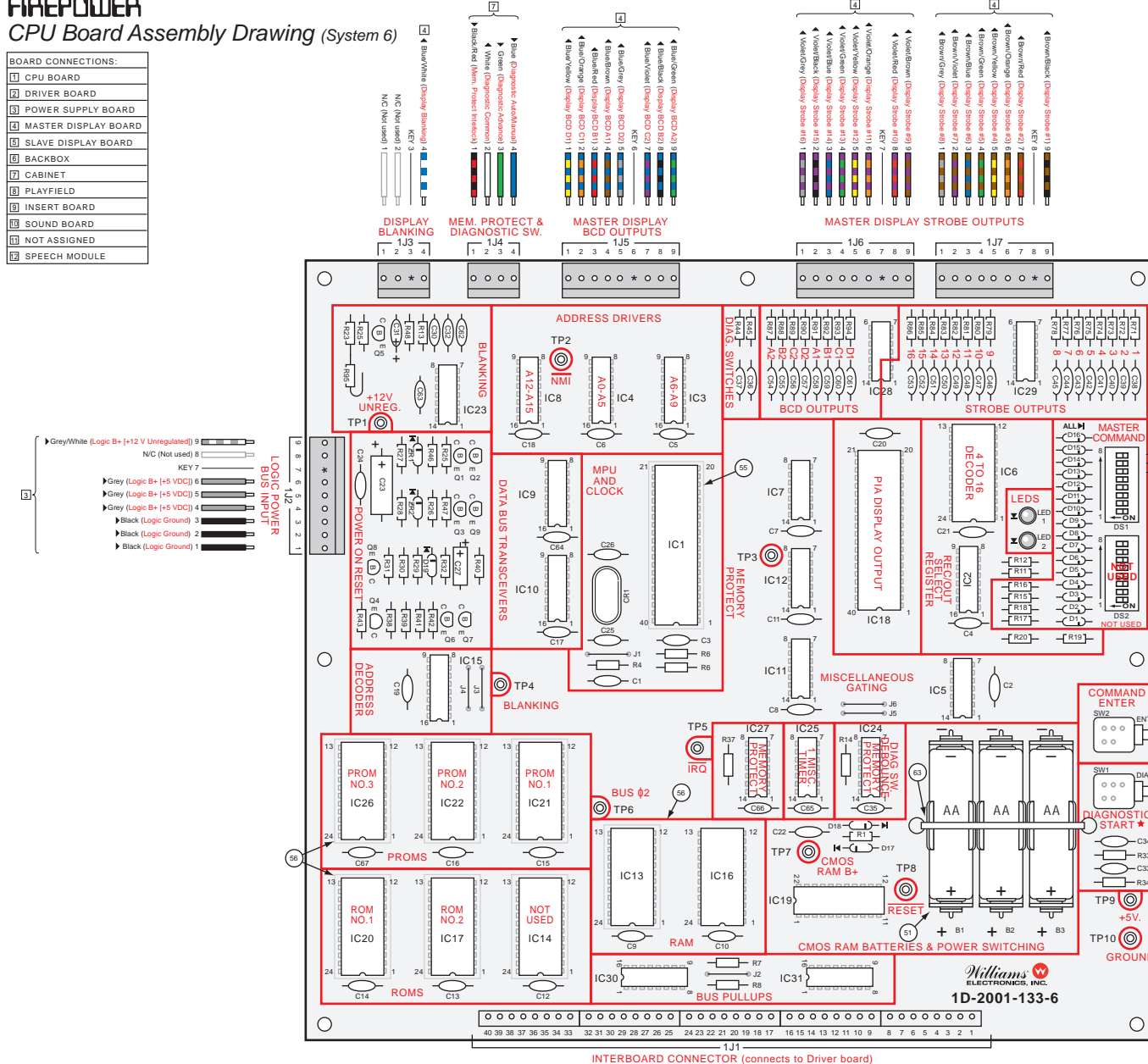
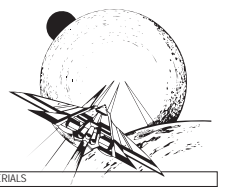


FIREPOWER

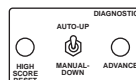
CPU Board Assembly Drawing (System 6)

BOARD CONNECTIONS:

1	CPU BOARD
2	DRIVER BOARD
3	POWER SUPPLY BOARD
4	MASTER DISPLAY BOARD
5	SLAVE DISPLAY BOARD
6	BACKBOX
7	CABINET
8	PLAYFIELD
9	INSERT BOARD
10	SOUND BOARD
11	NOT ASSIGNED
12	SPEECH MODULE



- ★ RESETTING AUDIT TOTALS AND ADJUSTMENTS; INITIATING AUTO-CYCLE MODE**
- In game over mode, set the alternate-action switch to **MANUAL-DOWN** and momentarily depress the **ADVANCE** pushbutton. All displays should go blank.
 - Remove the backglass and unlatch and open the insert door.
 - Set all switches on the **COMMAND ENTER (MASTER COMMAND)** slide switch (DS1) to **OFF** (move to the right).
 - Set switch on **COMMAND ENTER** switch to **ON** (move left):
 - a. To zero audit totals (Functions 01-11) set **Switch 8** to **ON**.
 - b. To restore factory settings and zero audit totals, set **Switch 7** to **ON**. Coin Door must remain open to restore factory settings.
 - c. For Auto-Cycle Mode set **Switch 6** to **ON**.
 - Momentarily depress **COMMAND ENTER** pushbutton. The LEDs should blink once.
 - After zeroing audit totals turn game **OFF** and **ON** to return to game over mode.
 - a. After restoring factory settings, turn game **OFF** and **ON** twice to return to game over mode.
 - b. To initiate Auto-Cycle Mode, set alternate-action switch to **AUTO-UP** (out) and momentarily depress the **ADVANCE** pushbutton. Each cycle of this mode sequences through display digits test, flashes all multiplexed lamps 64 times and pulses each solenoid. To terminate the Auto-Cycle mode and go to game over, turn the game **OFF** and **ON**.



- ★ CPU BOARD SELF TEST**
 Successful completion of the test is indicated by the LEDs blinking twice. Failure of a test is indicated by one or both of the LEDs lighting and staying lit.
- With the game turned **ON** and the Coin Door **OPEN**, locate the **DIAGNOSTIC** pushbutton (SW1) on the right side of the CPU board. *NOTE: Should this step be performed with the coin door closed, both LEDs will stay on. This results in audit totals being zeroed, and, unless the following action is taken, game adjustments will revert to factory settings. Turn the game OFF and ON twice. Next, open the coin door and proceed with step 2.*
 - Momentarily depress the **DIAGNOSTIC** pushbutton. The LEDs should blink twice and all displays should go blank.
 - For the following indications of the LEDs, proceed as follows:
 - OFF** Indicates **ROM/PROM** failure; one or more of IC17, IC20, IC21, IC22, and IC26 are faulty.
 - ON** Indicates **RAM** failure (IC13 or IC16).
 - ON** Indicates **RAM** failure (IC13 or IC16).
 - ON** Indicates **CMOS RAM (IC19)** failure.
 - ON** Indicates **CMOS RAM (IC19)** failure.
 - If the LEDs come on and stay on when the game is first turned **ON** or the LEDs remain off when the **DIAGNOSTIC** pushbutton is depressed, refer to the troubleshooting information that follows.

- CPU BOARD SELF TEST (continued)**
- TROUBLESHOOTING: LEDs REMAIN ON AFTER POWER TURN-ON**
 - Check +5 VDC and Unregulated Logic B+ on CPU and Power Supply boards.
 - Check AC input from transformer.
 - Check wiring from transformer to 3P1 (Power Bus Inputs) -10, -11 and -12.
 - Check 3D6 and 3D7.
 - Replace Power Supply Board
 - Turn game **OFF** and completely remove Driver Board from the backbox. Reapply power and depress the **DIAGNOSTIC** pushbutton on the CPU board. If the LEDs blink twice and then remain **OFF**, replace the Driver Board. Otherwise, replace the CPU board.
 - TROUBLESHOOTING: LEDs DO NOT FLASH AND REMAIN OFF WHEN DIAGNOSTIC SWITCH DEPRESSED**
 - Turn game **OFF** and back **ON**.
 - If problems persist, check +5 VDC from power supply, if ok, replace the CPU board.
 - TROUBLESHOOTING: INTERMITTENT OPERATION**
 - Make checks described in number 5 above for **LED** LEDs remaining on after power turn-on.
 - Replace CPU board.
 - TROUBLESHOOTING: GAME COMES UP IN TEST 04 WHEN TURNED ON**
 - Check battery voltage from the Anode of 1D17 to ground, if less than 3.9 VDC, replace batteries.
 - Check battery voltage from the Cathode of 1D17 to ground, if less than 3.2 VDC, replace diode.

With 6802 for IC1, IC13 may be removed and MPU internal RAM enabled by adding R4 and removing jumper J1.
 59 5A-9250 IC1 MC6808 MICROPROCESSOR 1
 60 5A-9366 IC14 FIREPOWER GAME ROM 1
 61 5A-9015 IC21, IC22 PROM 512 x 8 74116341 2/3
 62 5A-9022 B1, B2, B3 BATTERY, ALKALINE, 1.5V 3
 63 5A-7520-1 THE WRAP 1
 64 5A-9266 D18 1N5817 DIODE 1
 65 5A-9086 R95 RESISTOR, FC, 6.8 K OHM 10% 1/4 W. 1

BILL OF MATERIALS				
ITEM NO.	PART No.	PART DESIGNATION	DESCRIPTION	REQD NO.
1	1-B-2001-133-4		BARE P.C. BOARD	1
2	5A-8990	IC2, IC9, IC10	8728 QUAD BUFFER/RECEIVER	3
3	5A-8989	IC3, IC4, IC8	8797 HEX. TS BUFFER	3
4	5A-9010	IC6	74154 4 TO 16 DECODER	1
5	5A-9013	IC7	7404 HEX INVERTER	3
6	5A-9235	IC11	74LS10 TRIPLE 3 INPUT NAND	1
7	5A-8973	IC12	7408 QUAD AND	1
8	5A-9003	IC13, IC16	MC6810 RAM	2
9	5A-9246	IC15	74LS139 DUAL 2 TO 4 DECODER	1
10	5A-_____	IC17	ROM 2K x 8 LOWER	1
11	5A-8972	IC18	MC 6820 RA	1
12	5A-9017	IC19	CMOS RAM 5101	1
13	5A-_____	IC20	ROW 2 K x 8 UPPER	1
14	5C-9002	IC23	MC345656 DUAL TIMER	1
15	5A-9073	IC24	7400 QUAD INPUT NAND	1
16	5A-9236	IC25	4020 CMOS 14 BIT COUNTER	1
17	5A-9237	IC27	4071 CMOS QUAD 2INPUT NOR	1
18	5A-9247	IC5	74LS20 QUAD 2 INPUT NOR GATE	1
19	5A-9238	IC28, IC29	13 DIP RESISTOR/PACK, 4.7 K OHM	2
20	5A-9239	IC30, IC31	15 DIP RESISTOR/PACK, 4.7 K OHM	2
21	5B-9025	DS1, DS2	8 STN. DIP SWITCH	2
22	5A-9018	2R1	1N6996 ZENER DIODE	3
23	5A-9240	2R2	1N6990 ZENER DIODE	1
24	5A-8919	D1 THRU D17, D19	1N4148 DIODE, SILICON	19
25	5C-8938	O1, O2, O3, O6 THRU O9	2N4401 TRANSISTOR	9
26	5C-9016	O4, O5	2N4403 TRANSISTOR	2
27	5A-9020	CR1	CRYSTAL, 3.58 MHz	1
28	5B-8984	R20, R25, R26, R48, R71 THRU R94	RESISTOR, FC, 1 K OHM 10% 1/4 W.	28
29	5B-8983	R2, R6, R7, R8, R23, R30	RESISTOR, FC, 3.3 K OHM 10% 1/4 W.	6
30	5B-8991	R4, R13 THRU R19, R33, R34, R41	RESISTOR, FC, 4.7 K OHM 10% 1/4 W.	11
31	5A-9033	R1	RESISTOR, FC, 680 OHM 5% 1/4 W.	1
32	5B-9036	R11, R12, R42	RESISTOR, FC, 100 OHM 10% 1/4 W.	3
33	5B-9113	R22, R40	RESISTOR, FC, 33 K OHM 5% 1/4 W.	2
34	5B-9034	R27, R28	RESISTOR, FC, 10 K OHM 10% 1/4 W.	2
35	5A-9241	R29, R38, R46, R47	RESISTOR, FC, 22 K OHM 10% 1/4 W.	4
36	5A-8998	R31	RESISTOR, FC, 2.2 K OHM 10% 1/4 W.	1
37	5A-9093	R32	RESISTOR, FC, 10 OHM 10% 1/4 W.	1
38	5A-9242	R37	RESISTOR, FC, 300 K OHM 10% 1/4 W.	1
39	5A-8997	R39, R43	RESISTOR, FC, 2.7 K OHM 10% 1/4 W.	2
40	5B-9083	R44, R45	RESISTOR, FC, 470 OHM 10% 1/4 W.	2
41	5A-8980	C1 THRU C21, C26, C33 THRU C37, C63 THRU C67	CAPACITOR, CERAMIC, .01 MFD. 50V.	30
42	5A-8986	C23	CAPACITOR, ELECT., 100 MFD. 10V.	1
43	5A-8996	C22, C24	CAPACITOR, CERAMIC, 1 MFD. 50V.	2
44	5A-9169	C25, C26	CAPACITOR, CERAMIC, 27 PFD. 1K V.	2
45	5A-9243	C27	CAPACITOR, TANT., 10 MFD. 10V.	1
46	5A-9031	C31	CAPACITOR, TANT., 1 MFD. 25V.	1
47	5A-9030	C32	CAPACITOR, CERAMIC, .047 MFD. 50V.	1
48	5A-9065	C38 THRU C62	CAPACITOR, CERAMIC, 470 PFD. 50V.	25
49	5A-9019	LED1, LED2	LED, RED	2
50	5A-9024	SW1, SW2	SWITCH, SPOT MOMENTARY	2
51	5A-9021		BATTERY HOLDER P171	1
52	5A-9026	J1	HEADER 09-64-1083	5
53	5A-9028	J3, J4	HEADER 09-65-1041	2
54	5A-9027	J12, J15, J16, J17	HEADER 09-65-1091	4
55	5A-8985		40 PIN IC SOCKET	1
56	5A-9004		24 PIN IC SOCKET	7
57		J1 THRU J6	WIRE JUMPER 22 GAUGE WIRE WITH INSULATION	6
58		TP1 THRU TP10	TERMINAL J1502-1	10
59	5A-9250	IC1	MC6808 MICROPROCESSOR	1
60	5A-9366	IC14	FIREPOWER GAME ROM	1
61	5A-9015	IC21, IC22	PROM 512 x 8 74116341	2/3
62	5A-9022	B1, B2, B3	BATTERY, ALKALINE, 1.5V	3
63	5A-7520-1		THE WRAP	1
64	5A-9266	D18	1N5817 DIODE	1
65	5A-9086	R95	RESISTOR, FC, 6.8 K OHM 10% 1/4 W.	1

