

C64GS TECH DATA

NOVEMBER, 1990

PN-400401-01

SPECIFICATIONS

FEATURES

<i>MICROPROCESSOR:</i>	6510A, 1MHz clock — Compatible with 6502
<i>MEMORY:</i>	64K
<i>ROM:</i>	20K ROM standard includes operating system
<i>DISPLAY:</i>	40 columns x 25 lines of text
<i>COLOURS:</i>	16 background, border and characters
<i>DISPLAY MODE:</i>	Text characters — High resolution graphics
<i>RESOLUTION:</i>	320 x 200 pixels
<i>SPRITES:</i>	8 independent sprites, each consists of 24 x 21 pixels and up to 4 colours, each independently expandable horizontally and vertically
<i>SOUND:</i>	6581 Sound Interface Device includes 3 independent tone generators
<i>PORTS:</i>	ROM cartridge port, 2 joystick ports

SYSTEM INTERFACES

SIDE PANEL CONNECTIONS

<i>POWER CONNECTOR:</i>	Uses standard C64 power supply
<i>POWER SWITCH:</i>	Supplies power to the system
<i>JOYSTICK PORTS:</i>	Two standard DB9 connectors

TOP CONNECTIONS

<i>CARTRIDGE SLOT:</i>	The rectangular slot accepts program or game cartridges
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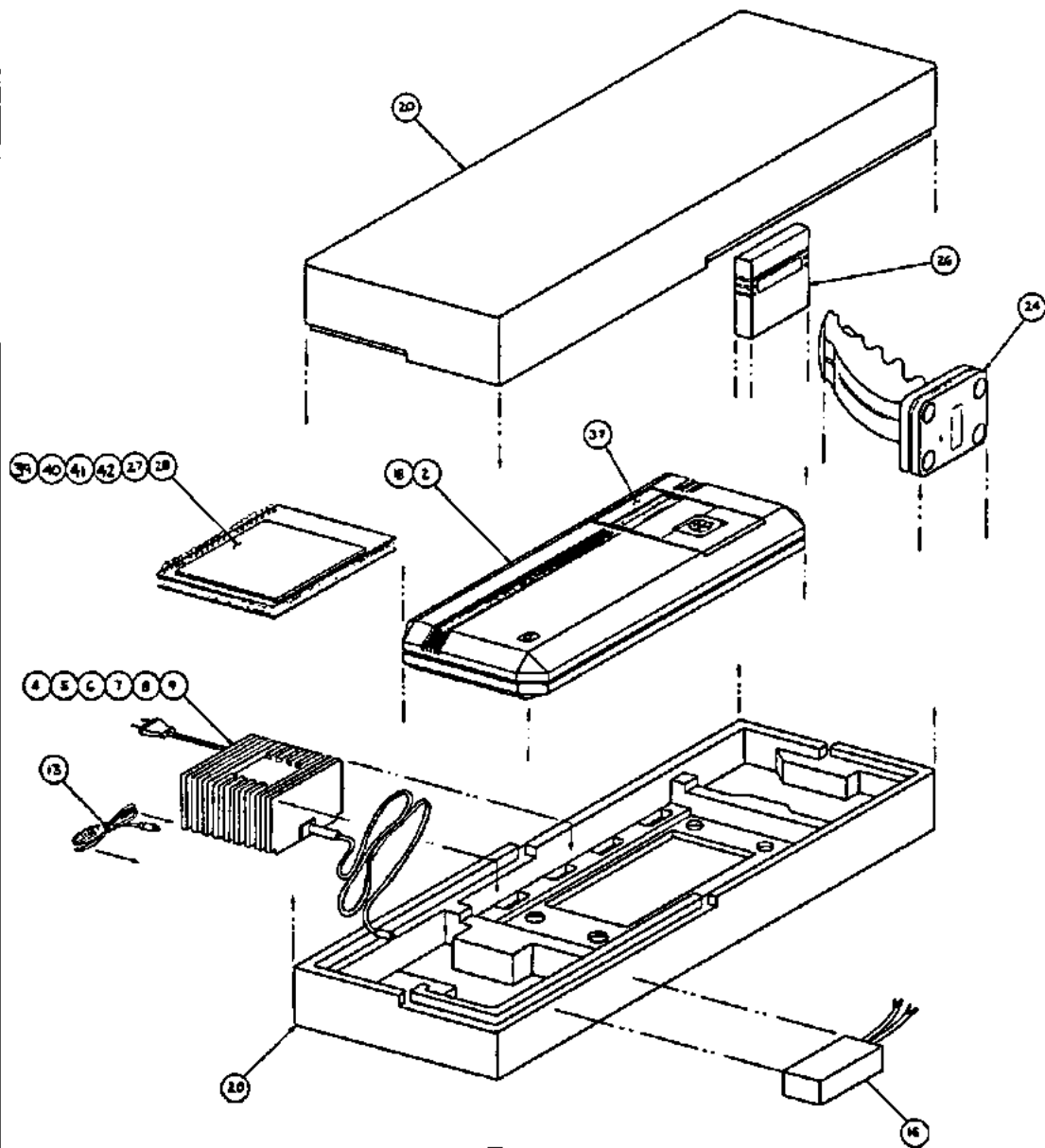
REAR CONNECTIONS

<i>MODULATOR SWITCH:</i>	A switch is provided on the modulator to change the audio carrier between 6MHz (UK) and 5.5MHz (continental Europe).
<i>RF OUTPUT:</i>	Supplies both the picture and sound to a PAL television set.
<i>AUDIO/VIDEO OUTPUT:</i>	This is a C64 style 8 pin DIN connector for Luma Chroma Audio connections to a PAL monitor

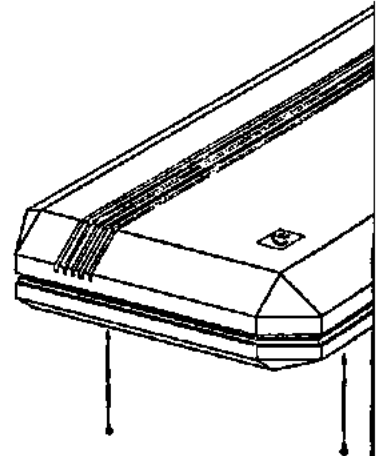
POWER REQUIREMENTS

240V, 50Hz

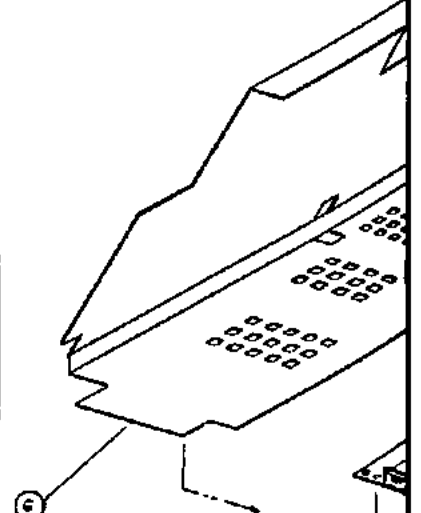
SHIPPING ASSEMBLY



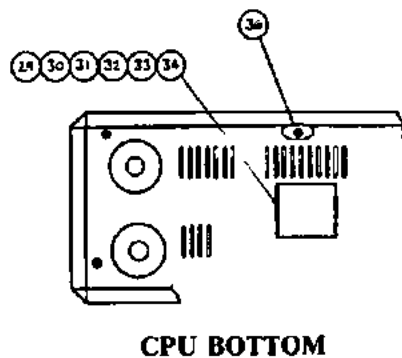
MAIN ASSEMBLY

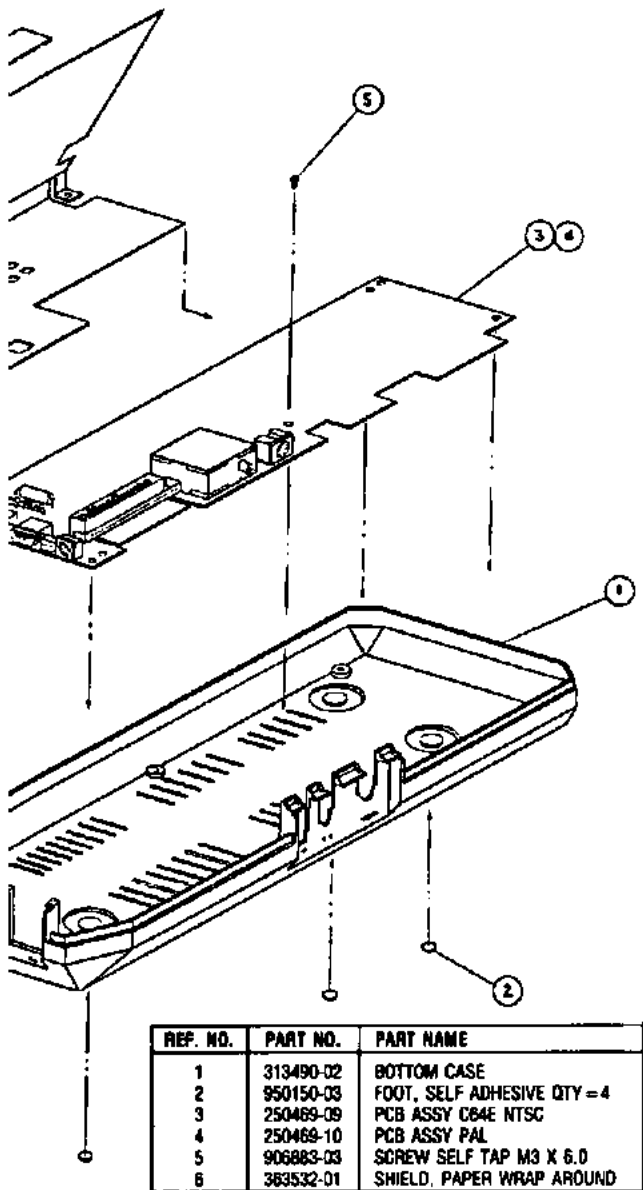
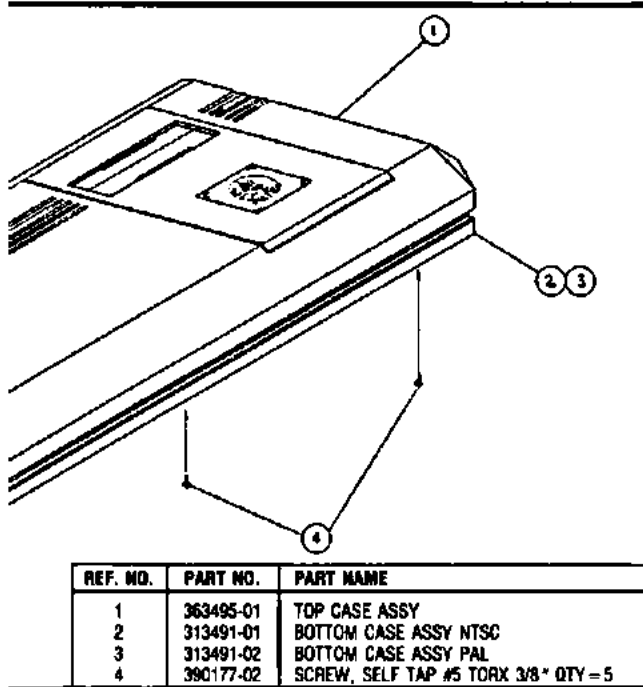


BOTTOM CASE ASSEMBLY

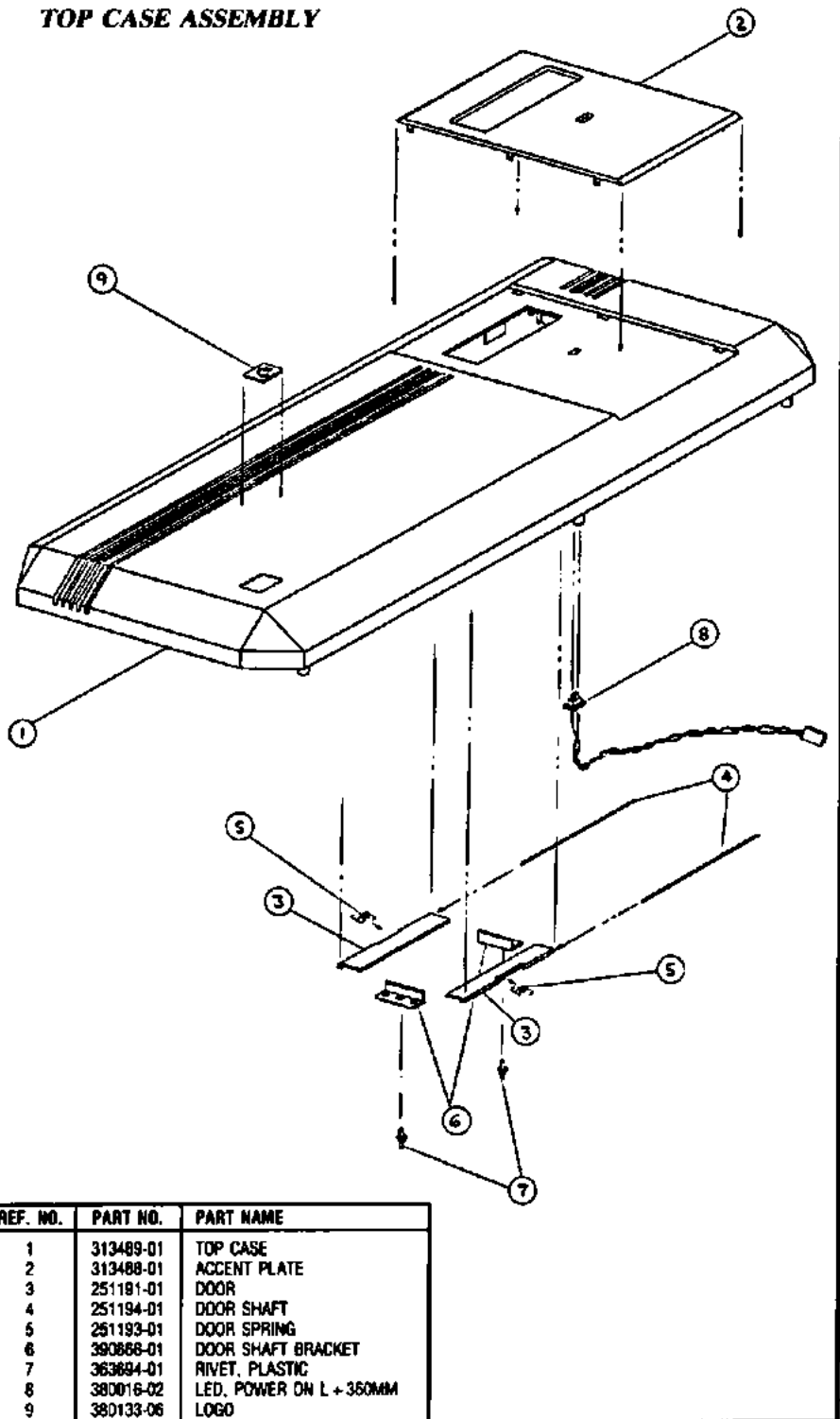


REF. NO.	PART NO.	PART NAME
1	363484-01	MAIN ASSY (NTSC)
2	363484-02	MAIN ASSY (PAL)
4	251053-07	POWER SUPPLY SEV
5	251053-09	POWER SUPPLY UL
6	251053-11	POWER SUPPLY VDE
7	251053-12	POWER SUPPLY BSI
8	251053-10	POWER SUPPLY UL/CSA
9	251053-13	POWER SUPPLY SEV SUB
	251053-15	POWER SUPPLY SAA
13	251846-01	CABLE, RF - PAL
16	325228-01	SWITCH, RF - SWEDEN
18	1540025-01	BAG, PLASTIC
19	324257-01	BAG, DRYING AGENT
20	363528-01	END CAP, FOAM
21	383529-01	SLEEVE, C64 CONSOLE
23	363530-01	BOX, MASTER SHIPPING (1/4)
24	363531-01	JOYSTICK
26	363535-01	CARTRIDGE
27	363536-01	MANUAL, C84GS SYSTEM GUIDE
28	363537-01	MANUAL, C84GS GAME GUIDE
29	366386-01	LABEL, RATING (W. GERMAN PROD)
30	366386-02	LABEL, RATING (W. GERMAN PROD)
31	366386-03	LABEL, RATING (HK PROD)
32	366386-04	LABEL, RATING (HK PROD)
33	366386-05	LABEL, RATING (CHINA PROD)
34	366386-06	LABEL, RATING (CHINA PROD)
36	325090-02	STICKER, SEAL
37	366427-01	LABEL, STATIC CLING





TOP CASE ASSEMBLY



**C64 GAME SYSTEM
ASSEMBLY DIAGRAMS**

CASSETTE
SERIAL SW
(6 PIN MALE EDGE)
CN 3

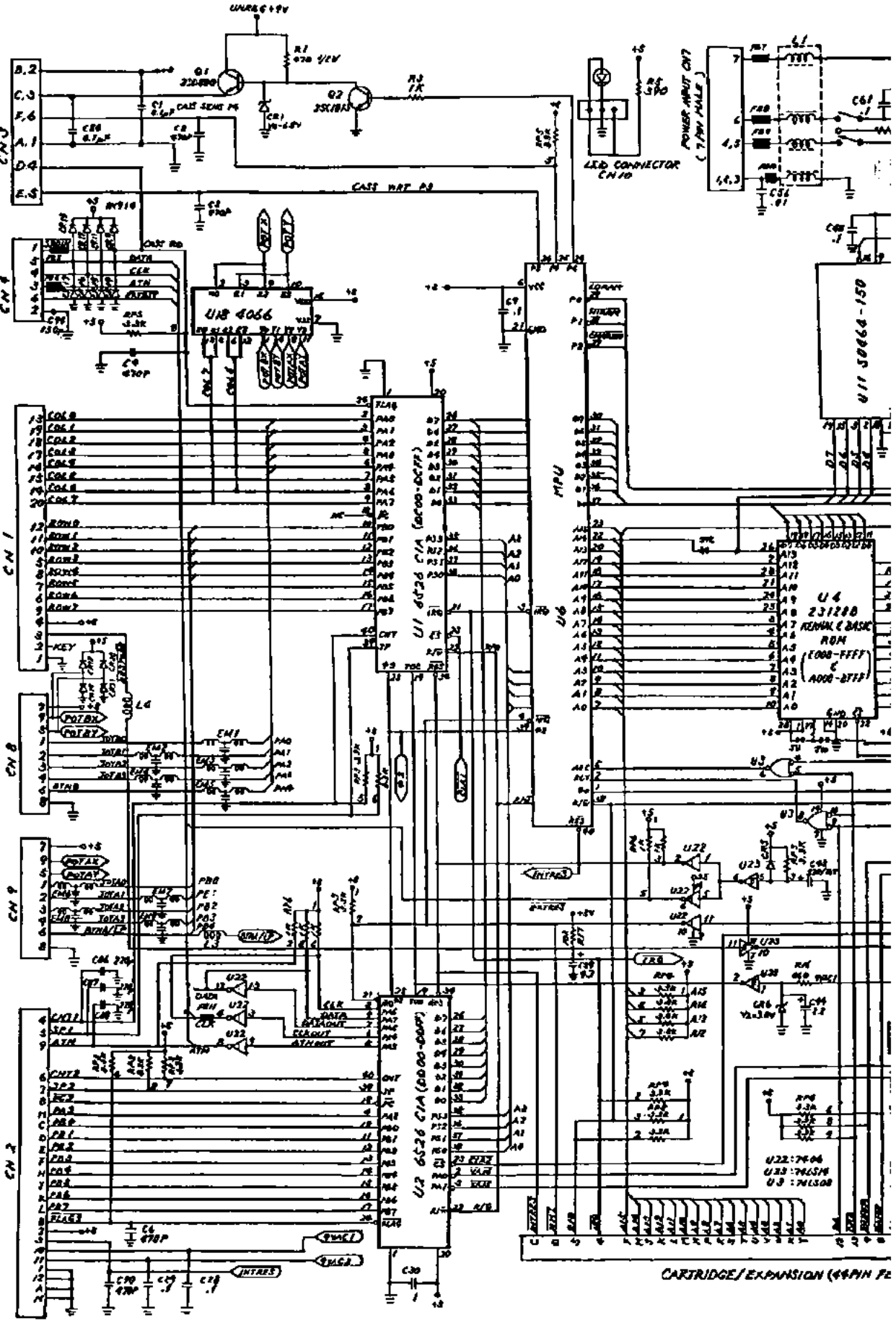
SERIAL SW
(6 PIN MALE DIN)
CN 4

KEY BOARD
(30 PIN MALE)
CN 1

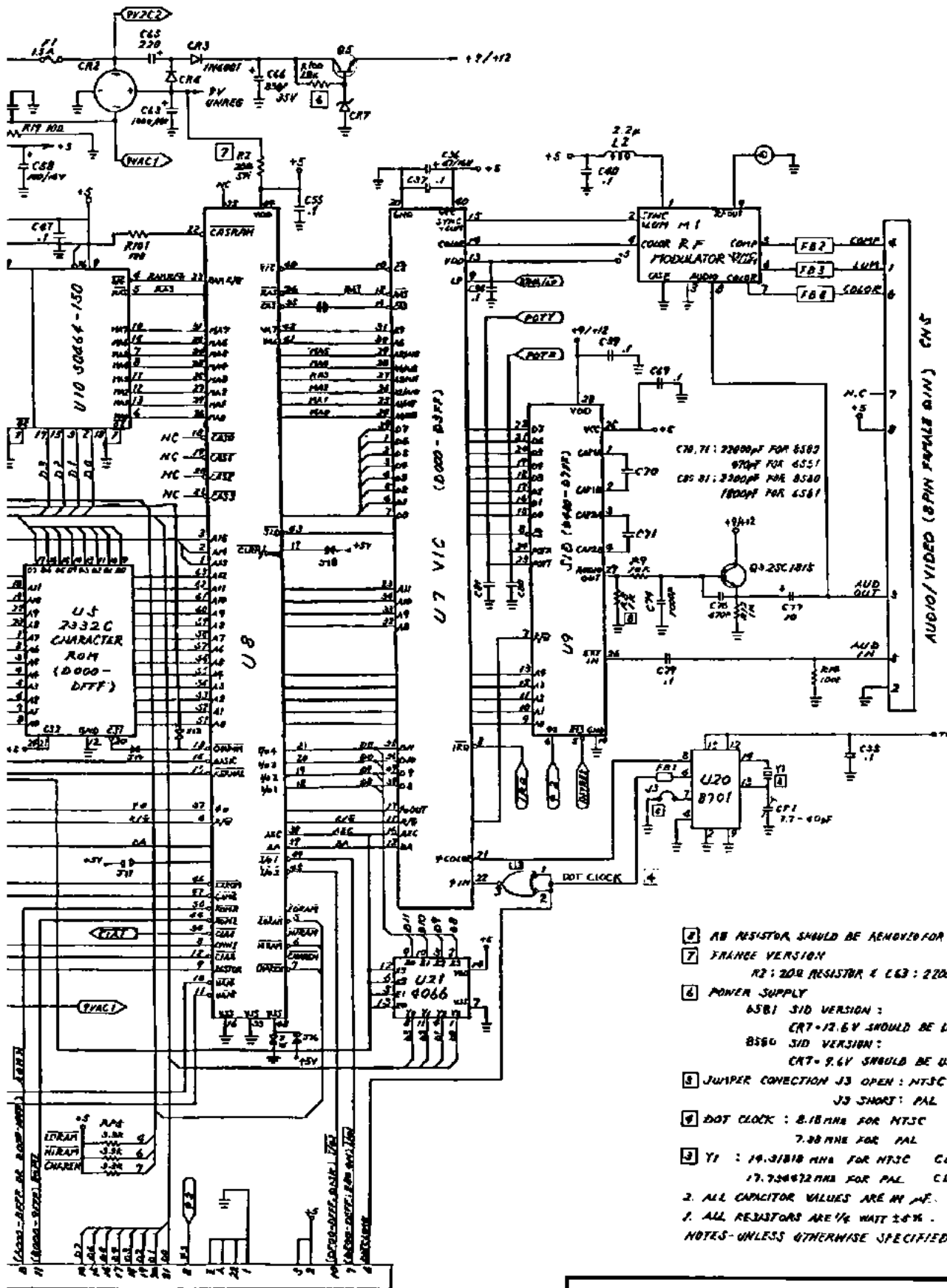
CONTROL PORT 2
(MALE DPT)
CN 8

CONTROL PORT 1
(MALE DPT)
CN 9

USER PORT
(24 PIN MALE EDGE)
CN 2



CARTRIDGE/EXPANSION (46 PIN FE)



- 1. ALL RESISTORS SHOULD BE 1/4 WATT 5%.
 - 2. FRANCE VERSION
R3: 200 RESISTOR & C63: 2200µF CAPACITOR REQUIRED
 - 3. POWER SUPPLY
6581 SID VERSION:
CRT-12.6V SHOULD BE USED
8580 SID VERSION:
CRT-9.6V SHOULD BE USED
 - 4. JUMPER CONNECTION J3 OPEN: NTSC
J3 SHORT: PAL
 - 5. DOT CLOCK: 8.18 MHz FOR NTSC
7.38 MHz FOR PAL
 - 6. Y1: 19.31818 MHz FOR NTSC CL-18P
17.73472 MHz FOR PAL CL-18P
2. ALL CAPACITOR VALUES ARE IN µF.
 1. ALL RESISTORS ARE 1/4 WATT 5%.
 NOTES-UNLESS OTHERWISE SPECIFIED:

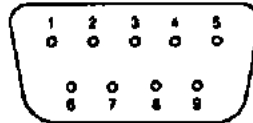
Schematic #252312, Rev. B
 Sheet 1 of 1

CARTRIDGE EXPANSION SLOT CN6



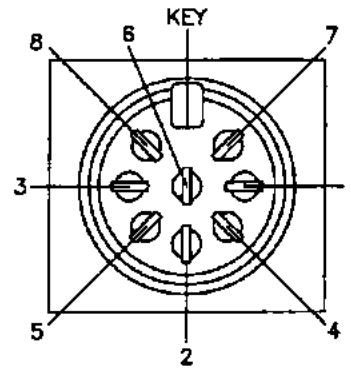
PIN	TYPE	PIN	TYPE
1	GND	A	GND
2	+5V	B	ROMH
3	+5V	C	RESET
4	IRQ	D	NMI
5	R/W	E	S 02
6	Dot Clock	F	A15
7	I/O 1	H	A14
8	GAME	J	A13
9	EXROM	K	A12
10	I/O 2	L	A11
11	ROML	M	A10
12	BA	N	A9
13	DMA	P	A8
14	D7	R	A7
15	D6	S	A6
16	D5	T	A5
17	D4	U	A4
18	D3	V	A3
19	D2	W	A2
20	D1	X	A1
21	D0	Y	A0
22	GND	Z	GND

JOYSTICK CN8, CN9



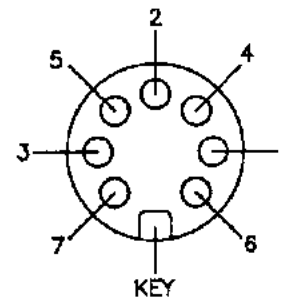
PIN	PORT 1 TYPE	PORT 2 TYPE
1	JOYA0	JOYB0
2	JOYA1	JOYB1
3	JOYA2	JOYB2
4	JOYA3	JOYB3
5	POT AY	POT BY
6	BUTTON A/LP	BUTTON B
7	+5V (Max 50MA)	+5V
8	GND	GND
9	POT AX	POT BX

AUDIO/VIDEO CN5



PIN	TYPE	PIN	TYPE
1	LUM	5	AUD/IN
2	GND	6	COLOR
3	AUD/OUT	7	NC
4	COMPOSITE	8	+5

POWER CN7



PIN	TYPE	PIN	TYPE
1	NC	5	+5 VDC
2	GND	6	9VAC
3	NC	7	9 VAC
4	NC		

TROUBLESHOOTING GUIDE C64 GAMES SYSTEM (C64 E PCB)

SYMPTOM

- Abnormal colors appear in text
- Wrong characters are displayed
- System does not reset
- White band scrolls down the screen (60/50 Hz Hum)
- Wavy screen after system warms up
- Black band scrolls through screen when system warms up
- Blank screen on power up
- System powers up with all characters displayed as blocks
- Intermittent display
- Joystick does not operate correctly
- Wrong frequency
- No text is displayed
- Graphic characters displayed instead of text displayed
- No Sound

POSSIBLE SOLUTION

- Check U19 (2114 RAM); U21 (4066); U7 (VIC)
- Check RAM (U10,U11)
- Check U20 (556 IC)
- Check External Power Supply; VR2 (5V regulator)
- Check External Power Supply — U20, U7
- Check External Power Supply; CR2, C65, C66
- Check External Power Supply; U4 (Kernal/Basic ROM); U8 (MMU); U6 (MPU); U7 (VIC); U22, U23; U10, U11 (RAM); C22
- Check U8 (MMU); U7 (VIC)
- Check Connectors — C63, C66
- Check U1 (CIA); U18 (4066); EMI 1-9
- Check C70, C41
- Check U4, U5 (ROMS); U2 (CIA); U7 (VIC)
- Check U7 (VIC); U2 (CIA); U8 (MMU)
- Check U19 (SID); F1 (Blown fuse)