

A. GENERAL GAME OPERATION

1. Power Up Sequence

When power is applied to the machine there is a short delay of approximately 10 seconds before the machine plays a "power-up" tune to announce that it is ready for play. During the power up period the machine is performing six tests on its own hardware the successful completion of each being signalled by a single flash of a LED on the M.P.U. module (A1) and a simultaneous tone from the sound system. After power-up the machine goes into attract mode waiting for a game to be played.

2. Attract Mode

In this mode the four score windows display the player's score for the last game, alternating with the highest score to date. Some lamp flashing will occur on the playfield. As coins are inserted a "coin-in" tune will sound and the accumulated credit will be shown in the credit window.

3. Game Start

A game is started by pressing the credit button located on the front end of the cabinet. The first player's score flashes '00', a '1' appears in the ball-in-play window, the credit display is reduced by one and a "player-up" tune is played. Additional players are posted each time the credit button is pressed. Up to four players can play at a time, each player's turn being indicated by the flashing of his score display. The credit button has no effect after the fourth player has been added or the credit display reads '0'. Pressing the credit button after the first player has scored cancels the game and posts the first player for a new game.

4. Game Scoring

Shooting the ball initiates play. Bumpers score 100 points and alternate "special" and "extraball" lamps if lit. Side kickers score 50 points. The top rebound switch scores 50 points and alternates the left and right top lane lights, other rebounds score 10 points. The spinner scores 100 points or 1000 points when lit and it also alternates left and right top lane lights. All rollover contacts advance the bonus by one.

- i) Top Lanes - both top lane rollovers score 500 points unlit or 5000 points when lit. One lane is always lit and alternate by spinner, top bounce switch or after a lit top lane is achieved.
- ii) Rocket Launch Lane - this lane rollover scores the lit value and advances the bonus multiplier (after first time). Once the 5X multiplier is achieved the in-play bonus countdown occurs. Any subsequent contacts score 5000 points.
- iii) Re-entry Lane - score 5000 points and if lit it advances the rocket launch lane lights and subsequent bonus multiplier and cancels the lane light.
- iv) ORBIT 1 targets - score 500 points each and advance bonus by one. Each completion of ORBIT 1 gives 20,000 points and progressively lights the spinner, extraball and special lamps.
- v) Outlanes - score 5000 points and special if lit
- vi) Return lanes - score 500 points and extraball if lit
- vii) Bonus - once maximum bonus is achieved no more are accumulated. Bonus lamps score 1000 points each, multiplied by the bonus multiplier valve. It is collected on making 5X during play or outhole.

5. Outhole Sequence

After the ball returns to the outhole and there is only one player, the "ball-in-play" number will advance by one. If there is more than one player, "ball-in-play" will remain the same and the next player's turn is indicated by the flashing score. However if the ball enters the outhole without scoring it is returned to the same player for replay. The game continues until each player has played the allowable number of balls (adjustable). The "game-over" light will then be lit and an optional "game-over" tune will sound. A random "match" number appears and the match light is lit (optional). If the number is the same as the last two digits in a players score, a free game is awarded.

6. Extra Balls

When a player wins an extraball a unique tune is played and the ~~tune~~ "shoot again" lights on the playfield will flash alternately during the play of the regular ball. Once this ball enters the outhole, the score display will flash to prompt the same player and the "ball-in-play" number will not advance.

7. Tilt

If the machine is tilted during play a tilt sound is made, all scoring will stop and the bumpers, flipper and kickers are disabled. Bonus points are not collected. The player only resumes control of the machine after the current ball enters the outhole.

8. Slam

Slamming the machine will result in a more severe penalty. The current game is cancelled, score displays and feature lights go out and the machine will remain "dead" for approximately 10 seconds. After this delay the "power-up" tune is played, the "game-over" light is lit and the machine returns to attract mode.

B. SELF TEST SEQUENCE

Self test can be entered at any time by pressing the push button on the inside of the front door. By pressing the button once the sequence is started with test number 1. Subsequent tests are activated by re-pressing the button. For all except the first test, the self test number is displayed in the "ball-in-play" window.

Tests 1 to 5 are routine maintenance checks.

Tests 6 to 17 are bookkeeping functions, designed to help the operator perform certain accounting tasks.

1. Routine Maintenance Tests

Test 1 - Display Test : All five displays cycle from 0 to 9 and repeat continuously.

Test 2 - Feature Lamp Test : All switched lamps flash on and off continuously.

Test 3 - Solenoid Test : All solenoids are activated one at a time in a continuous sequence. The flipper solenoids may be tested by holding both flipper buttons in during the test. Solenoid identification numbers are shown in the player score displays. Refer to Appendix 1 for a Solenoid Identification Chart.

Test 4 - Switch Test : The switch assembly is searched for stuck contacts. If any are found the identification number of the first set encountered is flashed on the player score displays. The number remains until the fault is cleared. Other numbers may follow if more stuck contacts are present. Once no stuck switches are found "00" is displayed. Refer to Appendix 2 for a switch identification chart.

Test 5 - Sound Test : The 10 points sound is pulsed continuously.

2. Bookkeeping Functions

The bookkeeping functions are displayed in all player score windows. The test number appears in the "ball-in-play" window.

Test 6 - First High Score Level : The game is designed to award a free game or extra ball (optional) at each of three score levels. Any desired level from 1000 to 999000 can be set. The level can be increased by 10000 points at a time by holding in the credit button. It can be decreased by 1000 points at a time by holding in the slam switch inside the coin door. The level can be reset to "00" by simultaneously operating the slam and coin door switches. If the level is left at "00" the high score feature is eliminated for that level.

Test 7 - Second High Score Level : Level can be altered as for test 6.

Test 8 - Third High Score Level : Level can be altered as for test 6.

Test 9 - Highest Score to Date : The game is designed to award free games when the "Highest score to Date" is exceeded. The level can also be altered as described in Test 6, however it should be noted that "00" does not eliminate the feature.

Test 10 - This test displays the total number of times the coin switches have operated with the coin door open. The number is normally not resettable.

Test 11 - This test displays the total coins through both chutes with the coin door closed. The number is normally not resettable.

Test 12 - Number of free games awarded with the coin door closed. This figure can be reset by simultaneously operating the slam and coin door switches.

Test 13 - Number of paid games with the coin door closed. This figure can be reset as for test 12.

Test 14 - Number of times the Highest Score to Date changes with the coin door closed. Can be reset as for test 12.

Test 15 - Number of extra balls awarded with the coin door closed. Can be reset as for test 12.

with coin door closed.

Test 16 - Number of tilts and slams^A: Can be reset as for test 12.
Test 17 - This test displays the percentage of free games to paid games awarded with the coin door closed. The percentage can be reset as for test 12. It should be noted that the number of free games and paid games displayed in tests 12 and 13 are not affected when the percentage is reset. The ratio is calculated using separate data areas.

Pressing the self test button once more while in test 17 causes the game to return to attract mode after performing the power-up sequence. For a more rapid return to attract mode, self test can be aborted at any stage by turning the power off, then on.

A self test time out feature is built-in to the machine so that it can never be left in any test mode. After about two minutes in any self test the game automatically resets by going through the power-up sequence. (For maximum flexibility, however, this time-out feature can be disabled by first switching power off, then setting switch 24 on the M.P.U. board, A1, to the OFF position).

C. GAME FEATURE ADJUSTMENTS

Each game has twenty-four switches located on the M.P.U. board, A1, that allow play to be customised to the location. The switches are contained in 3 packages and numbered S1-S8, S9-S16 and S17-S24. Game adjustments must be made while the power is turned off.

Credits/Coin Adjustments : The credits/coin options are set by means of switches 1, 2 and 3. There are 8 different settings as shown below.

<u>Switches</u>			<u>Credits/Coin</u>
1	2	3	
OFF	OFF	OFF	1/1
ON	OFF	OFF	1/2
OFF	ON	OFF	1/3
ON	ON	OFF	1/4
OFF	OFF	ON	1/1, 3/2 *
ON	OFF	ON	1/2, 2/3 *
OFF	ON	ON	2/3, 4/5 * #
ON	ON	ON	2/5 #

* Coin Counter reset at first score of each ball

No credits until third coin dropped

No credit until fifth coin dropped.

High Score Award : At each of the three high score levels, the game can be programmed to give either an extra ball or a free game by setting switch 4

<u>Switch 4</u>	<u>Award</u>
OFF	FREE GAME
ON	EXTRA BALL

Match Feature : With this feature on a random number appears in the "ball-in-play" window at game-over. If this number matches the tens digit in a players score, a free game is awarded. The feature is controlled by switch 5.

<u>Switch 5</u>	<u>Match Feature</u>
ON	ON
OFF	OFF

Highest Score to Date Feature : Each time the Highest Score to Date is exceeded a number of free games ~~is~~ ^{are} awarded depending on the setting of switches 6 and 7.

<u>Switch</u>		<u>Award</u>
6	7	
OFF	OFF	NO AWARD
ON	OFF	1 FREE GAME
OFF	ON	2 FREE GAMES
ON	ON	3 FREE GAMES

Game-Over Tune Feature : The tune played by the machine to announce game-over may be turned on or off by switch 8.

Switch 8

ON
OFF

G.O. Tune

ON
OFF

ORBIT 1 Memory Feature : The game is designed to remember any targets already achieved towards the completion of ORBIT 1 by previous balls for each player. This feature is controlled by switch 9.

Switch 9

OFF
ON

ORBIT 1 FEATURE

MEMORY DISABLED
MEMORY OPERATIVE.

Targets 'O' and '1' : The left and right return lanes award 'O' and '1' respectively for the ORBIT 1 feature. These lanes normally operate independently, however they may be linked, as far as 'O' and '1' targets are concerned by switch 14, ie: making either lane achieves both 'O' and '1'. It should be noted that the score, bonus advance and extra ball award still remain independent.

Switch 14

OFF
ON

'O' and '1' TARGETS

INDEPENDENT
TARGETS LINKED

ORBIT 1 Award : Each ORBIT 1 completion progressively lights the spinner, extraball and special lamps. With switch 15 on the first ORBIT 1 completions lights both the spinner and extra ball lamps.

Switch 15

OFF

No. OF ORBIT 1 COMPLETION

1X gives spinner light
2X gives extraball light
3X gives special lights

ON

1X gives spinner & extraball lights
2X gives special light

Balls per Game:

Switch 16

OFF
ON

BALLS/GAME

3
5

Maximum Credits : The limit on the number of games that can be accumulated by either inserting coins or winning free games is set by switches 17 and 18.

Switch	
17	18
OFF	OFF
ON	OFF
OFF	ON
ON	ON

MAXIMUM CREDITS

5
10
15
20

Note: 1. When lowering the credit limit any surplus credits are lost.
2. Coin counters operate regardless of maximum credit settings.

Free Game Sound :

Switch 22

OFF
ON

SOUND WHEN FREE GAME AWARDED

SPECIAL TUNE
KNOCKER

Coin Counter Reset Option : The number of coins displayed in self test numbers 10 and 11 may be reset by operating both the slam and door switches if switch 23 is ON.

Switch 23

OFF
ON

RESETTABLE

NO
YES

Self-test Time-Out Option : The machine can be set by switch 24 to automatically exit self-test after about 2 minutes in any one test.

Switch 24

OFF
ON

TIME OUT FEATURE

DISABLED
OPERATIVE

Note: Any unused switches should be turned OFF.

APPENDIX 1

Solenoid Identification Chart for "ORBIT 1"

The following chart may be used with self test number 3 to identify the solenoids of the game.

<u>Identification Number</u>	<u>Solenoid Description</u>
01	KNOCKER (if installed)
02	Not used
03	"
04	"
05	"
06	"
07	OUTHOLE KICKER
08	Not used
09	TOP BUMPER
10	BOTTOM BUMPER
11	Not used
12	RIGHT SLINGSHOT
13	Not used
14	LEFT SLINGSHOT
15	COIN LOCKOUT
16	FLIPPER ENABLE RELAY
17	Not used.

APPENDIX 2

Switch Identification Chart for "ORBIT 1"

The following chart may be used with self test number 4 to identify the switches of the game.

Identification Number	Switch Description	Identification Number	Switch Description
01	Not used	21	Left Top Lane
02	TILT	22	Right Top Lane
03	CREDIT	23	Not used
04	Not used	24	TARGET 'R'
05	REBOUND (2 off)	25	TARGET 'I'
06	ROCKET LAUNCH	26	SPINNER
07	Not used	27	TARGET 'B'
08	TOP BOUNCE	28	TARGET 'T'
09	SLAM	29	Lt Return Lane
10	COIN DOOR	30	Rt Return Lane
11	Not used	31	Not used
12	Not used	32	Re-ENTRY LANE
13	Not used	33	TOP BUMPER
14	Not used	34	BOTTOM BUMPER
15	Not used	35	Not used
16	COIN (2 off)	36	Right SLIGHT
17	LEFT OUTLANE	37	SHOT (2 off)
18	RIGHT OUTLANE	38	LEFT SLING-
19	Not used	39	SHOT (2 off)
20	Not used	40	Not used
			OUTHOLE