Schematic Package Supplement to

Firefox

Firefox

Firefox

Operators Manual

Includes Adjustment Procedures

Coin Door and Control Panel Inputs
Sound Microprocessor Interface

[Diagram of sound microprocessor interface with labels and connections]

[Further details and connections]
RGB Output Amplifiers

FIREFOX NTSC Demodulator PCB

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Demodulator Adjustment Procedure

The National Television System Committee (NTSC) Demodulator printed-circuit board (PCB) circuits are checked and adjusted before shipment from Atari. These circuits should not require adjusting during the normal operating life of the game. However, if the NTSC Demodulator PCB is repaired, a complete adjustment procedure should be performed as described here. Refer to Figure 3 Adjustment Locations—NTSC Demodulator PCB.

Test Equipment Required

- Main Wire Harness and BNC Video-Input Extender Cables (Optional)
- External Display (Optional)
- Non-Metallic Inductor Tuning Tool

Preliminary Procedure

1. Turn the game off.

2. Remove the Main, Graphics, and NTSC Demodulator PCBs from the game cabinet as follows:
   a. Open the appropriate access panel.
   b. Disconnect the two wire harness edge connectors and the BNC video connector.
   c. **US-Built Cabinet:** Pull the six nylon snap-in fasteners on the EMI Shield PCB out to the unlocked position.
   **Ireland-Built Cabinet:** Remove the bracket mounting screw that attaches the PCBs to the game cabinet. Carefully slide the PCBs from the cleat. Do not twist the PCBs because the connections or components could come loose.

3. Reconnect the main wire harness and BNC video cable to the game PCBs.

   **NOTE**

   If an external display is not available, connect main wiring harness and BNC video-input extender cables to the PCBs to allow easy access to the adjustments while observing the color bar displays.

4. If a replaced or repaired NTSC Demodulator PCB is to be installed in the game, check to determine whether the NTSC Demodulator PCB is to be used in a game with a linear or a switching power supply.
   a. For games with a linear power supply, verify that jumper W1 has been either removed or cut and that jumper W2 is connected.
   b. For games with a switching power supply, verify that jumper W1 is connected and that jumper W2 has been either removed or cut.

5. Turn the game on.

6. Set the self-test switch (located on the utility panel behind the upper coin door) to the **ON** position.

Adjustment Procedure

1. Press the auxiliary coin switch (located behind the coin door) to obtain the combined graphics-generated gray scale and disc-generated color bar display as shown in Figure 1.

![Figure 1](image)

**Combined Graphics-Generated Gray Scale and Disc-Generated Color Bar Display**

2. Set R43 (SAT) to the fully clockwise position to remove the color from the disc-generated color bars.

3. If necessary, adjust R231 (R OUT OFFSET), R232 (G OUT OFFSET), and R233 (B OUT OFFSET) to remove any apparent color in the disc-generated gray scale.

4. Adjust R105 (R DAC OFFSET), R135 (G DAC OFFSET), and R174 (B DAC OFFSET) to approximately match the gray tones in the disc-generated gray scale to those in the graphics-generated gray scale.

5. Adjust R50 (BRITE) to approximately match the black bar at the extreme right-hand end of the disc-generated gray scale to the same bar in the graphics-generated gray scale.

6. Adjust R46 (PIX LEVEL) to approximately match the white (brightest) bar at the extreme left-hand end of the disc-generated gray scale to the same bar in the graphics-generated gray scale.

7. Repeat steps 5 and 6 until the white and black bars in both gray scales are a close match.
8. Press the auxiliary coin switch to obtain the next composite graphics-generated and disc-generated color bar display as shown in Figure 2.

9. Adjust R43 (SAT) clockwise to obtain some color in the disc-generated color bars.

10. Adjust R40 (HUE) to match the colors (particularly the yellow, cyan, and red) in the disc-generated color bars to those in the graphics-generated color bars.

11. Set R43 (SAT) to the fully counterclockwise position. Then, adjust R43 (SAT) approximately a quarter-turn clockwise.

12. Set the self-test switch to the off position and check the display colors in Attract Mode or in Game Play. If necessary, adjust R50 (BRITE) for the desired display brightness.

Figure 2
Combined Graphics-Generated Color Bar and Disc-Generated Color Bar Display

Figure 3 Adjustment Locations—NTSC Demodulator PCB
Disc Audio Level Adjustment Procedure

There are two potentiometers on the Main PCB that are provided to balance the levels of the disc-generated and stand-microprocessor generated audio levels to the game right and left speakers. Refer to Figure 4 Adjustment Locations—Main PCB.

Preliminary Procedure
1. Turn the game off.
2. Remove the game PCBs as described in Chapter 3 of the Operators Manual (TM-253-01).

Adjustment Procedure
1. Turn the game on.
2. Turn R133 (DISC LEFT) and R138 (DISC RIGHT) fully clockwise, then counterclockwise approximately 30°.
3. Replace the game PCBs.

Figure 4 Adjustment Locations—Main PCB