SHOP MANUAL 1USS
DATA EAST USA, INC.



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INSTALLATION

- 1. Position cabinet at desired location.
- 2. Adjust leg levelers so cabinet is balanced correctly.
- 3. Plug the machine into a 120 volt outlet.
- 4. Open the front service door.
 - a. If the game was pre-installed at the factory, proceed to line 9.
- 5. Place cassette tape in the cassette deck. See Figure 1, game package installation.
- 6. Install key module. See Figure 2, game package installation.
- 7. Adjust dipswitches to desired settings. See Figure 3, and please refer to the game package dipswitch setting sheet.
- 8. Install game top flashing.
- 9. Turn power switch on, located at the front of the machine.
- 10. Allow 2-3 minutes for the game to load the memory.
- 11. The game is now ready for operation. *
- * If the game has any irregularities, refer to the system trouble shooting guide on the next pages.

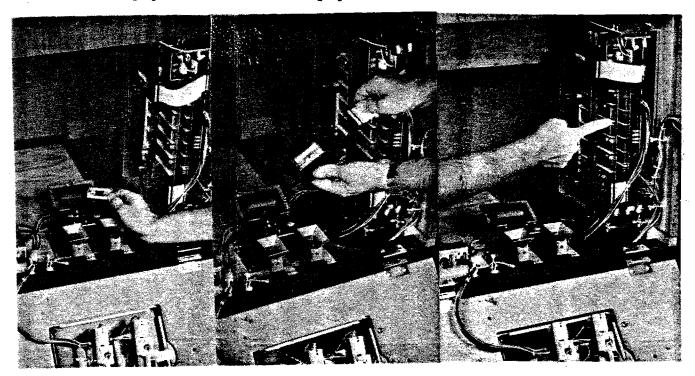
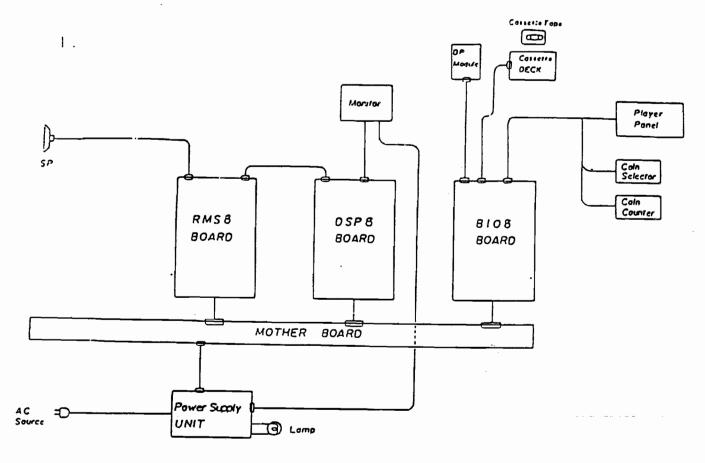


Figure 1

Figure 2

1. FUNCTIONS

THE THREE PCB'S DO NOT FUNCTION AS A GAME UNLESS TAPE PROGRAM IS LOADED TO THE PCB'S.



STRUCTURE Fig. 1

INDIVIDUAL FUNCTION OF EACH BLOCK

DSP 8

- 1) CONTROL CPU AND ITS RELATED CIRCUIT
- 2) COLOR SIGNAL GENERATOR AND CONTROL
- 3) STANDARD PATTERN GENERATOR AND TIMING SIGNAL GENERATOR
 - * CPU CLOCK
 - * STROBE SIGNAL
 - * DYNAMIC RAM TIMING SIGNAL
- 4) CRT TIMING SIGNAL GENERATOR
 - * HORIZONTAL
 - * VERTICAL
 - * SYNCHRONIZE
- 5) DISPLAY CONTROL
 - * MISSILE GENERATOR AND CONTROL
 - * MIXMODE GENERATOR AND CONTROL
 - * MAIN GRAPHIC GENERATOR AND CONTROL

RMS 8

- 1) DYNAMIC MEMORY (48 K BYTE)
 - * PROGRAM
 - * DISPLAY
- 2) SOUND
 - * CPU
 - * ROM/RAM
 - * SOUND CHIP
 - * MIXING
 - * COMMUNICATION WITH MAIN CPU

- 3) RESET SIGNAL GENERATOR
- 4) DIP SWITCH READING
- 5) BOOTSTRAP ROM

BIO 8

- 1) CONTROL PANEL SWITCH INPUT READING
- 2) COIN SWITCH ACTIVATION READING AND COIN COUNTER DRIVE
- 3) NMI GENERATION FROM SERVICE/COIN SWITCH ACTIVATION
- 4) VOLUME INPUT AD CONVERSION
- 5) BACK DISPLAY CONTROL
 - * READING/WRITING PUNCTION FROM CPU TO MEMORY
 - * HEAD LIGHT MODE
 - * DISPLAY HORIZONTAL/VERTICAL SHIFT
- 6) CASSETTE DECK INTERFACE

CASSETTE DECK

1) GAME PROGRAM LOADING

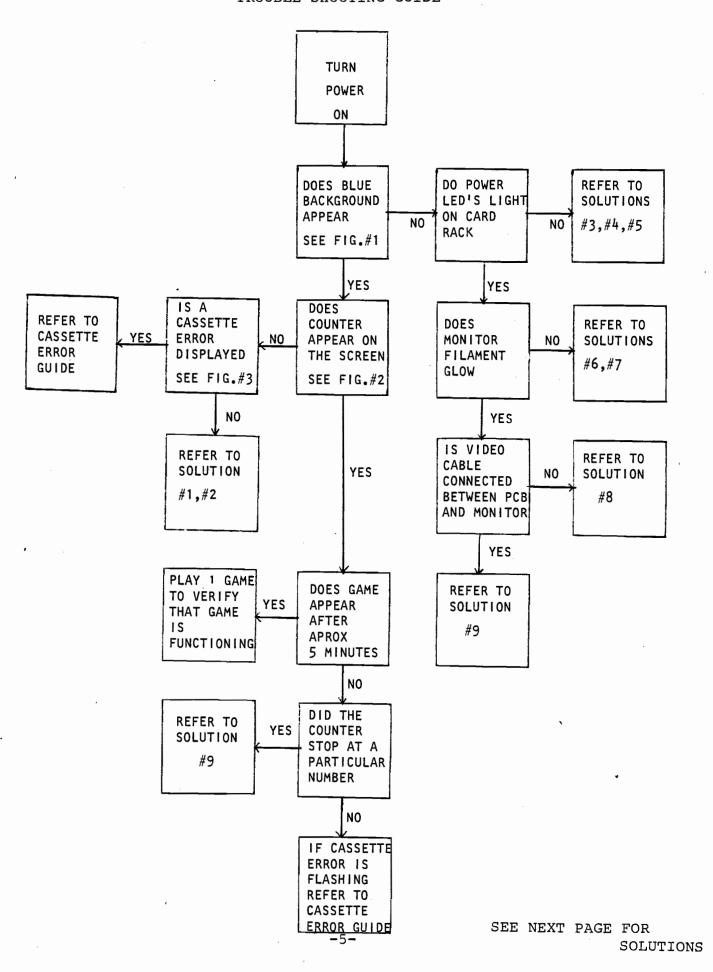
DC POWER SOURCE

1) SWITCHING REGULATOR

+5V (REGULATED)	6A
+12V (")	1A
+13V (UNREGULATED)	2A
-5V (REGULATED)	0.1A

IF REGULATED +12V, 3A COMBINATION IS USED IT ALLOWS +13V UNREGULATED POWER USE.

DECO CASSETTE SYSTEM TROUBLE SHOOTING GUIDE



OPERATING PROCEDURES, SOLUTION GUIDE

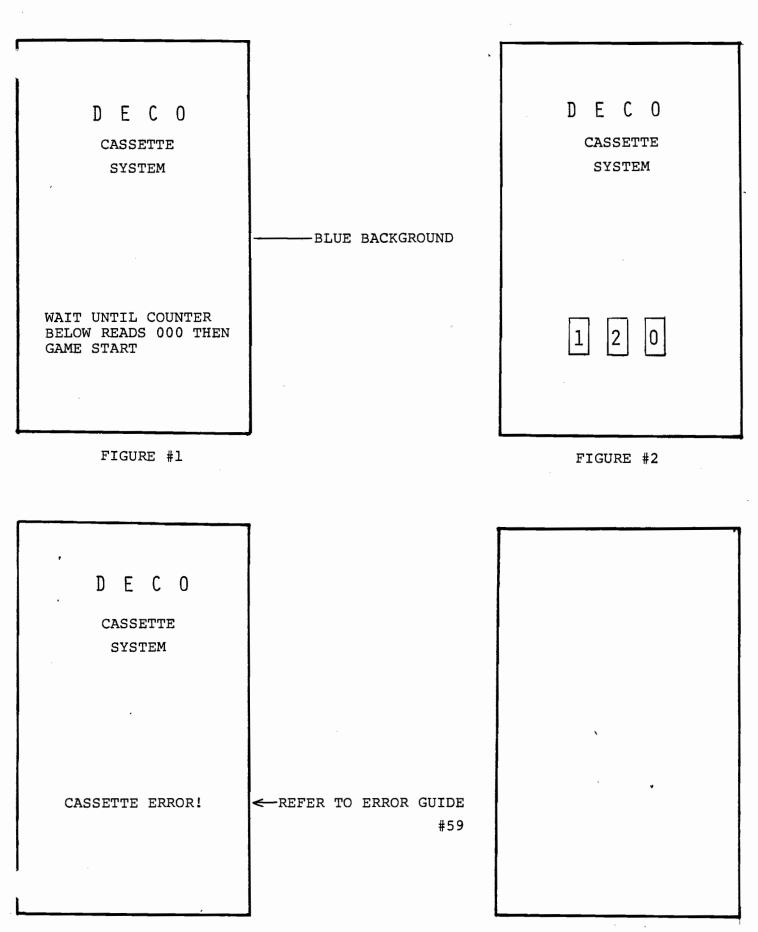
SOLUTIONS

#1 CHECK DIP SWITCH SETTINGS

SETTINGS MUST ALWAYS BE

DIP	SW	I	5.OFF	6.OFF	
DIP	SW	II	6.ON	7.OFF	8.OFF

- #2 CHECK KEY MODULE CONNECTION
- #3 CHECK FUSES
- #4 CHECK AC INPUT TO SWITCHING REGULATOR 100V.AC AND DC OUTPUT +5, -5, +12
- #5 ASSURE POWER IS CONNECTED TO CARD RACK
- #6 CHECK MONITOR POWER CONNECTOR FOR 100V.AC
- #7 CHECK MONITOR FUSES
- #8 CHECK VIDEO CONNECTOR
- #9 EXCHANGE PCB'S

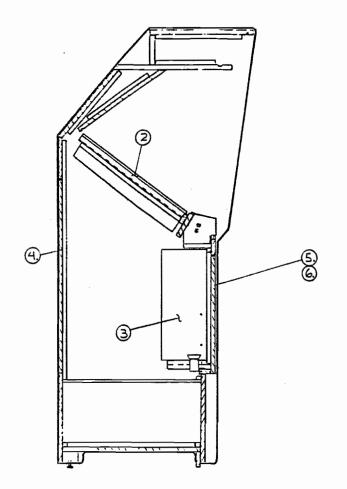


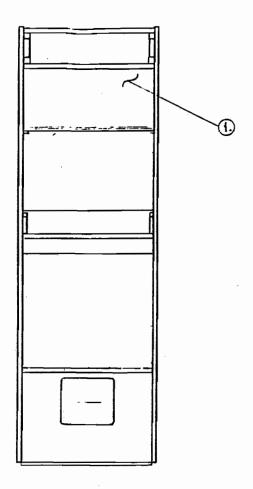
CASSETTE ERROR GUIDE

ERROR CODE	SOLUTIONS
01	1,8,9,3
02	3,4,5
03	3,4,5
04	3,4,5
32	2,3
33	5
52	8,9,4
58	3,4,5
59	6,7,8

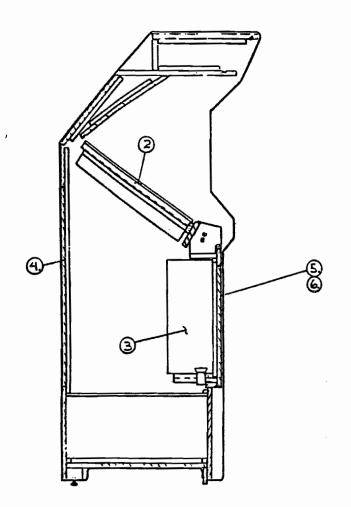
CASSETTE ERROR SOLUTIONS

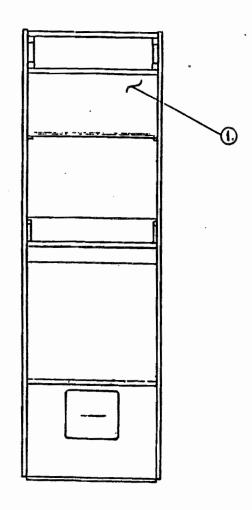
- #1 CHECK THE TAPE AND MODULE GAME NAME TO INSURE THEY ARE PROPERLY MATCHED
- #2 CLEAN THE TAPE DECK HEAD WITH ALCOHOL AND COTTON SWAB
- #3 CHANGE THE CASSETTE TAPE
- #4 CHANGE THE CASSETTE DECK
- #5 IF THE ERROR PERSISTS CHANGE THE BIO-8 BOARD
- #6 CHECK THE TAPE DECK CONNECTOR
- #7 CHECK THE KEY MODULE CONNECTOR
- #8 CHECK THE TAPE TO INSURE SIDE "A" IS FACING UP
- #9 CHECK THE TAPE TO INSURE THAT THE TAPE IS ON THE SPOOL OPPOSITE THE CAPITOL "A", IF NOT ADVANCE THE TAPE TO THE CORRECT SPOOL WITH A SCREWDRIVER



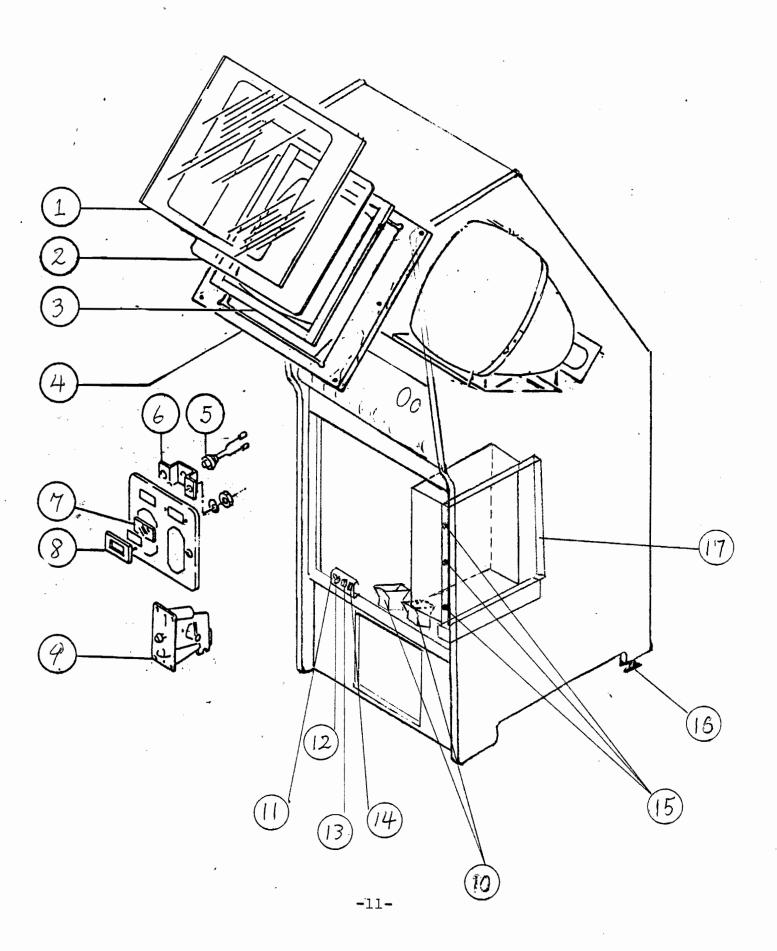


	CABINET 1-US-5-A	Q'TY
1	PRELIM CAB ASSY	1
2	BEZEL HOUSING	1
3	CARD CAGE BOARD	1
4	BACK DOOR ASSY	1
5	FRONT PANEL DOOR ASSY	1
6	#8 x 5/8 PH SMS PHIL	1

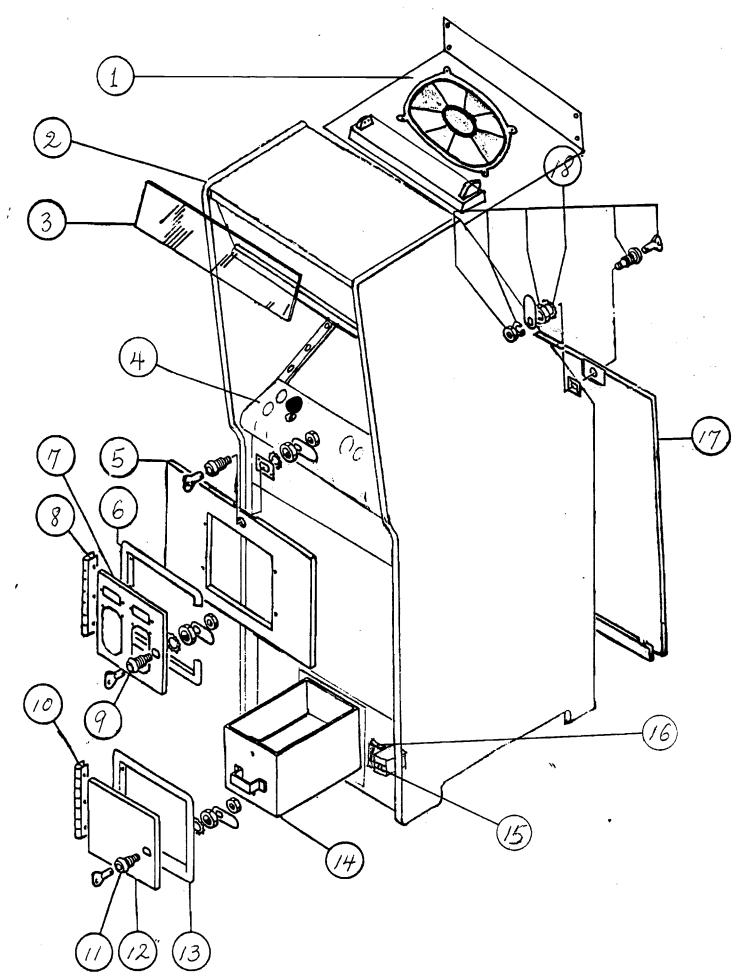




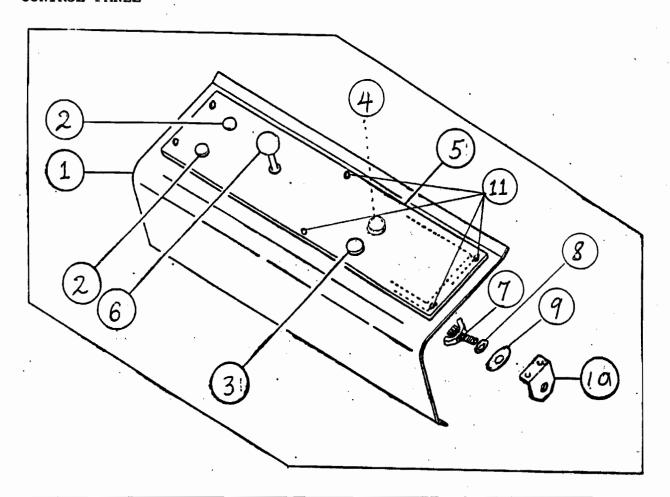
	CABINET 1-US-5-B	Q'TY
1	PRELIM CAB ASSY	1
2	BEZEL HOUSING	1
3	CARD CAGE BOARD	1
4	BACK DOOR ASSY	1
5	FRONT PANEL DOOR ASSY	1
6	#8 x 5/8 PH SMS PHIL	1



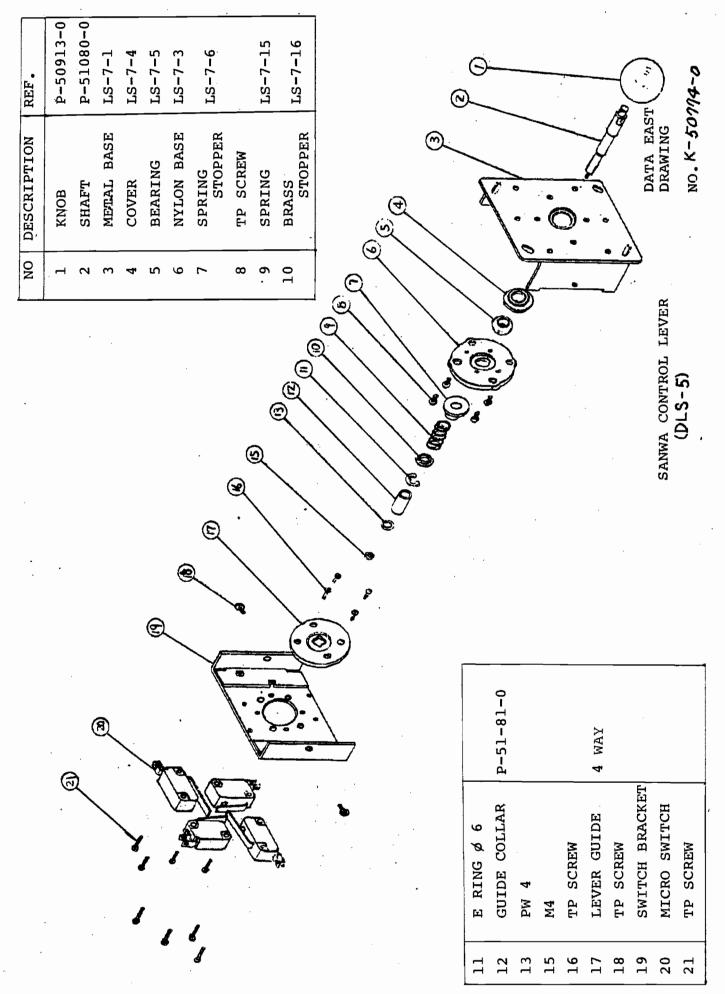
1	FACIAL PANEL	1
2	FILTER	1
3	ESCUTCHEON	1
4	MASKING PANEL	1
5	LIGHT BULB	2
6	LIGHT BRACKET	2
7	25¢ SEAL	2
8	SEAL FRAME	2
9	COIN SELECTOR	2
10	COIN FUNNEL	2
11	SWITCH BRACKET	1
12	POWER SWITCH	1
13	MAIN FUSE	1
14	DEMAGNETIZER SWITCH	1
15	PCB MOUNTING SCREWS	3
16	LEVELER	2
17	PCB MOUNTING BOARD	1

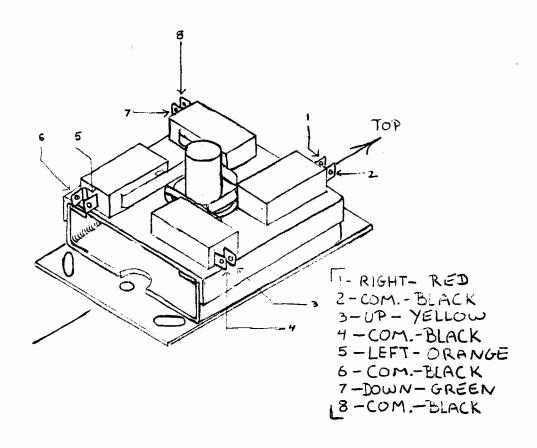


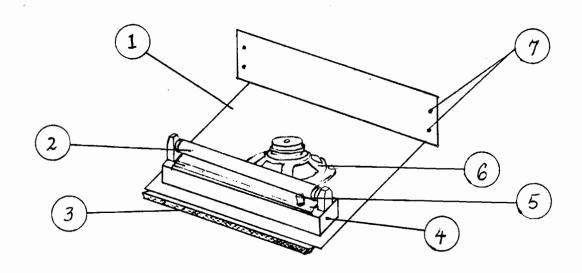
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1	SPEAKER & LIGHT HOUSING ASS'Y	1
2	GOLD T MOLD	2
3	TOP FLASH	1
4	CONTROL PANEL ASS'Y	1
5	FRONT DOOR PANEL	1
6	COIN SELECTOR DOOR FRAME	1
7	SELECTOR DOOR	1
8	SELECTOR DOOR HINGE	1
9	SELECTOR DOOR LOCK	1
10	CASH BOX DOOR HINGE	1
11	CASH BOX LOCK	1
12	CASH BOX DOOR	1
13	CASH BOX DOOR FRAME	1
14	CASH BOX	1
15	COIN COUNTER	1
16	COIN COUNTER CIRCUIT BOARD	1
17	BACK DOOR	1_
18	BACK DOOR LOCK	1



	CONTROL PANEL ASSEMBLY FOR US-5	Q'TY
1	CONTROL PANEL CHASSIS	1
2	PLAYER I & II BUTTONS (YELLOW)	2
3	SHOOT BUTTON-I (RED)	1
4	SHOOT BUTTON-II (BLUE)	1
5	CONTROL PANEL OVERLAY	1
	-A WITH 2 SHOOT BUTTON HOLE	
	-B WITH 1 SHOOT BUTTON HOLE	
6	CONTROL LEVER ASS'Y	1
7	WING NUT	2
8	SPRING WASHER	2
9	LARGE WASHER	2
10	CONTROL PANEL INSTALLATION BRACKET	2
11	OVERLAY PLASTIC FASTNER	6





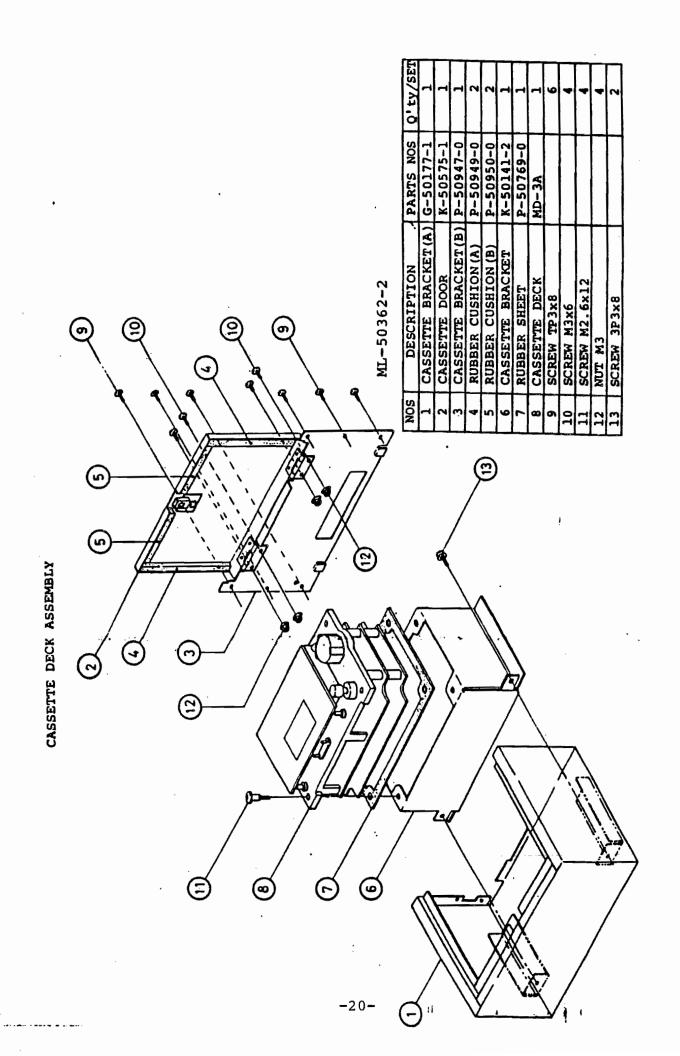


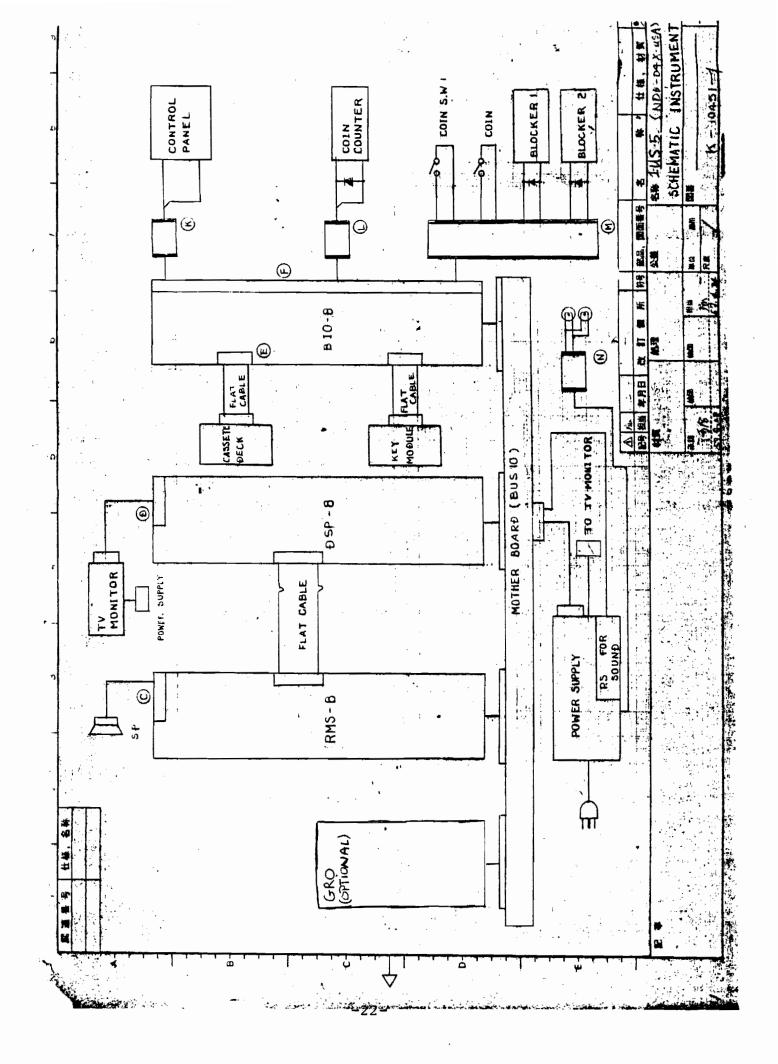
	SPEAKER & LIGHT HOUSING ASSEMBLY	UK-01111
1	SPEAKER & LIGHT HOUSING CHASSIS	1
2	FL BULB	1
3	FOAM CUSHION	1
4	LIGHT FIXTURE	1
5	FL STARTER	1
6	SPEAKER	1
7	SCREWS	4

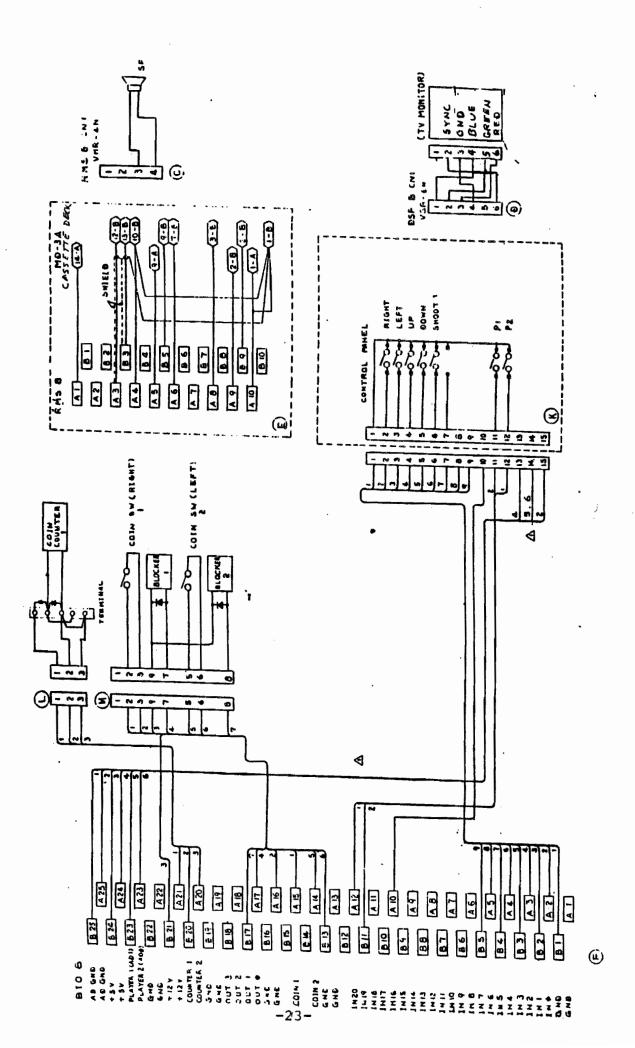
Q'TY/SET 8 ω 14 œ PARTS' NOS. SIDE PLATE(L|k-50604-0 SIDE PLATE (R) k-50603-0 P-59514-0 P-50935-1 k-50216-3 DE-0097 DE-0109 50-1030 DE-0098 DE-0096 K-50598-0 PCB STOPPER NOS DESCRIPTION SIDE PLATE GUIDE RAIL CN SUPPORT WING BOLT SUPPORT TP3×12 TP3x8 TP3x8 BUS10 BIOB DSP8 RMS8 SW4 PW4 2 9 (E) (J)

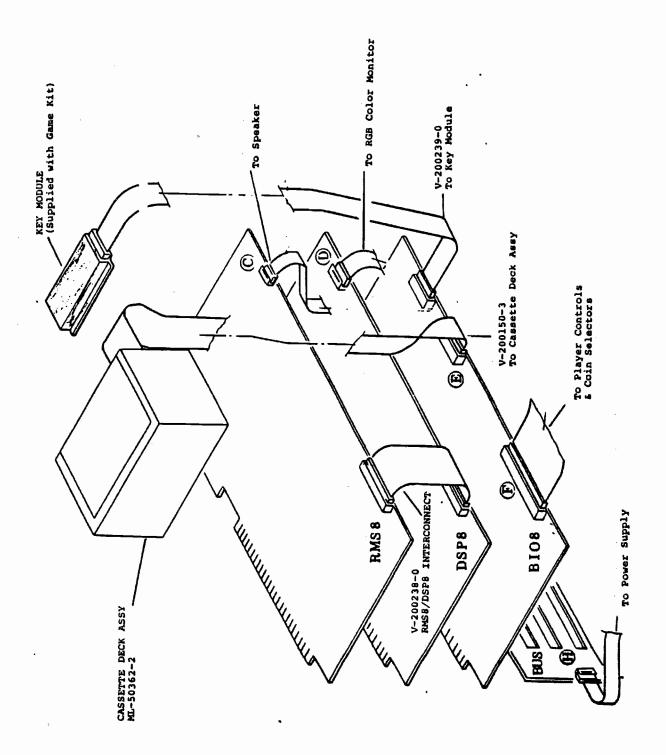
P.C.B. ASSEMBLY

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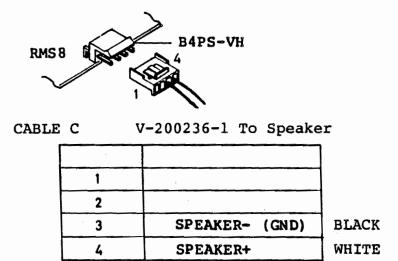




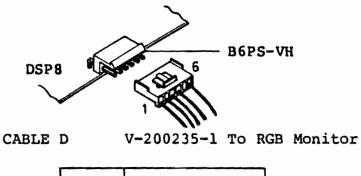




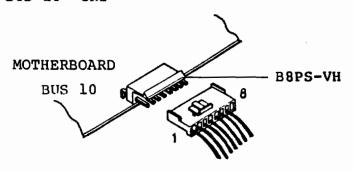
PC1 RMS8 CN1



2. PC2 DSP8 CN1



	· · ·	7
1	TV.B	BLUE
2	TV.G	GREEN
3	TV.R	RED
4	TV. GND	BLACK
5		
6	SYNC	WHITE

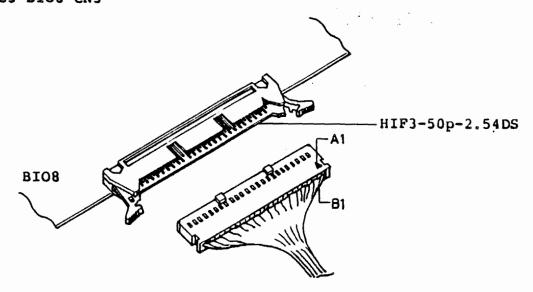


CABLE H V-200240-1 To Power Supply

, 1		\neg
1	+12V	ORANGE
* 2	+5V	RED
3	+13V	PINK
14	GND	BLACK
1 5	GND	BLACK
6	-5V	BLUE
* 7	+5V	RED
8		

^{*2 &}amp; 7 connected internally on BUS 10

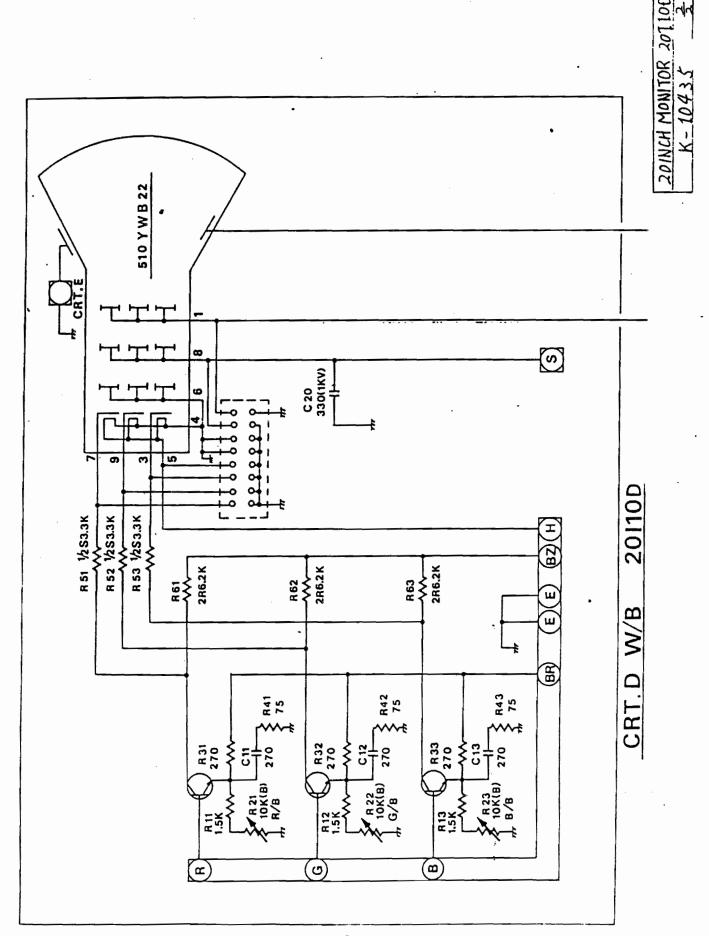
^{&#}x27;4 & 5 connected internally on BUS 10

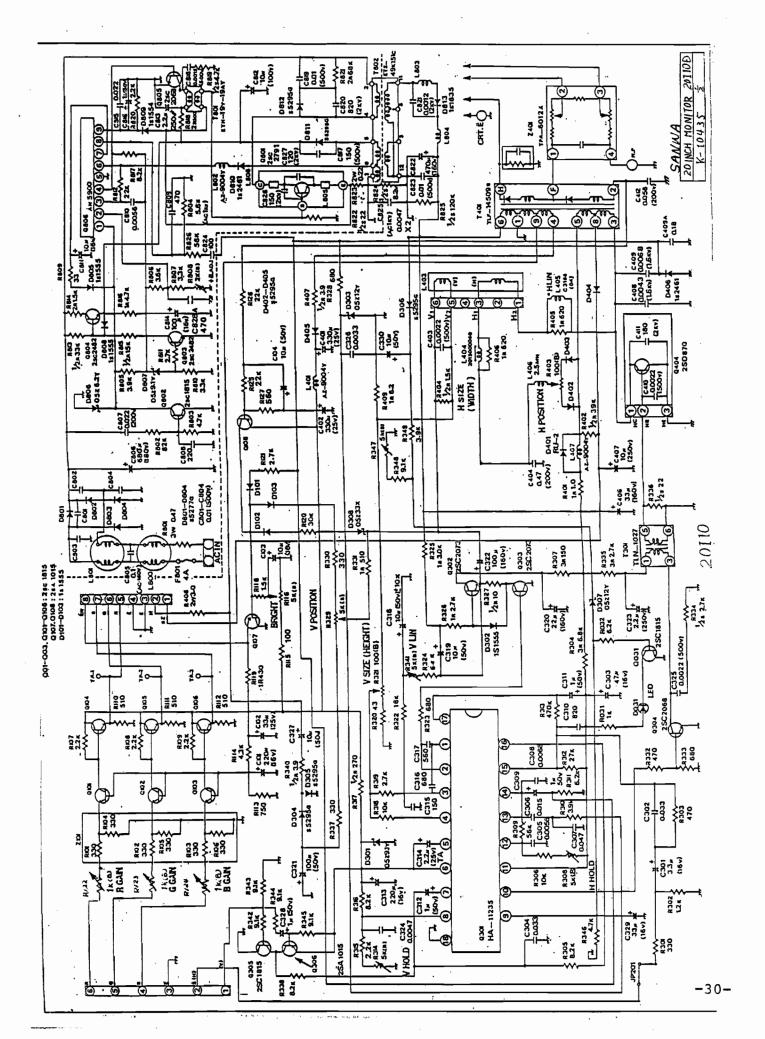


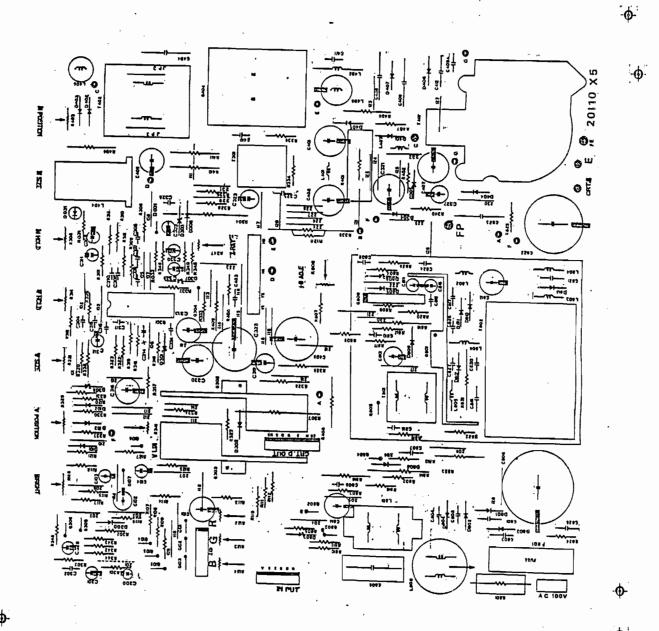
CABLE F V-200242-1 to Player Controls & Coin Selectors

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BLACK & WHITE	Al	GND	Bl	GND	BLACK & WHITE
RED	A2	lp(R)	B2	lp(L)	ORANGE
RED	A3	lp(U)	В3	lp(D)	ORANGE
YELLOW	A4	lp SHOOT 1	B4	lp SHOOT 2	BLUE
	A5		B5		
RED	A6	2p(R)	В6	2p(L)	ORANGE
YELLOW	A7	2p(U)	В7	2p (D)	GREEN
VIOLET	8A	2p SHOOT 1	B8	2p SHOOT 2	BLUE
	A9	·	В9		
	Al0		B10] ;
	All		Bll	lp	BROWN
BLUE & WHITE	A12	2p	B12	•	
	A13		B13]
WHITE	A14	COIN SW 2	B14		
GREEN	A15	COIN SW 1	B15		
BLACK & WHITE	A16	GND	B16		
BROWN	A17	BLOCKER 1	B17	BLOCKER 2	RED
	Al8		B18		
	A19		B19		
WHITE	A20	COUNTER 2	B20	COUNTER 1	VIOLET
	A21	4 + 1	B21	10 <u>1</u> 10 1	
	A22	•1	B22		
	A23		B23		
	A24		B24		
	A25		B25		

SANWA MONITOR







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