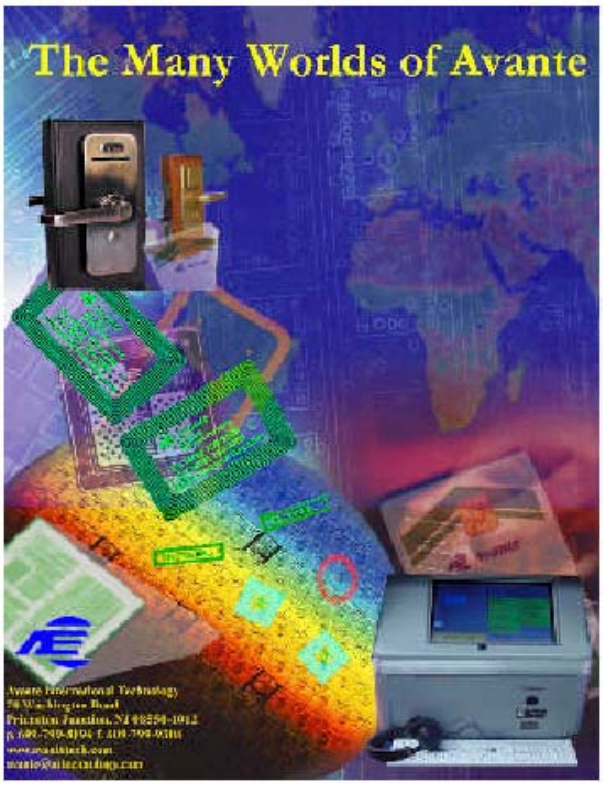


Avante International Technology, Inc.

VOTE-TRAKKER™ Election Official Manual

Part C

Appendicies

Version 4.4.3

Date: June **7, 2002**

Table of Contents

6. Appendices

6.1 Glossary

The following are terms that may help the users to understand the functions of the system.

- **"Skip Contest":** This choice on the touch screen allows the voter to express their choice of not participating in that particular contest. It helps to eliminate any doubt of voter intent.
- **"No Vote (Abstain)":** This is the same as "Skip Contest".
- **Under-vote:** This is typically referred to those ballots that do not show any selection for at least one of the contests, thus voter intent is not clear. The contest of most interest is the presidential election when held.
- **Voter Receipt:** This is a receipt given to the voter after the voter cast their vote. It may or may not include voter's choices depending on the will of the jurisdiction. This receipt is equipped with a set of randomly generated reference numbers that are unique among all voters. This allows subsequent tracking of the counting of the voter's vote.
- **Randomly Generated Reference Number:** This number is generated by the voting system upon command. The system will remember those numbers that have been generated and used and thus all new numbers are different and unique. This number is used to uniquely identify the receipt of the voter but not linkable to the voter's identification.
- **Voter Identifier Number:** This is a random set of numbers that is recognized by the voting system to be a valid number to allow voting to start. It is typically generated after the voter has been verified to be a valid and registered voter. This number is different from the voter registration number so that additional privacy is afforded.
- **Smart Card:** In VOTE-TRAKKER™, contactless smart cards are embedded with the voter's VID# to facilitate the entry of such number. In some cases, smart cards can also be used to record the voter's vote for subsequent counting (provisional ballot) or recount depending on the jurisdiction.

6.2 References

All of the common voter and poll worker interfaces have been identified in this section of the operations manual.

Additional error messages will be furnished in the section of 6.2.1 of "Detailed Examples".

6.2.1 Miscellaneous Error Screens

The following are all of the error screens that the voter or poll worker may see.

Invalid VID#: This error message appears whenever the voter enters a wrong or invalid VID# either manually or with invalid smart card.

Figure 6.1.3A

Wrong password: This error message appears whenever the poll worker enters a wrong password.

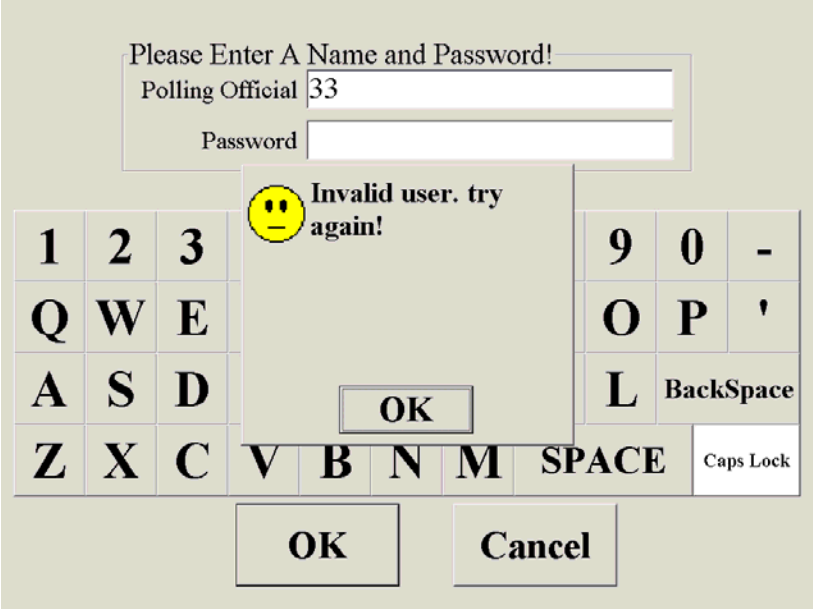


Figure 6.1.3B:

6.2.2 Manufacturer's Recommended Security Procedures

The following are some of the recommended security procedures for effective and secure voting operation.

Power Supply: VOTE-TRAKKER™ is equipped with 1000VA battery power back-up supply in the form of uninterruptable power supply (UPS). Please make sure the system is plugged into a proper AC power source. The UPS and the VOTE-TRAKKER™ may be unplugged for curbside voting if permitted. The same UPS should be plugged back after such operation.

Sealed System: It is recommended that VOTE-TRAKKER™ be sealed after the system is loaded with the proper ballot and VID#. Such seal includes a mechanical lock and physical tamper-obvious seal along the seam of the enclosure. It is recommended that the system remained sealed before and during election to ensure data and system integrity. There is no other data entry point other than the touch screen without proper entering of VID#.

6.2.3 Machine Setting & Testing Functions

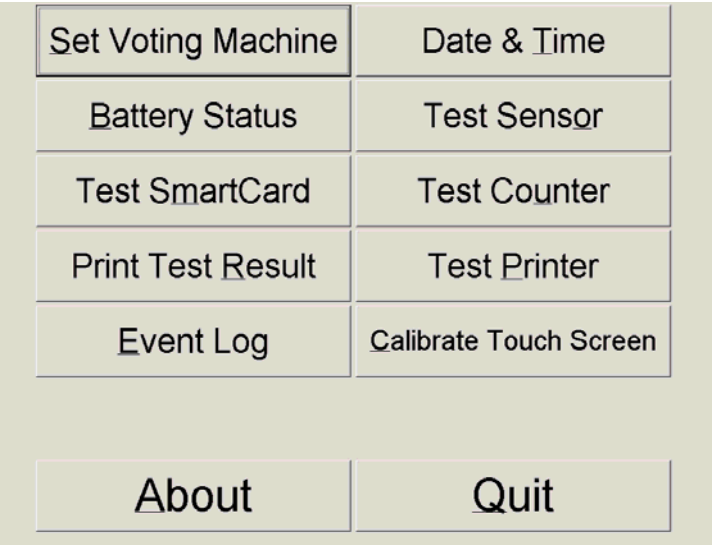


Figure 6.2.3A

The following functions are found in the Machine Setting & Testing screen:

- **Set Voting Machine** – see section 4.1 for description
- **Battery Status** – shows the status of the power supply to the laptop (see Figure 6.2.3B).
- **Test Smart Card** – performs the same test of the smart card that is done during power up of the voting machine (refer to section 4.1).
- **Print Test Result** – Prints the status report that is printed out during the power up of the voting machine (refer to section 4.1).
- **Date & Time** – Sets the date and time of the laptop (see Figure 6.2.3C).
- **Test Sensor** – Tests the presence sensor (refer to section 4.1).
- **Test Counter** – Tests the counters (refer to section 4.1).
- **Test Printer** – Brings up a screen to perform various tests of the printer (see Figure 6.2.3D).
- **Event Log** – This function accesses the Event Log module via a login screen. Documentation is in the Election Administrator's Manual. Supervisor level personnel only access this module.
- **Calibrate Touch Screen** – Accesses the touch screen calibration program (see section 6.3)
- **About** – Shows the version number of the software that is installed on the voting machine (see Figure 6.2.3E).
- **Quit** – Brings you back to the main election worker screen.

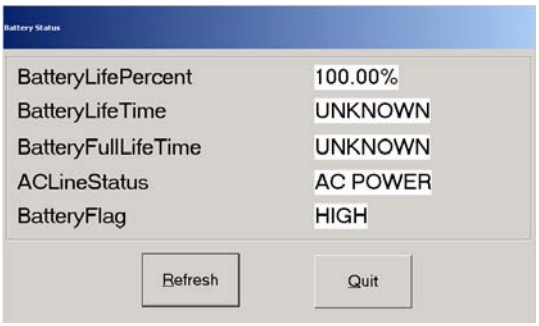


Figure 6.2.3B

Figure 6.2.3C

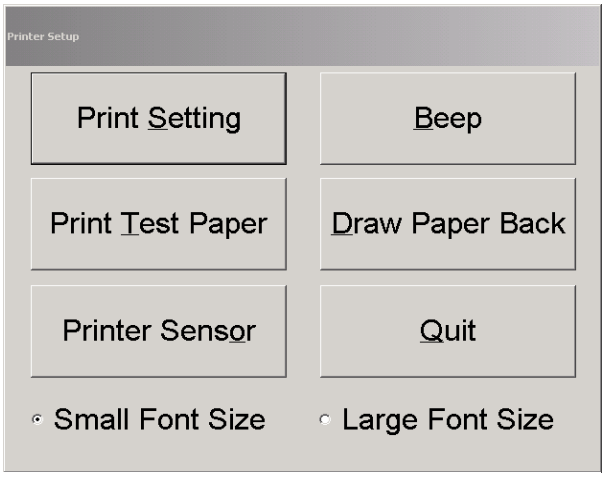


Figure 6.2.3D

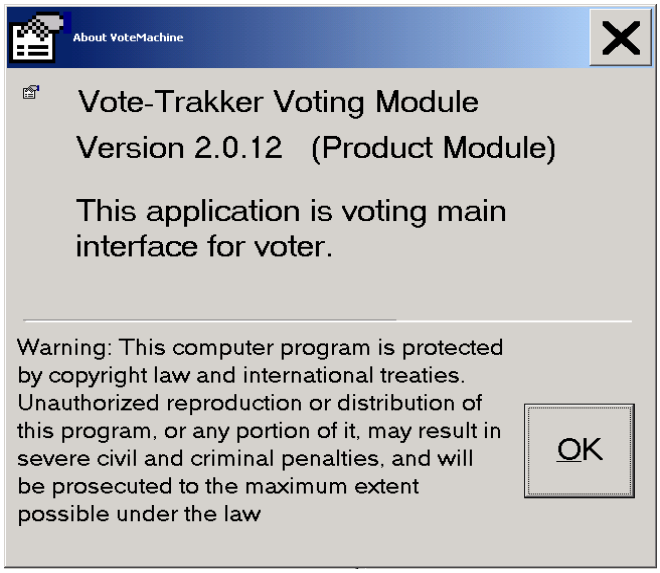


Figure 6.2.3E

In Figure 6.2.3D the font size relates to the receipt font only.

6.3 Calibration of Touch Screen

The touch screen has a built in calibration routine that is accessed during power up (see section 4.1) or from the Machine Settings and Test screen. There are several approved versions of the touch screen software. The most common version employed is shown below. It takes four touches to calibrate the touch screen. Follow the onscreen directions, if this procedure does not work, then do not use the Vote-Trakker™ for voting and have it serviced immediately. Access to the operating system is only limited to the highest-level administrator so onsite service other than calibration is not available to the poll worker.

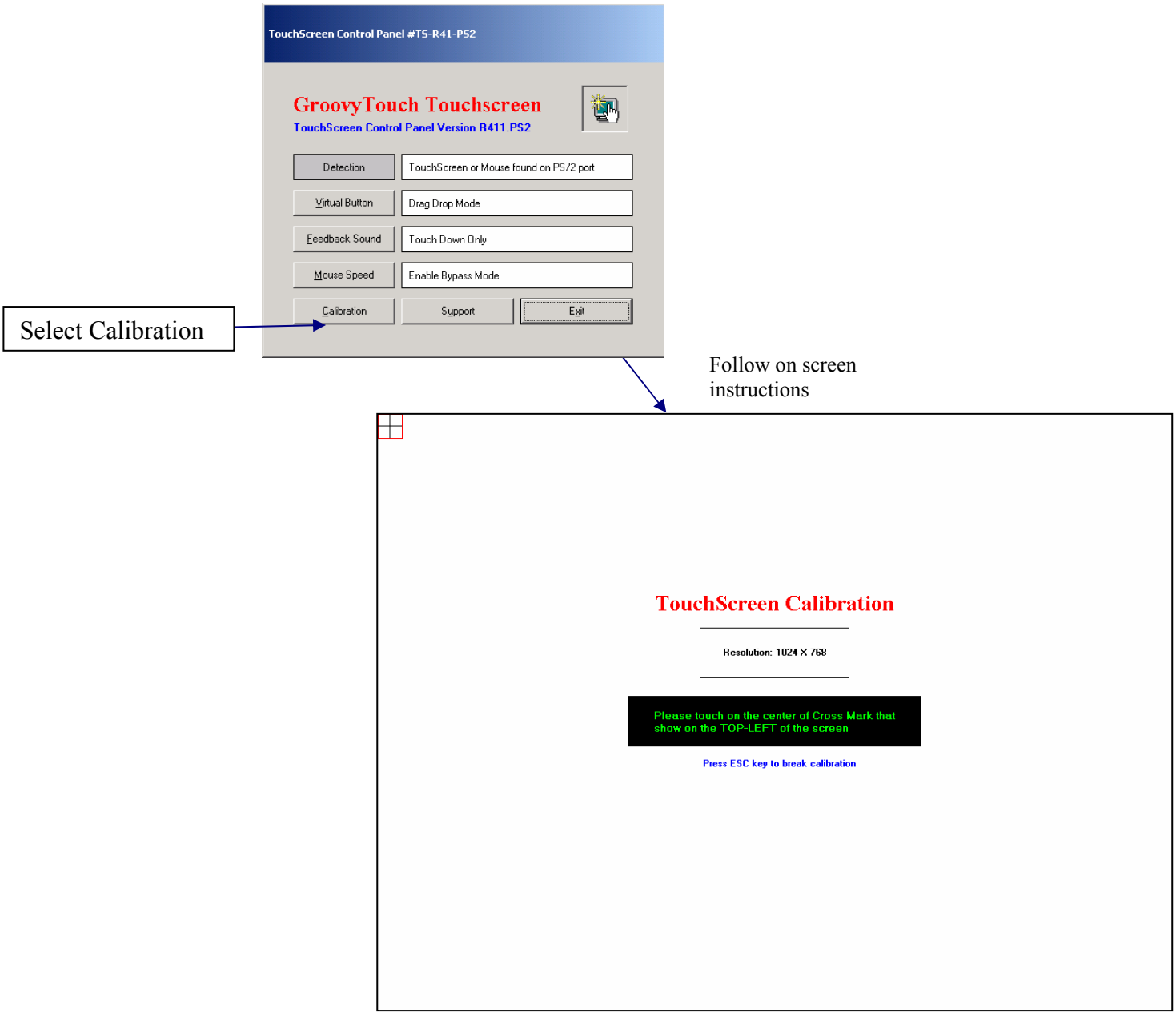


Figure 6.3A

If the "Virtual Button" is selected, the screen in Figure 6.3B is shown:

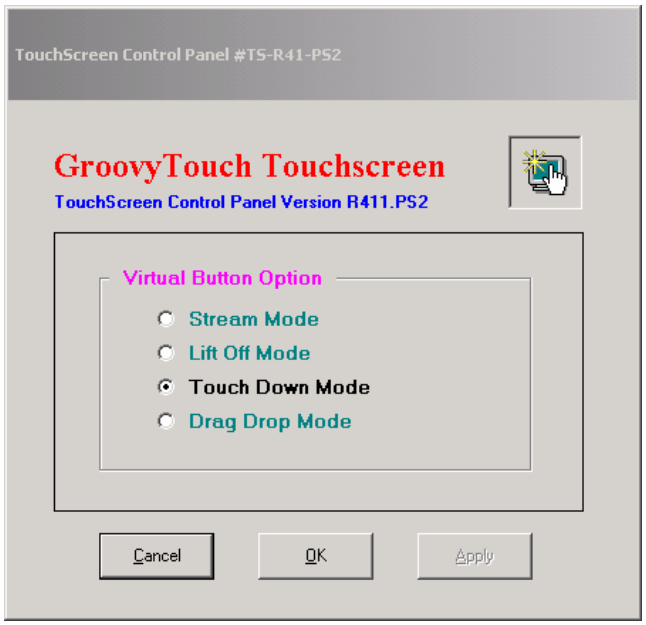


Figure 6.3B

The correct setting is the "Touch Down Mode". It is not recommended to use the other modes. The "Feedback Sound" option is shown in Figure 6.3C:

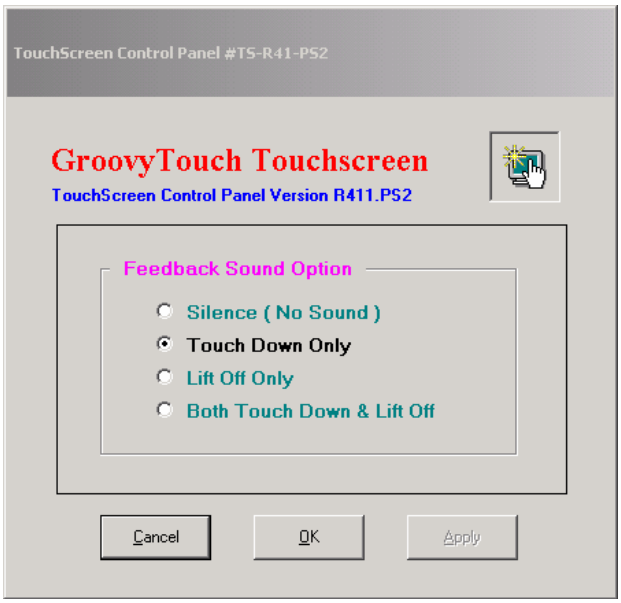


Figure 6.3C

The correct setting is "Touch Down Only". It is not recommended to use the other modes.

The "Mouse Speed" settings are shown in Figure 6.3D:

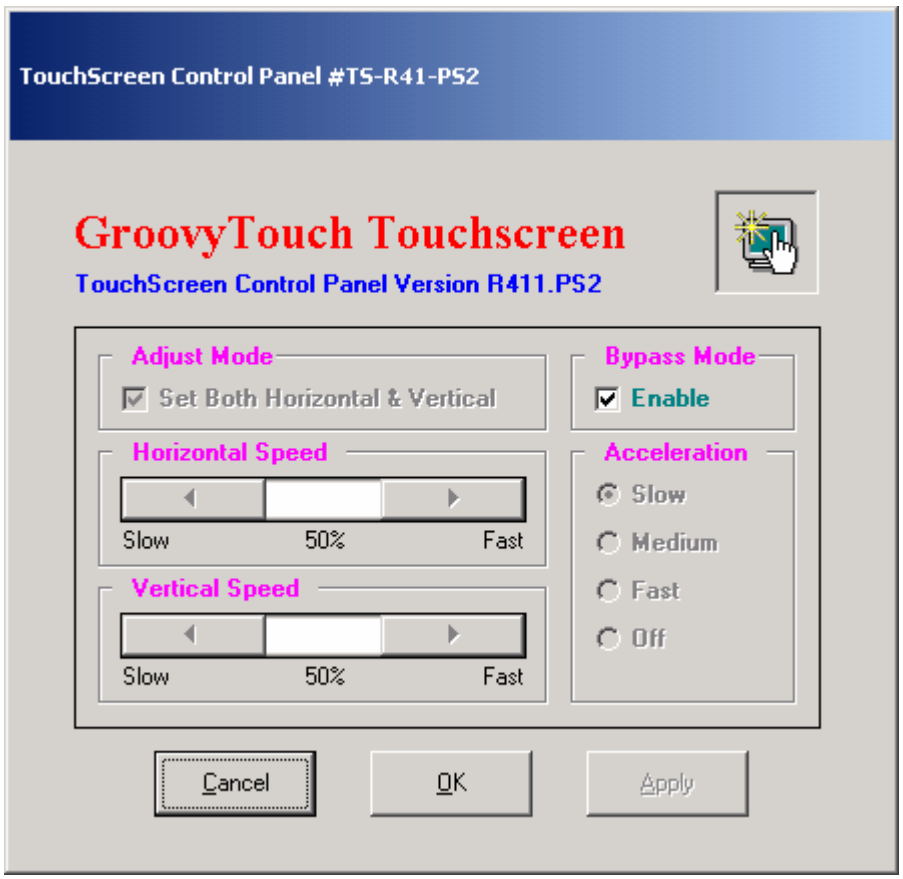


Figure 6.3D

The correct setting is to select the "Enable" checkbox in the "Bypass Mode" setting. It is not recommended to change this setting.

By selecting the "Support" button, a message, as shown in Figure 6.3E, appears:

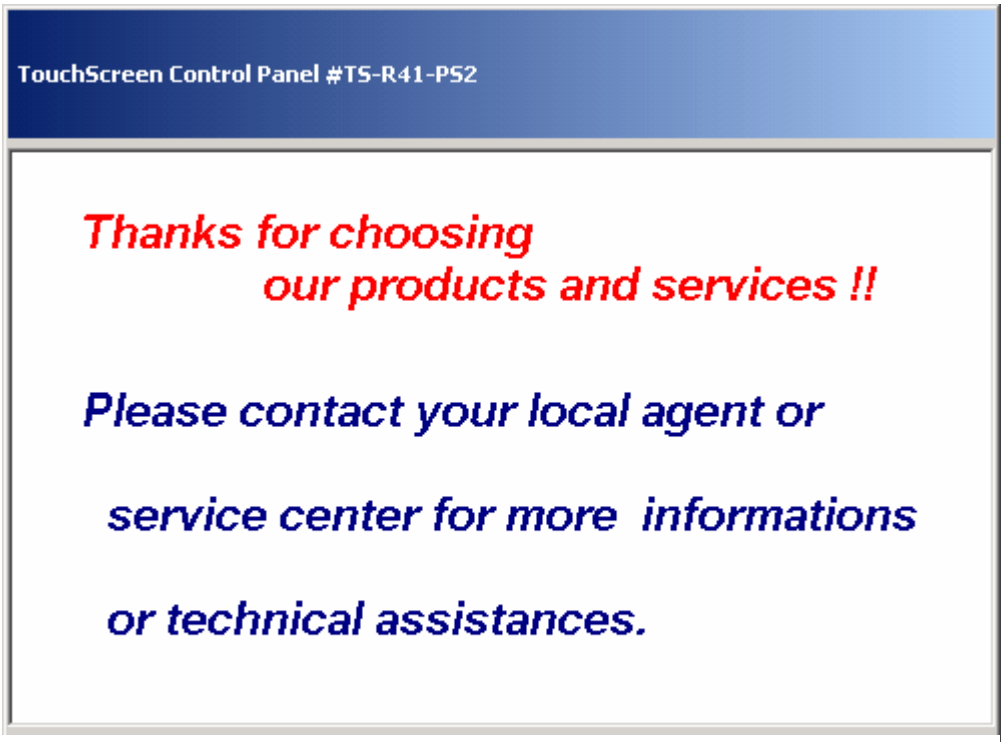
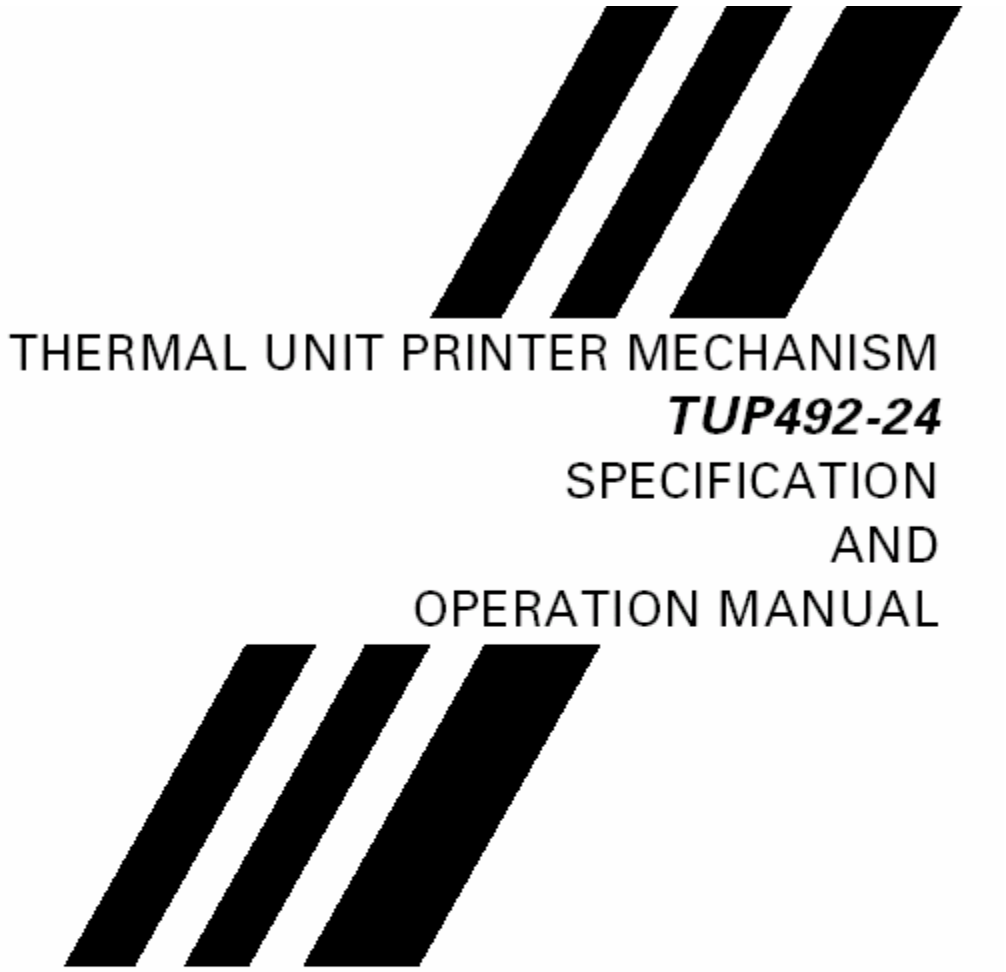


Figure 6.3E

Future versions of this touch screen software will allow for online support. However, if support is needed, contact Avante International Technology, Inc. Do not attempt to contact the touch screen manufacturer. They will not always be able to help because they do not know exactly how the Vote-Trakker™ is configured.

7. Printer Information

Printer User's Guide for Vote-Trakker™



STAR MICRONICS CO.,LTD.

This section is derived directly from the manufacturer of the printer, Star Micronics. The contents are the same as they appear in their manual. Sections that are not pertinent to users have been edited from this guide to avoid confusion. If there is a problem not described in this guide, please contact your Avante International Technology representative for further instruction.

Table of Contents

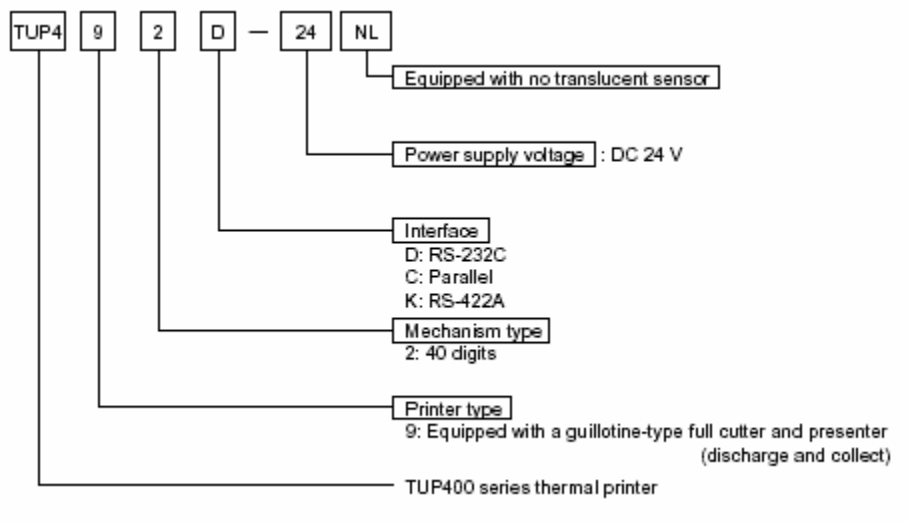
1. GENERAL DESCRIPTION

The TUP492-24 printer is a line thermal printer and is used in various electronic equipment, such as game machines, ATMs and information kiosks. TUP492-24 is equipped with a presenter which discharge and collect paper.

These printers feature the following:

1. High-speed printing: 2 in./sec (50 mm/sec)
2. High resolution: 8 dots/mm vertically, 8 dots/mm horizontally (approx. 200 dpi)
3. Silent operation
4. Paper roll size: max. 8-inch diameter
5. Choice of three types of interfaces (optional)
6. Presenter function

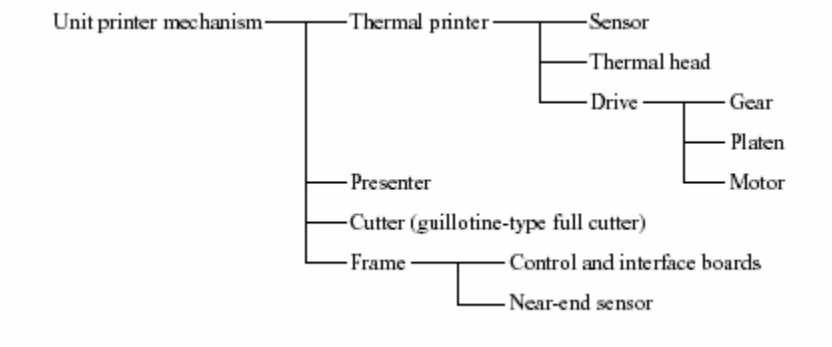
Display of Model Name



2. CONSTRUCTION

2.1 Configuration

The unit printer mechanism is constructed of the following components:



2.2 Principle of Operation

2.2.1 Drive and paper feed

The rotation of the stepping motor is transmitted to the gear, which turns the platen. The rotation of the platen generates friction between it, the thermal paper and the thermal head, therefore causing the paper to be fed.

2.2.2 Printer

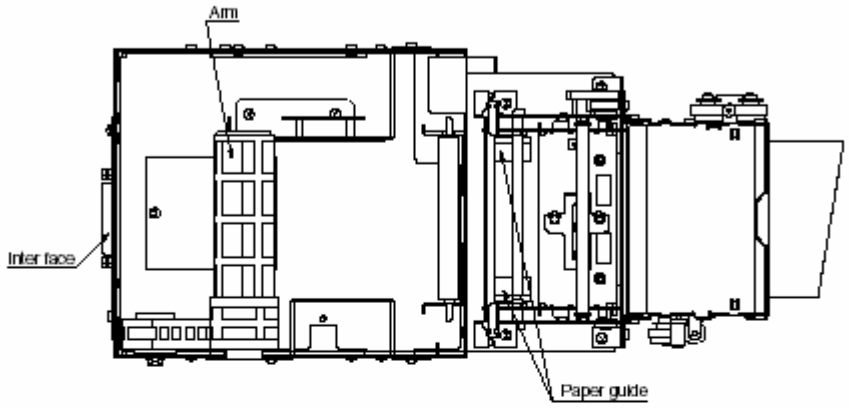
Color appears on the thermal paper as the temperature of the thermal head's heat-generating element increases.

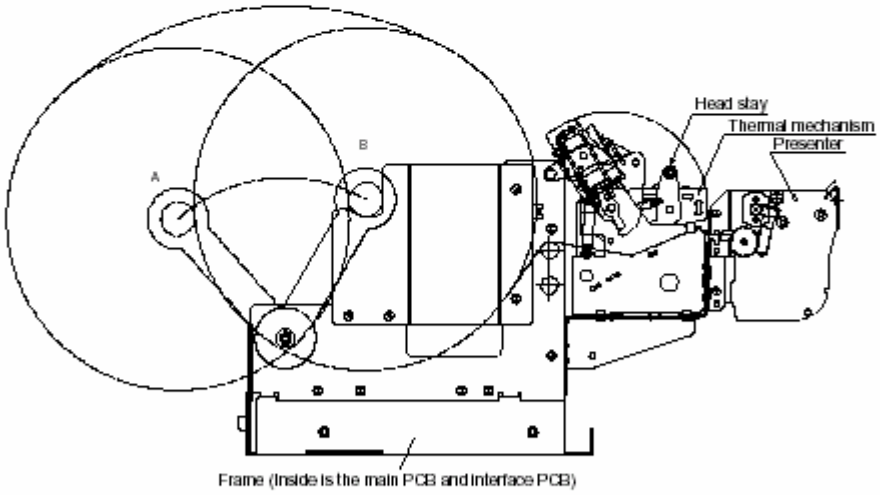
2.2.3 Presenter

The edge of the thermal paper stops just before the presenter's ejector, the continuous feed of the thermal paper creates a loop and after printing is finished, the paper is cut. Then, the paper is fed out by the roller in front of the ejector (The DC motor rotates the roller). Detecting the paper bottom end, the roller stops its rotation.

When the fixed period of time passes, or the collection command is sent, the presenter collects the paper.

Exterior View

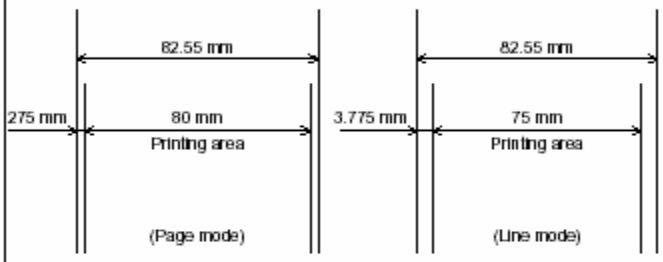
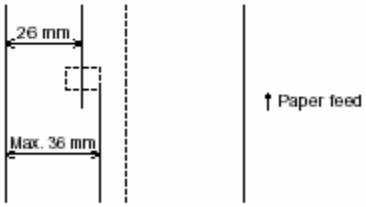




3. GENERAL SPECIFICATIONS

Item	Specification
Printing method	Line thermal direct printing
Printing speed	50 mm/sec, 25 mm/sec
Printing area	80 mm wide (page mode), 75 mm wide (line mode)
Resolution	8 dot/mm (horizontal) 8 dot/mm (vertical)
Paper width	82.55 mm (3.25 in.)
Paper roll diameter	Outer: max. 203 $^{0}_{-2}$ mm (approx. 8 in.) Inner: 32 $^{+1}_{0}$ mm (approx. 1.26 in.)
Characters	ASCII International character set Katakana (Japanese syllabary) Bar code
Paper detection	Paper-out detection using a reflecting photo sensor Black mark detection using a reflecting photo sensor Paper near-end detection using a reflecting photo sensor
Interface	Serial (RS-232C or RS-422A (optional)) Parallel
Data buffer	Approx. 8 KB
Auto cutter	Guillotine-type full cutter
Power supply voltage	DC 24 V ± 7%
Environment	Temperature 5°C to 40°C Relative humidity 25% to 80% (no condensation)
External dimensions	173 mm (W) × 355 mm (D) × 175 mm (H) (without paper roll inserted) 173 mm (W) × 382 mm (D) × 254 mm (H) (with 8-in. paper roll inserted)
Weight	Approx. 3.45 kg

4. PAPER ROLL SPECIFICATIONS

Item	Specification
Paper type	Normal heat-sensitive paper
Paper width	82.55 $^{0}_{-1}$ mm (3.25 in.)
Paper thickness	60 to 100 µm
Core diameter	Inner: 32 $^{+1}_{0}$ mm Outer: 35 $^{+1}_{0}$ mm
Paper type	Nippon Seishi TF50KS-E TF62KS-E Shin Oji Seishi KF-730
Printing area	
Black mark	Printing density Macbeth valve 1.2 or higher Printing position  Printing side Back (opposite to the printed side) Size Width: 10 to 20 mm (center of the paper must be avoided) Length: 3 to 10 mm Reference position The end of the black mark should be positioned at the front in the paper feed direction.

Notes -

- Use paper that is rolled inward.
- Do not affix the end of the paper to the paper roller.
- Paper jams may occur depending on the paper quality used and the pattern printed.
- If the machine is turned off and left for a long time with paper caught in the thermal head, the paper should be removed and inserted again.
- Keep this machine on a level surface.
- The roller may leave short marks in the end of the paper.

5. DISPLAYS AND FUNCTIONS

The LEDs and RESUME button are mounted on the NEPCB.

5.1 LEDs

LED	Function
HU PE ERR	Lights up when errors occur (For more details, refer to "6.6 Error Messages".)

5.2 RESUME Button

When no paper is inserted, insert more paper, and then press this button to automatically feed the specified length of paper (approx. 80 mm when the presenter is installed or approx. 30 mm when it is not). After the paper is cut, the printer will go back on line.

5.3 Power Switch and Button Combinations

The following settings can be made by pressing either the RESUME button or the sensor adjusting button at the same time that the power switch is turned on.

<RESUME button and power switch>

Buzzer	LED		Function
One beep	HU lights up		
	↓	2 sec.	Release the RESUME button to execute a HEX dump. [*1]
Two beeps	PE lights up		
			Release the RESUME button to execute a test print. [*2]

[*1] The HEX dump mode remains valid until the power is turned off.

[*2] The printer continues the test print until the power is turned off.

<Sensor adjusting button and power switch>

Buzzer	LED		Function
One beep	HU lights up		
	↓	2 sec.	Release the sensor adjusting button to start sensor adjusting mode. [*3]

[*3] Do not continue pressing the sensor adjusting button for more than two seconds.

Note- The Line and Page modes cannot be chosen with the panel buttons; these modes can only be chosen with commands.

5.4 Sensor Adjusting Mode

a) Reflecting sensor (black mark sensor)

- Insert the paper in front of the sensor mechanism so that a black mark is not positioned in front of the sensor.
- Adjust the reflecting sensor controller VR4 on the PCB until the HU LED lights up.

b) Paper-out sensor

- Insert the paper in front of the sensor mechanism so that a black mark is not positioned in front of the sensor.
- Adjust the paper-out sensor controller VR3 on the PCB until the PE LED lights up.

5.6 Error Messages

It is possible to determine the type of error occurring by observing the printing results and which LED lights up.

a) Recoverable errors

- The printer goes off line when these errors occur.
- To resume operation, remove the cause of the error, then press the RESUME button.

Error	Cause	LED		
		ERR	HU	PE
Head up error	The head is raised.		On	
Paper-out error	No paper is inserted.			On
Label size error	The paper size differs from the measured size.			On

b) Unrecoverable errors

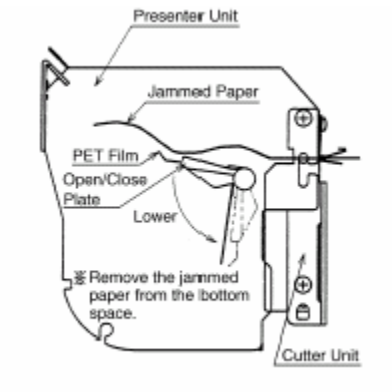
- The printer goes off line when these errors occur.
- Operation of the printer will be resumed by pressing the resume button after the cause of the unrecoverable error is removed.

Error	Cause	LED		
		ERR	HU	PE
Command error	There is an error in the command.	On		
Cutting error	The paper is not cut properly.	On		On
Transmission error *1	There is an abnormality in the received data.	On	On	
Paper jam error *2	The paper is not fed up to the sensor.	On	On	On

*1 Valid only with the serial interface

*2 If the paper is jammed inside the presenter

Paper Jam, Case 1: Removing paper from inside the presenter.



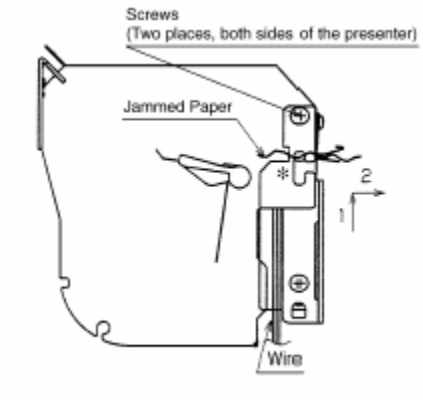
(Procedure)

1) If there is a paper jam at the Open/Close plate, lower the Open/Close plate if it is in the up position. (If it is in the down position, leave it down.)

2) Remove the jammed paper from the space below the presenter unit.

Note - When lowering the Open/Close plate, be careful not to bend the PET film unit.

Paper Jam, Case 2: Removing paper from near the cutter.



(Procedure)

1) When paper is jammed inside the cutter, if it cannot be removed by the procedure in Case 1, take out the screws on both sides of the presenter, as shown in the figure.

2) Slide the presenter along the * part in the figure, separating the presenter and the cutter, then remove the jammed paper.

3) After removing the jammed paper, slide the presenter back, following the procedure in 2) in reverse order, then fasten it in its original position using the screws.

Note- When fitting the presenter with the cutter in 3) above, be careful not to get the two wires shown in the figure caught between the presenter and cutter.

c) Other errors

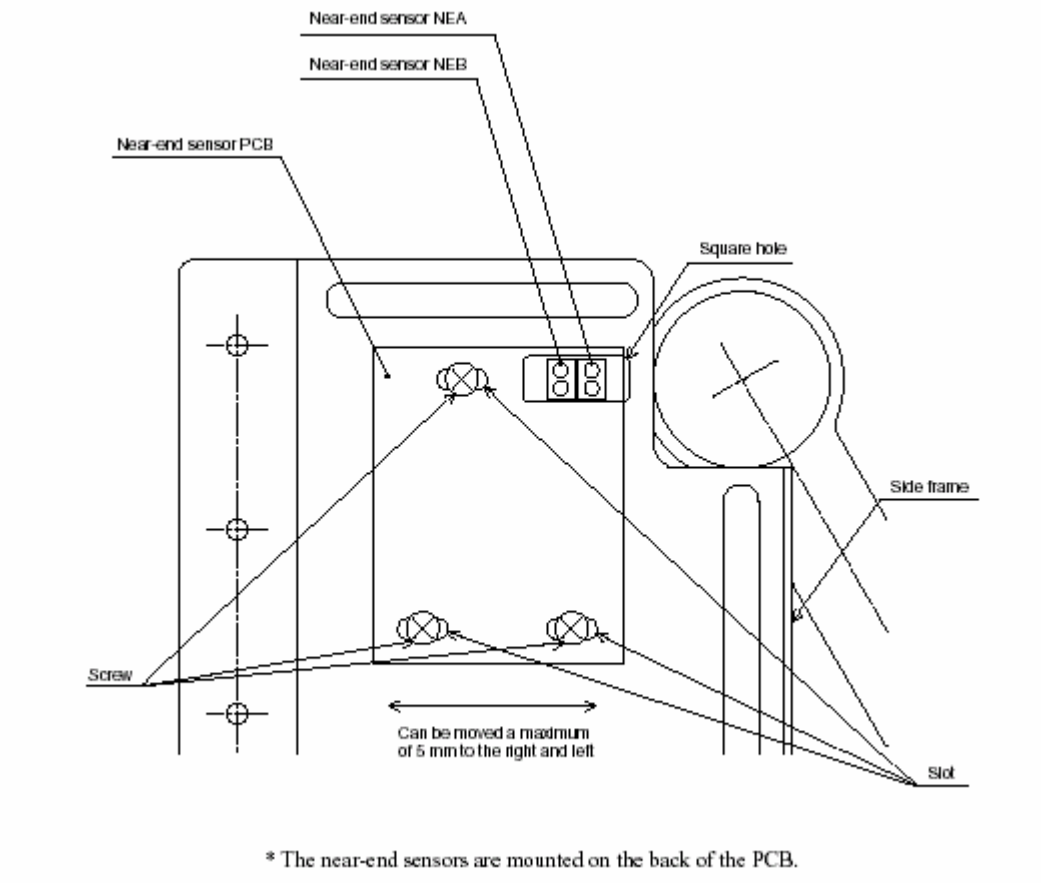
- Data errors (<ESC> “PC” command: defines character and bar code data) A data error will occur if an invalid character or bar code type is selected or if the print result extends outside the print area. When a data error occurs, all commands become invalid (character strings and bar codes are not printed). However, the printer will not go off line and the LEDs will not light up.

5.7 Near-End Sensor Position

<Technical Specifications>

The near-end sensors can be moved a maximum of 5 mm to the right or left by moving the near-end sensor PCB.

Slightly loosen the three screws (without removing them) used to install the PCB, then move the PCB to the desired position. After making sure that the PCB fits properly (i.e. it is not loose), tighten the three screws. (Do not break the PCB.)



* The near-end sensors are mounted on the back of the PCB.

6. CUTTER

Item	Specification
Method	Guillotine-type full cutting
Drive method	DC motor
Installation	Attached to the mechanism with screws
Supply	Thickness of one sheet of paper: 60 to 100 µm
Minimum cutting length	25.4 mm (no presenter) 80 mm (equipped with presenter)
Life (standard paper)	300,000 times Paper debris must be removed.
Error	An error occurs if the cutter has not returned to the home position within the specified time.

Notes- If the cutter is not located at the home position when an error has occurred, it can be returned to the home position by removing the cause of the error and turning the power off, then on again. The cutter can also be returned to the home position by turning off the power, inserting a screwdriver into the hole on the side of the cutter, then rotating the motor until the cutter is returned to the position which is believed to be the home position.

7. PRESENTER

Item	Specification
Possible sheet length	Approx. 80 mm (min.) Approx. 300 mm (max.)
Operation sequence (viewed from the operator's side)	a. The paper is not ejected during printing. b. The cutter cuts the end of the paper after printing is completed. c. The presenter's roller rotates for 5 seconds, which causes the sheet to be ejected from the exit. The sheet stops when the end leaves the roller. d. The next printing step starts when the sheet is removed by the operator. e. If the sheet is not removed within 5 seconds, the roll begins to rotate. If the status end request (EOT) is sent from the host computer while the sheet is remains at the exit, the host computer will return to status E5.

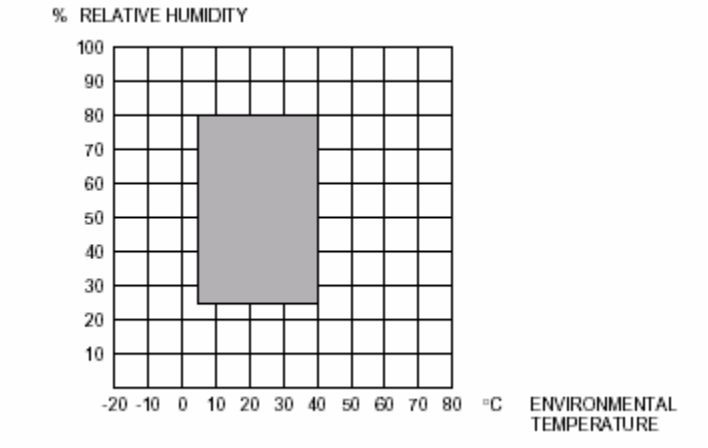
8. RELIABILITY

8.1 During operation

Temperature: 5° ~ 40°C

Humidity: 25% RH ~ 80% RH (no condensation)

Operating temperature and humidity ranges



Notes- When the environmental temperature is too high, the thermal head temperature sensor is activated and the printer stops operating.

8.2 During storage

Temperature: –20°C ~ 60°C

Humidity: 10% RH ~ 90% RH (no condensation)

8.3 Life Test

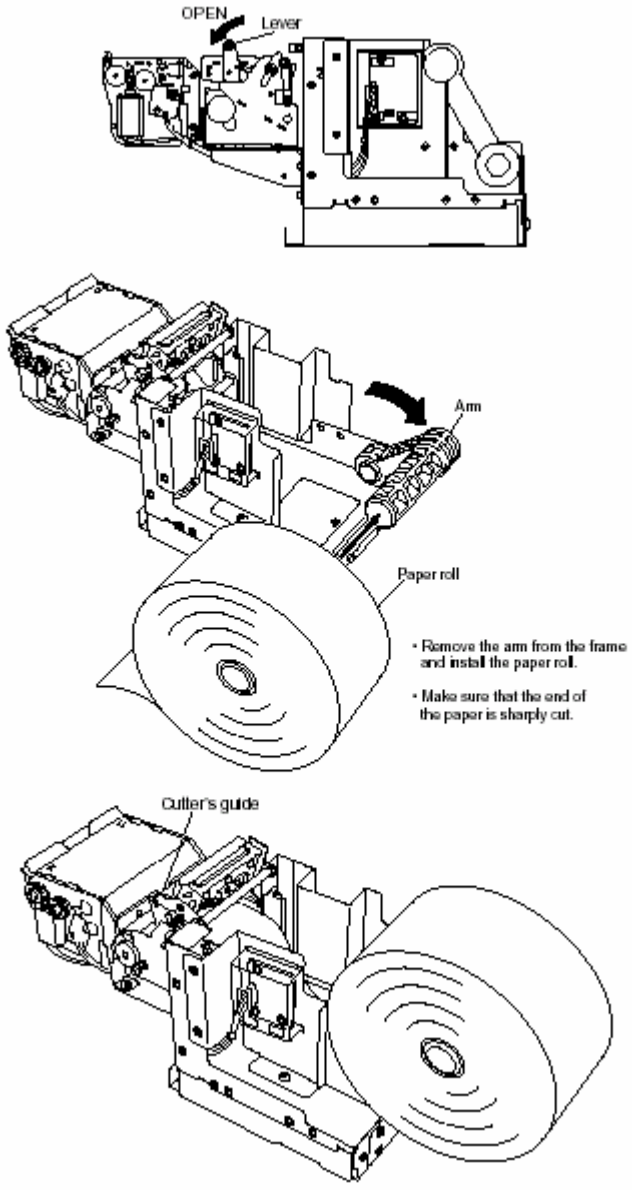
MCBF

Item	Specification
No. of printed lines	5 million lines (excluding the thermal head life)
Auto cutter	300,000 cutting operations (One sheet of paper should be less than 85 μm.)
Thermal head	5×10^7 pulses or a printing distance of 30 km

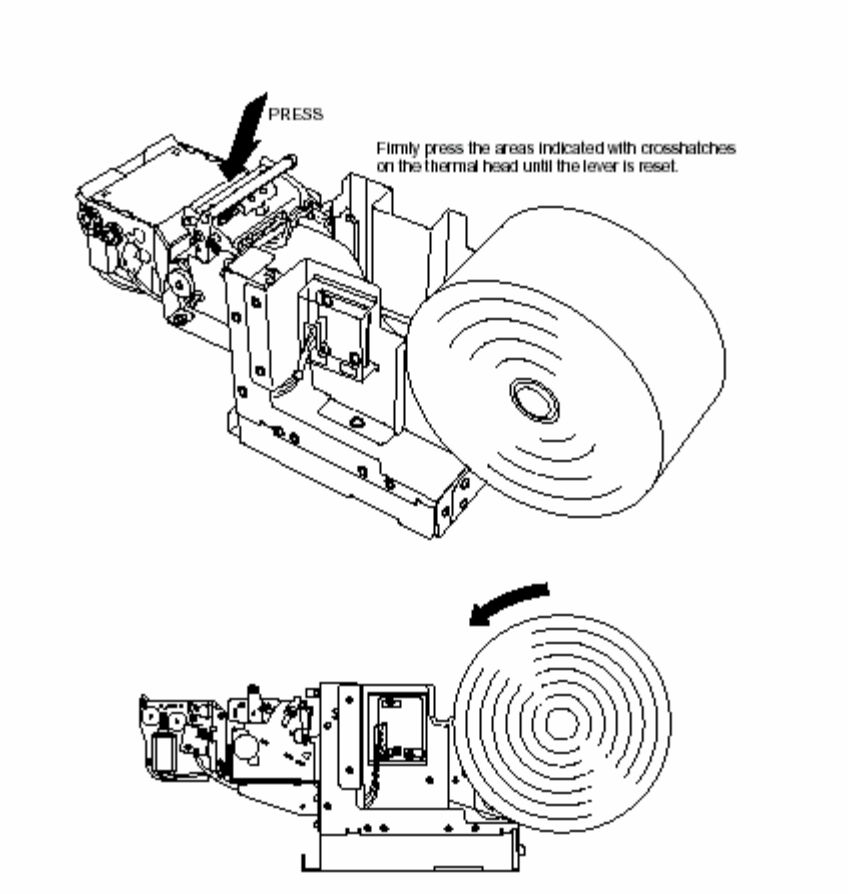
Notes-

- The thermal head life given above is applicable for cases when standard paper is used.
- Printing continuously at a print ratio of less than 12.5% increases the resistance of the thermal head's heat-generating element by more than 15% of the initial value.
- Excluding damages caused by dust, foreign objects etc.
- Missing dot ratio maximum of 0.5% over 50 km.

9. INSTALLING THE PAPER ROLL



Pass the paper over the damper shaft, pass it under the thermal head, then insert the paper between cutter guides. Double check that the paper is inserted into the cutter by looking into the small wholes on the upper cutter guide. Feed the paper until the end enters the presenter's roller.



Carefully place the paper roll on the frame, then wind the roll to remove any slack in the paper. (Incorrectly installing the paper roll may bend the frame or cause a paper jam.)

Press the RESUME button.

10. MAINTENANCE

Regular maintenance is very important since minute debris of thermosensible paper sticking to the platen may cause slipping of the paper feeder. Maintenance should be made as follows:

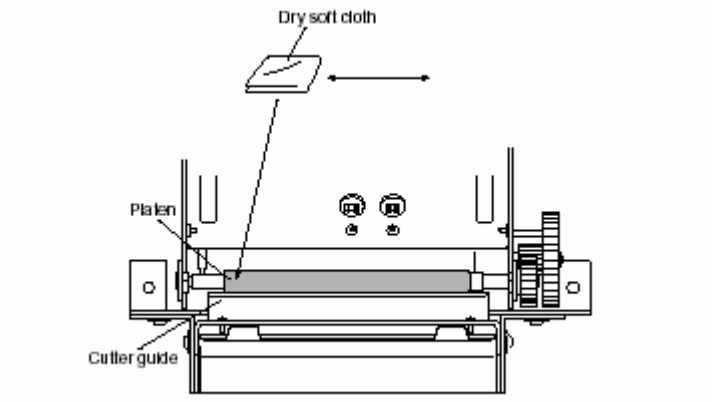
Maintenance Timing:

Generally, TUP series should be maintained every time after using 8 rolls of 8 inch ø Star Standard Spec paper roll, or 6 month.

Maintenance Procedures:

1. Make sure that the power supply is turned off before starting the maintenance procedures.
2. Wipe and rub the platen gently with a dry soft cloth to remove all debris stuck on the platen surface. (Turn the platen around to remove debris from all the surface.)

- Take enough care not to touch the gears and the cutter guide when wiping the platen to avoid any bodily injury.
- Avoid wiping a same spot of the platen continuously, otherwise it may cause deformation of the platen.
- Wash your hands thoroughly before touching the platen.



3. Remove the dirt from the thermal head using a cotton bud or soft cloth dipped in alcohol.

4. Remove all dirt, dust or paper debris, etc. adhering to the sensors (particularly the reflector type sensors) of the thermal mechanism and the presenter.

Note- For the presenter's paper sensor, take out the screws in the presenter cover on the side as shown in the figure below, remove the cover, then remove the dust from above. Also, after maintenance, return the presenter cover to its original position and fasten it with the screws which were taken out before.