

Game Software

Game King Products

Release 4



International Game Technology

Game Software: Game King Products – Release 4

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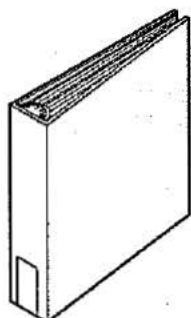
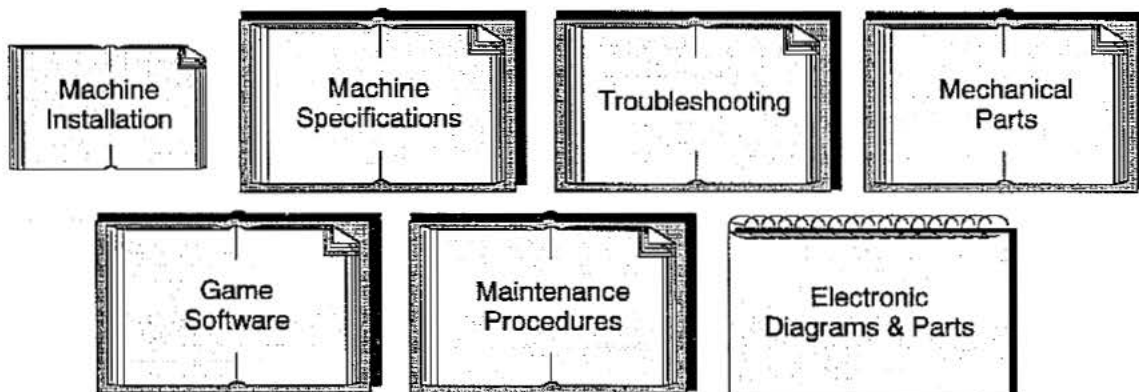
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About Field Service Documentation

IGT manuals are structured to:

- Meet customer requests for separate parts and electronic manuals
- Reduce customer cost for manuals
- Allow customers to purchase the information they use most in the quantities they need

Complete Set of Documentation =
Seven Standalone Manuals



(Binders must be purchased separately.)

Packaging

Note: Most manuals are 8.5" x 11" format, shrink-wrapped and 3-hole punched to fit into a standard 3-ring binder.

Exceptions: Machine Installation, Electronic Diagrams & Parts.

Related Documentation:

This manual contains information and procedures related to game software only. It should be used in conjunction with the appropriate IGT field service manuals for operations such as installation, troubleshooting, maintenance and repair.

Machine specifications, installation and troubleshooting manuals, designed to support all machines, include:

- *Machine Specifications* manual (p/n 821-288-0X) – provides environmental, electrical, dimensional, stand, and lock specifications for IGT machines. It also includes IGT seat specifications.
- *Machine Installation Procedures* manual (p/n 821-287-0X) – contains overall installation instructions for all IGT machines.
- *Troubleshooting: Game Machines* manual (p/n 821-283-0X) – contains overall troubleshooting techniques and references for both hardware- and software-related problems for all IGT machines.
- *80960 Tester Operator's Manual* (p/n 821-331-0X) – contains information required to use the video tester for testing processor boards and other machine components.

Maintenance manuals contain detailed procedures for routine maintenance, cleaning and repair/replacement of machine parts. Manuals are grouped by product family and cabinet design as follows:

- *Maintenance Procedures: Game King 13" Flat-Top Machines* manual (p/n 821-282-0X)
- *Maintenance Procedures: Vision Series/Game King 17" Slant-Top Machines* manual (p/n 821-293-0X)
- *Maintenance Procedures: Game King 17" Upright Machines* manual (p/n 821-332-0X)

Machine mechanical parts manuals contain exploded view illustrations and parts lists. Manuals are machine-model specific as follows:

- *Mechanical Parts: Game King Flat-Top Machines* manual (p/n 821-274-0X)
- *Mechanical Parts: Game King 17" Slant-Top* manual (p/n 821-270-0X)
- *Mechanical Parts: Game King 17" Upright with Hopper* manual (p/n 821-306-0X)
- *Mechanical Parts: Game King 19" Slant-Top* manual (p/n 821-338-0X)

Machine electronic diagrams and parts manuals contain connector overviews, wiring diagrams, board assembly parts lists and schematics. Manuals are machine-model specific as follows:

- *Electronic Diagrams and Parts: Game King Flat-Top Gaming Machines* manual (p/n 821-273-0X)
- *Electronic Diagrams and Parts: Game King 17" Slant-Top Machines* manual (p/n 821-269-0X)
- *Electronic Diagrams and Parts: Game King 17" Machines (Upright with Hopper)* manual (p/n 821-307-0X)

Related Videotapes:

- *Game King Product Overview* (p/n 828-028-00 NTSC format or p/n 828-028-99 PAL format) presents a basic overview on game features, diagnostics, component identification and removal.
- *Game King Service: Maintenance* (p/n 828-034-00) reviews procedures for basic maintenance of Game King machines in standard gaming or video lottery environments.
- *Game King Service: Software* (p/n 828-035-00) reviews Game King game software operation and setup.
- *Game King Service: Troubleshooting* (p/n 828-036-00) focuses on problem analysis and solutions addressing the most common problems encountered in casino floor environments.
- *Machine Installation* (p/n 828-008-00) reviews the pertinent procedures for installing machines in standard gaming or video lottery environments.
- *Basic Machine Troubleshooting* (p/n 828-010-00) provides the beginning slot machine mechanic with the information necessary to troubleshoot IGT's stepper slot and video games.
- *Machine Troubleshooting, Part 2* (p/n 828-012-00) continues with information from the *Basic Machine Troubleshooting* video and focuses on detailed problem analysis and solutions addressing the most common problems encountered in casino floor environments.
- *Ceronix Monitor Repair* (p/n 828-005-00) provides technicians with board-level repair information for Ceronix monitors.

* IGT machines may be manufactured with components from a third-party vendor. For those components not documented in this manual, contact the component manufacturer directly.

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Web Site: **<http://www.igtproducts.com>**
E-mail: **webmaster@igtproducts.com**
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For parts information, service or other technical assistance, contact:

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Reno, Nevada (USA) 89511-8986
Telephone (8 a.m. – 4 p.m. PST): 775-448-0364
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Toll-Free Access – Call toll-free from North America or international locations. Additional access codes may be required from international locations.

North America: 1-800-688-7890
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Section 1

Introduction

IGT field service documentation consists of a series of manuals. Each manual addresses a different aspect of field service and is designed to be used in conjunction with other standalone manuals related to specifications, maintenance, installation, game software, troubleshooting, electronics and parts. Manuals are tailored for product group or, in some cases, product models.

All manuals contain the following information to assist the reader in making the best use of IGT documentation:

- **About Field Service Documentation** – is included at the front of each manual, and includes a graphic representation of the IGT field service manual series.
- **Related Documentation and Related Videotapes** – appear at the front of each manual and list other books and videotapes that should be used in conjunction with this manual.

This manual provides game software information for Game King machines. Subjects covered in this manual include information required to select options, test, perform machine diagnostics and record cumulative data. This manual contains the following sections:

- **Section 1, Introduction** – provides an introduction to Game King software.
- **Section 2, Operator and Attendant Menus** – gives detailed procedures for using the menus and options on the Operator and Attendant menus.
- **Section 3, Key Chip Menu** – provides detailed procedures for using the Key Chip menu.
- **Section 4, IC Chip Procedures** – describes how to change chips on the Game King processor board.

- **Section 5, Functional Verification** – describes how to verify that the game is functioning properly.

Information in this section includes:

- **Section 1.1, Software Overview** – summarizes game software characteristics and includes an overview of software functions available in the Game King machine.
- **Section 1.2, Menus** – explains the major menus available in Game King software.
- **Section 1.3, On-Screen Help** – explains the help text available in Game King game software.

1.1 Software Overview

Note: In order to run release 4 software, a later style processor board with one Megabyte of RAM is necessary. Some earlier boards can be converted or a new processor board can be purchased. Contact your local IGT service representative for details.

Game King Release 4 game programs have the following characteristics:

- On-screen game play instructions and error messages
- Player panel switches and touchscreen buttons that illuminate or appear on the screen when their function is relevant during game play, testing and diagnostics
- Software-enabled options, such as game speed, visual and/or attract modes, sound volume, and background color
- Game options, such as on-screen viewing of accounting, diagnostics, play history, event logs, modify meters, setup, game tests, and out of service
- A key chip feature which prevents unauthorized changes to sensitive options such as denomination and game selection
- Built-in diagnostic capabilities, with both automatic software review and technician-controlled diagnostic steps that allow the manual test of player switches, touchscreen, hopper, coin acceptor, bill acceptor, access door switches, sound effects, and voucher printer
- Test routines for quick diagnostics and problem resolution

Note: A variety of game program software is compatible with the Game King machine: poker, 21 (blackjack), video slot, keno, pull-tab, bingo and lotto. In addition, Game King machines support a variety of optional components that may affect game play and alter the machine's physical configuration, such as player panel switches or touchscreens. Specific procedures and screen displays may vary depending upon the game type and physical configuration of the machine(s).

Specific screen displays and software options vary depending upon jurisdiction. The information presented in this section is common to most jurisdictions. The illustrations and tables provided represent typical software functions.

Service Light Operation

The optional IGT service light (candle), located on the top of the machine enclosure, indicates various modes or game conditions when the machine power is on. Refer to the appropriate troubleshooting manual for typical messages that a service light communicates.

Screen Navigation

Use the buttons on the touchscreen video monitor to navigate through the various menus and options. Two screen buttons are common to all video displays:

- The [EXIT] button returns the user to the previous screen or menu.
- The [RETURN TO GAME] button returns the machine to the game screen displayed prior to entering the menu.

Generally speaking, menu items appearing in yellow have been selected and menu items appearing in red have not been selected.

Help text accompanies setup, diagnostic and modification screens. A [HELP] button is provided on the Comm Channel Analyzer screen to provide detailed explanations of the text that is displayed. Refer to Section 1.3, On-Screen Help, for additional information.

Red option buttons appear on the menus. Touching one of these buttons causes the button to turn yellow and brings up another menu or displays the selected function's screen. The yellow buttons and path lines indicate progress through the menus.

A blue information display window appears in the center of the screen when the Operator or Attendant menu is first entered. This window provides information about current machine faults (e.g., tilts and error handling). The window disappears when any screen button is touched to make room for menu operation.

Display of Meter Data

All meters are right or decimal justified. Linear meters may be up to 10 digits with a maximum value of 1,000,000,000. Monetary meters are displayed in number of lowest usable monetary units in the correct format for that currency. Meters in percentage format (100.00%) may be up to 5 digits.

Note: *Specific software features vary depending upon jurisdiction. The information presented in this manual is intended to reflect all features available, but not necessarily those available in any specific jurisdiction.*

Entering the Operator and Attendant Menus

To enter the *Operator* menu, open the machine door and press the operator switch located on the processor tray.

Turn the reset key to enter the *Attendant* menu.

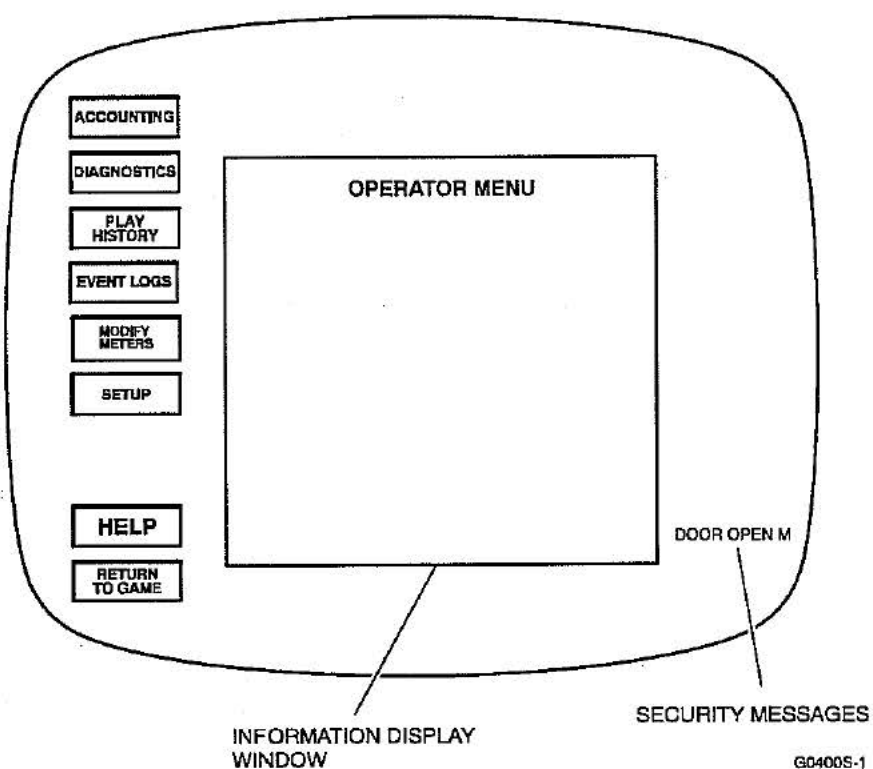
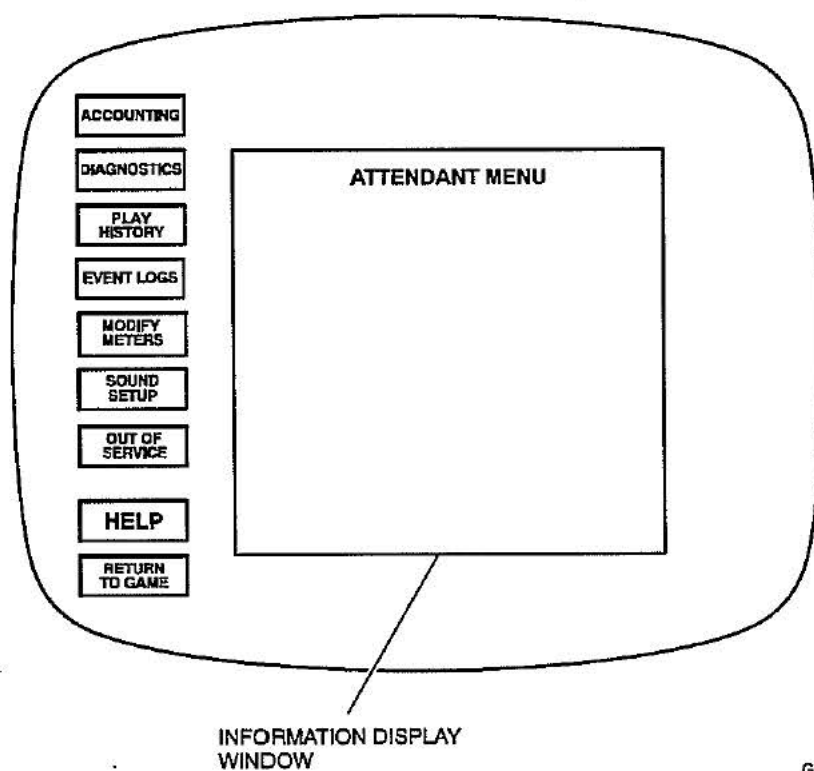
1.2 Menus

This section describes the information available to the operator or attendant, and how the *Operator* and *Attendant* menus function.

The *Operator* and *Attendant* menus are similar, except for the method used to enter them and the lockout of the attendant from certain high security options. The menus have the following menus and options:

- **Accounting** – displays accounting and meter data for the machine and individual games.
- **Diagnostics** – provides all machine diagnostics available to the operator and the attendant. Some high security features cannot be accessed by the attendant (e.g., communications channel analyzer).
- **Play History** – provides game history information, used to verify game outcome and resolve player disputes, including machine history information for recent games played, in reverse chronological order.
- **Event Logs** – includes information stored in the event logs. Events may include peripheral device errors, game-related activities (e.g., coins accepted, player cashouts), machine access, or machine malfunction.
- **Modify Meters** – provides access to functions that clear machine period meters and indicate a hopper fill has occurred. This function can be performed only when the coin cash box or bill acceptor cash box is open, and is typically performed when changing games or filling the hopper.
- **Setup** – includes steps available to set machine-wide preferences and game-specific preferences and enrollment setup. The *Setup* option is available only from the Operator menu. The Attendant menu allows access to the *Sound Setup* option only.
- **Out of Service** – displays “Out of Service” on the video monitor to render a machine inoperative without turning the power off. This option is only available on the *Attendant* menu.

Compare Figure 1-1, Operator Menu, and Figure 1-2, *Attendant Menu*, to see the similarities and differences between these functions.

**Figure 1-1. Operator Menu.****Figure 1-2. Attendant Menu.**

Operator Menu

An operator is the machine operator, owner, service technician or any other person with access to the interior of the machine. Access the *Operator* menu by opening the machine door and pressing the test switch on the front of the processor tray.

The screen displays the main menu, existing tilt conditions, and messages that reflect the status of the machine's doors. Refer to Section 2.1 for detailed information about the menus and options.

Attendant Menu

The attendant is the person who has access to video-displayed information by turning the reset key on the outside of the machine. The attendant **does not have access** to the interior of the machine.

The screen displays the main menu, existing tilt conditions, and messages that reflect the status of the machine's doors. Refer to Section 2.1 for detailed information about the menus and options.

1.3 On-Screen Help

The [HELP] button accompanies more complicated screens. The button is not displayed on screens where the on-screen instructions and buttons are sufficient.

Game King game software provides step-by-step on-screen instructions. Additional information is available via help screens for two game features:

- Touchscreen button functions within the *Operator* and *Attendant* menus
- Comm channel analyzer functions

Comm Channel Analyzer

The *Communications Channel Analyzer* screen on the *Diagnostics* menu offers several pages of help text. These help screens display detailed information about the data that is displayed on the screen.

The help screens are an aid to users who are not familiar with the communications analyzer.

Section 2

Operator and Attendant Menus

This section describes the use of the menus available in the Game King software. Information in this section includes:

- **Section 2.1, Operator and Attendant Menu Options** – list the available menus and options on the *Operator* and *Attendant* menus.
- **Section 2.2, Accounting Menu** – lists the available menus and options on the *Accounting* menu.
- **Section 2.3, Diagnostics Menu** – explains the selections available on the *Diagnostics* menu.
- **Section 2.4, Play History Option** – explains the *Play History* option.
- **Section 2.5, Event Logs Menu** – details the options available on the *Event Logs* menu.
- **Section 2.6, Modify Meters Menu** – explains the options available on the *Modify Meters* menu.
- **Section 2.7, Setup Menu** – explains the menus and options available on the *Setup* menu.
- **Section 2.8, Out of Service Option** – explains the *Out of Service* option on the *Attendant* menu.

2.1 Operator and Attendant Menu Options

Table 2-1 provides a brief description the menus and options on the *Operator* and *Attendant* main menus.

Note: Some menus and options on the *Operator* menu are not available while a game is in progress, credits are on the credit meter, or the machine is in a hand-pay tilt.

Table 2-1 Operator/Attendant Menus – Main Menu Options	
Menu/Option	Description
ACCOUNTING	Access information regarding meters, accounting, security, error accounting and program version.
DIAGNOSTICS	Test various machine functions related to sound, video, hoppers, bill acceptors and printer. Some functions may not be available depending upon machine configuration.
PLAY HISTORY	Access information regarding machine and game history.
EVENT LOGS	Access information regarding the events log, cashout log, bill accepted log, progressive log and hand pay log.
MODIFY METERS	Clear period meters and process hopper fills.
SETUP	Configure machine and game options not restricted to key chip. The <i>Sound Setup</i> option is the only setup option available on the <i>Attendant</i> menu.
OUT OF SERVICE	Render the machine inoperable without turning the power off. Causes an "Out of Service" message to be displayed. This option is only available on the <i>Attendant</i> menu.

2.2 Accounting Menu

The *Accounting* menu permits viewing of information regarding:

- Machine master meters
- Cumulative data from period meters
- Specific game accounting information
- Security meter information – door open, logic board access, and coin drop box open
- Error accounting – coin-in errors, bill jams, etc.
- Bill accounting
- Program version information on all firmware on the main processor board and firmware inside NETPLEX peripherals

Refer to Table 2-2 for brief descriptions of each of the *Accounting* options. Specific meter information is outlined in the following section.

Note: *Some functions may not be available depending upon machine configuration.*

Table 2-2
Accounting Menu Options

Menu	Option	Description
ACCOUNTING	MACHINE MASTER ACCOUNTING	View master accounting meters that may cover the life of the machine
DIAGNOSTICS		
PLAY HISTORY	MACHINE PERIOD ACCOUNTING	View meter information since the period meters were last cleared
EVENT LOGS		
MODIFY METERS	GAME GROUP ACCOUNTING	A summary of game master meters for all games configured for the machine
SETUP	GAME ACCOUNTING	View game master and game specific accounting meters
OUT OF SERVICE	GAME SET RECALL	View game set information
	SECURITY ACCOUNTING	View security accounting meters

Table 2-2 (cont.) Accounting Menu Options		
Menu	Option	Description
ACCOUNTING	ERROR ACCOUNTING	View error accounting meters
DIAGNOSTICS		
PLAY HISTORY	PROGRAM VERSION INFORMATION	View version information of both machine and peripheral firmware
EVENT LOGS		
MODIFY METERS	BILL ACCOUNTING	View all bill accounting meter information
SETUP		
OUT OF SERVICE	VOUCHER ACCOUNTING	View all voucher/ticket meter information
	CASHLESS INFORMATION DISPLAY	View promotional credit meter information

Machine Master Accounting

Use the *Master Accounting* option to view master accounting meter data that may cover the life of the machine. Any game played on the machine contributes to these meters. The following information is displayed:

- Total coins in and out
- Machine yield percentage
- Total coins played
- Total coins won
- Total games played

Refer to Table 2-3 for specific meter information. Bold items are major meter categories.

Use the [NEXT PAGE] and [PREVIOUS PAGE] buttons to scroll through the display.

Machine Period Accounting

The *Machine Period Accounting* option provides view-only access to meter information that has accumulated since the period meters were last cleared. Available data includes:

- Total coins in and out
- Machine yield percentage
- Total coins played
- Total coins won
- Total games played

Refer to Table 2-3 for specific meter information.

Use the [NEXT PAGE] and [PREVIOUS PAGE] buttons to scroll through the display.

**Table 2-3
Master Machine Accounting/
Machine Period Accounting Meters**

Meter		Description
Total Played		Total credits or coins wagered
Total Won		Total amount paid by the machine - coins and jackpots
Machine Hold %		Actual or calculated percentage of wagered amount that is retained by the machine
Machine Yield %		Actual or calculated percentage of wagered amount that is payed out by the machine
Total In	Coins In	Total amount of coins accepted by the machine
	Bills In	Total amount of bills accepted by the machine
	Debits In	Total amount in EFT transfers accepted by the machine
	Vouchers In	Total amount in vouchers accepted by the machine
Total Out	Coins Out	Total amount of coins paid by the machine
	Cash Voucher Out	Total amount in cash vouchers issued by the machine
	Debit Out	Total amount in EFT transfers paid by the machine
	Jackpot Hand Pay	Total amount of jackpot hand pays paid
	Cancelled Credits	Total amount of cancelled credits
Total Money to Drop	Bills to Drop	Total number or amount of bills accepted by bill validator
	Coins to Drop	Total number or amount of coins in drop box
	Vouchers to Drop	Total number or amount of vouchers in accepted by the bill validator
Hopper Fill		Total number of coins deposited into hopper

Note: The meters listed above apply to both the *Master Machine Accounting* option and the *Machine Period Accounting Meters* option.

Note: The software for Multi-Denomination games displays amounts to drop. single-denomination software displays number of coins, bills or vouchers to drop.

Table 2-3 (cont.) Master Machine Accounting/ Machine Period Accounting Meters		
Meter		Description
Total Games Played	Total Games Won	Total number of games won
	Total Games Lost	Total number of games lost
Physical coins in		Total number of coins inserted
Physical coins out		Total number of coins paid-out by the hopper
Base machine hold %		Actual or calculated percentage of wagered amount that is retained by the machine, not including system bonus
Base machine yield %		Actual or calculated percentage of wagered amount that is payed out by the machine, not including system bonus
System Total Bonus Won	System deductible bonus won	Information not available
	System non-deductible bonus won	
	System wager match bonus won	
	System deductible MJT won	
	System non-deductible MJT won	
System total bonuses triggered		The number of bonuses triggered by the host
Note: The meters listed above apply to both the <i>Master Machine Accounting</i> option and the <i>Machine Period Accounting Meters</i> option. Note: The software for Multi-Denomination games displays amounts to drop. single-denomination software displays number of coins, bills or vouchers to drop.		

Refer to Table 2-4 for meter data that is displayed by multi-denomination Game King software.

Table 2-4 Master Machine Accounting Meters for Multi-Denomination Games	
Meter	Description
Amount Played	For each denomination, the dollar amount played on the machine
Amount Won	For each denomination, the dollar amount won on the machine

Game Group Accounting

Use the *Game Group Accounting* option to view a summary of game activity for each game in the group. The screen displays the following information:

- Amount played and won
- Game yield percentage
- Number of games played
- Actual and theoretical hold percentage

Refer to Table 2-5 for specific meter information.

Table 2-5 Game Group Accounting Meters	
Meter	Description
Games Played	Total number of games played for this group
Credits or Amount Played	Total credits or dollar amount wagered for this group
Credits or Amount Won	Total credits or dollar amount paid out for this group
Actual Hold %	Percentage of each credit that machine actually retains for this group
Theoretical Hold %	Percentage of each credit that machine should retain for this group
Note: The software for Multi-Denomination games displays amounts wagered and won. Single-denomination software displays number of credits wagered and won.	

Game Accounting

The *Game Accounting* option provides access to a display of game-specific accounting meters for all paytables associated with each game. The following data is displayed:

- Amount played and won
- Game yield percentage
- Number of games played
- Games won and lost

Select a game group and payable using the buttons on the screen to view the information for a specific game. Refer to Table 2-6 for an outline of the meter information that is displayed.

Table 2-6 Typical Game Accounting Meters		
Meter		Description
Credits Played		Total amount played for this game
Credits or Amount Won	Machine Pay	Total amount of credits or money paid by machine for this game
	Hand Pay	Total amount of credits or money paid by attendant for this game
	Host Bonus Won	Total amount of bonus credits or money paid by the host for this game
Game Hold %		Percentage of money wagered on this game that machine retained
Game Yield %		Percentage of money wagered on this game that machine paid out
Games Played	Games Won	Total number of games won
	Games Lost	Total number of games lost
Game ID		Game identification number
Amount won, not including double up		Number of credits won, excluding wins from double up games
Number of progressive hits per level (optional)		Number of times the progressive jackpot has hit for each progressive level
Total number of progressive hits (optional)		Total number of times the progressive jackpot has hit
Note: The software for Multi-Denomination games displays amounts paid, single-denomination software displays number of credits paid.		

Refer to Table 2-7 for game accounting data that is displayed for poker games.

Table 2-7 Poker Game Accounting Meters		
Meter		Description
Total winning hands		For each possible hand, the number of winning hands that were produced
Double up meters	Credits or Money in	Number of credits wagered on double up games
	Credits or Money out	Number of credits paid by the hopper on double up games
	Games played	Number of double up games played
	Games won	Number of double up games won
	Games lost	Number of double up games lost
	Games tied	Number of double up games tied
Note: The software for Multi-Denomination games displays amounts paid. single-denomination software displays number of credits paid.		

Refer to Table 2-8 for game accounting data that is displayed for blackjack games.

Table 2-8 Blackjack Game Accounting Meters	
Meter	Description
Total winning hands	Total number of winning hands
6 card wins	Number of winning hands using six cards
Winners	Number of winning hands using five cards or less
Pushes	Number of hands that resulting in a tie
Insurance wins	Amount of money won on insured hands
Surrenders	Number of surrendered hands

Game Set Recall (optional)

Game King machines are capable of storing up to ten sets of games. The *Game Set Recall* option displays information about currently enabled game sets. Refer to Table 2-9 for specific meter information.

Use the following buttons to control the screen display:

- **[PREVIOUS CONFIGURATION]** – list the data for previous game sets.
- **[NEXT CONFIGURATION]** – list the data for the following game sets.

Table 2-9 Game Set Recall Meters	
Meter	Description
Game	Identifies the game name
Game Number	Identifies the game pay table
Games Played	Total number of games played from this game set
Credits Played	Total amount wagered for this game set
Credits Won	Total amount paid by the machine for this game set
Actual Hold %	Percentage of each credit that machine actually retains for this game set
Theoretical Hold %	Percentage of each credit that machine should retain for this game set

Security Accounting

Use the *Security Accounting* option to view security accounting meters. Refer to Table 2-10 for specific meter information.

Table 2-10 Security Accounting Meters		
Meter		Description
Main Door (power on)	Last Open	Date and time of last main door open with power on
	Last Close	Date and time of last main door close with power on
	Open Count	Total number of times main door was opened since last power failure
Coin Drop Door (power on)	Last Open	Date and time of last coin drop door open with power on
	Last Close	Date and time of last coin drop door close with power on
	Open Count	Total number of times the coin drop door was opened since last power failure
Bill Validator Door (power on)	Last Open	Date and time of last bill validator door open with power on
	Last Close	Date and time of last bill validator door close with power on
	Open Count	Total number of times bill validator door was opened since last power failure
Bill Stacker Access (power on)	Last Open	Date and time of last bill stacker door open with power on
	Last Close	Date and time of last bill stacker door close with power on
	Open Count	Total number of times bill stacker door was opened since last power failure
Logic Board Access (power on)	Last Unlock	Date and time of last logic board access with power on
	Last Lock	Date and time of last logic board close with power on
	Unlock count	Total number of times logic board was accessed since last power failure
Last Power Fail		Date and time of last power failure
Last Power On		Date and time of last power on
Power Off Duration		Length of time of last power off period
Total Power Failures		Total number of power failures

Table 2-10 (cont.) Security Accounting Meters		
Meter		Description
Games Since	Last Power Fail	Total number of games played since last power failure
	Last Main Door Open	Total number of games played since last main door open
	Last Logic Board Access	Total number of games played since last logic board access
	Last Coin Drop Door Open	Total number of games played since last coin drop door open
	Last Bill Validator Door Open	Total number of games played since last bill validator door open

Error Accounting

The *Error Accounting* option provides view-only access to error accounting meter data. The following information is displayed:

- Coin-in jams and timeouts
- Coin sequence errors
- Mechanical meter disconnects
- Game type mismatches
- Games played mismatches
- Processor faults
- Recoverable RAM errors

Refer to Table 2-11 for specific meter information.

Table 2-11 Error Accounting Meters	
Meter	Description
Coin Jams/Timeouts	Total number of coin-in jams/timeouts
Coin Sequence Errors	Total number of coin-in (optic) sequence error
Bill Jams	Total number of bill jams
Rejected Bills	Total number of bills rejected
Mechanical Meter Disconnects	Total number of times mechanical meters were disconnected
Game Type Mismatches	Total number of times game-type data stored in CMOS RAM did not match game data stored in EEPROM
Processor Board Serial # Mismatches	Total number of times processor board data stored in CMOS RAM does not match processor board data stored in EEPROM
Processor Faults	Total number of processor errors detected
Recoverable RAM Errors	Total number of RAM errors detected
Touchscreen Errors	Total number of times interface board did not respond properly to the processor board
Bill Validator Errors	Total number of bill validator errors detected
Hopper Empty	Total number of times the hopper coin-out sensor detected no coins were dispensed
Hopper Coin-Out Jams	Total number of hopper coin-out jams

Program Version Information

Use the *Program Version Information* option to view version information related to machine and peripheral firmware. The initial screen displays information about the following:

- Game program
- Video EPROM
- Touchscreen
- Bill validator
- Printer
- Processor board
- Serial number
- Security and accounting system type

Additional pages display the personality ID, CRC, payable ID and CRC for each available game/pay table combination. Use the [NEXT PAGE] and [PREVIOUS PAGE] buttons to scroll through the display.

Refer to Table 2-12 for specific meter information.

Table 2-12 Program Version Information	
Meter	Description
Game Program Set Version	Identifies the game program
Game Program Set CRC	Identifies the game program CRC value
Configuration Program Version	Identifies the configuration version
Configuration Program CRC	Identifies the configuration program CRC value
Video EPROM Set Version	Identifies the video EPROM set
Video EPROM Set CRC	Identifies the video EPROM CRC value
Sound EPROM Set Version	Identifies the sound ERPOM set
Sound EPROM Set CRC	Identifies the sound EPROM CRC value
Touchscreen Version Information	Identifies the touchscreen version

Table 2-12 (cont.) Program Version Information	
Meter	Description
Bill Validator Version Information	Identifies the bill validator and software program currently loaded
Bill Validator Program Signature	Identifies the bill validator CRC value
Main Processor Board Serial Number	Identifies the processor board serial number

Table 2-13 lists the information that is displayed for each game group and payable.

Table 2-13 Program Version Meters for Game Group and Paytable	
Meter	Description
Personality Id	Used to authenticate the program version and payable
Personality CRC	
Paytable Id	
Paytable CRC	

Bill Accounting

Select the *Bill Accounting* option to view all master and period Bill Accounting meters. This screen includes the master and period total amount and number of bills. Refer to Table 2-14 for specific meter information.

Note: Information is shown for U.S. currency. For international machines the appropriate denominations for the currency configured on that machine are shown.

Table 2-14 Bill Accounting Meters*		
	Meter	Description
Master Meters	Total \$1	Total \$1 bills accepted
	Total \$2	Total \$2 bills accepted
	Total \$5	Total \$5 bills accepted
	Total \$10	Total \$10 bills accepted
	Total \$20	Total \$20 bills accepted
	Total \$50	Total \$50 bills accepted
	Total \$100	Total \$100 bills accepted
	Total Bills	Total bills accepted
Period Meters	Total \$1	Total \$1 bills accepted
	Total \$2	Total \$2 bills accepted
	Total \$5	Total \$5 bills accepted
	Total \$10	Total \$10 bills accepted
	Total \$20	Total \$20 bills accepted
	Total \$50	Total \$50 bills accepted
	Total \$100	Total \$100 bills accepted
	Total Bills	Total bills accepted
*Meter data includes the number of bills accepted and the total dollar amount.		

Voucher Accounting

Use the *Voucher Accounting* option to view all master and period meter data for vouchers received and paid out by the machine. This screen displays the number of vouchers received and printed and the dollar amount of the vouchers. Refer to Table 2-15 for specific meter information.

Table 2-15 Voucher Accounting Meters		
Meter Type	Meter	Description
Master	Total voucher in	Total number of vouchers and total dollar amount of all vouchers accepted over the life of the machine
	Total voucher out	Total number of cashout, receipt and jackpot vouchers printed, and dollar amount for each category over the life of the machine
Period	Total voucher in	Total number of vouchers and total dollar amount of all vouchers accepted since the meters were cleared
	Total voucher out	Total number of cashout, receipt and jackpot vouchers printed, and the dollar amount for each category since the meters were cleared

Cashless Information Display

Use the *Cashless Information Display* option to view information about promotional credits. The screen displays the number of current promotional, non-cashable and cashable credits entered into the machine, and the number of master credits downloaded from the host. The screen also provides a log of the last five promotional credit transactions. Refer to Table 2-16 for specific meter information.

Table 2-16 Cashless Information Display		
Meter		Description
Period Meters	Current promotional	Number of promotional credits accepted from the SAS controller.
	Current non-cashable	Number of non-cashable credits accepted from the SAS controller
	Current cashable	Number of cashable credits accepted from the SAS controller
Master Meters	Master promotional downloaded	Number of promotional credits accepted from the SAS controller
	Master non-cashable downloaded	Number of non-cashable credits accepted from the SAS controller
	Master uploaded to host	Number of credits uploaded to the SAS controller
	Master cashable downloaded	Number of spendable cashable promotional credits

2.3 Diagnostics Menu

The *Diagnostics* menu provides access to various machine hardware tests. The attendant does not have access to some high security features. There may be additional levels of menus depending upon the diagnostic test function. Refer to Table 2-17 for brief descriptions of the *Diagnostic* options.

Note: Some functions may not be available depending on the machine's hardware configuration.

Table 2-17
Diagnostics Menu Options

Menu	Option	Description
ACCOUNTING	INPUT AND OUTPUT TESTS	Test physical devices whose I/O values are memory-mapped, such as switches
DIAGNOSTICS	SOUND TEST	Test the sounds programmed for the machine
PLAY HISTORY	COMM CHANNEL ANALYZER	Display communication parameters and information for the QUART channels
EVENT LOGS	TOUCH SCREEN CALIBRATION	Calibrate and test the touchscreen controller
MODIFY METERS	BILL VALIDATOR TEST	Test the bill validator to make sure it is active and correctly accepting bills of applicable denominations
SETUP	HOPPER TEST	Test the hopper to make sure it is functioning properly and correctly reports hopper statistical information
OUT OF SERVICE	PRINTER TEST	Test the thermal printer to ensure it is functioning properly
	GAME TESTS	Test reel strips and pay tables

2.3.1 Input and Output Tests

Use the *Input and Output Test* menu to verify that the following boards are functioning properly:

- Front panel I/O
- Cabinet I/O
- Processor board

These tests provide diagnosis of machine problems associated with physical devices, or the SENET-based boards and QUARTs that control the inputs and outputs. Screen displays monitor whether machine boards are communicating properly.

Front Panel I/O Tests

The *Front Panel I/O Tests* option provides access to tests that verify proper function of the front panel I/O card, player panel switches and coin-in mechanisms.

Press the [RETURN TO GAME] button at any time during the test to exit the screen and return to game play. Press the [EXIT] button at any time to exit the test and return to the *Operator or Attendant* menu.

Use the following steps to run the test:

1. Press the [FRONT PANEL I/O TEST] button on the touch-screen video monitor. The screen displays the inputs that are available for testing. Refer to Table 2-18 for a detailed listing of the items that are tested.

Table 2-18
Front Panel Input Tests

Front Panel Input	Initial Value*
Hold 1 switch	0
Hold 2 switch	0
Hold 3 switch	0
Hold 4 switch	0
Hold 5 switch	0
Change switch	0
Start switch	0
Cashout switch	0

**Table 2-18 (cont.)
Front Panel Input Tests**

Front Panel Input	Initial Value*
Bet Max switch	0
Bet 1 switch	0
Coin-in 1 (A)	1
Coin-in 2 (B, switch)	1
Coin-in 3 (sense)	0
Coin-in 4 (accumulator)	0
Coin-in 5 (fault)	0
Coin-in 6 (diverter)	0
Service request switch	0
Double-up switch	0
Diverter detect 1	0
Diverter detect 2	0
Play 1 coins switch	0
Play 2 coins switch	0
Play 3 coins switch	0
Play 4 coins switch	0
Play 5 coins switch	0
*An initial value of 0 indicates that the input is OFF, 1 indicates that the input is ON.	

2. Press the appropriate player panel switch or insert a coin to test the desired input. If the board and the input are functioning properly, the value displayed on the screen associated with the input will change.
3. Press the [NEXT PAGE] button on the touchscreen video monitor to proceed to the outputs test screen. The screen displays the outputs that are available for testing. Refer to Table 2-19 for a detailed listing of the items that are tested.

Table 2-19
Front Panel Output Tests

Front Panel Input	Initial Value*
Hold 1 lamp	0
Hold 2 lamp	0
Hold 3 lamp	0
Hold 4 lamp	0
Hold 5 lamp	0
Change switch lamp	0
Start game lamp	0
Cashout lamp	0
Bet Max lamp	0
Bet 1 lamp	0
Bill validator lamp	0
Coin-in lamp	0
Coin OK lamp	0
Game over lamp	0
Door feature 1	0
Door feature 2	0
Door feature 3	0
Door feature 4	0
Service lamp	0
Double-up lamp	0
Door payline 1	0
Door payline 2	0
Door payline 3	0
Door payline 4	0
Door payline 5	0
Door payline 6	0
Door payline 7	0
Door payline 8	0
Acceptor enable	0
Diverter 0	0

*An initial value of 0 indicates that the output is OFF, 1 indicates that the output is ON.

4. Press the appropriate button on the touchscreen video monitor to test the desired output. If the board and the output are functioning properly, the lamp associated with the output will light. The button on the screen changes color from red to yellow to indicate that the output is being tested.
5. Press the **[PREVIOUS PAGE]** button on the touchscreen video monitor to access the input tests.

Cabinet I/O Tests

The *Cabinet I/O Tests* option provides access to tests that verify proper function of the cabinet I/O card.

Press the **[RETURN TO GAME]** button at any time during the test to exit the screen and return to game play. Press the **[EXIT]** button at any time to exit the test and return to the *Operator* or *Attendant* menu.

Use the following steps to run the test:

1. Press the **[CABINET I/O TEST]** button on the touchscreen video monitor. The screen displays the inputs that are available for testing. Refer to Table 2-20 for a detailed listing of the items that are tested.

Table 2-20 Cabinet Input Tests	
Cabinet Input	Initial Value*
Slot handle	0
Coin out	1
Hopper motion detect	0
Hopper full	0
Progressive setup switch	0
Meter disconnect	1
Reversible hopper	0
SEF Port 5	0
SEF Port 4	0
SEF Port 3	0
SEF Port 2	0
SEF Port 1	0
*An initial value of 0 indicates that the input is OFF, 1 indicates that the input is ON.	

2. Press the appropriate switch to test the desired input. If the board and the input are functioning properly, the value displayed on the screen associated with the input will change.
3. Press the [NEXT PAGE] button on the touchscreen video monitor to proceed to the outputs test screen. The screen displays the outputs that are available for testing. Refer to Table 2-21 for a detailed listing of the items that are tested.
4. Press the appropriate button on the touchscreen video monitor test the desired output. Press the [AUTO CYCLE] button to automatically cycle through all of the tests on the screen.

If the board and the output are functioning properly, the lamp associated with the output will light. The button on the screen changes color from red to yellow to indicate that the output is being tested.
5. Press the [PREVIOUS PAGE] button on the touchscreen video monitor to access the input tests.

**Table 2-21
Cabinet Output Tests**

Cabinet Output	Initial Value*
Candle 1 lamp	0
Candle 2 lamp	0
Candle 3 lamp	0
Candle 4 lamp	0
Cabinet payline 1	0
Cabinet payline 2	0
Cabinet payline 3	0
Cabinet payline 4	0
Cabinet payline 5	0
Cabinet payline 6	0
Cabinet payline 7	0
Cabinet payline 8	0
Bell	0
Slot handle release	0

*An initial value of 0 indicates that the output is OFF, 1 indicates that the output is ON.

Processor Board I/O Tests

The *Processor Board I/O Tests* option provides access to tests that verify proper function of the processor board QUARTs and LEDs.

Press the [RETURN TO GAME] button at any time during the test to exit the screen and return to game play. Press the [EXIT] button at any time to exit the test and return to the *Operator or Attendant* menu.

Use the following steps to run the test:

1. Press the [PROCESSOR BOARD TEST] button on the touchscreen video monitor. The screen displays the QUARTs inputs that are available for testing. Refer to Table 2-22 for a detailed listing of the items that are tested.
2. Press the appropriate switch, turn the proper key, or open or close the indicated door to test the desired input. If the board and the input are functioning properly, the value displayed on the screen associated with the input will change.
3. Press the [NEXT PAGE] button on the touchscreen video monitor to proceed to the LED test screen. The two leftmost, green LEDs on the processor board are tested.
4. Press the appropriate screen button to test an LED. If the processor board is functioning properly, the LED will illuminate.

Table 2-22
Processor Board QUART Input Tests

QUART Input	Initial Value*
Security switch	1
Light pen switch	1
Main door	0
Coin drop door	Toggles between 0 and 1
Attendant key switch	1
Operator switch	1
Logic board	1
Bill validator door	Toggles between 0 and 1
Low battery 1	1
Low battery 2	0
Power supply pulse	Toggles between 0 and 1
*An initial value of 0 indicates that the input is OFF, 1 indicates that the input is ON.	

2.3.2 Sound Test

The *Sound Test* menu provides access to tests of the synthesized and digitized sounds that are used during game play and the attract mode.

Configuration of sound options can be performed through the *Operator* menu *Setup* option or *Attendant* menu *Sound Setup* option only.

Synthesized Sound Test

Use the following steps to test synthesized sounds.

1. Press the **[SYNTHESIZED SOUNDS]** button on the touch-screen video monitor.
2. Use the indicators on the screen to adjust the volume level. The level used during the test does not affect sound volume during game play.
3. Press the **[START TEST]** button to start the test.
4. Press the **[STOP TEST]** button to stop the test.

Press the **[RETURN TO GAME]** button at any time during the test to exit the screen and return to game play. Press the **[EXIT]** button at any time to exit the test and return to the *Operator* or *Attendant* menu.

Digitized Sound Test

Use the following steps to test digitized sounds.

1. Press the **[DIGITIZED SOUNDS]** button on the touchscreen video monitor.
2. Use the indicators on the screen to adjust the volume level. The level used during the test does not affect sound volume during game play.
3. Use the **[PREVIOUS]** and **[NEXT]** buttons to select the sound to test.
4. Change the **[LOOP OFF/ON]** setting to ON to repeat the sound until resetting to OFF.
5. Press the **[STEREO OFF/ON]** button to activate stereo sound for the test.

Note: Stereo sound requires the multimedia-lite board.

6. Press the [START TEST] button to start the test.
7. Press the [STOP TEST] button to stop the test.

Press the [RETURN TO GAME] button at any time during the test to exit the screen and return to game play. Press the [EXIT] button at any time to exit the test and return to the *Operator* or *Attendant* menu.

2.3.3 Comm Channel Analyzer (Operator Menu Only)

The Game King machine utilizes IGT's proprietary NETPLEX, high speed serial network to communicate to peripheral devices on a single, half-duplex serial channel. The following devices use this hardware configuration:

- Bill acceptor
- Keypad
- Printer
- Card reader

The communication status of any of the peripherals on the NET-PLEX can be reviewed using the *Comm Channel Analyzer* option.

The *Comm Channel Analyzer* option can also be used to view data for other communications protocols used by the machine.

Note: Both screens may be active at the same time, therefore two different channels may be monitored simultaneously.

Use the following steps to monitor a channel.

1. Activate one of the two display areas by touching the screen within the display area's boundary.

When a display area is activated, its border lights up (purple border), and all screen button activity at the bottom of the screen applies to the active area.

2. Touch one of the channel buttons on the screen, labeled one through eight, to select the channel to be monitored. Once monitoring is enabled, information appears on the screen in real time as it is received and transmitted.

2.3.4 Touchscreen Calibration

Use the *Touchscreen Calibration* option to calibrate and test the touchscreen controller. Use the following procedure to run the test:

1. Press the [TOUCHSCREEN TEST] menu button.
2. If calibration of the monitor is not required, press the [TOUCHSCREEN] button to skip the calibration step and proceed to the touchscreen test in step 5.
3. To calibrate the monitor, turn the Attendant key when prompted.
4. Follow the on-screen directions to calibrate the touchscreen.
5. After the touchscreen is calibrated, the *Touchscreen Test* starts. Touch the screen in different locations, especially the corners. If the controller is functioning properly, the color of the touched locations will change.
6. Turn the Attendant key to exit the test.

Note: *It is important to recalibrate the touchscreen using the Touchscreen Calibration option if the monitor has been adjusted.*

2.3.5 Bill Validator Test

The *Bill Validator Test* option tests the bill validator to ensure it is active and accepting bills of applicable denominations. The screen displays the current state of the bill validator. Use the following steps to test the validator.

Note: *The bill validator test does not test acceptance of vouchers.*

1. Touch the [ENABLE/DISABLE] button to toggle the bill validator's status. If the validator is disabled, it will not receive and validate bills.
2. Touch the [ACCEPT/REJECT] screen button to cause the bill validator to accept or reject the next inserted bill.
3. Insert a bill into the validator. The screen will display the bill's denomination and the result of the test – acceptance or rejection.

Acceptance and stacking of a bill is tested if the bill validator door is open, otherwise all bills will be rejected.

2.3.6 Hopper Test (Operator Menu Only)

Use the *Hopper Test* option to test hopper function and to ensure accurate reporting of hopper statistical information. This test causes the hopper to pay out 10 coins, determines whether the installed hopper is reversible, and whether the software is configured for a motion detector type hopper. Use the following steps to run the hopper test.

1. Press the [HOPPER TEST] button on the touchscreen video monitor.
2. Turn the Attendant key when prompted.
3. Touch the [START PAY] button on the screen to start the test. If the hopper is functioning properly, it will pay out ten coins.

The screen displays the number of coins paid, whether or not the hopper is reversible, and whether or not hopper motion detection is enabled.

4. Press the [STOP] button, if needed, to stop the test before it completes.

Note: *This test is disabled if the machine does not have a hopper.*

2.3.7 Printer Test

Select the *Printer Test* option to verify that the thermal printer is functioning properly. The test performs the following functions:

- Print a test voucher
- Advance the voucher paper

Use the following procedure to test the printer.

1. Press the [PRINTER TEST] button on the touchscreen video monitor. The screen displays the available test options.
2. Press the [PRINT VOUCHER] button to print a test voucher. If the printer is functioning properly, a zero dollar voucher will be printed.

3. Press the [LINE FEED] button to cause a blank voucher to be advanced.

Note: *This test is disabled if the machine does not have a printer*

2.3.8 Game Tests (Operator Menu Only)

The *Game Tests* menu is available only from the *Operator* menu. The menu provides access to payable and reel strip tests. The payable test allows the operator to test game payouts. The reel strip test allows the operator to verify the reel strip expanded stops of the active reel games on the machine.

Payable Tests

Select the *Payable Test* option to test the paytables associated with each game on the machine. Games and paytables that are enabled are indicated with yellow text in the red screen buttons.

Note: *Specific software features vary depending upon jurisdiction. The information presented in this manual is intended to reflect all features available, but not necessarily those available in any specific jurisdiction.*

Poker Paytable Test

This screen may also be used to evaluate the autohold strategy for the game whose pay table is being tested. Use the following steps to test a poker game.

1. Select a poker game by pressing the button on the touch-screen video monitor. The screen displays the payable numbers associated with the game. Select one of the paytables by pressing the button on the monitor.
2. Turn the Attendant key when prompted.
3. Change the card number and suit for each card in the hand using the buttons on the right side of the screen.
4. Press the [BET UP] button to increase the number of credits bet. The payout amounts displayed in the upper left portion of the screen change as the bet is increased and decreased. The credits bet are displayed in the lower left portion of the screen.

5. Press the [EVAL] button to run the test. The screen highlights the payout amount and indicates the number of credits won in the "Winner Paid" area.

Keno Paytable Test

Test a keno game by marking spots on the half keno card. Verify that the pay table evaluates correctly, based on the number of spots marked versus the number of spots hit. Use the following steps to test a keno game.

1. Select a keno game by pressing the button on the touch-screen video monitor. The screen will display the paytable numbers associated with the game. Select one of the paytables by pressing the button on the monitor.
2. Turn the Attendant key when prompted.
3. Select the numbers to mark on the card by touching the squares on the screen or use the [AUTO TEST] button to automatically mark numbers on the card.
4. Press the [BET UP] button to increase the bet amount.
5. Press the [EVAL] button to run the test. The screen displays the numbers hit and the number of credits won.
6. Press the [ERASE] button to clear all values on the screen.

Spinning Reel Paytable Test

Verify the payout of the most recent game just finished or test payouts of other reel symbol combinations. Use the following steps to test a video reel game.

1. Select a video reel game by pressing the button on the touch-screen video monitor. The screen will display the paytable numbers associated with the game. Select one of the paytables by pressing the button on the monitor.
2. Turn the Attendant key when prompted. The screen displays the result of the most recent game.
3. To change the reel symbol combinations, touch the upper portion of the reel to nudge it up or touch the lower portion of the reel to nudge it down.
4. Press the [BET MAX] or [BET 1] button on the screen to set the bet amount.

5. Press the [EVAL] button on the screen to run the test. The screen displays the number of credits won and highlights the winning symbol combinations.

Blackjack Paytable Test

Test the payout of the most recent blackjack game, or change the card combinations to test payouts for any combination of dealer and player hands. Use the following steps to test a blackjack game.

1. Select a video reel game by pressing the button on the touchscreen video monitor. The screen will display the paytable numbers associated with the game. Select one of the paytables by pressing the button on the monitor.
2. Turn the Attendant key when prompted. The screen displays the result of the most recent game.
3. Change the card number and suit for each card in each hand by touching the screen area that corresponds to the hand and using the buttons at the bottom of the screen.
4. Press the [EVAL] button on the screen to run the test. The screen displays the number of credits won and highlights the winning symbol combinations.

Reel Strip Tests (Optional)

Select the *Reel Strip Test* option to test expanded reel strips. When selected reel game is first entered, the screen displays the reels of the most recent reel game and all paylines of the game. The screen also displays the reel strip number of the game under test.

Use the following procedure to test the reel strips.

1. Press the [REEL STRIP TESTS] button on the touchscreen video monitor. The screen displays buttons for each reel game available on the machine. Buttons with yellow text indicate that the game is enabled. Select a game by pressing the corresponding button.
2. The screen displays buttons for each paytable associated with the reel game. Select a paytable by pressing one of the buttons.
3. Turn the Attendant key when prompted. The screen displays the first reel stop position for the game.

4. Use the [NEXT STOP] and [LAST STOP] buttons to navigate through the reel stop positions, or use the [AUTO TEST] button to automatically cycle through the reel stops. Stop the automatic test by touching any reel on the screen.

The screen displays the reel stop number to the left of the option buttons.

2.4 Play History Option

The *Play History* option allows review of the most recent 25 games played on the machine in reverse chronological order. *Play History* displays are used to verify game outcome and to resolve player disputes. The display shows information such as:

- Credits available at the end of the game
- Bet amount
- Winner paid credits (if any)
- Denomination
- Any game-specific outcome such as cards, numbers, spots, symbols, etc.
- The date and time at the completion of the game

Use the following procedure to view play history information.

1. Press the **[PLAY HISTORY]** button on the touchscreen video monitor.
2. Turn the Attendant key when prompted. The screen displays a "No Data to Display" message if the machine has not been played.
3. Touch the **[PREVIOUS PAGE]** screen button to display the previously completed game or a more recent subordinate page (screen) in a multi-page game history. The screen button is absent if there are no previous game records.
4. Touch the **[NEXT PAGE]** screen button to display the subsequent completed game or a previously played subordinate page (screen) in a multi-page game history. The screen button is absent if there are no recent game records. The length of the machine history buffer is configured at compile time prior to program release.

2.5 Event Logs Menu

Use the *Event Logs* menu to access information in the machine's log files. Refer to Table 2-23 for brief descriptions of each of the *Event Logs* options.

**Table 2-23
Event Logs Menu Options**

Menu	Option	Description
ACCOUNTING	ALL EVENTS LOG	View information stored in the machine event log
DIAGNOSTICS	CASHOUT LOG	View information stored in the machine cashout log
PLAY HISTORY	BILL ACCEPTED LOG	View information regarding bills accepted by the bill acceptor
EVENT LOGS	VOUCHER ACCEPTED LOG	View information regarding vouchers accepted by the bill acceptor
MODIFY METERS	PROG RECALL	View information stored in the progressive events log
SETUP	LAST 5 HANDPAY RECALL	View information regarding the last 5 hand-pay transactions
OUT OF SERVICE	HOST BONUSING LOG	View information regarding promotional credits accepted by the machine

All Events Log

Select the *All Events Log* option to view information stored in the machine event log. Events may include:

- Peripheral device errors
- Game-related activities (coins accepted, switches pressed and released, player cashouts, etc.)
- Machine access (machine door open, reset switch turned, etc.)
- Machine malfunction (RAM error, EPROM error, etc.)

The screen displays a list of events. Each event is displayed on a line along with its sequence number, time stamp, and any ancillary information.

The following buttons on the touchscreen video monitor control screen functions:

- **[SELECT EVENT TYPES]** – enables and disables display of specific event types by pressing the corresponding button. The event type is enabled if the button is yellow and disabled if the button is red.
- **[ALL EVENTS]** – highlights all the event type screen buttons
- **[DISPLAY EVENTS]** – causes the *Event Log* screen to display log information for the selected event type(s).
- **[OLDEST PAGE]** – views the oldest log information.
- **[NEWEST PAGE]** – views the newest log information.
- **[PREVIOUS PAGE]** and **[NEXT PAGE]** – navigate through the display.

Cashout Log

Select the *Cashout Log* option to view information stored in the machine cashout log. Each cashout event is displayed on a line along with its sequence number, time stamp, and any other information associated with the cashout event category. Events include:

- Player cashouts
- Auto cashouts
- Demo cashouts
- The cashout amount

The following buttons on the touchscreen video monitor control screen functions:

- **[OLDEST PAGE]** – views the oldest log information.
- **[NEWEST PAGE]** – views the newest log information.
- **[PREVIOUS PAGE]** and **[NEXT PAGE]** – navigate through the display.

If there are more events than can fit on one page (screen), touching the appropriately labeled screen button permits viewing of oldest, newest, previous and next page information.

Use the **[RETURN TO GAME]** and **[EXIT]** buttons to return to the game or the *Operator* or *Attendant* menu.

Bill Accepted Log

The *Bill Accepted Log* option provides view-only access to information stored in the machine regarding bills accepted by the bill acceptor. Each event is displayed on a line along with its sequence number, time stamp, and any other information associated with the event category.

The following buttons on the touchscreen video monitor control screen functions:

- **[OLDEST PAGE]** – views the oldest log information.
- **[NEWEST PAGE]** – views the newest log information.
- **[PREVIOUS PAGE]** and **[NEXT PAGE]** – navigate through the display.

Use the **[RETURN TO GAME]** and **[EXIT]** buttons to return to the game or the *Operator* or *Attendant* menu.

Voucher Accepted Log

The *Voucher Accepted Log* option provides view-only access to information stored in the machine regarding vouchers accepted by the bill acceptor. Each event is displayed on a line along with its sequence number, time stamp, and any other information associated with the event category.

The following buttons on the touchscreen video monitor control screen functions:

- [OLDEST PAGE] – views the oldest log information.
- [NEWEST PAGE] – views the newest log information.
- [PREVIOUS PAGE] and [NEXT PAGE] – navigate through the display.

Use the [RETURN TO GAME] and [EXIT] buttons to return to the game or the *Operator* or *Attendant* menu.

Progressive Recall (Optional)

Select the *Progressive Recall* option to view information stored in the progressive events log. Each progressive recall event is displayed on a line, along with its sequence number, time stamp, game name, jackpot category and jackpot amount.

The following buttons on the touchscreen video monitor control screen functions:

- [OLDEST PAGE] – views the oldest log information.
- [NEWEST PAGE] – views the newest log information.
- [PREVIOUS PAGE] and [NEXT PAGE] – navigate through the display.

Use the [RETURN TO GAME] and [EXIT] buttons to return to the game or the *Operator* or *Attendant* menu.

Last 5 Handpay Recall

Use the *Last 5 Handpay Recall* option to view information regarding the last five hand payouts. Each event is displayed on a line, along with its sequence number, time stamp, event and other data regarding this event.

Host Bonusing Log

Select the *Host Bonusing Log* to view information stored in the machine regarding promotional credits loaded into the machine. Each event is displayed on a line along with its sequence number, time stamp, and any other information associated with the event category.

The following buttons on the touchscreen video monitor control screen functions:

- **[OLDEST PAGE]** – views the oldest log information.
- **[NEWEST PAGE]** – views the newest log information.
- **[PREVIOUS PAGE]** and **[NEXT PAGE]** – navigate through the display.

Use the **[RETURN TO GAME]** and **[EXIT]** buttons to return to the game or the *Operator or Attendant* menu.

2.6 Modify Meters Menu

The *Modify Meters* menu provides access to options that clear the period meters and indicate that a hopper fill has occurred.

Note: The *Modify Meters* menu is accessible only by the Operator.

Refer to Table 2-24 for a brief description of the *Modify Meters* options.

Table 2-24 Modify Meters Menu Options		
Menu	Option	Description
ACCOUNTING	CLEAR PERIOD METERS	Clear machine period meters only when the bill acceptor cash box door, coin cash box or coin drop container is open
DIAGNOSTICS		
PLAY HISTORY		
EVENT LOGS		
MODIFY METERS	HOPPER FILL	Enter the hopper fill coin amount
SETUP		
OUT OF SERVICE		

Clear Period Meters (Optional)

Choose the *Clear Period Meters* option to clear machine period meters. This function can be performed only when the bill acceptor cash box door, coin cash box or coin drop container is open.

Note: *If the Clear Period Meters option remains idle for a configured time period, the screen exits and control returns to the Operator menu.*

Use the following steps to clear the period meters.

1. Press the [CLEAR PERIOD METERS] button on the touchscreen video monitor.
2. If the coin cash box or bill acceptor cash box is open, the screen displays "Clear Period Meters." Press one of the following buttons:
 - [YES] – clears the period meters.
 - [RETURN TO GAME] or [EXIT] – cancels the operation and return to game play, or the *Operator* menu.

If the coin cash box or bill acceptor cash box is not opened, the instruction box displays "Operation Cannot Be Performed" and "Verify That Coin Or Bill Door (Coin Or Bill Drop Box) Is Open." Open at least one of the doors.

If the coin cash box or bill acceptor cash box doors are open or closed while the *Clear Period Meters* option screen is displayed, the screen displays the new door status.

If the coin cash box or bill acceptor cash box is open and the [YES] touchscreen button is pressed, the Period Meters are cleared and control is returned to the *Operator* menu.

Hopper Fill (Optional)

Use the *Hopper Fill* option to indicate that a hopper fill operation was performed. The hopper fill amount indicates that a hopper fill has taken place. The amount entered affects the hopper fill meters in the *Machine Master Accounting* and *Machine Period Accounting* options. Use the following steps to enter the hopper fill amount.

1. Press the [HOPPER FILL] button on the touchscreen video monitor.
2. Use the keypad on the screen to enter the number of coins added to the hopper.
3. Press the [SAVE] button to save the data, or press the [CLEAR] button to clear the entry.

2.7 Setup Menu

The *Setup* menu permits access to configuration of machine options:

- Attract and game play sounds
- Hopper size and maximum credit meter value
- Game options – game speed, winner paid speed, background color and maximum bet
- Game-specific options – card and double up

Refer to Table 2-25 for brief descriptions.

Note: *Specific software features vary depending upon jurisdiction. The information presented in this manual is intended to reflect all features available, but not necessarily those available in any specific jurisdiction.*

The following buttons are common to all screens:

- [SAVE] – saves data additions or changes.
- [RETURN TO GAME] – exits the current screen and return to game play
- [EXIT] – exits the screen and returns to the *Operator or Attendant* menu.

If data changes have been made on the screen and the [SAVE] button has not been pressed, the screen will display warning message that indicates that the data changes have not been saved. Press the [SAVE AND EXIT] button to save the changes, or press the [DON'T SAVE AND EXIT] button to discard the changes and exit the screen.

Table 2-25
Setup Menu Options

Menu	Option	Description
ACCOUNTING	COMM OPTIONS	Configure machine communication parameters such as the serial number, communication channels and protocol.
DIAGNOSTICS		
PLAY HISTORY	MACHINE OPTIONS	Configure machine options including sound, bill acceptor settings, credit style, idle mode settings, progressive games, the real time clock (RTC), and tournament games. Display active games and the current machine denomination. Download software via the maintenance port. Auto-configure NETPLEX devices.
EVENT LOGS		
MODIFY METERS		
SETUP	GAME OPTIONS	Set up game speed, background color and maximum bets for specific games.
OUT OF SERVICE	GAME SPECIFIC OPTIONS	Set up game play options by game group or specific game.

2.7.1 Communication Options

Serial Number Setup (Optional)

Select the *Serial Number Setup* option to configure the machine serial number.

Note: *The number entered on the screen must match the number on the serial number tag on the side of the machine.*

Once the serial number or polling address is saved, it cannot be changed. The serial number appears on the tag on the outside of the machine. The polling address is established to match the system requirements.

Use the following procedure to set the machine serial number:

1. Press the [SERIAL NUMBER SETUP] button on the touch-screen video monitor. The screen displays the existing serial number.
2. Touch the edit box to change the serial number. Use the keypad on the screen to enter a new value.
3. Use the [CLEAR] button to clear the entry and start over.
4. Press the [SAVE] button to save the serial number.

Communications Channel Setup (Optional)

Use the *Comm Channel Setup* option to configure different channels for the supported communications protocol. If changing channel is not allowed, the screen displays the channel assigned to each protocol.

Use the following procedure to configure the communication channels.

1. Press the [COMM CHANNEL SETUP] button on the touch-screen video monitor. The screen displays the current channels for each protocol.
2. Touch the screen to change the channel used by a protocol. Use the buttons at the bottom of the screen to change the channel to one of the suggested values.
3. Press the [SAVE] button to save the changes.

Global Options

The *Global Options Setup* screen displays the settings for host-supported features such as bonusing, Electronic Funds Transfer (EFT) and remote handpay reset. Global options can only be set using the *Key Chip* menu. Refer to Section 3.1.2 for detailed procedures.

GT SAS+ Ver. X.XX (Optional)

Select the *IGT SAS+* menu to set up the machine polling address – the unique code assigned to specific terminals for data transmission purposes – for machines using this communications protocol. The screen provides configuration options for the following settings:

- Machine address
- Primary channel
- Secondary channel
- Controller
- Validation
- Set program group

Primary Channel Setup

The *SAS Primary Channel Setup* menu provides access to setup functions that configure the SAS machine address and primary channel options.

Machine Address

Select the *Machine Address* option to set the machine's SAS address. Use the following procedure to set the address.

1. Press the **[MACHINE ADDRESS]** button on the touchscreen video monitor.
2. Use the keypad to set the machine address.
3. Press the **[SAVE]** button to save the address, or use the **[CLEAR]** button to clear the entry and start over.

Primary Channel Options

Select the *Primary Channel Options* screen to configure the SAS primary channel. The screen provides access to the following parameters:

- Secure handpay for EZ Route – if enabled, the game repeatedly sends out a handpay notification to the host until the host responds. If disabled, the game sends out only one notification.
- Remote handpay reset – if enabled, the SAS host can reset the machine after a handpay condition.

Use the following procedure to set the options.

1. Press the **[PRIMARY CHANNEL OPTION]** button on the touchscreen video monitor. The screen displays the current channel settings.
2. Grey buttons indicate items that can only be changed on the *Key Chip* menu. Refer to Section 3.1.2 for detailed procedures.
3. Use the red buttons to enable or disable selected channel options.
4. Press the **[SAVE]** button to save the new settings and exit the screen.

Secondary Channel Setup

The *SAS Secondary Channel Setup* menu provides access to setup functions that configure the SAS machine address and secondary channel options.

Machine Address

Select the *Machine Address* option to set the machine's SAS address. Use the following procedure to set the address.

1. Press the **[MACHINE ADDRESS]** button on the touchscreen video monitor.
2. Use the keypad to set the machine address.
3. Press the **[SAVE]** button to save the address, or use the **[CLEAR]** button to clear the entry and start over.

Secondary Channel Options

Select the *Secondary Channel Options* screen to set the machine's SAS secondary channel options. The screen provides access to the following parameters:

- **Secure handpay for EZ Route** – if enabled, the game repeatedly sends out a handpay notification to the host until the host responds. If disabled, the game sends out only one notification.
- **Remote handpay reset** – if enabled, the SAS host can reset the machine after a handpay condition.

Use the following procedure to set the options.

1. Press the [SECONDARY CHANNEL OPTIONS] button on the touchscreen video monitor. The screen displays the current channel settings.
2. Grey buttons indicate items that can only be changed on the *Key Chip* menu. Refer to Section 3.1.2 for detailed procedures.
3. Use the red buttons to enable or disable selected channel options.
4. Press the [SAVE] button to save the new settings and exit the screen.

Controller Setup

The *Controller Setup* option allows for configuration of the following SAS controller functions.

- System bonusing
- EFT transactions
- System progressive
- Validation

The functions can be configured to use the primary or secondary channel.

Use the following procedure to configure the controller functions.

1. Press the [CONTROLLER SETUP] button on the touchscreen video monitor.

2. Press the **[CHANGE]** button to toggle the channel for the functions that need to be changed.
3. Press the **[SAVE]** button to save the changes and exit the screen.

Validation Setup

Use the *Validation Setup* option to set SAS controller security parameters for the machine. The functions can be enabled or disabled.

The validation security function is the only item that can be changed on this screen. When validation security is enabled, the machine protects validation information if communications with the host are interrupted. The machine tilts with a "Terminal Disabled by SAS" message if the validation buffer fills up.

Use the following procedure to set the options.

1. Press the **[VALIDATION SETUP]** button on the touchscreen video monitor. The screen displays the current channel settings.
2. Grey buttons indicate items that can only be changed on the *Key Chip* menu. Refer to Section 3.1.2 for detailed procedures.
3. Use the red buttons to enable or disable selected channel options.
4. Press the **[SAVE]** button to save the new settings and exit the screen.

Set Progressive Group

Select the *Set Progressive Group* option to display the machine's SA progressive group. This parameter can only be changed on the *Key Chip* menu. Refer to Section 3.1.2 for detailed procedures.

Bally Miser (Optional)

Use the *Bally Miser* option to select the desired protocol version, either standard or multigame for machines using this communication system. Use the following steps to select a protocol version.

1. Press the **[BALLY MISER]** button on the touchscreen video monitor.

2. Press the button that corresponds to the desired protocol. The button color changes from red to yellow to indicate that the setting has been changed.
3. Press the [SAVE] button to save the changes and exit the screen.

2.7.2 Machine Options

Attract Setup

Select the *Attract Setup* option to enable or disable animation and sound attractions. Use the following steps to configure the attract mode.

1. Press the [ATTRACT SETUP] button on the touchscreen video monitor.
2. Use the [CHANGE] button to toggle the settings for the available attract mode options.
3. Press the [SAVE] button to save the changes and exit the screen.

Note: *The attract options are configured prior to machine installation, however, the operator can turn them on or off.*

Bill Validator Options

The *Bill Validator* option allows the operator to configure bill and printer tilts, the bill rejection limit, the machine response to bill acceptor tilts, and whether a CRC is used to verify communication between the machine and the bill acceptor.

Bill Validator and Printer Tilts

The following errors can be configured using this screen:

- Bill jam
- Cashbox removed
- Stacker full
- Bill hardware error
- Reverse bill in

- Bill rejection limit
- Printer tilts

If an option is set to "No Tilt," game play continues after the error occurs. If the error is set to "Soft Tilt," game play continues and the *Operator* menu displays an error message until the tilt is cleared. Setting of "Hard Tilt" causes the machine to halt until the tilt is cleared. Use the following steps to configure the tilt mode for each error.

1. Press the [BILL VALIDATOR AND PRINTER TILT] button on the touchscreen video monitor.
2. Press the [NO TILT], [SOFT TILT] or [HARD TILT] button to set the type of tilt that will occur for each error.
3. Press the [NEXT PAGE] button to access the bill rejection limit configuration screen.
4. For the bill rejection limit, enter the number of consecutive bill validator rejects that can occur before the candle is lit. Setting the value to zero will prevent the candle from lighting.
5. Press the [PREVIOUS PAGE] button to return to the bill validator tilt configuration screen if needed. Press the [NEXT PAGE] button to access the printer tilt configuration screen.
6. Press the [SOFT TILT] or [HARD TILT] button to indicate the type of tilt that will occur when the printer experiences a problem.
7. Press the [PREVIOUS PAGE] button to return to the bill rejection limit configuration screen if needed.

Note: IGT recommends that printer tilts be configured to cause a hard tilt.

8. Press the [SAVE] button to save the changes.

Read Bill Validator CRC

Select the *Read Bill Validator CRC* option to ensure that the bill validator is functioning properly or that no tampering has occurred. Use the following steps to read the current bill validator CRC.

1. Press the [READ BILL VALIDATOR CRC] button on the touchscreen video monitor.

2. Press the **[REQUEST CRC]** button on the touchscreen video monitor. The screen displays the current value.
3. Change the address or seed values using the edit boxes on the screen. Press the **[REQUEST CRC]** button to have the bill validator firmware calculate a new value based on the new address or seed.

Clear CRC Mismatch

When the bill validator firmware is changed or updated, a bill validator cyclic redundancy check (CRC) mismatch occurs. Use this option to clear the error.

Press the **[CLEAR CRC MISMATCH]** button on the touchscreen video monitor. The screen displays a "clear" message when the operation is complete.

Bill Change Mode

Display the current bill change mode by pressing the **[BILL CHANGE MODE]** button. This value can only be changed on the *Key Chip* menu. Refer to Section 3.1.9 for detailed procedures.

Bill and Printer Tilt Setup

The following errors can be configured using this screen:

- Bill jam
- Cashbox removed
- Stacker full
- Bill hardware error
- Reverse bill in
- Bill rejection limit
- Printer tilts

If an option is set to "No Tilt," game play continues after the error occurs. If the error is set to "Soft Tilt," game play continues and the Operator menu displays an error message until the tilt is cleared. A setting of "Hard Tilt" causes the machine to halt until the tilt is cleared. Use the following steps to configure the tilt mode for each error.

1. Press the **[BILL VALIDATOR AND PRINTER TILT]** button on the touchscreen video monitor.
2. Press the **[NO TILT]**, **[SOFT TILT]** or **[HARD TILT]** button to set the type of tilt that will occur for each error.
3. Press the **[NEXT PAGE]** button to access the bill rejection limit configuration screen.
4. For the bill rejection limit, enter the number of consecutive bill validator rejects that can occur before the candle is lit. Setting the value to zero will prevent the candle from lighting.
5. Press the **[PREVIOUS PAGE]** button to return to the bill validator tilt configuration screen if needed. Press the **[NEXT PAGE]** button to access the printer tilt configuration screen.
6. Press the **[SOFT TILT]** or **[HARD TILT]** button to indicate the type of tilt that will occur when the printer experiences a problem.
7. Press the **[PREVIOUS PAGE]** button to return to the bill rejection limit configuration screen if needed.

Note: IGT recommends that printer tilts be configured to cause a hard tilt.

8. Press the **[SAVE]** button to save the changes.

Credit Style Setup

Select the *Credit Style Setup* option to perform the following setup functions:

- Set the hopper payout limit, credit limit, jackpot limit and bills accepted limit.
- Enable or disable auto rebet. If this feature is enabled, the game automatically rebets the same number of credits that were initially bet in the previous game.
- Enable or disable autostart. If this feature is enabled, the game automatically starts when the player wagers the maximum amount.
- Determine whether coins go to the game or to credit meter.
- Determine whether wins go to the credit meter or cash out automatically.

Note: *This option cannot be accessed if there are credits on the meter.*

Use the following procedure to configure credit styles.

1. Press the **[CREDIT STYLE SETUP]** button on the touch-screen video monitor.
2. Select the setting to change, hopper, credit, jackpot or bill, by touching the edit box on the screen. Use the keypad on the screen to enter a new value.
3. The screen displays the current value for the auto cashout remainder value.
4. Use the **[CHANGE]** buttons associated with the credit meter, start on max bet, auto rebet and partial pay amount settings.
5. Press the **[SAVE]** button to save the changes.

Game Denomination

The *Game Denomination* option displays the machine denomination currently in use. Use the *Key Chip* menu to change the game denomination. Refer to Section 3.1.3 for detailed procedures.

Press the **[GAME DENOMINATION SETUP]** button on the touch-screen video monitor to display information for single- or multi-denomination games.

Single-Denomination Games

For single-denomination games, the screen displays the currency name and symbol, and the game denomination.

Multi-Denomination Games

The multi-denomination software displays the hopper/coin acceptor denomination, player-selectable denominations and the default denomination. Use the following steps to control the screen display.

1. Press the **[NEXT PAGE]** button. The screen displays the currently allowed player-selectable denominations. Yellow buttons indicated enabled denomination values. Red buttons

indicate available values that have not been selected. Grey buttons indicate values that are not available.

2. Press the **[NEXT PAGE]** button. The screen displays the default denomination that is used when the machine enters idle mode.
3. Press the **[FIRST PAGE]** button to return to the hopper/coin acceptor denomination display.

Game Selection

The Game Selection screen displays game groups and paytables currently configured. Yellow buttons indicate enabled game groups or paytables. The screen displays the total number of enabled games in the upper right corner.

For multi-denomination games, the screen displays the starting game denomination.

Use the key chip to change game groups or paytables. Refer to Section 3.1.4 for detailed procedures.

Use the following buttons to navigate through the screen:

- **[NEXT PAGE]** – shows more game groups.
- **[FIRST PAGE]** – returns to previous page of game groups.
- Press a game group's button to view the active payable.
- **[DONE]** – returns to game group screen from payable display.

Idle Mode Setup (optional)

Select the *Idle Mode Setup* option to set the game screen that is displayed during the machine idle mode. If no default game is selected, the main menu appears. This option has no effect on iGames.

Use the following steps to change the idle mode.

1. Press the **[IDLE MODE]** button on the touchscreen video monitor.
2. Select a game to display by pressing the appropriate button on the screen.
3. Press **[SAVE]** to save the changes and exit the screen.

Main Menu Background Color

The *Main Menu Background Color* screen sets the color that is displayed on the screen when the machine is in idle mode. This setting does not take affect if the idle mode is configured to display a game instead of the menu.

Use the following steps to change the background color.

1. Press the **[MAIN MENU BCKGND COLOR]** button on the touchscreen video monitor.
2. Select a color by pressing the corresponding button on the screen.
3. Press the **[SAVE]** button.

Maintenance Port Options

Select this option to initiate the NETPLEX pass-through mode for downloading of peripheral device software (such as bill acceptor or ticket printer). IGT personnel use this option to perform program maintenance.

NETPLEX Auto Configuration

Choose the NETPLEX Auto Configuration option to run NETPLEX auto configuration. The screen displays a list of "auto-configurable" devices in the left column and their status in the right column. This selection is only available if one or more configurable devices are installed in the machine.

Use the following steps to run the auto configuration.

1. Touch the **[AUTO CONFIGURE]** button on the touchscreen video monitor. The screen displays a "Requesting" status for each device.
2. When the process is complete, the screen displays "Installed" or "Not Responding" for each device, indicating success or failure of the auto configuration.
3. Press the **[EXIT]** button to return to the *Operator* menu or press the **[RETURN TO GAME]** button to return the machine to game play.

Printer Setup

The *Printer Setup* option displays the printer's current status. Use the key chip to enable or disable the printer. Refer to Section 3.1 for detailed procedures.

Progressive Setup (optional)

The *Progressive Setup* option permits viewing of progressive game setup. Press the [PROGRESSIVE SETUP] button on the touch-screen video monitor and the screen displays game group screen buttons. Touch any yellow button to view the current setup.

Use the key chip to change progressive setup. Refer to Section 3.1.7 for detailed procedures.

Real Time Clock Setup

The *Real Time Clock Setup* option permits setup of the Real Time Clock (RTC) if available. If the entry coincides with a cold start, then the date and time display is unpredictable and a new date and time must be entered. Use the following steps to configure the clock.

1. Press the [REAL TIME CLOCK] button on the touchscreen video monitor. The screen displays the current current hour, minutes, seconds, month, day, year and day of the week.
2. Press the [SELECT] button to select an edit box. Use the keypad to change the value in any edit box. The screen displays the allowed range of inputs adjacent to each box.
3. Press the [CLEAR] button to clear all values on the screen.
4. Press the [SAVE] button to save the settings.

Sound Setup

Choose the *Sound Setup* option to set the sound volume for all of the sounds on the machine. The sound categories are as follows:

- **Game Sounds** – various game sounds such as card deal and keno ball sounds
- **User Feedback** – the sounds the machine produces when a screen button is touched
- **Game Music** – jackpot and bonus music

- **Attract Mode** – music the machine produces when in the attract mode
- **WAV Volume** – music specific to the game theme (this setting applies only if a DSS chip is installed on the sound card – the security alarm volume is not affected by this option)

A window containing the screen buttons and text required to set the volume categories appears. Use the following steps to set the volume for each of the sounds.

Note: *The Sound Setup option is the only machine setup screen that is available on the Attendant menu.*

1. Press the **[SOUND SETUP]** button on the touchscreen video monitor. The Sound Setup screen displays the current settings of the volumes for each sound. Screen buttons labeled **[HIGH]** and **[LOW]** are displayed next to each volume indicator. Use the following screen buttons to change the volume.
 - **[HIGH]** – increases the sound volume.
 - **[LOW]** – decreases the sound volume.
2. Press the **[SAVE]** button to save the volume configuration.

Token Setup (optional)

The *Token Setup* option displays the current token settings. The screen displays the number of credits per token and whether or not a fractional token hand pay is allowed. Token settings affect game play as follows:

- When the number of credits won is not a multiple of the token value, the machine determines how many more credits are needed to pay the entire win from the hopper. It deducts the credits from the hopper, adds them to the win amount, and pays the tokens from the hopper.
- If the machine is not equipped with a voucher printer and the number of credits cashed out is not a multiple of the token value, the game pays as many tokens as possible and leaves the remaining credits on the machine. If the player presses the **[CASH OUT]** button, the machine prompts the player to press the **[CASH OUT]** button again to receive a hand pay, or to play the remaining credits.

Use the *Key Chip* menu to change these settings. Refer to Section 3.1.8 for detailed procedures.

Site Information Setup (optional)

Select the *Site Information Setup* menu to enter or change the information that is printed on cash-out vouchers. Use the following steps to configure site information.

1. Press the [SITE ID] button on the touchscreen video monitor.
2. Press one of the following buttons:
 - [SITE NAME] – change the site name printed on cash-out vouchers.
 - [ADDRESS] – change the site address.
 - [CITY/STATE] – change the city and state.
3. The screen displays the current entry. Press the [CLEAR] button to clear the existing entry. Otherwise, the new entry will be appended to the existing information.
4. Use the keyboard on the screen to enter a new site name.
5. Press the [SAVE] button to save the information.

Tournament Games

Choose this selection to configure tournament games. To run a tournament, the game must be selected and configured.

Ensure that no games are in process and the machine door is closed. Turn and hold the reset key switch and press the **DEAL/DRAW/START** switch to start the tournament.

Tournament Games Selection

Use the following steps to select a tournament game.

1. Press the [TOURNAMENT GAMES SELECTION] button on the touchscreen video monitor.
2. Select a game group by pressing the appropriate button on the screen. Yellow buttons indicate enabled game groups. Disabled game groups cannot be selected for tournament play.
3. Select a payable from the game group screen by pressing the button on the screen.
4. Press the [DONE] button to indicate that payable selection is complete.

5. Press the [SAVE] button to save the game selection. The screen displays a warning message that the tournament credits and duration must be set. Use the *Tournament Setup* screen to configure these parameters.

Tournament Setup

Configure the tournament to run for a specific amount of time, a specific number of credits, or both. Use the following procedure to set the tournament game parameters.

1. Press the [TOURNAMENT SETUP] button on the touch-screen video monitor.
2. Touch the credit value edit box on the screen and use the keypad to set the tournament credit value.
3. Touch the duration edit box on the screen and use the keypad to set the tournament duration in minutes.
4. Use the [CLEAR ALL] button to clear all values and start over.
5. Press the [SAVE] button to save the settings.

Voucher Setup (optional)

Select the Voucher Pay Setup option to configure the amount of coins that should be paid out from the hopper before a voucher is printed. The voucher amount will not include the amount that is paid from the hopper.

Note: *The hopper payout limit must be greater than zero before the Voucher Pay Setup can be configured. Use the Credit Style Setup screen to configure the hopper payout limit.*

Use the following procedure to configure split pay parameters.

1. Press the [VOUCHER PAY SETUP] button on the touch-screen video monitor.
2. Press the [ENABLE] or [DISABLE] button to enable or disable split pays. Split pays must be enabled for the machine to pay part of the cash out amount from the hopper.

3. Press the edit box and use the keypad on the screen to configure the number of coins to pay from the hopper. The remaining amount will be paid in voucher form by the printer. This amount cannot be greater than the hopper payout limit.
4. Press the [CLEAR] button to clear the entry and start over.
5. Press the [SAVE] button to save the data.

W2-G Setup

Select the *W2-G Setup* option to set the number of credits a player can cashout before an attendant must reset the machine.

The purpose of this feature is to minimize the number of jackpot hand pays. Jackpots can be reset to the credit meter under the following conditions:

- The win must be equal to or greater than the lower jackpot limit
- The win must be less than the upper jackpot limit
- Current credits plus the win must be equal to or less than the credit limit

Note: *The machine hardware must include the proper harnessing and an extra reset switch for the W2-G feature to function properly.*

Use the following procedure to configure the credit limit.

1. Press the [W2-G SETUP] button on the touchscreen video monitor.
2. Turn the second reset switch when prompted to, "Turn the credit reset key." The screen displays the current configuration.
3. Use the keypad on the screen to enter the upper jackpot limit. Press the [CLEAR] button to clear the entry and start over.

4. Press the **[CHANGE]** button at the bottom of the screen to set the reset option as follows:
 - **Controlled by SAS** – the jackpot cannot be reset until authorization is sent to the machine by the SAS system. The operator must turn the second reset key to place the win on the credit meter.
 - **Whenever Eligible** – the operator may turn one of the following: the first reset key to hand pay the win, or the second reset key to reset the win to the credit meter.
5. Press the **[SAVE]** button to save the configuration.

2.7.3 Game Options (Operator Menu Only)

Use the *Game Options* menu to configure game play settings for the machine. The following settings can be modified using the options on this menu:

- Game play and payout speed
- Screen background color

Speed Setup

The *Speed Setup* option sets game and payout speeds. Use the following steps to set the speed options for a game.

1. Press the **[SPEED SETUP]** button on the touchscreen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a paytable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables.
4. Use the arrows on the screen to adjust the game and payout speed. The screen also displays the following buttons:
 - **[THIS GAME ONLY]** – applies the changes only to the selected game
 - **[ALL GAMES IN GROUP]** – applies the changes to all games in the group.
 - **[ALL GAMES]** – applies the changes to all games on the machine

5. Press the [YES] or [NO] button to indicate if the player should have the ability to set the game speed.
6. Press the [SAVE] button to save the settings.

Background Color

The Background Color screen sets the color that is displayed on the screen when a game is being played. Use the following steps to change the background color.

1. Press the [BACKGROUND COLOR] button on the touch-screen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a payable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables.
4. Select a color from by pressing the corresponding button on the screen.
5. Press the [SAVE] button.

Maximum Bet

The *Maximum Bet* option displays the current maximum bet for the machine. Use the *Key Chip* menu to change these settings. Refer to Section 3.1.5 for detailed procedures.

2.7.4 Game Specific Options (Operator Menu Only)

Use the *Game Specific Options* menu to change game play settings for the different game types on the machine. Options are set up on a game-by-game basis, and each game may have different options. Settings for the following areas can be changed:

- Poker
- Double Up
- Keno
- Super Keno
- Blackjack

Poker Options

The *Poker Options* screen enables or disables the autohold feature. If this feature is enabled, the game automatically holds possible winning combinations of cards. The game screen displays "HELD" above the selected cards. Use the following steps to set this parameter.

1. Press the [POKER] button on the touchscreen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a payable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables.
4. Use the [ON] and [OFF] buttons to enable or disable autohold. The screen also displays the following buttons:
 - [THIS GAME ONLY] – applies the changes to the selected game
 - [ALL GAMES IN GROUP] – applies the changes to all paytables in the group
 - [ALL POKER GAMES] – applies the changes to all poker games on the machine
5. Press the [SAVE] button.

Double Up Options

The *Double Up Options* screen configures the various double up scenarios:

- Beat the dealer
- 3 card Hi/Lo
- Red/Black
- 1 card Hi/Lo

Use the following steps to set these values.

1. Press the [DOUBLE UP] button on the touchscreen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a payable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables.

4. Use the **[ENABLE]** and **[DISABLE]** buttons to enable or disable double up. The screen also displays the following buttons:
 - **[THIS GAME ONLY]** – applies the changes to the selected game
 - **[ALL GAMES IN GROUP]** – applies the changes to all paytables in the group
 - **[ALL POKER GAMES]** – applies the changes to all poker games on the machine
5. Press the **[SAVE]** button.

Keno Options

The *Keno Options* screen sets the screen icons that will be used to indicate marked and hit numbers on a card. Use the following steps to set these values.

1. Press the **[KENO]** button on the touchscreen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a paytable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables.
4. Use the **[NEXT SPOT MARK/HIT]** button to toggle the icons on the screen. The screen also displays the following buttons:
 - **[THIS GAME ONLY]** – applies the changes to the selected game
 - **[ALL GAMES IN GROUP]** – applies the changes to all paytables in the group
 - **[ALL KENO GAMES]** – applies the changes to all keno games on the machine
5. Use the **[ON]** and **[OFF]** buttons to enable or disable keno draw animation.
6. Press the **[SAVE]** button.

Super Keno Options

The *Super Keno Options* screen sets the bonus trigger for Super Keno games. The game will multiply the win by a multiplier value if the first or last spot hits. Use the following steps to set the bonus trigger.

1. Press the **[SUPER KENO OPTIONS]** button on the touch-screen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a payable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables. The screen displays the current setting for the game.
4. Toggle the setting by pressing the **[LAST SPOT]** or **[FIRST SPOT]** button on the screen. When the setting is changed, the screen display reflects the new setting and the button changes to the opposite. The screen also displays the following buttons:
 - **[THIS GAME ONLY]** – applies the changes to the selected game
 - **[ALL GAMES IN GROUP]** – applies the changes to all paytables in the group
 - **[ALL SUPER KENO GAMES]** – applies the changes to all super keno games on the machine
5. Press the **[SAVE]** button.

Blackjack Options

The *Blackjack Options* screen sets the Let it Ride limit for Blackjack games. The game will allow the player to let a bet ride from one hand to the next until this limit is reached. Use the following steps to set this value.

1. Press the **[BLACKJACK OPTIONS]** button on the touch-screen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Yellow buttons indicate enabled games.
3. Select a payable by pressing the corresponding button on the screen. Yellow buttons indicate enabled paytables. The screen displays the current setting for the game.

4. Set the Let it Ride limit using the keypad on the screen. Set the value to 0 to disable the Let it Ride feature. The screen also displays the following buttons:
 - **[THIS GAME ONLY]** – applies the changes to the selected game
 - **[ALL GAMES IN GROUP]** – applies the changes to all paytables in the group
 - **[ALL BLACKJACK GAMES]** – applies the changes to all games on the machine
5. Press the **[SAVE]** button.

1.8 Out of Service Option

The *Out of Service* option is available only on the *Attendant* menu. Use this option to display an "Out of Service" message on the video monitor and render the machine inoperative without turning the power off. The *Out of Service* state remains in effect until the reset key is turned.

Section 3

Key Chip Menu

The *Key Chip* menu allows setup of various sensitive machine and game parameters, and is only available after performing the key chip procedure (refer to Section 4.2).

Section 3.1, Key Chip Menu Options, provides detailed instructions for the menus and options that are available on the Key Chip menu.

3.1 Key Chip Menu Options

Refer to Table 3-1 and the explanations in this section for details of the options available and Section 4.2 for the key chip procedure.

Note: With no touchscreen activity, the Key Chip menu times out after approximately one minute.

The following buttons are common to all screens:

- [SAVE] – saves data additions or changes.
- [EXIT] – exits the screen and return to the menu.

If data changes have been made on the screen and the [SAVE] button has not been pressed, the screen will display a warning message that indicates that the data changes have not been saved. Press the [SAVE AND EXIT] button to save the changes, or press the [DON'T SAVE AND EXIT] button to discard the changes and exit the screen.

**Table 3-1
Key Chip Menu**

Menu/Option	Description
GAME BONUS SETUP	Change bonus values for games with bonus options
COMM OPTIONS	Configure channels for communicating to different host systems, system bonusing and EFT transactions, and SAS Version 5 parameters
GAME DENOMINATION SETUP	Change the machine denomination
GAME SELECTION	Select active games and paytables
MAXIMUM BET	Set the maximum bet for each enabled game

Table 3-1 (cont.) Key Chip Menu	
Menu/Option	Description
PRINTER SETUP	Enable or disable the ticket printer
PROGRESSIVE SETUP	Set progressive parameters
TOKEN VALUE	Set the number credits given for each token
BILL CHANGE MODE	Enable or disable use of the bill validator as a bill changer

3.1.1 Game Bonus Setup

The *Game Bonus* option changes bonus values for those with bonus options. Use the following steps to configure game bonuses.

1. Press the [GAME BONUS SETUP] button on the touch-screen video monitor.
2. Select a game group by pressing the corresponding button on the screen. Buttons with yellow text indicate enabled games.
3. Select a payable by pressing the corresponding button on the screen. Buttons with yellow text indicate enabled paytables.
4. Touch the edit box and use the keypad to set the desired bonus amount.
5. Press the [CLEAR] button to clear the entry and start over.
6. Press the [SAVE] button to save the settings.

1.1.2 Communication Options

The *Comm Options* menu provides screens that configure host communications options. Some functions may not be available depending upon machine configuration.

Channel Setup

Select the *Channel Setup* screen to indicate the channel numbers to use for communication to various hosts. Use the following steps to set the communication channels.

1. Press the **[CHANNEL SETUP]** button on the touchscreen video monitor. The screen displays the current communication channel settings:
 - SAS primary
 - SAS secondary
 - Bally Miser (optional)
 - Progressive link
2. Select the name of the channel to change and use the option buttons at the bottom of the screen to set the channel number or to turn the channel off.
3. Press the **[SAVE]** button to save the settings.

Global Options

The *Global Options Setup* screen configures the settings for host-supported features such as bonusing, Electronic Funds Transfer (EFT) and remote handpay reset. Use the following steps to set Global Options.

1. Press the **[GLOBAL OPTIONS]** button on the touchscreen video monitor.
2. Press the **[CHANGE]** button to enable or disable each feature.
3. Press the **[SAVE]** button to save the settings.

IGT SAS+ Ver. X.XX

Select the *IGT SAS+* menu to set up the machine polling address – the unique code assigned to specific terminals for data transmission purposes – for machines using this communications protocol. The screen provides configuration options for the following settings:

- Machine Address
- Primary channel
- Secondary channel
- Controller
- Validation
- Set program group

Primary Channel Setup

The *SAS Primary Channel Setup* menu provides access to setup functions that configure the SAS machine address and primary channel options.

Machine Address

Select the *Machine Address* option to set the machine's SAS address. Use the following procedure to set the address.

1. Press the **[MACHINE ADDRESS]** button on the touchscreen video monitor.
2. Use the keypad to set the machine address.
3. Press the **[SAVE]** button to save the address, or use the **[CLEAR]** button to clear the entry and start over.

Primary Channel Options

Select the *Primary Channel Options* screen to configure the SAS primary channel. The screen provides access to the following parameters:

- **Vouchers to drop and cancelled credits** – if disabled, voucher amounts read by the bill acceptor will be added to the existing coin-in and cancelled credit meters. The machine must have two extra physical meters especially for voucher data. Enable this feature.

- **Secure handpay for EZ Route** – if enabled, the game repeatedly sends out a handpay notification to the host until the host responds. If disabled, the game sends out only one notification.
- **Remote handpay reset** – if enabled, the SAS host can reset the machine after a handpay condition.

Use the following procedure to set the options.

1. Press the **[PRIMARY CHANNEL OPTIONS]** button on the touchscreen video monitor. The screen displays the current channel settings.
2. Use the red **[CHANGE]** buttons to enable or disable channel options.
3. Press the **[SAVE]** button to save the new settings and exit the screen.

Secondary Channel Setup

The *SAS Secondary Channel Setup* menu provides access to setup functions that configure the SAS machine address and secondary channel options.

Machine Address

Select the *Machine Address* option to set the machine's SAS address. Use the following procedure to set the address.

1. Press the **[MACHINE ADDRESS]** button on the touchscreen video monitor.
2. Use the keypad to set the machine address.
3. Press the **[SAVE]** button to save the address, or use the **[CLEAR]** button to clear the entry and start over.

Secondary Channel Options

Select the *Secondary Channel Options* screen to set the machine's SAS secondary channel options. The screen provides access to the following settings:

- **Vouchers to drop and cancelled credits** – if disabled, voucher amounts read by the bill acceptor will be added to the existing coin-in and cancelled credit meters. The machine must

have two extra physical meters especially for voucher data enable this feature.

- **Secure handpay for EZ Route** – if enabled, the game repeatedly sends out a handpay notification to the host until the host responds. If disabled, the game sends out only one notification.
- **Remote handpay reset** – if enabled, the SAS host can reset the machine after a handpay condition.

Use the following procedure to set the options.

1. Press the **[SECONDARY CHANNEL OPTIONS]** button on the touchscreen video monitor. The screen displays the current channel settings.
2. Use the red **[CHANGE]** buttons to enable or disable channel options.
3. Press the **[SAVE]** button to save the new settings and exit the screen.

Controller Setup

The *Controller Setup* option allows for configuration of the following SAS controller functions.

- System bonusing
- EFT transactions
- System progressive
- Validation

The functions can be configured to use the primary or secondary channel.

Use the following procedure to configure the controller functions.

1. Press the **[CONTROLLER SETUP]** button on the touchscreen video monitor.
2. Press the **[CHANGE]** button to toggle the channel for the functions that need to be changed.
3. Press the **[SAVE]** button to save the changes and exit the screen.

Validation Setup

Use the *Validation Setup* option to set SAS controller security parameters for the machine. The following functions can be enabled or disabled:

- **Validation Security** – When validation security is enabled, the machine protects validation information if communications with the host are interrupted. The machine tilts with a “Terminal Disabled by SAS” message if the validation buffer fills up.
- **Enhanced Validation** – used by the host to verify payouts and handpays.

Use the following procedure to set the options.

1. Press the [VALIDATION SETUP] button on the touchscreen video monitor. The screen displays the current channel settings.
2. Use the red buttons to enable or disable selected channel options.
3. Press the [SAVE] button to save the new settings and exit the screen.

Set Progressive Group (optional)

Select the *Set Progressive Group* option to set the machine's SAS progressive group. Use the following steps to configure this parameter.

1. Press the [SET PROGRESSIVE GROUP] button on the touchscreen video monitor.
2. Use the keypad to set the group id.
3. Press the [CLEAR] button to clear the edit box and start over. Press the [SAVE] button to save the changes.

3.1.3 Game Denomination Setup

The *Game Denomination Setup* screen sets the game's denomination. This screen provides different buttons for single- and multi-denomination games.

Use the following steps to set the game denomination.

Note: *Denomination change may require that several mechanical components be changed as well as the software. Other restrictions may also apply in some jurisdictions.*

Single-Denomination Games

1. Press the [GAME DENOMINATION SETUP] button on the touchscreen video monitor. The screen displays the active currency and symbol, and the game denomination. The currency and symbol cannot be changed.
2. Press the [CHANGE] button to change the game denomination.
3. Press the [SAVE] button to save the new settings and exit the screen.

Multi-Denomination Games

1. Press the [GAME DENOMINATION SETUP] button on the touchscreen video monitor. The screen displays the hopper/coin acceptor denomination.
2. Press the [CHANGE] button to change the hopper/coin acceptor denomination.

Note: *If the machine is not equipped with a voucher printer, this value cannot be set to a number that is less than the hopper denomination. This value must be a multiple of the hopper denomination.*

3. Press the [NEXT PAGE] button. The screen displays the currently allowed player-selectable denominations. Yellow buttons indicate enabled denomination values. Red buttons indicate available values that have not been selected. Grey buttons indicate values that are not available.

Select one or more player-selectable denominations by pressing the red buttons.

4. Press the [NEXT PAGE] button. The screen displays the default denomination that is used when the machine enters idle mode. Yellow buttons indicate enabled denomination values. Red buttons indicate available values that have not

been selected. Grey buttons indicate values that are not available.

Select a new denomination by pressing one of the red buttons.

5. Press the **[FIRST PAGE]** button to return to the hopper/coin acceptor denomination display.
6. Press the **[SAVE]** button at any time to save the settings.

3.1.4 Game Selection

The *Game Selection* option configures the machine's enabled games. Select game groups and paytables for use during game play. Use the following steps to configure the games.

Single-Denomination Games

1. Press the **[GAME SELECTION]** button on the touchscreen video monitor. The screen displays the total number of enabled games in the upper right corner.

Note: The software supports a maximum of twelve enabled games. In some cases, a game must be "deselected" to allow for the selection of a new game.

2. The screen displays the available game groups. Select a game group by pressing the appropriate button on the screen. Remove the game group from play by pressing a yellow button, or add the game group to play by pressing a red button.
3. The screen displays the available paytables for the game. Yellow buttons indicate enabled paytables. Remove the paytable from play by pressing the yellow button, or add the paytable to play by pressing one of the red buttons.
4. For some games, the maximum bet can be configured by pressing the **[DO MAX BET]** button. Refer to Section 3.1.5 for the steps to use to set the maximum bet.
5. Press the **[DONE]** button to exit the paytable selection screen.
6. Press the **[SAVE]** button to save the new settings and exit the screen.

Multi-Denomination Games

Each denomination supported by the machine can have its own set of twelve games, providing flexibility when selecting paytables for each denomination. Use the following procedures to enable or disable a game for a given denomination.

Enabling a Game

1. Press the **[GAME SELECTION]** button on the touchscreen video monitor. The screen displays the total number of enabled games in the upper right corner.
2. The screen displays the available game groups and the starting denomination. Use the **[CHANGE]** button to select the appropriate denomination.
3. Select a game group by pressing the appropriate button on the screen. Add a game group by pressing one of the red buttons.
4. The screen displays the available paytables for the game. Add the paytable to play by pressing one of the red buttons.
5. For some games, the maximum bet can be configured by pressing the **[DO MAX BET]** button. Refer to Section 3.1.5 for the steps to use to set the maximum bet.
6. Press the **[DONE]** button to exit the paytable selection screen.
7. Press the **[SAVE]** button to save the new settings and exit the screen.

Disabling a Game

1. Press the **[GAME SELECTION]** button on the touchscreen video monitor. The screen displays the total number of enabled games in the upper right corner.
2. The screen displays the available game groups and the starting denomination. Use the **[CHANGE]** button to select the appropriate denomination.
3. Select a game group by pressing the appropriate button on the screen. Yellow buttons indicate enabled games.

4. The screen displays the available paytables for the game. Remove the payable from play by pressing the yellow button associated with the active payable.
Press the [CLEAR ALL DENOMS THIS FAMILY] button to disable the game for every denomination.
5. Press the [DONE] button to exit the payable selection screen.
6. Press the [SAVE] button to save the new settings and exit the screen.

3.1.5 Maximum Bet

Select the *Maximum Bet* option to set the maximum bet and minimum bet for maximum bonus amounts for a game. Use the following steps to configure the settings.

1. Press the [MAXIMUM BET] button on the touchscreen video monitor.
2. The screen displays the available game groups. Select a game group by pressing the appropriate button on the screen. Yellow buttons indicate enabled game groups.
3. The screen displays the available paytables for the game. Yellow buttons indicate enabled paytables.
4. Touch the appropriate edit box and use the keypad to set the values for each parameter. The screen also displays the following buttons.
 - [THIS GAME ONLY] - apply the changes only to the selected game.
 - [ALL GAMES IN GROUP] - apply the changes to all games in the group.
 - [ALL GAMES] - apply the changes to all games on the machine.
5. Press the [SAVE] button to save the new settings and exit the screen.

3.1.6 Printer Setup

The *Printer Setup* option enables or disables the ticket printer. Use the following procedure to configure the printer.

1. Press the **[PRINTER SETUP]** button on the touchscreen video monitor.
2. Enable or disable the printer using the red **[CHANGE]** button. When the printer is enabled, the screen displays a second **[CHANGE]** button to enable or disable receipt printing for jackpots and handpays.
3. Press the **[SAVE]** button to save the new settings and exit the screen.

3.1.7 Progressive Setup (optional)

The *Progressive Setup* option selects and configures progressive games. Use the following steps to configure progressives.

1. Press the **[PROGRESSIVE SETUP]** button and a window appears with the Game Selection screen buttons.
2. Touch the button that corresponds to the game selection. The screen displays a list of available game-win categories and progressive jackpots. The screen displays an error message if the game does not support progressives.

Use the **[MORE]** and **[PREVIOUS]** buttons to scroll through the list of available game groups.
3. Select the event that will cause the progressive to hit, such as a royal flush in poker. The screen displays the **[SELECT]** **[CONTROLLER]** button.
4. Touch the **[SELECT CONTROLLER]** button to view the list of available progressive jackpots. The following jackpot types are available
 - None
 - SAS
 - Link
 - Standalone

Touch the button associated with the desired progressive jackpot type to view a list of available jackpot levels.

5. Touch the button associated to a jackpot level to assign it to the selected win category. Depending upon the type of progressive controller selected, a [JACKPOT SETUP] button may appear.
6. Touch the [JACKPOT SETUP] button to configure the following jackpot parameters:
 - Current amount
 - Base amount
 - Limit amount
 - Add amount
7. Touch the edit box and use the keypad to change the value for each amount.
8. Touch the [DONE] button to complete the progressive setup for each win category, and touch the [SAVE] button to complete the progressive setup for the selected game.

3.1.8 Token Setup (optional)

The *Token Setup* option configures the credit value for for each token played. Token settings affect game play as follows:

- When the number of credits won is not a multiple of the token value, the machine determines how many more credits are needed to pay the entire win from the hopper. It deducts the credits from the hopper, adds them to the win amount, and pays the tokens from the hopper.
- If the machine is not equipped with a voucher printer and the number of credits cashed out is not a multiple of the token value, the game pays as many tokens as possible and leaves the remaining credits on the machine. If the player presses the [CASH OUT] button, the machine prompts the player to press the [CASH OUT] button again to receive a hand pay, or to play the remaining credits.

Use the following steps to set the token amount.

1. Press the [TOKEN SETUP] button on the touchscreen video monitor.
2. Use the keypad to set the token value. The screen displays a message indicating that fractional token handpays are allowed.
3. Use the [CLEAR] button to clear your entries and start over.

4. Press the [SAVE] button to save the new settings and exit the screen.

3.1.9 Bill Change Mode

The *Bill Change Mode* option enables or disables use of the bill acceptor as a bill changer.

Note: *Using the bill acceptor as a bill changer causes all bills to be exchanged for coins from the hopper. The machine can be played only if coins are deposited.*

Use the following procedure to set this parameter.

1. Press the [BILL CHANGE MODE] button on the touch-screen video monitor.
2. Use the red [DISABLE/ENABLE] button to indicate whether or not the bill validator act as a bill changer.
3. Press the [SAVE] button to save the new settings and exit the screen.

Section 4

IC Chip Procedures

This section describes IC chip replacement and the use of maintenance chips to perform sensitive operations in the Game King software.

Information in this section includes:

- **Section 4.1, IC Chip Replacement** – describes procedures to follow when replacing the IC chips on the processor board.
- **Section 4.2, Maintenance Chip Procedures** – provides procedures for using the key chip or clear chips to perform certain operations.

4.1 IC Chip Replacement

Processor Board Specifications

In order to run release 4 software, a later style processor board with one Megabyte of RAM memory is necessary. Some earlier boards can be converted or a new processor board can be purchased. Contact your local IGT service representative for details.

Note: Check with state and local laws, and record the accounting data before removing game program chips. Chip removal clears all current accounting data.

For jumper locations on the processor board, see the processor (video controller) board schematic in the appropriate electronic diagrams and parts manual.

IC Chip Removal

The ICs intended for field replacement are the game and character generator EPROMs shown in Figures 4-1 and 4-2. Most other ICs are soldered into place.

Caution: Chip removal and replacement instructions should be followed carefully to avoid damaging both the individual program chips and the circuit board itself. These devices are static-sensitive and should be handled by qualified personnel only.

1. Open the machine door and turn the **power off**.
2. Remove the processor tray.
3. Place the processor tray on a stable, flat surface.

Important: Ground yourself to neutralize static that can damage both the ICs and the processor board.

4. Locate the chip(s) to be replaced and, after grounding yourself, carefully remove with a chip extractor.

Caution: Prying against the circuit board with a pointed object may damage the traces under the IC socket.

IC Chip Installation

To install integrated circuit (IC) chips on the processor board, see Figures 4-1 and 4-2 and proceed as follows.

1. Handling the computer chip only by the ends, visually align it by matching the orientation notch, located at one end of the chip, with the notched outline on the processor board.

Caution: If the computer chip is placed into its socket in the wrong direction or with one or more pins ("legs") out of position, the chip may be damaged when the machine power is turned on.

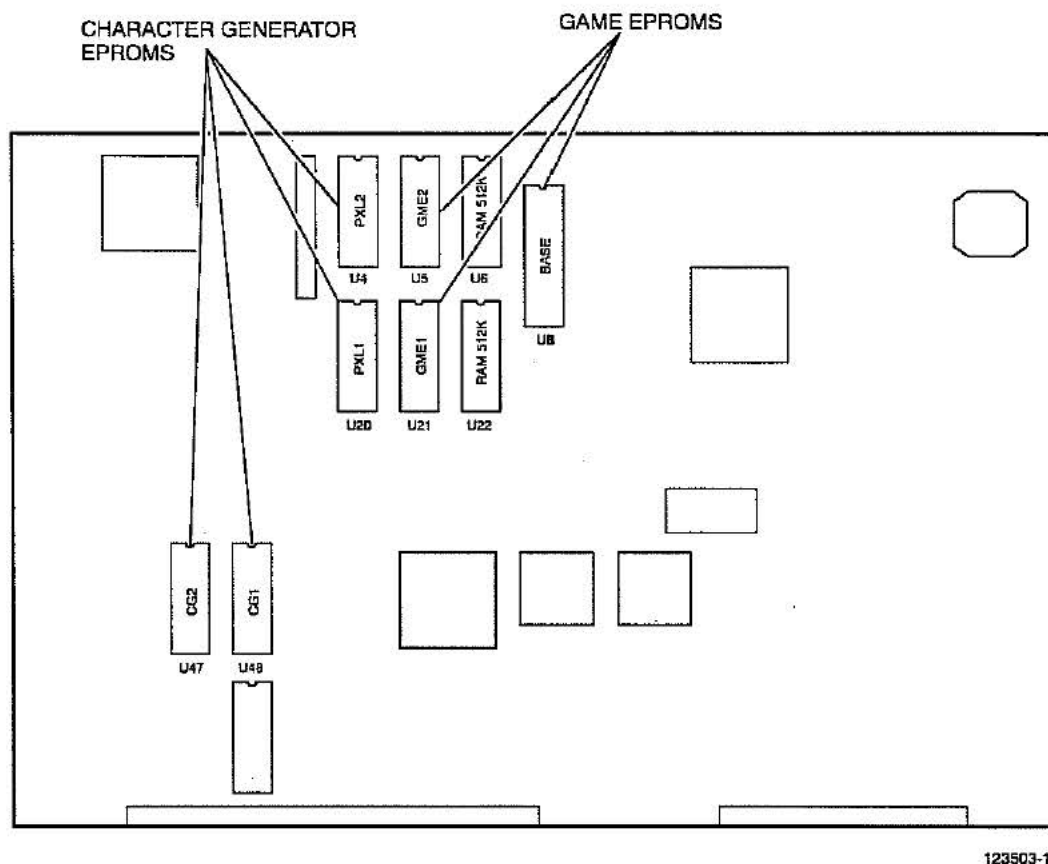


Figure 4-1. Processor Board (p/n 757-038-0X) Chip Locations.

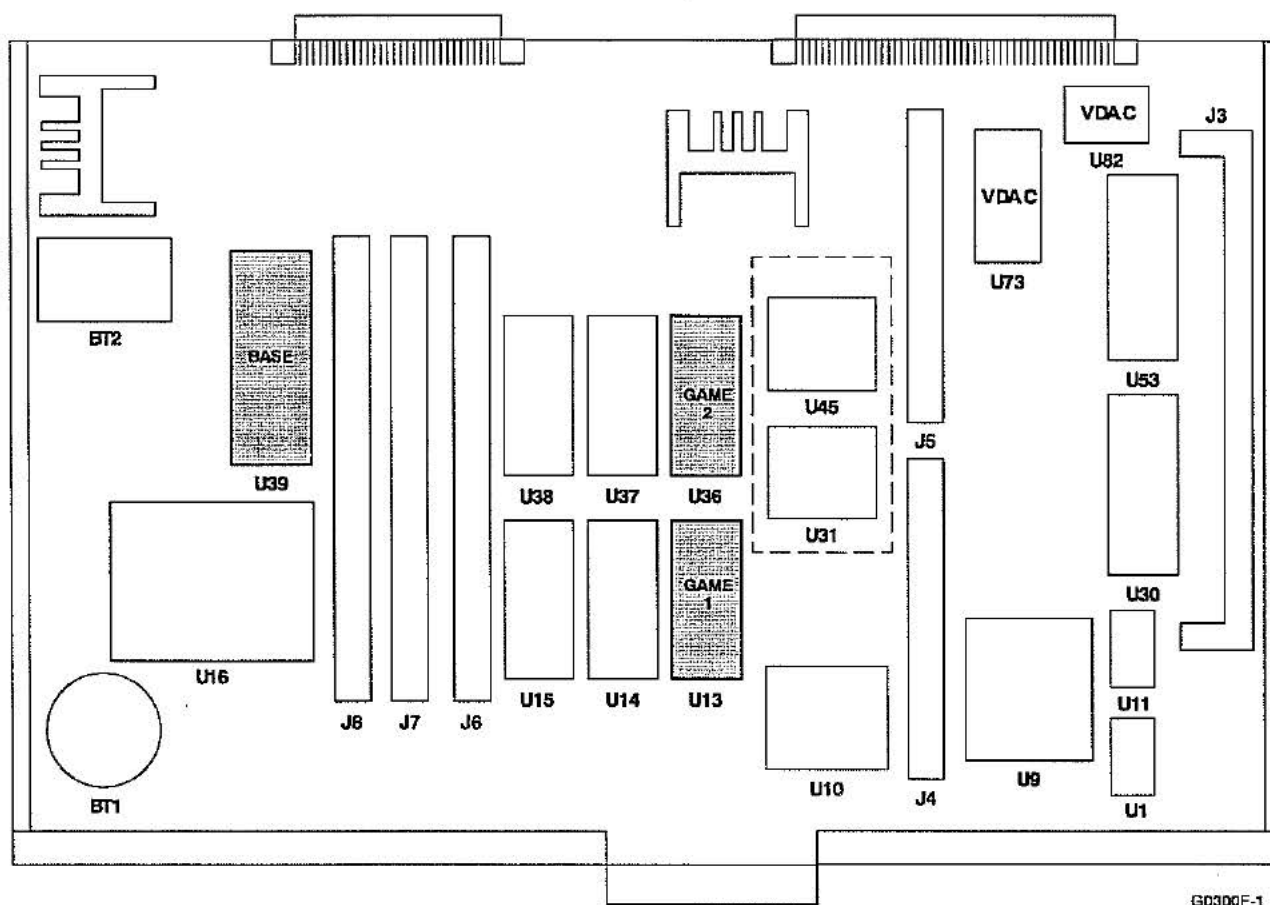


Figure 4-2. Processor Board (p/n 757-039-0X) Chip Locations.

2. The two sets of "legs" on each computer chip are generally spread a little wider apart than the openings in the receptacle. If the legs appear too wide for the receptacle, adjust the alignment by using a chip installation tool of the correct size.

If an installation tool is not available, it may be possible to spring the legs into alignment by placing the chip on its side on a flat, nonconductive surface and gently tilting the chip just enough to bend all of the legs inward a little on each side.

3. When the chip is properly aligned, use gentle hand pressure to push it into the socket. Check both sides of the chip to be sure that all legs are engaged correctly before pushing all the way down into its seat.
4. Install the processor tray and lock into place.

5. Turn the machine **power on**. Refer to Section 2 for information about selecting programmable game options. Refer to the *Troubleshooting: Game Machines* manual to resolve any error messages that may appear on the video monitor.
6. Close and lock the machine door.

4.2 Maintenance Chip Procedures

Key chips are used to perform certain machine activities that are sensitive or require higher authority than the normal technician with access to the Operator menu. Use the following procedures to accomplish these tasks.

Key Chip Procedure

The key chip is required to change machine parameters such as the denomination, pay table or selected games. Follow this procedure to use the key chip.

Note: *The key chip version must be compatible with the base EPROM on the processor board being changed.*

1. Verify that there are no tilts, credits available, or games in progress on the machine.
2. Use the procedure in Section 4.1 to remove the Base EPROM from the processor board and replace it with the key chip.
3. Reinstall the processor board in the machine.
4. Turn the machine **power on**. The processor board indicates that the key chip has been recognized when the two left amber LEDs are lit. Press the operator switch to enable the key chip.
5. Turn the machine **power off** and replace the key chip with the base EPROM.
6. Reinstall the processor board in the machine.
7. Turn the machine **power on** and the key chip menu will appear on the video monitor.
8. Perform the setup changes necessary and exit the key chip menu. Refer to Section 3.1 for detailed procedures.

Note: *The key chip menu times out after approximately two minutes of inactivity.*

Clear Chip Procedure

The clear chips are required to clear RAM, EEPROM or both. Use Table 4-1 to determine which clear chips are necessary to perform the clear operation desired.

Note: Clearing RAM will erase all accounting and event information from the machine. Clearing EEPROM will reset all machine and game setup parameters to defaults.

Clear chips are not available in all gaming or lottery jurisdictions. Contact IGT or the appropriate agency to determine whether these chips are available in a particular jurisdiction.

Table 4-1 Clear Chip Configurations	
Chip Number*	Description
CSV00055	Clears all RAM and all EEPROM
CSV00056	Selectable: All RAM only, RAM only except Terminal meters, or all RAM and all EEPROM
CSV00057	Clears all RAM and all EEPROM except machine communication address
*Note: Numbers subject to change; current as of publication date.	

1. Verify that there are no tilts, credits available, or games in progress on the machine.
2. Use the procedure in Section 4.1 to remove the GME EPROMs (U5 and U21) from the processor board and replace them with the set of clear chips desired (refer to Table 4-1).
3. Reinstall the processor board in the machine.
4. Turn the machine **power on** and watch the video monitor. Follow the on-screen instructions to perform the procedure.
5. Turn the machine **power off** and replace the clear chips with the GME EPROMs.
6. Reinstall the processor board in the machine.
7. Turn the machine **power on** and follow the on-screen instructions to clear the error messages.

Section 5

Functional Verification

Use the following procedure when the machine is in the idle mod to verify that the game program software is operating correctly.

1. Turn the machine **power off**. Open the machine door, unlock and remove the processor board. Verify that the program numbers on the game ICs are compatible with the machine hardware options and that they are installed correctly.
2. Replace the processor board. **Power up** the machine and use the *Diagnostic* option on the *Operator* or *Attendant* menu to check inputs, outputs, and set options.

Note: *If the software does not seem to drive a particular hardware component, contact an IGT agent to verify software capabilities.*

3. Play enough games to verify correct operation of the games, player panel switches, and touchscreen.
4. Use the *Accounting* option to verify that software data is being metered and the desired options are selected.
5. Close and lock all doors.

Glossary

ABS (*Acres Bonusing System™*)

AC Alternating Current An electric current that reverses its direction at regularly recurring intervals.

access path The procedure used by a database management system to access data stored in a database.

access time The time a computer takes to locate and transfer data to or from storage. Composed of seek time and transfer rate.

Account Control Executive (ACE) This software consists of the processes and databases used to define and maintain configuration details, accounting information and reporting.

Accounting Analysis System (AAS) The computer software system used to provide a database of information. The AAS uses various menu options to create and print reports.

accounting option The software option that displays statistics accumulated in game play, such as the number of coins-in or the number of credits won.

address 1) The unique number assigned to each component of a larger system. 2) In data transmission, a code for a specific terminal.

ADS *Accounting Data System*

ADSC Accounting Data System Communicator Used with the IGT Wide Area Progressive Security And Accounting System to receive and transmit data between the ADS and CCOM.

aging period A time period during which information (usually video lottery ticket information) is held in a readily accessible database for verification purposes.

algorithm A step-by-step procedure for solving a problem or accomplishing a task.

alternating progressive A progressive system in which there are two meters each associated with the top award on the gaming machine(s). One meter is set to a higher base amount than the other. During play on the machine(s), the meters both progress at the same rate and an arrow, or other indicator, flashes back and forth between the two meters. When the jackpot is ultimately hit, the player wins whichever amount the arrow is pointing at.

analog Varying smoothly and continuously over a range, rather than changing in discreet jumps. For example, a 12-hour clock face is an analog device that shows the time of day by continuously changing the position of the clock's hands.

archive 1) To copy programs and data onto an auxiliary storage medium, such as a disk or a tape, for long-term retention. 2) To store data for anticipated normal long-term use. 3) A procedure for transferring image information from an online optical storage medium to an offline medium.

asynchronous Not synchronized by a mutual timing signal or clock.

asynchronous transmission A method of data transmission in which the receiving and sending devices don't share a common timer, and no timing data is transmitted. Each information character is individually synchronized, usually by the start and stop of bits. The time interval between characters isn't necessarily fixed.

attendant The person who has access to accounting, diagnostics and other attendant functions by turning the attendant key switch on the machine.

ATA *Advance Technology Attachment*

attendant menu The menu entered by turning the attendant key switch that allows access to accounting, diagnostics and other attendant functions. This menu appears on the screen and shows what options are available.

attract mode Visual and/or music options intended to attract players when the machine is in the idle mode.

autobet An option that enables a player to wager the same number of credits as the previous game simply by pressing the Deal-Spin-Start switch.

autocycle The machine automatically cycles through each test without operator or attendant intervention.

autohold An option that, when selected in the self test mode, automatically holds suggested winning combinations of cards and displays a HELD message above the cards in a game.

award insert A separate piece of glass or film used when the exterior glass panel has an opening for an award insert, such as "4000 coins."

background color The screen color surrounding the game elements and the game-related information.

backup 1) A term pertaining to procedures or standby equipment available for use in the event of failure or overloading of the normally used procedures or equipment. 2) To make a copy of a program or data in case the original is lost, damaged or otherwise inaccessible.

bank controller Data condenser; responsible for communication between DCNs and other system components.

banner A setup or downloadable message which is scrolled across the main menu screen to attract or inform a player.

bar machines A collective term referring to slant-top and flat-top machines, as opposed to upright machines.

base amount The starting amount for a progressive jackpot which is also the amount that is displayed after the progressive is hit.

battery backup Auxiliary power provided to a computer so that volatile information is not lost during a power failure.

battery RAM A battery that preserves the clock settings and the RAM contents when the power is off.

baud 1) A unit of data transmission speed. 2) The maximum speed at which data can be sent down a channel, such as a telephone line.

belly glass The lower glass on the door of some machines that shows the denomination, pay table or game theme.

Bet Down A screen button that, when touched, decrements the number of credits wagered toward a game and returns them to the credit meter. If the button remains touched, the bet will continue to decrement at a determined rate until the bet reaches one.

Bet Max (Bet Five, etc.) A player panel switch or screen button that wagers either the maximum number of credits the machine will accept or, if insufficient credits exist, all remaining credits.

Bet One A player panel switch or screen button that wagers one credit each time it is pressed.

Bet Up A screen button that, when touched, increments the number of credits wagered toward a game and decrements them from the credit meter. If the button remains touched, the bet will continue to increment at a determined rate until the bet reaches maximum coins-in or the credit meter reaches zero.

bill acceptor (*same as bill validator*) Optional assembly that accepts valid paper bills and causes the host machine to either dispense change or issue credits.

bill acceptor pay mode The available options are credit only (pays only in the form of credits), player initiated (pays either credits or cash depending on the player initiated selection) and noncredit.

bill validator (*same as bill acceptor*) Optional assembly that accepts valid paper bills and causes the host machine to either dispense change or issue credits.

bill validator door The door which prevents access to the bills accumulated by the bill validator.

binary Characterized by having two different components or by having only two alternatives or values available.

binary system 1) A number system that uses only 0 and 1 as digits. 2) The representation of numbers in the base-2 system, using only the two digits 0 and 1. A single binary digit - a 0 or a 1 - is called a *bit*.

bit A contraction of binary digit. The smallest unit of information that a computer can hold. The value of a bit is either 1 or 0.

bit rate The speed at which bits are transmitted, usually expressed as bits per second or bps.

BITBLITZ IGT propriety designed video controller on the processor board which provides unmatched speed, resolution and animation capabilities.

bonus An adjustment built into the pay table of a gaming machine to pay the player additional coins for a given win as a reward for playing the maximum coins. For example, on a three coin multiplier game, a particular combination might pay 100 coins with one coin played, 200 coins with two coins played, and 500 coins with the maximum of three coins played. The 500 coin pay in this case contains a 200 coin bonus for playing with the maximum coins.

bonus button Used for interaction with ABS. Allows the player to confirm receipt of a bonus.

bonus pay Expanded pay for top awards won with maximum coins bet, greater than a linear multiple of the wager. If the top award multiplier (number of coins paid per coin bet) is 300 for one to four coins bet, it might be 900 for five (max) coin bet. *See multiplier pay.*

bonus server Microcomputer used for bonusing applications.

boot (*same as power up*) To start up a computer.

bps (bits per second) (*same as bit rate*) The speed at which bits are transmitted, usually expressed as bits per second or bps.

browse An option in various menus that allows the user to view data in a file without changing the information.

buffer 1) An area of memory set aside for the specific purpose of holding data until it is needed. 2) A "holding area" of the computer's memory where information can be stored by one program or device and then read at a different rate by another.

bus 1) A path along which information is transmitted electronically within a computer. 2) An electrical or electronic connection between devices.

bus specification The specification describing the physical characteristics of the bus and the protocol that governs the use of the bus.

buy-a-pay A type of game in which the player "buys" various paying combinations by playing more coins. Usually, buy-a-pay games will pay their top award only if the maximum coins have been played.

byte A unit of information consisting of a fixed number of bits.

cabinet The exterior, laminated wood "shell" that surrounds the metal enclosure on some machines.

cage A secure area in a casino used to handle and store large amounts of money.

cancel 1) A keyboard operation that deletes the line currently being typed. 2) To end a task before it is completed.

candle See *Service Light*.

CAP Color Attribute PROM Contains color definitions used to build images on the screen during each phase of a video game. A complete set of video game chips includes a CAP, a set of CGs, and a game program EPROM.

card 1) A printed-circuit board that plugs into one of the computer's expansion slots, allowing the computer to use one or more peripheral devices such as disk drives. 2) A printed-circuit board or card connected to the bus in parallel with other cards.

card box (Player Tracking or PT unit) The card box (PT unit) has a card reader that scans a member's card and sends the card ID number to the system so the records can be accessed. It also has a display unit to greet the member, show points, etc.

card cage A sealed box in the machine that houses the programmed information for the game type being played. It requires a key to access it. This is also called the lower module.

card reader This is basically a player tracking input function although LEDs (ERR and OK) are available as outputs for a reader without a display. There are currently two different types of cards and card readers: 1) The Hollerith type that uses a card with punched holes for encoding and a reader utilizing LEDs and phototransistors to read it. 2) The mag stripe that uses a card with up to three magnetically encoded tracks and a reader equipped with a magnetic head to read card data.

carousel A collection of machines with a common jackpot linked together via fiber-optic cables in one specific area or location.

cash out A switch that converts machine credits to cash or payable vouchers. The Cash Out switch on the player panel activates this machine function.

cash slip A printed ticket from a video lottery terminal (VLT) that is redeemed for cash in lieu of direct payment as with a gaming machine.

cathode ray tube (CRT) An electronic tube with a screen, such as a television picture tube, upon which information can be displayed.

CC Cluster Controller 1) A down-line processor that collects data from a number of machines, then transmits concentrated data over a single communications channel. 2) A communication device that stores, validates and forwards accounting and security data to the central system. The most common cluster controllers are CVTs, LCTs, and LCOMs. 3) An intelligent communications device at a remote site that is responsible for polling the machines.

CCITT Consultative Committee on International Telegraphy and Telephony An international committee that sets standards and make re-recommendations for international communication.

CCOM Casino Communicator Used with all Wide Area Progressive Systems, such as Megabucks® or Quartermania® systems.

central computer The central processor located at a central site.

central computer system (CCS) In linked games, monitors game machine operation and collects accounting and security information.

central processing unit (CPU) The "brain" of the computer; the microprocessor that performs the actual computations in machine language.

central site The physical place where the central system is located.

central system The hardware at the central site, along with the software used to operate and control the retail sites.

CFE Communications Front-End 1) A processor on the network that is between the Real Time System's processor and the cluster controllers at the remote site. The CFE is responsible for communicating with and polling the cluster controllers. When it is polled by the real time system it responds with the data gathered from the CCs. 2) A computer system that controls the transfer of data from the cluster controller to the central system.

CG Character Generator chip. A character generator chip located on a processor board that generates images on video monitors.

character Any symbol that has a widely understood meaning and thus can convey information. Some characters include letters, numbers and punctuation.

checksum The result of an arithmetic operation on the number of bits in a sequence, used to verify the integrity of game data in the EPROM.

circuit board A board containing embedded circuits and an attached collection of integrated circuits (chips).

circuitry A network of wires, chips and resistors and other electronic devices and connections.

CISC Complex Instruction Set Computer A type of central processing unit found in the majority of personal computers. It requires several clock pulses to complete one instruction.

clerk validation terminal (CVT) A cluster controller that has a keyboard and the ability to print sales reports. The cluster controller stores the data collected from the machines located at a particular location. Used by a cashier to validate printed cash-out tickets (for lottery games) prior to cash redemption.

clock 1) A timing device that generates the basic periodic signal used to control the timing of all operations in a computer. 2) A device that records the progress of real time, or some approximate of it, and whose contents are available to a computer program.

clock chip A special chip in which parameter RAM and the current setting for the date and time are stored. This chip is powered by a battery when the system is off, thus preserving the information.

clock speed The rate at which a microprocessor executes instructions.

cluster controller (CC) 1) A down-line processor that collects data from a number of machines, then transmits concentrated data over a single communications channel. 2) A communication device that stores, validates and forwards accounting and security data to the central system. The most common cluster controllers are CVTs, LCTs, and LCOMs. 3) An intelligent communications device at the remote site that is responsible for polling the machines.

CMOS memory *Complementary Metal Oxide Semiconductor memory* Battery-powered memory, used to store backup RAM data for most IGT games. This is the primary permanent memory storage, and is located in the card cage or the lower module.

coaxial cable A special type of communications cable that permits transmission of data at high speed. Usually employed by local networks.

coin comparator An electronic coin acceptor mechanism that receives and validates coins deposited in the machine. A coin comparator uses a sample coin against which incoming coins are compared for validity.

coin drop box The container in the bottom of the cabinet that catches and holds coins from the coin-in assembly. In bill acceptors, the lower compartment where bills are deposited.

coin drop-box sensor switch This switch monitors the number of times the drop (cash) door is opened.

coin tray Metal tray on a machine where coins are paid out or returned.

coin-in Coins wagered. The coin-in assembly receives, verifies, counts and appropriately routes coins deposited in the machine. The coin-in meters (mechanical and software) accumulate total coin-in numbers.

coin-out Coins or credits won and paid, or credits won and wagered. The coin-out meters (mechanical and software) accumulate total coin-out numbers.

collective remote candle Several machines connected to one candle.

communication 1) The flow of information from one point (the source) to another (the receiver). 2) The act of transmitting or making known. 3) The process by which information is exchanged between individuals through the use of a commonly accepted set of symbols.

communication mode An operating state in which a serial card or port is prepared to exchange data and signals with a modem or other type of data communication equipment (DCE).

communication system Any one of several system configurations linking machines and a control device (LCOM, CVT or modem) via fiber-optic cables to a central computer for the purpose of gathering accounting data.

communications channel The physical means of connecting one location or device to another for the purpose of transmitting and receiving data. Coaxial cables, fiber optics, microwave signals, telephone lines and satellite communications all serve as communication channels.

communications front-end (CFE) 1) A processor on the network that is between the Real Time System's processor and the cluster controllers at the remote site. The CFE is responsible for communicating with and polling the cluster controllers. When it is polled by the real time system it responds with the data gathered from the CCs. 2) A computer system that controls the transfer of data from the cluster controller to the central system.

communications protocol A set of communication rules that provides for error checking between devices and ensures that transmitted data are not lost.

concentrator Data control switch to route data flow to/from the slot bank(s) and bonus server, and to/from the slot bank(s) to IGS.

configuration 1) A general-purpose computer term that can refer to the way a computer is set up. 2) The total combination of hardware components that make up a computer system. 3) The software settings that allow various hardware components of a computer system to communicate with one another.

configuration workstation Console for ABS and the only user interface with the system; configures parameters of ABS.

configure To change software or hardware actions by changing settings.

contribution The percentage of total play into a machine that is applied to the progressive jackpots and reserve funds. The number is divided by all locations on line based on the amount of play per each game at that location.

control character A non-printing character that controls or modifies the way information is printed or displayed.

controlling central agency The entity that has full responsibility for the operation and maintenance of the gaming system.

coprocessor An auxiliary processor that is designed to relieve the demand on the main processor by performing a few specific tasks.

CPU Central Processing Unit The major component of a computer system with the circuitry to control the interpretation and execution of instructions.

CRC Cyclic Redundancy Check Signals, sent between microprocessor devices, to verify the identity of each device in order to prevent tampering or incorrect data being sent.

credit One credit is equal to the denomination of the game being played. Games are played using credits for ease of displaying the amount bet and won.

credit limit The maximum number of credits the machine will accumulate before causing either a hopper-pay, hand-pay or cash-out ticket situation.

credit play Allows all awards, except the top award and hand pays, to accumulate on the Credits display rather than dispensing from the hopper. Some game versions allow player-selected credit or noncredit play.

credits cancelled Credits hand-paid (but not won), that are cashed out of the credit meter. These credits could come from either a coin-in or a bill acceptor.

credits collected The sum of credits won and credits cancelled that are paid out during cash out.

CRT Cathode-Ray Tube An electronic tube with a screen, such as a television picture tube, upon which information can be displayed.

current contribution amount The value of the prize contribution at the current point of time.

cursor 1) The moving, sliding, or blinking symbol on a CRT screen that indicates where the next character will appear. 2) A symbol displayed on the video monitor in the self test mode indicating where the user's next action will take effect.

CVT Clerk Validation Terminal A cluster controller that has a keyboard and the ability to print sales reports. The cluster controller stores the data collected from the machines located at a particular location. Used by a cashier to validate printed cash-out tickets (for lottery games) prior to cash redemption.

DACOM Dutch Asynchronous Communication System A data collection system used only in Holland.

daisy chain A colloquial term for a group of devices connected to a host device, where the first device in the "chain" is connected to the host, the second device is connected to the first and the third device is connected to the second, and so on. To link together sequentially.

data Information.

data bits In the stream of bits being sent from a computer to a peripheral device or another computer, the bits that contain meaningful information.

data bus The path along which general information is transmitted within the computer.

data byte The basic unit of data the computer sends to the printer.

data communications 1) The movement of encoded information by means of electrical transmission systems. 2) The entire process and science of enabling digital devices, such as computers, to communicate with each other.

data encryption A coding technique used to secure sensitive data by mixing or jumbling the data according to a predetermined format.

database A collection of information organized in a form that can be readily manipulated and sorted by a computer user.

database management system A software system for organizing, storing, retrieving, analyzing and modifying information in a database.

day meters The data resulting from the last daily poll of the machines. They provide the data on the number of games played and won, dollars played and won, and other critical information.

DC Direct Current An electric current flowing in one direction.

DCN (Data Collection Node) An electronic circuit board connected to each game in the Acres Bonus System.™ It handles communication between the host and machine, receives bonus promotions from bonus servers, and sends bonus-related information to bonus servers, concentrator and the host.

DCS Data Communication System One of several optional communication systems whereby the machine sends selected data to an external accounting device.

DCU Data Collection Unit A device capable of collecting and storing information (real-time data) from up to 32 card boxes. It also receives data and messages from the FEC for transfer to the card boxes.

decimal number A numeral, usually of more than one digit, representing a sum in which the quantity represented by each digit is based on a radix of 10. The digits used are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

decimal system The commonly used form of number representation, in which numbers are expressed in the base-10 system, using the ten digits 0 through 9.

default A value, action, or setting that a computer system assumes, unless the user gives an explicit instruction to the contrary.

degauss To correct video display discoloration by neutralizing the magnetic field of a video monitor using a special degaussing tool.

delete 1) To remove or eliminate, as to erase data from a field or to eliminate a record from a file. 2) A method of erasing data.

denomination A factor that determines the monetary value of one unit of credit.

diagnostics The mode in which the machine can be tested for module replacement. Tests for I/O (input/output), peripherals, display devices, and other hardware may be included.

dialog box A window that appears over the main screen to provide information to the user or to request information from the user. The dialog box normally requires a response or acknowledgment from the user.

digital Represented in a discrete (noncontinuous) form, such as numerical digits or integers.

digital-to-analog converter (DAC) A device that converts quantities from digital to analog form.

DIP switch *Dual In-line Package switch* A small switch that can be manually set for one of two different values (usually on or off). DIP switches are used on PC boards for setting up various machine configurations.

disk A flat, circular, magnetic surface, serving as a medium for storing information.

disk operating system (DOS) An operating system whose principal function is to manage files and communication with one or more drives.

display A general term to describe what is seen on the screen of the display device of a computer.

display board This is the player tracking output accessory to the SMIB logic board. It contains an encased vacuum fluorescent display, the driver and negative power supply for the display, a VIP light, a display control chip and a connection to the logic board.

diverter The portion of the coin-in assembly that channels coins to either the hopper or the drop box.

double up An extended game play available to the player to double his current winnings.

download To transfer files or information from one computer to another, or from a computer to a peripheral device such as a printer.

drop Coins or bills in the drop box.

drop box The container in the bottom of the cabinet that catches and holds coins when the hopper is full. In bill acceptors, the lower compartment where bills are deposited.

drop door The door normally on the bottom of the machine or in the stand which prevents access to the coin drop.

drop-door sensor switch Monitors the number of times the drop (cash) door is opened.

drop hold percentage Also referred to as coin room percentage. Expression used in some casinos to express what percentage of the total drop of a gaming machine is money actually won. Calculated as follows:

$$\frac{\text{Total Drop} - (\text{Fills} + \text{Jackpots})}{\text{Total Drop}}$$

drop-in bar (DIB) A physical package format where the machine is set into a horizontal bar counter-top or contained in a self-contained cabinet.

dual-monitor module Optional video monitor assembly made to attach to and work with a video machine.

DUART/UART *Dual Universal Asynchronous Receiver/Transmitter and Universal Asynchronous Receiver/Transmitter* A communication IC that can interface between a microprocessor and a serial channel.

E-Squared See *EEPROM*.

EEPROM *Electrically Erasable Programmable Read-Only Memory* Many ICT machines utilize an EEPROM chip on the motherboard to store backup game data.

EGM *Electronic Gaming Machine* (same as VGD) A physical machine that collects and dispenses credits, and houses the games.

electronic funds transfer (EFT) A cashless method of paying for goods or services. Electronic signals between computers are used to adjust the accounts of the parties involved in a transaction. Commonly used to make periodic payments, such as insurance premiums.

enable To activate, usually with a software command.

enclosure The metal body that houses internal machine components. The enclosure is often installed in a cabinet.

encryption The password used to encrypt a message in communications.

End of Day (EOD) See *End of Period*.

End of Period (EOP) A period of time after which game play, coin-in, coin-out and other gaming performance parameters are verified to provide operational control and management information.

enrollment The process of qualifying a component for participation in a network.

Enter key A key that confirms an entry or sometimes a command.

EPROM *Erasable Programmable Read-Only Memory* A non-volatile medium for program instructions. Game programs and video graphics are stored on EPROMs.

error A data processing problem. The machine enters the tilt mode, an error message displays and game play is suspended until the problem is corrected.

escalator In slant-top and flat-top machines, the part of the hopper that carries coins up to the coin tray.

ESD *Electrostatic Discharge* The discharge of electrical energy that occurs when a charged body comes into close proximity to an object of lesser or opposite charge.

Ethernet A high-speed local area network that consists of a cable technology and a series of communication protocols. It is a registered trademark of the Xerox Corporation.

Ethernet cable systems A system of high-performance coaxial cables widely used in the communications industry.

Eurocredit A coin-in/credit system used in some gaming machines that allows the player to insert coins over and above the maximum number that is playable on a per-game basis. There is an operator-selectable maximum credit limit on the Eurocredit machines and players can insert coins at their discretion until this limit is reached. Eurocredit machines are most popular in casinos outside the U.S.

Euro noncredit A credit mode where once the maximum bet is reached, all inserted coins are accumulated as credits in the credits meter up to the credit limit. Any single win greater than the hopper limit is hand paid. All other wins are paid from the hopper to the coin tray. The credit limit is set in self test.

event log Allows an operator or attendant to view metered events recorded by the machine.

exception log A paper record of all reported abnormal events generated on a Wide Area Progressive System.

exception message A message that is printed on the exception printer for any abnormal conditions that cause status to alter from normal.

expanded pay table glass The lower glass on a machine that shows an extension of the upper glass pay table.

expanded reel The term used to describe an electronic slot machine in which the number of reel stops in the computer program is greater than the number of stops on the actual reels of the slot machine.

FCON Fiber Converter An electronic device that converts fiber-optic light signals to electrical signals for 4-wire transmission.

FEC Front-End Controller A dedicated computer that polls machine data from the DCUs for transfer to the Transaction Processor (TP). It also sends information from the TP back through the DCUs to the card boxes. All messages and data, whether received or sent by the FEC, must be in RS-232 computer readable code.

fiber optics The transmission of information with light energy as the transmission carrier and plastic or glass as the medium.

fiber-optic cable A transmission medium that carries pulses of light over strands of glass. Fiber optics can carry hundreds of millions of bits per second over thousands of miles. Since the glass fibers are carrying light, they do not receive outside interference and do not lose appreciable strength. Fiber-optic transmission reduces errors in transmission. A fiber-optic cable contains two glass strands. Each strand or fiber is covered in a sheath made of plastic.

fiber-optic interface board Any one of several optional PC boards that convert electronic digital data to light for fiber-optic transmission.

Fiber "T" A device for branching fiber-optic communication runs or amplifying a fiber run that exceeds 80 feet.

field A single piece of information, the smallest unit normally manipulated by a database management system. A record is made up of one or more fields.

field service manual (FSM) An IGT service publication covering machine hardware, including: installation, maintenance, troubleshooting, disassembly and assembly, parts lists, wiring diagrams and schematics.

field service supplement An IGT service publication that describes hardware and software specific to a certain machine or jurisdiction.

file Any named ordered collection of information stored on a disk.

filename The name that identifies a file.

fill Coins that are added to the hopper of a gaming machine that has become empty as a result of player wins.

firmware Programs stored permanently in read-only memory (ROM).

FLASH Also referred to as programmable and erasable read only memory which is a device that allows data to be re-written.

flash card A credit-card-sized memory device used in the LCD unit for bonus game and attract message storage.

flat-top A type of machine with a flat top, designed for installation in a bar cabinet. The game is viewed from above the machine while the player is typically seated.

floppy disk A disk made of flexible plastic, as opposed to a hard disk made of metal.

fluorescent flasher Controls the fluorescent lights on the machine that indicate the player is in bonus mode.

format 1) The form in which information is organized or presented. 2) The general shape and appearance of a printer's output. 3) To divide a disk into tracks and sectors where information can be stored.

frequency The number of complete cycles transmitted per second, usually expressed in hertz.

full-duplex communication A method of data transmission where two devices transmit data simultaneously. This method allows the receiving device to echo back each character of your message as it is received.

function keys Specially designed keys that, when pressed, initiate a function on a computer keyboard, word processor or graphics terminal.

funding entity The entity that accounts for and finances a prize amount.

game A program designed to offer a player chances to win prizes by betting some unit of credit of the correct denomination. There can be several games in one machine.

game closed mode In linked games, describes suspension of normal game play by the central computer system.

game code The second half of the model code; it refers to which game type is represented by glass or software (i.e., Joker Poker = XX65.)

game play mode The operational mode that exists when the machine is functioning properly and a customer is playing a game.

game speed The pace at which a game is played. This may be set by a player or an operator in the setup mode.

ghost A stop on a slot reel which does not contain a slot symbol.

gigabyte (GB) A unit of measurement equal to 1024 megabytes.

group A set of progressive prizes with a reserve fund. The prizes all have the same base denomination and funding entity.

half-duplex communication A way of communicating between your computer and another computer or a peripheral device in which you can only send data or receive, not both at one time.

hand In video poker games, one set of five cards. A standard poker game consists of an original hand, and after the player keeps or rejects cards, a final hand. Wins or losses are based on the final hand.

hand pay Money award paid by an attendant rather than being dispensed by the machine.

handheld terminal (same as wand or scanner) A portable device used to read machine data and then download the information to a computer.

handle pulls The total number of pulls of the machine handle. Also known as "games played."

hard count The counting of money generated by gaming operations in the form of coins.

hard drop The controlled process of removing coins from gaming machines.

hard meters An internal accounting system that is displayed on mechanical meters on all video and reel gaming machines. These meters are not resettable, i.e. they are at "zero" when the machine is built and they continue to count the cumulative number of coins in, out, etc. throughout the life of the machine.

hertz (Hz) An expression used to describe the frequency of the power line voltage supplied to the gaming machine, e.g. 50 Hertz, 60 Hertz.

hexadecimal system The representation of numbers in the base-16 system using the ten digits, 0 through 9, and the six letters, A through F.

hit frequency A term used to describe the average frequency at which winning game outcomes will occur on a gaming machine. It is calculated by dividing the number of individual hits, or winning games, by the number of possible game outcome combinations.

Hold The physical buttons on video poker machines that, when pressed, allow the player to keep cards in a poker game.

hold percentage The percent of coins played that are retained or won by the gaming machine. It is calculated by subtracting the payback percentage from 100 percent.

holeywheel hopper A type of hopper mechanism, initially developed for large, heavy coins, that uses a punched rotating wheel to collect coins from the hopper bowl, separate them from the other coins for transport to the eject area.

hopper An assembly inside the machine that receives, holds and dispenses coins. When the hopper is full, coins are diverted to the drop box.

hopper probe A simple electromechanical sensing element located in the coin hopper. When the coin mass in the hopper bowl reaches and touches the hopper probe, a signal is sent to the microcomputer indicating that the hopper is full. See *diverter*.

host computer 1) A central processing unit that provides the computing power for the remote terminals and peripheral devices connected to it. 2) The computer that is in charge during a telecommunications or local area network session. 3) The central controlling computer in a network of computers.

host machine A machine used in conjunction with another assembly that cannot stand alone, such as a dual-monitor module or a bill acceptor.

hybrid A term utilized by phone companies to define the unit in telephone rooms where a phone company circuit ends and the in-house wiring begins.

IBA Imbedded Bill Acceptor The bill acceptor is considered imbedded whether it is in a cabinet or top box format. See *bill acceptor*.

icon 1) A symbol that graphically represents an object, a concept, or a message. 2) A pictorial representation of a software function.

idle mode The condition that exists when a game is not being played and no credits exist on the credit meter.

IGS (IGT Gaming Systems)

initialize 1) To set to an initial state or value in preparation for some computation. 2) To prepare a blank disk to receive information by organizing its surface into tracks and sectors (*format*).

input The introduction of data from an external storage medium into a computer's internal storage unit.

input/output (I/O) The inputs and outputs of a machine. Typically, inputs are from switches, etc., and outputs are to lamps, etc.

insert A separate piece of glass or film that contains information not printed on the exterior glass panel. This can be award amounts, a pay table, or other important information.

Intel 8032 Microprocessor The microprocessor used in certain SMART System floor devices - SMIB, DCU, and SMART card reader.

interface 1) The point at which independent systems or device groups interact. The devices, rules or conventions by which one component of a system communicates with another. 2) The part of a program that defines constants, variables, and data structures, rather than procedures. 3) The equipment that accepts electrical signals form one part of a computer system and renders them into a form that can be used by another part. 4) Hardware or software that links the computer to a device. 5) To convert signals from one form to another and pass them between two pieces of equipment.

interface card A card that handles the interface (or connection) between the computer and a particular peripheral device.

IPT imbedded player tracking Enables the owner/operator to identify and gather information about playing patterns on individuals through the use of customer membership cards.

jackpot reset switch (same as reset switch) A key-activated switch that: (a) enables option selections within some self test pages; (b) enters and advances through the statistical data mode; and (c) resets the machine's internal progressive parameters (as applicable) after a jackpot.

jurisdiction An authority within which all gaming regulations are governed.

K (same as kilobyte) A unit of measurement consisting of 1024 bytes. K can also stand for the number 1024 in which case Kbyte is used for kilobyte.

Kbyte (same as kilobyte) A unit of measurement consisting of 1024 bytes. K can also stand for the number 1024 in which case Kbyte is used for kilobyte.

kilobyte (K) A unit of measurement consisting of 1024 bytes. K can also stand for the number 1024 in which case Kbyte is used for kilobyte.

kilohertz (kHz) A unit of measurement of frequency, equal to 1,000 hertz.

LAN Local Area Network A group of computers connected for the purpose of sharing resources.

LCD See Liquid Crystal Display.

LCT Local Communication Terminal A communication controller that collects data from machines and transmits it to a central computer.

LED Light Emitting Diode An alphanumeric display unit that glows when supplied with a specified voltage, commonly used in digital displays and as status indicators.

light box A plastic bracket containing fluorescent lights to illuminate the display glass.

light pen A device used to make game selections directly on the screen in some video games, such as keno.

line lights The payline lamps located adjacent to the pay lines in the reel glass of a multi-line slot machine. As coins are inserted, the lamps light in sequence, indicating the pay lines that are "activated."

line up A type of game that utilizes spinning slot reels or a video simulation of reels. A win occurs when reel symbols line up in a specified manner.

link Two or more machines that are connected to a progressive meter.

link/stand alone progressive Link progressive applies when the machine is connected in series with a group of machines and also connected to a progressive controller. When correctly installed and active, the current progressive top awards are the same for all machines in that link. Stand alone progressive applies when the machine is not connected in any way to other machines. Internal progressive amounts must be set for each machine.

Liquid Crystal Display (LCD) A color, active-matrix display similar to a laptop personal computer. This display is located in the top box and is used for bonus games, custom attract messages and a variety of diagnostic and setup displays.

live system A computer that runs the Wide Area Progressive games and displays the main system window.

local area network (LAN) A group of computers connected for the purpose of sharing resources.

Local Area Progressive (LAP) A group of prizes that are paid by a funding entity other than the controlling central agency.

lockout A solenoid device for disallowing coin or token acceptance.

lockup This situation occurs during some tilt and error conditions. Game play is suspended but self test and statistical data modes are operational.

log in (same as log on) To sign-in on a computer.

log off (same as log out) 1) To stop using the computer.
2) The process of signing off the system.

log on (same as log in) To sign-in on a computer.

log out (same as log off) 1) To stop using the computer.
2) The process of signing off the system.

logic door An electronics cage and lock which prevent access to the main processor board. See card cage.

lottery A jurisdiction in which some form of gambling is allowed, but typically more restricted than gaming jurisdictions. A system usually connected to a central computer via a communication system.

loud bowl A large coin tray designed to resound loudly as coins are paid out.

lower module A removable assembly within the machine. The chassis houses the power supply, motherboard, processor board, connector panels and various optional assemblies or PC boards.

LSAMS Lottery Security, Accounting, Management System IGT's lottery system, including the communication protocol from the CS (central computer) to the CC (Cluster Controller) and from the CC to the machine.

machine A gaming machine. This term is also synonymous with EGM, gaming machine, VGD, VGM and VLT. Sometimes a lottery terminal.

machine address (*same as polling address*) A unique hexadecimal number resident on a processor board or communication board, and used by some accounting and communication systems for machine identification.

machine door On machines, the main access door typically contains the player switches and/or other input devices, coin entry, key lock and various other assemblies.

main door The door on the front of the machine which prevents access to the printer, hopper, front panel switches and other operator accessible items.

main menu In a video game or software program, an initial selection screen where the player or operator chooses which game to play or portion of the program to run.

master file Data stored in a computer system concerning relatively stable information such as machine serial numbers and denominations or personal data on club players for a player tracking system.

max bet (*same as max coin*) The maximum number of coins or credits the game will accept for a single play (usually six or less).

max coin (*same as max bet*) The maximum number of coins or credits the game will accept for a single play (usually six or less).

max hopper pay The determined amount of coins that the hopper will pay out before a hand pay is needed. Should correspond with the amount that appears on the glass insert.

max pay (*same as max win*) The highest award on the game pay table.

max win (*same as max pay*) The highest award on the game pay table.

megabyte (MB) A unit of measurement equal to 1024 kilobytes or 1,048,576 bytes.

megahertz (MHz) A measure of transmission frequency equal to one million hertz.

memory A hardware component of a computer system that can store information for later retrieval.

memory location A unit of main memory that is identified by an address and can hold a single item of information of a fixed size.

menu item A choice in a menu, usually a command to the current application.

meters Counters. IGT machines utilize both mechanical and software meters to collect game play data. Hardware meters collect lifetime totals and cannot be reset. Software meters are displayed in the statistical data mode, and can be reset to zero.

microprocessor An integrated circuit on the computer's main circuit board. The microprocessor carries out software instructions by directing the flow of electrical impulses through the computer.

MIDI Musical Instrument Digital Interface An industry standard for music being produced digitally.

mix The game types (poker, keno, reel slots, etc.), configurations (upright, slant-top, or flat top machines), and denominations on the casino floor. An empirical ratio adjusted continuously by slot management.

mode An operational state of the machine. IGT machines typically have five modes: game play, idle, statistical data, self test and tilt.

modem (acronym for *modulator/demodulator*) A device that provides communication capabilities between pieces of computer equipment over common telephone lines.

monitor A display device similar to a television screen used in video games to receive and display game and service information.

monitor mask A molded plastic frame that surrounds the outside edges of the video monitor (or monitors) and enhances the screen display by reducing glare and light reflections from inside the machine.

Montana-style credit A credit mode where all inserted coins are directed to the credits meter up to the credit limit. In order to place a bet toward the next game, the player must play a credit. A win that would cause the credits meter to exceed the credit limit is hopper paid. If this hopper pay amount is greater than the hopper limit, the amount is hand paid. All other wins are paid to the credits meter. The credit limit is set in self test. Anytime when coins are inserted, the player must play at least one game before they are allowed to cash out the accumulated credits.

motherboard A PC board on the lower module that acts as an interface between the processor board and the electrical machine assemblies.

MS-DOS The Microsoft Disk Operation System. An operating system that governs the IBM PC and compatible computers.

multi-coin game Allows the player the opportunity to increase the amount awarded by increasing the amount wagered.

multi-line game Allows the player the opportunity to play multiple paylines on reel slots by increasing the amount wagered.

multiple level progressives Progressive amounts added to second, third, etc., pay levels and displayed. Limited only by machine program capability.

multiplier pay Each win amount is a linear multiple of the number of coins or credits bet. *See bonus pay.*

multiplexer (MPX or MUX) A device that allows several communications lines to share one computer data channel.

NETPLEX A multidrop serial communication link between the machine and all installed peripheral devices used to transfer information and allow control of peripherals.

network 1) The result of two or more computers being connected to allow them to share the same software and information. 2) A system of interconnected computers and terminals.

network administration Management of software and hardware that connects computers in a network.

network administrator The person responsible for setting up and maintaining a network.

Nevada-style credit A credit mode where coins may only be inserted up to the maximum bet amount. Any single win greater than the hopper limit is hand paid. All other wins are paid to the credits meter up to the maximum hopper setting.

Nevada-style noncredit A credit mode in an S-Plus International game where coins may only be inserted up to the maximum bet amount. Any single win greater than the hopper limit is hand paid. All other wins are paid from the hopper to the coin tray.

node 1) Any terminal, computer, or peripheral in a computer network. 2) The connecting point on a component, printed circuit board, or logic element where electrical connections can be made.

noncredit mode The machine will accept no more than the max bet allowed per game, and all wins are paid out in coins or by an attendant at the time of the win. If a bill acceptor is present, it functions as a changer only.

noncredit play The machine will accept no more than the max bet allowed per game, and all wins are paid out in coins or by an attendant at the time of the win. If a bill acceptor is present, it functions as a changer only.

note acceptor (same as note validator) Optional assembly that accepts valid paper notes and causes the host machine to either dispense change or issue credits.

note acceptor pay mode The available options are credit only (pays only in the form of credits), player initiated (pays either credits or cash depending on the player initiated selection) and noncredit.

note validator (same as note acceptor) Optional assembly that accepts valid paper notes and causes the host machine to either dispense change or issue credits.

note validator door The door which prevents access to the notes accumulated by the note validator.

NTSC decoder board An optional PC board that allows video machines to display an NTSC (National Television Standards Committee) signal. DIP switches on the board allow various configurations.

nudge The reels in this slot game move up or down one symbol when a nudge symbol hits. Examples of a nudge game are Slam Dunk, Balloon Bars and Knock Down.

offline Not currently communicating with host system.

online Communicating with host system.

operator A machine operator, owner, service technician or any other person with access to the interior of the machine by opening the front door.

operator menu The menu entered by pressing the test switch with the main door open that allows access to accounting, diagnostics, setup and other operator functions. This menu has an on screen display that shows what options are available.

operator selectable A value or option that is selectable only by the operator from the operator menu. The default value is one selected at machine configuration.

optic sensor An electronic device used to sense mechanical motion and provide an electrical signal of this motion to the microcomputer system. In most of the optics devices used throughout IGT products, there is an infrared (invisible) light source that emits a beam of light on a phototransmitter. The device is strategically placed in the machine so that the mechanical motion which is being sensed will block the light path, thus causing a signal change in the output of the phototransistor.

optical coin detection The technique of validating coins being put in or being paid out of a gaming device using optical detectors.

optimum A calculated payout percentage range for a poker game assuming an "optimum" (skilled) play strategy for each and every hand.

optimum player return The theoretical payback percentage on a poker machine being played according to the best case strategy for each and every hand.

ordered royal flush A poker game hand consisting of a royal flush positioned from left to right on the screen.

out of service mode The machine is rendered inoperable without turning the power off.

output 1) Data transferred from a computer's internal storage unit to some storage or output device. 2) The final result of data that have been processed by the computer.

page In video games, one full screen display of information as presented in the self test and statistical data modes.

parallel interface A personal computer interface that uses a multiple-path communication line, often used for printer connection.

partial pay A predetermined number of coins that is paid to the player from the machine coin hopper upon hitting a jackpot. The balance of the jackpot is paid by an attendant. The number of coins paid in the partial pay is usually operator selectable.

partitioned software A slot machine architecture in which the machine's software program is broken down into two separate sections and stored in two separate memories. The overall machine operation instructions are stored separately from the reel strip and pay table information.

password A special word, code or symbol that must be presented to the computer system to gain access to its resources. Used for identification and security purposes.

pay table A chart of pay amounts as a function of each winning combination and number of coins or credits bet.

pay table glass The top and/or bottom glass that shows the pay table for that machine.

pay table insert A separate piece of glass or film used when the exterior glass has a "grid" printed on it, but needs an additional pay table insert behind it representing the pay table.

payback percentage The amount of money the player is expected to win divided by the amount of money played over a long period of time, expressed as a percentage. On games where there is a bonus pay on jackpots won with maximum coins played, the payback percentage will vary slightly, depending on how many coins per game are played.

payout An award from a game.

PCON Plastic fiber universal Converter A SMART System accessory that converts fiber-optic light signals from the DCUs to RS-232 computer readable code for the FEC. It also converts signals the other way (RS-232 to light).

peripheral An intelligent input/output device connected to the machine such as a touchscreen, a printer, or a bill validator that communicates to the main processor via cables and proprietary interface software.

PEROM Programmable and Erasable Read Only Memory A device that allows data to be re-written. (same as FLASH)

Personal Computer-Slot Accounting System (PC-SAS) A data collection package that involves machines linked together fiber optically.

physical coins-in The number of actual coins physically deposited into a game (differentiated from coin-in, which can be either a coin or a credit that is wagered).

physical stop The actual places where the spinning reel can stop. There is a stop for each symbol shown on the reel strip.

pinwheel A rotating steel disc used in coin hoppers to dispense coins. Small metal "pins" or raised points located along the outer circumference of the pinwheel provide individual "pockets" where coins can ride along as the pinwheel rotates. As the coins reach the exit point of the hopper, they are stripped off the pinwheel by the hopper knife.

play max (same as Play "X") A screen button or a physical button. The play max function bets the maximum number of credits allowed provided there are enough credits on the credit meter.

play "X" (same as Play max) A screen button or a physical button. The play max function bets the maximum number of credits allowed provided there are enough credits on the credit meter.

player digital display In reel slot machines, game information is presented as an LED digital display through windows on the slot glass.

player panel switch (same as player switch) An input switch that communicates player selections to the processor board. Some player switches also have functions in self test and statistical data modes.

player selectable credit A gaming machine feature that allows the player to play the machine in either credit or noncredit mode. The player uses the Cash Out switch to select the desired mode before playing the machine.

player server Controls displayed messages that go to the vacuum fluorescent display.

player switch (same as player panel switch) An input switch that communicates player selections to the processor board. Some player switches also have functions in self test and statistical data modes.

Player Tracking System (PTS) A data collection package that enables the owner/operator of IGT machines to identify and gather information about players via ID cards and readers.

poll 1) An electronic request for information, usually from a central PC or other computer to various peripheral devices. 2) The process of gathering the meter information from each game and reporting it to the central computer.

polling address (same as machine address) The address to which the machine responds during communication.

pop-up menu A menu that appears on the screen anywhere other than in the standard menu bar location.

port The connection that allows communication between a digital system on a PC board and an external device.

power supply A circuit that supplies the DC voltages required for the operation of an electronic system. Usually a power supply will convert a 110 VAC line voltage to the needed DC voltage for a particular system.

printed-circuit board A hardware component of a computer or other electronic device, consisting of a flat, rectangular piece of rigid material, commonly fiber glass, to which integrated circuits and other electronic components are connected.

printed ticket Some machines utilize a ticket printer rather than a coin hopper. When a win occurs and the player presses the Collect Winnings switch, a printed ticket dispenses from the machine and can then be redeemed for cash.

prize amount An amount of money that can be won by playing a game. This could be a fixed amount or in the case of a progressive prize, an amount that increases based on player activity.

prize base The initial prize amount for a progressive prize.

prize base reset This value replaces the prize base value when a progressive prize is won.

prize base revert When a progressive prize is hit this value is copied to the prize base reset. This allows for a lower prize base reset when prizes are hit close together.

prize cap The absolute maximum dollar amount that a prize amount can reach.

prize contribution Each progressive prize has a contribution percentage associated with it. This factor is applied to each unit of credit played on the games associated with the progressive prize. The resulting contribution amount is used to increment the prize amount.

prize maximum The highest amount a prize can reach in a 24-hour period.

prize maximum boost The maximum dollar amount a prize amount can grow during a 24 hour period.

probability A number expressing the likelihood of an occurrence of a specific event.

processor The hardware component of a computer that performs the actual computation by directly executing instructions represented in machine language and stored in main memory.

processor board The printed circuit board assembly in IGT gaming machines that contains all of the microcomputer system circuitry, as well as the interface circuitry associated with the game inputs and outputs.

programmable read-only memory (PROM) A type of ROM device that is programmed after fabrication, unlike ordinary ROM devices, which are programmed during fabrication.

progressive A system of pooling a fraction of each wager into a cumulative fund that is available for a top-pay win. A game that increments the prize amount based on player participation. The three kinds of progressives are Wide Area, Local Area, and Stand Alone.

progressive controller Controls all progressive functions in a progressive link system (several machines linked together to increment progressive totals equally).

progressive meter A display meter, linked to the progressive machine(s), that shows the potential amount that could be won.

PROM Programmable Read-Only Memory Memory that can be programmed by electrical pulses. Once programmed, it is read-only.

protocol Generically, the communication standard between two serial devices. Often used to reference the type of security, accounting and management systems that the machine is designed to communicate with.

PRTS Progressive Real Time System This is the live or active system. It is in constant communication with all the devices that make up the online progressive system. The main communications interface of the PRTS is the system window.

PSR Program Summary Report A three or four page report that describes the features, capabilities, self test pages and statistical data information for a game's program version.

PTS Player Tracking System A data collection package that enables the owner/operator to identify and gather information about players via ID cards and readers.

pull-down menu A menu, usually used as an extension to the menu bar, that is hidden until you move the pointer to its title and press the mouse button.

QUART Quad Universal Asynchronous Receiver Transmitter A communication device that provides four independent full-duplex asynchronous receiver/transmitter channels in one single package.

RAM Random Access Memory A memory into which the user can enter information (write) and extract information (read). It is the working memory of the computer as well as the backup memory of game information that is stored in the CMOS RAM chip on the processor board.

random A sample drawn from a population so that each member of the population has an equal chance of being drawn.

random access memory (RAM) Volatile, digital, read/write memory that can easily have its bit pattern changed.

RBP Rapid Bonus Progressive A progressive configuration that can increment and pay on up to six levels of winning combinations, rather than just the top and second levels.

read-only memory (ROM) Memory whose contents can be read but not changed; used for storing firmware.

real time A term describing online computer processing systems that receive and process data quickly enough to produce output to control, direct, or affect the outcome of an ongoing activity or process.

real time clock An optional battery-backed clock on the processor board used by some games.

reel strip A set of symbols on a slot reel.

reel strip list Provides exact pay table information and symbol alignment on each reel, and is shipped with the machine or with new reel program orders.

reserve fund This account is used by the funding entity to accumulate prize contributions to pay for the prize base. As prize amounts are won, the prize base reset is used to decrement the amount.

reset amount The starting amount for a progressive jackpot which is also the amount that is displayed after the progressive is hit.

reset switch A key-activated switch that enables option selections within some self test pages; enters and advances through the statistical data mode; and resets the machine's internal progressive parameters (as applicable) after a jackpot.

retail site An establishment where gaming machines are played. This term is also synonymous with location, venue, and retail location.

RFA Resident Flash Array

RISC Reduced Instruction Set Computer A type of central processing unit that usually has a smaller number of instructions that can be completed in 1-2 clock pulses.

ROM Read-Only Memory Memory whose contents can be read but not changed; used for storing firmware.

royal flush A poker game hand consisting of a 10, Jack, Queen, King, Ace of the same suit.

RS-232 A common standard for serial data communication interfaces.

RS-232 cable Any cable that is wired in accordance with the RS-232 specification.

RS-422 A standard for serial data communication interfaces, different from the RS-232 specification in its electrical characteristics and in its use of differential pairs for data signals.

RS-485 The electrical interface for a high-speed serial port.

SAMS Security Accounting Management System A system that provides a secure environment to operate the electronic gaming devices at a remote location.

SAS Slot Accounting System A data collection and accounting package developed by IGT. Data on machine activity is transmitted to a controller which, in turn, transmits the collected data to a computer.

scanner See *handheld terminal*.

schematic An abstract representation of a complex device or concept, such as an electrical schematic.

screen button The graphical representation of a button drawn on the video screen simulating the function of a physical button when the screen is touched within the screen button boundary.

scrolling The vertical or horizontal movement of information (text or graphics) on a display screen in order to display additional information.

SDS Slot Data System An accounting system product of Bally Manufacturing.

self test mode The software mode that allows processor board input and output tests and enables option selections.

self test switch A service control switch that enters and advances through the self test mode, and enables data transfer between the CMOS RAM and EEPROM chips.

Semi-Euro credit A credit mode where coins may only be inserted up to the maximum bet amount. Any single win greater than the hopper limit is hand paid. A win that would cause the credits meter to exceed the credit limit is hopper paid. All other wins are paid to the credit meter. The credit limit is fixed at 9999.

SENET Synchronous Expansion Network An IGT proprietary I/O controller capable of handling 256 inputs and 256 outputs (switches, lamps). An auxiliary multiplexed channel providing 2,048 additional outputs.

serial communication Data communicated over a single-path communication line, one bit at a time.

serial interface An interface driver that controls communication via serial ports, between application and serial peripheral devices.

serial number The machine serial number which is stamped into the serial number tag on the outside of the machine.

service light (candle) A light assembly that mounts either on top of the machine or in a remote location and indicates various machine modes and game conditions. Most service lights have two or more "stages", or sections, stacked vertically.

seven-segment display An illuminated display device that is composed of seven separate straight bars of light that displays the digit "8" when illuminated.

shelf wheel A round metal disc attached to the hopper pinwheel. The shelf wheel is used to characterize the pinwheel for a specific coin size range. Changing from one denomination coinage to another usually requires changing the shelf wheel.

side eject hopper The standard type hopper in most upright gaming machines that ejects coins in a sideward direction.

single/double progressive Refers to the progressive operations of one or two top awards. Single progressive allows only the top award to be progressive. Double progressive allows the top two awards to be progressive.

SIS Slot Information System A data collection package that enables the owner/operator of machines to keep information on players, as well as accounting information and statistical information related to machine events.

site An establishment where gaming machines are played. This term is also synonymous with location, venue, retail site, and retail location.

site ID A number used by the system to identify a location data record based on the ADSC, modem and CCOM numbers.

slant top A type of machine with a slanted top from which the game is viewed while the player is typically seated.

slave monitor board A processor board that controls the video functions of the upper monitor in a dual-monitor machine or module.

slot game A type of machine that utilizes spinning slot reels or a video simulation of reels. A win occurs when reel symbols line up in a specified manner.

slot handle An optional handle located on the right side of a slot machine. Pulling the handle after a wager causes the reels to spin.

Slot Information System (SIS) A data collection package that enables the owner/operator of machines to keep information on players, as well as accounting information and statistical information related to machine events.

slot reel The part of a slot machine that holds one reel strip and spins. Machines generally have three or more independent slot reels.

SMART card reader A device, connected to a workstation computer, that reads player or employee cards and allows access to player or employee records for display or update.

SMART System Slot Marketing And Revenue Tracking To change software or hardware actions by changing settings. Modular system that is capable of providing player tracking, automating the accounting of a slot department, strengthening casino slot security and defining marketing targets.

SMIB Slot Machine Interface Board A device containing logic and interface boards inside the card box or gaming machine. These boards store machine data until polled by the DCU.

soft count The counting of money generated by gaming operations in the form of paper bills.

soft drop The controlled process of removing bills from bill acceptors located in gaming machines.

soft meter An internal accounting system that can be displayed on the screen of a video machine, or in the coin window on a reel slot machine. The signals that increment or drive the hard meters are derived from the soft meter data, and the soft meters are resettable to zero.

solenoid An electromagnetic device used to convert electrical energy into mechanical energy. The solenoid consists of a coil which, when energized, becomes a magnet. The magnet then causes a metal component to move in order to activate a mechanical device.

spectrum display A dot-matrix, multi-color display device used to display the amounts in a progressive system.

SSR Solid State Relay A relay built primarily from integrated circuits and other electronic systems containing moving parts as part of their prime functions.

stand The wood or metal base, housing the drop box, to which a standard upright machine is attached.

standalone progressive A progressive game played for a prize amount that can only be won on one machine.

Standard Euro credit A credit mode where once the maximum bet is reached, all inserted coins are accumulated as credits in the credits meter up to the credit limit. A win that would cause the credits meter to exceed the credit limit is hopper paid. If this hopper pay amount is greater than the hopper limit, the amount is hand paid. All other wins are paid to the credits meter. The credit limit is set in self test.

statistical data mode The software mode that displays statistics accumulated in the game play mode, such as the number of coins in or the number of credits won.

stepper motor A motor used for precision motion control. Stepper motors rotate by applying a pulsating voltage to their windings. Each pulse causes the stepper motor shaft to rotate only a few degrees.

straight flush A poker game hand consisting of five cards of the same suit with consecutive values.

subdirectory A directory within a directory.

super cap The large capacitors, C14 (.22F) on the SMIB logicboard, and C26 (.47F) on the DCU board, which act as battery backup to RAM. They can maintain RAM up to seven days.

synchronous The ability to perform two or more processes at the same time controlled by a mutual timing signal or clock.

synchronous transmission A data transmission in which the bits are transmitted at a fixed rate. The transmitter and receiver both use the same clock signals for synchronization.

tape backup A mechanism that reads and writes information on magnetic tape to provide a copy of user's data in case of an accident.

telecommunication Transmitting information across varying distances, such as over telephone lines.

Telltale-Plus The circuitry which allows the machine to determine if any of the high security doors, including the main door, and processor board on the machine were opened while the power was turned off.

terminal The main console (keyboard and screen) of a system.

terminator A component used at the end of a daisy-chain cable run to complete the circuit.

theoretical hold The percentage of each credit that the machine will keep as gross profit.

tilt An error in machine operation that suspends game play. Tilts can be caused by hardware or software problems and must be corrected before game play can continue.

Token credit A credit mode only available when the appropriate set chip has been used to select the credits per coin (token) amount. By selecting a non-zero number for the credit amount, the token credit mode can be selected in self test, while selecting a zero disables the credit mode. If the game was in token credit mode before using the set chip to change the credit amount to zero, the game defaults to Montana-style credit mode when powered up. (Refer to Montana-style credit)

top box An enclosed area at the top of the machine that typically contains a light box and display glass, a candle and/or various optional assemblies.

top glass A silkscreened piece of glass that fits into the top part of a game and usually shows the pay table.

top panel The main machine door on flat-top and slant-top machines. The top panel typically contains the player switches and/or other player input devices, coin entry, coin tray, video or slot glass and other components.

touch panel A player input device on some video games, such as touch-panel keno. When the player touches a designated area on the panel, a corresponding area on the video screen is activated.

touchscreen A video monitor that also acts as an input device by the action of touching specific locations of the screen to perform some activity or action.

touchscreen button The graphical representation of a button drawn on the screen simulating the function of a physical button when the screen is touched within the screen button boundary.

transaction processor engine (TPE) A set of programs that monitor and control the machines and are responsible for coordinating prize amounts, accumulating group meters, gathering game meters data and ensuring the integrity of the system.

transistor-transistor logic (TTL) 1) A family of integrated circuits having bipolar circuit logic. 2) A standard for interconnecting such circuits, which defines the voltages used to represent logical 0s and 1s.

translator Compatibility buffer between ABS and IGS.

twisted-pair wire A type of wire that is made up of 4 to 8 copper wires. Each wire is twisted around each other to deflect outside interference. There are two varieties shielded twisted pair and unshielded twisted pair.

UART/DUART *Universal Asynchronous Receiver/Transmitter and Dual Universal Asynchronous Receiver/Transmitter* These are integrated circuits that are used to communicate data from gaming machines to various accounting and security systems. The UART is a single device, i.e., one per package. The DUART is a dual device, i.e., two per package.

unit of credit One unit of credit is equivalent to one unit of the base denomination associated with the game.

upright machine A type of machine that stands erect, usually attached to a stand. The machine door is hinged on the side and the game is viewed from the front.

Vacuum Fluorescent Display (VFD) A small graphic display used to convey game play, diagnostic, status and other messages to the player, attendant or operator.

VBatt Battery voltage.

Version 1 CVT The term used to refer to CVTs that are connected to video/reel machines with hoppers.

Version 2 CVT The term used to refer to CVTs that are connected to video/reel machines with ticket printers.

VGD Video Gaming Device A gaming machine. This term is also synonymous with EGM, machine, gaming machine, VGM and VLT.

VGM Video Gaming Machine A gaming machine. This term is also synonymous with EGM, machine, gaming machine, VGD and VLT.

video monitor A display device similar to a television screen used in video games to receive and display game and service information.

Vin Voltage in.

virtual reel The term used for electronic slot machines in which the number of reel stops in the computer program is greater than the number of stops on the actual reels of the machine.

VLT Video Lottery Terminal A type of game that is connected to a central computer system via a communications system. Video lottery customers often receive payment in the form of printed tickets that can be redeemed for cash.

voucher A printed ticket from a video lottery terminal (VLT) which is redeemed for cash in lieu of direct payment as with a gaming machine.

Vout Voltage out.

WAN Wide Area Network A network of geographically distant computers and terminals.

wand See *handheld terminal*.

WAP System Wide Area Progressive System A group of progressive games that are played for a prize amount funded by the controlling agency. Refers to games such as Megabucks® and Quartermania®.

wide area network (WAN) A network of geographically distant computers and terminals.

win Usually refers to the dollar value of a gaming machine's hold percentage. It is calculated by multiplying the coin-in value in dollars times the hold percentage.

window A portion of the video display area dedicated to some specified purpose. Special software allows the screen to be divided into multiple windows that can be moved around and made bigger or smaller. Windows allow the user to treat the computer display screen like a desktop where various files can remain open simultaneously.

workstation 1) An individual work area that includes one or more devices on a network. 2) A node through which a user can access a server or other nodes.

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