

Table 4. Typical Voltage Measurements

VOLTAGE	METER SETTING	MEASURE ACROSS	TYPICAL READING
Unregulated Logic Supply	+50V dc	(+) F5 (-) Ground	+11V dc
Logic B+	+10V dc	(+) 3J5-1 (Gray Lead) (-) Ground	+5.1V dc
Lamp Supply	+50V dc	(+) F3 (-) Ground	+18V dc
Solenoid Supply	+50V dc	(+) F2 (-) Ground	+40V dc
Display Voltage	+250V dc	(+) 3J5-4 (Brown-White lead) (-) Ground	+100V dc
	-250V dc	(+) 3J5-3 (Orange and White- Black Leads) (-) Ground	-100V dc
General Illumination	10V ac	(+) Fuse Card Fuse (-) Fuse Card Terminal	6.3V ac

Slave Display Board

Proceed as follows:

1. Turn the game OFF.
2. Unplug the cable connected to the board.
3. Remove the four nuts and lockwashers that secure the board to the nylon spacers on the insert door and remove the board.
4. Position the replacement board on the spacers and secure it using the four nuts and lockwashers removed in step 3.
5. Reconnect the cable unplugged in step 3.
6. Turn the game ON and perform display digits test in accordance with procedures provided in Section 5.

Sound Board

When replacing the Sound Board, the replacement board must be checked to make sure it has Sound ROM 1 installed and has jumpers for ROM operation. In addition, modification may be required to the Sound Board. Two areas may require modification. The first reduces susceptibility of the Sound Board to noise and consists of adding two resistors and a jumper. The second improves the quality of the sound at the speaker and consists of changing two resistor values. Proceed as follows:

1. Turn the game OFF.
2. Unplug the three cables from the Sound Board.

3. Remove the four screws and star washers that secure the board to its mounting bracket and remove the board.
4. If the replacement board is not equipped with Sound ROM 1, remove the ROM from the old board and insert it into the replacement board. Make sure that the notch in the chip is at the right side.
5. Refer to Figure 9 and check the jumpers on the replacement board. If the replacement board is not jumpered as indicated, remove the four jumpers from the replacement board and connect four new jumpers.
6. Inspect the replacement board. If it is equipped with two fuses or if the modification indicated in Figure 9 have already been made, proceed to step 11.
7. Connect a jumper on the solder side of the board between pins 39 and 40 of 1C3.
8. Obtain two 10K, 10%, ¼-Watt resistors and connect them as indicated in the unused IC pad. This completes the modification to reduce susceptibility to noise. Steps 9 and 10 improve the sound quality.
9. Unsolder and remove R14 and R23 (100K).
10. Obtain two 4.7K, 10%, ¼-Watt resistors and solder them in place of the resistors removed in step 9.
11. Position the replacement board on its mounting bracket and secure it using the four screws and star washers removed in step 3.
12. Reconnect the three cables unplugged in step 2.
13. Turn the game ON and perform the Sound Board Self-Test procedure.

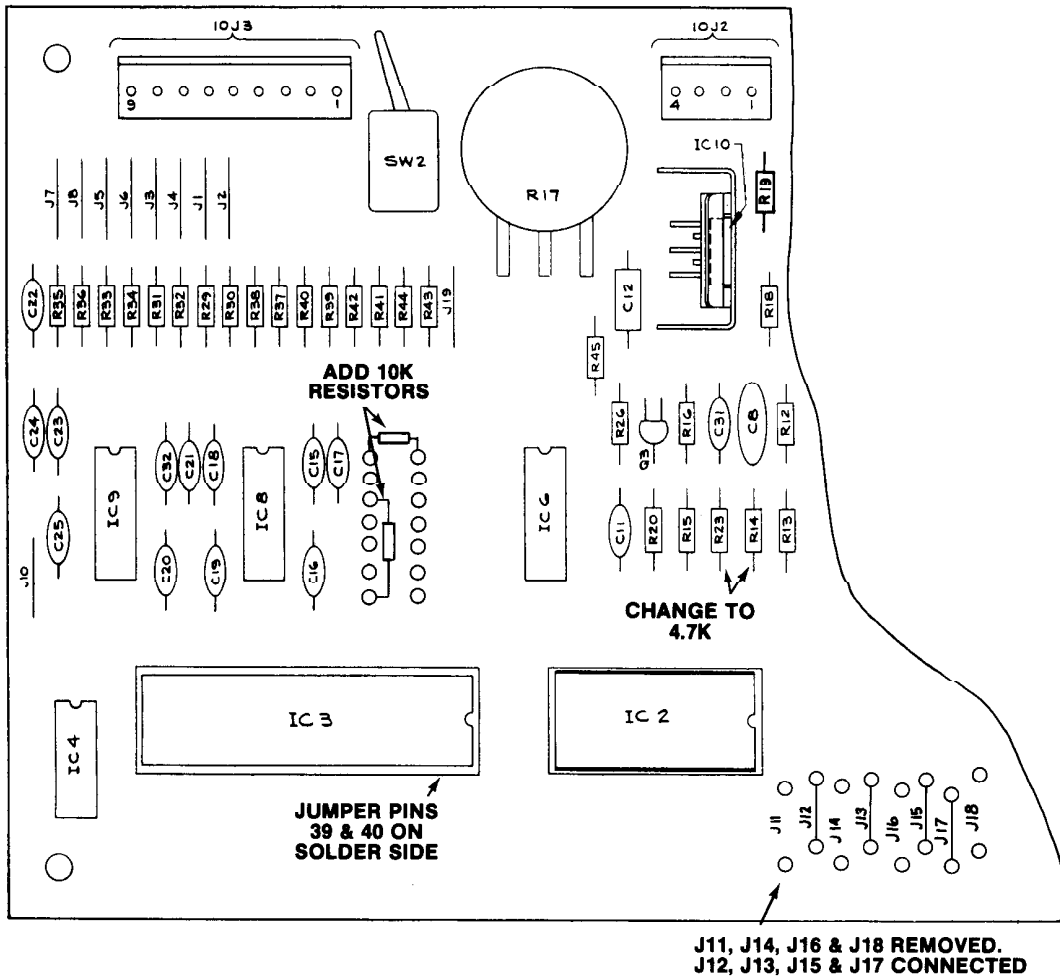


Figure 9. Sound Board Modification and ROM Jumper Details

CPU BOARD SELF-TEST

A pushbutton switch on the CPU board is used to initiate the CPU Board Self-Test. The coin door must be open to perform this 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. Proceed as follows:

1. Open the coin door.
2. With the game turned ON, locate the DIAGNOSTIC pushbutton on the right side of the CPU board.
3. Momentarily depress the DIAGNOSTIC pushbutton. The LEDs should blink twice and all displays should go blank.
4. 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. Isolate the faulty chip(s) by substitution.
- ON Indicates RAM failure (IC13 or IC16), replace the CPU Board.

- ON Indicates CMOS RAM (IC19) or PIA I (IC18) failure. Replace the CPU Board.

5. 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 Table 13 in the troubleshooting charts that follow.

SOUND BOARD SELF-TEST

The Sound Board Self-Test exercises Sound Board circuitry and causes a continuous sound to be emitted. This sound can be used for checking amplifier circuitry and for adjusting the volume. Proceed as follows:

1. Perform CPU Board Self-Tests.
2. Momentarily depress the diagnostic pushbutton on the Sound Board.
3. If no sound is produced check the setting of the volume control and the power and speaker connections to the Sound Board. Also check that the jumper connector 10P4 is in place. If this does not resolve the problem or if a sound is produced from the self-test, refer to Table 14 in the troubleshooting charts that follow.