



Section 1

Introduction

IGT field service documentation consists of 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, installation, game software, troubleshooting, maintenance, electronics and parts. Manuals are tailored for product group or, in some cases, product models. Refer to the About Field Service Documentation section in the front of this manual for a graphic representation of the manual series.

Each manual contains 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.
- **Index** – is included at the back of each manual and consists of topics listed alphabetically to assist the reader in finding information quickly and easily.
- **Glossary** – appears at the back of each book and lists terms and acronyms commonly used in IGT documentation.

This manual provides component maintenance instructions for IGT machines. Detailed information about individual machine components is described in separate sections of this manual. The content of this manual includes:



- **Section 1, Introduction** - identifies major machine assemblies and lists tools needed to perform maintenance on the machine.
- **Section 2, Machine Door** - covers removal and installation procedures for the machine door and belly door.
- **Section 3, Optic Door-Open Sensor** - describes removal, installation and cleaning of the optic door-open sensor.
- **Section 4, Player Panel Switches** - describes the removal, installation and maintenance for player panel switches.
- **Section 5, Coin-In Handling** - describes disassembly and assembly for coin-in handling components.
- **Section 6, JCM World Bill Acceptor Series** - describes the removal, installation, assembly, disassembly and maintenance of the JCM world bill validator and transport/stacker assembly.
- **Section 7, Pinwheel Hopper** - covers hopper removal, installation, probe levels and maintenance procedures.
- **Section 8, Holeywheel Hopper** - covers hopper removal, installation, probe levels and maintenance procedures.
- **Section 9, Ticket Printer** - covers paper and ribbon changing and general maintenance on the ticket printer.
- **Section 10, Power Supply and Distribution** - covers the power supply and the power distribution assembly.
- **Section 11, Logic Module** - covers cabinet and door input/output (I/O) boards, the processor board and the motherboard.
- **Section 12, Stepper Reels** - describes the removal, installation, disassembly and assembly of the reels.
- **Section 13, Speaker** - describes the removal and installation of the audio speakers.
- **Section 14, Fluorescent Lighting** - describes the removal and installation procedures for the various fluorescent lights.
- **Section 15, Glass** - describes the removal and installation procedures for machine glass.
- **Section 16, Displays** - describes maintenance procedures for the vacuum fluorescent display (VFD), light-emitting diode display (LED), and liquid crystal display (LCD).
- **Section 17, Mechanical Meters** - describes the removal and installation of the mechanical meters.
- **Section 18, Slot Handle** - describes disassembly and assembly procedures for the slot handle.
- **Section 19, Fan** - describes the removal and installation of the fan.
- **Section 20, Service Light (Candle)** - describes the removal and installation of the service light.
- **Section 21, Bell** - describes the removal and installation of the bell.
- **Glossary** - defines terms commonly used in IGT service manuals.
- **Index** - alphabetically lists various topics and page numbers for quick reference.



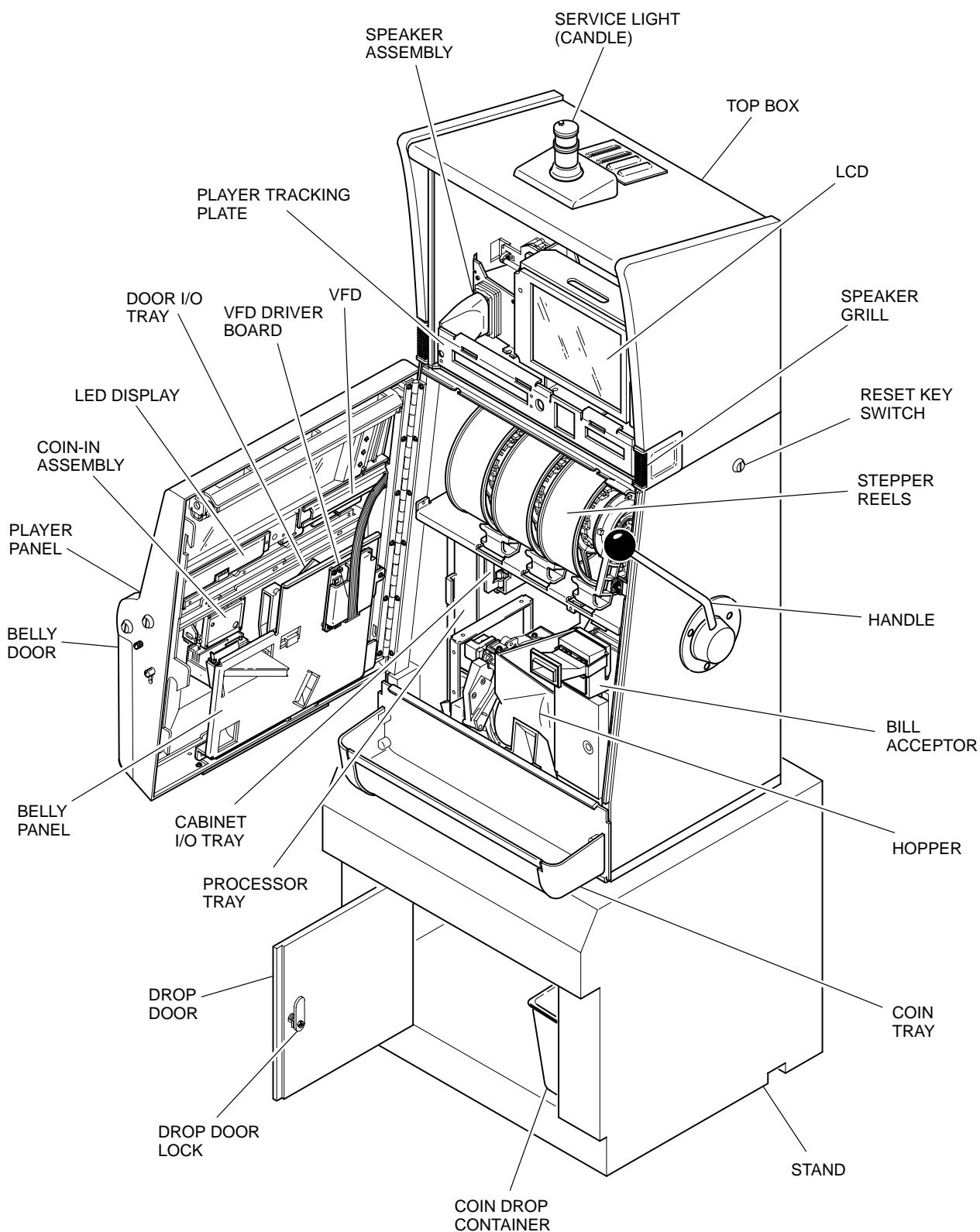
1.1 Machine Components

For a summary of functional assemblies, refer to Table 1-1. See Figure 1-1 to identify the machine components.

Table 1-1 Summary of Functional Assemblies	
Assembly	Function
Bell	The bell rings when a jackpot is won.
Belly Door	This door is located on the lower front portion of the main door; it provides access to the bill acceptor cash box without opening the machine door.
Bill Acceptor	The bill acceptor validates and accepts a variety of dollar denominations.
Bill Acceptor Cash Box	A container that is part of the bill acceptor assembly, and is the location where bills are stacked and stored.
Cabinet	The exterior "shell" that surrounds the metal machine enclosure.
Coin Cash Box	This box is located in the machine under the bill acceptor, and is equipped with an optic door sensor and an optional keyed lock.
Coin Drop Container	A container inside the machine stand where coins can be routed for collection.
Coin-In	This assembly receives, verifies, counts and routes valid coins to the hopper or drop box. Invalid coins are routed to the coin tray.
Displays	Machine displays include a light-emitting diode display (LED) that typically provides game play information; a liquid crystal display (LCD) that displays diagnostic, troubleshooting, bonus modes and site-specific player information; and a vacuum fluorescent display (VFD) that provides player and service information.
Drop Box	The drop box is the area inside the stand containing the coin-drop container. The drop box door fastens with a keyed lock and is equipped with an optional door-open sensor.
Drop Door Sensor Switch	This sensor monitors the number of times the drop door is opened.
Hopper	The hopper allows coins to be channelled to the coin tray when a player earns maximum coins or cashes out.
Input/Output	This assembly provides the input and output interface for machine operation.
Machine Door	The machine door contains the coin chute, coin tray, coin-in assembly, player panel switches, display glass, lower fluorescent panel, speaker, optic door sensor and door lock assembly.
Mechanical Meters	Mechanical meters store and display cumulative game-play information.
Motherboard	The motherboard acts as an interface between the processor and I/O boards and machine components.
Operator Switch	The operator switch enables data transfer between CMOS RAM and EEPROM, clear system errors and enter the operator menu, which allows the viewing of meters, full diagnostics and all setups.
Optic Door Sensor	This assembly senses when the machine door is open and causes a screen display message.



Table 1-1 (cont.) Summary of Functional Assemblies	
Assembly	Function
Player Panel Switches	These switches communicate player decisions to the processor board. Some player panel switches also have functions in diagnostic and accounting options.
Power Distribution Module	The power distribution module provides power to some machine components, and contains a fuse, connector panel and service outlets.
Power On/Off Switch	This is the machine power switch.
Power Supply	This assembly is one of two covered assemblies that provide power to machine components; the other assembly is the power distribution module.
Processor Board	The processor board controls internal video and game functions; interfaces with the communication and I/O system to coordinate machine operation.
Reset Key Switch	The reset key switch allows a technician to reset a top award win and various malfunctions, provides access to the attendant menu to view accounting and perform limited diagnostics.
Service Lamp Switch	This switch activates when the machine door is opened and illuminates the service lamp.
Service Light (Candle)	This optional component indicates various modes, game conditions and change requests.
Speakers	The speakers produce game sounds and attract-mode music.
Stand	The wood or metal base to which the standard upright machine is attached.
Stepper Reels	Motorized slot reels are individually driven by computerized software programmed to average a specific payback percentage.
Ticket Printer	Produces both an original and an audit copy of game events such as tilts, door access, cash out, etc.
Top Box	The enclosed area at the top of the machine that typically contains a liquid crystal display (LCD), speakers, fluorescent light, display glass, fan, candle, and other various other optional assemblies.



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Figure 1-1. Component Identification – Vision/S2000 Series® Upright.



1.3 Commonly Used Tools and Hardware

1.3.1 Tools

The following tools must be available to perform the maintenance procedures described in this manual and in other IGT service manuals.

- #1 and #2 Phillips screwdrivers
- 1/8 and 1/4 inch standard flat-blade screwdrivers
- 4 to 13 mm nutdrivers or 1/4 inch drive sockets and ratchet
- 1/4 to 1/2 inch nutdrivers or 1/4 inch drive sockets and ratchet
- 4 to 13 mm combination wrenches
- 1/4 to 1/2 inch combination wrenches
- Internal hex (Allen) wrenches, metric and American sizes, standard sets
- IGT offset lock wrench (p/n 784-193-00) or 7/8 inch deep socket and ratchet
- Diagonal cutters
- 4 to 6 inch long or needle nose pliers
- Multi-range digital volt/ohm meter (DVM)
- IC chip removal and installation tools
- CRT degaussing tool for video machines
- Molex-connector, pin-extraction tool
- Molex-connector, crimp tool
- Ty-wrap tool
- Wire stripper
- IGT latch-release tool (p/n 549-006-00)

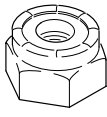

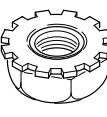
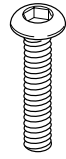
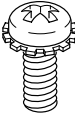

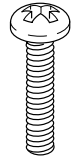
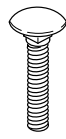
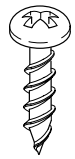
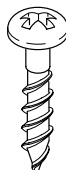



If fiber-optic connections are necessary to install a communication system, the following tools may be necessary:

- AMP 90364-2, plastic fiber-optic connector crimp tool
- Glass fiber-optic termination kit (p/n 375-028-90)

1.3.2 Hardware

Table 1-3 identifies hardware commonly used in IGT products.



<p align="center">Table 1-3 Commonly Used Hardware</p>			
Item	Description	Item	Description
 Esna Nut	Lock nut with raised shoulder and threaded nylon inset; strong locking ability where nut is not often removed	 Shoulder Screw	Characterized by a smoother “shoulder” of a larger diameter than the threads; heads range from slotted pan to hex to socket-head
 Kep Nut	Lock nut with an external-toothed lock washer permanently attached to the lower portion of the nut	 Cap Screw	Socket-head or button-socket; screws more than 1-inch long have a smooth surface between the head and threads equal to the threaded diameter
 Sems Screw	Available in various styles up to 1/2-inch long, IGT frequently uses the Phillips-head pan style with captive external-toothed lock washer fixed onto screw	 Panel Fasteners	IGT uses two types: a spring-loaded pull-type pin plunger and a screw-type captive panel screw to fasten metal panels together
 Machine Screw	Characterized by fine threads and blunt end, machine screws are slotted or Phillips with flat, round, pan, truss or hex heads	 Carriage Bolt	Round head with square shoulder and smooth neck that is equal or slightly larger than outside diameter of threads; inserts into square locating hole and fastens with nut
 Sheet Metal Screw	Characterized by coarse threads, sheet metal screws have pointed or flat ends with either slot or Phillips-type round, flat, pan or truss heads	 Wood Screw	Wood screws are tapered with smooth neck, coarse threads and pointed ends; heads are slotted or Phillips and round, flat and pan-shaped
 E-Ring	 Internal Lock Washer	 External Lock Washer	