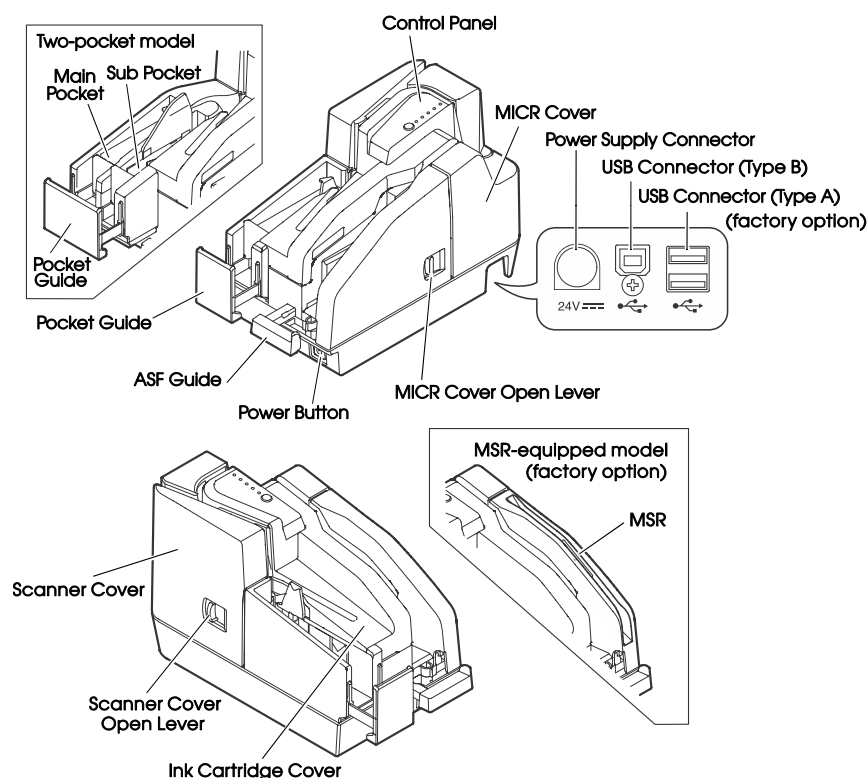


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Accessories

Accessory	Part number
Ink cartridge (black) (SJIC8(K))	C33S020484
Cleaning kit	KWEPS-KCAP1
MICR cleaning sheet	CS1B15WS

Options

Option	Description
MSR (magnetic stripe reader) unit (factory option)	Two-frequency coherent phase (2F2) recognition method. Reads ISO/IEC7810-compliant media. Supports magnetic format ISO 7811-6, AAMVA, previous California driver's license format. Bidirectional swipe direction. 3.94 - 39.4"/s (10 - 100 cm/s) swipe speed. Built-in buzzer. 99.5% recognition rate.
USB 2.0 hub (Type A) (factory option)	Two-port USB-HUB connector. High-speed = 480 Mbps theoretical value. Full-speed = 12 Mbps theoretical value. USB self-power function.

Connections

Connector	Description
Power	PS-180 Model M159B (also called Adapter J) 24 V $\pm$ 7%, supplied with TM-S2000
USB 2.0	Type B. Plug and play.
USB HUB	Optional. Type A. Two-port USB HUB connector

Drivers

Driver	Functions
EPSON TM-S2000 Driver (API)	This API supports scanning, MICR reading, endorsement, ID card scanning, and printing on checks or receipt sheets.
Windows printer driver for TM-S2000	Only supports printing on cut sheets. Does not support scanning, MICR, endorsement, or ID cards.
TM Virtual Port Driver for TM-S	Changes the interface so that a printer connected with the USB interface acts as if it is connected with the serial/parallel interface. Use this driver when you use applications that directly send control commands to printers connected with the serial/parallel interface. This driver supports the print function only. The scanner function is not available.
EPSON TM-S2000 TWAIN driver	Supports scanning, MICR reading, endorsement, ID card scanning. Does not support printing on cut sheets.

Driver	Functions
EPSON TM-2000 Java wrapper	Controls the TM-S2000MJ from Java applications. Used with the TM-S2000 Driver.
TM-S2000 Utility	Uses or sets the following functions of the TM-S2000MJ. ☐ Current Settings ☐ Operation Check ☐ Storing Logos ☐ Backup/Restore ☐ Printing Control ☐ Device Settings ☐ MSR Settings (only for MSR installed models)
EPSON SANE for TM-S2000 for Linux	Supports scanning, MICR reading, endorsement, and ID card scanning. Does not support printing on cut sheets.
EPSON TM-2000 Printer Driver for Linux	Supports printing on cut sheets. Does not support scanning, MICR, endorsement, or ID cards.

Specifications

Computer requirements

	110-dpm model	200-dpm model
CPU	≥ Pentium 4, 2.0 GHz or equivalent.	≥ Intel Core 2 Duo, 1.8 GHz or equivalent
Memory	≥ 512 MB, or above the minimum operating system requirement.	≥ 1 GB, or above the minimum operating system requirement.
HDD	≥ 30 MB free before installation of the driver.	
Interface	USB 2.0 Hi-speed	

Scanning specifications

	Cut sheets	ID cards
Resolution (dpi) (H × L)	300 × 300, 240 × 240, 200 × 200, 120 × 120, 100 × 100	600 × 600, 300 × 300, 200 × 200
Speed (approx.)	31.5"/s {800 mm/s}, 23.62"/s {600 mm/s}, 15.75"/s {400 mm/s}, 9.45"/s {240 mm/s}	4.65"/s {118 mm/s}

Scan method	Contact image sensor (CIS).
Gradation	Binary (black and white) for cut sheets only. 256-level grayscale. 24-bit color. Binary and 256-level grayscale using infrared (IR).
Data compression format	JPEG (grayscale) and CCITT/Group 4 (black and white).

Data format

Black and white (driver eliminates background on checks):	TIFF (200 dpi, binary, CCITT/Group 4 compression complies with ANSI X9.100-181-2007) and BMP.
Grayscale:	TIFF, JPEG, BMP, raster.
24-bit color	TIFF, JPEG, BMP.
IR	Same as black and white and grayscale.
Image size (max.)	4.32" × 10.04" {109.728 × 255 mm}
Height note	4.32" {109.728 mm} is image sensor height.
Length note	9.25" {235 mm} + margin = actual maximum length of scanned document. Driver auto size function automatically tries to match document size to area to scan.

Auto size adjustment

Crops image and adjusts to document size, based on driver settings.

Image quality	Complies with IQA (Image Quality Assurance) set by FSTC (Financial Services Technology Consortium).
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Image deskewing	Based on TM-S2000 driver settings.
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Insertion direction and scanning process	Place side printed with magnetic ink outward with MICR ink at bottom. Both sides of check are scanned.
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Characters recognized by the optical character reader (OCR)	E13B, CMC7 OCR A, OCR B Bar codes: UPC-A, UPC-E, JAN13/ EAN13, JAN8/EAN8, CODE39, ITF, CODE128
---	--

OCR recognition rate	≥ 98% at 77°F {25°C} using characters conforming to ANSI standards. ≥ 99% at 77°F {25°C} for bar codes.
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MICR specifications

Supported fonts	E13B, CMC7 (Alphabetic characters not supported.)
Recognition rate	≥ 99% at 77°F {25°C} using check paper conforming to ANSI/ISO standards. Checks must be flat without curls, folds, wrinkles, tears, staples, or clips. TM-S2000 must not be shaken or jarred during reading. Checks must be fed in straight.

The product should not be used near magnetic fields, such as that created by a display device.

Media specifications

Cut-sheet paper	Single ply only.
Height	2.36" to 4.72" {60 to 120 mm}
Length	4.72" to 9.25" {120 to 235 mm}
Thickness	0.003" to 0.008" {0.075 to 0.2 mm}
Weight	16 to 32 lb {60 to 120 g/m ² }
ID cards	ISO/IEC7810-compliant
Height	2.12 to 2.13" {53.92 to 54.18 mm}
Length	3.37 to 3.38" {85.47 to 85.90 mm}
Thickness	0.02 to 0.033" {0.5 to 0.84 mm}
Warpage	≤ 0.079" {2 mm}
MSR cards (option)	ISO/IEC7810-compliant
Height	2.12 to 2.13" {53.92 to 54.18 mm} (same as ID cards)
Length	3.37 to 3.38" {85.47 to 85.90 mm} (same as ID cards)
Thickness	0.03 to 0.033" {0.76 to 0.84 mm}
Warpage	≤ 0.079" {2 mm}

Print specifications

Print method	Ink-jet printed line.
Nozzles	360 in 2 lines.
Dot density	180 × 180 dpi.
Print color	Black.
Print direction	Fixed stroke control.
Print height	2" {50.8 mm}.
Lines printable	12 maximum with Font A. 16 maximum with Font B.
Line spacing	1/6" default {4.23 mm}. Programmable by command.
Print width	3.94 to 8.46" {100 to 215 mm}, depending on paper length.
Characters per line (depending on paper length)	59 to 126 (Font A) 78 to 169 (Font B)
Character spacing	2 dots/0.01" {0.28 mm} for both fonts Programmable by command.

Maximum print speed

31.50"/s {800 mm/s}
23.62"/s {600 mm/s}
15.75"/s {400 mm/s}
9.45"/s {240 mm/s}

Print speed depends on image type. You cannot print at 31.50"/s when printing an image.

Character specifications

Alphanumeric	95 characters
Extended graphics	128 characters × 11 pages (including user-defined page)
International	37 characters
Structure	Font A: 12 × 24 (including 2-dot horizontal spacing) Font B: 9 × 17 (including 2-dot horizontal spacing)

Paper feed specifications

Feed method	Friction feed
Feed pitch	0.054" {0.1369 mm}
Feed speed	31.50"/s {800 mm/s} 15.75"/s {400 mm/s} 9.45"/s {240 mm/s}

Auto sheet feeder (ASF)/pocket capacities

The auto sheet feeder feeds each document into the TM-S2000 and the pockets hold the processed output.

ASF capacity	≤ 100 sheets (paper thickness = ≤ 0.005" {0.13 mm}) Total thickness of all sheets must be ≤ 0.51" {13 mm}, including uneven sheets (that were folded and straightened out, etc.).
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Insert the sheets along the bottom of the ASF.

One-pocket model

Pocket capacity	≤ 100 sheets (paper thickness = ≤ 0.005" {0.13 mm}) Total thickness of all sheets must be ≤ 0.51" {13 mm}, including uneven sheets (that were folded and straightened out, etc.).
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Two-pocket model

Main pocket capacity

≤ 100 sheets
(paper thickness = ≤ 0.005" {0.13 mm})
Total thickness of all sheets must be ≤ 0.51" {13 mm}, including uneven sheets (that were folded and straightened out, etc.).

Sub pocket capacity

≤ 50 sheets
(paper thickness = ≤ 0.005" {0.13 mm})
Total thickness of all sheets must be ≤ 0.51" {13 mm}, including uneven sheets (that were folded and straightened out, etc.).

Paper must be flat without curls, folds, wrinkles, tears, staples, or clips. Otherwise, jams may occur.

The ASF uses a translucent photosensor. Do not use paper with holes at the sensor position. The illustration below shows where holes are prohibited.



Reliability

Life	2 million sheets, including reading of checks and ID cards
ASF	2 million sheets
Print head	6 billion shots per nozzle
MSR (option) life:	
	200,000 passes
MTBF:	180,000 hours
MCBF:	4,940,000 processes

Electrical specifications

Power supply	PS-180 Model M159B (also called Adapter J) supplied with the TM-S2000
Supply voltage	24 V ± 7%
Ripple voltage	300 m Vpp maximum
Current consumption (cut-sheet unit)	
Operation	1.3 A average, approx. 2.4 A peak, approx.
Standby	0.2 A average, approx.

Safety

EMI	FCC/ICES-003 Class A
Safety standards	UL60950-1/ CSA C22.2 No. 60950-1
(Tested using Epson PS-180 Model M159B (Adapter J).)	

Dimensions and weight

One-pocket model (H × W × D)	Two-pocket model (H × W × D)
6.97" × 9.84" × 10.39" (14.76") {177 × 250 × 374.8 mm}	6.97" × 6.58" × 11.76" (16.13") {177 × 167 × 298.8 (409.8) mm}

The dimensions in parentheses above represent the depth with the pocket(s) fully extended.

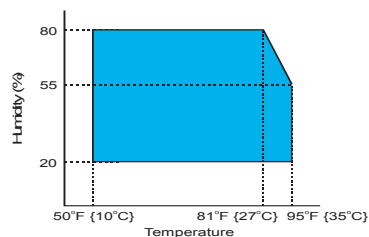
One-pocket model	Two-pocket model
9.9 lb {4.5 kg} approx.	9.9 lb {4.5 kg} approx.

Environmental conditions

Temperature	Operating: 50 to 95°F {10 to 35°C} Storage: Packed −4 to 140°F {−20 to 60°C} (≤ 120 hours at −4 or 140°F)
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Humidity (no condensation)	Operating: 20 to 80% RH Storage: 20 to 85% RH (ink charged)
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Maximum absolute rated temperature	158°F {70°C}
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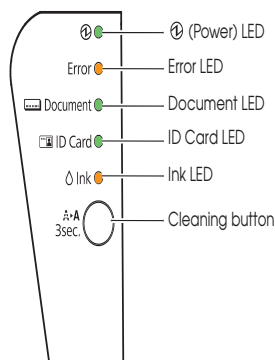


Electronic Endorsement

The product can paste an electronically written image across the front or back of entire scanned image of the check or other document. The document does not need to be printed out for the endorsement to be incorporated onto the check image.

It is possible to change images one at a time. Multiple images can be pasted. Pasted images can use logos, graphics, and TrueType fonts.

Lights and Buttons



LEDs

Power

On when TM-S2000 power is on.

Off when power is off.

Flashes during certain operations, such as power up or down, ink charging, or cleaning.

Error

Off when TM-S2000 is online.

On when product is offline (except during self-test and cleaning).

Flashes if there is an error. (See “Error and Information Codes” below.)

Document

On when cut-sheet paper (checks or other cut sheets in the ASF) is set as the paper source.

Off when ID card (or roll paper) is set as the source.

Flashes when the product is waiting for document insertion or removal.

ID Card

On when card is set as the paper source or when an ID card is in the card slot.

Off when cut sheet is set as the source. (The Document LED is on.) (Also off if roll paper is selected.)

Flashes if waiting for a card to be inserted or removed.

Ink

On if no ink cartridge is installed or if a new ink cartridge is required.

Off when the ink supply is OK.

Flashes if ink is low or if the ink cartridge installed is not correct for the TM-S2000.

Buttons

Cleaning

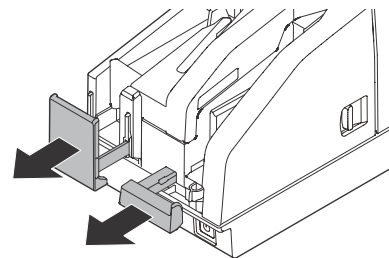
When this button is held down for 3 seconds or more, the product performs manual cleaning of the ink nozzles. Cleaning is needed when the print is too light.

Power

This button on the front of the unit turns power on. Holding the button down for 3 seconds powers the unit down.

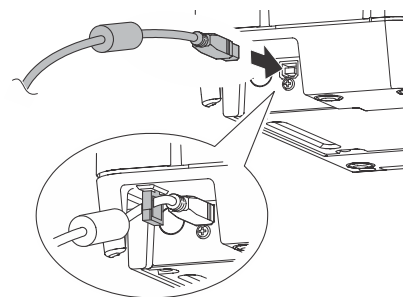
Setting Up

1. The package should contain the unit, a USB cable, an AC cable, 2 ink cartridges (SJIC18(K)), the AC adapter, a setup guide, and a user's manual.
2. Remove all packing tape, packing foam, and other shipping materials from the unit.
3. Leave enough room around the product to open the covers, pull out the ASF tray, and fully extend the pocket(s).

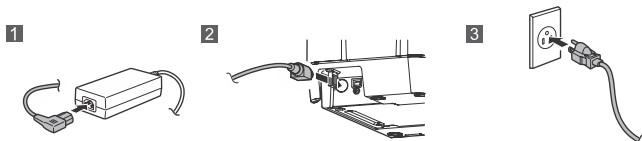


4. Do not place the unit near a magnetic field, such as a display device. (This reduces the MICR reader accuracy.)
5. Install the unit horizontally (within a tilt of $\pm 5^\circ$).
6. Make sure no cords or cables are caught inside the product.
7. Connect the USB cable to the Type B connector on the product. Attach the cable with the cable harness. (See the bubble in the illustration below.)
8. Connect the USB cable to the host

Note: Do not turn on the unit until you have installed the necessary drivers.



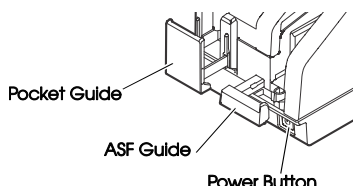
9. Connect the AC cable to the AC adapter; then connect the adapter's DC cable to the unit's power supply connector.



10. Insert the AC cable plug into a socket.

Caution: Use only the specified AC adapter, and never connect to an improper power source.

11. Turn on the product by pressing the **Power** button. To turn the unit off, hold down the **Power** button for 3 seconds, until the Power LED goes off.



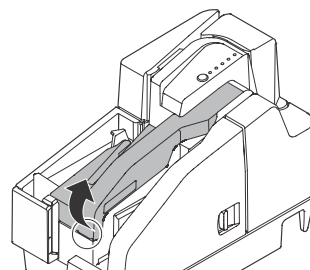
Caution: Be sure the AC cable remains plugged in when powering the unit off, and always use the **Power** button.

Installing an Ink Cartridge

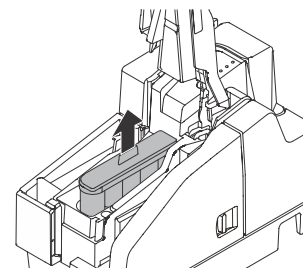
Note:

- ❑ Read the instructions included with the cartridge.
- ❑ The first time an ink cartridge is installed in the product, ink is consumed to prepare the unit to print. (This is called charging.)
- ❑ Ink charging requires about 4 minutes. The Power LED flashes during this time. Do not turn off the unit, open any of the covers, or tilt the product during this operation. Tilting can cause leakage, and powering off or opening a cover causes the process to start again from the beginning, wasting ink.
- ❑ Ink usage varies with the printing environment and conditions.
- ❑ To insure print quality, a minimum amount of ink remains in the cartridge when the Ink and Error LEDs come on.
- ❑ Use genuine Epson ink cartridges. Other cartridges may cause damage not covered by the warranty, and under some circumstances, may cause erratic behavior in the product.
- ❑ Do not touch the green IC card on the side of the cartridge.
- ❑ Remove the ink cartridge only to replace it with a new one.
- ❑ Do not open the cartridge until you are ready to install it.
- ❑ After installing a cartridge, use it within 6 months.
- ❑ Use cartridges before the expiration date printed on the package.
- ❑ Do not puncture the convex area at the bottom of the ink cartridge, and do not remove the transparent film on the bottom of the cartridge.
- ❑ A used cartridge may have ink on the convex area on the bottom of the cartridge. Avoid touching that area.
- ❑ Dispose of cartridges in accordance with local laws and regulations.
- ❑ Transport or store this product for a long period after the unit has been used, make sure an ink cartridge is installed.

1. When ink is low, the Ink LED flashes; when ink is out, the Ink LED stays on, the Error LED comes on, and printing stops.
2. If the unit is not on already, turn it on.
3. Open the ink cartridge cover by putting a finger under the left side of the cover and pulling it up, as shown below.



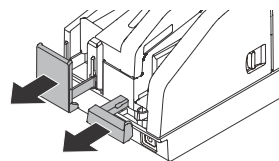
4. If there is a used cartridge, remove it, as shown below.



5. Take a new ink cartridge out of its package, install it in the correct direction, and push it until it clicks into place.
6. Close the ink cartridge cover.
7. Make sure the Power LED goes from flashing to steady on. This means the ink loading process is done.

Loading Sheets (Checks)

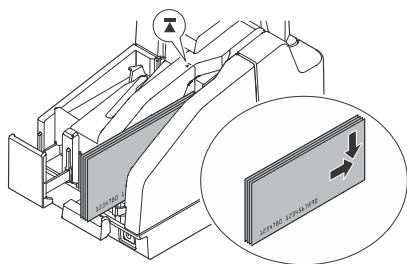
1. Fully extend the ASF and pocket guide(s). See the illustration below.



2. Make sure the Document LED is flashing.
3. You can insert single-ply paper only. You can put up to 100 checks in the ASF to be fed automatically.
4. For check scanning and MICR reading, insert checks with the MICR characters at the bottom and facing outward.

For printing, insert the sheets with the side to be printed on the inside.

- Align sheet edges to the bottom right corner and to the paper loading mark on the right side of the cartridge cover, as shown in the callout bubble below.

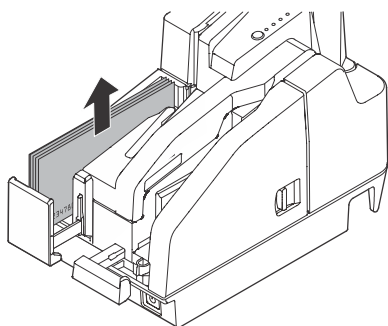


- After loading the sheets, let go of them immediately. Feeding starts automatically.

Caution: Do not open covers while processing is in progress.

Ejecting Sheets (Checks)

When the checks are ejected, remove them. (For two-pocket models, paper may be ejected into the main and sub pockets separately, depending on the application.)

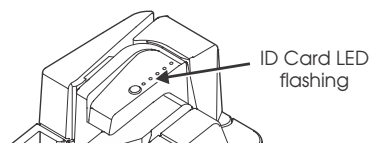


Caution: Do not overfill pockets with checks (main pocket: 100; sub pocket: 50). Otherwise, a paper jam may occur.

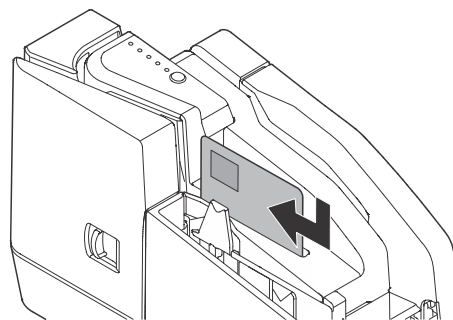
Scanning ID Cards

Note: Cards must match those listed under “Media Specifications.” Make sure the ID card is flat and does not have excessive bending, cracks, folds, or embossing. Do not touch the external terminal when using an IC card.

- Make sure the ID CARD LED is flashing.



- Place the ID card in the insertion slot on the right side of the pocket with the photo side facing the pocket, and slide it along the bottom of the slot.



- When the card starts feeding, release it immediately.

Caution:

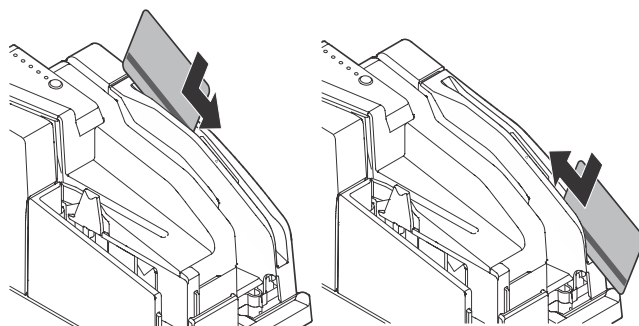
- When the ID card is feeding, a part of it comes out of the card carrier slit at the back of the product. Be sure not to block this slit.
- Do not touch the ID card as it is being ejected. Doing so may distort the image or cause other problems.
- Do not open the covers while processing is in progress.

- When the ID card is ejected and the ID CARD LED is flashing again, remove the ID card from the slot.

Reading Magnetic Stripe Cards (Factory Option)

Note: Cards must match those listed under “Media Specifications.”

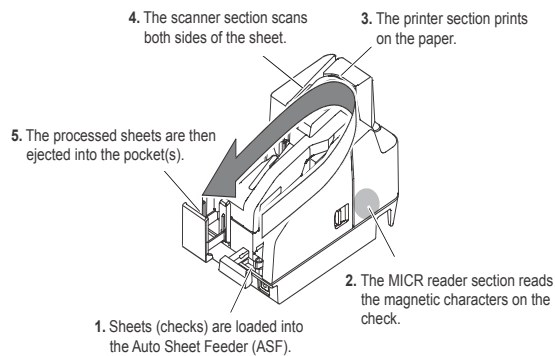
- Check the insertion direction with the arrow on the card.
- Swipe it downward or upward through the slot with the magnetic stripe on the card facing inside and down.



- The buzzer beeps 1 time when the read is successful and 3 times for an error.

Check Flow Process

The TM-S2000 performs processes in the following order:



Cleaning the Case

1. Turn off the product by holding the **Power** button down for 3 seconds. After the Power light goes out, unplug the AC cord.
2. Wipe dirt off the case with a dry cloth or a slightly moistened cloth.

Caution: Never use alcohol, benzine, thinner, or any other solvents. Doing so may damage or break parts made of plastic or rubber.

Cleaning the Print Head

When print becomes faint or uneven, but the Ink LED is not flashing, the print head may need to be cleaned.

1. Press and hold down the **Cleaning** button for 3 seconds.
2. During cleaning, the Power LED flashes. When cleaning is complete, the light is steady.

Note: Cleaning nozzles uses ink, so do not clean unless necessary. Do not power the unit off or open a cover during cleaning.

Cleaning the MICR Unit

Dirt or dust on the MICR unit can increase errors in reading magnetic characters. Clean the MICR unit every 6 months or 100,000 passes.

Use KIC Team, Inc., Waffletechnology® MICR cleaning cards (part number CS1B15WS)

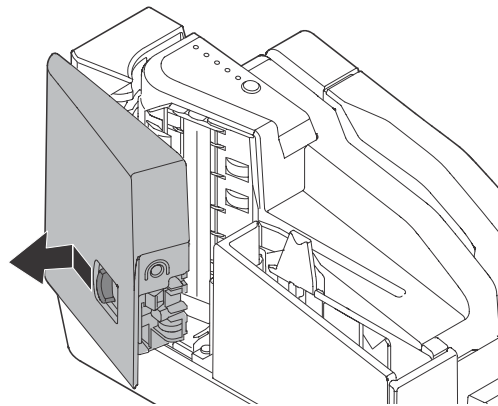
Discard the cleaning sheet after one use. For the best reading results, clean the MICR reader once a week or after 2000 sheets. It is recommended to clean the scanner after cleaning the MICR reader.

Cleaning the Scanner Glass

Clean the scanner glass if it gets dirty from ink or paper dust, or at least once every 6 months or 100,000 passes.

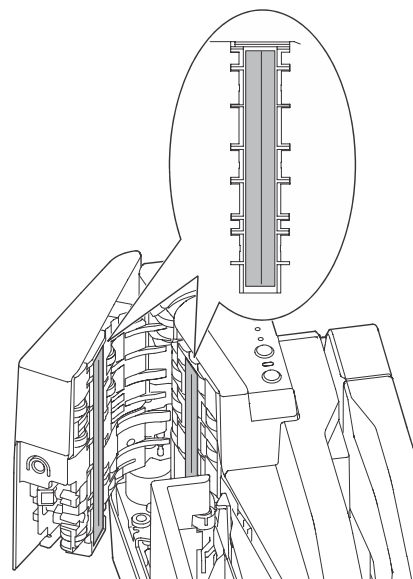
Note: For the best reading results, clean the scanner glass once a week or after 2000 sheets.

1. Pull the scanner cover lever to open the scanner cover, as shown below.



2. Lightly wipe the two glass areas with a soft, dry cloth, as shown in the picture below.

Caution: To prevent spots or stains, do not use synthetic detergent, benzine, water, or other liquids to clean. Never apply any liquid directly to the scanner glass.



3. If the scanner glass is smeared with grease, oil, ink, etc., wipe the glass with a cloth lightly dipped in alcohol.
4. Close the scanner cover firmly until it clicks in place.

Troubleshooting

If control panel lights are on or flashing, read the information in the tables under “Error and Information Codes,” below.

If paper or an ID card is jammed, follow the instructions under “Clearing a Jam,” below.

If MICR cannot be read properly, follow the instructions under “Cleaning the MICR Unit,” above.

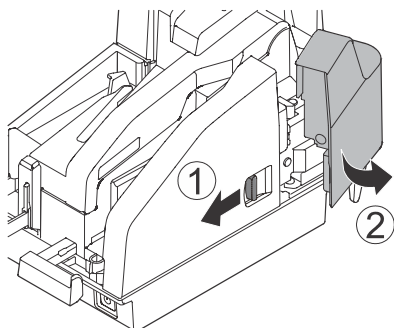
If scanned data is not normal, follow the instructions under “Cleaning the Scanner Glass,” above.

If you need to ship the product for repair, follow the instructions under “Transporting the TM-S2000”.

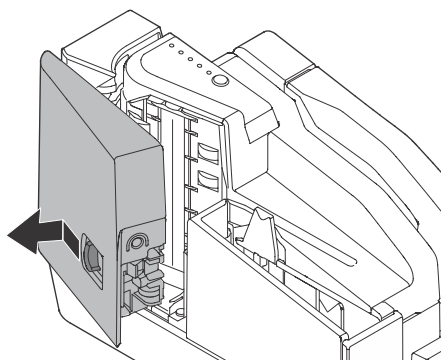
Clearing a Jam

Paper jam

Depending on where paper has jammed, open the MICR cover or scanner cover to remove the jammed paper. See the illustrations below.



Opening MICR cover



Opening scanner cover

Card jam

1. Open the scanner cover as shown above.
2. Remove the ID card.
3. Close the scanner cover until it clicks firmly in place.

Transporting the TM-S2000

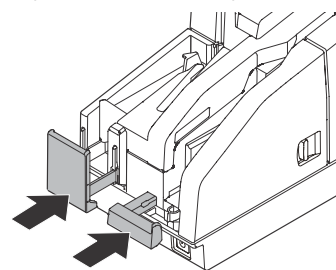
Follow the steps below to transport the product.

1. Once an ink cartridge has been installed in the unit, transport the product with the ink cartridge installed.

As shown below, tape over the holes in the cartridge to prevent any leakage.



2. Turn off the unit.
3. Confirm that the Power LED is off.
4. Remove the power supply connector.
5. Store pocket guide and the ASF guide inside the product.



6. Pack the unit upright.

Self-test

The self-test checks the following functions:

- ☐ Control circuit functions
- ☐ Product mechanisms
- ☐ Print quality
- ☐ Control software version
- ☐ Memory switch settings

Note: Paper for the self-test must be cut sheets of $\geq 2.76 \times 5.98$ " ($\geq 70 \times 152$ mm).

1. To start the self-test, hold down the **Cleaning** button while turning on the product with all the covers closed.
2. The Document LED flashes, and the unit goes into standby awaiting insertion of a sheet of paper.
3. Insert the first sheet of paper, and the product begins printing. Three sheets are required for the test.
4. After printing the current product status, the unit ejects the sheet and waits for you to insert the next sheet of paper.
5. Insert another sheet, and the unit begins printing again.

6. After a number of lines have been printed, the product indicates the end of the self-test by printing "***COMPLETED***." The unit initializes and goes into normal print mode.

Error and Information Codes

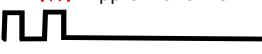
Status messages

Power LED (green)	Cause and solution
Power on operation  320 ms intervals	The Power light flashes until the unit is fully powered on and ready for operation.
Power off operation  160 ms on; 2400 off	The Power light flashes while the product goes through an orderly power down procedure.
Document LED (green)	Cause and solution
Waiting for paper insertion  160 ms intervals	The unit is waiting for a check to be inserted. Insert paper for processing.
ID Card LED (green)	Cause and solution
Waiting for ID card insertion  160 ms intervals	The unit is waiting for an ID card to be inserted. Insert card into slot for processing.
Waiting for ID card removal  160 ms on twice; then 2080 ms off	The unit is waiting for an ID card to be removed. Remove the card.

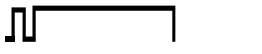
Automatically recoverable errors

Error LED (orange)	Cause and solution
Print head too high or low temperature status  320 ms intervals	Recovers automatically when the print head temperature reaches the normal level.

Recoverable errors

Error LED (orange)	Cause and solution
Mechanism position error  Approx. 320 ms	This occurs when the ASF hopper or pocket switch board sensor cannot detect the home position during initialization. The unit can recover if the error is cleared and then an instruction is sent from the driver or if the product is turned off and back on.
Paper jam error  320 ms intervals	One of 4 things has happened: 1. Paper is not ejected after a set amount of paper has been fed. 2. The ASF failed to feed paper. 3. A paper or ID card jam was detected. 4. The product detected paper that was too long or too short. Remove the jammed paper or other error, be sure the covers are closed, and send an instruction from the driver or turn the unit off and back on again.
Paper feed error  320 ms intervals	One of 5 things has happened: 1. Double-feeding of cut-sheet paper. 2. Check paper was inserted upside down or back to front. 3. Incorrect paper feeding caused an error in confirmation mode. 4. Data is longer than the specified length of the cut-sheet paper. 5. Noise was detected during MICR reading. After the cause of the error is fixed, the unit can recover from the error if it receives an instruction from the driver or if the unit is turned off and back on.

Unrecoverable errors

Error LED (orange)	Cause and required action
Drive circuit error 	One of the following problems has occurred: 1. An internal circuit is not working correctly. 2. There is an abnormality in the thermistor. Turn off power as soon as possible.
Read/write error 	A read/write check did not end normally. Turn off power as soon as possible.
High voltage error 	Power supply voltage is too high. Turn off power as soon as possible.

Error LED (orange)	Cause and required action
Low voltage error 	Power supply voltage is too low. Turn off power as soon as possible.
CPU execution error 	The CPU is trying to execute an order to an invalid address. Turn off power as soon as possible.
Communication device error 	An error has occurred with a USB device. Turn off power as soon as possible.
IJ maintenance error 	The ink jet mechanism does not work correctly. Turn off power as soon as possible.
Double-feeding detector noise error 	The double-feed detector detected noise. Turn off power as soon as possible.
Double-feeding detector error 	The double-feed detector does not work correctly. Turn off power as soon as possible.
Maintenance error 	One of the following problems has occurred: 1. An internal circuit is not working correctly. 2. There is an abnormality in the thermistor. Turn off power as soon as possible.

Maintenance Counters

The product has the following maintenance counters, all of which are cumulative and resettable.

Counter	Units
Number of ink jet head shots (column A)	1000 shots
Number of ink jet head shots (column B)	1000 shots
Count of pump motor operations	Operations
Count of ASF feeds	Feeds
Count of cut-sheet paper scans	Scans
Count of card scans	Scans
Count of magnetic ink characters read	Reads
Count of pocket switches	Switches
Count of hopper opens/closes	Opens/closes
Duration of product operation	Hours

NV Memory

The TM-S2000 has an NV (nonvolatile) graphics memory area for registering logos and other images and a users NV memory area for storing text data to be used multiple times and for storing information on customizing and maintenance.

Storing graphics requires the TM-S2000 Utility, which is described in the TM-S2000 Utility Manual.

The user also can create a user-defined page to print characters not resident in the printer.

Memory Switches

Setting the memory switches requires the TM-S2000 Utility, which is described in the TM-S2000 Utility Manual. The following settings are available.

Setting	Function
Power on information	Do not transmit (Initial value) Transmit
Auto line feed	Always disabled (Initial value) Always enabled
Remote wake-up	Enabled (Initial value) Disabled
Time in use for regular ink jet head cleaning	hh:mm (Initial value = 20:00)
Validation settings	Top margin (Initial setting = 0) Bottom margin (Initial setting = 0)
Slip settings	Top margin (Initial setting = 0) Bottom margin (Initial setting = 0)
Time without use before unit enters power saver mode	Can be set from 100 ms to 3600 ms (Initial setting = 3000 (5 minutes))

Sensors

The scanner has the following sensors.

Sensor	Function
Paper Sensors	
ASF sensor	Located in the feeder paper path. When this sensor detects paper, the unit turns on the Document LED.
Paper length sensor	Located in the cut-sheet paper path. Used for jam detection if paper remains in the path and for internal processing.
Middle sensor	Located in the cut-sheet paper path. Used for jam detection if paper remains in the path and for internal processing.

Sensor	Function
Paper Sensors	
Eject sensor	Located in the cut-sheet paper path. This sensor detects whether paper has been ejected properly and stored in the pocket(s).
Pocket near full sensors	These sensors are present only in two-pocket models. One sensor is in the main pocket, and one is in the sub pocket. They detect whether the sheets in the pockets need to be removed.
ID card sensor	Located in the card path. This sensor detects whether a card is inserted or removed. Based on the sensor status, the ID CARD indicator comes on, turns off, or flashes.
Cover sensors	
Ink cartridge cover sensor	Monitors whether the cover is open or closed. If the sensor detects a cover open, processing stops immediately and the unit goes offline. When the cover is closed, the unit goes back online. Opening a cover during processing (MICR reading, scanning, etc.) affects the quality of the result, and the process may need to be redone.
MICR cover sensor	Monitors whether the cover is open or closed. If the sensor detects a cover open, processing stops immediately and the unit goes offline. When the cover is closed, the unit goes back online. Opening a cover during processing (MICR reading, scanning, etc.) affects the quality of the result, and the process may need to be redone.
Scanner cover sensor	Monitors whether the cover is open or closed. If the sensor detects a cover open, processing stops immediately and the unit goes offline. When the cover is closed, the unit goes back online. Opening a cover during processing (MICR reading, scanning, etc.) affects the quality of the result, and the process may need to be redone.
Other sensors	
Pocket sensors	These sensors are only on two-pocket models. They are located on the switch board that determines which pocket receives the ejected sheet. There is another sensor that keeps track of the current switch board position.
ASF hopper sensor	This sensor detects the position of the hopper that holds sheets in the ASF.
Cartridge sensors	
Cartridge sensor	Detects whether the ink cartridge is installed or not. If no cartridge is detected, the Ink and Error lights both come on.
Ink low sensor	This sensor detects when the cartridge becomes low and when it is out of ink. When ink is low, the Ink LED flashes. When the cartridge is out of ink, the Ink light becomes steady, the Error light comes on, and the unit goes offline.

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