

# S-Plus Diagnostic Cards



These cards were created as a summary of diagnostic functions described more fully in current IGT manuals.

### Related Manuals

- S-Plus Int'l Software Guide p/n 821-047-XX
- Game Software: S-Plus Products p/n 821-206-XX
- Troubleshooting: Game Machines p/n 821-283-XX

Note: Some of the options on these cards may or may not be displayed, depending on the version of software or game type you have installed. It is possible that some options may be displayed that are not on these cards.

For further software information, contact your IGT representative to request an appropriate Program Summary Report (PSR) for a detailed description of the game software version you are currently using.

PSRs for specific game programs can also be downloaded from the IGT Product Information Network.

- IGT Online Product Information Network (BBS):  
1-800-448-1221 (from North America)  
702-948-2795 (from most international locations)  
Website: <http://igpm.intgame.com>
- IGT 24-hour HOTLINE: 1-800-688-7890
- IGT Customer Service: 1-702-448-0364

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International Game Technology

## Self Test Pages

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To access self test pages: Unlock and open the machine door. Press the self test switch to enter the self test mode and advance through each self test page. In the table on card 3, the player digital displays present information for performing tests or selection options: Coins Played window (CP), Winner Paid window (WP), and Credits window (Credits).

Moving Through Pages: Player panel switches can be used to move through self test pages or adjust options.

- Ref.Coin Credit - goes to next self test "page," an alternative to pressing the self test switch.
- Play Main Credits - goes to previous self test page, moving through self test in reverse.
- Change/Reset Key - moves forward in option setup (Page 4), or changes options in other pages.
- Stop/Reset - changes settings in option setup (Page 0).

PSRs: To understand the proper option setting for each feature, refer to the Program Summary Report for the game program. PSRs are available on IGT's online Product Information Network, or from your IGT representative.

Accounting System Communication Option: The communication type is the first display in self test. Some games determine communication type on channel A (DCS port). Options are: none, serial SDS (XMSER), IGT SAS, or Concept 3.

- 0 = No communication handling
- 1 = XMSER
- 2 = IGT SAS
- 3 = Concept 3

Some games can communicate with the Wide Area Marketing Monitoring (WAMM) system on channel B of the DUMART printer port.

Self Test Pages (cont.)

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CP	Winner Paid	Credits	Description
6	denom	<50	Denomination Selection/Display
7	max # of coins		Maximum Hopper Pay Selection
7		max # of credits	Bill Acceptor Credit Limit
8		coins to be paid from hopper	Partial Pay Selection
# progressive is enabled:			
0	1,4		Stand Alone Progressive #1
0	5,8		Stand Alone Progressive #2
0	1,2		Link Progressive Display
11	00 - 99		Bill Rejection Limit
90	0 0 1 1		Out of Service

Pay table: The pay table self test works with multiple wild and nudge symbols in some games. The test excludes wild and special symbols and disallows winning combinations that appear elsewhere in the pay table with a higher value pay.

Game Type #:

- 0 = Standard
- 1 = Nudge
- 2 = 1 Waywile
- 3 = Volcano
- 4 = Spin 'Til You Win<sup>1</sup>
- 5 = Fourth of July<sup>1</sup>
- 6 = Tidal Wave<sup>1</sup>
- 12 = Tropical Fever<sup>1</sup>
- 14 = Tournament
- 15 = Hold-A-Symbol
- 16 = Bonus Lights
- 17 = Bonus Multiplier
- 18 = Second Effort
- 19 = 4th Coin Buy a Pay
- 20 = Double Chance
- 21 = Haywire Deluxe<sup>1</sup>
- 22 = Jungle Fever<sup>1</sup>
- 23 = Random Nudge
- 24 = Hold A Reel
- 26 = Wild Sapphires
- 27 = Wheel of Gold
- 29 = Wheel of Fortune

<sup>1</sup> These are not the actual names of the game types, but are examples of existing pay tables that were created for the mentioned type.

Self Test Pages (cont.)

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CP	Winner Paid	Credits	Description
0		0-3	Communication Type
0			SAS Address
0			WAMM/CCOM Address
0	5 0-2		Player Selectable Credit
0	6 0-1		Mechanical Bell
0	7 0-1		Drop Door Monitoring
0	8 0-2		Bill Acceptor Pay Mode
0	9 0-1		Bill Acceptor Enable/Disable Display
0	10 0-1		Exit Coin-in Contribution
0	11 0-1		EFT Enable/Disable Display
0	12 0-1		Sound Effects Enable/Disable
0	13 0-1		Hold Pay Display Option
0	15 0-1		Reservoid
0	16 0-1		Bill Acceptor Tilt Mode
0	30 01 36		Bill Acceptor Country Code
0	31 1 4		Progressive Option Selection
0	34 0-1		Partial Pay On Top Award
0	30 0-1		Max Bet Autospin
0	50 0-1		EFT Credit Limit
0	1st 4	1st 4	DIP Switch Configuration Display
1	xy_2 see card 5		Input Tests
2	xy see card 6		Output Tests
	50 - 56		Sound Test
	60 - 67		Song Tests
			Display Test (This is a non-part test)
3	# coins		Hopper Test
4	reel strip, game type, version		Pay Table Test
5	position #		Reel Strip Test

\* On newer games the reel strip number will be displayed on the Credits and Winner Paid windows (for numbers > 9999)

## Input Tests

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To access input tests: The number 1 appears in the Coins Played window. During each input test, 3 digits of a 1 digit code appear in the Winner Paid window. Turn the reset key and activate the corresponding input to test its condition until the 2 digits on the left hand side of the display correspond to the number of the input.

Input	Function
10_1	Coin In A
11_1	Coin In B
12_1	Coin In C
13_0	Door Open Switch
14_1	Hopper
15_0	Hopper Level Probe
16_0	Spin/Handle Switch
17_0	Reset/Display Meter Switch
20_0	Play 1 Credit Switch
21_0	Play Max Credit Switch
22_1	Cashout Credits Switch
23_0	Change Switch
24_1	Reel Moch Installed Input
25_0	Self Test Switch
26_0	Spare
27_0	Bill Acceptor
30_0	Spare
31_0	Drop Door Switch
32_0-37_0	Spare
40 x	Reel 1
41 x	Reel 2
42 x	Reel 3
43 x	Reel 4
44 x	Reel 5

## Output Tests

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To access output tests: The number 2 appears in the Coins Played window. Turn the reset key until the 2 digits on the left hand side of the display correspond to the number of the output. Press the Spin Reels, player switch to activate the output.

Output	Function
10	Coin Drop Meter
11	Coin Out Meter
12	Coin In Meter
13	B Switch - SIDS Output
14	Hopper Drive #2
15	Stepper Motor Direction
16	Mechanical Bell
17	Spare/Cancelled Credits Meter
20-23	Stepper Lamps 3 to 6
24	Door Optics
25	Games Played Meter
26	Bill Acceptor Enable
27	Jackpot x 10 Meter
31	Change/Tilt Lamp
33	Diverter
34	Coin Lockout
35	Hopper Drive #1
36	Stepper Lamp #1
37	Stepper Lamp #2
40	HI/LO Signal
41	Insert Coin Lamp
42	Coin Accepted Lamp
43	Spare/7 VAC Output
44	Bet Max Credits Lamp
45	Bet One Credit Lamp
46	Cashout Credits Lamp
47	Spin Switch Lamp
50	Stand Pay Lockup Lamp
51	Change/Service Lamp
52	Tilt Lamp
53	Door Open Lamp

## Set Denomination

### Enable/Disable Bill Acceptor, Enable/Disable Electronic Funds Transfer (EFT), Set Denomination

1. Insert the game EPROM in the game socket, insert the reel EPROM in the reel socket. Check the E15 - E16 jumper for correct position. Power up and clear 61 code. Set the game options and parameters in self test, and then exit self test. Power down and remove the game EPROM.
2. Insert the set chip in the game socket and place the jumper at E15.
3. After power up, press the self test switch. A 0 in the Coins Played window and 90 in the Winner Paid window indicates the bill acceptor enable/disable feature is disabled. In some games when the SAS communication option is selected, a 0 will appear in the Coins Played window and 110 will appear in the Winner Paid window, indicating the EFT option enable/disable feature is disabled. To enable, use the handle/Spin Reels/player switch, which changes 0 to 1.
4. Press the self test switch and 6 will be displayed in the Coins Played window, indicating the denomination set option. The Credit window shows current denomination in cents. The Winner Paid window is also used for denomination > 5000 (\$50.00). Use the handle/Spin Reels switch to increase the denomination. To save this setting, press the self test switch. Failure to press the self test switch will cause the denomination to default to 0 on power down.
5. To exit, replace the game chip, reset jumper if necessary, replace board and power up.

### Denomination Modifications

Denomination modifications require the denomination set chip, unless the bill acceptor option is selected to be disabled. If disabled, the denomination is set in the self test mode.

When the denomination is set to zero, the bill acceptor is disabled (if present) and the game does not display progressive amounts. Progressive wins will cause the game to go to a hand pay lock keep condition.

## Progressives

**Stand Alone Progressive:** The progressive amounts are shown on the imbedded progressive meters.

To access the self test stand alone progressive parameters setup: Depending on version, progressives are set up in non-setup (Page 6) or with DIP switches. For DIP switch setup, EFP switch 5 must be on and 8 off. Push the self test switch until a 9 appears in the Coins Played window. The progressive display will show either all zeros or the last amount. Push Spin Reels switch to change the flashing digit's numerical value. Turn the reset key to advance to the next digit. Push the self test switch to advance to the next progressive option (refer to the table below). After the last parameter, press the self test switch to exit.

Parameter	Description
1 - Base	Reset Value for the First Progressive Amount
2 - Limit	Maximum First Progressive Amount
3 - Add	Percent Contribution to 1st Progressive Amount
4 - Current	Current Value of First Progressive Amount

**Link Progressive:** In newer games, when the link progressive option is selected, the progressive amounts received from the progressive controller are displayed in page 9 of the self test. Pressing the Spin Reels/player switch displays each entry. The progressive amounts are shown on both imbedded progressive meters as well as on the Credit and Winner Paid windows.

Parameter #	Description
1	Coins Played - 0, Winner Paid - 1 if the first progressive level is enabled or Winner Paid - 2 if both progressive levels are enabled.
2	Coins Played - 1, Winner Paid and Credits - dollar amount of first level link progressive. The first level link progressive amount is shown in the first and second level link progressive external displays.
3	Coins Played - 2, Winner Paid and Credits - dollar amount of second level link progressive amount is shown in the first and second level link progressive external displays. Displayed only if the second level progressive is enabled.

## Statistical Data Mode

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Forward and reverse. Some games can go both forward and reverse through the statistical data pages. To go forward press either the Bet One Credit player switch or the Change switch, in addition to the reset key switch. To go in the reverse direction, simply press the Play Max Credits player switch.

To step through each item in a statistical data page, press the Spin Reels player switch.

### Meter Display

Meter	Meter Description
01	Coin In
02	Coin Out
03	Coin Drop
04	Cancelled Credits (hand pay)
05	Games Played
06	Hand Paid Jackpot Amount
07	Door Opens
08	Games Won
09	Games Lost
10	Coin In Tills
11	Coin Out Tills
12	Total Resets
13	Hopper Empty
14	Reserved
15	Primary Progressive Hits
16	Games Played Since Last Door Closed
17	Games Played Since Last Power Up
18-27	Games Played with 1 to 10 Coins In
28	Total \$1 Bills Accepted
29	Total \$5 Bills Accepted
30	Total \$10 Bills Accepted
31	Total \$20 Bills Accepted
32	Total Bills Accepted
33	Coins/Credits Dispensed
34	\$1 Bills Accepted (SLMR*)
35	\$5 Bills Accepted (SLMR*)

## Statistical Data Mode (cont.)

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### Meter Display (cont.)

Meter	Meter Description
36	\$10 Bills Accepted (SLMR*)
37	\$20 Bills Accepted (SLMR*)
38	Bills Accepted (SLMR*)
39	Coins/Credits Dispensed for Bills (SLMR*)
40	Dollar Values of Bills Accepted (SLMR*)
41	Total Dollar Value of All Bills Accepted
42	Drop Door Open Cumulative Total
43	Credits Played Cumulative Total
44	Credits Won Cumulative Total
45	Credits Paid Cumulative Total
46	Physical Coins Inserted
47	Coins Dispensed by Hopper
48	Total \$2 Bills Accepted
49	Total \$50 Bills Accepted
50	Total \$100 Bills Accepted
51	\$2 Bills Accepted (SLMR*)
52	\$50 Bills Accepted (SLMR*)
53	\$100 Bills Accepted (SLMR*)
54	(Reserved)
55	Promotional Credits Downloaded
56	Non Cashable Credits Downloaded
57	Credits Cashed Out to the System
58	Cashable Credits Downloaded
59	Physical Coins to Drop
60	Processor Board Battery Tilts
61	(Reserved)
62	Reel #1 Tilts
63	Reel #2 Tilts
64	Reel #3 Tilts
65	Reel #4 Tilts
66	Reel #5 Tilts
67	Reel Mechanism Tilts

\*SLMR = Since Last Meter Reading/Reset

## Statistical Data Mode (cont.)

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### Meter Display (cont.)

Meter	Meter Description
68	Bill Acceptor Stacker Jam
69	Bill Acceptor Cashbox Removed
70	Bill Acceptor Cashbox Full
71	Bill Acceptor Hardware Tilt
72	Bill Acceptor Reverse Bills
73	Secondary Progressive Hits

**Last game display:** Exit the meter display with the reset key. A 2 appears in the Coins Played window. Depending on the version installed, the reels align in the position they were in for the game being displayed. Winner Paid window shows YXXX, where Y = reel number and XXX = reel stop number. Credits window indicates game currently displayed, and for some versions 0 (standard game) or 1 (free spin/bonus game). For nudge games, Winner Paid window = number and position of reel before nudge, and Credits window shows position of reel after nudge. After the last reel has been displayed, the last game coins in, coins paid, and credits are displayed in their normal locations. Press Spin Reels switch to enter the next game.

If hand-pay display option is enabled, hand-pay information displays during the last games recall.

**Last 5 bill acceptor transactions:** Initially all 9s are displayed. Press the Spin Reels player switch to view the first transaction. The last 5 transactions appear in the Coins Played window, starting with the last transaction, numbered 1. The number of coins dispensed or credits given appear in the Winner Paid window. The denomination of the bill appears in the Credits window.

Last 50 or 64 progressive jackpots recall: A 4 will appear in the Coins Played window. The primary progressive display will show the most recent progressive jackpot hit. The left 2 digits of the Winner Paid window show a reference number between 1 and either 50 or 64.

## Statistical Data Mode (cont.)

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When the Spin Reels player switch is pressed, the number increments as the previous progressive jackpots are recalled to the primary progressive display. The right-most digit of the Winner Paid window indicates the progressive level of the current progressive jackpot won.

**Last five EFT transactions:** In the statistical data mode, some games display SAS EFT transactions. Turn the reset key switch or press the Bet One Credit player switch to view each category; pull the handle or push the Spin Reels switch to view the last five transactions within each category.

Window	EFT Descriptions
Coins Played	5 = downloaded non-cashable credits 6 = downloaded cashable credits 7 = downloaded promotional credits 8 = cash outs to the system 9 = forced cash outs to the hopper 1 = acknowledgement received, transaction processed 0 = no acknowledgement, transaction not processed Alternately displays transaction number & status: 00 = successfully completed 01 = no game denomination set 03 = downloaded credit not a multiple of game denom. 04 = downloaded credit exceeds maximum credit limit
Winner Paid	Number of credits transferred, alternates with transaction number: 1 = most recent transaction 5 = oldest transaction
Credits	

### Statistical Data Mode (cont.)

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Clearing resettable bill meters: In some games Coins Played 1 alternates with 0. The resettable bill meters keep a count of the bill acceptor transactions since the last time the meter was cleared. If any resettable bill meter is not equal to zero, 8888 is displayed in both the Credits and Winner Paid windows. Press the Spin Reels player switch to clear resettable meters. 0000 is displayed in the Credits and Winner Paid window when the meters are cleared.

Some games allow the clearing of Periodic Bill Meters as a separate option in the Statistical Data Mode.

SAS EFF meters breakdown: Pressing the Spin Reels player switch advances through the two SAS EFF meters. If the Coins Played window = 1, the Credits window = promotional credits. If the Coins Played window = 2, the Credits window = buffered credits (bill transactions, cashable downloads and non-cashable downloads).

### Error Codes/Tilt Clearing

Code	Meaning	Action
12	Low Battery	Power down/up; Open/close door to clear; Change battery
21	Coin-In Tilt	Open/close door; Check coin in optics
3100	Extra Coin Out	Open/close door; Check hopper
3200	Coin-Out Tilt	Open/close door; Check hopper
3300	Hopper Empty	Open/close door; Check hopper
41-45	Reel Tilt 1-5	Open/close door; Check reels
49	Reel Mech Disc	Open/close door; Check reel plug

### Error Codes/Tilt Clearing (cont.)

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Code	Meaning	Action
61	Bad CMOS RAM	Open door; press self test switch for 3 seconds
61-1	Game Date Reset	Open/close door; Turn reset key switch
61-2	Recoverable CMOS error	Open door; press self test switch for 3 seconds
62-0	Bad Game EPROM	Verify insertion; Replace EPROM
62-1	Bad Data EPROM	Verify insertion; Replace EPROM
63	Processor Tray Open	Check processor tray lock optics/switch
64	Link Down	Check link; Check communicator
65-0	Bad EEPROM Device	Press self test switch for 1 second, if won't clear, replace EPROM
65-1	Bad EEPROM Data	Press self test switch for 1 second, 65-1 clears
65-2	Game Type Mismatch	Press self test switch for 1 second, 65-2 clears
66	Game EPROM Change	Power down/up
67	Data EPROM Change	Power down/up
68	Not Compatible Data EPROM	Change to compatible data EPROM

### Validator '99' Tilt Codes

Tilt Code	Malfunction
99-1	Bill validator stacker jam
99-2	Bill validator cash box removed
99-3	Bill validator cash box full
99-5	Bill validator hardware error
99-6	Bill validator reverse bill detected

**Candle Codes (Two Stage)**

Lamp: Top	Lamp: Bottom	Machine Status
Off	Off	Idle or Operation Normal - Machine Door Closed
Off	Medium Flash	Idle - Machine Door Open
Off	Fast Flash	Idle - Drop Door Open
On	Off	Change - Machine Door Closed
On	On	Game Disabled
On	Medium Flash	Change in Game: Disabled Machine Door Open
On	Fast Flash	Change or Game Disabled - Drop Door Open
Slow Flash	Off	Tilt - Machine Door Closed
Slow Flash	Slow Flash	Hand Pay or Tilt - Hand Pay Lockup
Slow Flash	Medium Flash	Hand Pay or Tilt - Machine Door Open
Slow Flash	Fast Flash	Hand Pay or Tilt - Drop Door Open

**Set Chip**

Set chip: An ICT utility program (set chip) is required to modify the denomination or enable/disable the bill acceptor. If the bill acceptor is disabled, the denomination can be set in the self test mode. A specific set chip is required to select the SAS. Electronic Funds Transfer (EFT) option. Before the EFT option can be selected with the set-chip, perform the following steps: install the game chip, enter the self test mode, specify ICT SAS as the accounting system communication type, select a non-zero main system address, and exit the self test mode.

**DIP Switch Settings**

#	OFF	ON	ON	ON	# - ON/ON enables programmable hopper size in the self test mode; must be reset in the event of a CMOS RAM error (when value defaults to 1000 coin hopper pay)
1					
2	OFF	OFF	ON	ON	
3	300	400	600	4	
4	ON	ON	OFF	OFF	Sound generator produces reel spin sounds and reel stop sound during game play
5	ON	ON	OFF	OFF	Sound generator produces reel stop sound only
6	ON	ON	OFF	OFF	Game Speed ON - Fast machine cycles OFF - Normal machine cycles
7	ON	ON	OFF	OFF	Bills To Hopper ON - Automatically exchanges accepted bills for coins from hopper OFF - Bill acceptor payment not in self test
8	ON	ON	OFF	OFF	Progressives ON - Allows progressive game play OFF - Non progressive setting
9	ON	ON	OFF	OFF	High Low Progressives ON - Allows highlow progressives OFF - Allows single level alternating progressives
10	ON	ON	OFF	OFF	Double Progressives ON - Allows double progressives OFF - Allows single progressives
11	ON	ON	OFF	OFF	Link Progressives ON - Allows link progressives OFF - Allows standalone progressives
12	ON	ON	OFF	OFF	N/A ON - Not in use, link progressives set in self test OFF - Not in use, link progressives set in self test
13	ON	ON	OFF	OFF	Function of DIP Switch setting varies with software version Switch 5 must be ON for features in 6, 7 and 8 to be enabled Switches 9 through 13 will have no effect if the machine is a Wide Area Progressive game.