LL-S201A

Operating Manual of Service Tool

Version 1.6/1.7

2013/06/28

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Summary of Changes

2013/02/04 Version 1.1

Add full range warning dialog 6.3

Add chips for file selection 6.3.2

2013/02/05 Version 1.2

Replace the new UI image

Add Touch Panel Controller adjustment 11.5

Modify Test pattern feature 11.4

2013/02/08 Version 1.3

Replace the new UI image

2013/02/26 Version 1.4

Replace the new UI image

Modify Scaler version up function 6.3

(Scaler version up is possible also under “Limited range”)

Modify Touch Panel Controller adjustment 11.5

2013/05/17 Version 1.5

Modify Touch Panel Controller adjustment 11.5

2013/06/28 Version 1.6

Modify the confirmation screen at Firmware version up 6.3 and 6.4.

1. Introduction

1.1. TOOL OPERATING ENVIRONMENT

・Windows XP / Windows Vista / Windows 7 / Windows 8

・Support 32bit OS (this tool can work under 64bit OS also, but it is not assured)

・Login with the administrator's right

1.2. INSTALLATION PROCEDURES

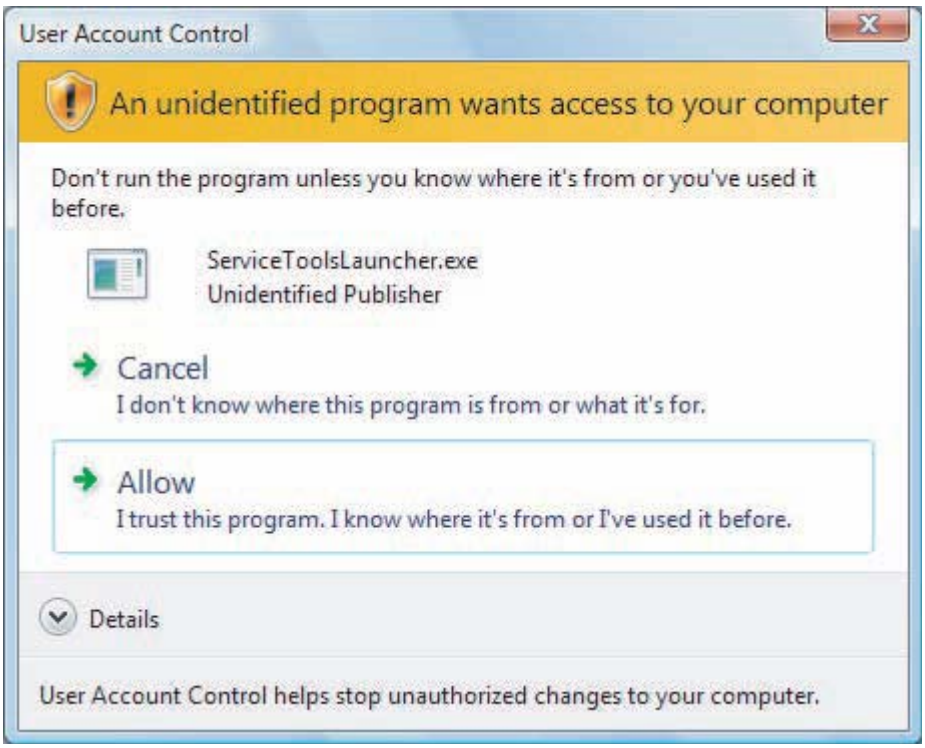
The service tool is delivered one archive file.

Although a tool can be extracted to arbitrary folders, please do not change the directory composition and file name in which the tool is extracted.

1.3. USE INSTRUCTIONS

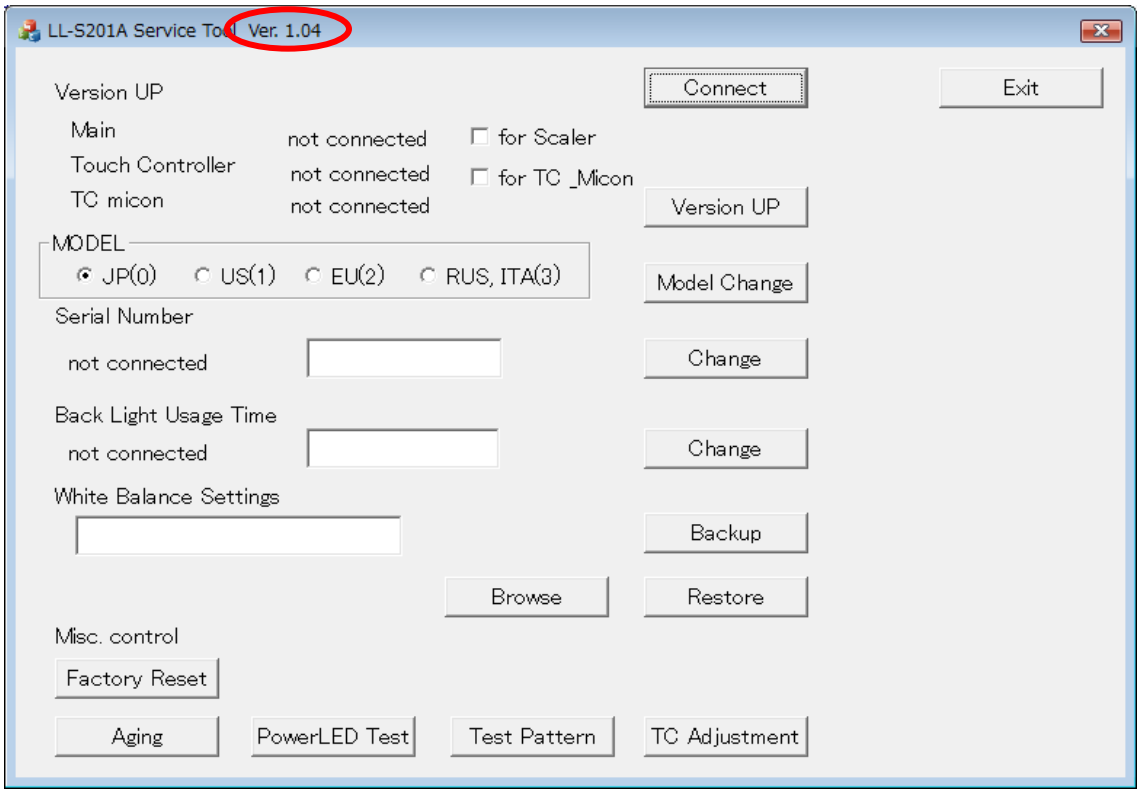
Execute "ServiceTool.exe" in the folder where the service tool is extracted.

Memo: In the case of Windows Vista or Windows 7, the window of "User Account Control" is displayed as shown below, so you need to click [Allow].



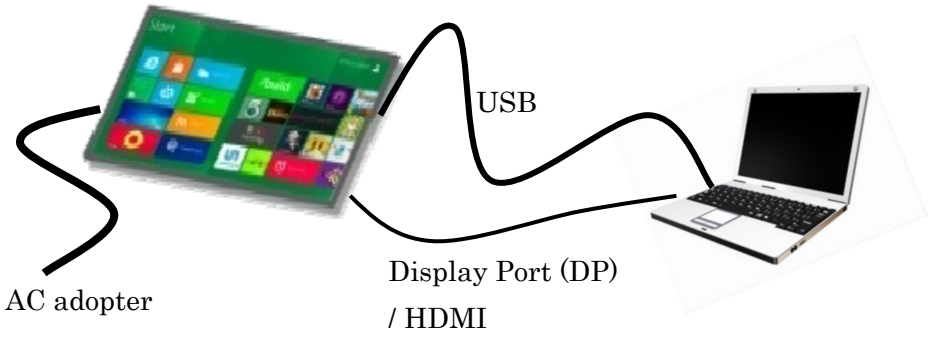
1.4. CONFIRMATION OF THE SERVICE TOOL VERSION

Launch the ServiceTool, and check the service tool version which is displayed at the title bar.



2. CONNECTION and LIMITATION

2.1. CONNECTION



1. Connect the PC by USB cable and the image cable (Display port / HDMI).
2. Turn on a monitor.
3. Launch the service tool.

2.2. LIMITATION

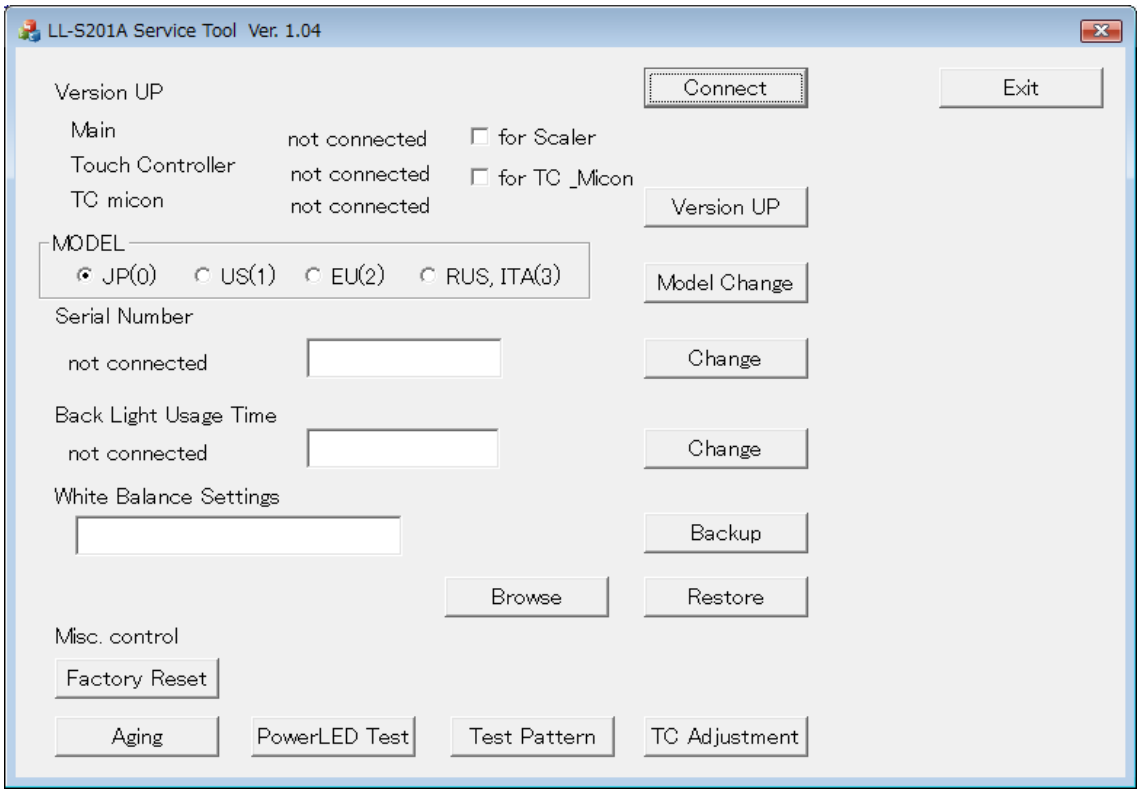
To upgrade the scalar firmware, it is necessary to set the PC graphics board to its default color settings.

2.3. USAGE AT MULTI DISPLAY

When using this tool with a notebook PC, it is necessary to set a resolution setting for LL-S201A to 1920x1080. Therefore, if the setting of the multi-screen is “Duplicate Display”, please change the display setting to “Extended Display” with resolution as 1920x1080, and set LL-S201A as primary display.

Moreover, the service tool should be operated at the LL-S201A side.

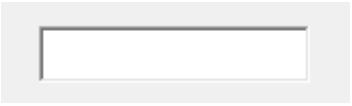
3. COMPOSITION OF THE SERVICE TOOL SCREEN



1. Button

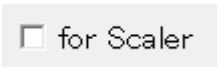
The action is executed. A message window comes out if needed.

2. Edit box



It is a box for the character input from keyboard. Action is decided by pushing the button related to the box concerned after an input.

3. Check box



Action is executed by choosing a box of item to check, and pushing the VersionUP button.

4. Radio button

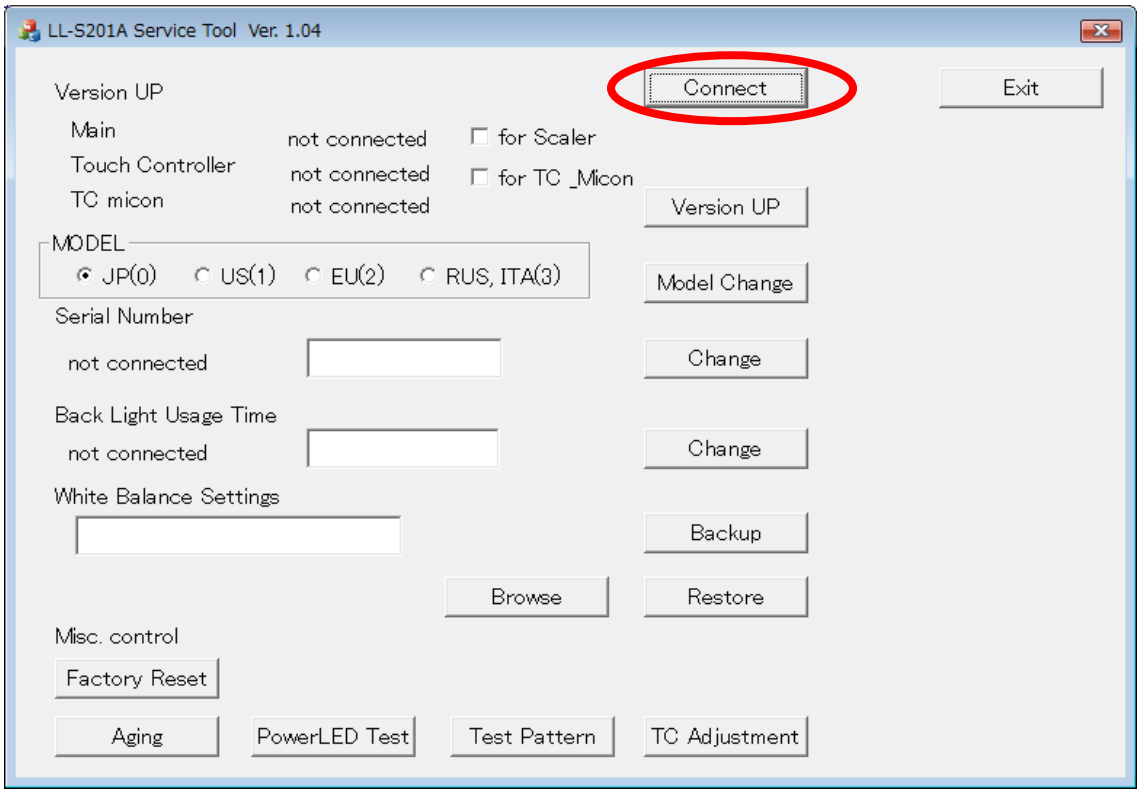
One is chosen from more than one candidate. Action is executed by choosing and pushing the ModelChange button.

4. MAKE A CONNECTION BETWEEN LL-S201A AND PC

In order to operate each function, it is necessary to change LL-S201A and PC into connection state. The start-up state of ServiceTool is “Not Connected”, so please push the “Connect” button first.

When the cable is not connected, or when there is no response from a display, the message of the purport as “connection error” is displayed.

If the cable is connected normally, and there is no response from a display, the main board may not be operating.



A following cause can be considered as a cause by which the below error message is displayed by USB connection.

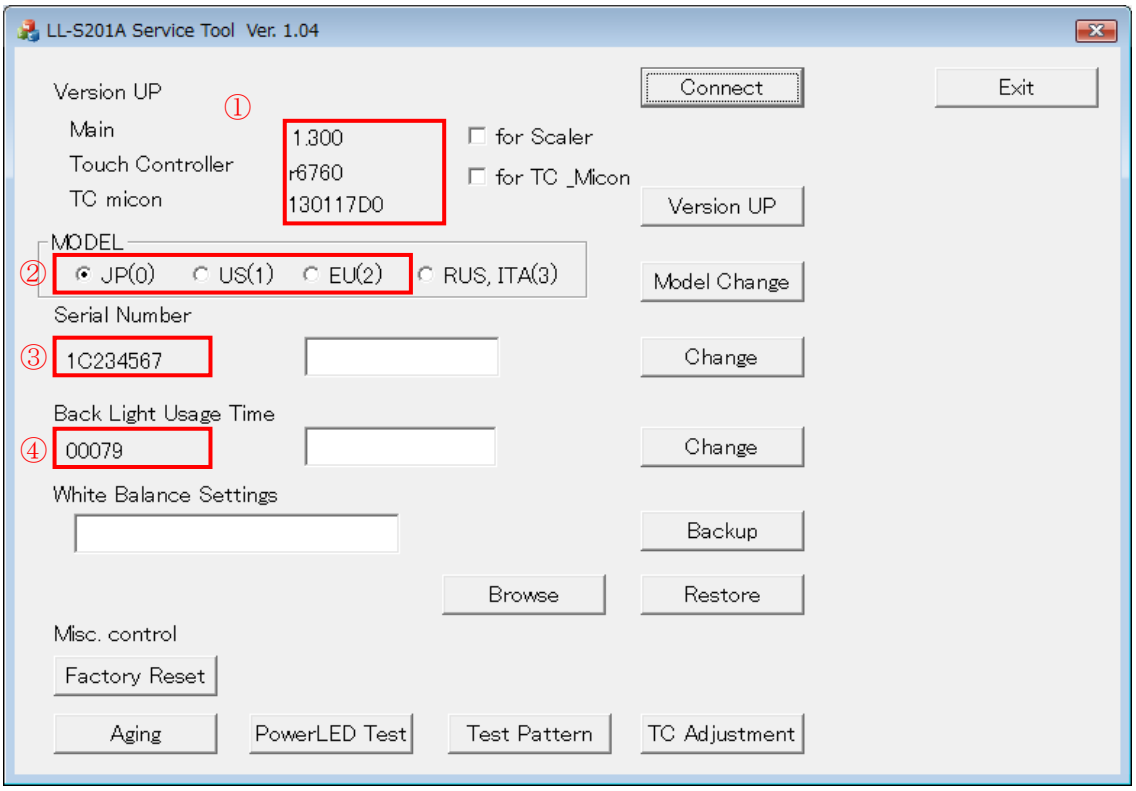
cable is not connected

board is out of order

power supply of display is not on

When PC connection is made normally, following information is displayed.

1. The current version number (Version UP)
2. The destination of model (MODEL)
3. Serial number (Serial Number)
4. Usage time of LED back light (Back Light Usage Time)



Memo: The service mode of the touch display can also check the above information.

- V1 version of scaler
- V2 version of touch controller(ARM)
- V3 version of touch USB controller(NXP)
- M destination of model
  (0:Japan, 1:North America, 2:EU, 3:EU(2)
- N serial number
- BT usage time of LED back light(0 h to 65535 h)

5. QUICK SUMMRY OF THE FEATURE

5.1. Firmware version up (Version UP)

The controller software of LL-S201A is updated if necessary.

5.2. Setting the destination of model (MODEL)

The destination setting is set or changed in case of board exchange and the repair.

5.3. Changing the serial number (Serial Number)

The proper serial number of LL-S201A is written in case of the board exchange and the repair.

5.4. Setting the LED back light usage time (Back Light Usage Time）

The usage time of back light is set in case of board exchange or LCD module exchange.

5.5. Backup and restore the White Balance settings (White Balance Settings)

The white balance preset value currently recorded on the set is read, and data is recorded on PC. The white balance adjustment value of display can be inherited by exchanging board after recording on PC.

5.6. Factory reset (Factory Reset)

The current preset value is returned to a factory-shipments state.

5.7. Start aging（Aging）

An aging pattern is displayed and the display is aged.

5.8. Power LED lighting test (Power LED Test)

The Power LED of LL-S201A is blinked on and off.

5.9. Display Test pattern (Test Pattern)

In case of exchange, etc. Display a test pattern on LCD module, and check position alignment and image quality.

5.10. Touch panel adjustment (TC Adjustment)

In case of exchange touch panel, adjust the touch panel setting.

6. FIRMWAER VERSION UP（Version UP）

6.1. Overview

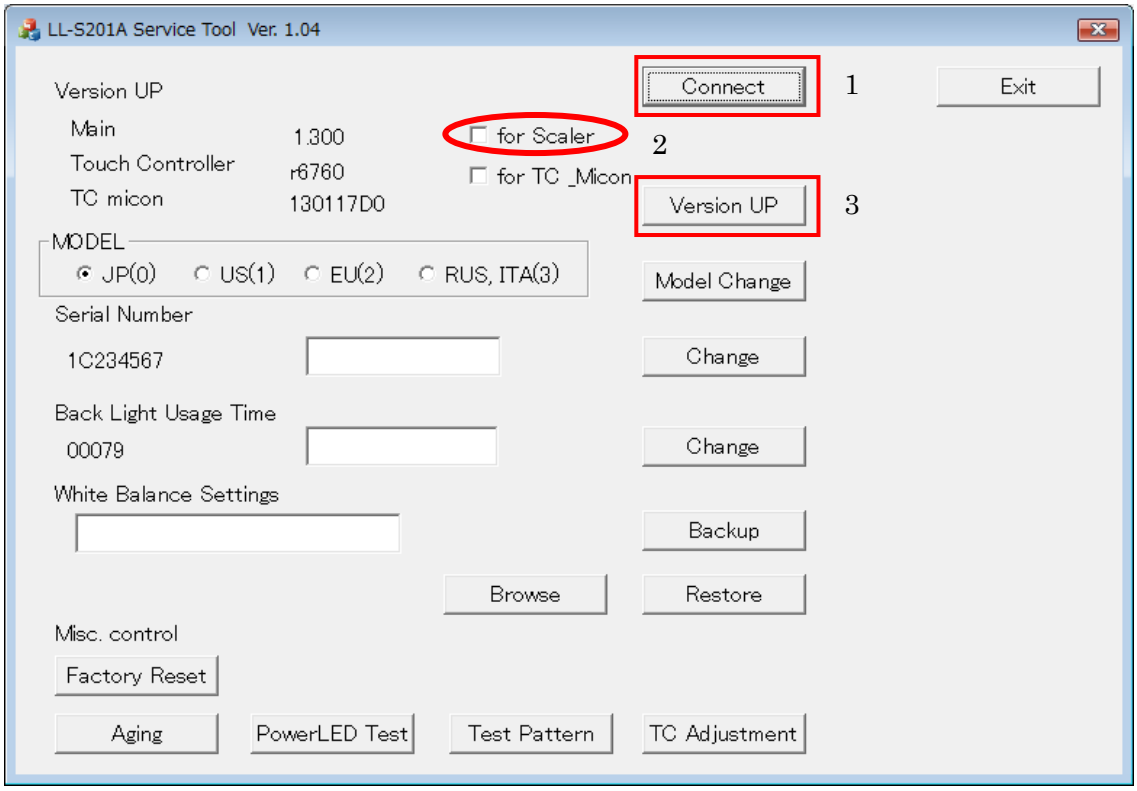
The LL-S201A is composed of the scaler part and the touch-panel part, and is upgraded by rewriting three firmwares. Upgrade of the scaler part rewrites software displaying a bit map image on a display. On the other hand, upgrade of the touch-panel part rewrites software via USB. Upgrade of two blocks can be set up individually. In addition, after the software of the touch panel is rewritten, it is necessary to insert power cycle. Please once pull out the AC/DC adaptor and put it again.

6.2. Storing position of version up data

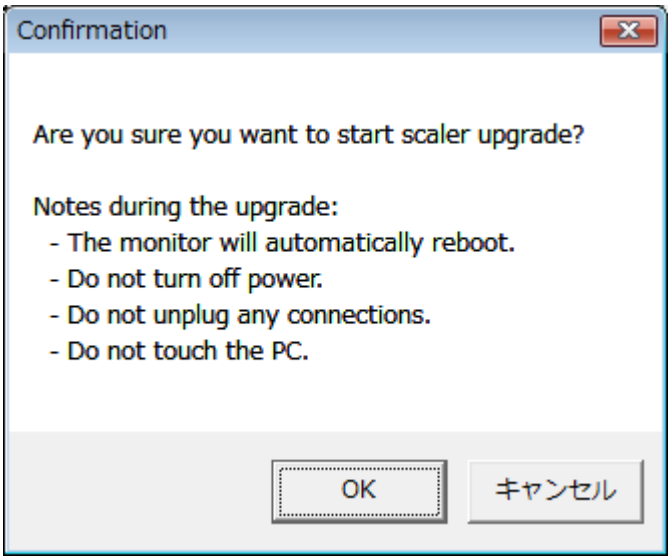
In order to execute the version up, it is necessary to put data on the specified folder. Please put a file on the folder of the following relative paths from the folder which installed the program of the service tool.

ServiceTool
- ServiceTool.exe
- Firmware.bmp (for scaler version up)
- TP_Verup
  - TP_Verup.exe
  - writeFile
    - ARM
      - ranger_ROM_r6760_WTTL.bin (for touch controller)
    - NXP
      - LPCXpresso11U24_usbhid-0117-D0-1 次用.bin
        (for touch USB controller)

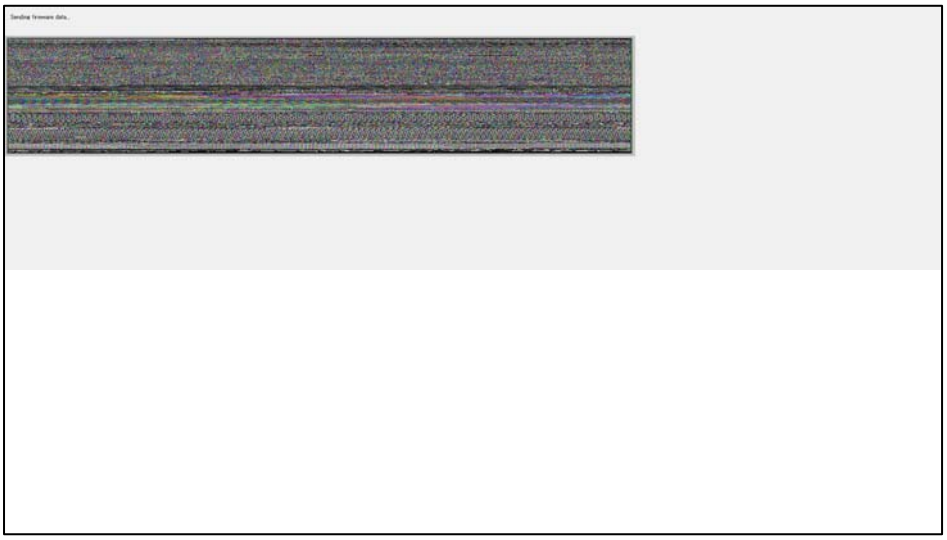
6.3. Scalor part version up



1. Change PC and LL-S201A into connection state. Version information is displayed when it is connected normally.
2. Select check box for Scaler.
3. Push the VersionUP button, the following message box will be displayed.

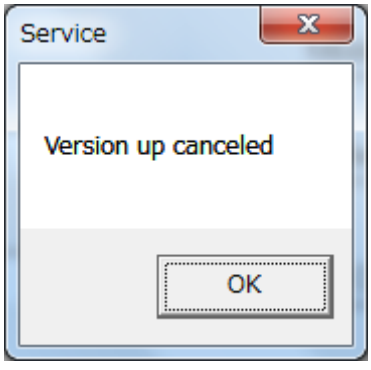


4. Push [OK] button, then version up will start.



5. During upgrade, the screen of LL-S201A becomes blackout. Moreover, LED becomes red mark light.
6. Upgrade takes about 1 minute.
7. When the upgrade succeeds, LL-S201A reboots and LED becomes green lighting. The following message box will be displayed on PC screen.

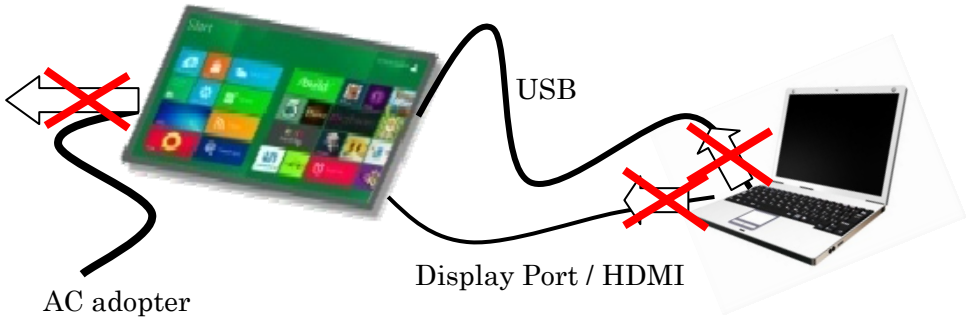
8. When an error occurs, the screen returns in about 15 seconds without rebooting. The following message box will be displayed on PC screen.



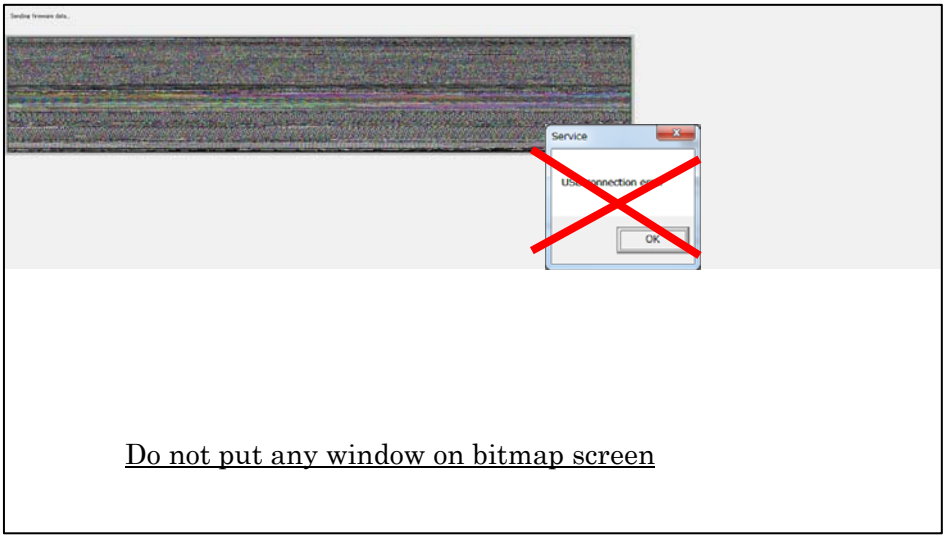
6.3.1. Notes during the upgrade

1. Don't Turn Off Power during upgrade.
2. Don't Take out the any cable.
3. Don't Touch the PC during upgrade.
4. Don't Place Another Window on Bit Map Data.

Please keep in mind that writing is no longer performed normally and trouble may occur in a system action when the above operation is performed.



Do not touch any things during upgrade

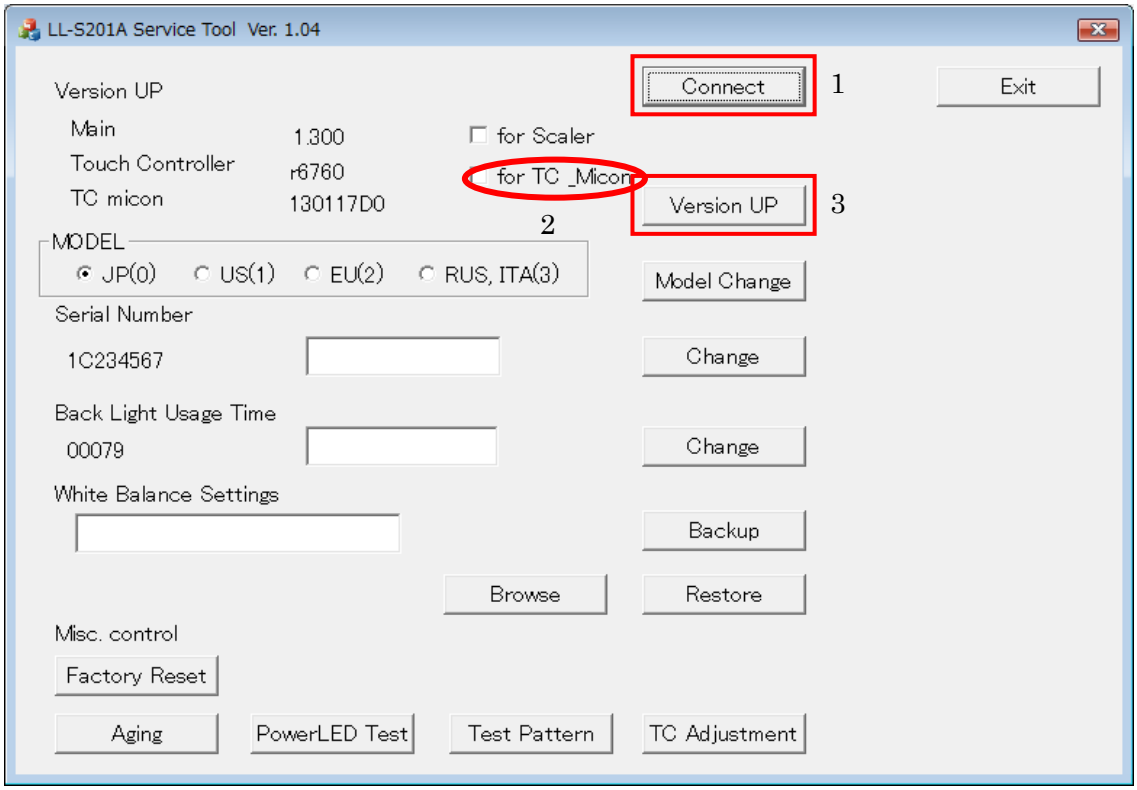


Do not put any window on bitmap screen

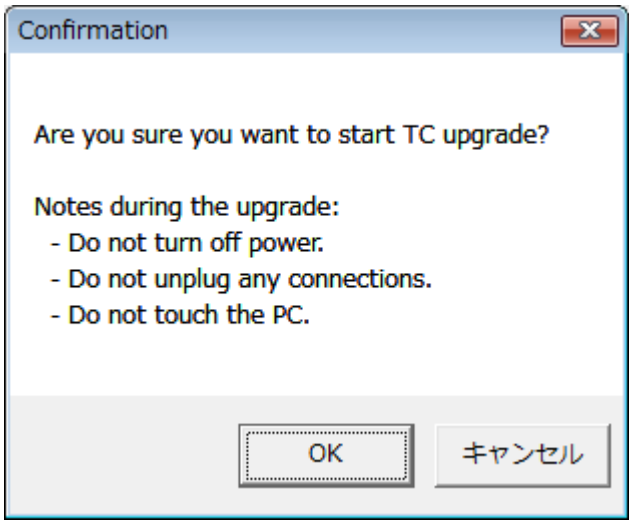
6.3.2. Tips

If you want to select other firmware, please rename the filename of Firmware.bmp. So, you can find the file select dialog instead of default setting.

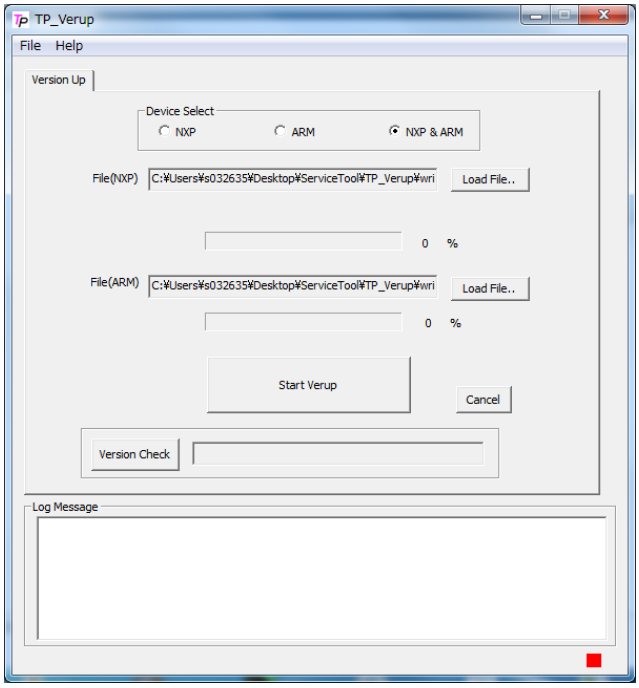
6.4. Touch part version up



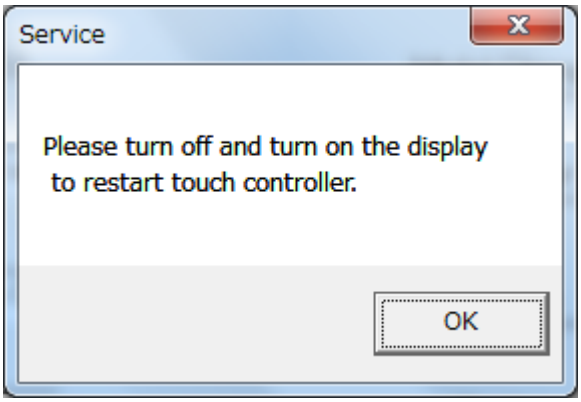
1. Change PC and LL-S201A into connection state. Version information is displayed when it is connected normally.
2. Select check box for TC_Micon
3. Push the VersionUP button, the following message box will be displayed.



4. Push [OK] button, then version up will start.



5. A new window appears and upgrade will start automatically. Two kinds of software are rewritten.
6. Since the following message box is displayed when the upgrade succeeds, push the OK button after once AC/DC adaptor of display is pull out and reput and screen is displayed again.



6.4.1. Note during upgrade

1. Don't Turn Off Power during upgrade.
2. Don't Take out the any cable.
3. Don't Touch the PC during upgrade.

6.5. Simultaneous Upgrade (Scaler Part + Touch Part)

At the time of selection of the check box -- [for Scaler] and [for TC_Micon] -- on upgrade, if both check box are chosen, scaler part + touch part are continuously upgradable. If upgrade of scaler part is completed, the following message box will be displayed, and if the [OK] button is pushed, upgrade of touch part will be started automatically.

6.6. NOTES AND LIMITATION

6.6.1. Scaler part version up

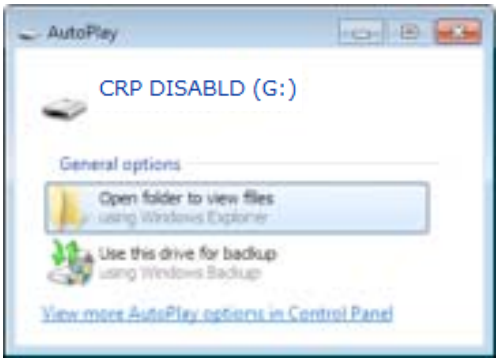
Since it upgrades by displaying a bitmap, it cannot be upgraded if the image output is modified by graphic board settings.

Moreover, if unnecessary things, such as another window, are displayed on bitmap display area, upgrade will fail.

Please be careful the trouble of the power supply during upgrade.

6.6.2. Touch part version up

Please ignore the automatic window of a removable memory is displayed at the time of upgrade. After upgrade is done, please once pull out the AC/DC adaptor and put it again because the touch panel is no longer recognized after upgrade.

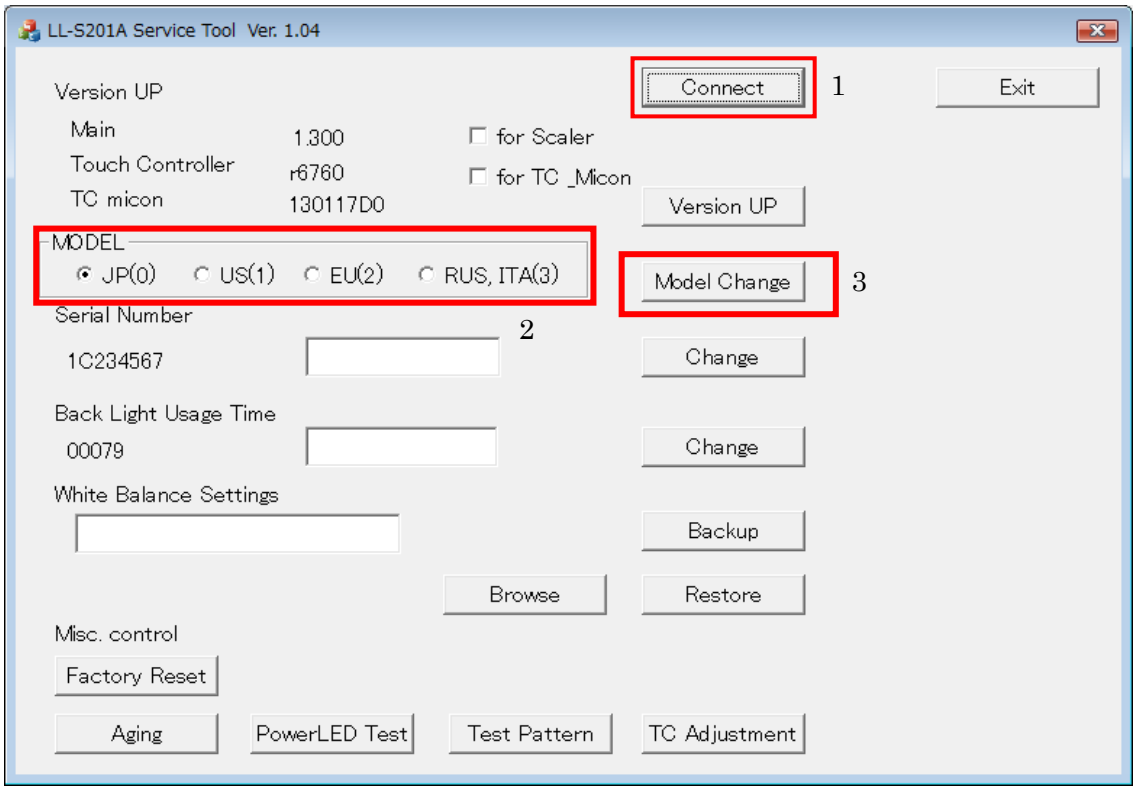


7. SETTING THE DESTINATION (MODEL)

7.1. Overview

When the board is exchanged by board failure, it is necessary to set the destination. It can set up destination where there are three kinds, Japan, North America, Europe, and Europe2(Russia / Italy).

7.2. How to operate



Change PC and LL-S201A into connection state.

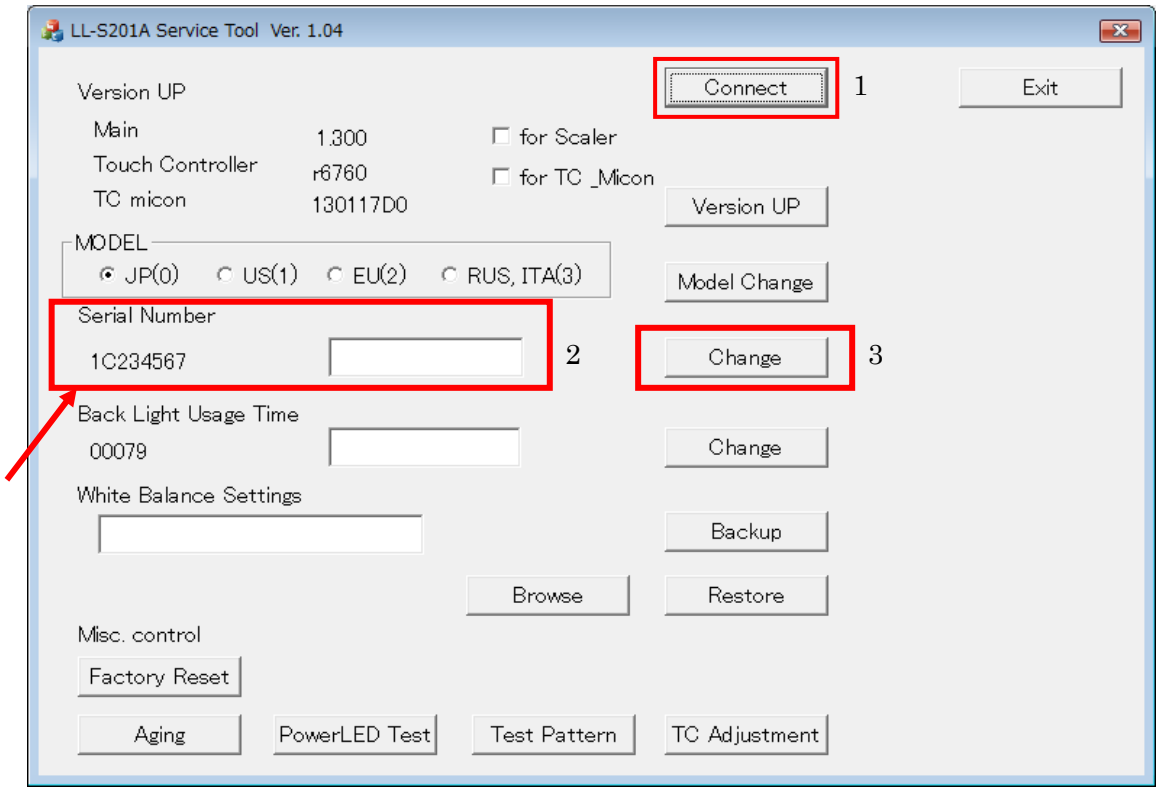
1. Choose the destination as JP(0) / US(1) / EU(2) / RUS, ITA(3).
2. Push the Model Change button.
3. When it succeeds, the following message box will be displayed.

8. SETTING THE SERIAL NUMBER（Serial Number）

8.1. Overview

When the board is exchanged by board failure, it is necessary to take over the serial number of display. The serial number certainly should be the number indicated at the face plate on the back of display.

8.2. How to operate



1. Change PC and LL-S201A into connection state. The serial number currently recorded on the board will be displayed on the left side of a text box.
2. Input the serial number into the text box.
3. Push the Change button.
4. When it succeeds, it will be displayed on the text box as "Data Change OK."
   Memo: It is necessary to input the serial number in the correct format. When a form is incorrect, it is displayed on the text box as "input error."

8.3. Important notice

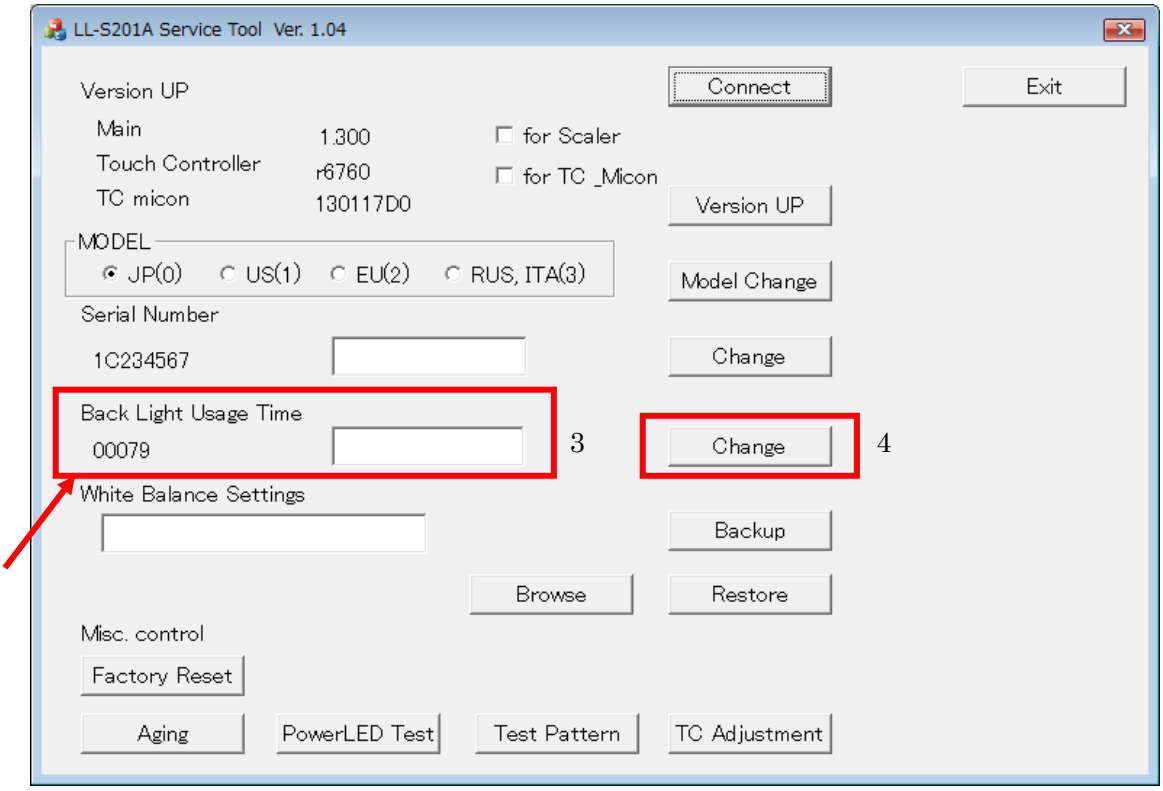
Although the serial number currently written to the board and the serial number indicated to the face plate are in agreement in principle. If numbers are different, please give priority to the serial number of a face plate.

9. SETTING USAGE TIME OF LED BACK LIGHT（Back Light Usage Time）

9.1. Overview

It is used when taking over the back light usage time when the board is exchanged by board failure or resetting the usage time at the time of exchanging LCD module. Usage time can be specified per hour. Please keep in mind that it will be the requisite that usage time can read from the board. When usage time cannot be read, it is necessary to write the time which can be guessed from a user's purchase time and frequency in use in the board of an exchange place.

9.2. How to operate



1. Change PC and LL-S201A into connection state. Check the back light usage time which currently recorded on the board is displayed on the left side of the text box.
   Note: It is necessary to follow this procedure before exchanging board.
2. Change LL-S201A into connection state again after board exchange or LCD module exchange.
3. Input usage time to set into the text box. (0 to 65565).
4. Push the Change button.
5. When it succeeds, it will be displayed on the text box as "Data Change OK.".

Memo: When an input value is incorrect, it is displayed on the text box as "input error."

10. WHITE BLANCE STTINGS BACKUP / RESTORE（White Balance Settings）

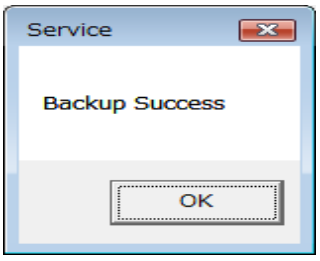
10.1. Overview

The white balance setting is used to correct variations in each panel. When the panel is not changed, take over the panel setting to suppress variations. When the panel is changed, execute resetting to set the standard state.

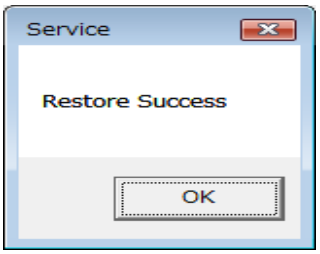
10.2. How to operate (Backup / Restore)

[In case of board change]

1. Change PC and LL-S201A into a connection state before board exchange.
2. The file name of the serial number and a date is automatically generated on the text box.
3. Push the Backup button to generate the file of a White Balance preset value to PC. (By default, a file is created directly under a ServiceTool folder)
4. If file creation succeeds, the "Backup Success" message box will be displayed.



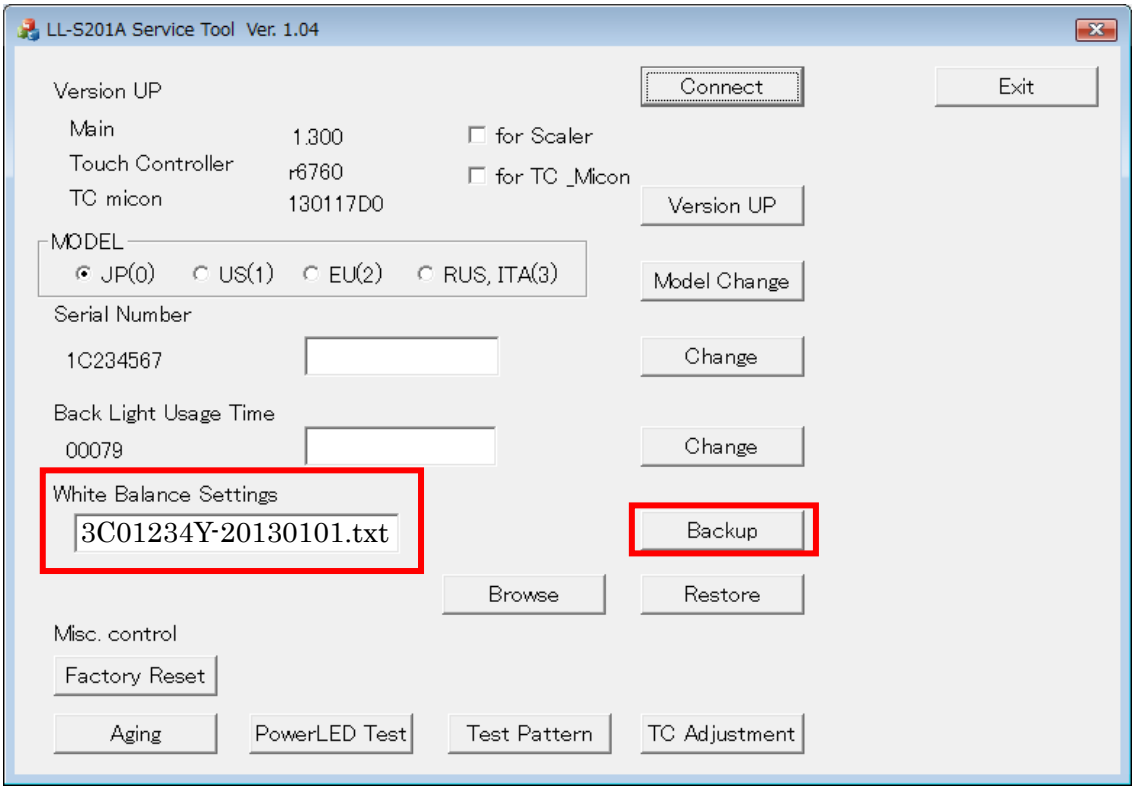
5. After exchanging the board, setup MODEL, Serial Number, Back light usage time.
6. Push the Browse button and select the file made at 3.
7. Push the Restore button to inherit the setting.
   Memo: The screen may be blurred during execution of Restore.
8. If restoration succeeds, the "Restore Success" message box will be displayed.



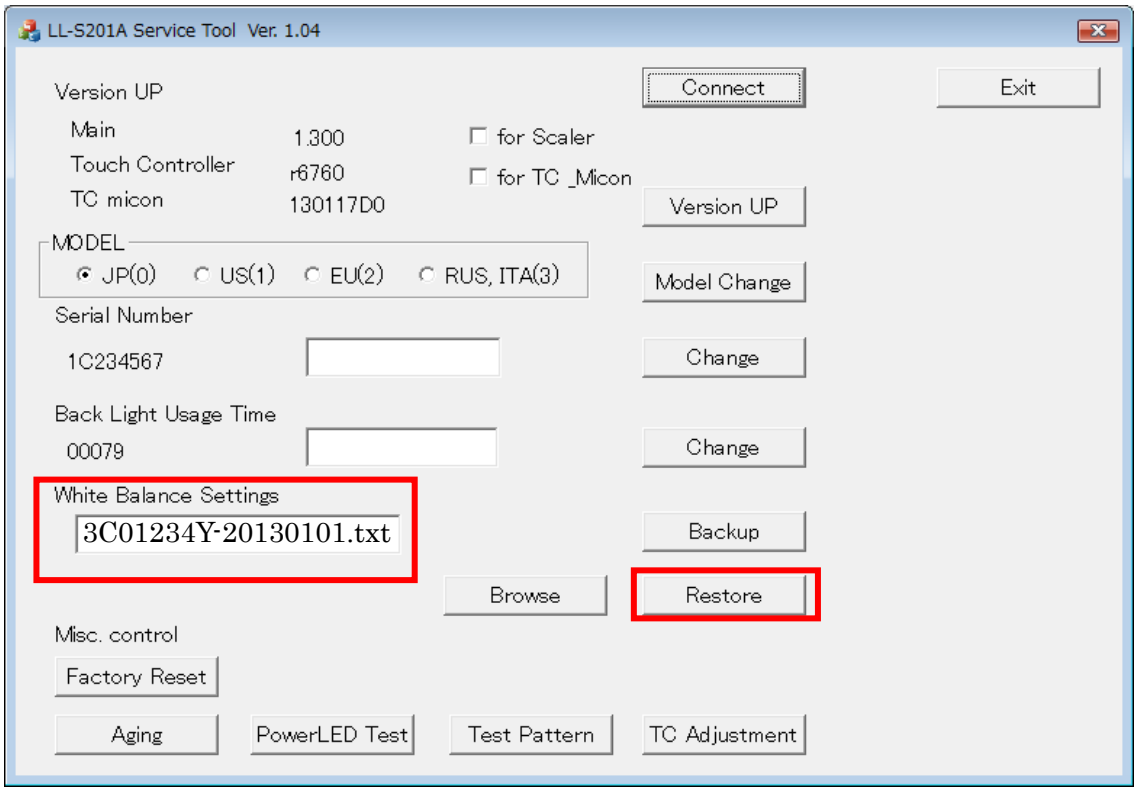
[In case of exchange LCD module]

1. Exchange LCD module.
2. Change PC and LL-S201A into connection state.
3. Push the Browse button and choose standard configuration file defaultWB.txt.
4. Push the Restore button to inherit the default settings

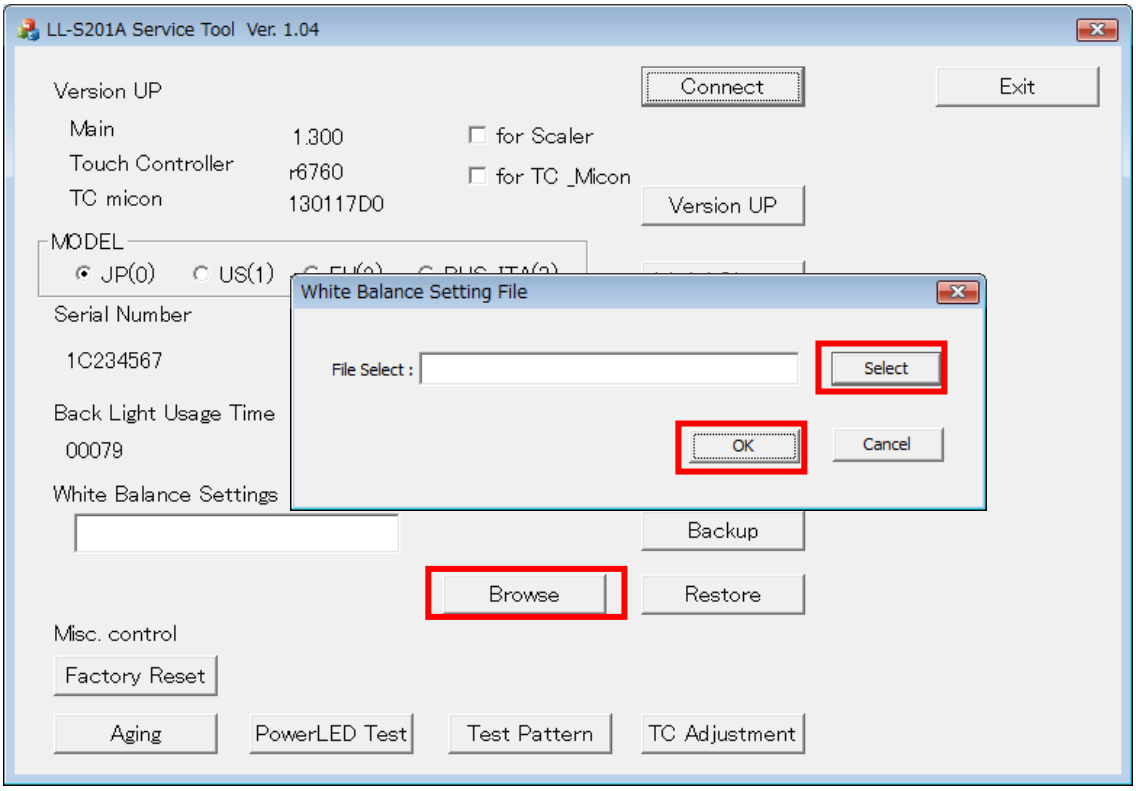
10.3. How to operate UI



Taking into PC of the current White Balance preset value.



Restore White Balance settings to new board.



Selecting the White Balance setting file.

10.4. Default setting file

When LCD module is exchanged, please choose the default setting file and set data. The file is in the same position as the folder which installed the service tool. The file name is defaultWB.txt.

10.5. Note

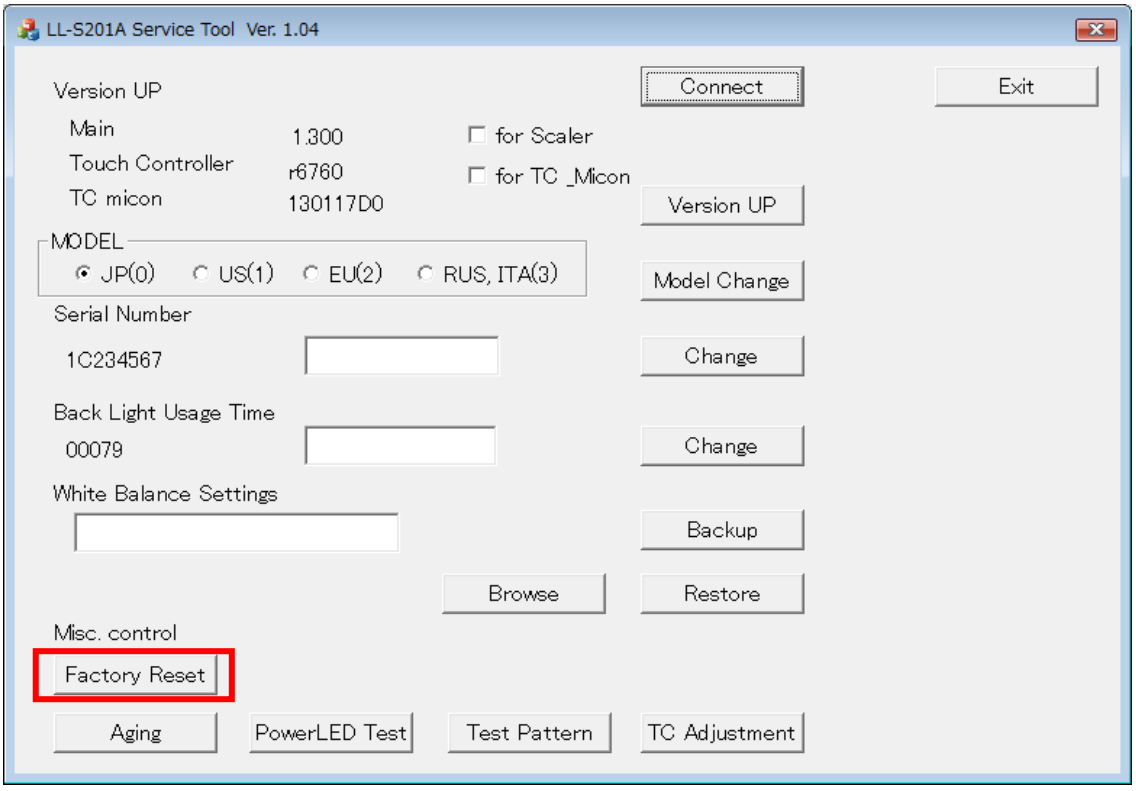
A White Balance setting file is automatically generated by the tool. Please keep in mind that a guarantee of operation is not offered when data is changed on a memo pad etc.

11. MISCELLANEOUS FEATURE

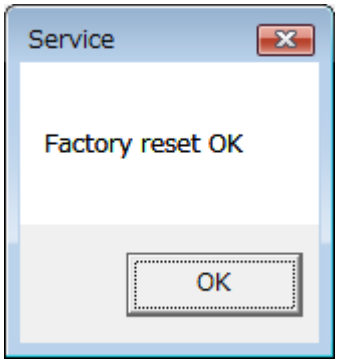
11.1. Factory reset（Factory Reset）

11.1.1. Overview

Settings are returned to that of factory-shipment state.



1. Push the Factory Reset button.
2. Push [OK] button at confirmation dialog.
3. When setting initialization succeeds, the following message box will be displayed.



11.1.2. Detail of data Initialized (portion related to user)

Input port	DisplayPort
Volume	0
Mute	disabled
Child lock	disabled
Pen mode	finger and pen
OSD position	normal
Rotation	normal
Indicator	displayed
Splash Screen	enabled
Brightness	100
Contrast	75
Sharpness	4
Color temp.	6500K
Hue	50
Saturation	50
Black level	50
R gain	100(RGB mode)
G gain	100(RGB mode)
B gain	100(RGB mode)
Picture mode	normal

*Following settings are kept.

Destination setting
Serial number
Back light usage time
White Balance setting

11.1.3. Important notice

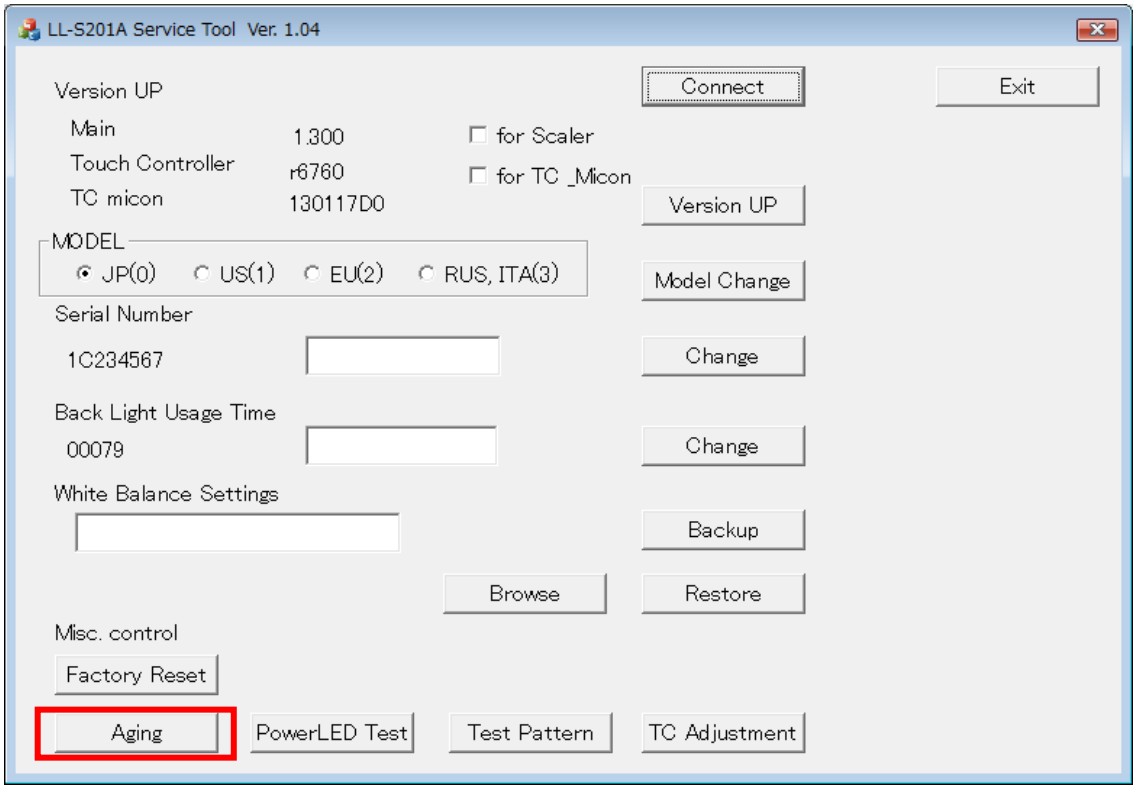
Before using this function, it is necessary to backup the current setting values if needed.

11.2. Aging (Aging)

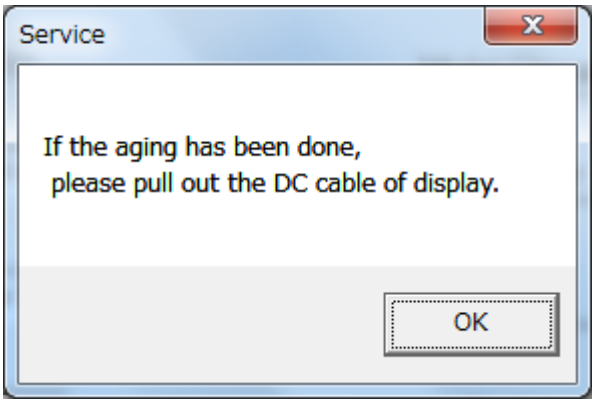
11.2.1. Overview

Displaying a self-pattern is continued in order to check whether a set carries out a normal performance. Red, blue, green, white and ashes, and a black pattern are repeated and displayed.

11.2.2. Start and stop



1. Push the Aging button.
2. Start Aging by clicking [OK] at the following message box.



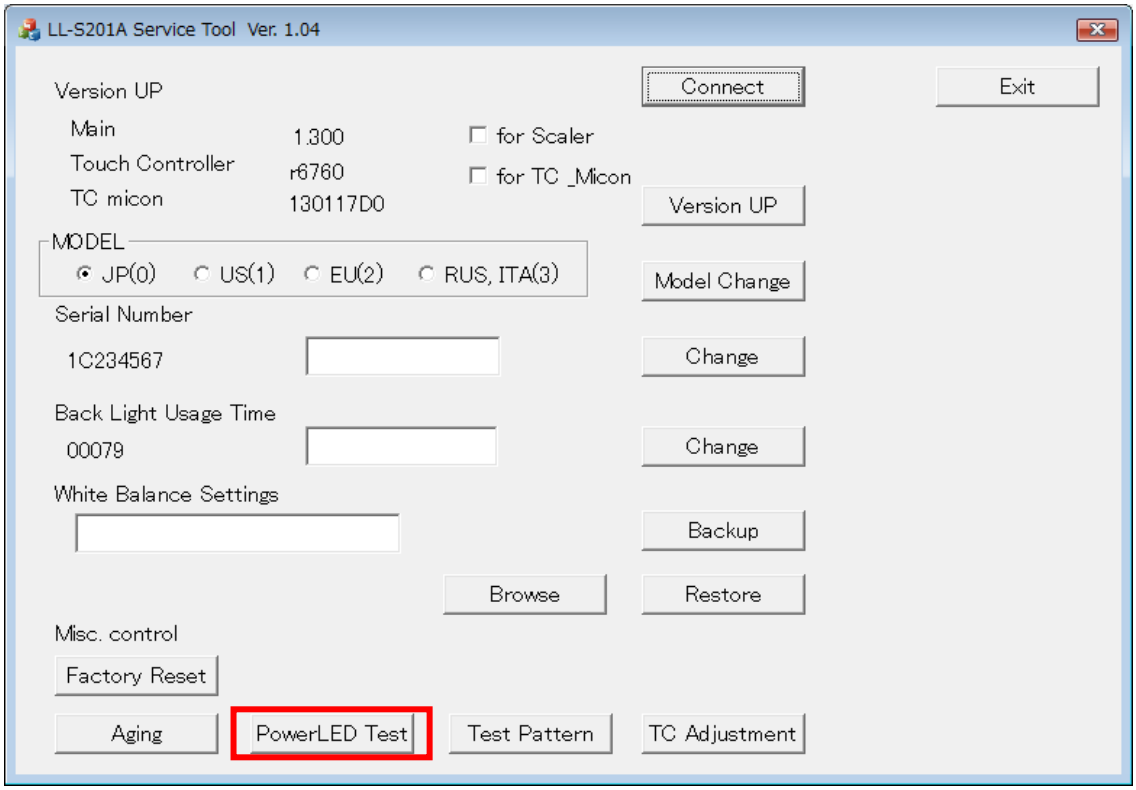
In order to quit the aging, please once pull out the AC/DC adaptor and put it again.

11.3. Power LED lighting test (Power LED Test)

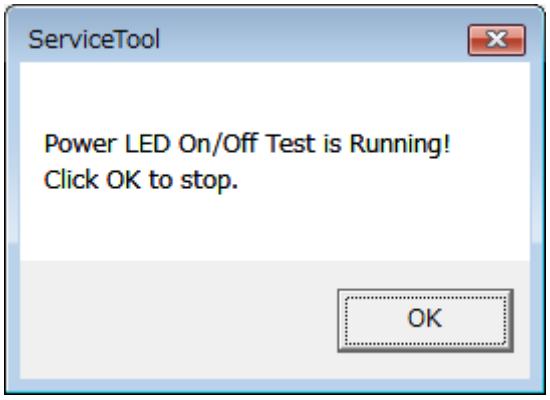
11.3.1. Overview

The lighting check of Power LED prepared in the lower right of LL-S201A. Displaying the pattern of green, red, orange, and putting out lights is repeated and continued.

11.3.2. Start and stop



Push the PowerLED Test button. Push the OK button to stop.



11.4. Test pattern（Test Pattern）

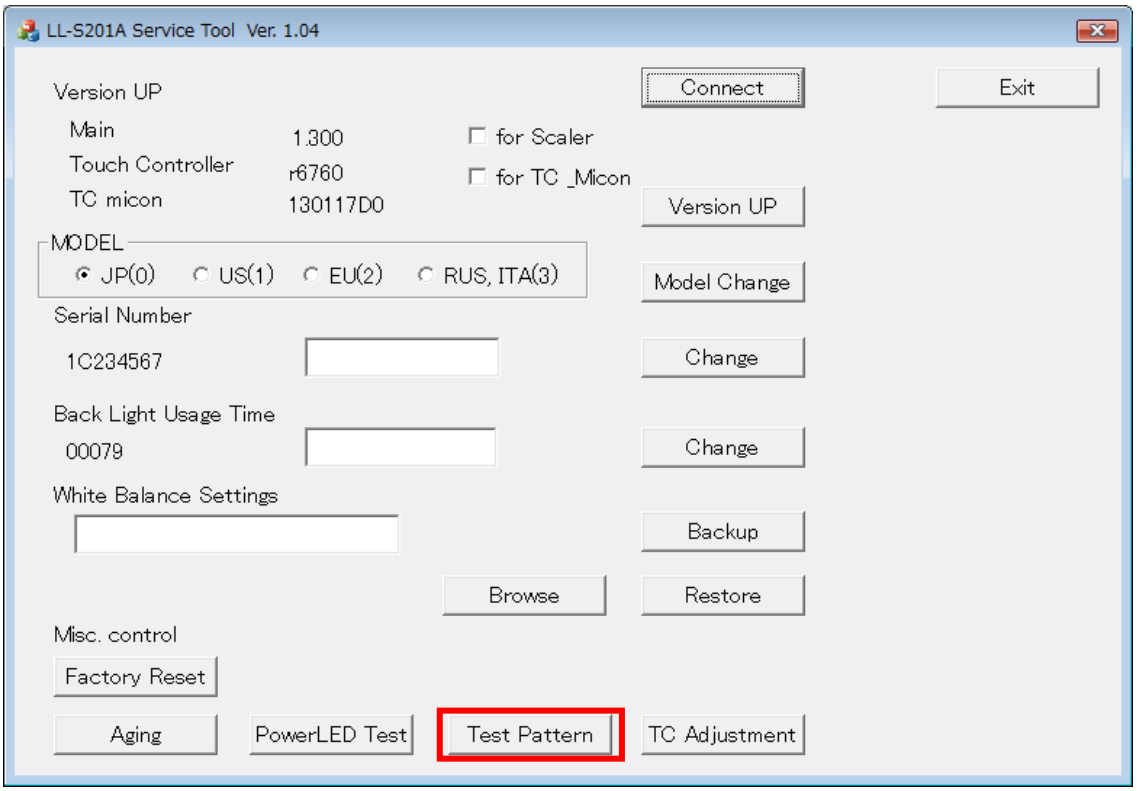
11.4.1. Overview

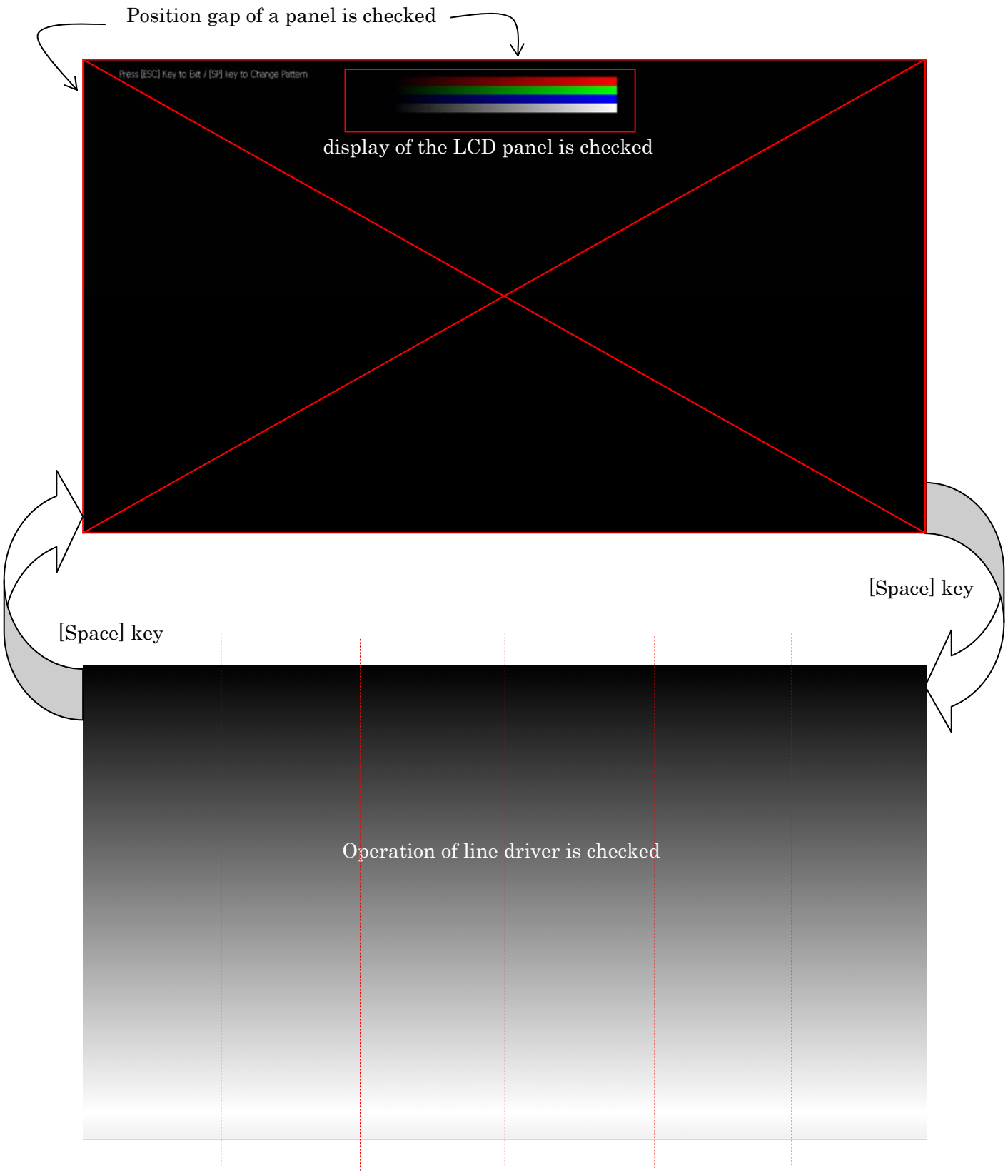
When LCD module is exchanged, to check a gap of a display position and the display of LCD module, a test pattern is displayed.

11.4.2. Start and stop

Push the Test Pattern button, a test pattern will be indicated by the full screen.

Push the [Esc] key of keyboard to end. Push the [Space] key of keyboard to flip the pattern.




Position gap of a panel is checked
Press [ESC] Key to Exit / [SP] key to Change Pattern
display of the LCD panel is checked
[Space] key
[Space] key
Operation of line driver is checked

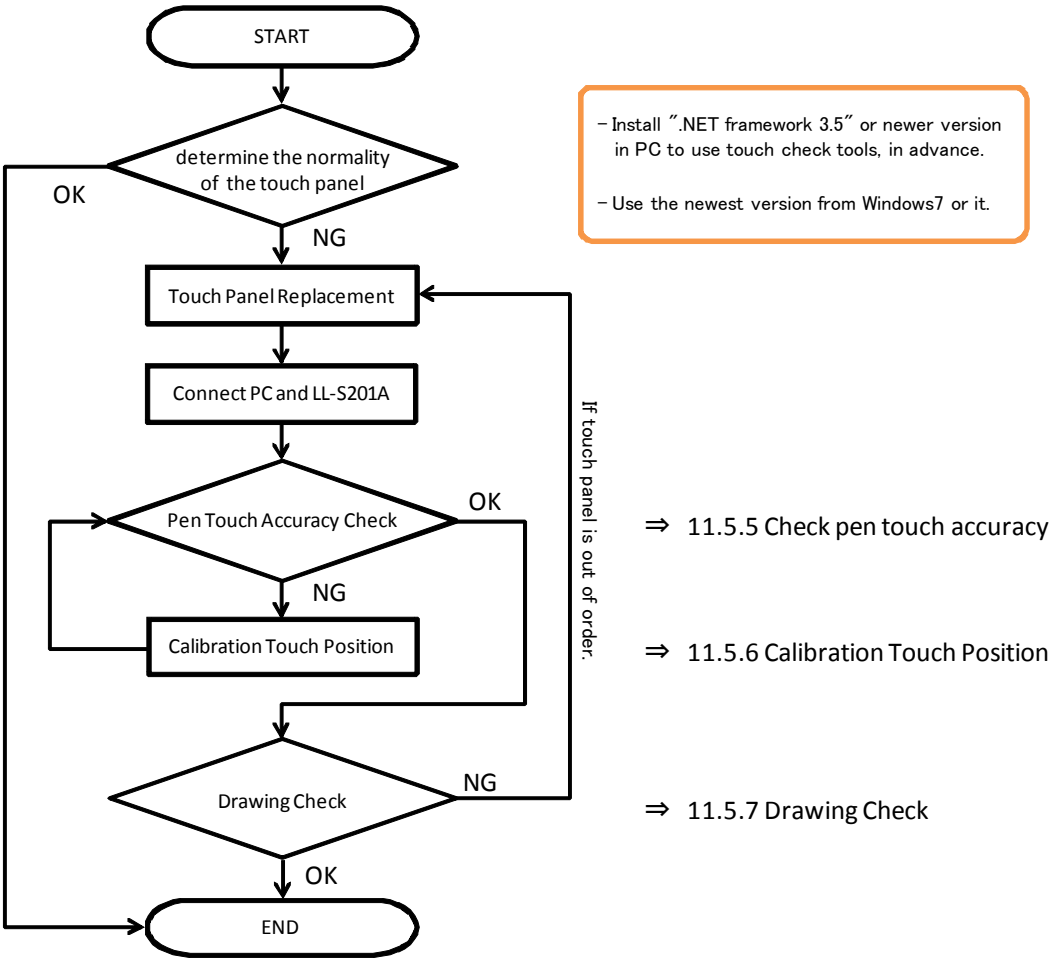
11.5. Touch Panel Controller Adjustment

11.5.1. Overview

In this Model, the position gap correction value between LCD panel and touch panel is registered into touch panel control board. So, when a touch panel is replaced by new one, it is necessary to check the position gap between LCD panel and touch panel. And if the gap is over the acceptable value, adjustment work is needed.

And drawing check is also required in order to confirm whether the new panel operates correctly.

11.5.2. Operation flow



11.5.3. Check the normality of touch panel

Before replacement of touch panel, check the normality of touch panel following the flow chart in Chapter 5 (5. MALFUNCTION OF THE TOUCH PANEL).

If touch panel is out of order, calibration and check is needed.

11.5.4. Setting-Limitation

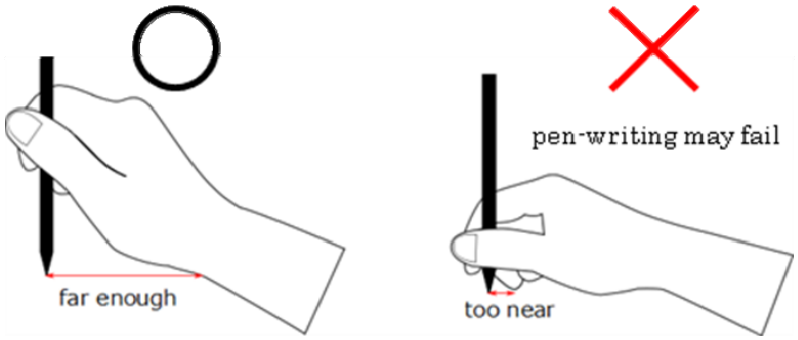
Setting:

Before starting check and calibration

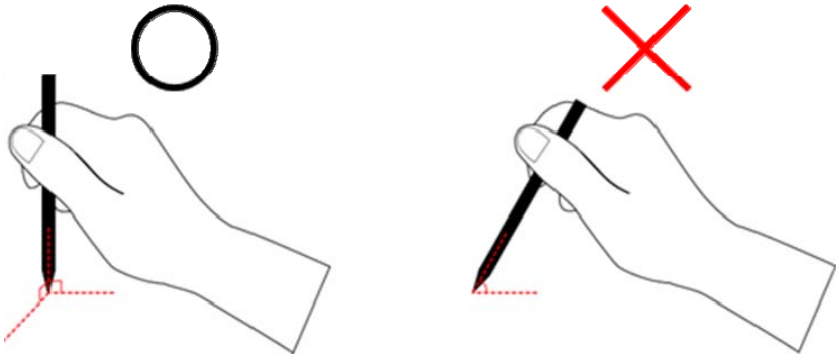
- Connect PC and LL-S201A with USB and HDMI cable(or DP cable),
- Set LL-201A to primary display or set multi display mode to duplicate or external only, if LL-S201A is connected as an external display.
- If using touch position correction of Windows, reset the adjusted value before checking pen touch accuracy.

Limitation:

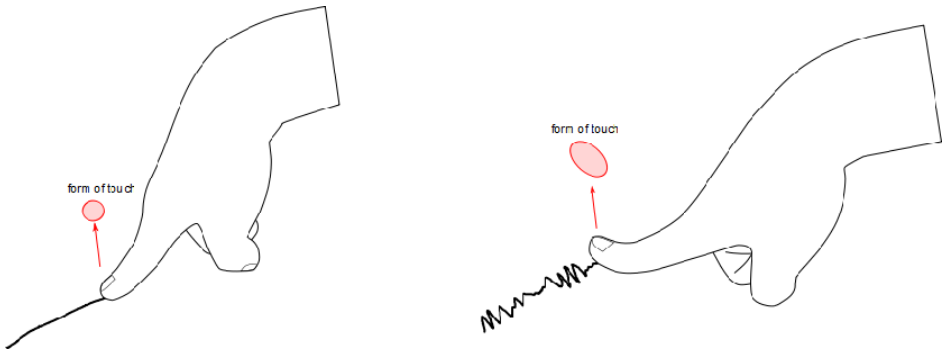
- In using touch pen, pen-writing with a hand on the screen is allowed.
But at a point near from the area attached the hand, pen-writing may fail.



- In pen-writing, stand a pen perpendicularly on the touch panel.



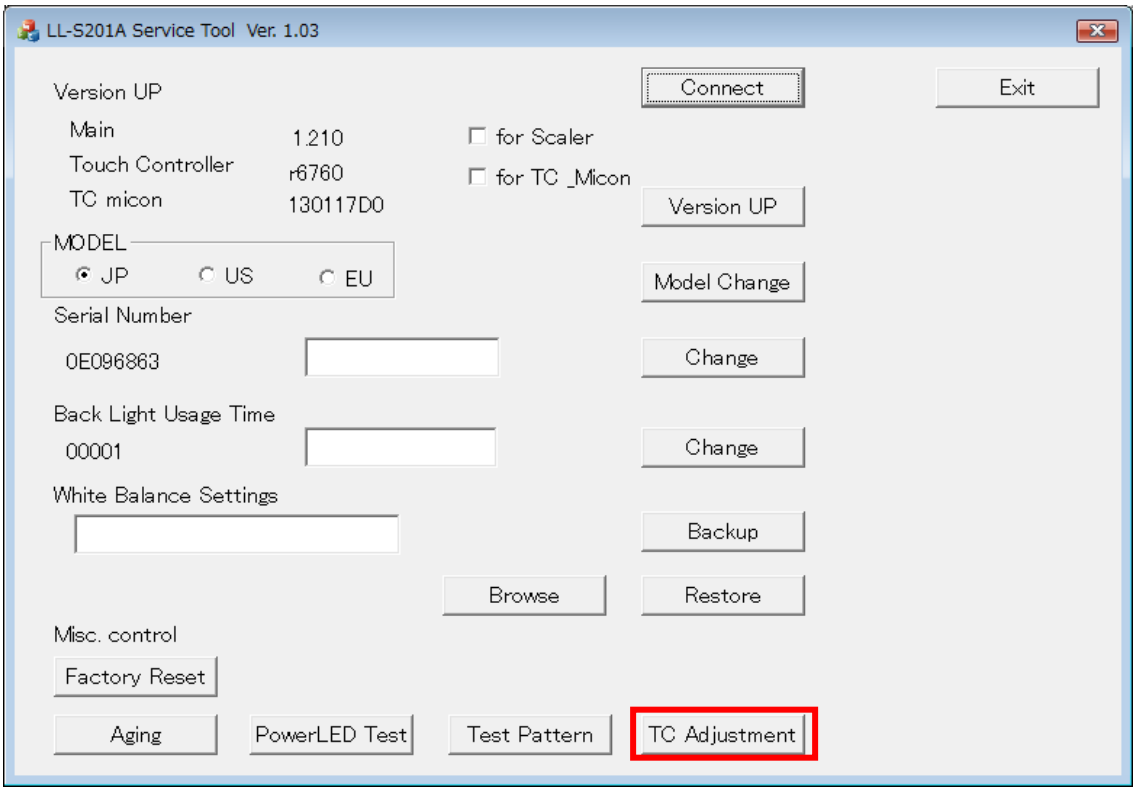
- In finger-writing, it may be unable to draw normally when pushing strongly with the inside of a finger.



11.5.5. Check Pen Touch Accuracy

[PROCEDURE]

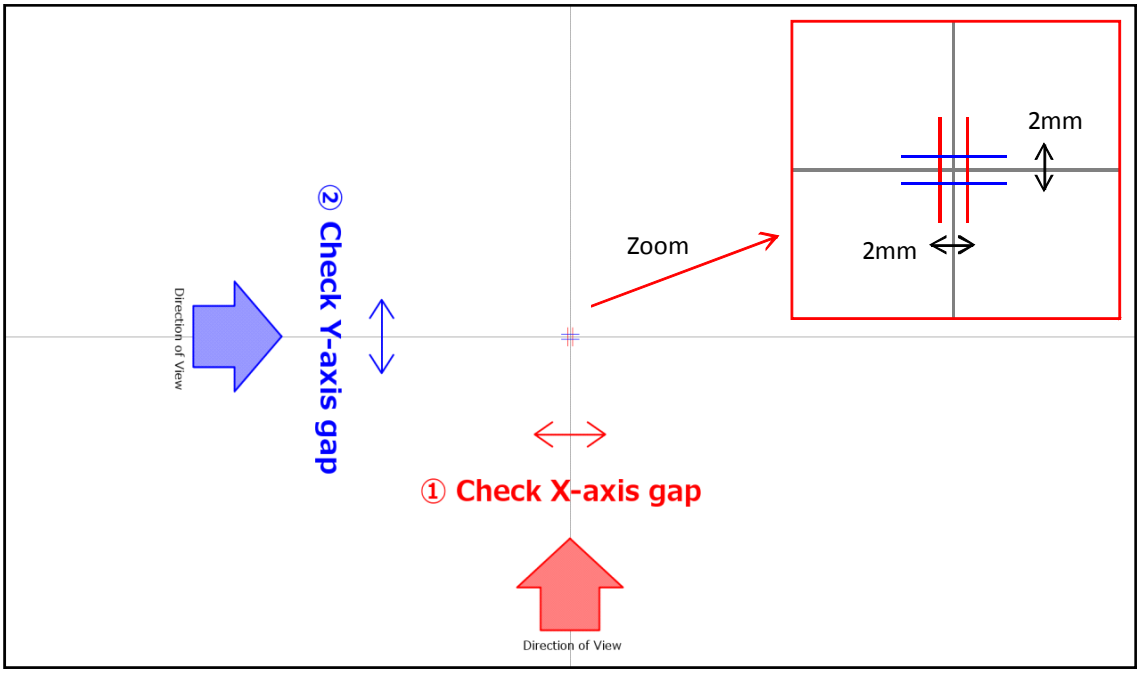
(1) Start Check tool



Click "TPC Adjustment" button on the tool for serviceman to start check tool.

A gray cross and red and blue parallel lines are shown on the screen.

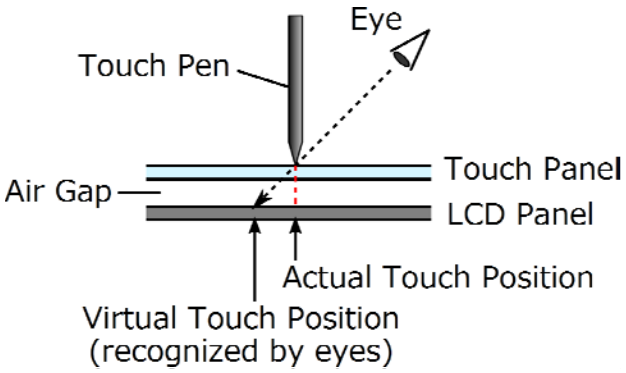
Check whether touch position gap is settled in tolerance level according to the following procedure.



(2) With a touch pen, touch the center of the cross and check whether the touch position gap is settled in tolerance level.

Because of the gap between pen tip and surface of LCD panel (glass and air gaps), a gap may arise between an actual touch position and a virtual position which is recognized as touch position by eyes.

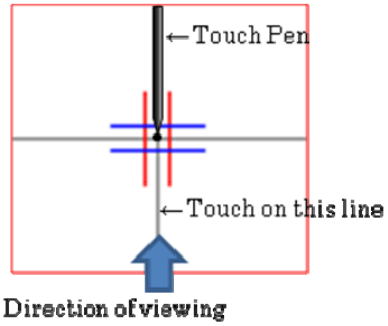
So, divide into gap of X-axis and Y-axis, and do check work.

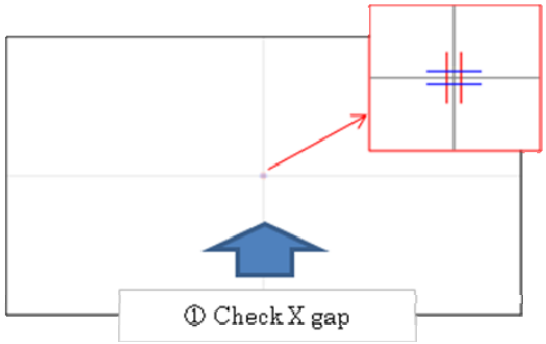


1) Check the gap of X-axis component.

Touch the center of gray cross with touch pen perpendicularly stood to the touch panel.

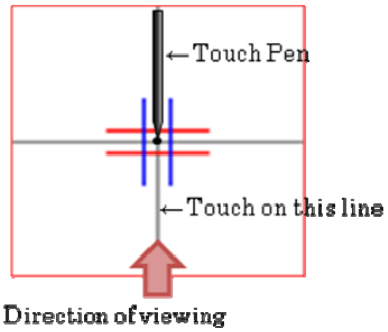
It is "OK", if the touched point is settled between red parallel lines.

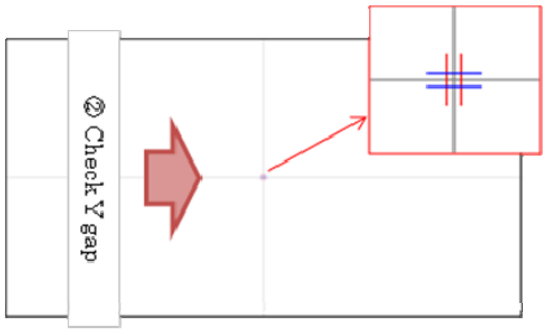




2) Check the gap of Y-axis component.

See from the direction rotated 90 degrees and check whether touch position is settled between blue parallel lines.



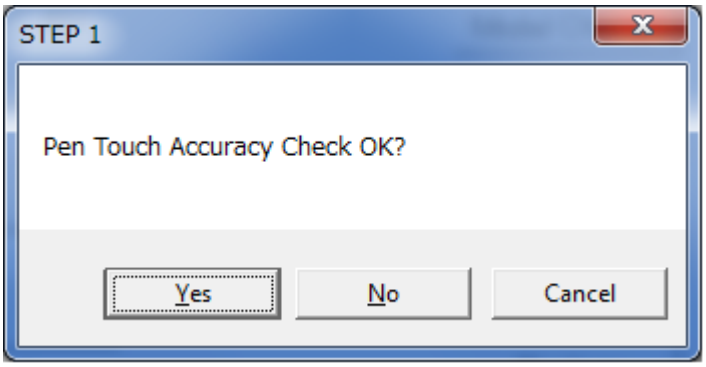


※To clear all drawn lines, press "C" key.

(3)End check tool

Press "ESC" key to end the tool.

(4)Confirm the result of Pen Touch Accuracy Check



Click " Yes" button, if passing the test of X and Y-axis gap.

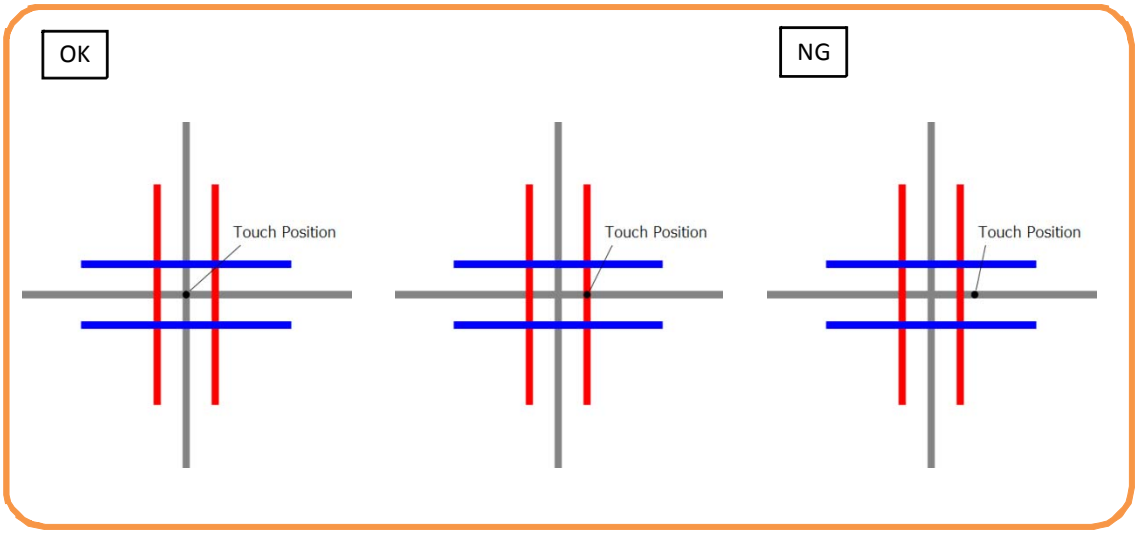
-> go to Drawing Check

Click "No" button, if failing the test of X or Y-axis gap.

-> go to Calibration Touch Position

Click "Cancel" button, to quit TC Adjustment.

[OK and NG Example (When in X gap check)]



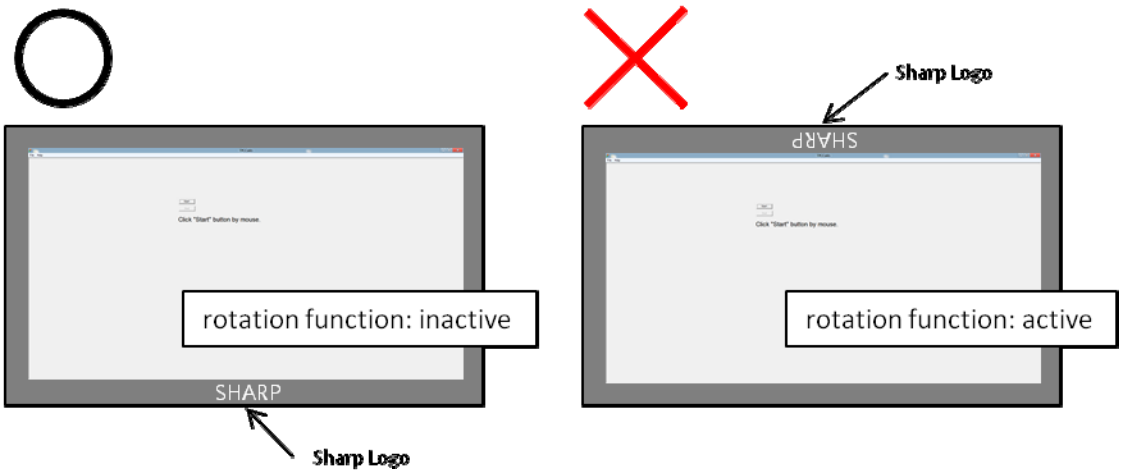
11.5.6. Calibration Touch Position

Limitation:

- Windows cannot recognize touch event during calibration. So, during calibration, use another pointing device such as mouse.
- A keyboard is required, to press ESC key in calibration.

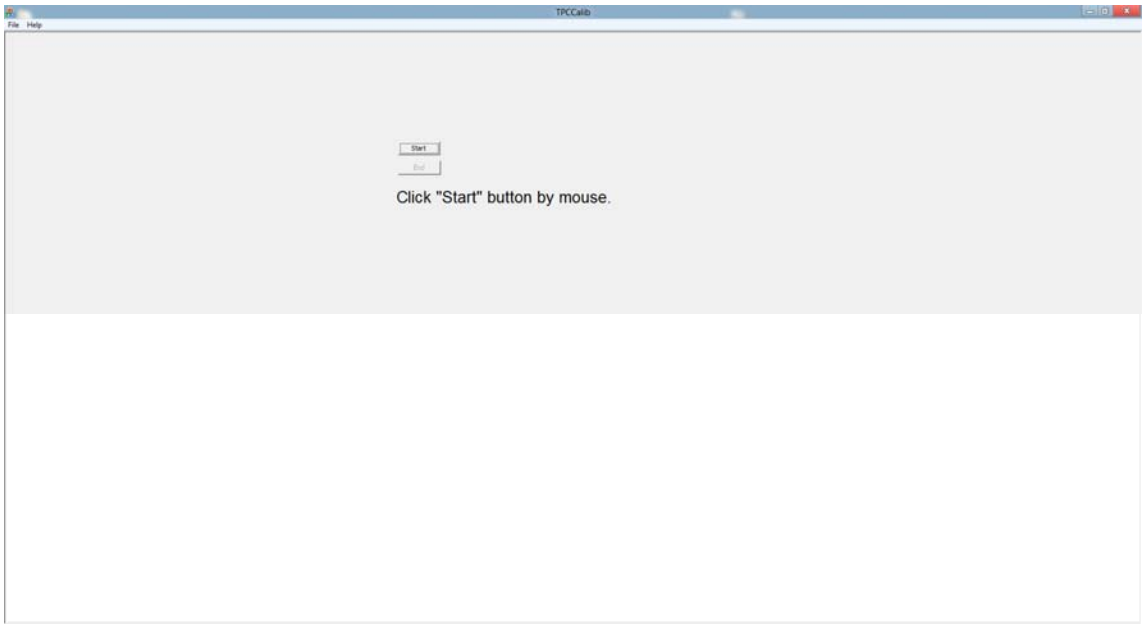
[PROCEDURE]

(1) Before starting calibration, check rotation function is not active.

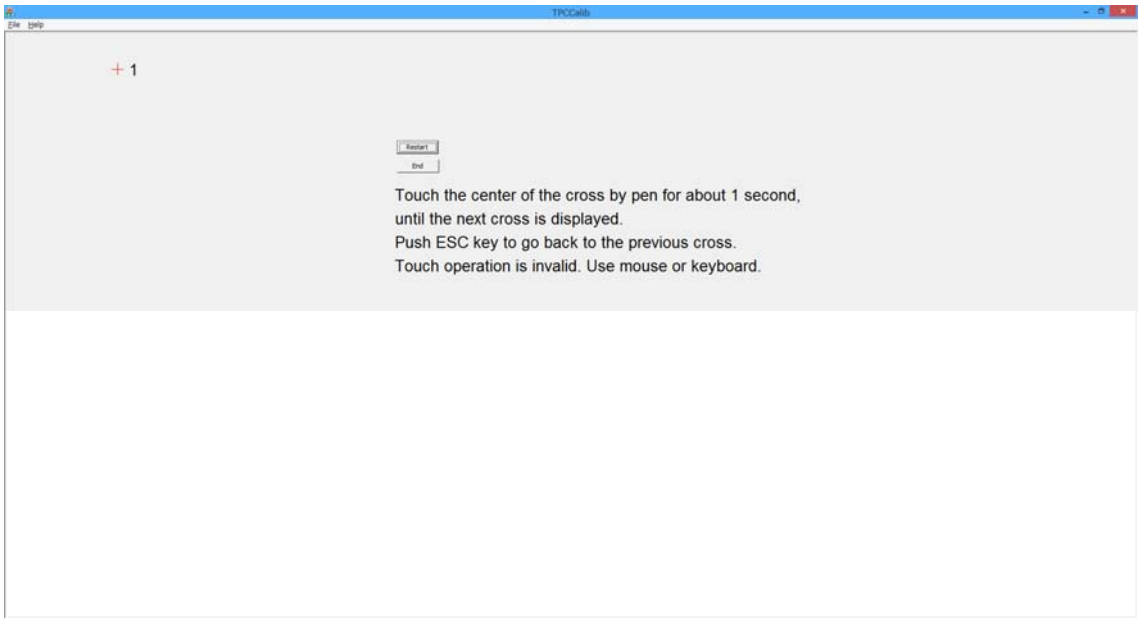


(2) Start Calibration Touch Position Tool

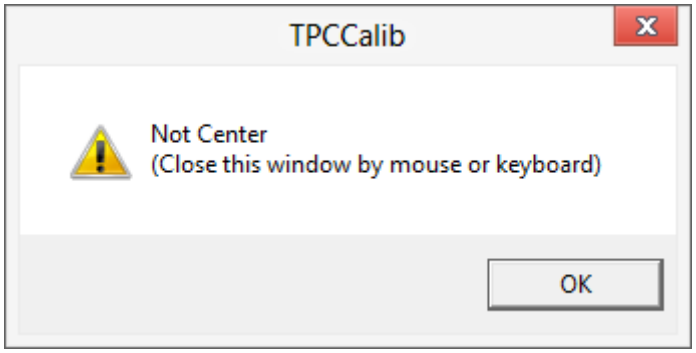
Click "OK" button on the soft for serviceman to start the calibration tool.



(3) Click “Start” button to start calibration. A red cross is displayed at the upper-left corner of screen.



(4) Touch the center of red cross on screen by pen for about 1 second, then the color of red cross is changed from red to green and next red cross is displayed. Nine red crosses are displayed in all. Push ESC key with keyboard to go back to the previous cross.
If the center of cross is not touched properly and the color of cross is not changed and error message is displayed, close message window by mouse or keyboard, and try again.



Even if the center of cross is not touched properly but the color of cross is changed red to green, push ESC key to try again.

(5) Repeat Step (4) from 1 to 9, and calibration parameter will be written automatically.

(6) Confirm the message “write OK” and click “End” button.

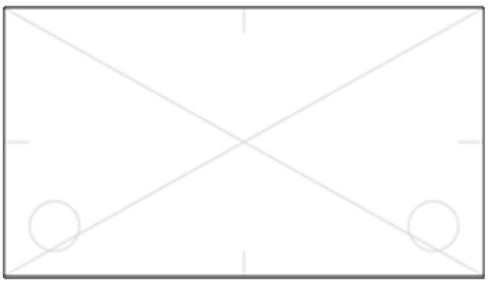
-> go to Check Pen Touch Accuracy

11.5.7. Drawing Check

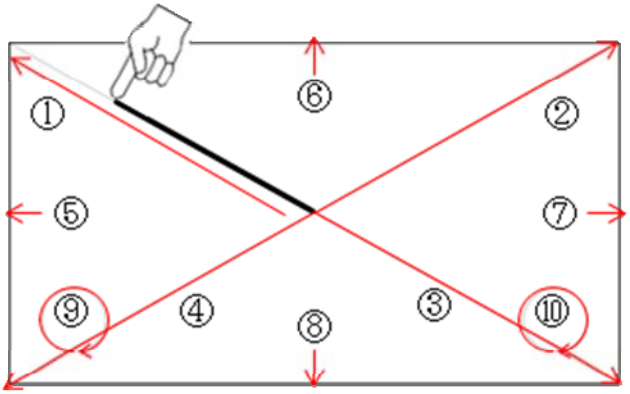
[PROCEDURE]

(1) Start drawing check tool

Templete is shown on the screen.



template

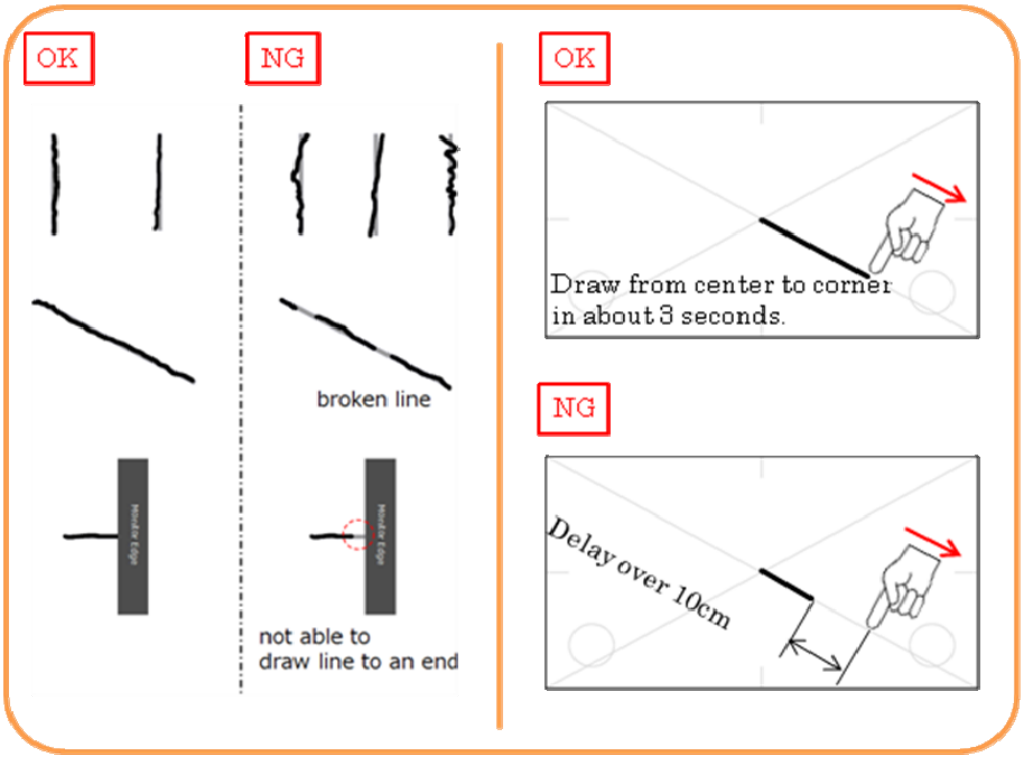


(2)Trace template and draw lines. (in order from 1 to 10)

- Draw lines with a finger. (not pen)
- Draw lines to each end of 4 corners and 4 sides.
- Check the following item.
  - There is no abnormal wobble and winding of line.
  - There is no abnormal broken line.
  - It is possible to draw smooth lines on template lines.
  - It is possible to draw lines to ends at four sides.
  - There is no abnormal delay in drawing lines.

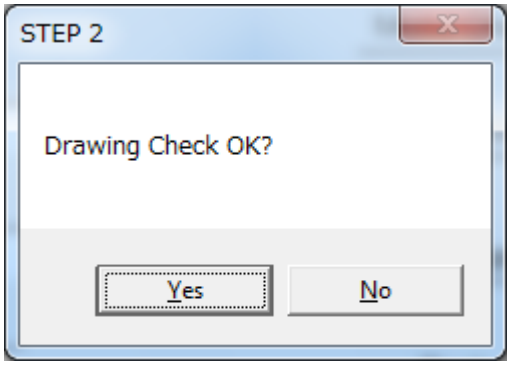
※To clear all drawn lines, press "C" key.

[OK and NG Example]

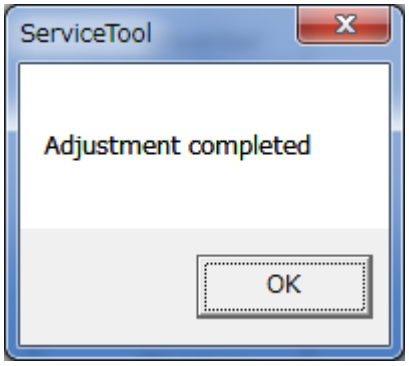


(3)Press "ESC" key to end the tool.

(4) Click the “Yes” button if passing Drawing Check.

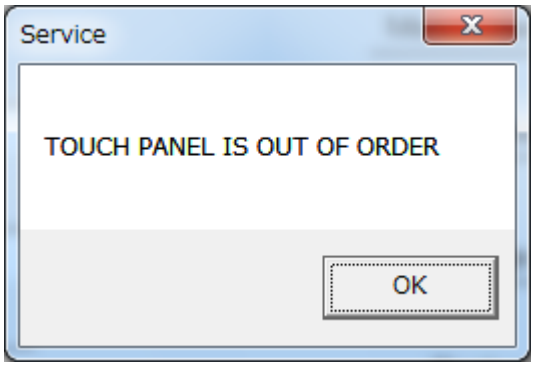


(5) Click the “OK” button to finish.



(6) Click the “No” button if failing Drawing Check.

The following message box is appeared. In this case, the touch panel is out of order. And it is needed to replace it by new one. Click the “OK” button to finish.



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