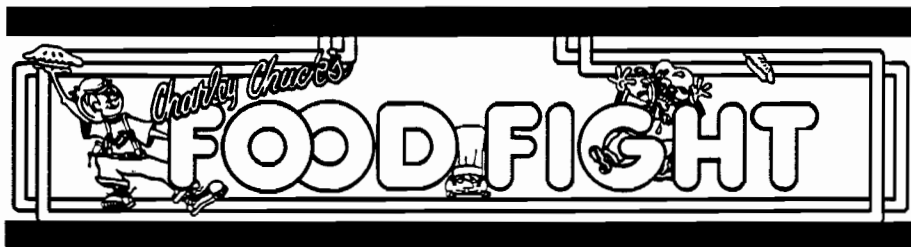




Supplement to the




Operators Manual (TM-229)

Chapter 2

This supplement is a revision of Chapter 2 and supersedes that chapter in your Food Fight manual. Please use this supplement for future reference to perform all self-test procedures.



 A Warner Communications Company

Self-Test Procedure

This game will test itself and provide data to show that the game circuitry and controls are operating properly. Self-test data is presented visually on the player LEDs and the video display, and audibly through the speakers. No additional equipment is required.

We suggest that you perform a self-test when you first set up, each time you collect money, change the game options, or suspect game failure.



A. Self-Test Display

When the power switch is turned on, Food Fight enters the automatic selftest mode, which tests playfield RAM, program ROM, and non-volatile RAM (NVRAM). At the beginning of these tests, both the one-player and two-player LEDs are lit. (This is so that the success or failure of the tests can be indicated even if the messages cannot be displayed on the monitor.)

If the playfield RAM and program RAM are working, then the one-player LED turns off and the message RAM OK is displayed on the screen.

If the playfield RAM fails, the one-player LED flashes one through four times followed by a pause. The playfield RAM number displayed corresponds to the board location of the faulty chip as shown in Table 2-1.

Table 2-1 Playfield RAM Locations

Playfield RAM Number	Board Location
1	3K
2	3L
3	3M
4	3N

If the program RAM fails, the one-player LED remains on, and the number of the bad chip is displayed. The program RAM number corresponds to the board location of the faulty chip as shown in Table 2-2.

Table 2-2 Program RAM Locations

Program RAM Number	Board Location
0	8B
1	8A
2	9B
3	9A

After the RAM is checked, the checksums for program ROM are verified. If all ROMs check out correctly, then the two-player LED is turned off and the message ROM OK is displayed. If there are faulty chips, then the ROM number

of each faulty chip is displayed. The ROM number corresponds to the board location of the faulty chip as shown in Table 2-3.

Table 2-3 Program ROM Locations

ROM Number	Board Location
0	9C
1	8C
2	9D
3	8D
4	9E
5	8E
6	9F
7	8F

After the program ROM is checked, the checksums for the NVRAM are verified. If all sections of the NVRAM check, then the message NVRAM OK is displayed. If any section of NVRAM fails, then the message NVRAM FAILED is displayed and factory values from program ROM are used instead of the values from that section.

If playfield RAM, program RAM, and NVRAM check out correctly, Food Fight goes into the attract mode after five seconds. If NVRAM fails, the game will go into the attract mode when the THROW button has been pushed.

The five sections of NVRAM are as follows:

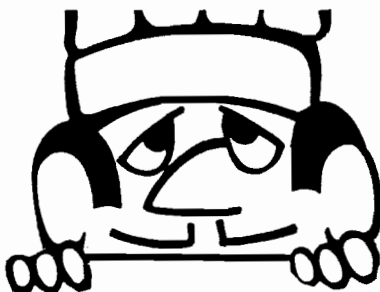
STATISTICS holds the values for the statistics display (see the description under Self-Test Menu). These values can be reset using the options menu.

TIME AND CREDITS holds the total time the machine has been on, and the total number of credits. These appear at the bottom of the statistics display and cannot be reset.

HIGH SCORES holds the player initials, scores, and levels achieved for the top three high-scoring games. These values appear at the top of the high-score table during the attract mode and can be reset using the options menu.

OPTIONS holds the current settings for the game options, which can be displayed and/or changed using the options menu.

JOYSTICK VALUES holds the maximum and minimum values for the analog joystick. See the description of Joystick Calibration under the TESTS option of the main SELF TEST menu.



B. Main Self-Test Menu

Food Fight has a menu-driven self-test mode which is entered by turning the self-test switch on. Immediately after the self-test switch is turned on, the main SELF TEST menu appears as shown in Figure 2-1. Three choices are available—TESTS, STATISTICS, and OPTIONS. Move the joystick up or down to change the current selection, which is displayed in red. Push the THROW button to select.

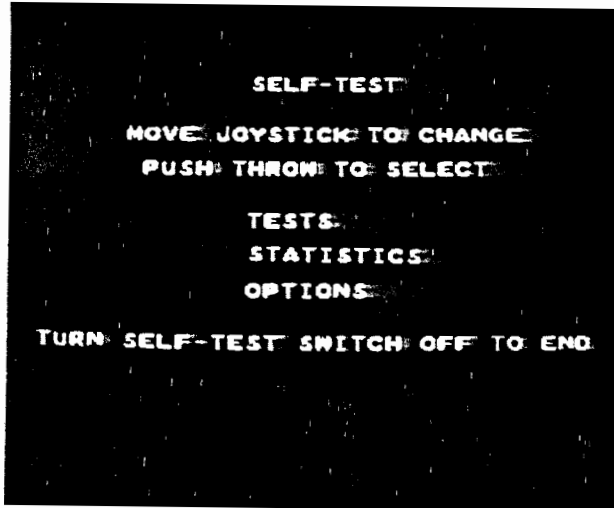


Figure 2-1 Main Self-Test Menu

NOTE

The two-player start button can be used to make the selection in any of the self-test menus so the game can be tested even if the joystick is faulty.

Hardware Tests

Selecting TESTS causes the hardware TESTS menu to appear as shown in Figure 2-2. Five choices are available—JOYSTICK CALIBRATION, SWITCH TEST, COLOR PATTERN, CONVERGENCE PATTERN, and SOUND TEST. Use the joystick and THROW button to select any option. Press the one-player start button to return to the main SELF TEST menu.

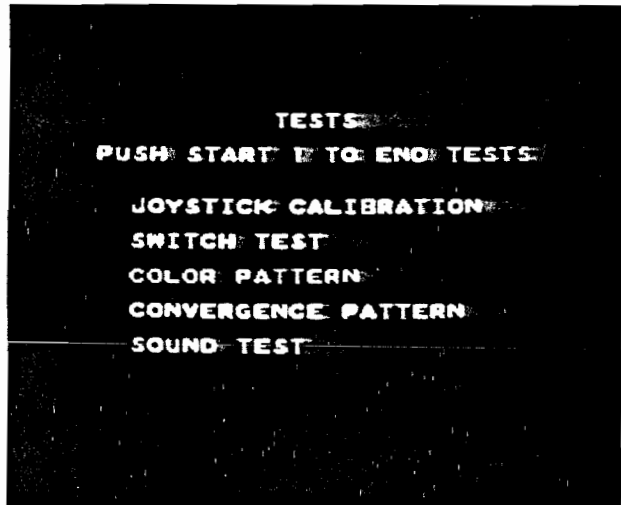


Figure 2-2 Hardware Tests Menu

JOYSTICK CALIBRATION resets the joystick minimum and maximum values, and should be used whenever the NVRAM or joystick is replaced. When the JOYSTICK CALIBRATION test is selected for the upright game, the display appears as shown in Figure 2-3. Hold the joystick steady for a full five seconds in each direction (left, right, up, and down). Press the one-player start button twice to return to the main SELF TEST menu (see Figure 2-1).

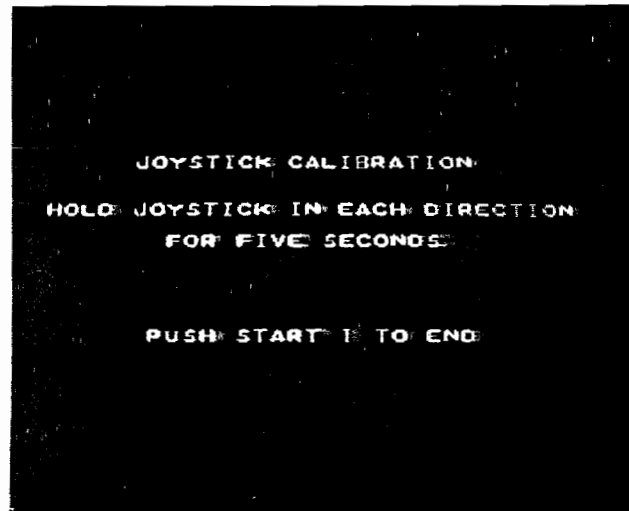


Figure 2-3 Joystick Calibration Display (Upright Game)



When the JOYSTICK CALIBRATION test is selected for the cocktail game, the display appears as shown in Figure 2-4. *The display shown in Figure 2-4 indicates that the player-one joystick is selected for calibration.* Hold the player-one joystick steady for a full five seconds in each direction (left, right, up, and down). Press the two-player start button and repeat the preceding procedure for the player-two joystick. Press the one-player start button twice to return to the main SELF TEST menu (see Figure 2-1).

NOTE

Food Fight is equipped with a self-calibrating joystick, which checks its maximum and minimum values while the game is being played. Initial values are set at the factory and stored in NVRAM. When Food Fight is turned off, the NVRAM values are updated. Each time Food Fight is turned on, the current values are read out of NVRAM. If NVRAM fails (see the description under Self-Test Display), then the joystick is recalibrated as the game is being played. In this case, the control will be sluggish for the first two or three games after the game is first turned on.

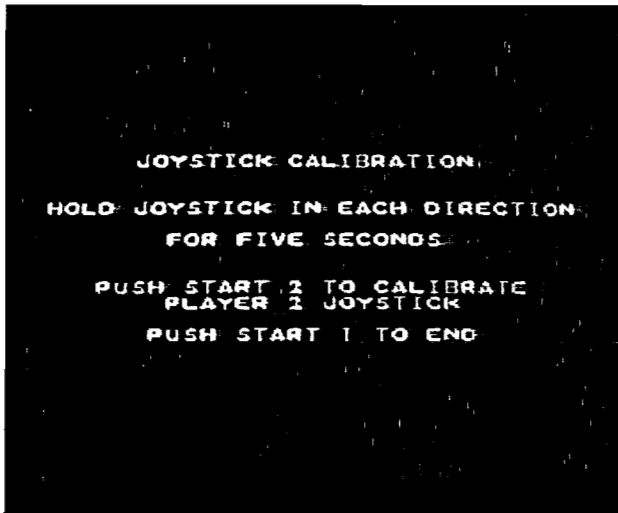


Figure 2-4 Joystick Calibration Display (Cocktail Game)

SWITCH TEST displays the state of the control panel switches, the joystick values, the coin inputs, and the DIP switches as shown in Figure 2-5. A one (1) indicates that the switch is on and a zero (0) indicates it is off. All eight bits are displayed for each direction of the joystick. Press both the one- and two-player start buttons to end this test. Press the one-player start button to return to the main SELF TEST menu (see Figure 2-1).

See Chapter 1, Selecting the Options, for information concerning the settings of the DIP switch located on the game PCB.

IMPORTANT

To store new joystick values you must first return to the main SELF TEST menu and then exit the self-test mode by turning the self-test switch off. If the self-test mode is interrupted (i.e., the self-test switch is turned off or game power is removed) before returning to the main SELF TEST menu, repeat the joystick calibration procedure.

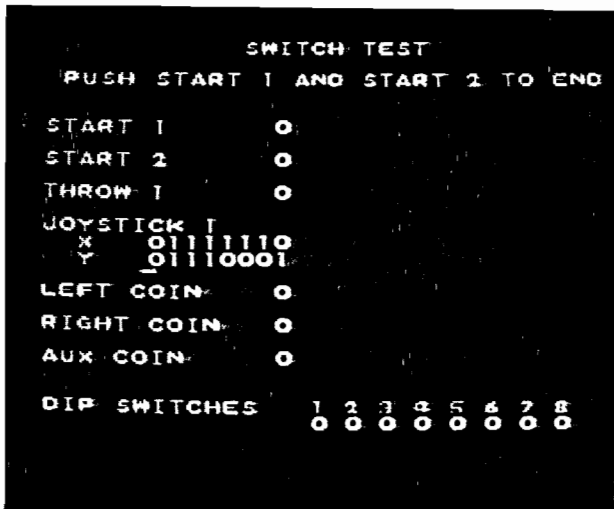


Figure 2-5 Switch Test Display

COLOR PATTERN displays all 256 Food Fight colors on a 16-by-16 grid of blocks in the center of the screen as shown in Figure 2-6. Use this display to check for color adjustment. Press the one-player start button to return to the TESTS menu and end the Color Pattern test.

The colors are properly adjusted when the background is black and each colored block is distinguishable from those around it.



Food Fight has four blue levels, eight green levels, and eight red levels. These are overlaid to display the color grid as follows:

- Blue is displayed in four quadrants with level 0 (no blue) in the lower left, level 1 in the lower right, level 2 in the upper left, and level 3 (intense blue) in the upper right.
- Green is displayed in sixteen horizontal bars, two bars for each level, with level 0 (no green) bars at the center, level 7 (intense green) bars across the top and bottom, and intermediate levels in between.
- Red is displayed in sixteen vertical bars, with level 0 (no red) bars at the center, and level 7 (intense red) bars at the right and left, and intermediate levels in between.

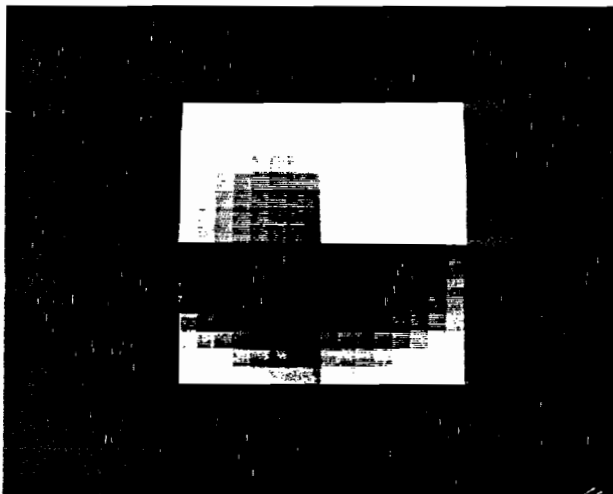


Figure 2-6 Color Pattern

CONVERGENCE PATTERN a white crosshatch pattern appears on the screen as shown in Figure 2-7. Use this pattern for convergence (see the raster-scan video display manual for a detailed procedure). Press the one-player start button to return to the TESTS menu and end this test.

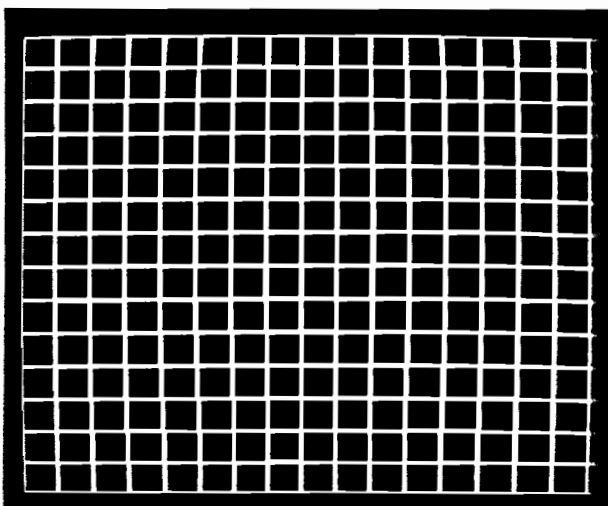


Figure 2-7 Convergence Pattern

SOUND TEST tests the twelve channels of the three Custom Audio sound chips. As the channel number is displayed, the test sound is played. The test continues to cycle through the channels until the one-player start button is pressed to end the test and return to the TESTS menu. The channels correspond to the three Custom Audio chips as shown in Table 2-4.

Table 2-4 Sound Chip Locations

Chip Number	Board Location	Channels
1	11K/L	5, 6, 11, 12
2	11L/M	1, 2, 7, 8
3	11N	3, 4, 9, 10

Selecting the Statistics

This is the second selection on the main SELF TEST menu. Selecting STATISTICS causes the game statistics display to appear as shown in Figure 2-8. Press the one-player start button to end this test and return to the main SELF TEST menu.



Figure 2-8 Statistics Display

The totals on the display are those accumulated since the statistics were last reset. All statistics (except the last two) can be reset using the CLEAR VALUES, and STATISTICS selections of the OPTIONS display. All times on the display are shown as hours:minutes:seconds. The following statistics are displayed:

NUMBER OF GAMES reads the number of one-player games, the number of two-player games (incremented by one for each two-player game), and the total number of games.

COIN COUNT reads the number of coins inserted through each of the right and left coin mechanisms.

CREDITS reads the number of paid credits, free credits (entered using the auxiliary coin button), and the total credits since the statistics were last reset.

BONUS MEN EARNED reads the number of bonus lives (extra Chucks) earned at the first stage at higher stages using level select, and the total. It also shows the percentage of games played in which at least one bonus life was earned.

AVERAGE TIME reads the average times between credits and games.

LONG GAME reads the longest time a player was able to play on one credit.

TOTAL TIME ON reads the total time the game has been turned on since the statistics were last reset.

IN PLAY MODE reads the percentage of time the game has been in play mode (as opposed to attract mode) since the statistics were last reset.

NOTE

The last two statistics cannot be reset. They are accumulated from the date the game was manufactured, or since the NVRAM last failed or was replaced.

TOTAL TIME reads the total amount of time the game has been turned on.

TOTAL CREDITS reads the total number of credits.

C. Selecting the Options

Selecting **OPTIONS**, the third selection on the main **SELF TEST** menu, causes the **OPTIONS** display shown in Figure 2-9 to appear. (The cocktail game should display *ON* for the **COCKTAIL MODE** setting.) Use this display to view or change game option settings, or to clear the high scores or statistics. Press the **THROW** button to cycle through values on the current row (indicated in red). Change the current row using the joystick or the two-player start button. Press the one-player start button to end this display and return to the main **SELF TEST** menu. When the self-test switch is turned off, the displayed option settings become the current settings.

NOTE

The **OPTIONS** display shown in Figure 2-9 is for the upright games. The cocktail game **OPTIONS** display is identical, except the **COCKTAIL MODE** setting should be set to *ON*.

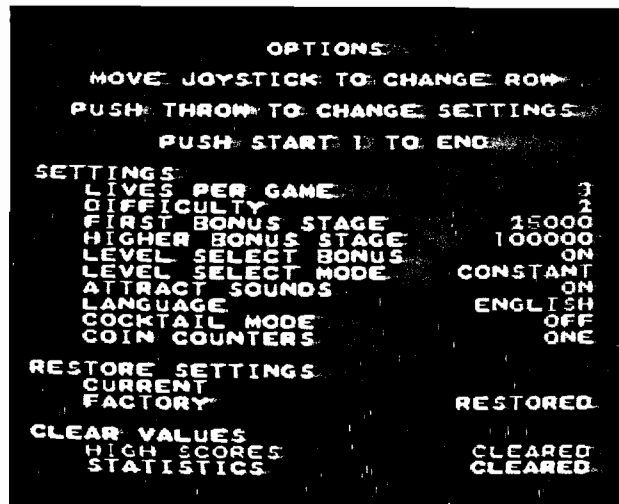


Figure 2-9 Options Display

To restore option settings or to clear high scores or statistics values, select the desired row and push the **THROW** button. **RESTORED** or **CLEARED** is then displayed.

IMPORTANT

To store new option settings you must first return to the main **SELF TEST** menu and then exit the self-test mode by turning the self-test switch off. If the self-test mode is interrupted (i.e., the self-test switch is turned off, or game power is removed) before returning to the main **SELF TEST** menu, repeat the preceding procedure for changing options or clearing high-scores and statistics.

The options and settings available are shown in Table 2-5.

Table 2-5 Option Settings

Option	Settings Available	Factory Setting
Lives per game	2-5	3
Difficulty	1-5	2
First bonus stage	Off, 5000-1,000,000	25,000
Higher bonus stage	Off, 5000-1,000,000	100,000
Level select bonus	Off/On	On
Level select mode	Normal, constant, demo, off	Constant
Attract sounds	Off/On	On (Off*)
Language	English, German, Spanish, French	English
Cocktail mode	Off/On	Off (On*)
Coin counters	One/Two	One

*Cocktail game factory setting.

Description of Option Terms

LIVES PER GAME sets the initial number of lives (Chucks), not including bonus lives, given for each credit.

DIFFICULTY sets the game difficulty at game play levels 4 and above. Difficulty 1 is easy, difficulty 5 is hard.

BONUS STAGES sets the scores at which the first or subsequent bonus lives are awarded. Additional bonus lives are awarded when the score reaches a multiple of the higher bonus stage. For example, when the factory settings of 25,000 and 100,000 are in effect, bonus lives are awarded at 25,000; 100,000; 200,000; 300,000; etc.

The first bonus stage may not exceed the second bonus stage. If the two are equal, only one bonus life is awarded when the score reaches the first bonus stage. For example, if both stages are set to 25,000, then bonus lives are awarded at 25,000; 50,000; 75,000; etc. Either one or both bonus stages can be turned off.

LEVEL SELECT BONUS if turned on, awards bonus lives when the player uses level select to start the game at or above level 10. An extra life is awarded for starting at levels at or above every multiple of 10, with one additional life at level 125. For example, ten bonus lives would be awarded for starting at level 103. These bonus lives are given at the start of the game in addition to the LIVES PER GAME. The level at which bonus lives are earned, and the current number of lives, are displayed during Level Select with Chuck faces.

LEVEL SELECT MODE effects how the level select feature is handled. There are four possible settings:

- **NORMAL** allows the player to select a starting level if the last game ended less than 15 seconds before, and if the maximum level achieved in the last game was greater than one. If both of these cases hold, the player is allowed to select a starting level up to the maximum level achieved in the last game.

- **CONSTANT** always allows the player to select a starting level up to at least level 9. If the last game ended less than 15 seconds before, the player is allowed to select up to the maximum level achieved in the last game.
- **DEMO** always allows the player to select up to the maximum Food Fight level, for example, level 125. This setting would probably not be used for a game out on location, but is useful to demonstrate the performance of the game at high levels.
- **OFF** causes no level select display to occur.

ATTRACT SOUNDS disables the attract mode sounds if in the OFF setting.

COIN COUNTERS causes both coin mechanisms to drive the same coin counter if in the ONE setting.

RESTORE SETTINGS resets the displayed option settings to one of the following:

- **CURRENT** displays the option settings in effect before the option menu was entered.
- **FACTORY** displays the option settings from the program ROM.

CLEAR VALUES resets the high score table to its factory setting. Clearing statistics resets to zero all the items on the STATISTICS display, except for the TOTAL TIME and TOTAL CREDITS.



Table 2-5 Option Settings

Option	Settings Available	Factory Setting
Lives per game	2-5	3
Difficulty	1-5	2
First bonus stage	Off, 5000-1,000,000	25,000
Higher bonus stage	Off, 5000-1,000,000	100,000
Level select bonus	Off/On	On
Level select mode	Normal, constant, demo, off	Constant
Attract sounds	Off/On	On
Language	English, German, Spanish, French	English
Cocktail mode	Off/On	Off
Coin counters	One/Two	One

