NCR RealPOS 7167
Multi-funtion Printer

Release 1.0 to Series II

Migration Guide

B005-0000-2105

Issue A

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Revision Record

Issue	Date	Remarks
A	10/29/12	First issue

NCR RealPOS 7167 Release 1.0 to Series II Migration Guide

Introduction

The following information is provided as a summary of important points to consider when transitioning to the NCR RealPOS 7167 Series II models from the NCR 7167 Release 1.0 models:

Release 1.0 Models:

- 7167-1011-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR, Beige

- 7167-1021-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR with Check Flip, Beige

- 7167-2011-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR, Charcoal Gray

- 7167-2021-9001 – Receipt/Slip, RS232/USB Dual Interface, MICR with Check Flip, Charcoal Gray

Series II Models:

- 7167-5011-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR, Beige, **Series II**

- 7167-5021-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR with Check Flip, Beige, **Series II**

- 7167-6011-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR, Charcoal Gray, **Series II**

- 7167-6021-9001 - Receipt/Slip, RS232/USB Dual Interface, MICR with Check Flip, Charcoal Gray, **Series II**

The NCR RealPOS 7167 Series II Printer is a new Receipt/Slip Printer replacing the current NCR 7167 Receipt/Slip Printer. Series II includes all the proven features/functionality of the current 7167 such as the auto-sensing RS232/USB interface, optional two color print, paper low and paper out sensors, and drop in paper loading along with new functions being introduced with Series II:

- Faster thermal print speeds up to 90 lines per second, 300mm per second or 12 inches per second. Speed depending on the application software.

- Additional Flash ROM Memory increase (16M bits flash to 32M bits flash). No change in user defined area i.e. logo, macro, user defined font, etc.

- Improved MICR Read Rate

- Unicode font support (Receipt and Slip)

- GS1 Barcode Support and QR Barcode Support

- USB HID/Printer Class support

- Thermal Head failure detection

- High Speed line synchronized printing

- Reduction in Power Consumption. Introduction of Standby and Power Off modes.

- Lean Receipt Utility support

Detailed information can be found in the NCR RealPOS 7167 Series II Printer Owner's Guide (B005-0000-2102) and Service Manual (B005-0000-2103) available online via the Information Products Publishing web site at *www.info.ncr.com*.

7167 Release 1 and 7167 Series II Comparison

Feature	7167 R1 Receipt	7167 Series II Receipt	Notes
2ST Support	No	No	
Print Method	Thermal(Receipt), Dot impact(Slip)	Thermal(Receipt), Dot impact(Slip)	
Sticky media support	No	No	
Maximum Receipt Print Speed (LPS)	170mm per sec. 50 lines per sec.	300mm per sec. 90 lines per sec.	Existing customer will obtain print speed improvements; however, how much of an improvement will depend on how the customer's application sends the data and the interface used.
Maximum Slip Print Speed (CPS)	300 Characters per sec	300 Characters per sec	
RS-232 I/F	Standard	Standard	
USB I/F (IO Networks)	Standard	Standard	
RS-485 I/F	Not supported	Not supported	
IBM 4610 emulation via USB	No	Yes	IBM USB support scheduled for December, 2012.
HID USB	No Note: Could be made available via a SCER.	Yes	Minimum RPSW versions required: RPSW 4.0.1.0 RPSW 3.1.2.2 RPSW 3.0.3.9 RS232C user : No impact ION USB user : No impact Non ION user : has to configure the printer to non ION because the default setting is ION.
Double-byte Character Support	Yes	Yes	
Unicode Mode support	No	Yes	
Barcode Generation	UPC-A, UPC-E, JAN 13, JAN 8, Code 39, Code 128, Interleave 2 of 5, Codabar, Code 93, PDF 417	GS1, QR, UPC-A, UPC-E, JAN 13, JAN 8, Code 39, Code 128, Interleave 2 of 5, Codabar, Code 93, PDF 417	To Obtain support for the GS1 and QR Databar, the Minimum RPSW versions required: RPSW 4.0.1.0 RPSW 3.1.2.2 RPSW 3.0.3.9
Cash Drawer Port	Yes	Yes	
Dot Pitch	203dpi	203dpi	
Power Option	24V – Terminal Ext. 75Watt Ext.	24V – Terminal Ext. 75Watt Ext.	

Feature	7167 R1 Receipt	7167 Series II Receipt	Notes
	Power Supply	Power Supply	
Low Power Consumption mode	Not supported	Yes	New Modes: Sleep (default) and Power off mode. - Data will wake it up while in sleep mode. - Paper feed button will turn it back on when in power off mode. - Data not received if printer is turned off.
Paper Size (Width) Supported	Receipt: 58mm or 80mm Slip : Max 88.6mm	Receipt: 58mm or 80mm Slip : Max 88.6mm	New 58mm adapter released (7168-K059) to support both 7168 and 7198 Release 1 models and 7197 and 7167 Series II models.
Various Sensors / Controls	Paper Low, Paper out, cover open, BOF, TOF, Flip, Paper Feed, etc.	Paper Low, Paper out, cover open, BOF, TOF, Flip, Paper Feed, etc.	No Application change required to take advantage of the vertical mount paper low status function.
Thermal Print Head failure detection	Not supported	Yes	Minimum RPSW versions required: RPSW 4.0.1.0 RPSW 3.1.2.2 RPSW 3.0.3.9 Need to configure the printer to enable. Also the application needs to be modified to send the head failure detection command and to check the error status.
MICR	Yes	Yes	
Drivers	OPOS, JavaPOS for Windows and Linux, and TAPS for DOS	OPOS, JavaPOS for Windows and Linux, USB printer protocol for WIndows and TAPS for DOS	
Cabinet Color	Beige, Charcoal	Beige, Charcoal	

Migration Information

<u>All</u> customers should plan a thorough review of the documentation and testing of the printer in their application environment before any assumptions are made with respect to integration effort.

For <u>some</u> customers, no incremental development may be required and the printer may be deployed as a drop-in replacement for the existing 7167 Release 1.0.

Below is high level information on the new features being offered on the 7167 Series II and migration considerations when transitioning from the 7167 Release 1.0 to 7167 Series II.

Existing customers transitioning to the Series II would have to either change their application, firmware or software to *obtain support for the new functionality* offered in Series II. The comparison chart on the previous pages indicates those new functionalities that would require changes to the customer's current environment.

Product ID's

Current Model	New Model	Description
7167-1011-9001	7167-5011-9001	Receipt/Slip, RS232/USB Dual Interface, MICR, Beige, **Series II**
7167-1021-9001	7167-5021-9001	Receipt/Slip, RS232/USB Dual Interface, MICR with Check Flip, Beige, **Series II**
7167-2011-9001	7167-6011-9001	Receipt/Slip, RS232/USB Dual Interface, MICR, Charcoal Gray, **Series II**
7167-2021-9001	7167-6021-9001	Receipt/Slip, RS232/USB Dual Interface, MICR with Check Flip, Charcoal Gray, **Series II**

Housing

Series II is 9mm higher than Release 1 due to the motor changed required for the speed enhancement.   Other dimensions are the same.

Series II supports the same cables currently supported on the 7167 Release 1.0; however, a new simplified cable retention method has been added to the 7167 Series II printer.

Series II Cable Retention Method

Mechanical Changes

The majority of the mechanical changes made were made in order to support the higher speed of the Series II models:

- New thermal head

- Larger motor

- New PCB including faster CPU and new Memory chip

Performance

The 7167 Series II is capable of printing text at up to 90 lines per second or 12 inches per second. This is approximately forty percent faster than the current 7167.

The actual solution throughput is dependent on the speed of the software on the system unit, the communication protocol bandwidth, the available power supplied by the system unit and dot density of the data being printed.

In order to take advantage of the speed of Series II, the application must send all print data to the receipt printer as a continuous stream of data. Adjustments to the NCR OPOS Asyncblock Parameter maybe required to achieve maximum print speed.

USB or the highest baud rate available should be used to achieve maximum print performance.

Failure to use the USB or highest baud rate and sending the continuous data, could result in repeated stop-and-go motion of the printer mechanism.

Power Supply

The 7167 Series II supports the same 75 Watt power supply currently supported on the Release 1.0 models:

- 7167-K410 - 75W printer power supply
- 7167-K411 – 75W printer power supply with US power cord

The 75 Watt power supply is the standard power supply for the 7167 Series II. In order to utilize the full print speed capability of the 7167 Series II, the 75-Watt power supply needs to be used.

55 Watts is the standard when acquiring power from the terminal. A 55 Watt power supply can be used, but expect diminished print speed capability when printing dense graphics. This is no different from R1.

The printer must be configured through the 7167 Series II resident firmware setup menu to tell the type of power supply that is being used.

Improvement in Energy Efficiency

To improve the printer's Energy Efficiency, the 7167 Series II provides the following power consumption modes:

1. *Sleep/Standby Mode (Default setting is Disabled)*
   When ever the printer is in idle condition, it goes to standby mode which reduces the power consumption.   It will return to the normal mode as soon as print data is received. This function is automatically controlled by the printer. The customer's application should work without any influences.

   Note: Because OPOS/Java POS polls the printer when enabled, an OPOS/Java POS Application must disable the printer when not in use to take advantage of this feature.

2. *Power-Off Mode (Default setting is Disabled)*
   The power consumption of Power-Off Mode is almost same as the power-off condition. To activate this mode, the printer must be configured through the 7167 Series II resident firmware setup menu. Once it is setup, the printer goes to the Power-Off mode when the specified time configured passed in idle condition. To exit this mode, an operator needs to press the form feed key.

   Note: Because OPOS/Java POS polls the printer when enabled, an OPOS/Java POS Application must disable the printer when not in use to take advantage of this feature.

   From an application's standpoint, it is same condition as the printer power off condition in this mode. Data is not received if printer is turned off.

Receipt Print Modes

Being able to print at the higher speeds has its advantages; however it also has a slight impact on print density.   When printing at the high speeds of 80+ lines per second, the print sharpness is comparable to printing at 52 lines per second; however, due to the speed of the printer, customers should expect lower density printing. Slightly lower density has no impact on the longevity of the text on the media.

The 7167 Series II provides two receipt print modes:

- High Speed Print Mode (*12ips*) (Default setting) – Slightly lighter print w/ similar character sharpness as R1.

- High Quality Print Mode (*8ips*) – Same print quality as R1.

Receipt Synchronization Modes

The 7167 Series II provides several types of Receipt Sync. Modes:

- **Disable Receipt Sync (Fastest speed)** - Same as default on 7167 R1. This is the default setting for 7167 Series II.

- **Synchronization Mode 1 - Enabled receipt sync** - wait for status response. Same option as "Enable Sync" on 7167 R1. If application does not feed printer with data fast enough, it will cause printer to "stutter".

- **Synchronization Mode 2 –** Smooth printing for applications that do not send the data fast enough to keep up with the printer will result in slightly slower print than Mode 1.

- **Synchronization Mode 3 - Enabled receipt sync w/print line integrity** – slowest print mode - Intended for use by application that need to guarantee each print operation has completed so an individual operation can be resent after an error, instead of reprinting entire receipt.

Memory

ROM/Flash Memory increases from 16M bits flash to 32M bits flash in Series II. The total flash memory size increased, but the size of the user defined area, for logo, macro, user defined font, user storage, is the same as R1.0: The flash memory of R1 is 2MB, and it is almost fully occupied as follows:

1. FW program area

2. SBCS/DBCS font area

3. Logo Storage

4. User Define Fonts Storage

5. User Storage (Macro etc)

The flash memory of Series II is 4MB. In addition to the above usage, the additional 2MB is used as follows:

1. FW program area for new functions (Energy save, Unicode support, Head Failure Detection, RSS barcode, etc...)

2. Electronic journal (future enhancement)

58mm Adapter

The currently released 7167-K058 is not supported by the 7167 Series II models. This kit only supports the Release 1.0 models. *A new kit has been released to support the 2ST models and Series II models, 7168-K059*.

7168-K059 comes ready to support the 7168 and 7198 printers; however, the tab circled below has to be broken with a pair of pliers in order to be used in the 7167 and 7167 Series II models:

Data bar Support

GS1 Data bar

GS1 Data Bar symbols can carry more information and identify small items than the current EAN/UPC bar code. GS1 DataBar enables GTIN identification for hard-to-mark products like fresh foods, jewelry and do-it-yourself hardware products and can carry GS1 Application Identifiers such as serial numbers, lot numbers, and expiration dates.

The 7167 Series II supports the below GS1 Data bar family:

- GS1 DataBar Omnidirectional

- GS1 DataBar Truncated

- GS1 DataBar Stacked

- GS1 DataBar Stacked Omnidirectional

- GS1 DataBar Limited

- GS1 DataBar Expanded

- GS1 DataBar Expanded Stacked

New OPOS/JavaPOS version required to support this new barcode in applications that use OPOS/Java POS.

QR Data bar

The 7167 Series II supports the Quick Response (QR) two-dimensional barcode. New OPOS/JavaPOS version required to support this new barcode in applications that use OPOS/Java POS.

A QR or Quick Response code is a two-dimensional barcode. These are often used for adding web links to a printed page. When you scan such a QR bar code using a web cam or mobile phone camera, the QR reader application takes you to a Web site, a YouTube video or some other web content. QR codes are an easy way of sending people to a site without having to type a URL

Printer Drivers

TAPS - <u>No</u> changes were made with TAPS to support the new 7167 Series II printer. There is no 7167 TAPS driver. NCR Engineering has certified the 7167 to run in 7193 Emulation Mode only with the latest release of TAPS. Results when operating the 7167 in 7193 Emulation mode with an earlier release of TAPS are <u>unpredictable</u>; technical support from NCR may be limited and available only on a T&M basis. TAPS does not allow modification of the application to send new 7167 commands, so a customer using TAPS may only take advantage of these features by updating <u>both</u> application and drivers (using NCR OPOS or writing directly to the printer).

NCR OPOS - An NCR OPOS driver (Service Object) was released for the 7167 Native Mode to support printer functionality included in the standard OPOS specification. The NCR OPOS Service Object does <u>not</u> support polling of the printer for resident diagnostic tallies (the NCR OPOS Sender Agent actually provides logs and tallies to the Logs and Tallies Agent without querying the printer).

- The NCR OPOS Service Object does <u>not</u> allow the application to write to user-defined memory resident now on the 7167 printer. This means a customer eyeing the availability of 64KB of space on the printer for enhancements such as printer-resident electronic journal can not take advantage of this feature using NCR OPOS.

If the application is to be modified to take advantage of the 7167 Series II features in 7167 Native Mode the latest version of NCR OPOS should be installed and the 7167 should be selected as the printer type.

Minimum RPSW versions required to take advantage of the 7167 Series II features:

RPSW 4.0.1.0

RPSW 3.1.2.2

RPSW 3.0.3.9

Thermal Head Failure Detection

The 7167 Series II provides a Thermal Head Failure Detection Function. This function is optional and is used to detect the thermal head failure as earlier as possible.

There are two ways to enable this function.   One is the power-on auto detection and the other is manual detection by command:

1. *Power-on Detection*

   The printer must be configured through the 7167 Series II resident firmware setup menu. Once it is configured, the printer executes the detection whenever it is turned on. The customer's application will need to be modified to check the error status after the detection during the boot sequence.

   An application can get the result by either Real Time Status Transmission or Unsolicited Status Update.

2. *Software Status Detection*

   The customer's application can execute the thermal head failure detection by the "Execute Head Failure Detection command". The customer's application would need to be modified to send the head failure detection command and check the error status.

   Note: NCR OPOS/Java POS provides registry settings to enable these features. They are enabled and disabled together. Errors are reported using currently defined error codes.

Unicode(UTF-16) Mode

The Unicode standard is an encoding scheme used to uniquely identify characters, independent of language, region or code page.

The 7167 Series II printer provides Unicode(UTF-16) Mode support for both Receipt and Slip printing. This new functionality will make it easier for applications *already using* unicode. Unicode would give them the same string for all peripherals and they would not have to translate to the code page before sending to the printer as they do today.

The printer must be configured through the 7167 Series II resident firmware setup menu or Select or Cancel Unicode(UTF-16) Mode command to activate this mode. Default is Code Page mode, so it should not affect existing application.

Existing customers wanting this new functionality would have to make an application and f/w change.

Operating System supported HID and Printer Class USB support

The RealPOS 7167 Release 1.0 models support USB via a virtual serial port emulation driver that had to be installed on the terminal. Series II also supports this interface but in addition supports native operation system for USB.

The native OS interfaces are HID and USB printer class. Selected by printer configuration.

NCR Retail Controls 3.x is required for OPOS use of the HID interface.

For a Direct Write application, use of the HID interface requires the use of Windows Win32 HID API.

Cutter Buzzer Function – selectable tone

The 7167 Series II supports the Cutter Buzzer function. The printer must be configured through the 7167 Series II resident firmware setup menu to activate this function. The default is No buzzer with cutting.

Once this function is activated, the printer sounds the buzzer when it cuts paper. No application change is required to support this feature.

This feature can be configured through OPOS/Java POS when using updated OPOS / Java POS software that supports 7167 Series II.

Minimum RPSW versions required:

RPSW 4.0.1.0

RPSW 3.1.2.2

RPSW 3.0.3.9