**Magtek MICR Check Readers** FAQ's

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## Questions about MICR Check Readers

**Q: How is the MICR data on U.S. check organized?**

**A:** There are five major fields on a MICR line: 1. Auxiliary On Us - contains check number if present; bracketed by on us symbols
2. EPC - one character located to the left of the transit field if present
3. Transit - 9 digits including check digit
4. On Us - variable length 19 digits max; between transit and amount fields
5. Amount - 10 digits zero filled; bracketed by two amount symbols

Two of the five major fields are broken into multiple fields:
Transit (9 digits)
6. Routing Number (digits 1-4)
7. Bank Number (digits 5-8)
8. Check Digit (1 digit)
On Us
9. Account Number - Variable length; always followed by the On Us symbol
10. Check number - Located in various places in the on us field
11. TPC - max 6 characters; Located to right of account number

**Q: Does the MICR reader separate the fields on the check for me?**

**A:** Yes. The MICR reader parses the MICR line and outputs to your application only the check fields your application wants to see. The output format can be programmed by the user.

**Q: Can the MICR reader read checks from all over the world?**

**A:** Yes. The reader auto discriminates between E13-B and CMC7 MICR characters.

**Q: How does the MICR reader handle read errors?**

**A:** The reader can be programmed to send data after an error is detected along with a status code indicating what check field the error was found in. The reader can also be programmed not to send any data if it read a bad character on the MICR line.

**Q: How do I program the MICR reader?**

**A:** Most readers can be programmed on-line or by a configuration check. RS-232 readers can be ordered with a PC DOS program called SET MICR. SET MICR is a utility that configures the MICR reader to output a specific format. All configuration changes are stored in NV RAM. MICRBase, available as a Windows demo program on this site, can also be used to configure any MICR product.

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## Questions about MICR Applications

**Q: What is a MICR reader and what benefit does it offer the retailer?**

**A:** A MICR reader reads the MICR line of a customer's check. The MICR reader is connected to the retailer's POS system. The POS system queries a database that quickly determines whether the check read is valid and whether the customer has previously written any bad checks.

**Q: How do I program the MICR reader?**

**A:** For the high-volume retailer, a primary benefit is increased speed of customer throughput. With a MICR reader, retailers are able to take someone's check and authorize it much more quickly than by checking a driver's license, a credit card or any alternative method. Some 50 supermarket chains with thousands of stores in total are using the MagTek reader to provide their customers with fast, efficient front-end service. The MagTek check reader is installed in some 70,000 Wal-Mart checklanes.

**Q: How does the MICR reader stop bad checks?**

**A:** It depends on how the retailer sets up the system. Some retailers create a positive file. When the customer presents his or her first check at a retail chain, the check data goes into the positive file that links the customer with a checking account at a bank. If the customer bounces a check, the customer's account number is removed from the positive file. The positive

file is read each time a check is presented. If the customer has not bounced a check, the transaction gets a positive verification.

**Q: How is the MICR reader changing the traditional check authorization process?**

**A:** Traditionally, first the clerk would write the customer's driver's license number on the back of the check. Then he or she would have to call and wait for the manager, who would come over and put his initials on the check because he thinks it's a risk worth taking. This is the simplest approach taken by stores who keep no centralized customer file.

A step above this is to issue a check-cashing card to frequent customers. When a customer uses a check-cashing card, the store will accept the customer's check without requiring more than one form of ID.

Many retailers now subscribe to a check authorization service. These services keep a database of people known to have written bad checks. When retailers sign up with one of these services, they are responsible for reporting the bad checks they have received. Each bad account is added to the database. This database is sometimes referred to as a "negative file". The account stays in the "negative file" until the retailer reports back that the customer has made good on the check.

Many retailers are using MICR readers and databases to speed the authorization process. The customer prepares the check and hands it to the clerk. The check is dropped into the MICR reader and read within 2 seconds. The account number read from the MICR line on the customers check is used to query databases and the check is authorized within a few more seconds. Many retailers also record check velocity statistics associated with a customers checking account. These velocity statistics are used in fraud detection. Velocity statistics allow the retailer to set threshold levels for undeposited checks. The data base query usually returns the

customers driver's license number that can be printed on the back of the check by the POS printer.

**Q: How much time does the MICR reader save in the authorization process?**

**A:** Retailers can save 30 seconds or more per transaction. That's a savings of 8,333 hours for every one million checks.

**Q: What is the purpose behind the design of your check readers?**

**A:** The reason for the horseshoe design is to make the reader very reliable. The principle is to wrap the checks around the magnetic head, just as your tape recorder and VCR do. The reason those things work well is that the magnetic tape is wrapped around the head and thus gets good contact. MagTek does the same thing with the horseshoe design.

**Q: What types of fraud does the MICR reader detect?**

**A:** One fraud ploy is to take a payroll check and make a color copy of it. The color copiers out there now are of such quality that, looking at a color copy of a payroll check, your eye can't tell the difference. The MICR reader is looking for magnetic ink. Color copies don't have magnetic ink. Another simple fraud is where a customer uses a black pen to change one or more of the MICR characters on the check. Again, the MICR reader only reads magnetic ink so it will not read the changes make type the black pen.

## Connecting a MICR Reader to a IBM 468X/469X Cash Register

**Q: What Physical interface options are available on the 468x/469x systems?**

**A:** Keyboard Interface via 5a Ports 9a/9b/9x ; 4a/4b

**Q: Is the MagTek MICR reader compatible with standard IBM device drivers?**

**A:** Yes. The MagTek MICR reader emulates standard IBM devices such as: Hand Scanners, Flat Bed Scanners, Dual Track MSRs and RS 232 feature C card sockets. IBM has assigned each of these devices a unique device address. The IBM terminal will not permit more than one device to

be attached with the same device address. For example, the terminal will not permit two hand held scanners on the same register. Your MICR reader must always emulate a device that is not currently attached to your register.

**Q: All my 9x and 4x ports are full. Can I still connect the MICR Reader to my terminal?**

**A:** Yes. MagTek sells 9x/4x "Y" cables. These "Y" cables make one port into two ports.

**Q: I am using GSA application software. How much programming is necessary to integrate MICR reader based check authorization in GSA?**

**A:** That is hard to say. If you are currently hand keying check numbers into your application, you have already done the hard work in putting the core authorization system in place. If this is the case, you may just need to change input state tables or add a small amount code to some GSA user exits(ie User exit 10, User exit 29). The amount of programming will also depend on the emulation you choose.
If you are writing your authorization system from scratch. It could take some code.

**Q: Is it possible to demo the MICR reader on my 468x/469x Lab system without doing any programming?**

**A:** Yes. An easy way to demo the MICR reader on the 468x/469x system is by ordering a 5A keyboard wedge reader. If you order the wedge reader, make sure you fax us your keyboard layout so we can configure your correct motor keys. It is also possible to use the terminal Scanner and MSR test programs in 4680 OS to demo the reader.

# Connecting a MICR Reader to a NCR Register

**Q: What physical interface options are available for NCR 7051/7052/7053/70450 registers?**

**A:** The MICR reader can be connected an available OCIA port, RS232 port or the keyboard connection. Most 7051/52/53 registers have open OCIA ports but the ports are headers on the motherboard. ATT/NCR sells cable harnesses that connect from the motherboard ports to the back of the register. The back of the register end of this harness is a modular type

Compu shield connector. OCIA ports on these registers are configured to support alphanumeric date.

**Q: What physical interface options are available for NCR 2127, 2152, 2154, and 7050 registers?**

**A:** Keyboard interfaces are supported on all of these registers. Some of these registers also have OCIA ports. OCIA ports on these registers support only numeric data.

**Q: I have a Symbol Omni link box attached to my register. Can I hook your reader to a spare Symbol Omni link port?**

**A:** Yes. MagTek supports connection to the scanner port, MSR port and the RS232 ports of the Symbol Omni link box.

## Connecting a MICR Reader to an RS-232 port

**Q: What RS-232 pin out do you use?**

**A:** The standard RS-232 cable is a DB25 pin out that is ready to plug in to a serial port on a PC. If a DB9 connection is desired a converter plug can be used.

**Q: Do you have software that displays the check data that the MICR has read?**

**A:** Yes. MagTek SET MICR software runs under DOS, it can be ordered with your MICR reader. For Windows installations, the MICRBase program can be used.

**Q: My retail application involves "dumb" ASCII POS terminals that are connected to a unix host. Is there a way I can hook the MICR reader to my system so MICR data gets transmitted to my host just as if a clerk was typing the data?**

**A:** Yes. The MagTek RS232 MICR reader supports a "Y" connection. The "Y" cable connects to the RS-232 connector on your terminal and the RS-232 host connector. All output from the POS Terminal is routed passively through the MICR reader to the host. When a check is read through the MICR reader, the check image is sent to the host just as if the check data was hand key typed by the POS terminal operator.

## Connecting a MICR Reader to a PC keyboard

**Q:I want to connect the MICR reader to my PC keyboard so the reader "types" the check data to my application program just like the data was typed on the keyboard. Is this possible?**

**A:** Yes. MagTek offers MICR readers that have a keyboard Wedge interface. MICR readers with this interface connect between the PC and the keyboard.

## Connecting a MICR Reader to a Hypercom Terminal

**Q: Can I connect a MICR check reader to my Hypercom terminal?**

**A:**Yes, the MagTek MICR works with the T7 series of Hypercom terminals. You can connect the reader to the T7, T7E, T7GE, T7GQ, T77 and Q7 terminals directly or to the T7P through the Hypercom FIP-11. The current standard terminal software is already designed to use the MagTek MICR check reader. Hypercom can assist you if you have any questions about your specific terminal software.

**Q: I am now hand keying check numbers into my Hypercom terminal. I would like to read checks using a MICR reader instead. What changes are required to allow the MagTek MICR reader to automatically read check data into my Hypercom terminal?**

**A:** Most Hypercom terminals simply need to be re-configured with the 'Check Reader Attached' option set to Yes. The MagTek reader can be configured to format the check data as required by the various check authorization services. MagTek can help you choose the proper options.

## Connecting a MICR Reader to a Verifone Terminal

**Q: I have several types Verifone Terminals. Can I connect a MICR**

**reader to my Verifone terminals?**

**A:** Yes, if the Verifone has a free serial port, you can connect a MagTek MICR to it. You will need to do some simple programming to read the MICR data but MagTek can assist you. If your Verifone is using the printer port and does not have any other free port, you can use MagTek's "Y" cable that allows the MICR to share the serial port with the printer.

**Q:** I am now hand keying check numbers into my Verifone terminal. I would like to read checks using a MICR reader instead. What programming changes are necessary to allow the MagTek MICR reader to automatically read check data into my Verifone terminal?

**A:** Typically a short sub-function is used to emulate the keypad entry of the check number. This sub-function reads the check data from the MICR and inserts it into the Verifone buffer as if it were hand-entered. The sub-function has a fail-safe mechanism to allow keypad entry in case of a problem with MICR.