4.3.3.4 Initial Setup

Precaution

⚠WARNING	
🛇	Never turn the power off until initial setting is finished. System data may be destroyed and a trouble may occur.
🛇	Never disconnect the USB flash drive until initial setting is finished. If you remove the USB flash drive while initial setting is ongoing, system data may be destroyed and a trouble may occur.
❗	Before removing the USB flash drive, check for its access lamp and make sure that it is not being accessed. If you remove the USB flash drive when it is accessed, data may be destroyed and a trouble may occur.

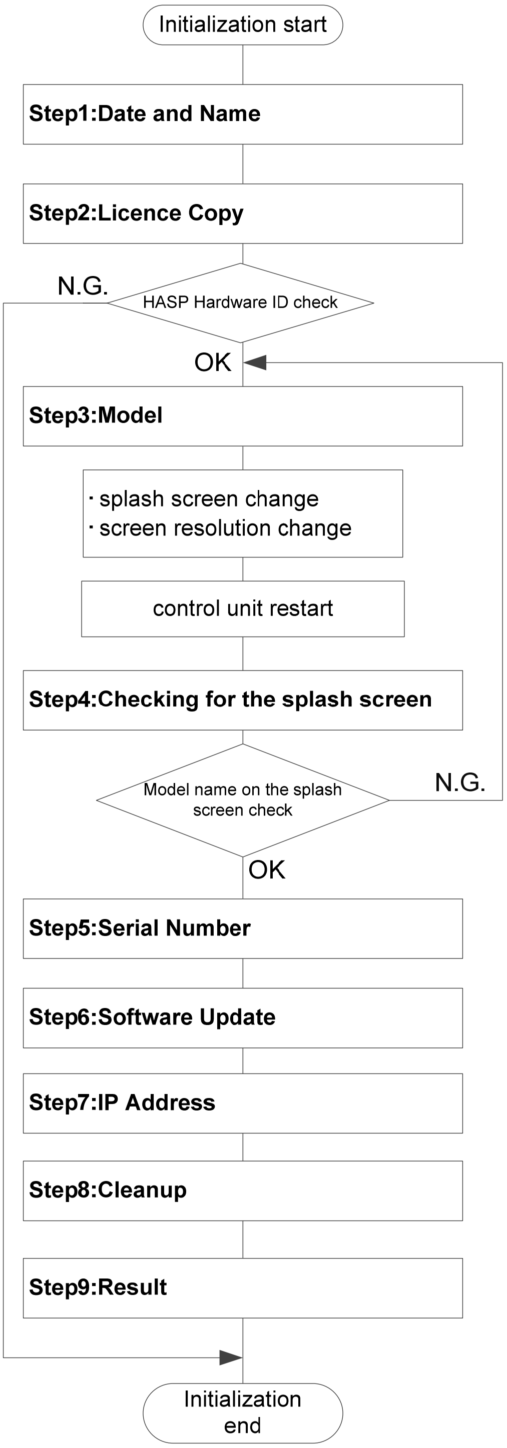
After you have done a replacement of a CCU or CCU Repair Kit, be sure to configure it properly by using "Initial setting tool" along the following steps.

In the initial setting, items below will be set up.

Step 1. Set up the date, name of the operator.
Step 2. Copy the Lisence file.
Step 3. Set up the model name.
Step 4. Checking for the splash screen
Step 5. Set up the serial number
Step 6. Software update
Step 7. Set up an IP address

The flowchart of the Initial setting tool.

The flowchart of the Initial setting tool is shown below.


Initialization start
Step1:Date and Name
Step2:Licence Copy
N.G.
HASP Hardware ID check
OK
Step3:Model
・splash screen change
・screen resolution change
control unit restart
Step4:Checking for the splash screen
Model name on the splash screen check
N.G.
OK
Step5:Serial Number
Step6:Software Update
Step7:IP Address
Step8:Cleanup
Step9:Result
Initialization end

Launch the Initial setting tool

A USB flash drive which has the Initial setting tool and the Lisence file is required for this work

Table　Required Tools

No	Name	Appearance example
1	A USB flash drive which contains the Initial setting tool and the Lisence file *1	

*1　Do not use Flash drives which are password protected or encrypted.

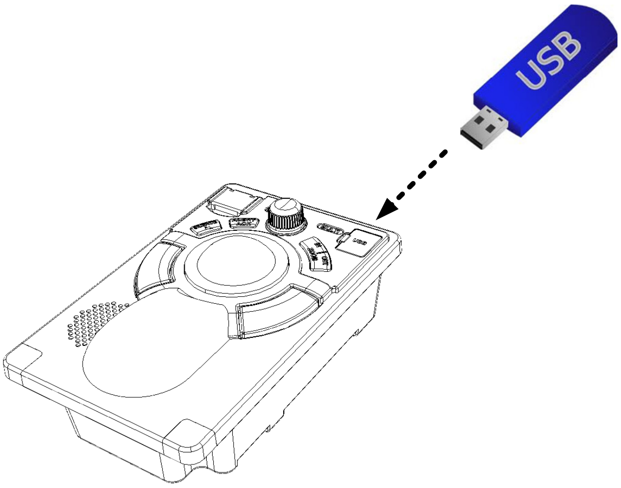
⚠ Before conducting work, always be sure that all of cables, connectors, are connected securely.

⚠ Since “The Initial Setting Tool” is an auto-run application, be sure that connect your USB flash drive before turning on the power.

⚠ For the details that how to obtain “The Initial Setting Tool”, please contact our head office or a nearby branch or local office beforehand.

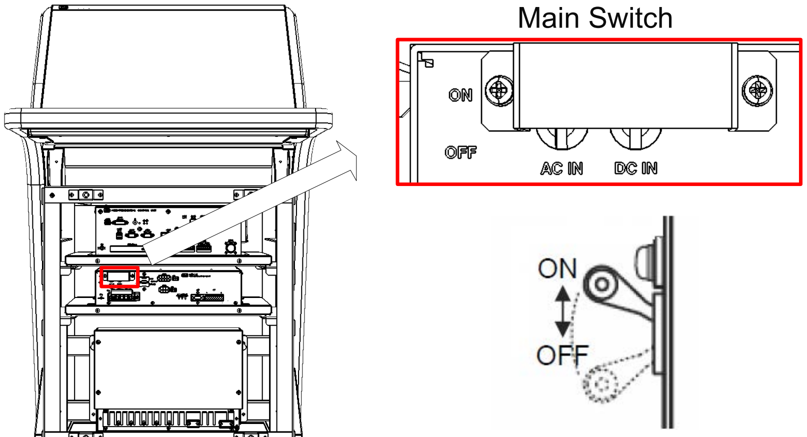
1:　Connect your USB flash drive

Before you turn on the power of the Display Unit, connect your USB flash drive which contains the Initial setting tool and the Lisence file.



2: Start up the Display Unit

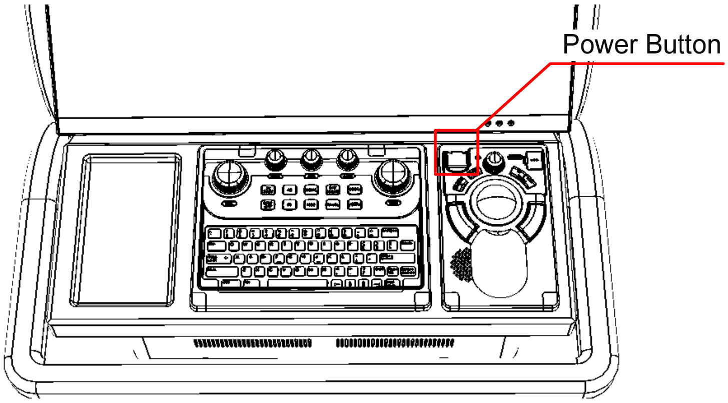
Switch on both AC and DC circuit breakers at the PSU.



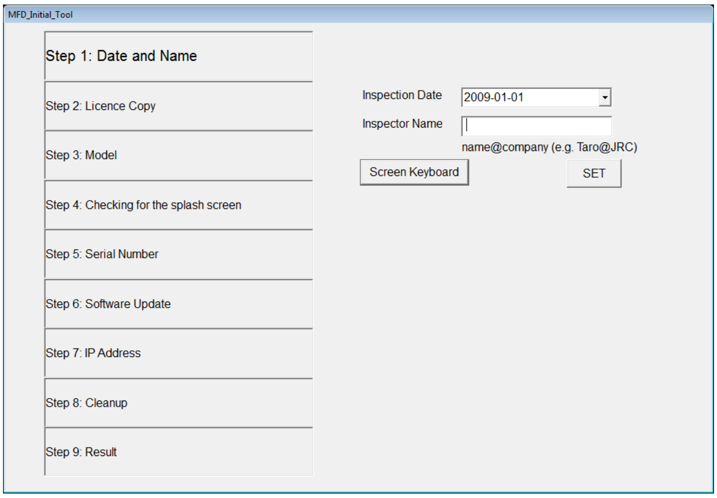
Turn on the main switch.

The system is turned on automatically only after the first time turning on the main switch. And after a few seconds, the system of the power is down and up automatically. This is a normal behavior. Go on to next step.

When the system will not boot up, check the ship's main and the main switch of PSU and press the power button on the trackball operation unit.



After splash screen appears, the Initial setting tool will launch automatically.


MFD_Initial_Tool
Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result
Inspection Date
2009-01-01
Inspector Name
name@company (e.g. Taro@JRC)
Screen Keyboard
SET

3: The Initial setting tool

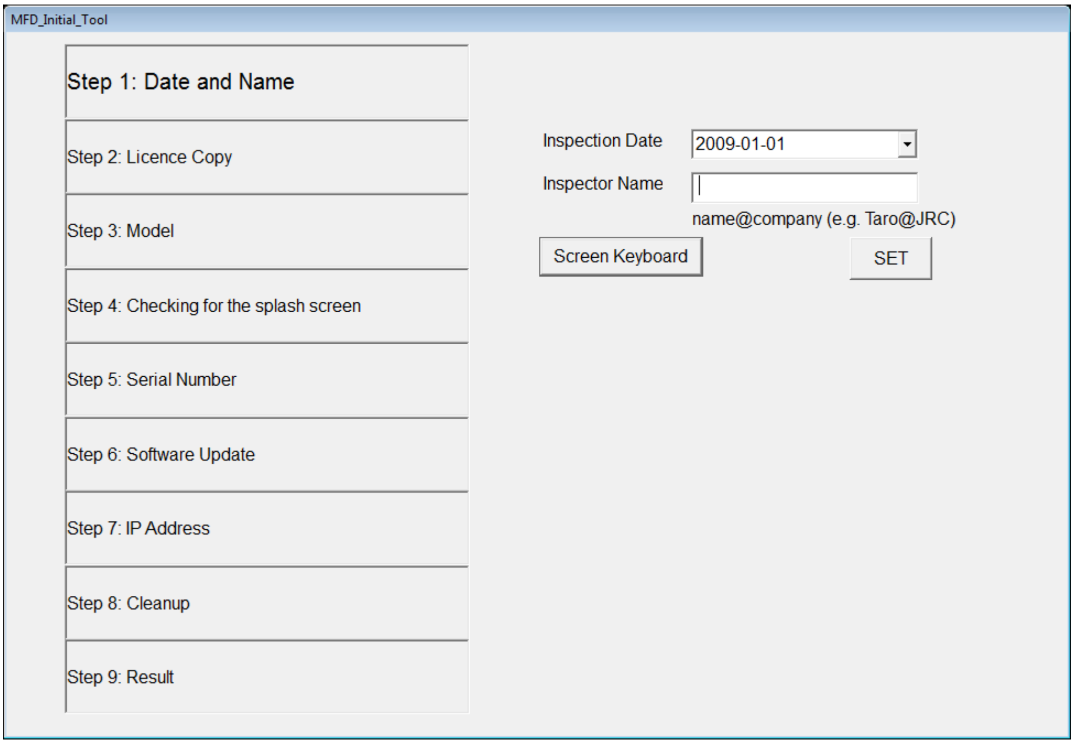
Along the Initial setting tool, setup the Dispay Unit.

Step 1: Date and Name

Enter the Inspection date, inspector name. And then click [SET] button.

FORMAT : name@company

EXAMPLE : Taro@JRC


MFD_Initial_Tool
Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result
Inspection Date
2009-01-01
Inspector Name
name@company (e.g. Taro@JRC)
Screen Keyboard
SET

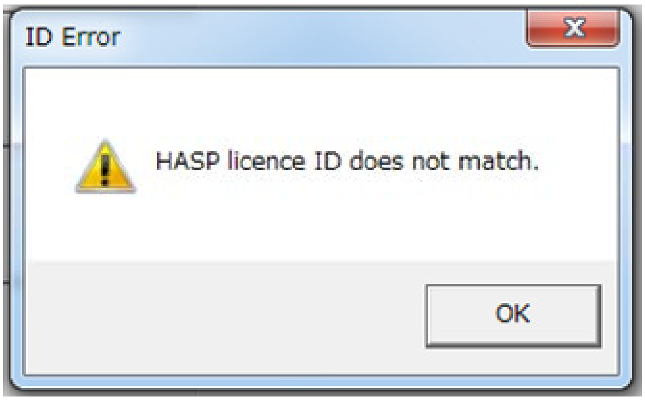
Step 2: Licence Copy

The Hardware ID of HASP is compared with the Hardware ID in the licence file.

If they match, the licence file is copied over.

HASP: Hardware Against Software Piracy (included in NDC-1590 Central Control Unit)

If they mismatch, following dialog is displayed.



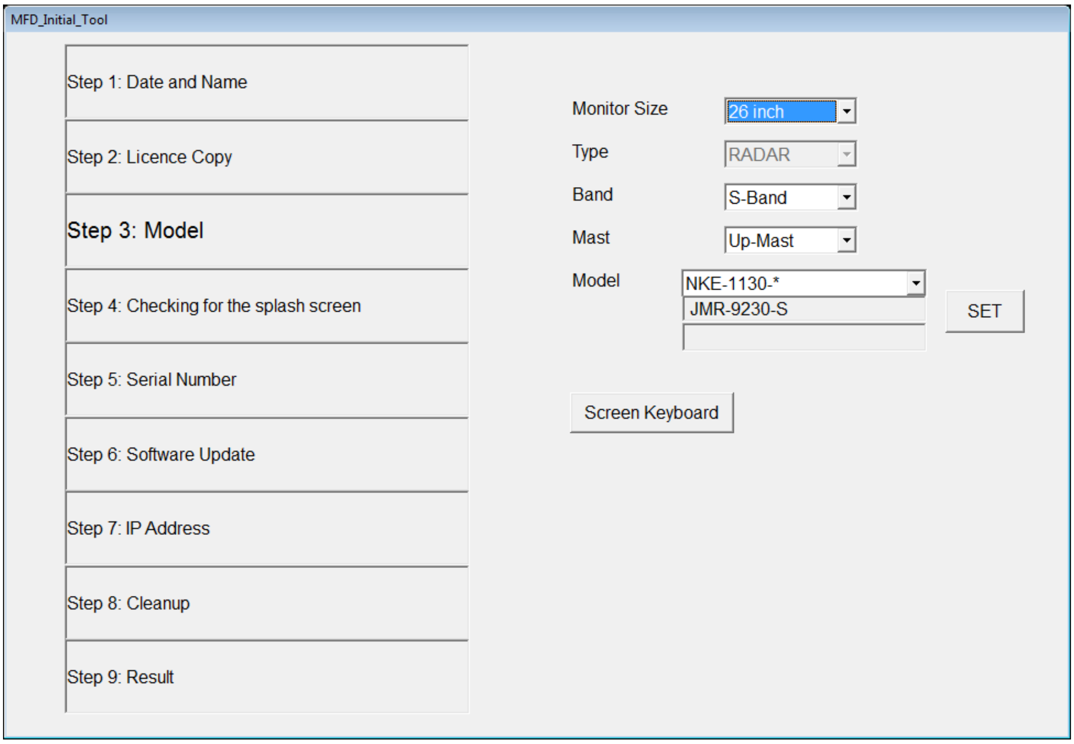
ID Error

HASP licence ID does not match.

Step 3: Model

Enter the monitor size, model name.

By referring to the descriptions on the Ship Lists, select corresponding item from the drop-down list. Choose a corresponding model name to the general model name label which is affixed on the Display Unit. And then click [SET] button.



Monitor Size: 26 inch

Type: RADAR

Band: S-Band

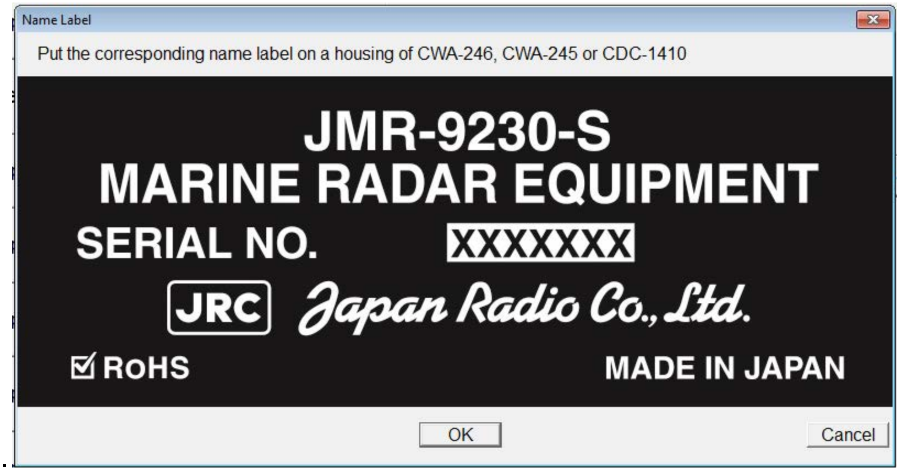
Mast: Up-Mast

Model: NKE-1130-*

JMR-9230-S

MFD_Initial_Tool
Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result
SET
Screen Keyboard

After clicking the [SET] button, the following image will be displayed


Name Label

Put the corresponding name label on a housing of CWA-246, CWA-245 or CDC-1410

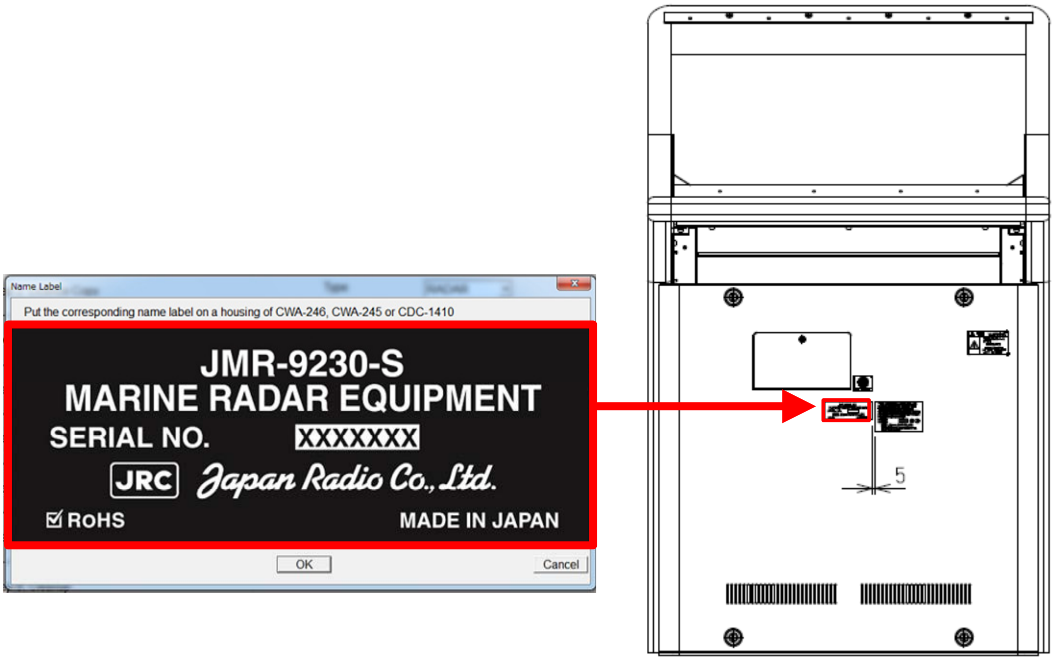
JMR-9230-S
MARINE RADAR EQUIPMENT
SERIAL NO. XXXXXXX
JRC Japan Radio Co., Ltd.
☑ RoHS MADE IN JAPAN

OK
Cancel

Confirm that the image and the label are the same.

a) Stand alone type

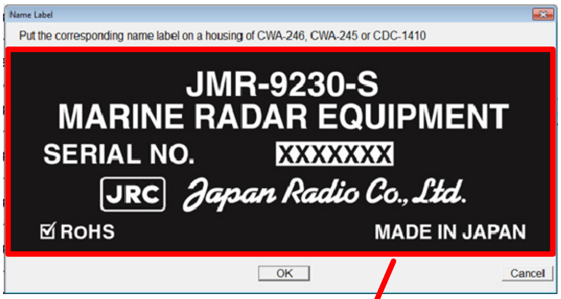
The Name label has been affixed to the front cover of the Display Unit mount kit.


Name Label
Put the corresponding name label on a housing of CWA-246, CWA-245 or CDC-1410
JMR-9230-S
MARINE RADAR EQUIPMENT
SERIAL NO. XXXXXXX
JRC Japan Radio Co., Ltd.
☑ RoHS
MADE IN JAPAN
OK
Cancel
5

Example：JMR-9230-S label on the Display Unit mount kit

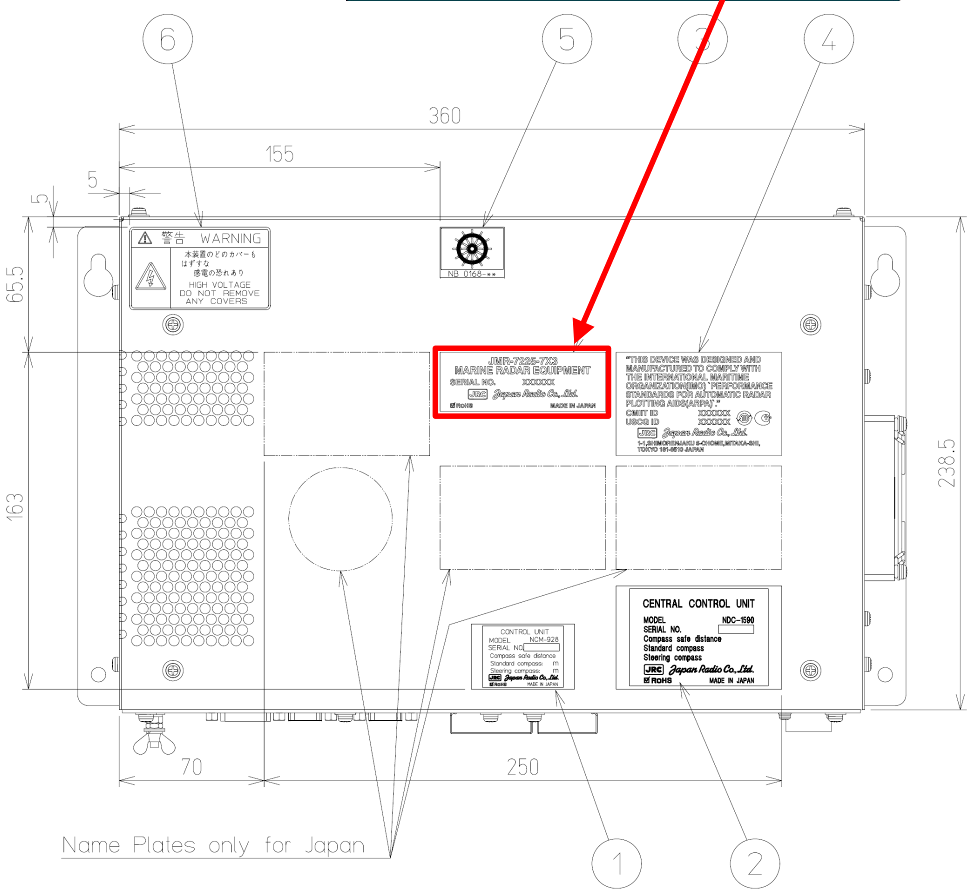
b) Desktop type or flush mount type

The Name label has been affixed to the top side of NDC-1590 :CCU.


Name Label
OK
Cancel

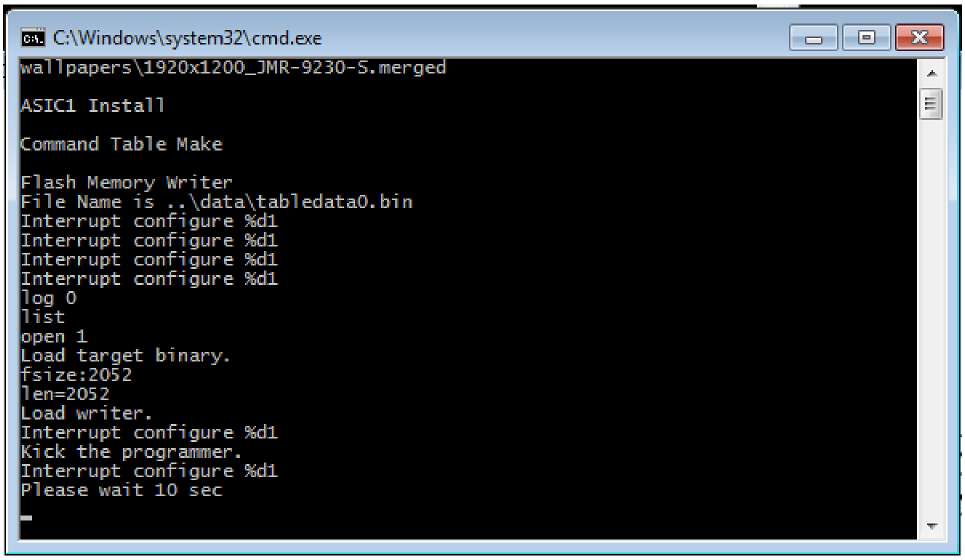
Put the corresponding name label on a housing of CWA-246, CWA-245 or CDC-1410

JMR-9230-S
MARINE RADAR EQUIPMENT
SERIAL NO. XXXXXXX
JRC Japan Radio Co., Ltd.
☑ RoHS MADE IN JAPAN


6
5
3
4
360
155
5
5
65.5
163
238.5
警告 WARNING
本装置のどのカバーも
はずすな
感電の恐れあり
HIGH VOLTAGE
DO NOT REMOVE
ANY COVERS
NB 0168-**
JMR-7225-7X3
MARINE RADAR EQUIPMENT
SERIAL NO. XXXXXX
CENTRAL CONTROL UNIT
MODEL NDC-1590
SERIAL NO.
Compass safe distance
Standard compass
Steering compass
CONTROL UNIT
MODEL NCM-928
70
250
Name Plates only for Japan
1
2

Example：JMR-9230-S label on NDC-1590: CCU

After confirming that the image corresponds to the label, click [OK] button. The following screen will be displayed and start-up screen will be changed automatically. It will take a few minutes to process. Please press any key because it is a key input required at the end.



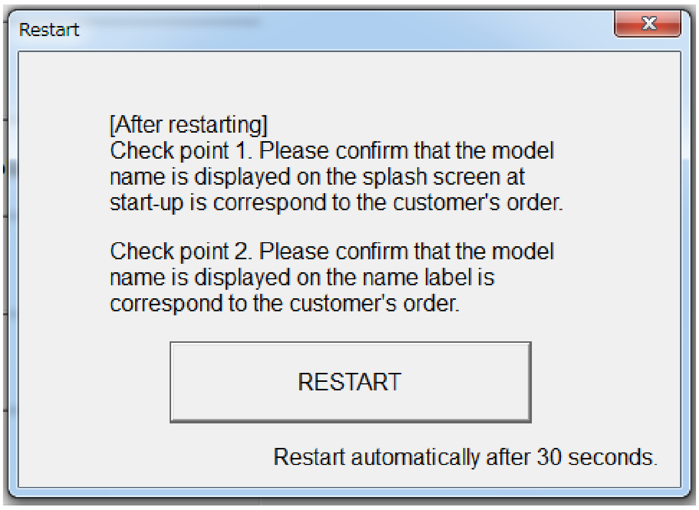
```
wallpapers\1920x1200_JMR-9230-S.merged

ASIC1 Install

Command Table Make

Flash Memory Writer
File Name is ..\data\tabledata0.bin
Interrupt configure %d1
Interrupt configure %d1
Interrupt configure %d1
Interrupt configure %d1
log 0
list
open 1
Load target binary.
fsize:2052
len=2052
Load writer.
Interrupt configure %d1
Kick the programmer.
Interrupt configure %d1
Please wait 10 sec
_
```

Then the following screen is displayed. Make sure that the model name that appears during a restart and model name selected in step 3 matches.



[After restarting]
Check point 1. Please confirm that the model name is displayed on the splash screen at start-up is correspond to the customer's order.

Check point 2. Please confirm that the model name is displayed on the name label is correspond to the customer's order.

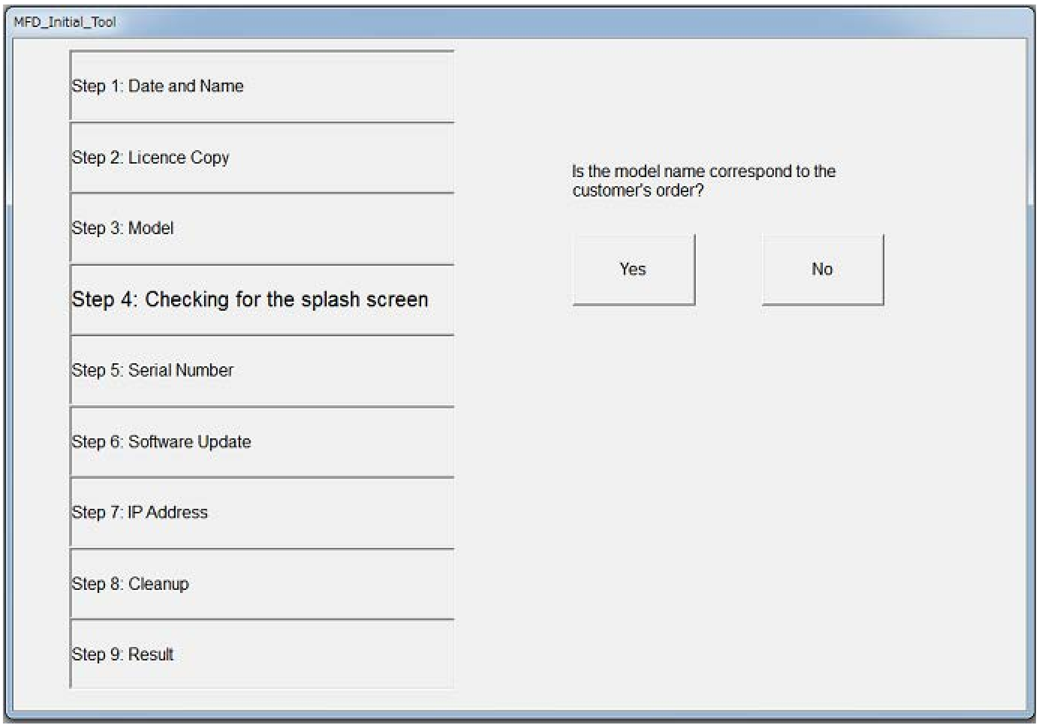
Restart automatically after 30 seconds.

Restart by clicking the [RESTART] button. Or restart automatically after 30 seconds.

Step 4: Checking for the splash screen

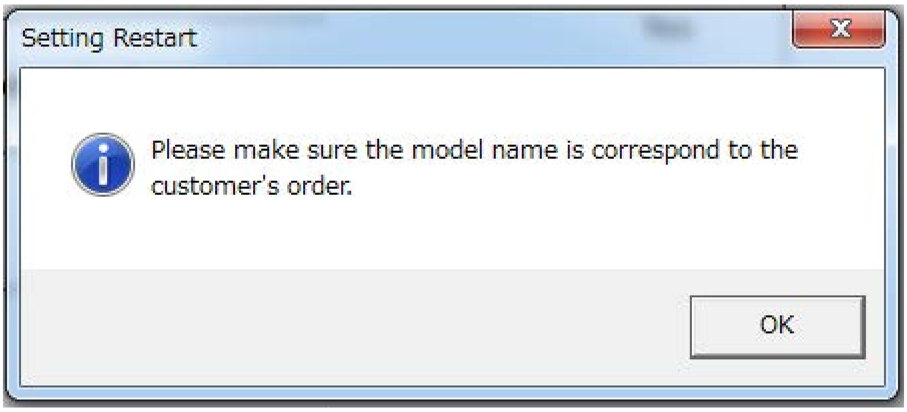
Confirm that the Model name displayed on the splash screen and the Name Label pasted in step 3 are match.

- Matched: Click [YES] button and proceed to the next step.


MFD_Initial_Tool
Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result
Yes
No

Is the model name correspond to the customer's order?

- Mismatched: Click [NO] button. Initialization tool will return to the screen of step3. Please check the equipment information again.

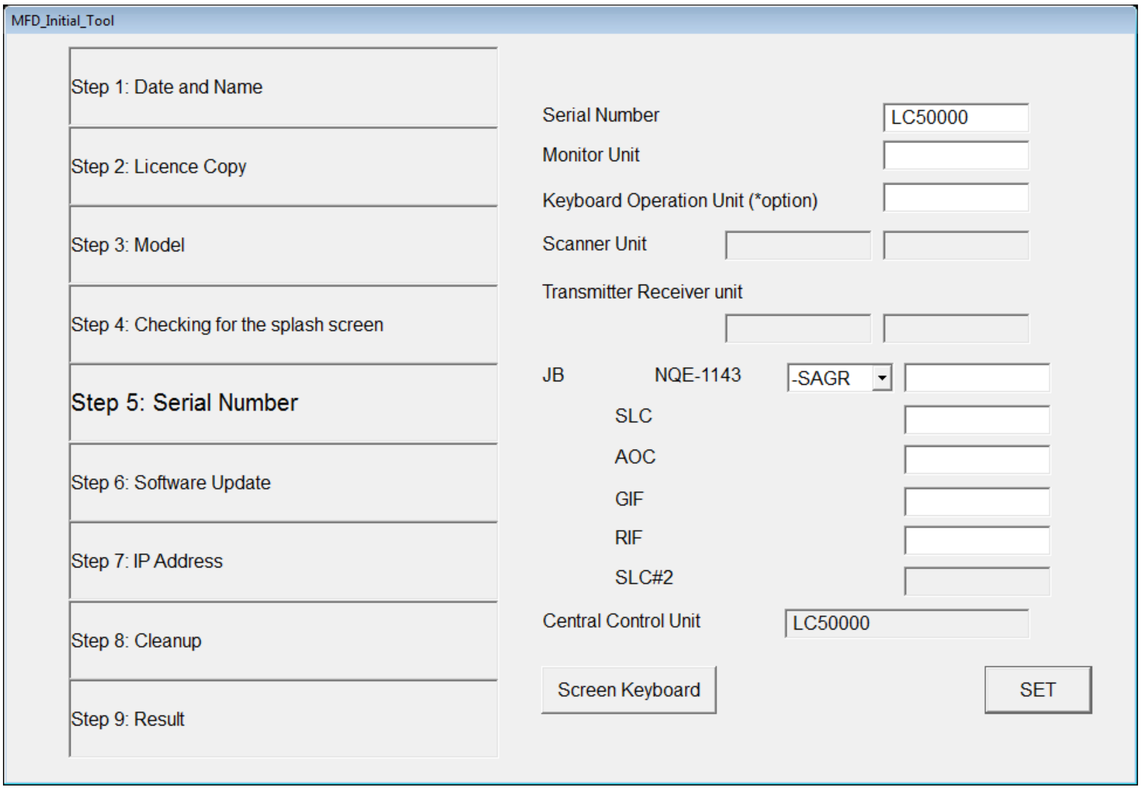

Setting Restart
OK

Please make sure the model name is correspond to the customer's order.

Step 5: Serial Number

Enter the serial number of each unit. And then click the [SET] button.

- Please make sure that the serial number which you now entered corresponds the number which is written in the Ship’s List.
- When setting the desktop type or flush mount type, may not enter the serial number of the monitor.
-When input the JB (Junction box) serial number , enter the barcode number and suffix of JB.
- May not enter the serial number of SLC, AOC, GIF, RIF, SLC#2.


MFD_Initial_Tool

Serial Number: LC50000

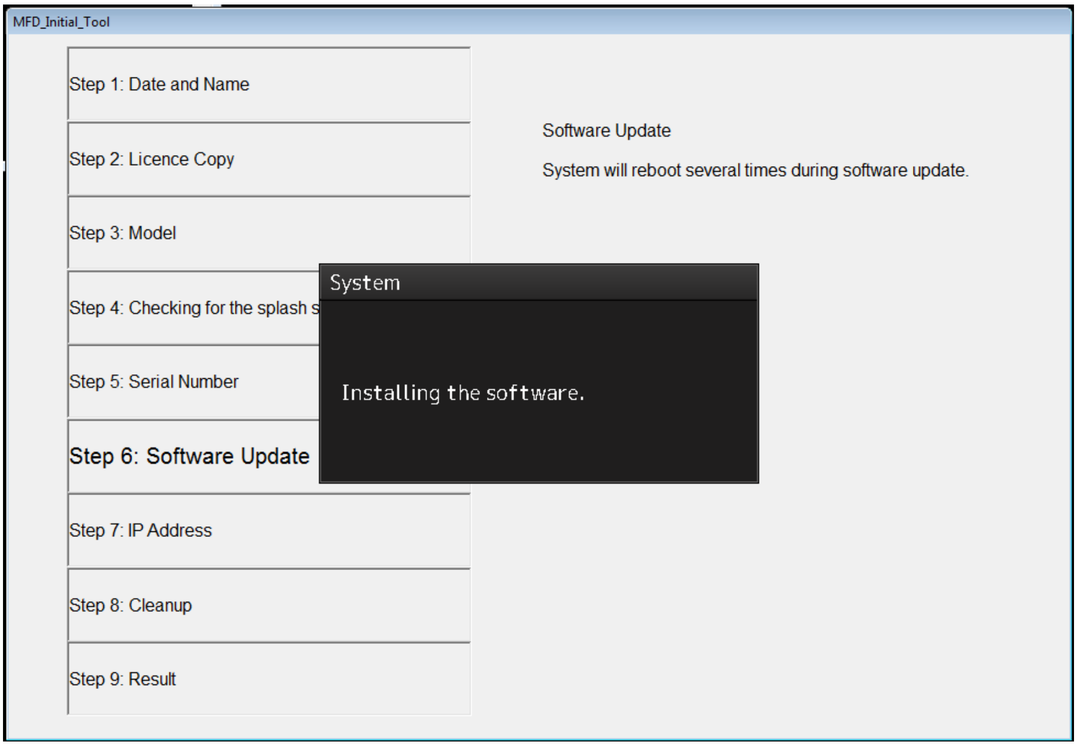
JB: NQE-1143 -SAGR

Central Control Unit: LC50000

Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result
Monitor Unit
Keyboard Operation Unit (*option)
Scanner Unit
Transmitter Receiver unit
SLC
AOC
GIF
RIF
SLC#2
Screen Keyboard
SET

Step 6: Software Update

Software Update takes several minutes. Furthermore, The Display Unit will restart several times during the software update. This is normal behavior.



MFD_Initial_Tool

Software Update

System will reboot several times during software update.

System

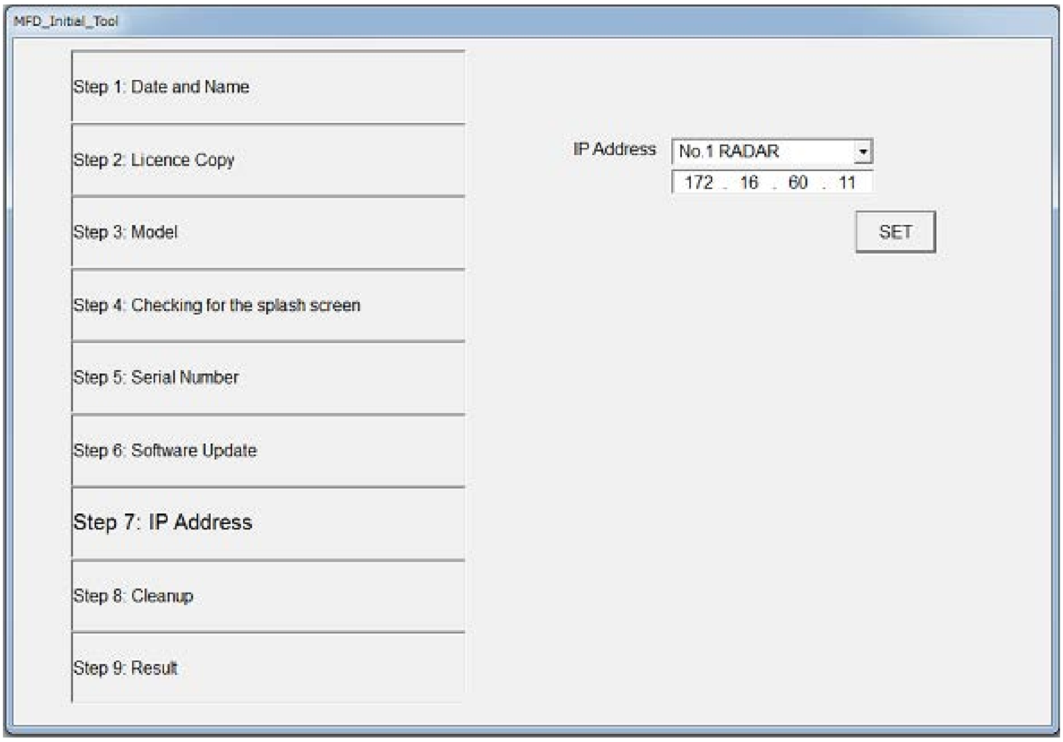
Installing the software.

Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash s
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result

# Software Update will be skipped if the software version which has been installed already is the latest.

Step 7: IP Address

By referring the Ship's List, enter the IP address. Then click the [SET] button.



MFD_Initial_Tool
Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result
SET

IP Address No.1 RADAR

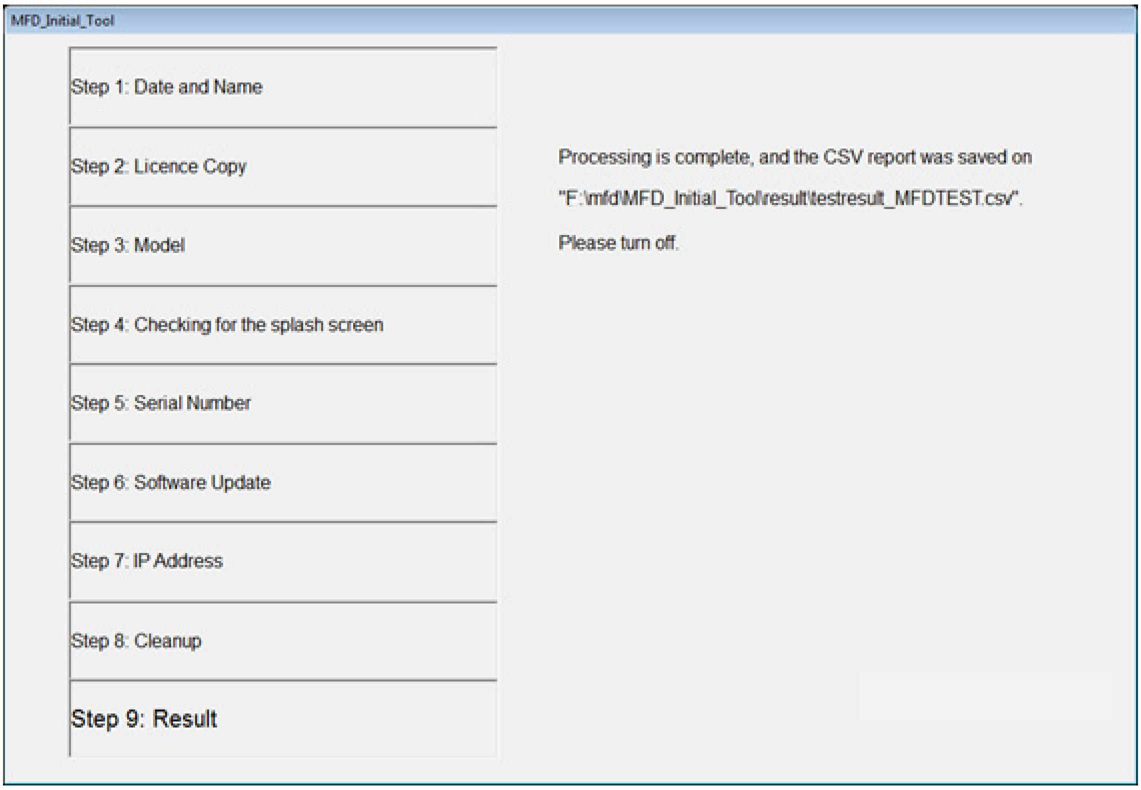
172 . 16 . 60 . 11

Step 8: Cleanup

The tool deletes unnecessary files automatically.

Step 9: Result

Click [FINISH] button. The resulting CSV file will be output.



MFD_Initial_Tool
Step 1: Date and Name
Step 2: Licence Copy
Step 3: Model
Step 4: Checking for the splash screen
Step 5: Serial Number
Step 6: Software Update
Step 7: IP Address
Step 8: Cleanup
Step 9: Result

Processing is complete, and the CSV report was saved on

"F:\mfd\MFD_Initial_Tool\result\testresult_MFDTEST.csv".

Please turn off.

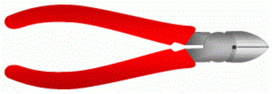
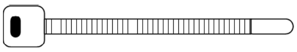
This concludes the initial setting.

4.3.3.5 Replacing the DVD Drive: CDD-754

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Diagonal pliers	—	
4	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

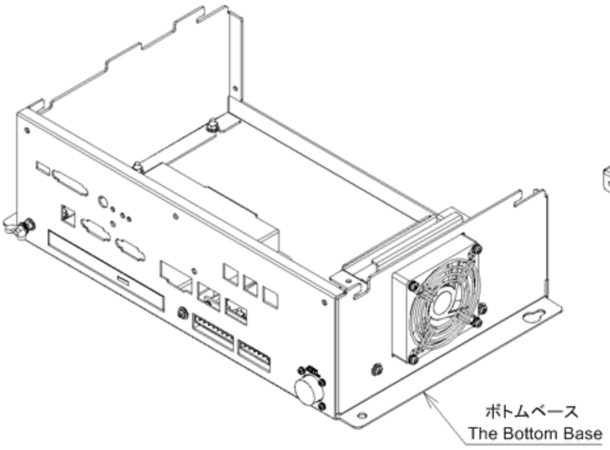
⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

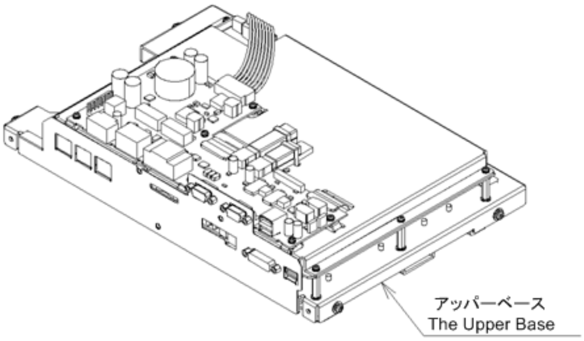
Step 1 Remove the CCU.

Remove the CCU from the display unit mount kit. For more information about the removal procedure, refer to "Replacing with the CCU Repair Kit: NZC-1590."

Step 2　Remove the CCU cover and pull out the upper base.

Remove the CCU cover and pull out the upper base. For more information about how to remove the cover and how to take out the upper base, refer to "Replacing with the CCU Repair Kit: NZC-1590."

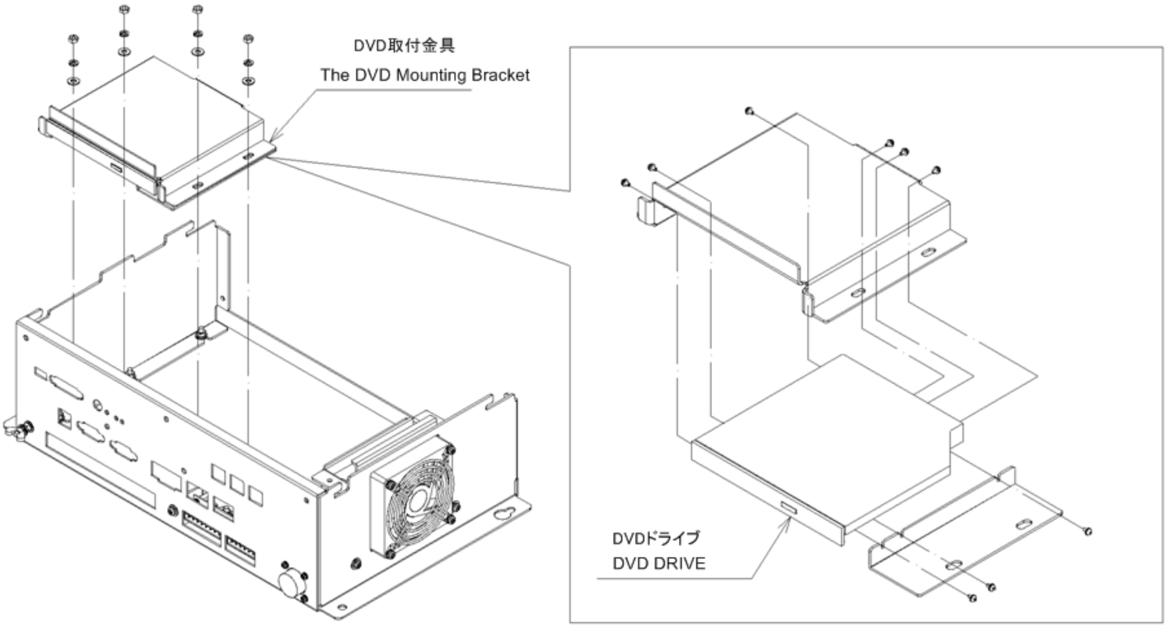

ボトムベース
The Bottom Base


アッパーベース
The Upper Base

Step 3　Change the DVD Drive.

Remove the mounting brackets of the DVD drive and change the DVD drive.

After replacing the DVD drive, assemble to the original condition by repeating the same procedure in the reverse order. For more information about the cable installation destinations, refer to "Replacing with the CCU Repair Kit: NZC-1590."


DVD取付金具
The DVD Mounting Bracket
DVDドライブ
DVD DRIVE

Step 4 Check operation.

After DVD drive replacement is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) Turn ON the display unit and start the Display Unit application. Insert DVD-ROM into the DVD drive and check that there is no problem in reading the DVD-ROM.

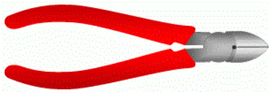
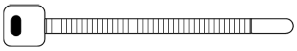
This completes DVD drive replacement.

4.3.3.6 Replacing with the CCU Replacement FAN Kit: 7ZYNA4006

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Diagonal pliers	—	
4	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

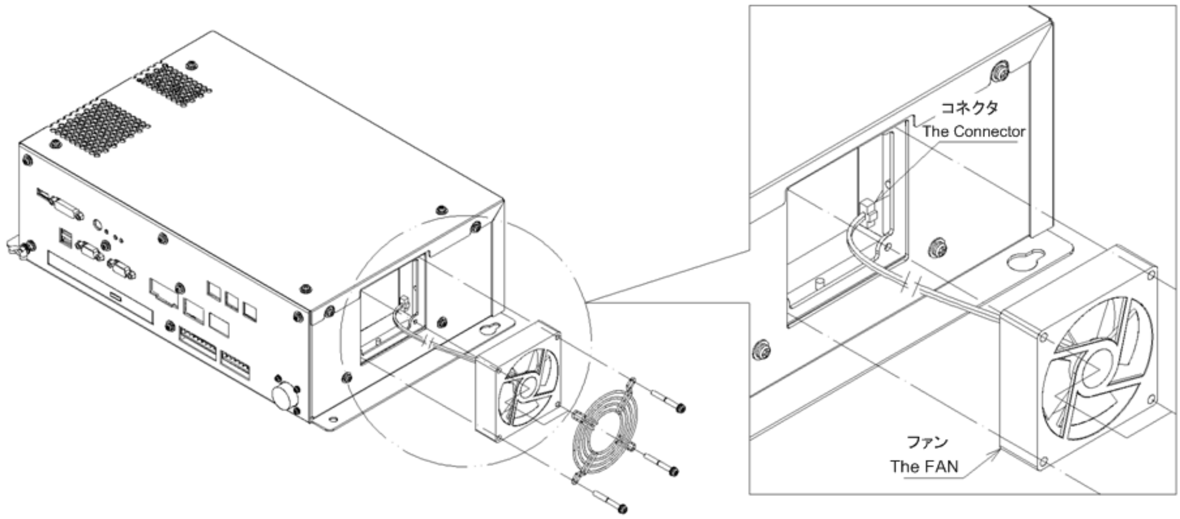
⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Remove the CCU.

Remove the CCU from the display unit mount kit. For more information about the removal procedure, refer to "Replacing with the CCU Repair Kit: NZC-1590."

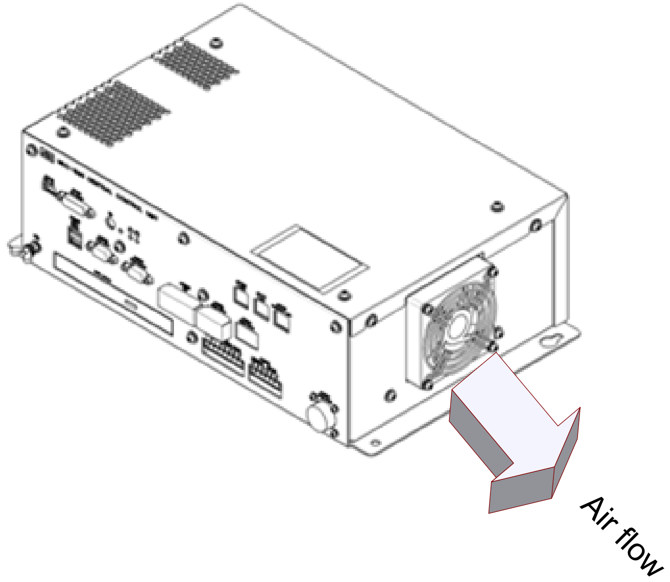
Step 2 Change the fan.

Remove the screws (M4: 4 locations) that fasten the fan. Pull out the fan and disconnect the connector.

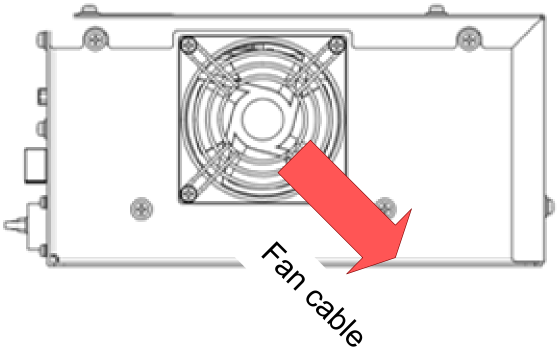

コネクタ
The Connector
ファン
The FAN

⚠ Be careful with the fan mounting direction.

Install the fan so that the air flows to the exhaust direction.



Install a new fan in such a way that the fan cable comes out from the lower right when viewed from the front.



⚠ Have enough clearance to prevent the cables from being caught in the blades of the fan.

After fan replacement is completed, reinstall the CCU into the display unit mount kit by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.

Step 3 Check operation.

After fan replacement is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) Turn ON the display unit and start the MFD application. Check that there is no problem in its operation and processing.

(2) Check that the fan alarm "CCU (Fan)" does not occur.

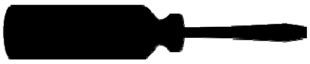
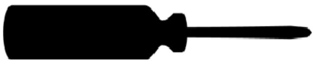
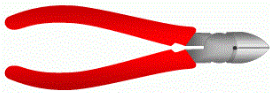
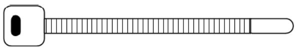
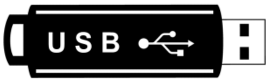
This completes fan replacement.

4.3.3.7 Replacing HASP CYC-344

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Diagonal pliers	—	
4	Cable-tie *1	—	
5	USB flash drive *2	1 GB or more	

*1 A number of cable-ties may be required.

*2 Do not use Flash drives which are password protected or encrypted.

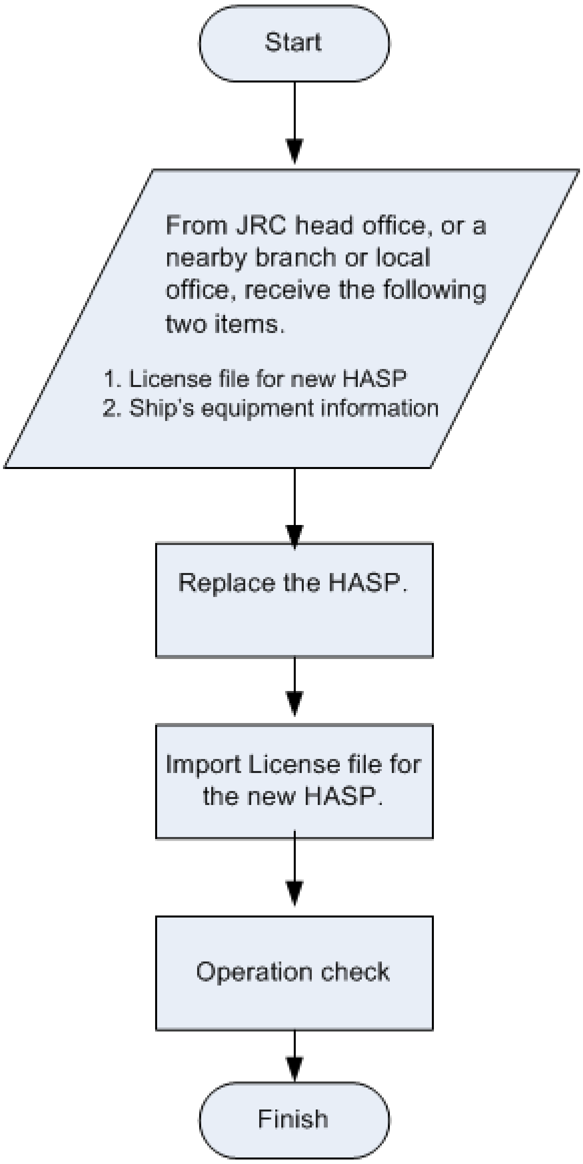
⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

⚠ For the details that how to obtain the data files for HASP replacement, please contact our head office or a nearby branch or local office beforehand.

[The flowchart of HASP replacement work]


Start
From JRC head office, or a nearby branch or local office, receive the following two items.
1. License file for new HASP
2. Ship's equipment information
Replace the HASP.
Import License file for the new HASP.
Operation check
Finish

Step 1 From nearby JRC sales department, receive the data files for HASP replacement.

From JRC head office, or a nearby branch or local office, receive the following four items for HASP replacement.

1. Licence file for new HASP
2. Ship's equipment information

These data files must be saved into your USB flash drive, and brought to the ship at the replacement work.

⚠ For the details that how to obtain those data files for HASP replacement, please contact our head office or a nearby branch or local office beforehand.

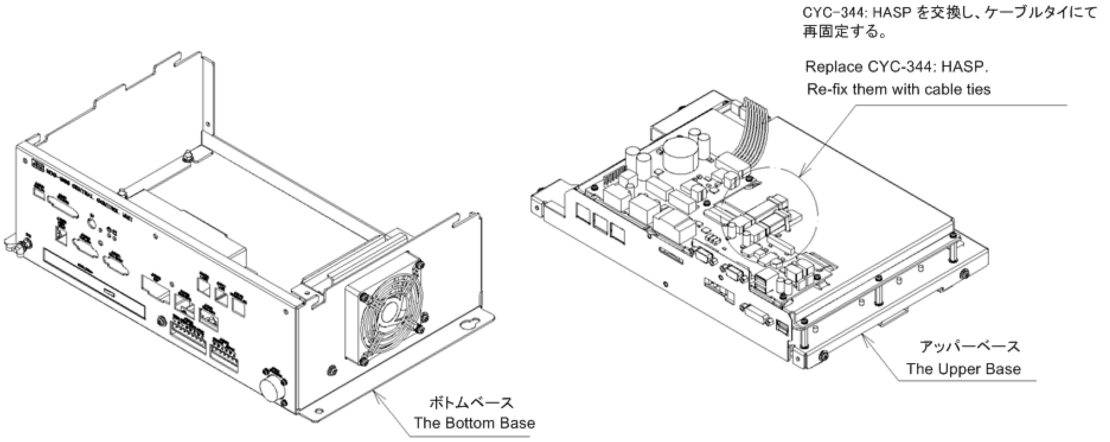
⚠ The USB flash drives which are password protected or encrypted are not available in this work.

Step 2 Detach the CCU

Detach the CCU from Display Unit Mount kit. For further information, see **"Field Service Manual 4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590".**

Step 3 Remove the upper base of CCU.

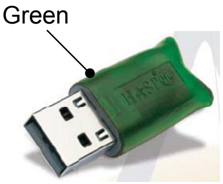
Remove the upper base of CCU. For further information, **"Field Service Manual 4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590".**


CYC-344: HASP を交換し、ケーブルタイにて再固定する。
Replace CYC-344: HASP.
Re-fix them with cable ties
アッパーベース
The Upper Base
ボトムベース
The Bottom Base

Step 4 Replace the HASP.

Disconnect and replace the HASP being connected to the upper base of the NDC-1590.

The color of HASP is green.



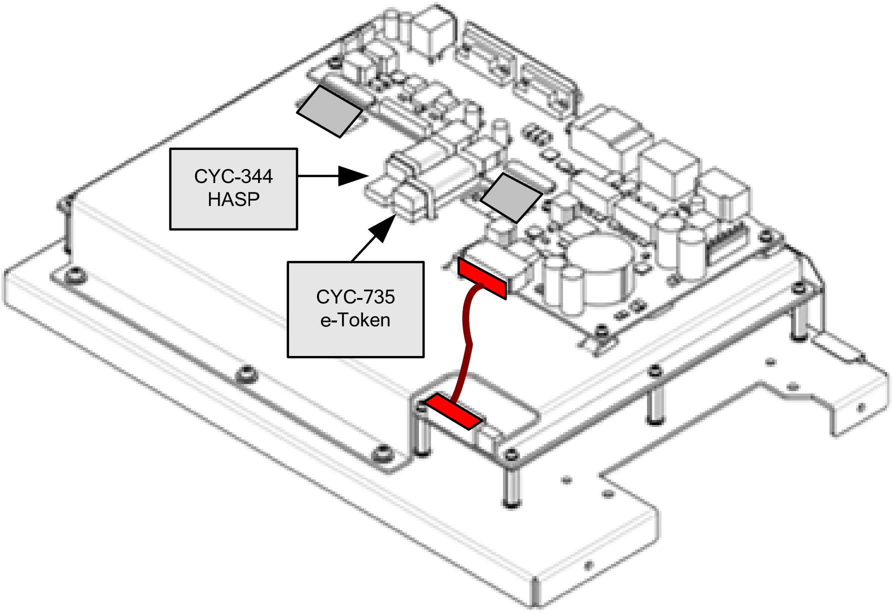
CYC-344 HASP

⚠ Be careful not to mistake HASP for e-Token. The color of the e-Token is blue with a JEPPESEN company tag.

⚠ The appearance of HASP and e-Token may change without notice.

Since the HASP has been fixed by cable-ties, cut them before disconnecting it.

After replacement is completed, fasten the new HASP again with cable-ties.



⚠ Insert the HASP securely all the way to the roots. When fastening it, be sure to fasten securely so that there is no looseness.

When the replacement of the HASP is completed, assemble the CCU by repeating the same procedure in the reverse order. For further information, see **"Field Service Manual 4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590".**

After assembling the CCU is completed, reinstall it into the display unit mount kit by repeating the same procedure in the reverse order.

⚠ Be careful not to forget to insert the cable connectors.

Step 5 Check that Display unit is booting up correctly.

Turn ON the circuit breaker for the power supply of the display unit to start up the Display unit. Check that the Display unit boots up correctly.

Step 6 Import the new Licence file

Connect your USB flash drive which contains the new License file into the Display Unit.

Enter the password 9380 on the task menu to import the new Licence file. For further information, see **“Field Service Manual 7.5.4.6 9380 – Launch the Licence Import Tool”.**

Step 7 Re-install the electronic charts for ECDIS / CHART RADAR.

If the License file imported to the Display Unit has either:

- ECDIS licence
- RADAR with Chart optional licence, or
- MFD which has ECDIS licence,

re-install the ENC electronic charts and S-63 Cell Permit by reffering the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- Additional Manual for Chart Installation 2.1 Importing ENC S-57/S-63 Charts, AVCS Charts and AIO Data

⚠ When you replace a HASP, ENC charts that have been using on the Display Unit will become unavailable because of the User Permit / Cell Permit change.

Step 8 Check operation.

After licence file re-importing is completed, check the operation as follows.

(1) Start the MFD application. Check that there is no problem in its operation and processing.

(2) Conduct the operational inspection as described in **"Field Service Manual 7.2 Operational Inspection"**.

(3) Confirm that there is no problem in display of the electronic charts if you re-installed them.

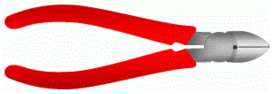
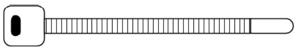
This completes HASP replacement.

4.3.3.8 Replacing e-Token CYC-735

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Diagonal pliers	—	
4	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

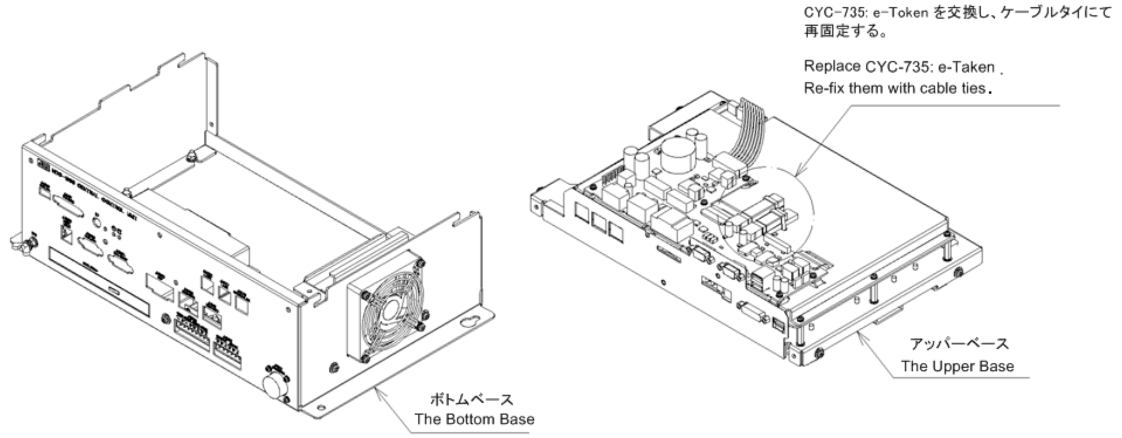
⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Detach the CCU

Detach the CCU from Display Unit Mount kit. For further information, see **“Field Service Manual 4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590”.**

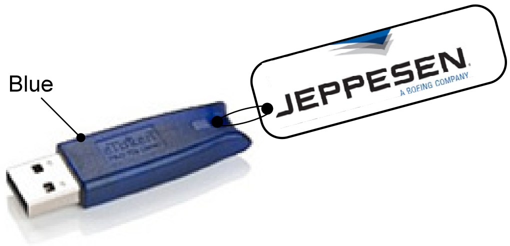
Step 2 Remove the upper base of CCU.

Remove the upper base of CCU. For further information, **“Field Service Manual 4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590”.**


CYC-735: e-Token を交換し、ケーブルタイにて
再固定する。
Replace CYC-735: e-Taken .
Re-fix them with cable ties.
アッパーベース
The Upper Base
ボトムベース
The Bottom Base

Step 3 Replace the e-Token.

Disconnect and replace the e-Token being connected to the upper base of the NDC-1590. The color of the e-Token is blue with a JEPPESEN company tag which is written the System ID.

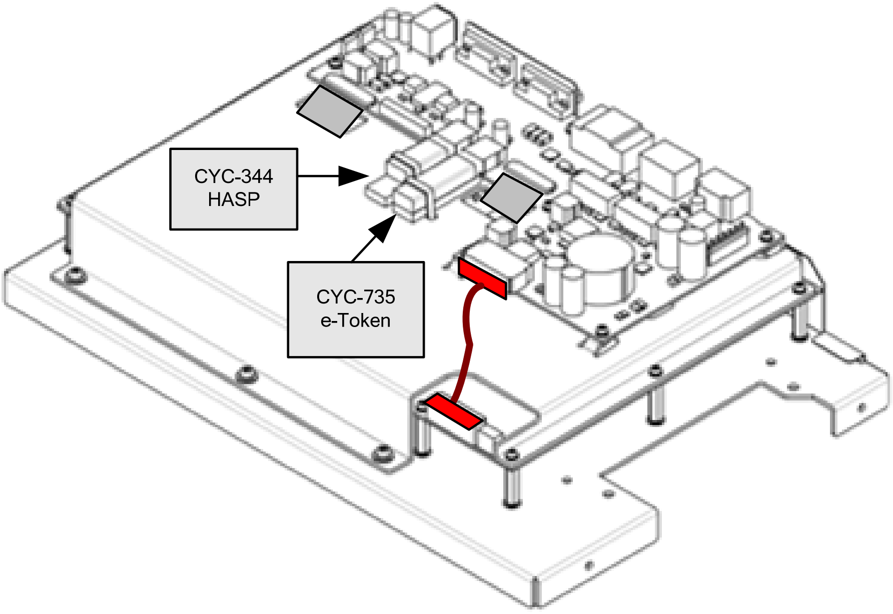

Blue
JEPPESEN
A BOEING COMPANY

CYC-735 e-Token

⚠ Be careful not to mistake e-Token for HASP. The color of HASP is green.

⚠ The appearance of e-Token and HASP may change without notice.

Since the e-Token has been fixed by cable-ties, cut them before disconnecting it. After replacement is completed, fasten the new e-Token again with cable-ties.


CYC-344
HASP
CYC-735
e-Token

⚠ Insert the e-Token securely all the way to the roots. When fastening it, be sure to fasten securely so that there is no looseness.

When the replacement of the e-Token is completed, assemble the CCU by repeating the same procedure in the reverse order. For further information, see **“Field Service Manual 4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590”.**

After assembling the CCU is completed, reinstall it into the display unit mount kit by repeating the same procedure in the reverse order.

⚠ Be careful not to forget to insert the cable connectors.

Step 4 Check that Display unit is booting up correctly.

Turn ON the circuit breaker for the power supply of the display unit to start up the Display unit. Check that the Display unit boots up correctly.

Step 5 Recover the C Drive Image.

In order to apply the new e-Token ID information to OS registry, recover the C Drive Image. Perform system recovery by referring **“Field Service Manual 5.3 Recovering the C Drive Image”.**

Step 6 Re-install C-MAP charts.

Re-install the electronic charts by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- Additional Manual for Chart Installation 4.3 Importing C-MAP Ed.3

⚠ When you replace an e-Token, C-map charts that have been using on the Display Unit will become unavailable.

Step 7 Check operation.

After chart re-importing is completed, check the operation as follows.

(1) Start the MFD application. Check that there is no problem in its operation and processing.

(2) Conduct the operational inspection as described in **"Field Service Manual 7.2 Operational Inspection"**.

(3) Confirm that there are no errors on the electronic chart display.

This completes e-Token replacement.

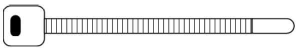
4.3.4 Trackball Operation Unit: TOPU NCE-5605

4.3.4.1 Replacing the TOPU: NCE-5605

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Diagonal pliers	—	
4	Cable-tie *1	—	

*1 A number of cable-ties may be required.

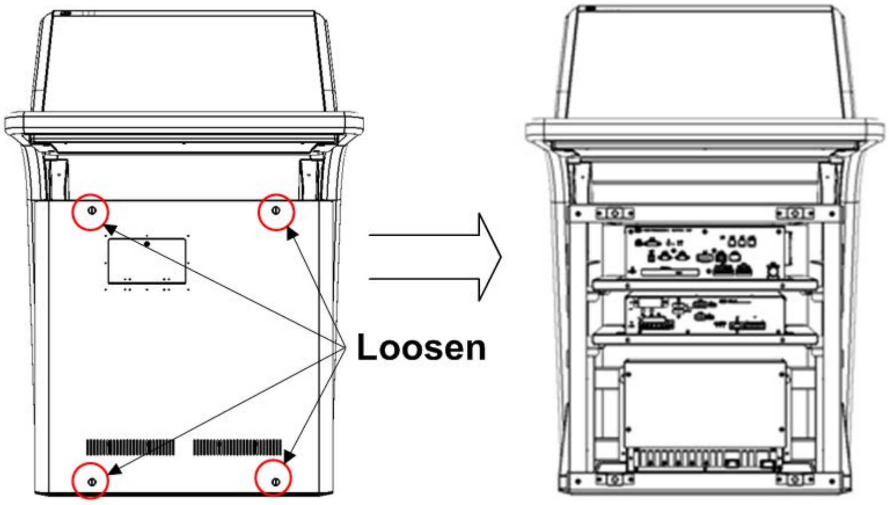
⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Remove the front cover of the display unit mount kit.

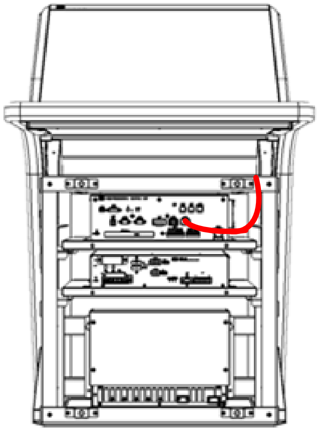
Loosen the screws that fasten the front cover of the display unit mount kit with a flat head screwdriver and then take out the front cover.

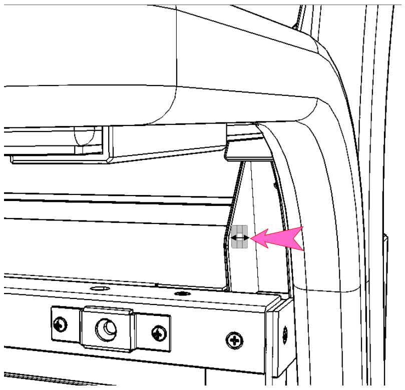


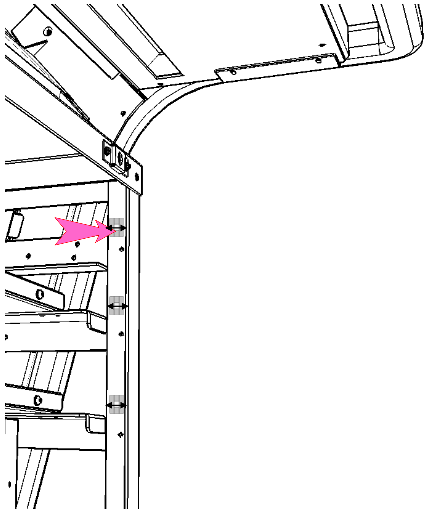
Step 2 Cut off the cable-tie that fastens the TOPU cable.

Cut off the cable-tie that fastens the TOPU cable (W61).

Examples for Stand-alone type are shown below.







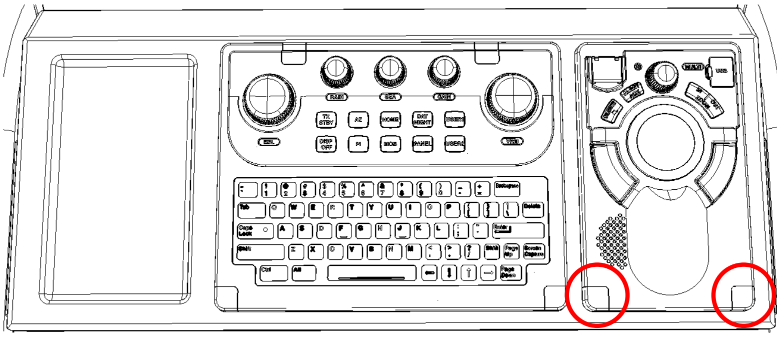
⚠CAUTION

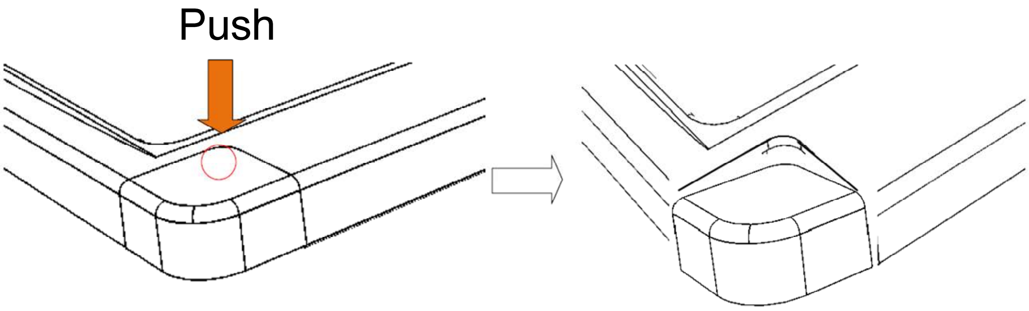
Before conducting Unit replacement work, always be sure that every cable-tie that fastens the cable has been removed.

Replacement work without the above may lead Unit/cable breakage.

Step 3 Remove the screws of the TOPU.

Remove the two screw covers at the bottom right and left of the trackball. The screw covers can come off by pushing them down inward. Remove the screws (M4: 2 locations) inside the screw covers that fasten the TOPU.





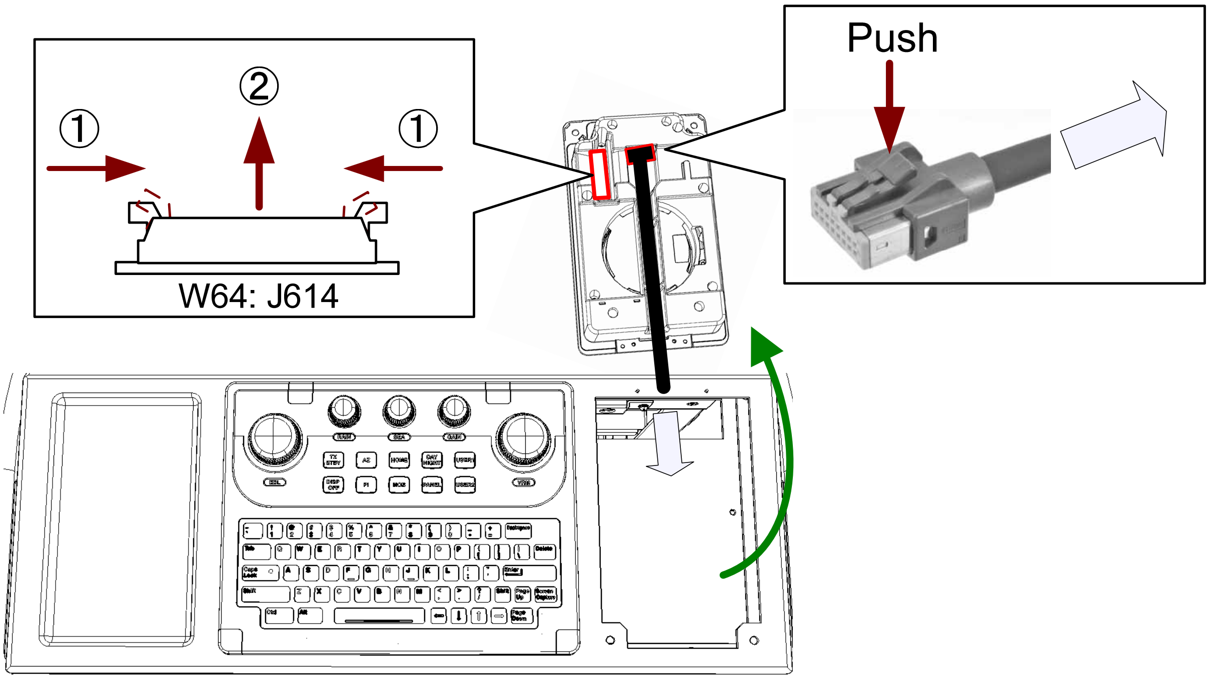
Step 4 Change the TOPU.

Flip over the TOPU and remove the rear cable (W6: J601). J601 can be released by pulling it out while holding down the center tab. It is difficult that pulling out J601 without pressing the tab enough. If it would not be released, reinsert it once and try again.

⚠ If you try to pull out the cable before pressing the center tab, the connector may become difficult to be released. In that case, push the connector itself to insertion direction once, and then pull it out while holding down the center tab again.

If a keyboard operation unit (KOPU) is mounted, also remove the KOPU cable (W64: J614). J614 can be released by pushing the both ends of the connector. Remove the TOPU from the mounting frame and change it.

After replacing the TOPU, assemble to the original condition by repeating the same procedure in the reverse order. Apply new cable-ties to the cables from where cable-ties were cut off. Please make sure to tighten all the screws and connect all the cables back in place.



Step 5 Check operation.

After the replacement of the TOPU is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the TOPU respond normally.
(2) By referring to "7.2.4 Checking Alert Sound [Sound Test]," check the alert sound volume.
(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.
(4) By referring to "7.2.6 Testing the Motor [Motor Test]," check the operation of the motor.

This completes the replacement of the TOPU.

4.3.4.2 Cleaning the Trackball: CCK-1060

[Required Tools]

The tools shown in the following table are required for replacement work.

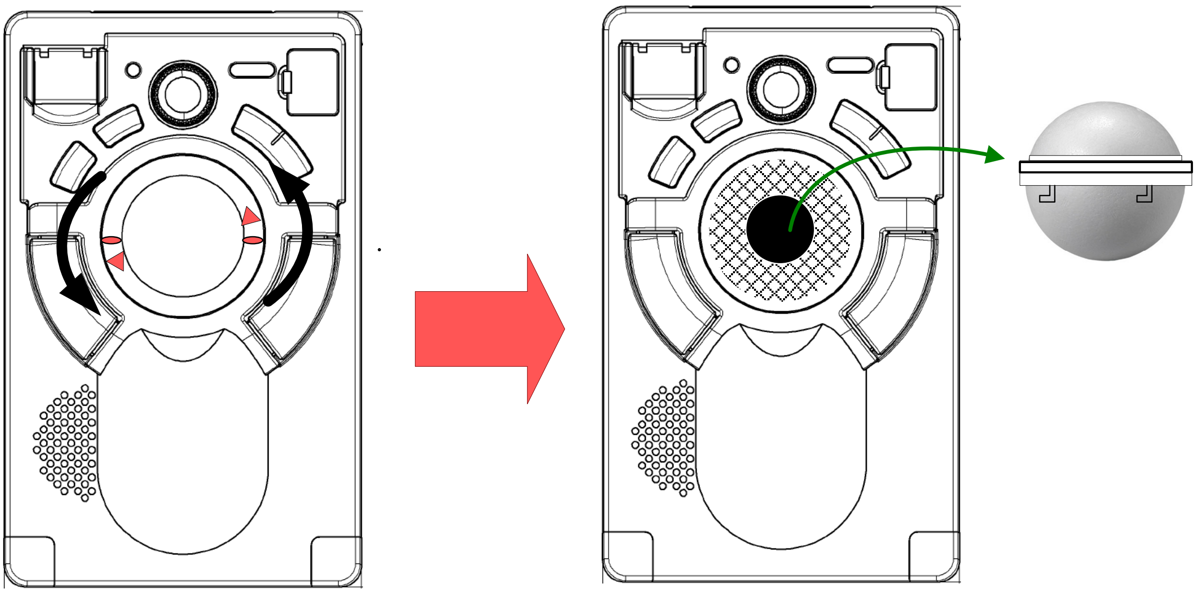
Table Required Tools

No.	Name	Size
1	Soft dry cloth	—

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

Step 1 Remove the ball.

Rotate the stopper in the direction of the triangle marks (counterclockwise) on the periphery of the ball in the TOPU, and release the lock of the ball. Remove the ball together with the stopper on the periphery.



Step 2 Clean the inside.

Clean the ball and the inside of the ball stand with a soft dry cloth. After cleaning them, reinstall the ball assembly by repeating the same procedure in the reverse order. Don't forget to tighten the stopper.

⚠ Never use thinner, alcohol, benzine, alkaline detergents and bleach. Using them will cause malfunction.

Step 3 Check operation.

After trackball cleaning is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) Check that the trackball moves normally.

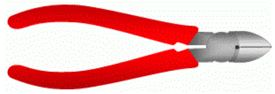
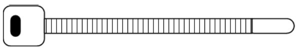
This completes the cleaning of the trackball.

4.3.4.3 Replacing the Trackball: CCK-1060

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Diagonal pliers	—	
3	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Remove the screws of the TOPU and take out.

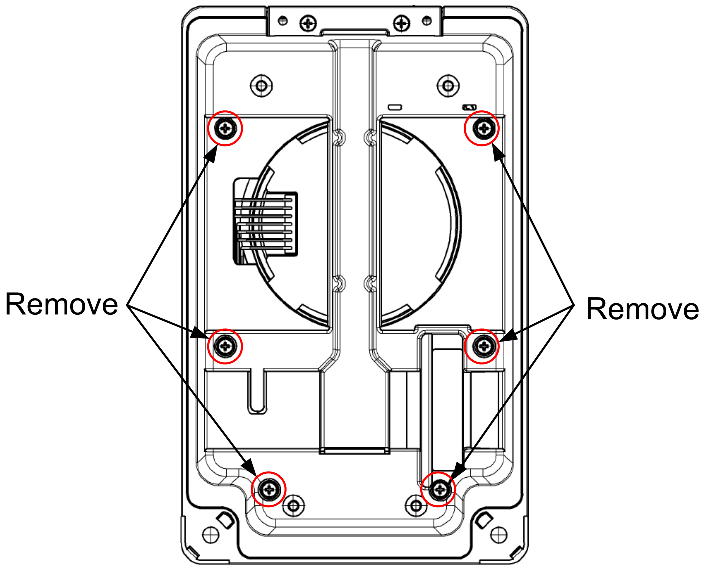
Remove the screws (M4: 2 locations) inside the two screw covers at the bottom right and left of the trackball, and take out the TOPU from the mounting frame. For details, please refer to the "Replacing the TOPU: NCE-5605."

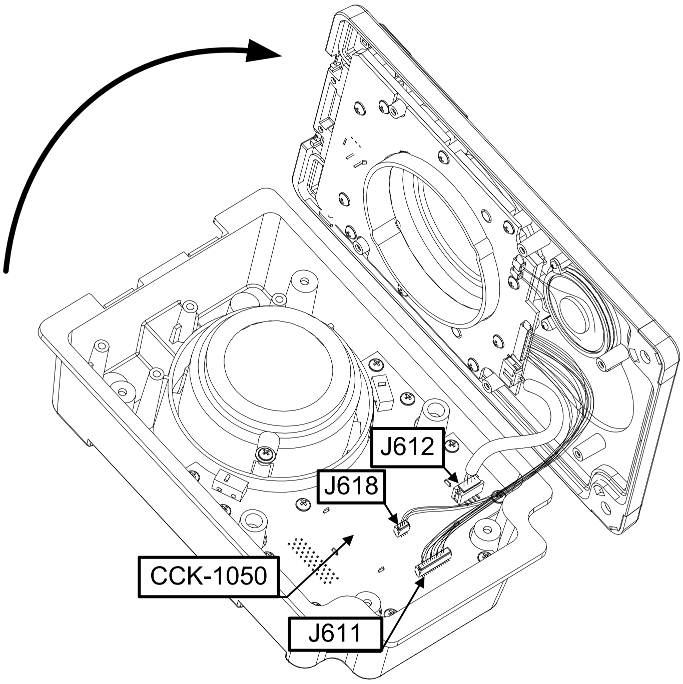
Step 2 Remove the front panel of the TOPU.

Remove the screws (M3: 6 locations) on the rear of the TOPU and take out the front panel. Pull out the three connectors from the operation circuit A (CCK-1050) and then remove the front panel.

W65: J611 and J618

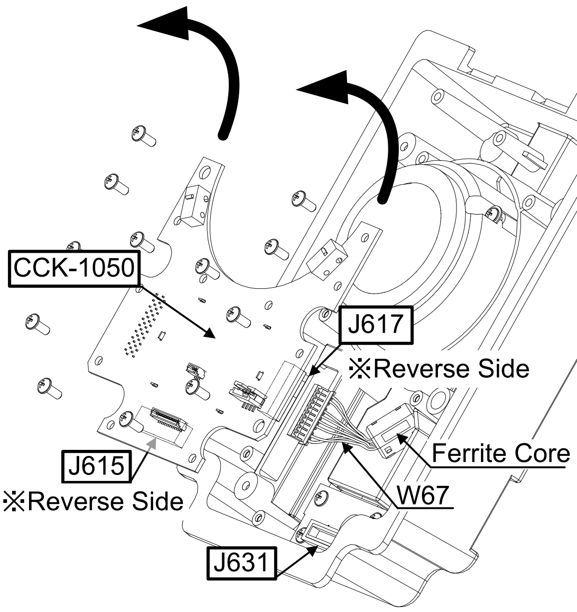
W66: J612


Remove
Remove


J612
J618
CCK-1050
J611

Step 3 Remove the Operaition Circuit A: CCK-1050

Remove the screws (M3: 12 locations) that fasten the CCK-1050. Float it from rear case by hooking its edge. Pull out the W67 from the J617, and then remove it.


CCK-1050
J617
※Reverse Side
Ferrite Core
J615
※Reverse Side
W67
J631

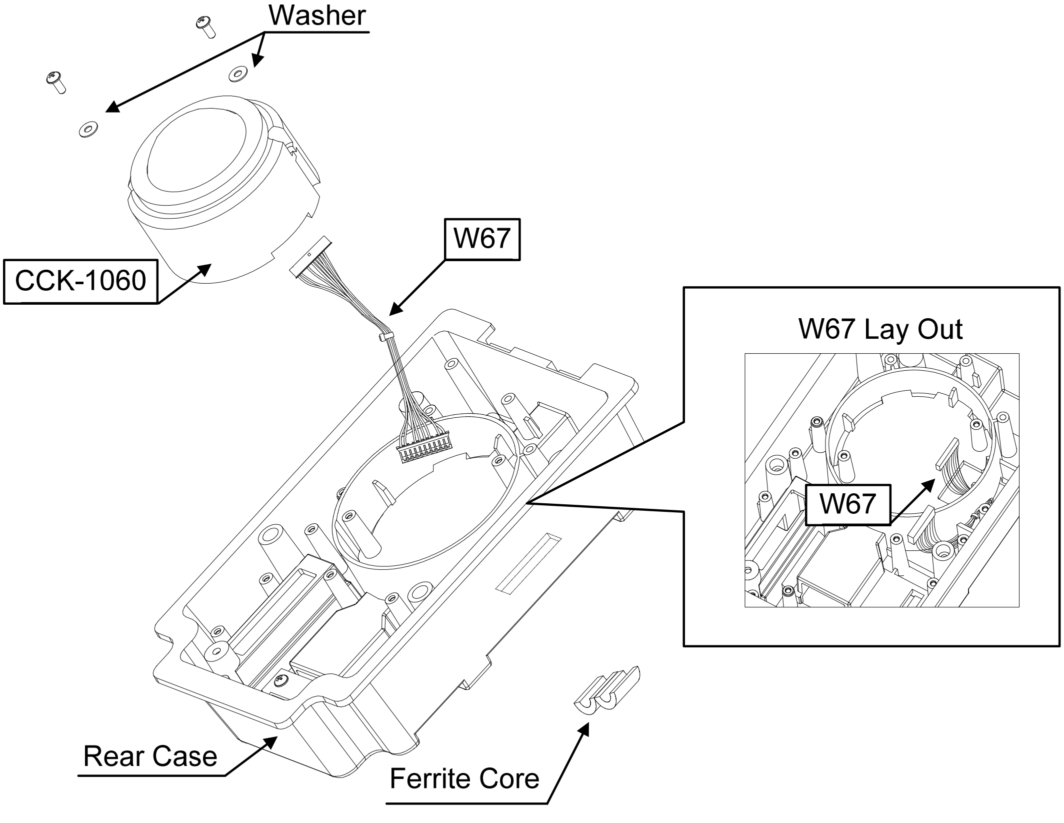
Step 4 Change the trackball: CCK-1060.

Open the ferrite core which has been attached to the W67 firstly.

Remove the screws (M3: 2 locations) that fasten the trackball.

Float the trackball. Then remove it together with W67.

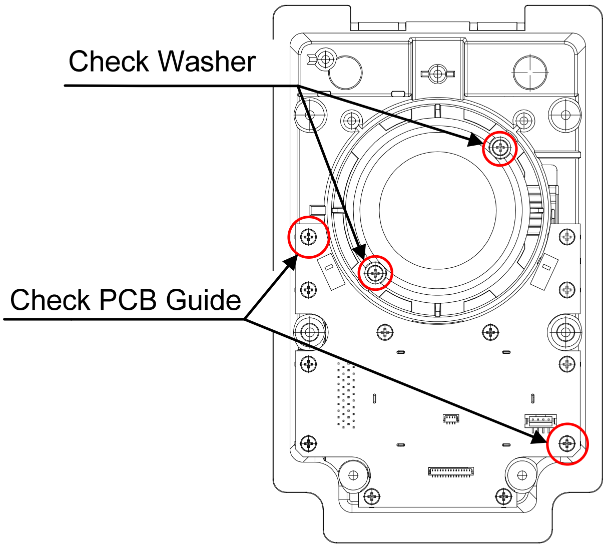
Disconnect the W67 from the trackball, and change it to new one.


Washer
W67
CCK-1060
W67 Lay Out
W67
Rear Case
Ferrite Core

⚠ When closing the front panel, be sure not to catch the cables in between.

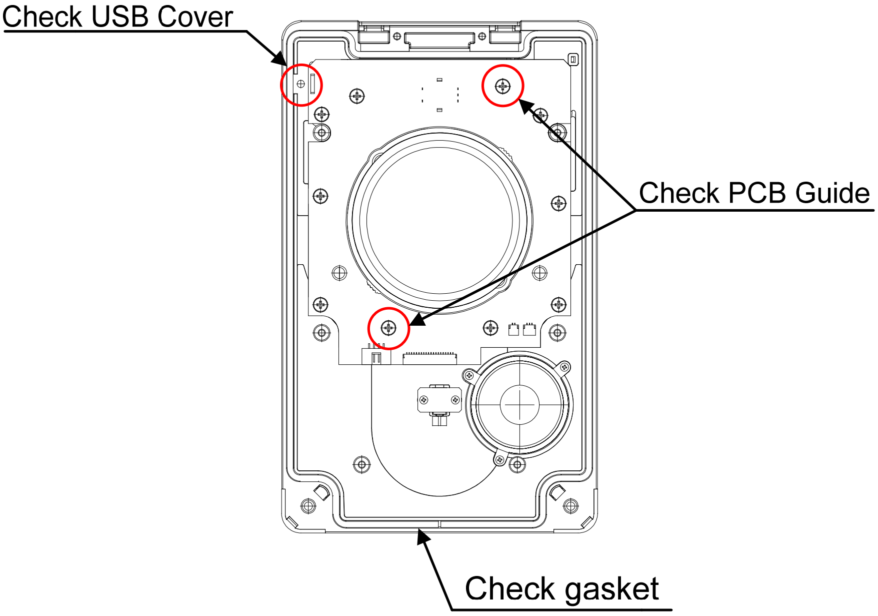
⚠ Please check the following points when you rebuild the rear case.

1) Do not forget to put washers on the screws when you install CCK-1060 to the rear case.
   If you try to tighten the screws without washers, CCK-1060 may be damaged.
2) Adjust the position of CCK-1060 at the middle roughly before you tighten the screws.
3) Be sure that each guide pole of CCK-1050 fits into each guide hole on the rear case when you install it.



⚠ Please check the following points when you rebuild the front panel.

1) Be sure that the USB cover fits into the guide pin on the front panel.
2) Be sure that the waterproof packing fits into the groove of the front panel.



After replacing the trackball, assemble the TOPU to the original condition by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.

Step 5 Check operation.

After the replacement of the trackball is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the TOPU respond normally.

(2) By referring to "7.2.4 Checking Alert Sound [Sound Test]," check the alert sound volume.

(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.

(4) By referring to "7.2.6 Testing the Motor [Motor Test]," check the operation of the motor.

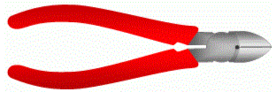
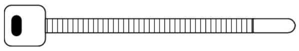
This completes the replacement of the trackball.

4.3.4.4 Replacing the Operation Circuit A: CCK-1050

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Diagonal pliers	—	
3	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Remove the screws of the TOPU and take out.

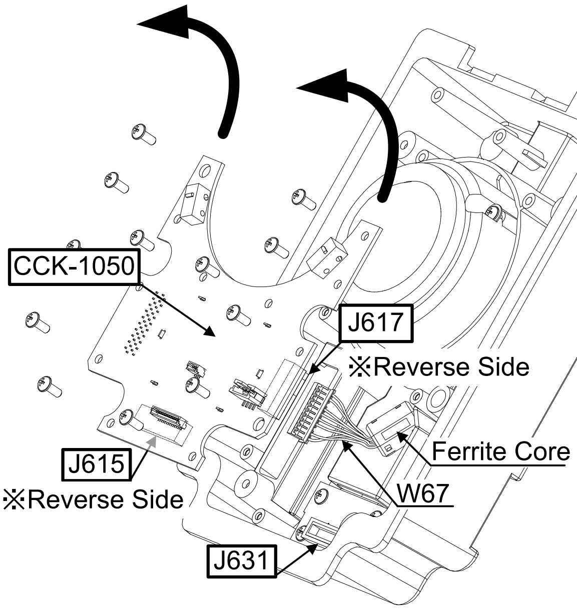
Remove the screws (M4: 2 locations) inside the two screw covers at the bottom right and left of the trackball, and take out the TOPU from the mounting frame. For details, please refer to the "4.3.4.1 Replacing the TOPU: NCE-5605."

Step 2 Remove the front panel of the TOPU.

Remove the screws (M3: 6 locations) on the rear of the TOPU and take out the front panel. For details, please refer to the "4.3.4.3 Replacing the Trackball: CCK-1060."

Step 3　　Change the operation circuit A: CCK-1050.

Remove the screws (M3: 12 locations) that fasten the CCK-1050. Float it from rear case by hooking its edge. Pull out the W67 from the J617, and then change it.



After replacing the CCK-1050, assemble to the original condition by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.

⚠ When closing the front panel, be sure not to catch the cables in between.

Step 4　　Check operation.

After the replacement of the operation circuit A is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the TOPU respond normally.
(2) By referring to "7.2.4 Checking Alert Sound [Sound Test]," check the alert sound volume.
(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.
(4) By referring to "7.2.6 Testing the Motor [Motor Test]," check the operation of the motor.

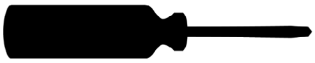
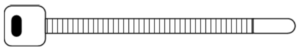
This completes the replacement of the operation circuit A.

4.3.4.5 Replacing the Operation Circuit SW: CCK-1069

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Diagonal pliers	—	
3	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Remove the TOPU.

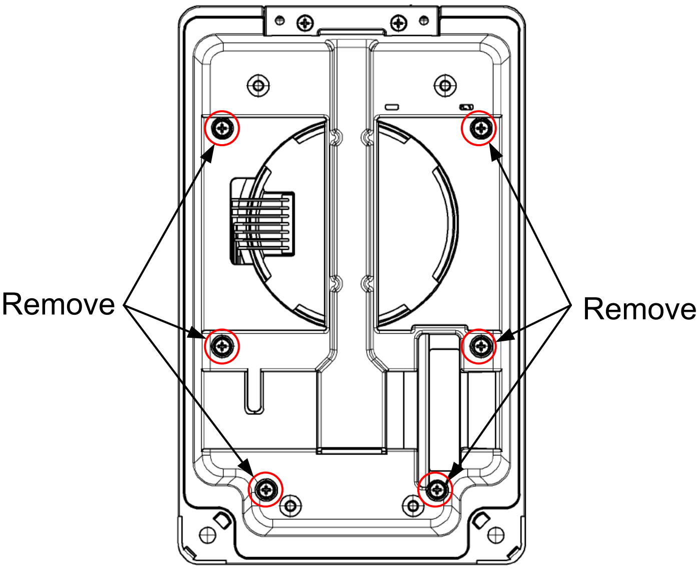
Remove the screws (M4: 2 locations) inside the two screw covers at the bottom right and left of the trackball, and take out the TOPU from the mounting frame. For details, please refer to the "Replacing the TOPU: NCE-5605."

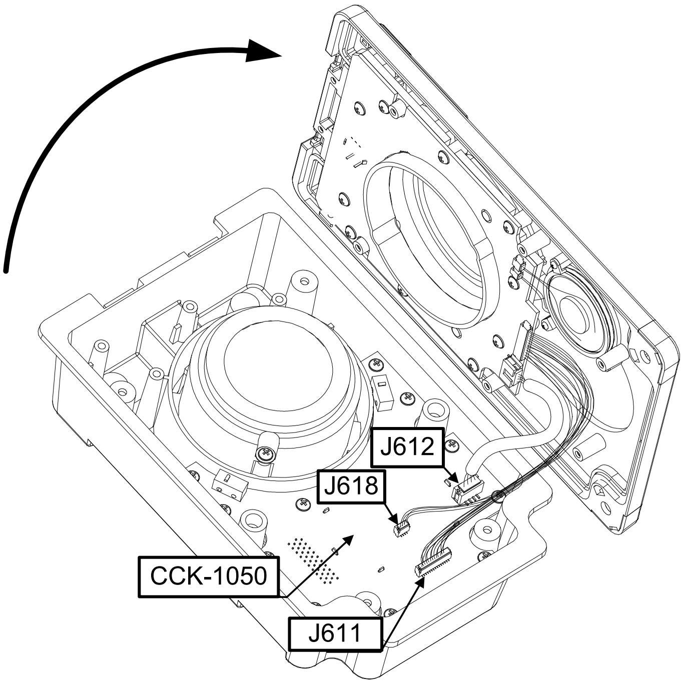
Step 2 Remove the front panel.

Remove the screws (M3: 6 locations) on the rear of the TOPU and take out the front panel. Pull out the two connectors from the operation circuit SW (CCK-1069) and then remove the front panel.

W65: J621

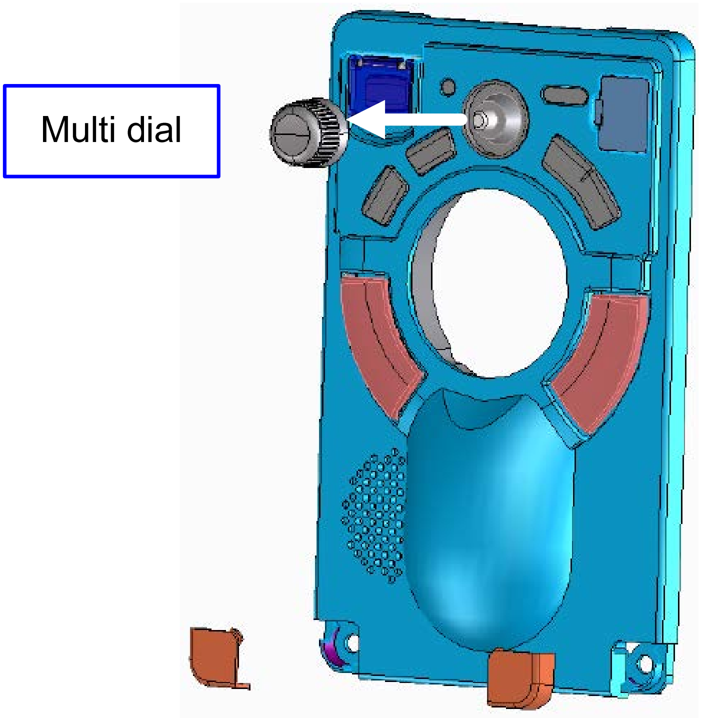
W66: J622

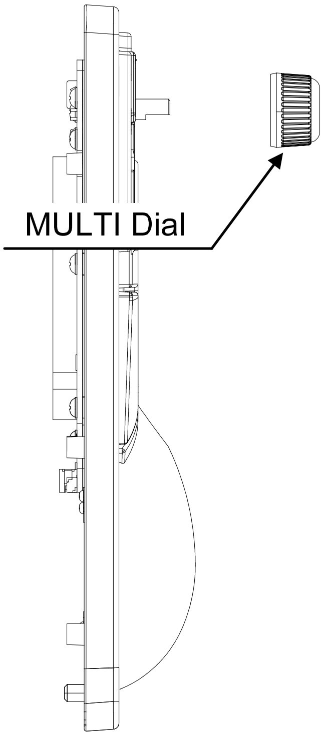

Remove
Remove


J612
J618
CCK-1050
J611

Step 3　　Remove the knob of the multi dial.

Remove the knob of the multi dial. The knob can be removed by pulling it out.





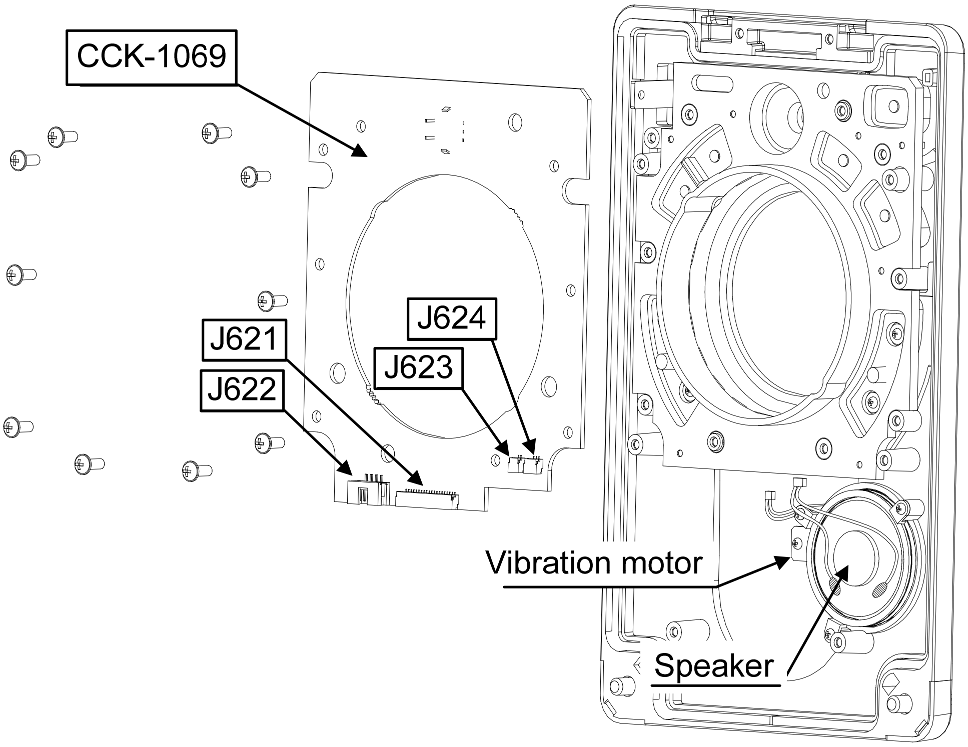
Step 4　　Change the operation circuit SW: CCK-1069.

Disconnect the two connectors (J623 & J624) from the CCK-1069. They are for the speaker and the vibration mortor.

Disconnect W65, W65 from J621, J622 respectively.

Remove the screws (M3: 10 locations) that fasten the CCK-1069 and take it out.

After replacing it, assemble to the original condition by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.

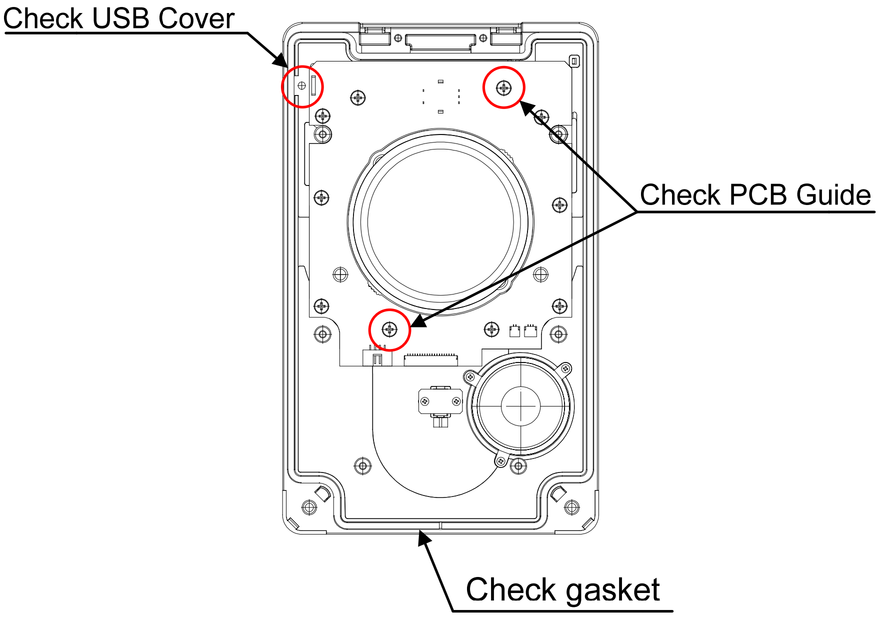

CCK-1069
J624
J621
J623
J622
Vibration motor
Speaker

⚠ When closing the front panel, be sure not to catch the cables in between.

⚠ Please check the following points when you rebuild the front panel.

1) Be sure that each guide pole of CCK-1069 fits into each guide hole on the front panel when you install it.
2) Be sure that the USB cover fits into the guide pin on the front panel.
3) Be sure that the waterproof packing fits into the groove of the front pane

l.


Check USB Cover
Check PCB Guide
Check gasket

Step 5 Check operation.

After the replacement of the operation circuit SW is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the TOPU respond normally.

(2) By referring to "7.2.4 Checking Alert Sound [Sound Test]," check the alert sound volume.

(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.

(4) By referring to "7.2.6 Testing the Motor [Motor Test]," check the operation of the motor.

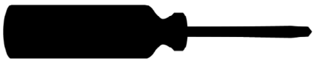
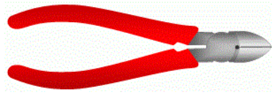
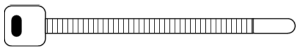
This completes the replacement of the operation circuit SW.

4.3.4.6 Replacing the Operation Circuit CN: CCK-1070

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Diagonal pliers	—	
3	Cable-tie *1	—	

*1 A number of cable-ties may be required.

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

⚠ To prevent damage to the Unit during the replacement work, cut off cable-ties that fasten the cable of the unit beforehand.

Step 1 Remove the screws of the TOPU and take out.

Remove the screws (M4: 2 locations) inside the two screw covers at the bottom right and left of the trackball, and take out the TOPU from the mounting frame. For details, please refer to the "Replacing the TOPU: NCE-5605."

Step 2 Remove the front panel of the TOPU.

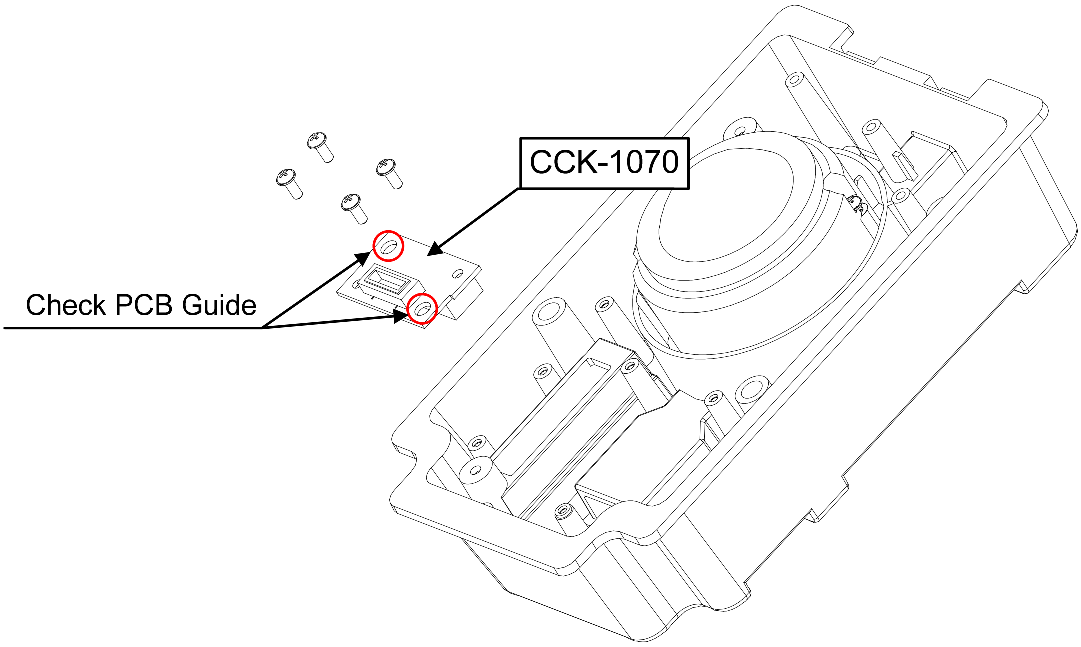
Remove the screws (M3: 6 locations) on the rear of the TOPU and take out the front panel. For details, please refer to the " Replacing the Trackball: CCK-1060."

Step 3 Remove the operation circuit A.

Remove the screws (M3: 12 locations) that fasten the operation circuit A. Remove the J617 and the J631, and change the operation circuit A. For details, please refer to the "Replacing the Operation Circuit A: CCK-1050"

Step 4 Change the operation circuit CN: CCK-1070.

Remove the screws (M3: 4 locations) that fasten the CCK-1070. After replacing it, assemble to the original condition by repeating the same procedure in the reverse order. Fit the guide holes of CCK-1070 into the guide poles on the rear case.Please make sure to tighten all the screws and connect all the cables back in place.



⚠ When closing the front panel, be sure not to catch the cables in between.

Step 5 Check operation.

After the replacement of the operation circuit CN is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the TOPU respond normally.
(2) By referring to "7.2.4 Checking Alert Sound [Sound Test]," check the alert sound volume.
(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.
(4) By referring to "7.2.6 Testing the Motor [Motor Test]," check the operation of the motor.

This completes the replacement of the operation circuit CN.

4.3.5 Keyboard Operation Unit: KOPU NCE-5625

4.3.5.1 Replacing the Keyboard Operation Unit: KOPU NCE-5625

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

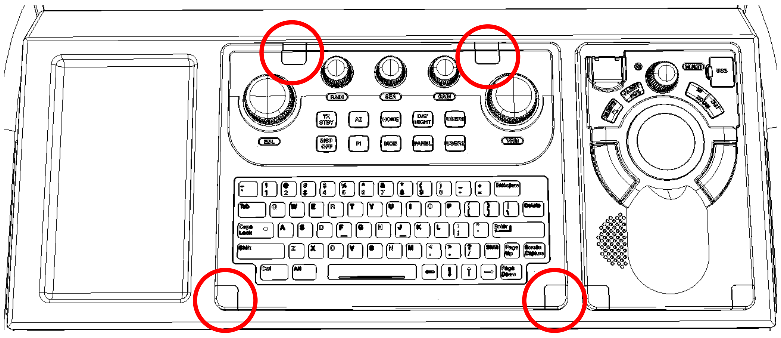
No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	

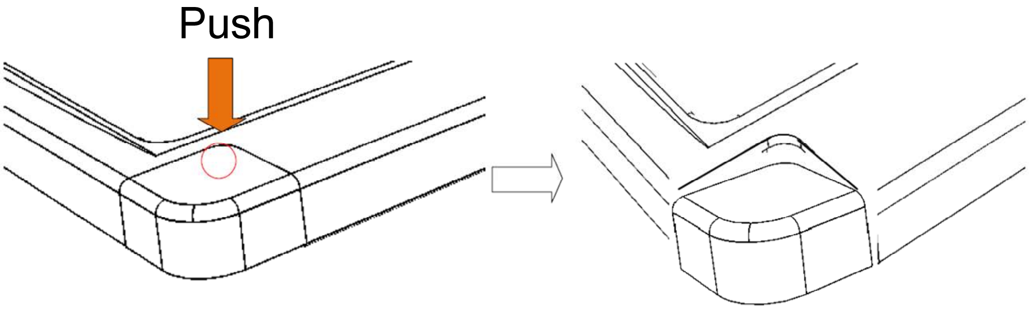
⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

Step 1 Remove the screws of the KOPU.

Remove the four screw covers at the top and bottom of the KOPU. The screw covers can come off by pushing them down inward. Remove the screws (M4: 4 locations) inside the screw covers that fasten the TOPU.

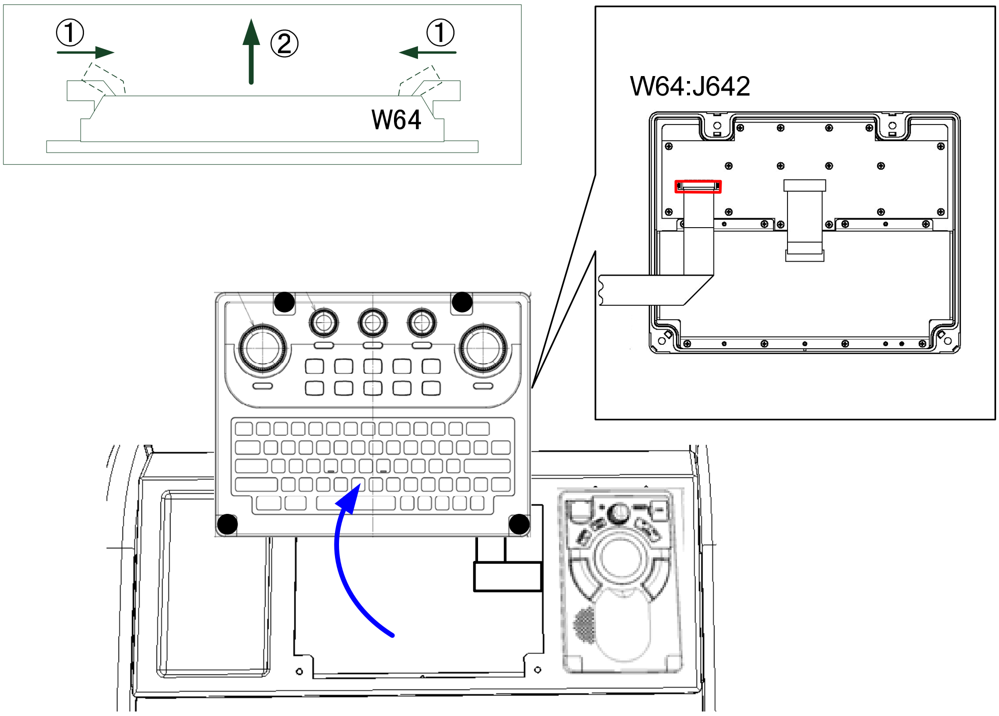




Step 2 Change the KOPU.

Float the KOPU from the mounting frame. While keeping it afloat, remove the rear cable (W64: J642). The cable can be removed by pushing the both ends of the connector. Remove the KOPU from the mounting frame and change it.

After replacing the KOPU, assemble to the original condition by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.



Step 3 Check operation.

After the replacement of the KOPU is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) Check that a keyboard open error has not occurred.

(2) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the KOPU respond normally.

(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.

This completes KOPU replacement.

4.3.5.2 Replacing the Operation Circuit B: CCK-1059

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	

Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

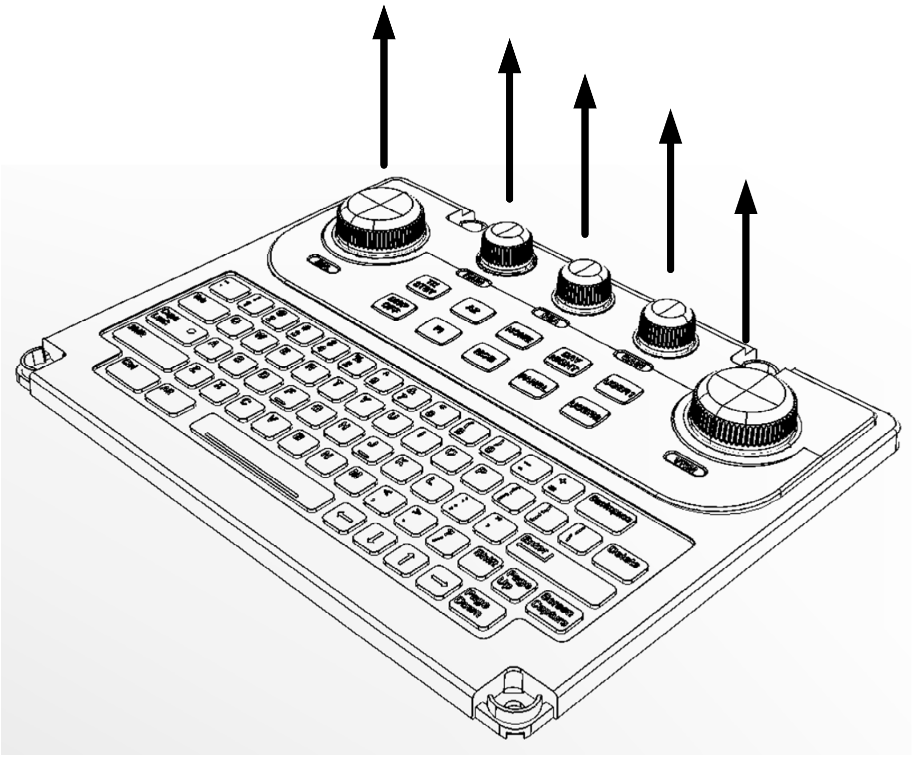
Do not lose the screws as they will be needed again.

Step 1 Remove the screws of the KOPU and take out.

Remove the screws (M4: 4 locations) inside the four screw covers at the top and bottom of the KOPU, and take out it from the mounting frame. For details, please refer to the "Replacing the Keyboard Operation Unit: KOPU NCE-5625."

Step 2 Remove the knobs of all the dials of the KOPU.

Remove the knobs of all the dials (EBL, RAIN, SEA, GAIN & VRM) of the KOPU. The knobs can be removed by pulling them out upward.



Step 3　Change the operation circuit B: CCK-1059.

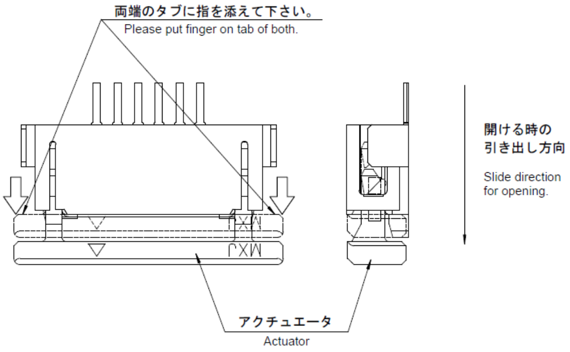
Disconnect the FPC that connects between the CCK-1059 and the keyboard. FPC can be released by sliding the actuator of J641 horizontally.

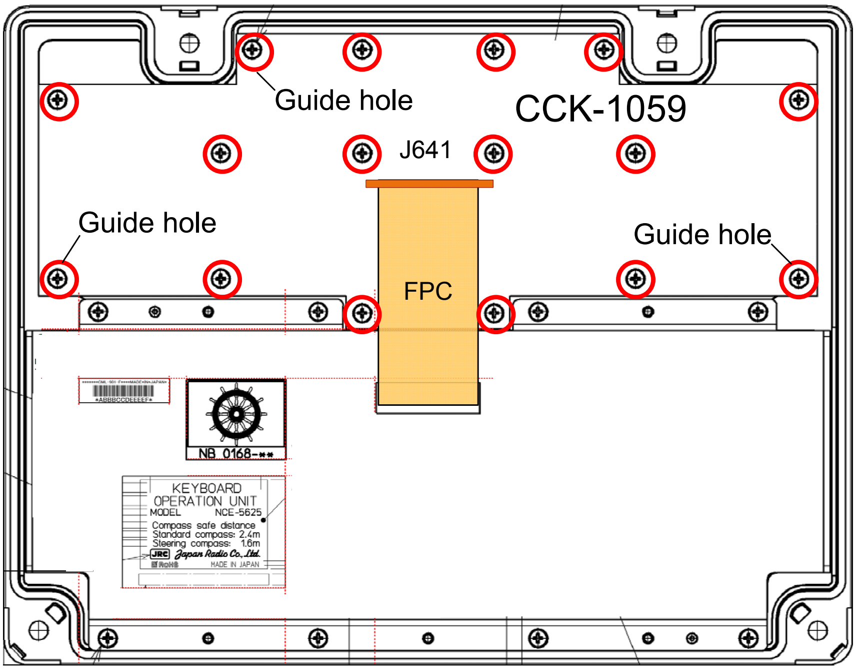
Remove the screws (M3: 16 locations) that fasten the CCK-1059 and change it. After replacing the operation circuit B, assemble to the original condition by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.

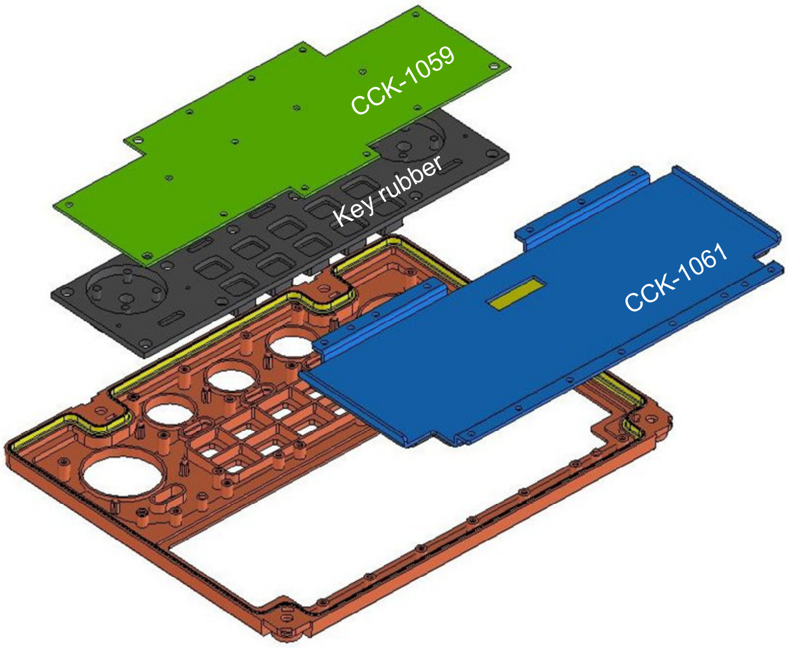
⚠ When mounting the operation circuit B, fit it into the guide hole. Be sure to place the key rubber in the correct position as it is easy to be displaced.

⚠ Exercise caution when handling the FPC as it is very fragile.

⚠ When installing the FPC, be careful not to insert them slanted or bend them.


両端のタブに指を添えて下さい。
Please put finger on tab of both.
開ける時の
引き出し方向
Slide direction
for opening.
アクチュエータ
Actuator


Guide hole
CCK-1059
J641
Guide hole
Guide hole
FPC
NB 0168-**
KEYBOARD
OPERATION UNIT
MODEL NCE-5625
Compass safe distance
Standard compass: 2.4m
Steering compass: 1.6m
Japan Radio Co.,Ltd.
MADE IN JAPAN



Step 4 Check operation.

After the replacement of the operation circuit B is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) Check that a keyboard open error has not occurred.

(2) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the KOPU respond normally.

(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.

This completes the replacement of the operation circuit B.

4.3.5.3 Replacing the Keyboard: CCK-1061

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No.	Name	Size	Appearance
1	Phillips screwdriver	Size #2	

⚠ Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.

⚠ Do not lose the screws as they will be needed again.

Step 1 Remove the screws of the KOPU and take out.

Remove the screws (M4: 4 locations) inside the four screw covers at the top and bottom of the KOPU, and take out the KOPU from the mounting frame. For details, please refer to the "Replacing the Keyboard Operation Unit: KOPU NCE-5625."

Step 2 Change the keyboard: CCK-1061.

Disconnect the FPC that connects between the operation circuit B and the keyboard: CCK-1061. FPC can be released by sliding the actuator of J641 horizontally.

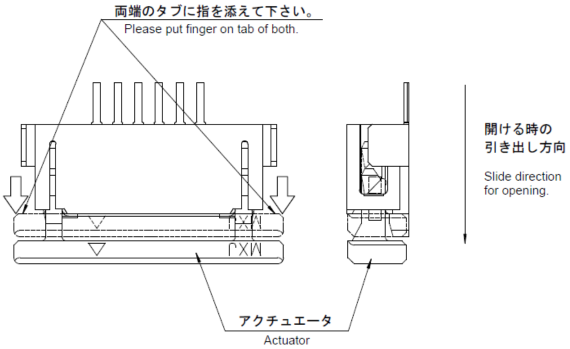
Remove the screws (M3: 13 locations) that fasten the CCK-1061 and change it.

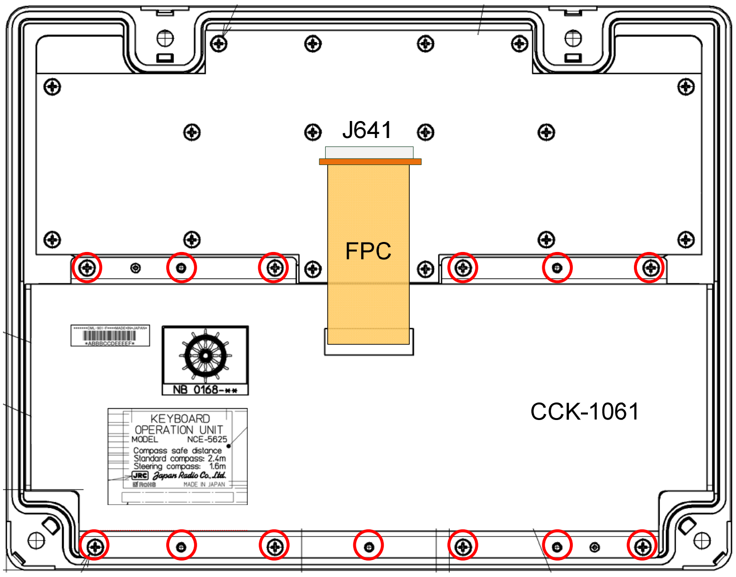
After replacing the CCK-1061, assemble to the original condition by repeating the same procedure in the reverse order. Please make sure to tighten all the screws and connect all the cables back in place.

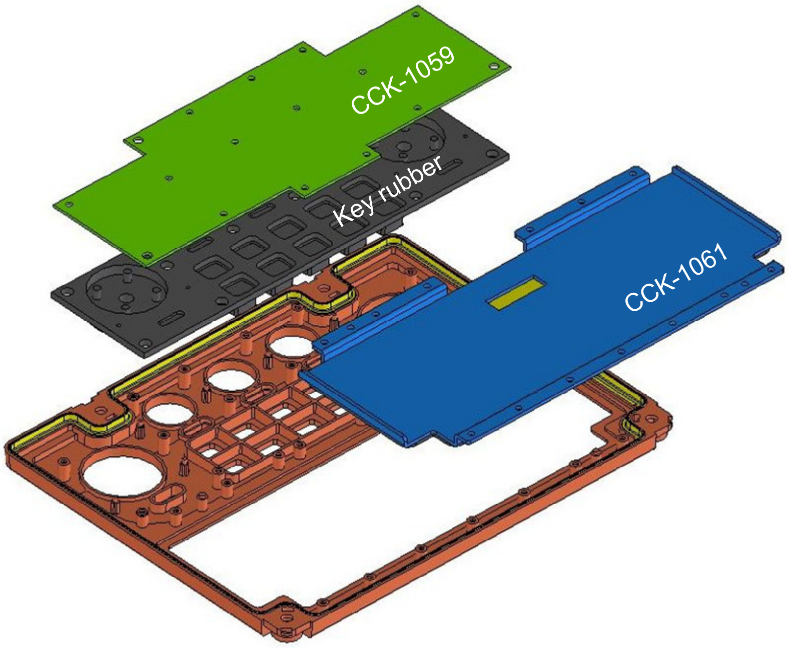
⚠ When mounting the new keyboard, be careful so that the waterproof packing dos not get into the inside of the keyboard.

⚠ Exercise caution when handling the FPC as it is very fragile.

⚠ When installing the FPC, be careful not to insert them slanted or bend them.


両端のタブに指を添えて下さい。
Please put finger on tab of both.
開ける時の
引き出し方向
Slide direction
for opening.
アクチュエータ
Actuator


J641
FPC
CCK-1061
NB 0168-**
KEYBOARD
OPERATION UNIT
MODEL NCE-5625
Compass safe distance
Standard compass: 2.4m
Steering compass: 1.6m
JRC Japan Radio Co., Ltd.
MADE IN JAPAN


CCK-1059
Key rubber
CCK-1061

Step 3 Check operation.

After the replacement of the keyboard is completed, turn ON the circuit breaker for the power supply of the display unit and check the operation as follows.

(1) Check that a keyboard open error has not occurred.
(2) By referring to "7.2.3 Checking the Operation of the Operation Unit [Key Test]," check that all the buttons and knobs of the KOPU respond normally.
(3) By referring to "7.2.5 Testing LED Brightness [Light Test]," check the brightness of the LEDs.

This completes keyboard replacement.