- R8 C13
- FA5 B 5
- TC3 L 6
- U11-1 H 4
- U13-2 F 4
- U13-3 F 3
- U13-4 G 4
- U14 C11
- U15 C 9
- U16 C10
- U17 C 8
- U25 C 7
- X3 L 6

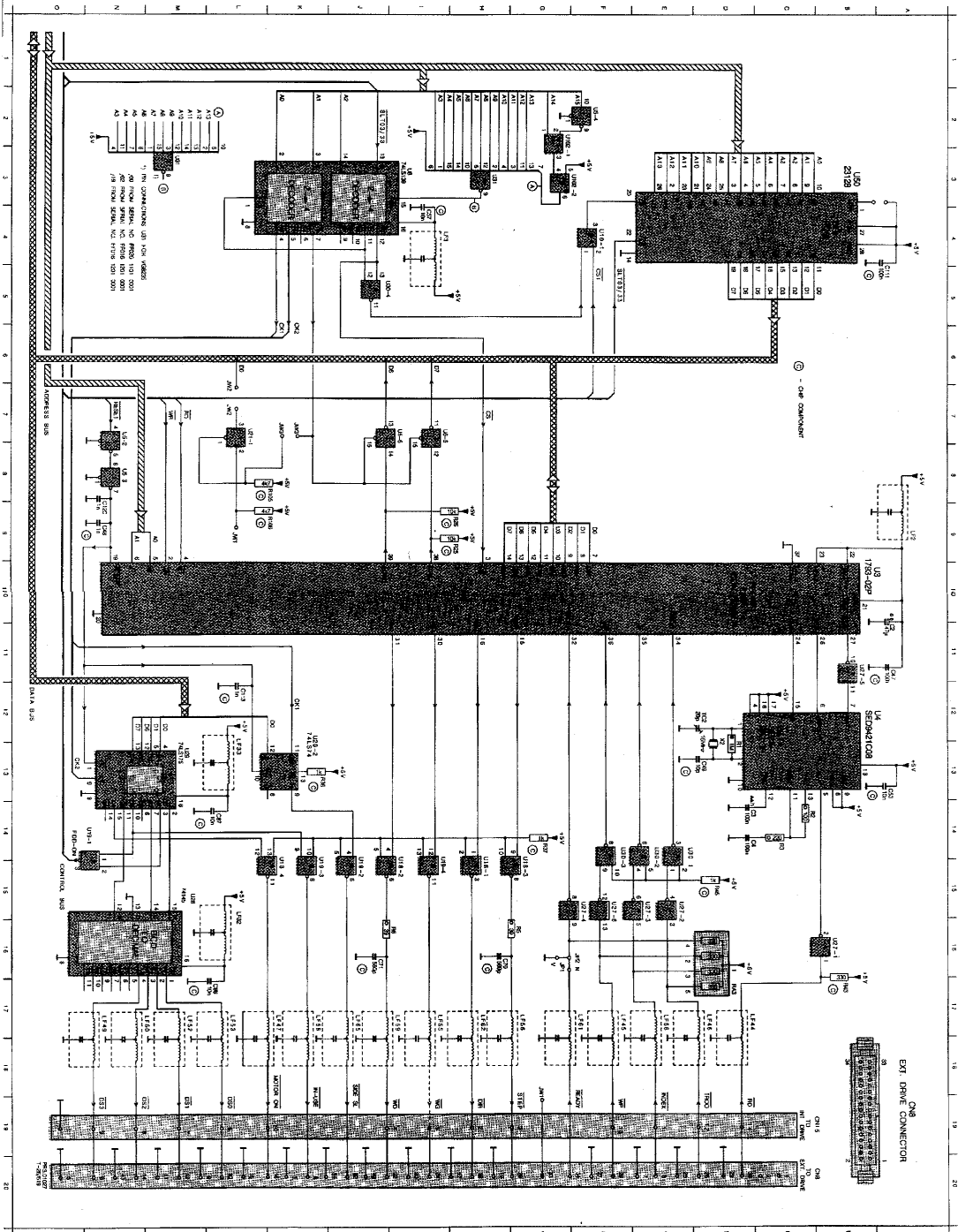


* FOR GERMAN VERSION ONLY



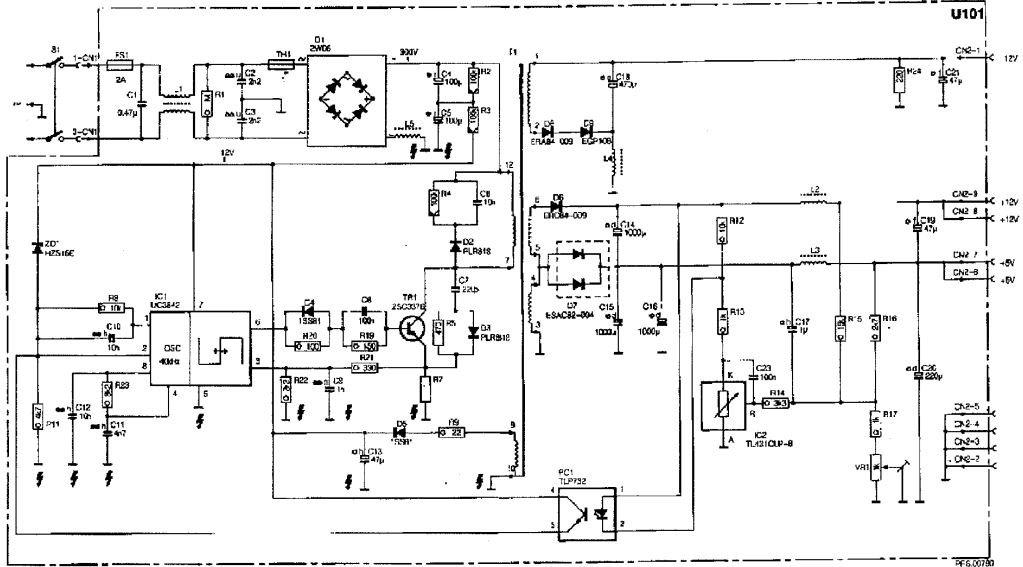
1178 LITED IN:
 210022 IN:
 VGR235
 00 FROM SERIAL NO FF026 1101 0001
 02 FROM SERIAL NO FF016 1201 0001
 19 FROM SERIAL NO FF016 1201 0001



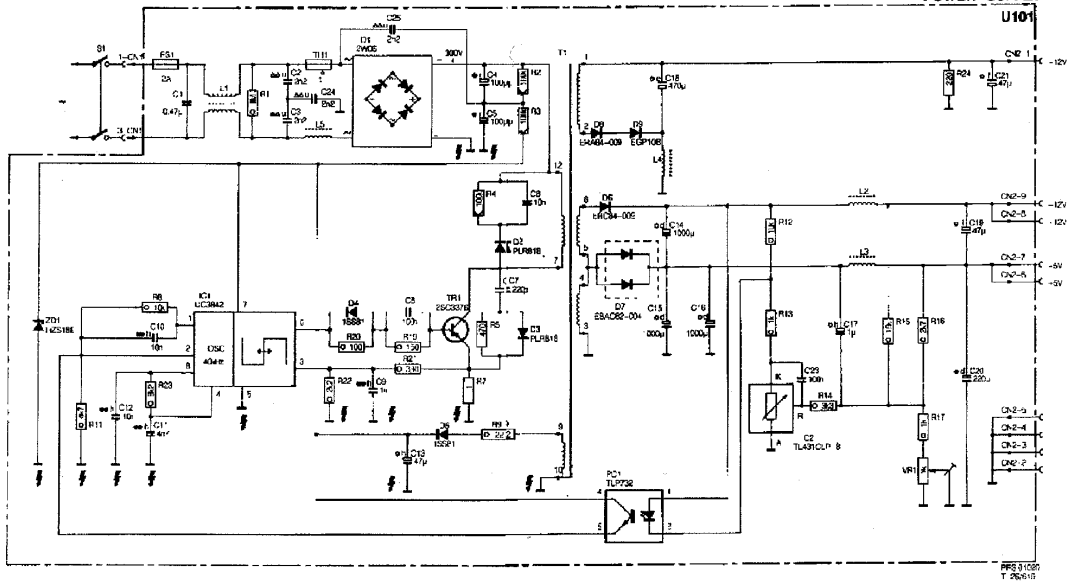


011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098 099 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500

GROUNDING POWER SUPPLY



POWER SUPPLY

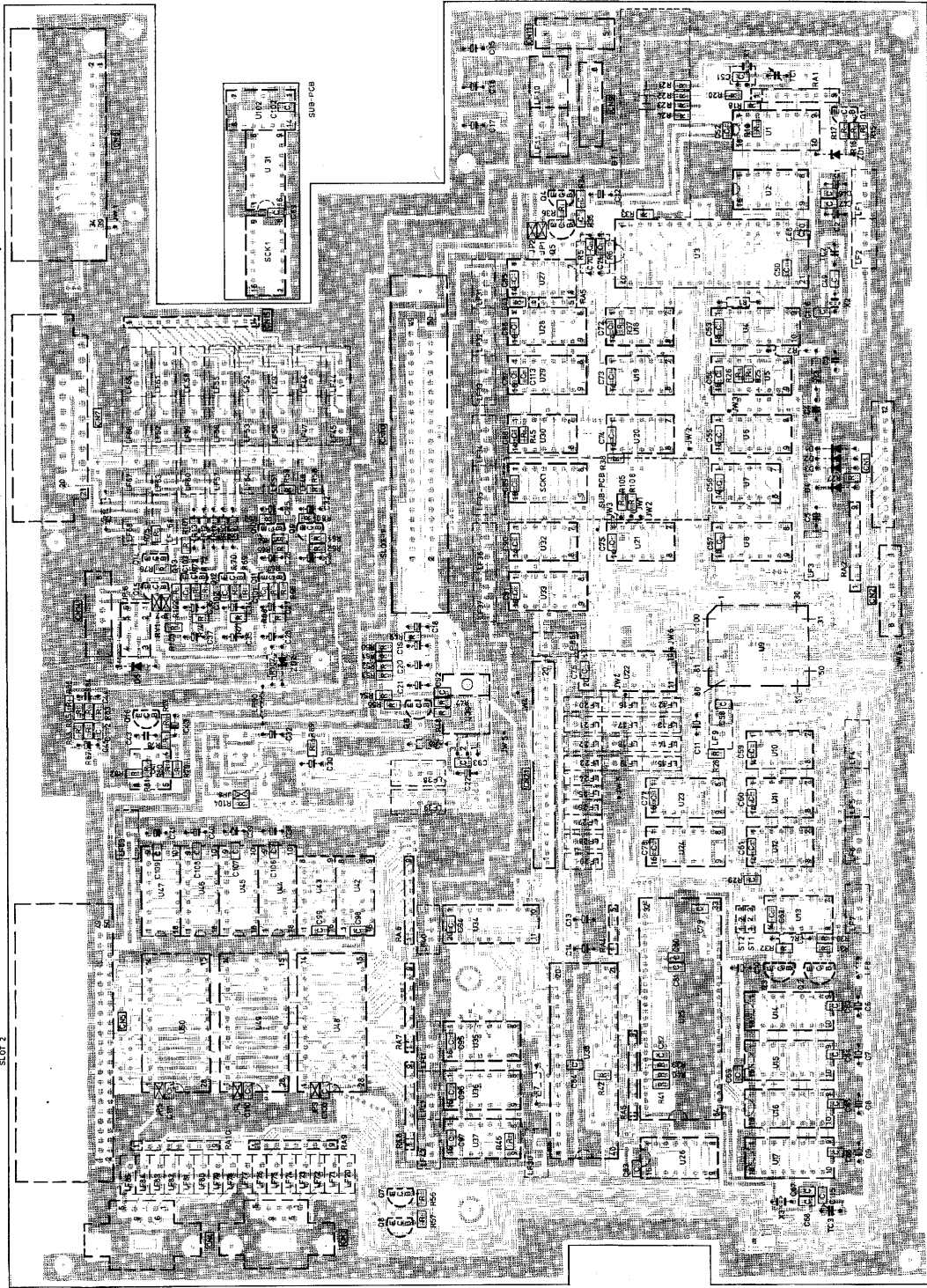


MAIN PRINTED BOARD

SLOT 2

START

EX DRIVE

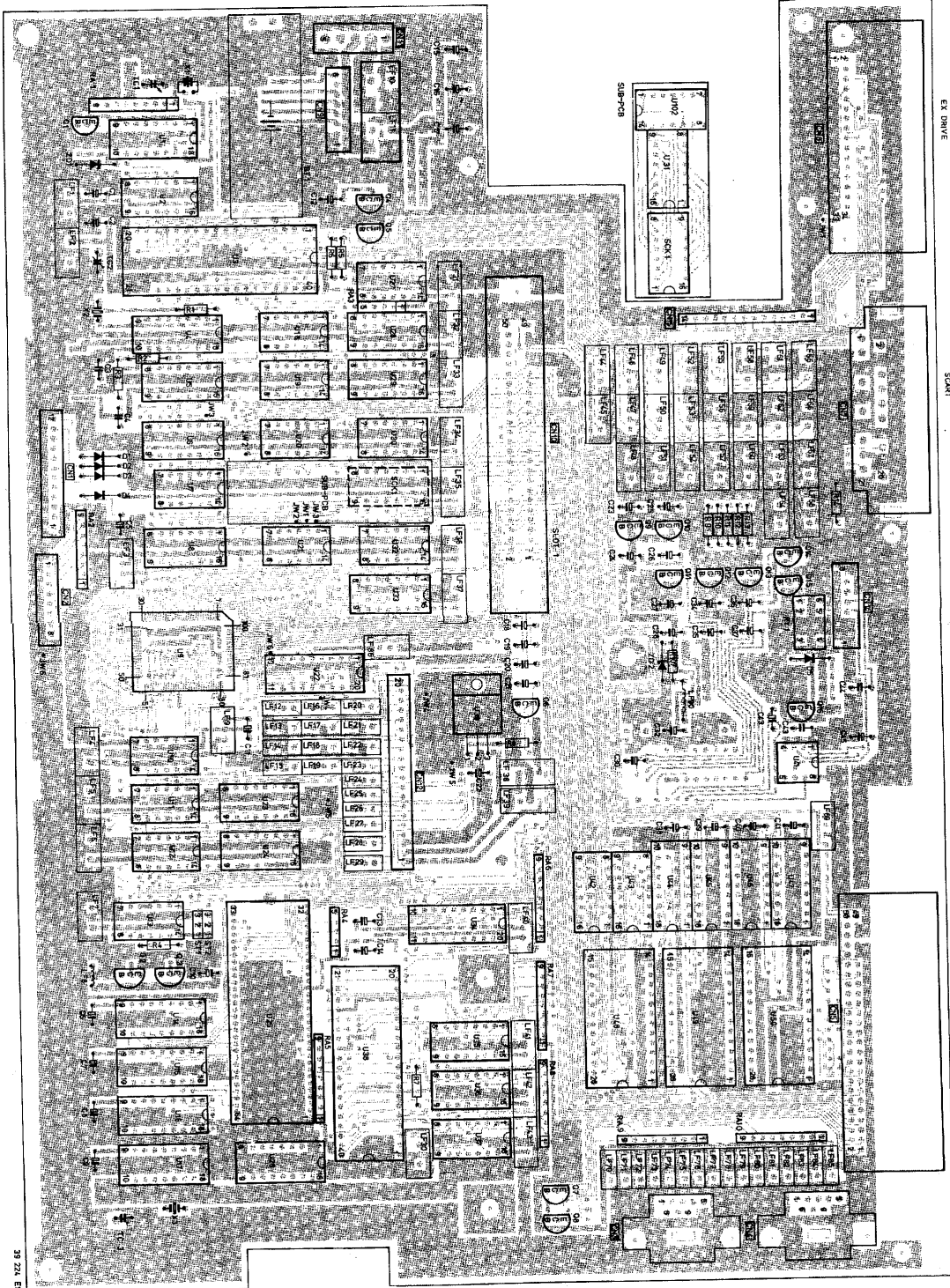


MAIN PRINTED BOARD

EX. DRIVE

SCART

SLOT 2



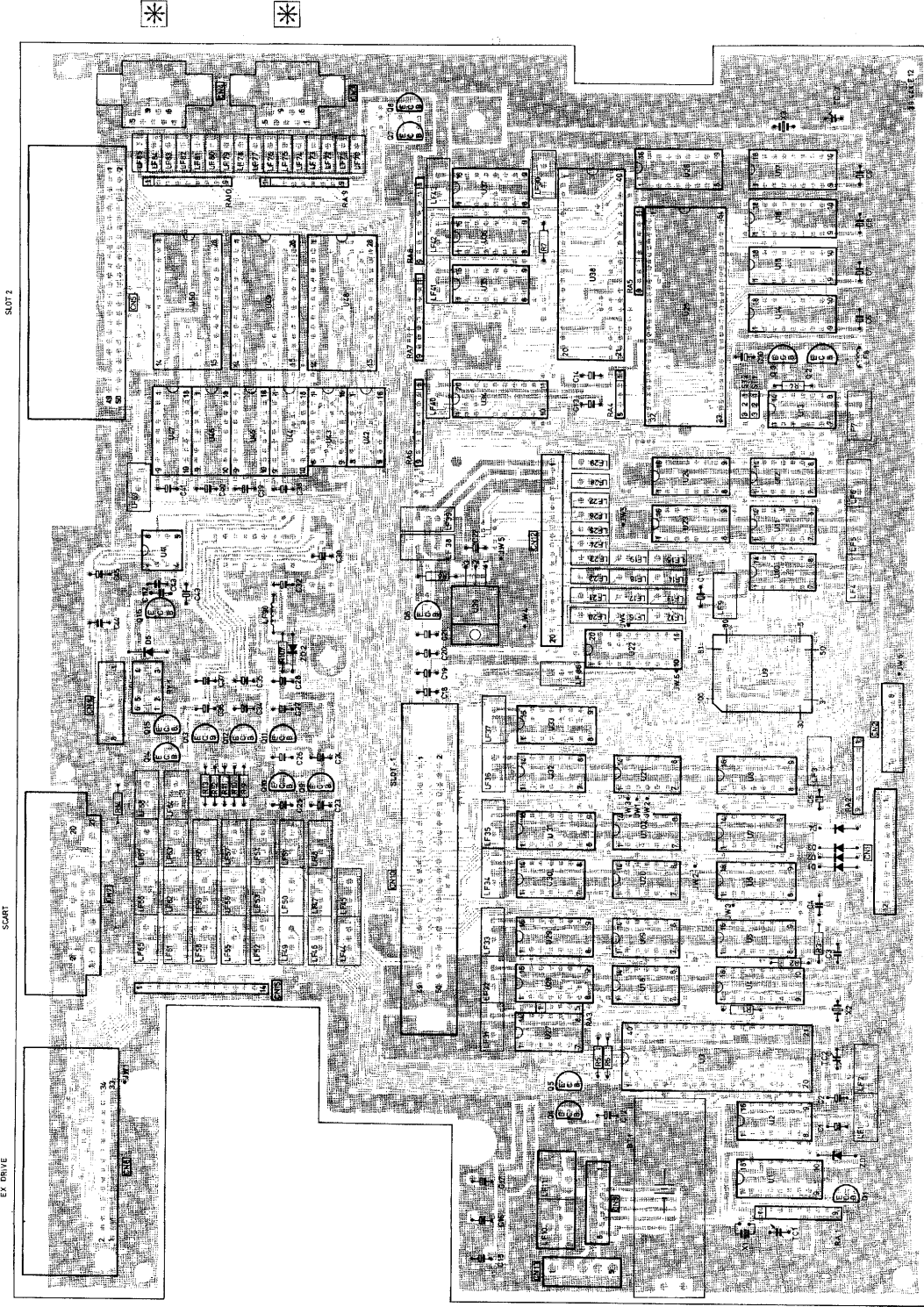
39 224 83



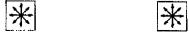
MAIN PRINTED BOARD FOR: V68235 /00 from serial no. FC026 1101 0001 onwards
/02 from serial no. FC016 1201 0001 onwards
/19 from serial no. FC016 1201 0001 onwards

EX DRIVE

SCART



SLOT 1

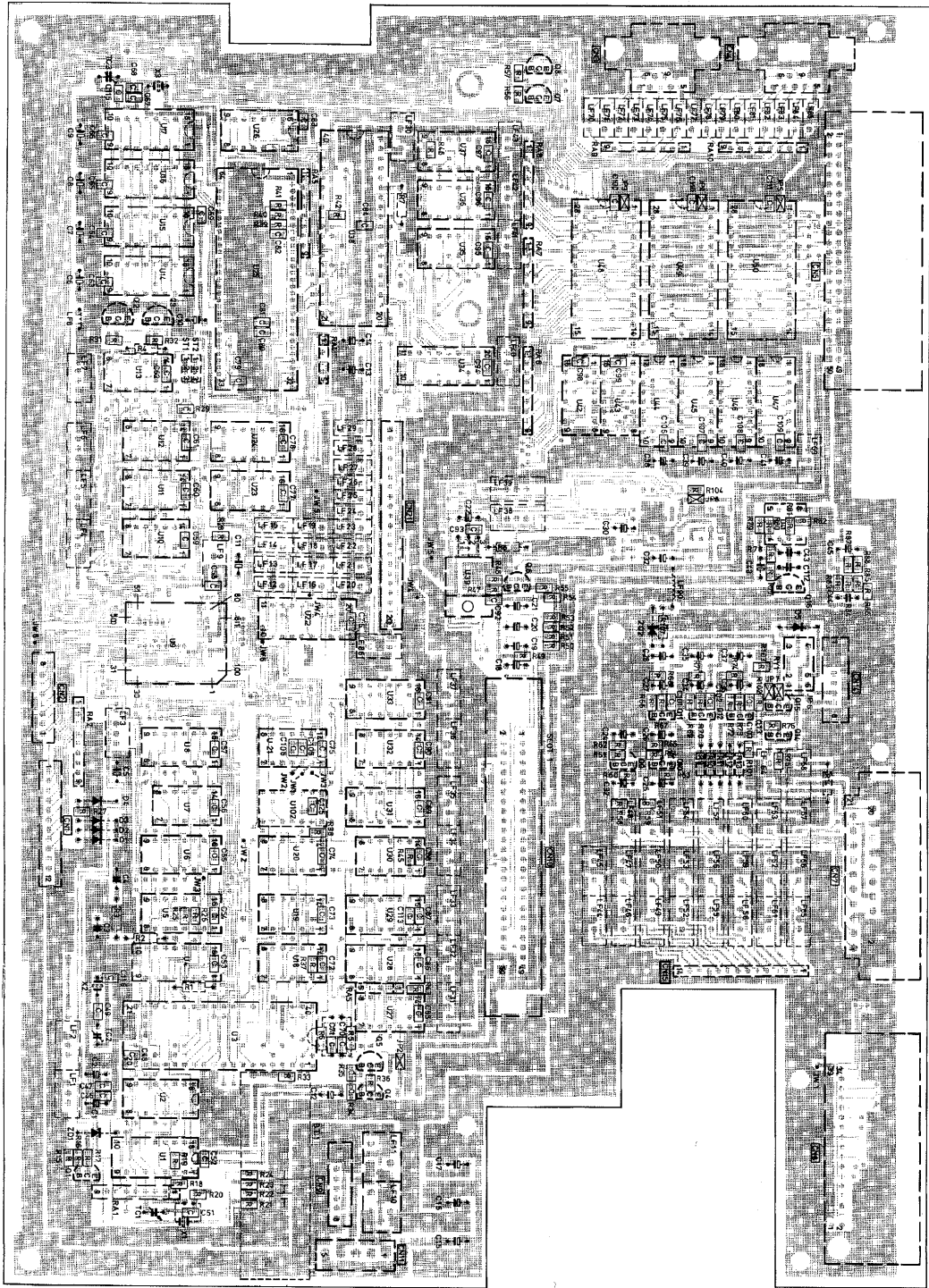


MAIN PRINTED BOARD FOR: VGB235 /00 from serial no. FF028 1101 0001 onwards
/02 from serial no. FF016 1201 0001 onwards
/19 from serial no. FF016 1201 0001 onwards

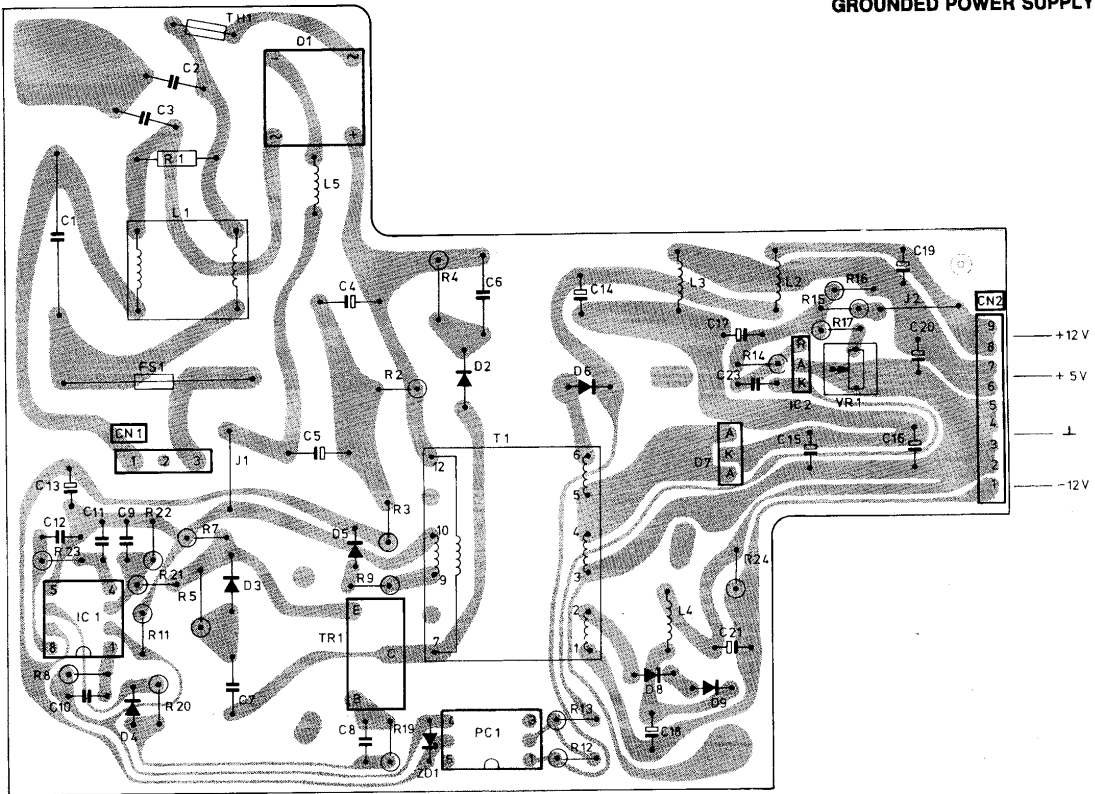
FL. OF 2

SCALE

EX. DRAW

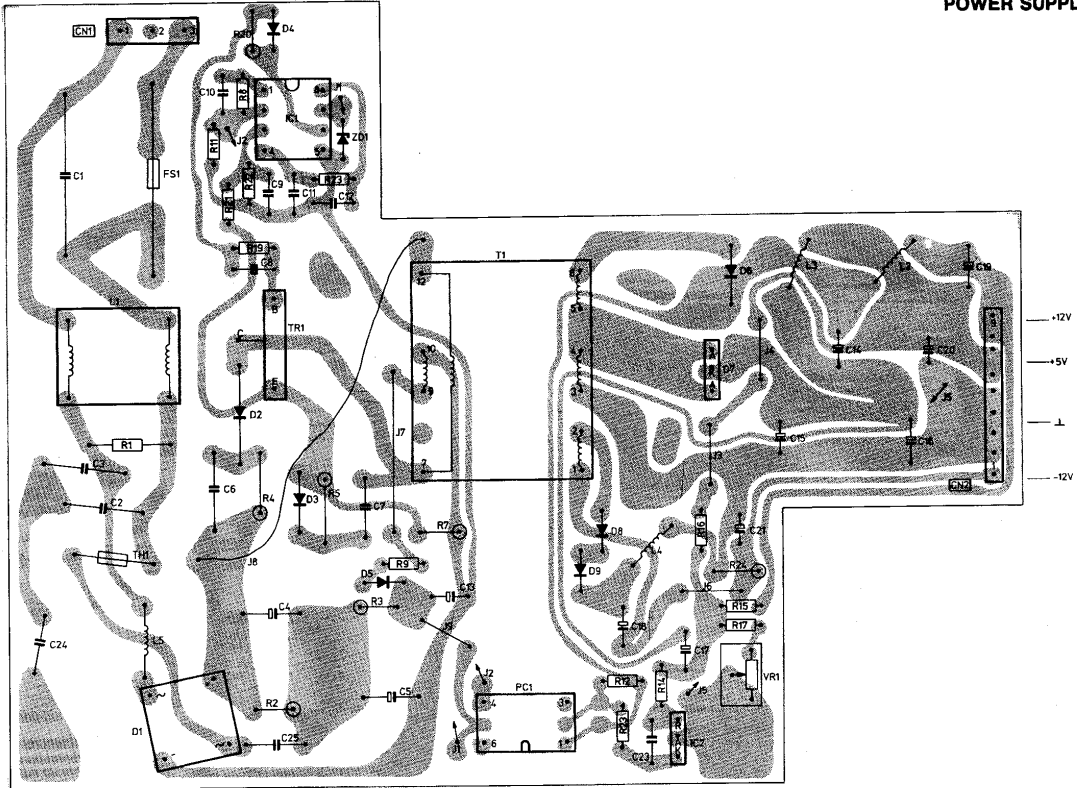


GROUNDING POWER SUPPLY



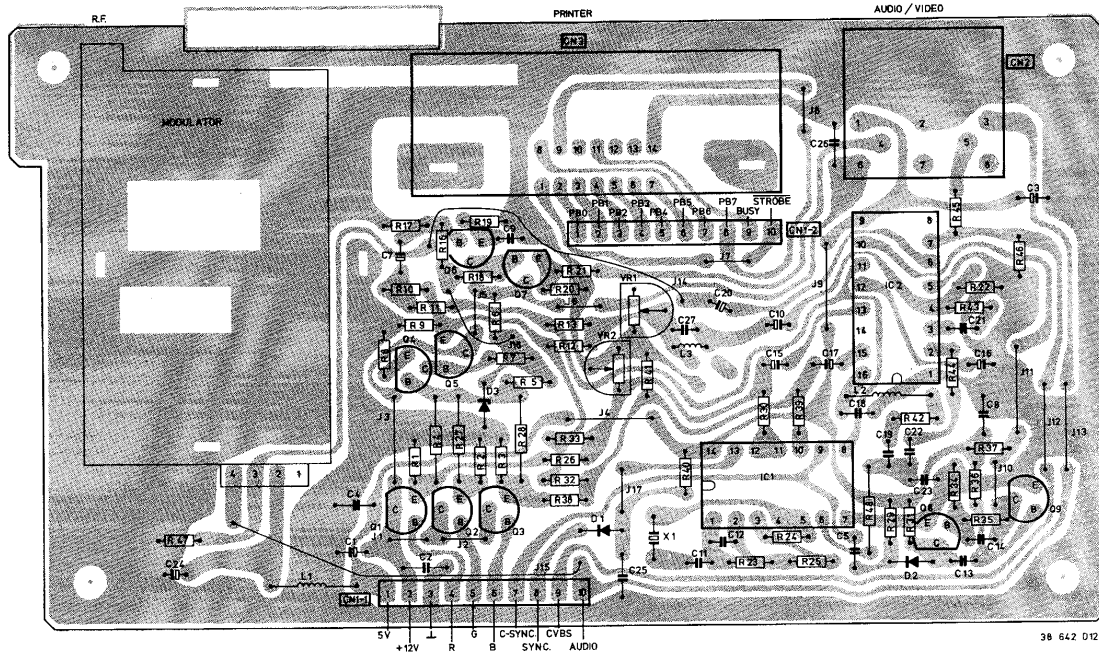
38 640 C 12

POWER SUPPLY

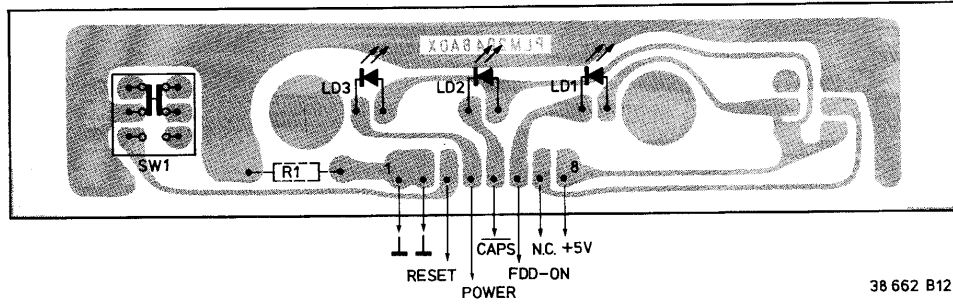


39 303 D 13



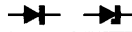





ENCODER UNIT



LED PANEL



MAIN PRINTED BOARD

					
U100	Main printed board /00	4822 212 22515	Q11-Q13,	2SC1685	4822 130 42568
U100	Main printed board /00 (from no. FF026 1101 0001)	4822 212 22545	Q15		
U100	Main printed board /02	4822 212 22516	Q16	2SA720A	4822 209 11045
U100	Main printed board /02 (from no. FF016 1201 0001)	4822 212 22546			
U100	Main printed board /19	4822 212 22517	D1-D5	1S2076	4822 130 31304
U100	Main printed board /19 (from no. FF016 1201 0001)	4822 212 22547	ZD1	HZ3CLL	4822 130 33009
			ZD2	HZ11A2	4822 130 33683
					
U1	RP5C01	4822 209 83431	C4	Mylar 100 nF 50 V	4822 121 90044
U2	74LS175	5322 209 84999	C6,C7,	Tantal 22 µF 16 V	4822 124 10527
U3	1793-02P	4822 209 11193	C12,C13,		
U4	SED9421COB	4822 209 83441	C38-C41		
U5	74LS368	5322 209 81433	C33	Tantal 10 µF 16 V	4822 124 10523
U6	74LS138	5322 209 81629	C43, C44	Mylar 22 nF 50 V	4822 121 42417
U7	74LS20	5322 209 85569	C46,	Cer. chip C 10 nF 50 V	4822 122 90029
U8	74LS139	5322 209 81631	C52-C62,		
U9	S-3527	4822 209 11097	C72-C78,		
U10	74LS32	5322 209 81634	C85-C90		
U11	74LS08	5322 209 81626	C92,C94,		
U12	74LS32	5322 209 81634	C98-C103,		
U13	74LS04	5322 209 81625	C110		
U14-U17	81464-12	4822 209 83426	C47,	Cer. chip C 100 nF 25 V	4822 122 90034
U18, U19	7438	5322 209 84285	C63-C66		
U20	74LS74	5322 209 81647	C69,C79,		
U21	74LS125	5322 209 81569	C83,C84,		
U22	74LS244	5322 209 86017	C91,C93,		
U23	74LS670	5322 209 85938	C95-C97,		
U24	74LS157	5322 209 81521	C104-C109,		
U25	V9938	4822 209 83425	C125	Cer. chip C 1 nF 50 V	4822 122 90028
U26	74LS367	5322 209 85558	C48,C82,		
U27	74LS14	5322 209 83427	C112,C113	Cer. chip C 10 pF 50 V	4822 116 90228
U28	74145	5322 209 80236	C49		
U29	74LS175	5322 209 84999	C51	Cer. chip C 30 nF 50 V	4822 122 90032
U30	74LS00	5322 209 81623	C67,C68	Cer. chip C 12 pF 50 V	4822 122 90031
U31	74LS133	4822 209 83929	C70,C71	Cer. chip C 560 pF 50 V	4822 122 90033
U32	74LS30	4822 209 83428	C80,C81	Cer. chip C 100 pF 50 V	4822 122 32852
U33	74LS138	5322 209 81629	C115	Cer. chip C 3 pF 50 V	4822 122 32851
U34	74LS245	5322 209 82215	TC1	Trimmer 30pF	4822 125 50299
U35-U37	74LS367	5322 209 85558	TC2,TC3	Trimmer 20pF	4822 125 50298
U38	Z80A	4822 209 10569			
U39	7805	5322 209 86518	LF1-LF7,	Filter C = 22 nF	4822 157 52666
U41	IR9311	5322 209 85503	LF9,		
U42,U43	74LS157	5322 209 81521	LF30-LF43,	Troidal coil	4822 158 10756
U44-U47	81464-12	4822 209 83426	LF69,LF86		
U48	BASIC ROM /00	4822 209 50646	LF8	Line filter	4822 158 10755
U48	BASIC ROM /02	4822 209 50647	LF10,LF11	Filter C = 270 pF	4822 157 52695
U48	BASIC ROM /19	4822 209 50648	LF12-LF15,		
U49	EXP. ROM /00	4822 209 50649	LF17-LF29,		
U49	EXP. ROM /02	4822 209 50651	LF70-LF76,	Filter C = 100pF	4822 157 52361
U49	EXP. ROM /19	4822 209 50652	LF78-LF84		
U50	FDC ROM	4822 209 50653	LF16,	Filter C = 10nF	4822 157 52694
U102	74LS86	5322 209 81636	LF44-LF68		
			LF77, LF85	RF coil	4822 157 52702
RA1	100k × 8	4822 111 90936	VARIOUS		
RA2	4k7 × 8	4822 116 90191	RY1	Relay	4822 280 20166
RA3	330Ω × 4	4822 116 90234	X1	32.768 KHz	4822 242 71347
RA4	1k × 4	4822 111 90934	X2	16 MHz	4822 242 71346
RA5	10k × 8	4822 116 90189	X3	21.32812 MHz	4822 242 71345
RA6-RA8	4k7 × 8	4822 116 90191	BT1	NI-CD accumulator	4822 138 10172
RA9-RA10	22k × 8	4822 111 90935	ST1,ST2	Service jumper	4822 276 11572
					
Q1, Q4	2SA733	4822 130 42758			
Q2, Q3	2SA1115	4822 130 42759			
Q5	2SC945A	4822 130 42761			
Q6-Q10,	2SC2603	4822 130 42545			
Q14					

POWER SUPPLY

U101	Grounded power supply	4822 212 22406
U101	Power supply	4822 212 22533
IC1	UC3842	4822 209 83909
IC2	TLP431CLP-B	4822 209 83911
PC1	TLP 732	4822 209 70246
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 (grounded p/s)	4822 130 33261
ZD1	HSZ18E 0.4 W zener	4822 130 33682
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	18 mH 0.8 A	4822 157 52703
L1	10 mH 1 A (grounded p/s)	4822 157 52467
L2	47 mH 2.2 A	4822 157 52468
L3	8 mH 5 A (grounded p/s)	4822 157 52469
L3	15 mH 4.5 A	4822 157 52704
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

ENCODER UNIT

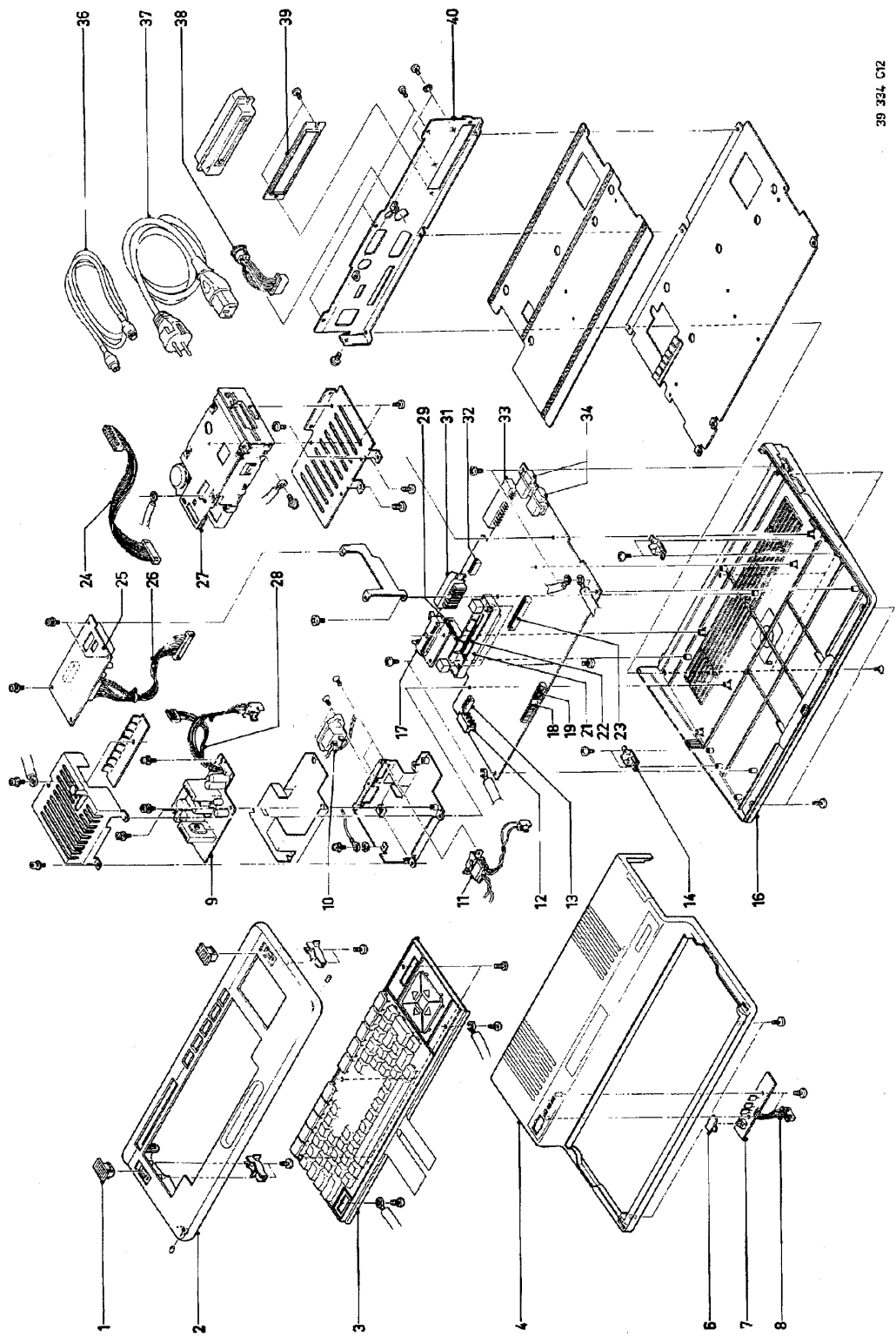
U102	Encoder unit	4822 212 22536
IC1	74LS04	5322 209 81625
IC2	LVA510	4822 209 83582
Q1-Q3	2SC1684	4822 130 42814
Q4-Q6	2SC458	4822 130 42815
Q7	2SC1684	4822 130 42814
Q8,Q9	2SC458	4822 130 42815
D1,D2	1SS119	4822 130 33038
D3	MA4100	4822 130 33039
VR1	Variable 2k	4822 116 21084
VR2	Variable 10k	4822 116 21085
VARIOUS		
L1,L2	22 μH coil	4822 157 52419
L3	33 μH coil	4822 157 52421
X1	4.433619 MHz Modulator	4822 242 71393 4822 218 20547

LED PANEL

U103	LED panel	4822 212 22535
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

FLOPPY DISK DRIVE

U104	Floppy disk drive	4822 693 90446



39 324 C12

GB

The memory mapper of the VG8235/00/02/19 may give problems (second memory bank is not accessible).

Solution: Mount a capacitor of 1nF between pin 7-U23 and 8-U23 (GND).