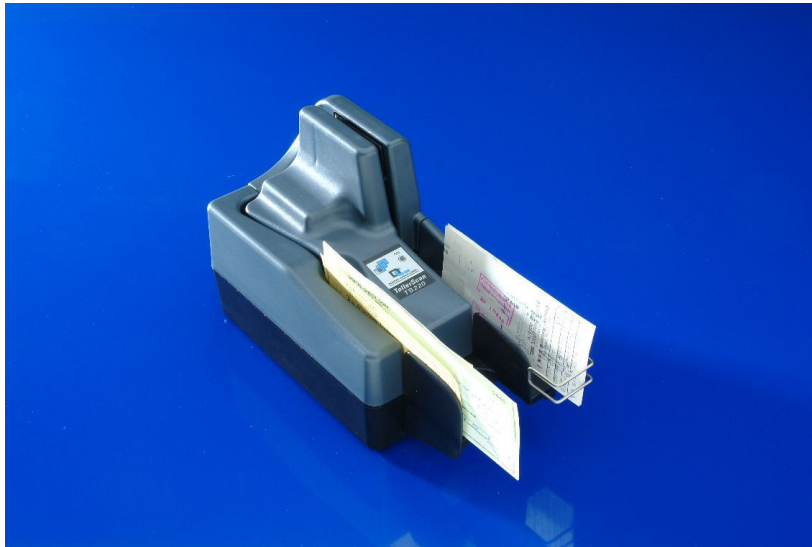# TellerScan™ 220E
Countertop Check Scanner

User's Guide
July, 2006
Version 2.2

DIGITAL CHECK CORP.
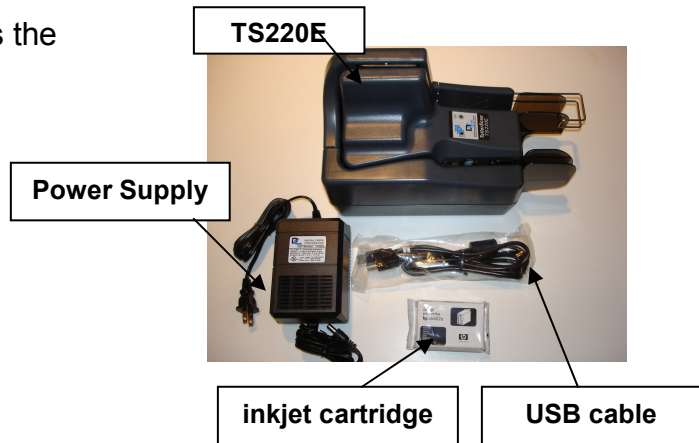
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TellerScan™ 220E Equipment

TellerScan™ 220E Equipment Checklist

The TellerScan™ 220E package includes the following pieces:

- TellerScan™ 220E scanner unit
- USB cable
- External power supply
- HP inkjet cartridge (If the optional Endorsement option is ordered)

TS220E

Power Supply

inkjet cartridge

USB cable

TellerScan™ 220E System Requirements

The following PC specifications are required to operate the TellerScan™ 220E with your remote deposit software:

Recommended	Minimum
▪ 2.4 GHz Pentium IV processor 512 MB RAM	▪ 1GHz Pentium III processor 128MB RAM
▪ 1.5 GB free disk space	▪ 1.5 GB free disk space
▪ Windows 2000 or XP Professional	▪ Windows 2000 or XP Professional
▪ USB 2.0 port	▪ USB 1.0 port

Radio Frequency Interference

The TellerScan™ 220E generates, uses, and can radiate radio frequency energy. If the unit is not installed and used properly that is, in strict accordance with the instructions in this manual it may cause harmful interference to radio communications. It has been tested and found to comply with the limits for Class digital devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against harmful interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user (at their own expense) will be required to take whatever measures may

be required to correct the interference. The use of shielded cables is required when connecting this device to any/all peripheral or host devices. Failure to do so may violate FCC rules.

About the TellerScan™ 220E

The TellerScan™ 220E Countertop Check Scanner is an easy-to-use, compact, scanner that connects to a personal computer (PC). The TellerScan™ 220E automatically scans the front and/or back of checks and also reads the MICR (Magnetic Ink Character Recognition) code line. The images and data are then transmitted through a Universal Bus Interface (USB) to the PC.

Features of the TellerScan™ 220E

Outside the TellerScan™ 220E
Fig. 1.
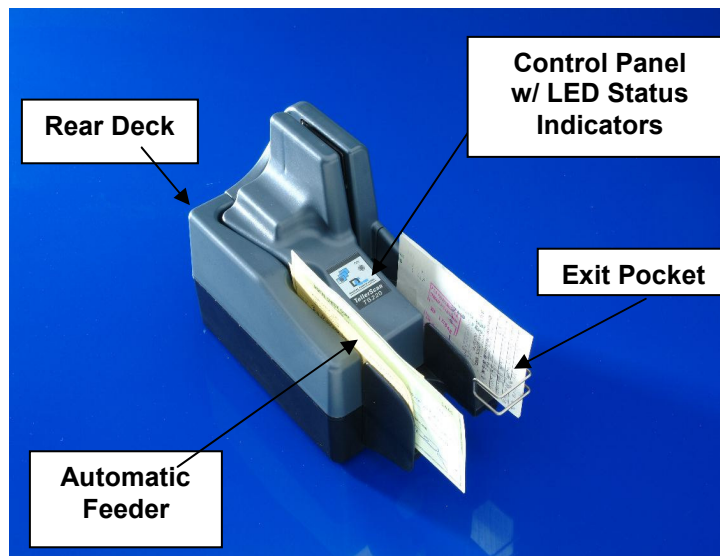
Rear Deck of TellerScan™ 220E
Fig. 2

Inside the TellerScan™ 220E
Fig. 3

Main Drive Rollers

Exit Stop Wire

Inkjet Printer (Optional)

Entry Drive Rollers

Entry / Exit Tray
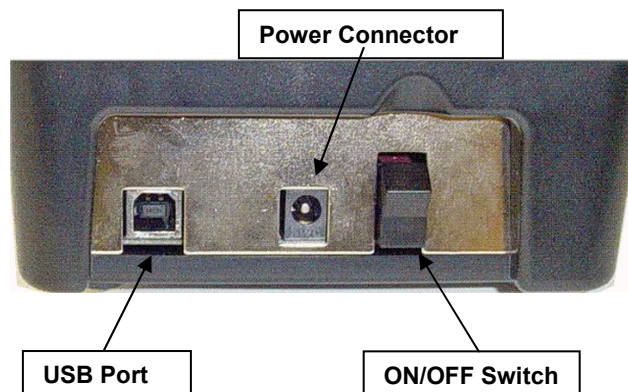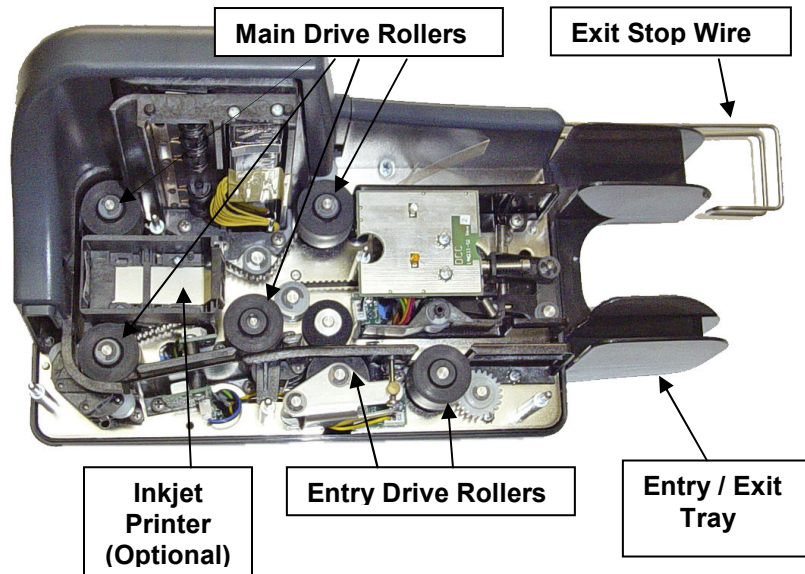
TellerScan™ 220E Installation

Un-Boxing the TellerScan™ 220E

Step 1:	Step 2:	Step 3:
Remove inkjet cartridge from package slot	**Pop-out package corners.**	**Do NOT open the protective bag. First remove the scanner from the box by lifting up on the bag.**

Connecting the TellerScan™ 220E

WARNING: Before connecting the scanner to a PC, insert and run the Install CD which will install the drivers. Then connect and power on the scanner. Follow the instructions on the Quick Install Guide, included with the scanner, to complete the driver installation.

1. Place the unit on a flat surface near the PC and away from direct light.
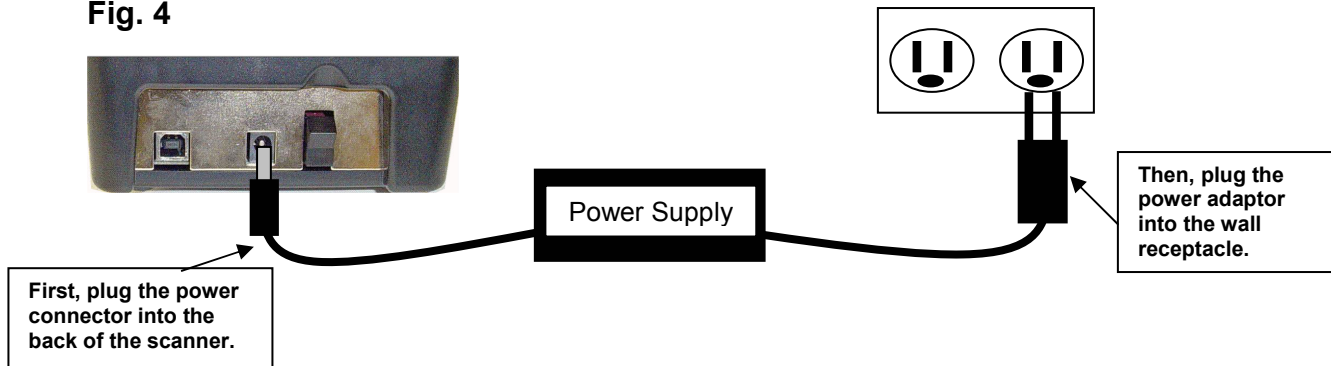2. Connect the power cord from the external power supply to the power connector on the scanner rear deck. (See fig. 2)
3. Place the external power supply in a ventilated area several feet away from the scanner and connect to an appropriate source of power.
4. Make sure the TellerScan™ 220E is turned off. Verify that the green power indicator on the Control Panel is **not** lit. The power switch is on the rear deck. (See Fig. 2)
5. Connect the USB cable by plugging it into the port on the rear deck.

Fig. 4

Power Supply

Then, plug the power adaptor into the wall receptacle.

First, plug the power connector into the back of the scanner.

Installing the Rear Endorser Inkjet Cartridge

Follow these instructions when installing the inkjet cartridge for the first time, or when replacing an empty cartridge:

1. Remove the center cover and locate the inkjet printer. (Fig. 5)

2. If replacing an existing cartridge, remove the inkjet cartridge by grasping the small tab at the rear end and gently pulling upward. Discard the used cartridge.

3. Obtain a new inkjet cartridge (HP part number c6602A). For new installations, one new cartridge is included with each inkjet model scanner. Be certain to read the instructions included with the cartridge

4. Remove the protective tape covering the ink nozzles. Be careful not to touch the ink with your fingers or allow it to come in contact with any clothing.

5. Insert the nose (inkjet end) of the cartridge into the cradle (Fig. 5) in the scanner and
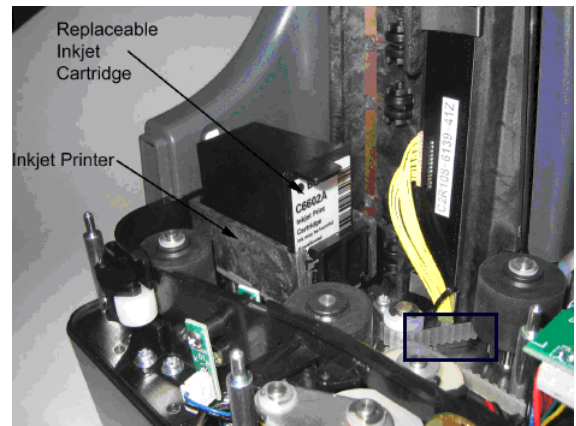
Fig. 5

slide forward while keeping the reservoir end of the cartridge tilted slightly upward.

6. Push the cartridge downward until it snaps into position, and then replace the top-center scanner cover.
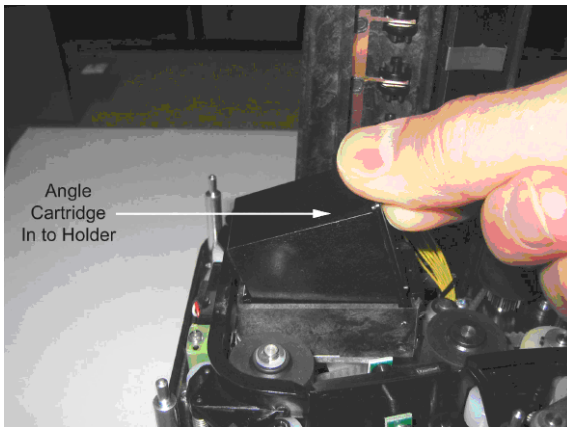
Fig. 6

Note: If the scanner has to be transported by common carrier from one place to another, it's advisable to remove the inkjet cartridge from the scanner prior to shipment. During transport, ink can flow out of the cartridge. In case of long periods of inactivity, it's also advisable to remove the inkjet cartridge. If the scanner has not been used for an extended period of time, it may be necessary to clean the inkjet nozzles with a wet towel, and then blot dry.

Installing the Driver Files (If not included as part of the application installation or if you are not using the Install CD)

Windows 2000 & XP - Drivers
1) Download the certified driver files from the web site. (The Driver Utility).
2) Go to **http://www.digitalcheck.com/l2_ss_downloads.html**
3) Unzip the file, read the install documents and then run the driver auto install program to automatically install the firmware and create a folder for the driver files (C:\Program Files\Tellerscan\Drivers).
4) Turn ON the unit. Windows detects a new hardware device. For first time installations, you can manually point to the TSUSB2.inf file in the new file folder. If the wizard will not finish, go to Device Manager and select to Update Driver for the USB device and point to the new folder.
5) Under XP, the USB controller will install as a TSDevice and then the TS220 device will install as a Tellerscan.
6) Both LEDs on the scanner control panel should now be lit.

NOTE: While the scanner will run on a USB 1.1 port, it is recommended that a USB 2.0 port be used to provide better overall performance.

Installing the Demo Software Program (Use for testing the scanner and during the cleaning process)

Install the Demo Software Program (*Download from the Digital Check web site if you did not run the Install CD. If you did, check the Desktop for the ScanLite icon.***)**

http://www.digitalcheck.com/l2_ss_downloads.html
Page to the Demo programs area and pull down the ScanLite program.

The demo software is a basic scan program that allows you to operate the scanner, change different scanner settings, view images, and store them on your PC's hard disk. The demo program is not the software to run the system. Additional application software is required. Scanlite is an easier demo program to use and is recommended that it be used when cleaning the scanner.

NOTE: In most cases, your scanner will operate under the application provided by the solution provider that installed it. If you need to manually copy down the demo code:

1. Create a sub directory, i.e. "TS220" on the PC.
2. Copy the scanlite files into the directory.
3. Launch the scanlite.exe to open the demo application.

Getting Started with the TellerScan™ 220E

How to Load Checks
Checks can be loaded into the TellerScan™ 220E automatic-feeder in transactions of up to 40 items, using the following directions:

1. Remove all rubber bands, staples, paper clips, pins, etc.

2. Load the items into the automatic-feeder with the front of the items facing away from the scanner (Fig 8).
    NOTE: <u>Checks must be jogged properly in order to feed correctly. The bottom and left leading edges of the check stack must align with one another (Fig. 7).</u>

3. Slide the items into the automatic-feeder until both LED lights illuminate (Fig. 10). This indicates the scanner is ready to begin feeding the items. DO NOT force the items into the automatic-feeder after the light illuminates, as this may increase jam rates.

Fig. 7: bottom & left edges aligned

Fig. 8: Front of checks are facing out

Fig. 10: When both LEDs are illuminated, the scanner is ready to be acquired by the application.
The left LED is the document in pocket indicator after acquisition.

TellerScan™ 220E Troubleshooting

Clearing Jams

If a jam occurs, the paper path must be cleared. To do this, try to advance the jammed document by pressing the "EJECT" button within your application (if applicable). In case the document does not exit the document track, you can grab the document with both hands and carefully wiggle the document back and forth while lifting up. Otherwise, follow these steps:

1. Remove the central cover, if needed, to remove the document.
2. Clear the path of any jammed document and make sure that the rollers are free of paper and debris.
3. Replace the cover.

LED Status Indicators

The standard sequence the two top cover LEDs following is:

1. When the scanner is powered on, the left LED will light up.

2. If the firmware and drivers have been properly loaded, a few seconds later the right LED will light up.

3. Having both LEDs lit is the normal ready condition. The scanner is now waiting to be acquired by an imaging application.

4. When an imaging application synchronizes with the scanner the left LED goes off.

5. Once the TellerScan™ 220E is synchronized with the application, the left LED is now used to detect the presence of documents in the entry pocket.

Document Feeding Problems

The TellerScan™ 220E is designed with a self adjusting auto-feeder and should not require user adjustments. If you notice feeding problems, check the documents for bent of folded edges and for debris in the scanner document track. If feeding problems are still experienced, try cleaning the entry rollers using a TellerScan™ cleaning card and the procedures described within this users guide.

Check Images are streaking or fading

If you notice either streaking or fading on the images, the scanheads may require cleaning. Refer to the section on page 13 regarding cleaning the scanhead area.

TellerScan™ 220E Operator Maintenenace

Cleaning the TellerScan™ 220E

Over time, ink, dirt and dust particles will collect on the scanner rollers and document track. Therefore, it is necessary to clean these areas on a regular basis to assure reliable performance. Tips for performing preventative maintenance by the user on the TellerScan™ 220E include:

- A Periodic inspection of the entire document track area. The use of flashlight will enhance the visual inspection between the scanheads and throughout the document track.
- Remove any staples, paper clips, and rubber bands that may have accumulated during use.
- Have a can of compressed air available to blow out the document track on a regular basis.
- Purchase the TellerScan™ cleaning cards to have on hand for regular cleaning maintenance. Run several scan cycles, flipping the card between cycles, while holding the card to 'scrub' the entry rollers. Once the entry rollers no longer deposit dirt onto the card, allow the card to scan through the entire path. Run this through several times while flipping the card end to end and top to bottom.
- Use the special cleaning swabs, which come with the TellerScan™ cleaning kit, to 'scrub' the four drive rollers under the center cover.
- Inspect the quality of the captured images on a regular basis. If the image quality drops off, inspect and clean the scanheads following the procedure described on page 13. If the quality does not appear to be related to dirt or debris, contact your service provider to determine if the scanheads can be recalibrated.

## Cleaning your scanner's Rollers, Magnetic Head and Camera Faceplates

Every 3,000 to 5,000 documents (for severe environments) it will be necessary to clean the scanner rollers, magnetic read head, scanhead faceplates, and document track. This simple maintenance will drastically improve the reliability of your scanner over its useful life. Cleaner documents can extend the cleaning cycle from 5,000 to 10,000 documents.

Scanner Cleaning Supplies (to order call 847.446.2285)

1. Compressed Air - (acquired for a local office supply provider)
2. Cleaning Kit – Consisting of one box of 25 cleaning cards & 6 Cleaning Swabs – (#130007-03)

Cleaning The TellerScan™ 220E using Scanlite Software

The Scanlite program, which is available from the Digital Check web site, is an excellent utility to run while performing the cleaning procedures recommended below. Scanlite provides an easy way to initiate the scan cycles in order to feed the cleaning cards properly through the scanner. Scanlite also includes an 'Eject' button which operates the scanner at half its normal speed, making it easy to scrub off the four main drive rollers when using the cleaning swabs.
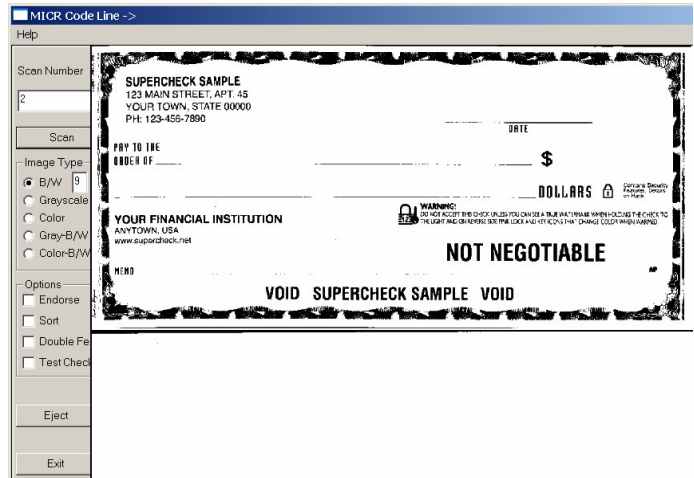
⌁ Helpful Hints

1. Do not use stickers to cover up previously sprayed numbers on documents. The backing from the stickers can rub off onto the rollers and cause documents to jam.

2. Do not use White Out on scanned documents, the White Out can rub off the documents onto the scanner camera faceplate and distort the images.

3. Watch for loose debris falling into the scanner such as staples and rubber bands.

⌁ Cleaning Steps

Step	Action
1	Use compressed air to clean the document track as illustrated below:
2	You may need to remove the center or outer covers to check for other debris that may have entered the scanner. Using two hands pull straight up on the center and left side covers to remove. See the section below for removing the rear right cover.

Cleaning Steps (continued)

Step	Action
3	Insert a new TellerScan™ cleaning card in the auto-feeder

Step	Action
4	Open the imaging application and initiate feeding while holding the card firmly to prevent the card from actually feeding through the scanner. You will want to cancel the transaction after running several scan cycles.

Note: You may use the remote deposit application to run the scanner during the cleaning cycle, or the Scanlite demo program available from the Digital Check web site.

Important:

Run a scan cycle and hold onto the card, but allow it to move into the path so that the second set of rollers is scrubbing on the cleaning card.

Flip the card over and run the same procedure again. This ensures that the main entry drive roller and the double feed rollers are being properly cleaned.

Tip:

Getting the rollers to scrub on the cleaning cards is the most important part of the cleaning procedure. Rollers with a severe build up of ink and dirt will require use of the swabs or cards to be used to manually scrub all four of the
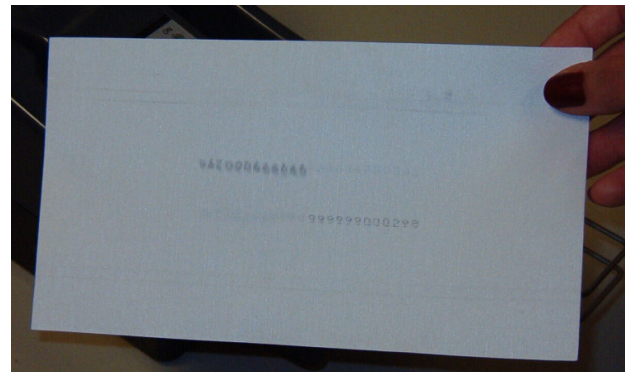
Step	Action
5	Flip the card top to bottom and scan the card again, this time letting it move through the scanner into the exit pocket.

Step	Action
6	Turn the card around and repeat the same process of scanning the card several times on the reverse side.

Result: The TellerScan cleaning card should have been run through the scanner three to four times, periodically flipping the card or swapping it end for end.

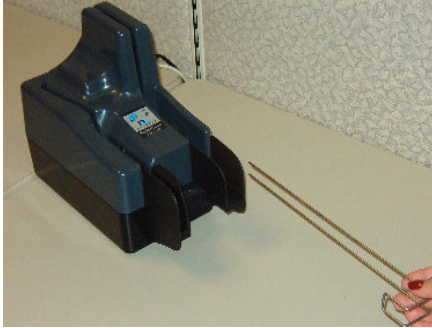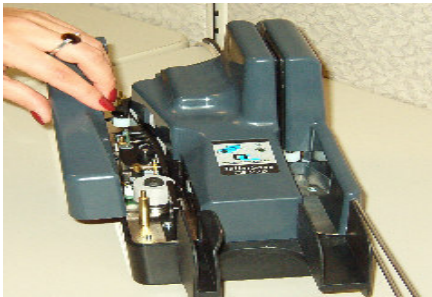| Step	Action
7	After completing the cleaning process, cancel the transaction and discard the used TellerScan card.

Cleaning Scan-Head Steps

Note: This is only performed when document images are unclear, distorted or have a dark line laterally through every image.
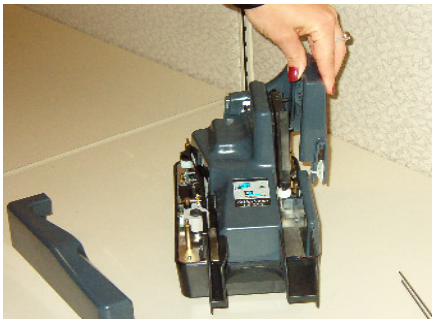
Step	Action
1	Pull out the wire document guide.

Step	Action
2	Remove the left side cover.

Step	Action
3	Remove the right side cover.

Step	Action
4	Unscrew the brass screw and gently open the scanner camera faceplates.
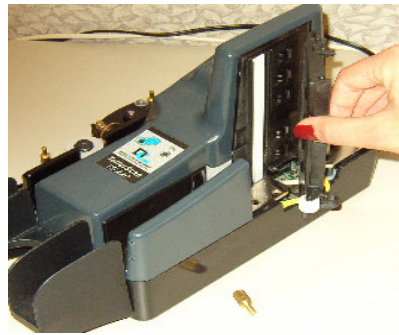
Step	Action
5	Use the cleaning swab or a clean cloth to wipe the camera faceplate (the two white strips and both sides of the camera faceplate section of the scanner).
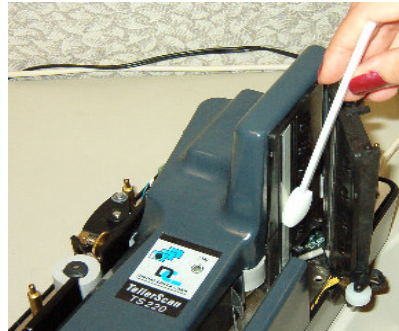
Step	Action
6	Reassemble the scanner components by replacing the brass the screw, right and left cover and the wire document guide.

Note: The swabs or the cleaning cards should be used to manually scrub off some of the main drive rollers which may have accumulated an abnormal amount of dirt and dust from the documents. These are typically used every three to four normal clean cycles.

Common Error Codes From The Scanner

There are three common error codes that can typically show up depending upon the type of documents being scanned. There are no user available adjustments in the TS210E or TS220E scanners.

Periodic and scheduled cleanings should be performed before determining if any further problem determination is needed. See the scanner cleaning document.

Helpful Hints

1. Always hand jog the documents to align the leading and bottom edges. Visually check the leading edges for bent or curled or curled corners and straighten them as needed.

2. Place the stack of documents half way into the entry slot, then slide the stack forward until the Document In Pocket LED light comes on.

3. Be sure that the entry tray is fully seated and that the exit wire stop is extended enough to allow for approximately ½" more than the longest document..

216	<u>Mis-Feed</u> (The documents failed to leave the entry pocket on time). • Remove the documents and re-align the leading edges. • Check for bent or excessively curled leading edges and straighten as needed. • Verify that documents are not stuck together • Insert and rescan the documents. If they continue to get -216 errors, this might indicate that; o The entry drive rollers may be dirty o Something may be lodged in the path
217	<u>Double Document Feed</u> (More than one document is detected in the path) • Eject the documents to clear the error condition. • If the document will not eject, grab the upper edges with both hands and wiggle the document back and forth, vertically to remove it from the path. • Thicker single documents that give a false 217 will have to be manually processed. • Insert and rescan the documents. If they continue to get -217 errors, this might indicate: o The entry drive rollers may need to be cleaned
220	<u>Document Stopped in the path</u> (A document stopped in the path or was slow in exiting). • Eject the documents. To clear the error condition. • If the document will not eject, grab the upper edges with both hands and wiggle the document back and forth, vertically to remove it from the path. • Check the leading edges and corners of the document and straighten as needed. • A -220 error code where the document is stopping in the path repeatedly could indicate debris, paper or a staple in the path if the document's leading edge looks OK. • All of the main drive rollers may need to be cleaned.

Additional Error Codes

Error	Action
212	No Checks (There are no checks indicated in the entry pocket)

- A scan cycle has been initiated, but the Document In Pocket LED (the left LED) is not on indicating that no documents are present.

- Restack the batch of documents and insert them back into the entry pocket. Slide them forward until the LED comes on.

- This typically can happen when a scan cycle is initiated and the LED is not on.

553	No Print Head (The ink jet cartridge is not being sensed by the scanner)

- When endorsing characters using the ink jet option, the print string is the first function sent down to the scanner at the start of a scan cycle. This error will come up immediately if no cartridge is present.

- Open the center cover by lifting vertically. Remove and reseat the ink jet cartridge, being sure it snaps into place.

- If that fails, try using a new cartridge.

125	No Scanner (The scanner was not found during the application to scanner initialization)

- The right LED must be on for the connection to complete.

- Check the USB cable connections or try a different cable.

- Try a different USB port.

- Verify that the PC has the proper drivers and scanner firmware file is installed.

Additional Scanner Information

The TS210E and TS220E User's Guides are available in PDF format on the Digital Check web site.
Go to http://www.digitalcheck.com/l2_ss_downloads.html

The ink jet cartridge used in the TS210E / TS220E is the standard HP C6602A cartridge which is available at most office supply stores. Typical yield is from 5 to 7 million characters.

The TS210E and TS220E scanners can run on a USB 1.1 port, but it is recommended to use a USB 2.0 port for optimum performance and application timing.

For support, contact your dealer or Digital Check Corporation at 847-446-2285. The Service request form to send scanners into the plant for repair can be filled out on-line by going to the web site at:
https://www.digitalcheck.com/clientarea
and following instructions on the screen.

Periodic and scheduled cleanings should be performed before determining if any further problem determination is needed. See the scanner cleaning section.

Frequently Asked Questions

How many checks per minute should my TS220E scan?
The TS220E has a rated throughput speed of up to 40 documents per minute. Actual throughput will vary depending on the PC configuration, physical size of the items scanned, and the speed of the application. Under a USB 2.0 inteface, the expected speed range is 32 to 40 items per minute. If speeds in the 15 to 20 items per minute range are experienced, please check to be sure the scanner is not connected to a slower USB 1.1 port.

What is the proper sequence of the LED lights when the scanner is powered on?
The proper LED sequence is for the left LED to come on immediately, followed by the right LED. If the right LED does not come on, check the USB cable connections. If the LED still does not come on, contact customer support for assistance.

What is a safe distance to keep the power supply from the TS220E check scanner to prevent electromagnetic interference with the MICR read head in the scanner?
Keep power supplies and other electromagnetic devices 12-18 inches away from the scanner to keep them from interfering with the Magnetic read head.

How often should the TS220E check scanner be cleaned?
The recommended cleaning cycle is every 5,000 to 10,000 items, depending how fast the rollers get dirty. Please reference the TS220E cleaning instructions section for specific instructions on how to properly clean the TS220E.

How many characters should a TS220E check scanner inkjet cartridge yield?
Once opened, the practical life of the inkjet cartridge is six months. However, the rated character yield on the inkjet cartridge is between 5-7 million characters. Therefore, the likelihood is greater that the cartridge may dry out before the rated character yield is reached.

What are the minimum and maximum document dimensions for the TS220E?

	Minimum	Maximum
Document Height:	2.12"(54 mm)	4.17" (106mm)
Document Length:	3.19" (80mm)	8.97" (228mm)
Document Weight:	16 lb (60gr/sqm)	32 lb (120gr/sqm)

TellerScan™ 220E Specifications

Paper Size	H. min. 2.12" – max. 4.17" (54-106 mm.) L. min. 2.91" – max 11.81" (80-300 mm.)
Scanning Method	Concurrent two-sided Duplex Image Creation: 2 x 850 cell, 108mm CIS Light Source: Tricolor LED
Transport Speed	50 cm/sec
Image resolution	200 dpi
Image Format	B/W, 16 or 256 gray levels
MICR Recognition	MICR recognition firmware for E13B or CMC7 standards
Diagnostics	On-Board Diagnostics: Tests the functionality of the scanner
Power-On Self Test	Automatic self-testing when switching on the unit
Software Tools	API Toolkit 32 bit
Options	Ink jet printer (Rear endorse)
Part #130007-03	TellerScan™ Cleaning Kit (25 cards + 6 Swabs)
Electrical	Consumption: 30 VA Voltage: 230 VAC, 50 Hz 110 VAC, 60 Hz
Product life	Designed for useful life of 1,000,000 items
MTTR:	15 minutes
Temperature Ratings:	Operating: 60°- 90° F Storage: 0° - 40° C
Humidity:	Operating: 35-85% (non condensing)
Dimensions	H 17 cm – L 21.7 cm (27.9cm incl. I/O trays) – D 13 cm (6.6" x 8.6" x 5.1")
Weight	4.4 lbs (2 kg)
Certifications	UL – FCC – CE

Specifications subject to change
Trademarks and registered trademarks are property of their respective owners

**Providing Check Scanning Solutions &
Check Scanning Equipment Worldwide**

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