



4.2.2.7 Receiver (NRG-229) Replacement/NTG-3230

[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, Size #3	
3	Open-end wrench	Width across flats 17 mm (for M10 screws)	



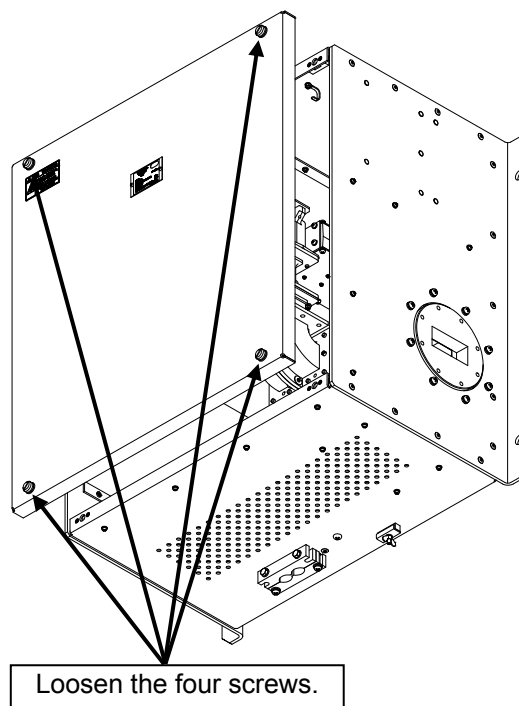
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.

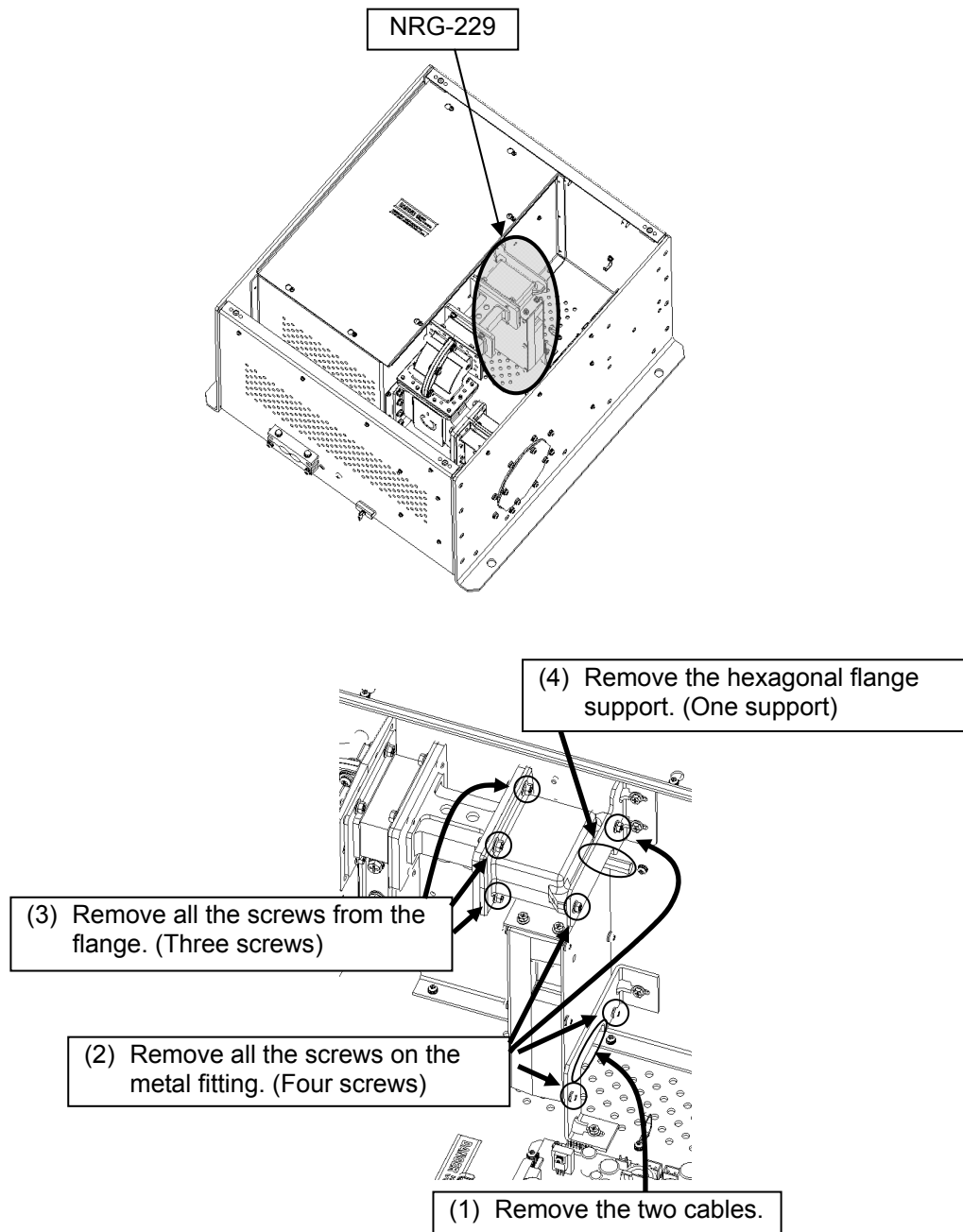


Step 2 Replace the receiving unit.

Replace the receiver unit according to the following procedure.

- (1) Remove the cables connected to the receiver. (Two cables)
- (2) Remove all the screws on the metal fitting. (Four screws)
- (3) Remove all the screws from the flange. (Three screws)
- (4) Remove the hexagonal flange support. (One support)
- (5) After having replaced the receiver, reassemble the unit by following the disassembly procedure in the reverse order.

Do not forget to tighten the bolts or screws, and do not forget to reconnect the cables.

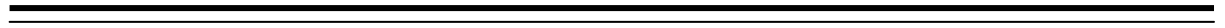


Step 3 Operation check

After having completed the replacement, turn On the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit. After the countdown is completed, start transmission and check that the radar image appears without error. Transmit the radar wave in the long range mode and open the service engineer menu to perform tuning adjustment. With the service engineer menu open, also make sure the magnetron current is shown between the 8th and 10th calibration markings.

This completes receiving unit replacement.



4.3 Replacement Procedures for Display Unit

Precautions

Replace the parts by strictly following the precautions below.

CAUTION



Before conducting parts replacement work, always be sure that the power to all the Display units (in case a multiple number of Display Units are installed) is OFF. Furthermore, turn OFF the circuit breaker of the main power supply to assure safety.



While in work, be sure to wear gloves to prevent injury.



Conduct work in a less quaking condition as much as possible, such as at a port.



Before conducting inspection and parts replacement, be sure to always turn OFF the main power supply.

Not turning OFF the main power supply may lead to electric shock and failure.



When replacing the LCD, be sure to do it with at least two persons.

If only one person does this work, he/she may drop the LCD, resulting in injury.



After the main power supply is turned OFF, high voltage remains temporarily, so never touch the inverter circuit of the LCD with bare hands.

Doing so may cause electric shock.

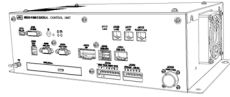
Checking Each Type of Unit

JMR-9200 Series/JAN-9201/JAN-9202

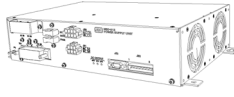
● Standard equipment

● Stand alone type

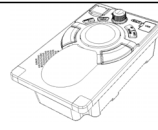
● NCM-928 Control Unit



NDC-1590
CENTRAL CONTROL UNIT
(CCU)



NBD-913
POWER SUPPLY UNIT
(PSU)



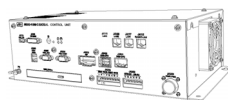
NCE-5605
TRACKBALL OPERATION UNIT
(TOPU)



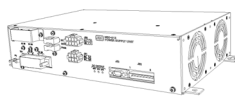
CWA-246
26inch DISPLAY UNIT MOUNT KIT

● Desktop type

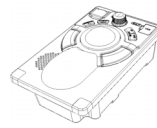
● NCM-928 Control Unit



NDC-1590
CENTRAL CONTROL UNIT
(CCU)



NBD-913
POWER SUPPLY UNIT
(PSU)



NCE-5605
TRACKBALL OPERATION UNIT
(TOPU)

CWB-1595
26inch Desktop Frame

CWB-1596
OPU Desktop Frame

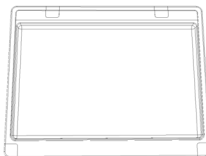
● Desktop type cable
CML-901-F
DISPLAY UNIT
INTERCONNECTION(F)

● Select equipment

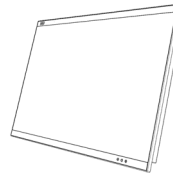


NCE-5625
KEYBOARD OPERATION UNIT
(KOPU)

or

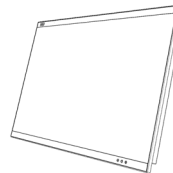


CWB-1593
LARGE TRAY



NWZ-208
26inch MONITOR UNIT
(26 inch MNU)

or

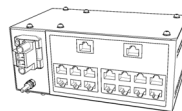


NWZ-208-TP
26inch TOUCH PANEL
MONITOR UNIT
(26 inch T.P. MNU)

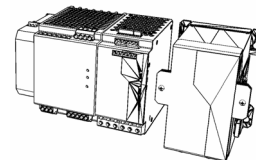
● Option equipment



NQE-1143
JUNCTION BOX
(JB)



NQA-2443
SENSOR LAN SWITCH UNIT



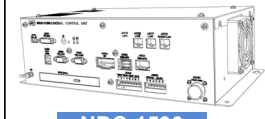
- QUINT-PS/1AC/24DC/20
- QUINT-BAT/24DC/3.4AH
- QUINT-DC-UPS/24DC/20
- ME-MAX-NEF/QUINT20
UPS

JMR-7200 Series/JAN-7201/JAN-7202

● Standard equipment

● Stand alone type

● NCM-928 Control Unit



NDC-1590
CENTRAL CONTROL UNIT
(CCU)



NBD-913
POWER SUPPLY UNIT
(PSU)



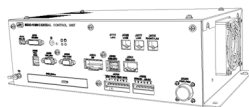
NCE-5605
TRACKBALL OPERATION UNIT
(TOPU)



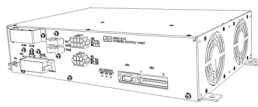
CWA-245
19inch DISPLAY UNIT MOUNT KIT

● Desktop type

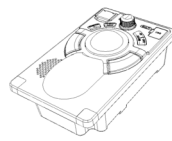
● NCM-928 Control Unit



NDC-1590
CENTRAL CONTROL UNIT
(CCU)



NBD-913
POWER SUPPLY UNIT
(PSU)



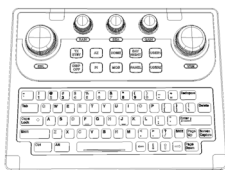
NCE-5605
TRACKBALL OPERATION UNIT
(TOPU)

CWB-1594
19inch Desktop Frame

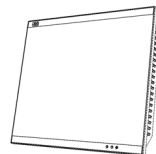
CWB-1596
OPU Desktop Frame

● Desktop type cable
CML-901-F
DISPLAY UNIT
INTERCONNECTION(F)

● Select equipment



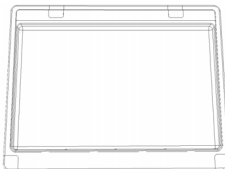
NCE-5625
KEYBOARD OPERATION UNIT
(KOPU)



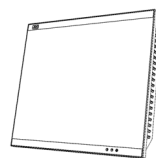
NWZ-207
19inch MONITOR UNIT
(19 inch MNU)

or

or



CWB-1593
LARGE TRAY

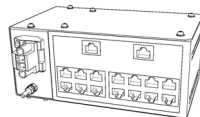


NWZ-207-TP
19inch TOUCH PANEL
MONITOR UNIT
(19 inch T.P. MNU)

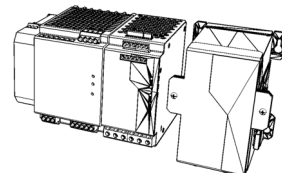
● Option equipment



NQE-1143
JUNCTION BOX
(JB)



NQA-2443
SENSOR LAN SWITCH UNIT



- QUINT-PS/1AC/24DC/20
- QUINT-BAT/24DC/3.4AH
- QUINT-DC-UPS/24DC/20
- ME-MAX-NEF/QUINT20

UPS

Checking Various Types of Interface Boards

The NQE-1143 junction box (JB) consists of interface boards in accordance with its suffix. There are the following types of interface boards.

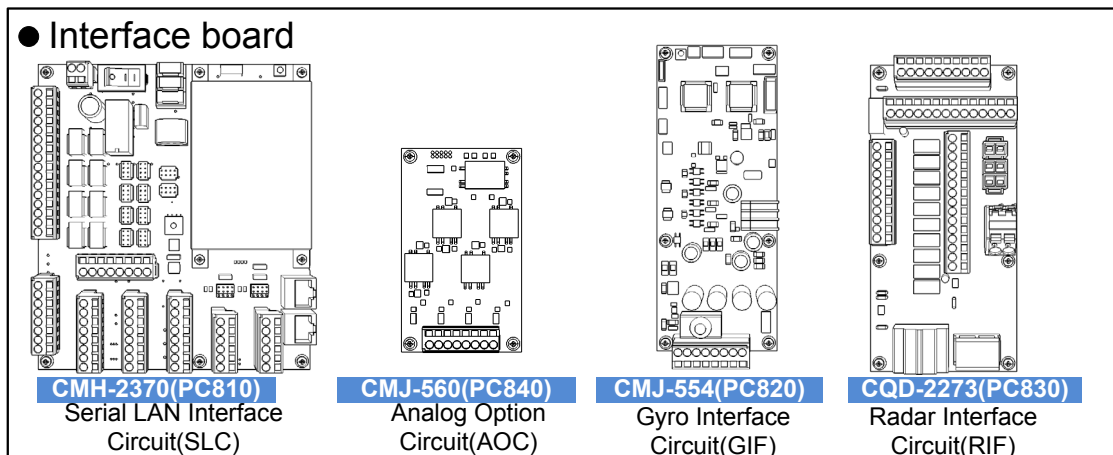


Fig. 1 External Views of Interface Boards

Table -1 Definitions of Leg Numbers of the Junction Board Model Names

Suffix	SLC	AOC	GIF	RIF	SLC#2
-R				✓	
-S	✓				
-SR	✓			✓	
-SS	✓				✓
-GR			✓	✓	
-SAR	✓	✓		✓	
-SA	✓	✓			
-SGR	✓		✓	✓	
-SAGR	✓	✓	✓	✓	
-SG	✓		✓		
-SAG	✓	✓	✓		
-SAS	✓	✓			✓

Thus, if the model name of the junction box is "NQE-1143-SAGR," it indicates that the junction box consists of a serial LAN interface circuit (SLC), an analog option circuit (AOC), a gyro interface circuit (GIF), and a radar interface (RIF).





4.3.1 26 Inch Monitor Unit: MNU NWZ-208

4.3.1.1 Replacing the 26 Inch MNU: NWZ-208

[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	2 mm, 6 mm	
2	Phillips screwdriver	Size #2, Size #3	
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.



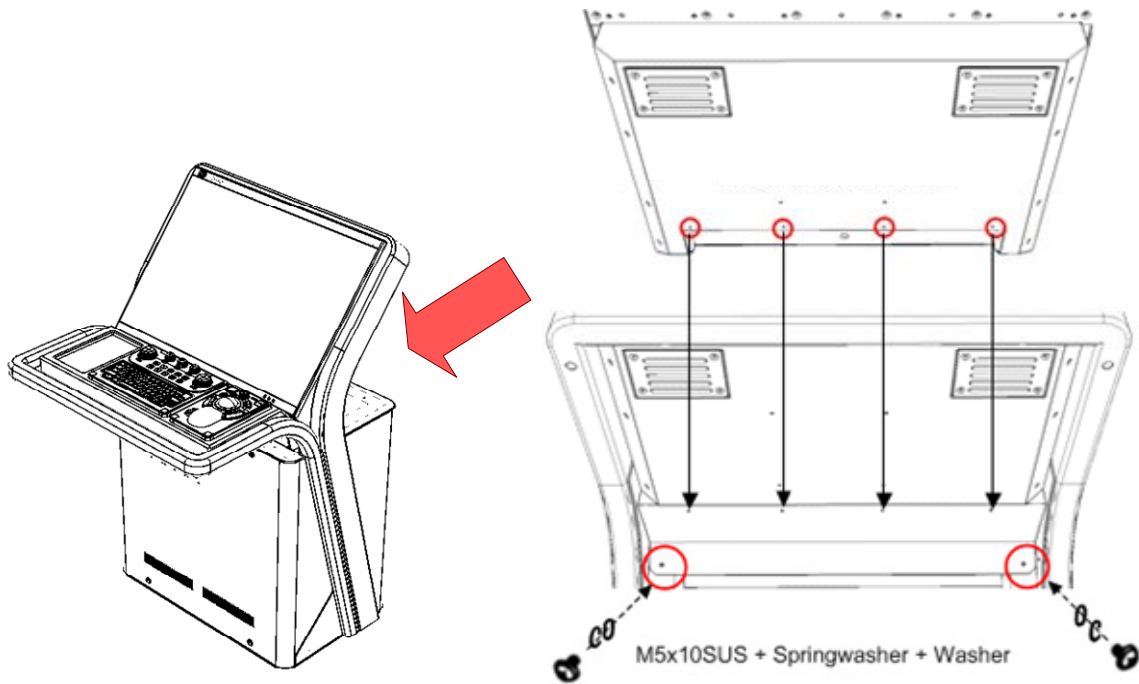
Do not lose the screws as they will be needed again.



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

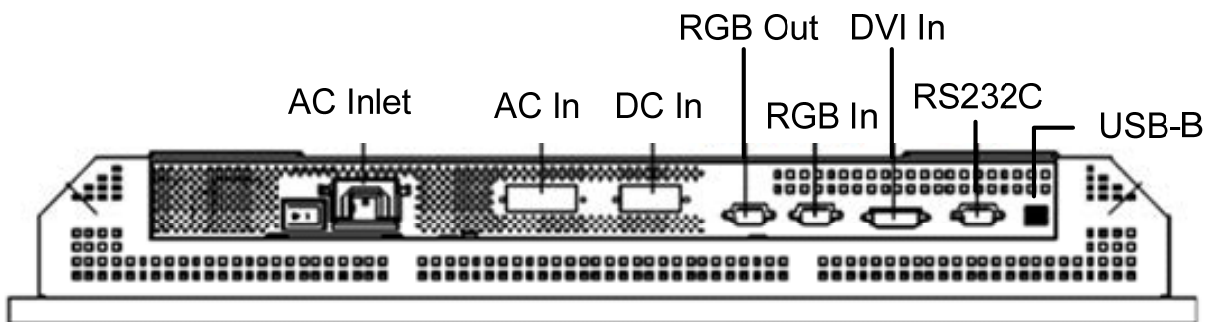
Step 1 Remove the back cover of the monitor.

Remove the screws (M5: 2 locations, M3: 4 locations) on the back of the monitor and then remove the back cover.



Step 2 Remove all the cables.

Remove the DVI cables and the DC power cable on the back of the monitor. Remove the USB cable if the monitor uses one.



⚠ 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.

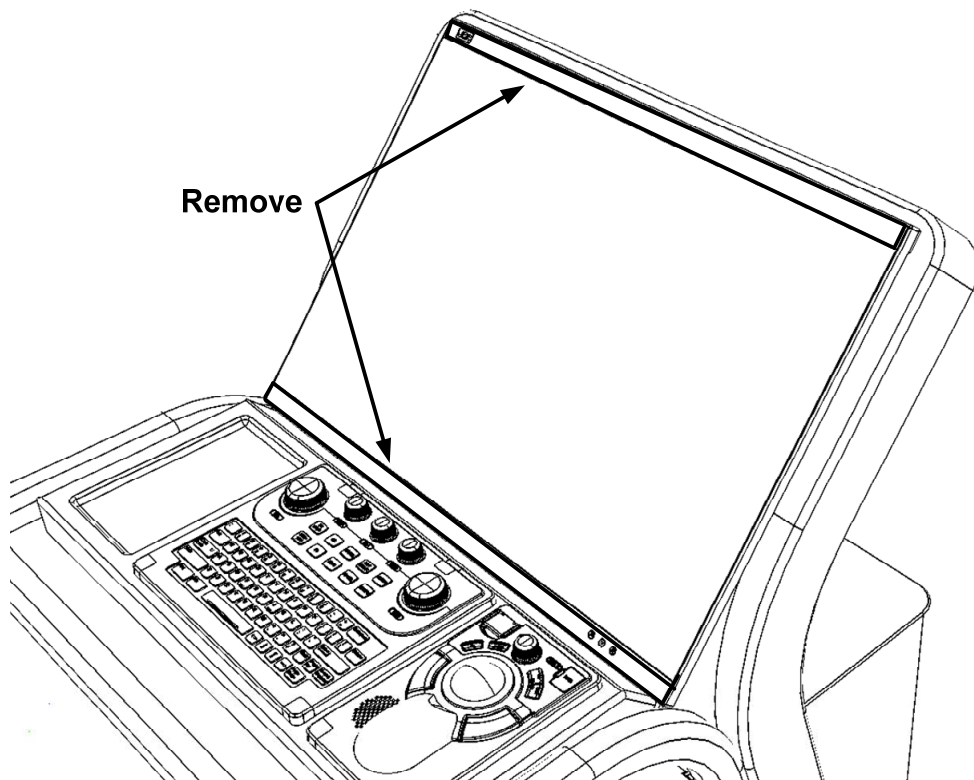
Step 3 Remove the top and bottom screw covers of the monitor.

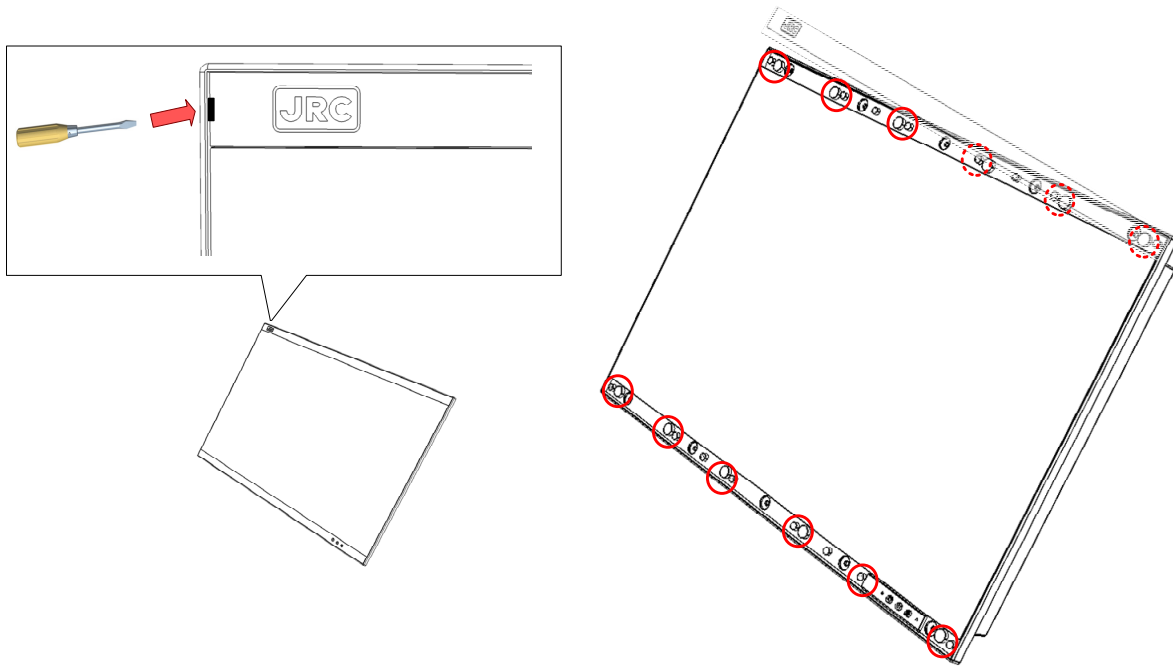
Using a 2 mm flat head screwdriver, remove the top and bottom screw covers of the monitor.

The top and bottom screw covers are fastened with a total of six stoppers. Insert a flat head screwdriver into the driver insertion mouths at both edges and remove each cover by raising the cover from the edges little by little. If you try to remove the covers by force, it may damage the monitor or break the screw covers, so be careful.



Do not damage the screw covers while removing them. Hold down each screw cover near the stoppers, slowly apply force in the vertical direction to eliminate flexure as much as possible, and then remove the cover.





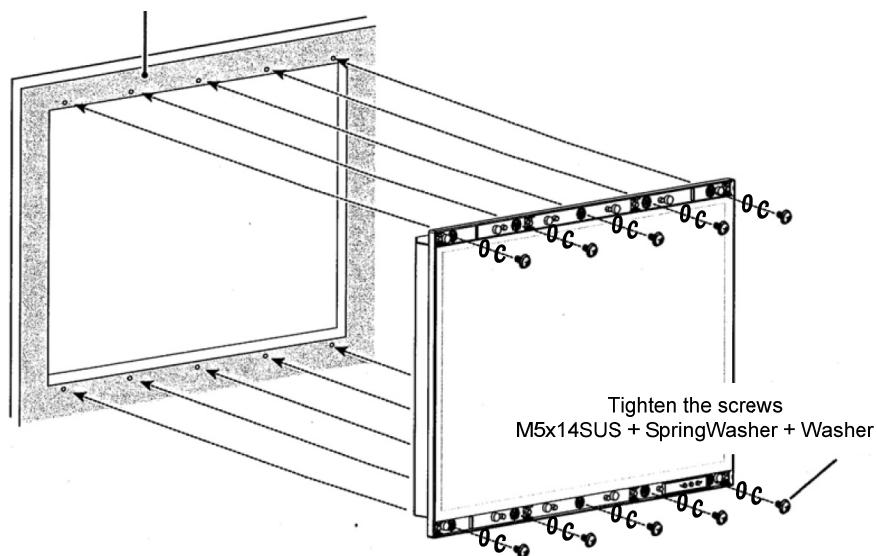
Step 4 Change the monitor.

Remove the screws that fasten the monitor and change the monitor.

26 inch: M5 at 10 locations

After replacing the monitor, 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.

Display Unit Mount Kit



Step 5 Check operation.

After monitor 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 power to the display unit and make sure that screen display is normal. Adjust brightness and make sure that brightness changes.

- (2) Referring to "7.2.2 Checking the Condition of the Screen [Monitor Test]," check the screen display to make sure that there is no problem.


This completes monitor replacement.

4.3.1.2 Replacing the 26 Inch MNU Replacement FAN Kit: 7ZYNA4005

[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	



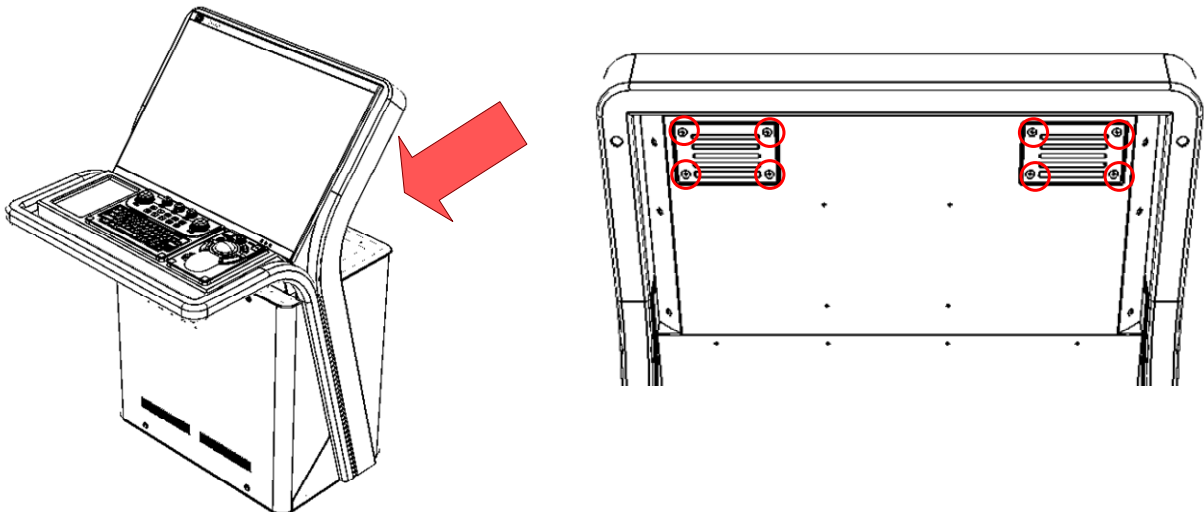
Before conducting replacement work, turn OFF the circuit breaker for the power supply of the display unit.



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


Step 1 Remove the two fan covers on the back of the monitor.


Remove the two fan covers on the back of the 26 inch monitor (M3: total of 8 locations).

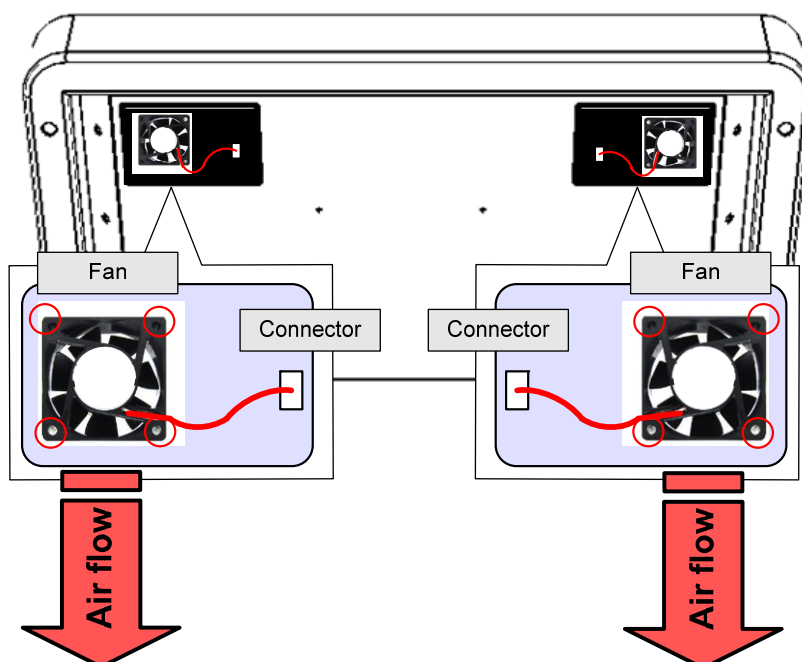


Step 2 Change the fans.

Disconnect the connectors of the fans. Remove the screws (M3: 4 locations) that fasten each fan and change the fans. Install the fans so that the air flows to the exhaust direction (coming out of the monitor).

 Be careful with the fan mounting direction. Be sure to install the fans so that the air flows out of the the monitor.

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



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

- (3) Turn ON the power to the display unit and make sure that screen display is normal. Adjust brightness and make sure that brightness changes.
- (4) Check that the fan error "LCD (FAN #n)" does not occur.
- (5) Referring to "7.2.2 Checking the Condition of the Screen [Monitor Test]," check the screen display to make sure that there is no problem.

This completes monitor fan replacement.





4.3.2 19 Inch Monitor Unit: MNU NWZ-207

4.3.2.1 Replacing the 19 Inch MNU: NWZ-207

[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	2 mm, 6 mm	
2	Phillips screwdriver	Size #1, 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.



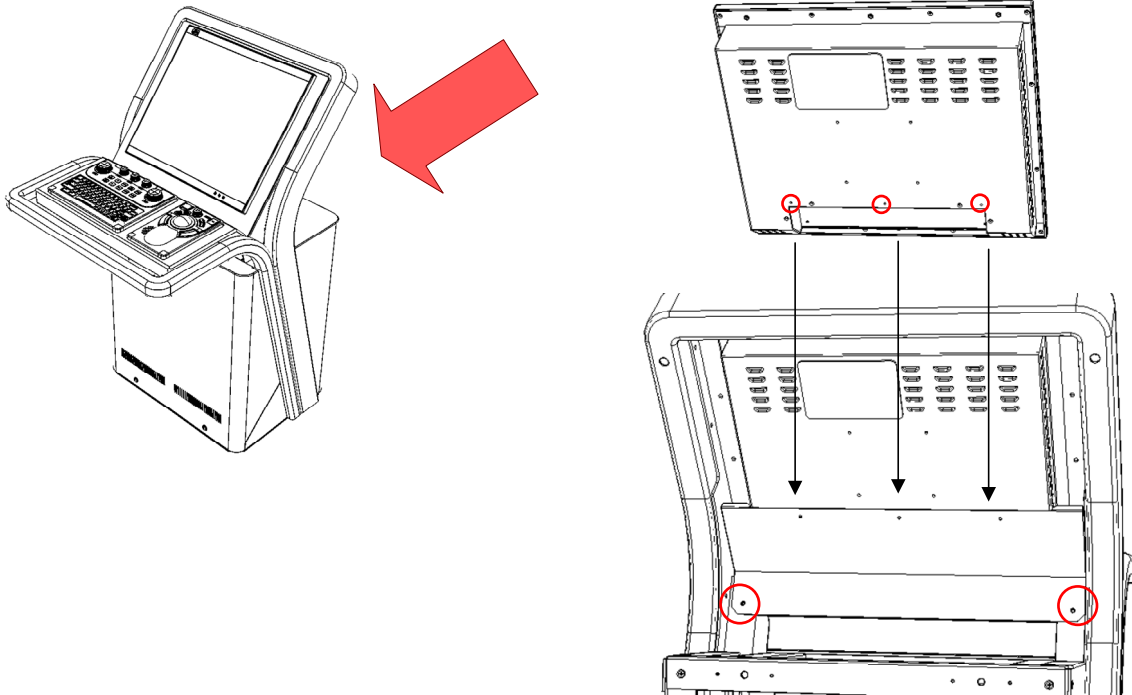
Do not lose the screws as they will be needed again.



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

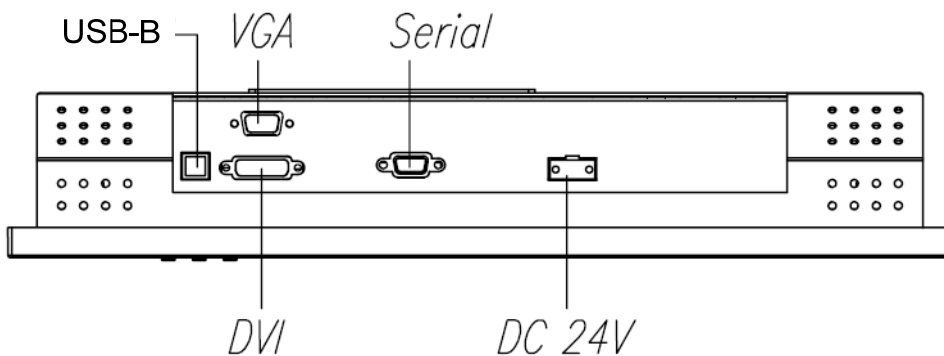
Step 1 Remove the back cover of the monitor.

Remove the screws (M5: 2 locations, M3: 3 locations) on the back of the monitor and then remove the back cover.



Step 2 Remove all the cables.

Remove the DVI cables and the DC power cable on the back of the monitor. Remove the USB cable if the monitor uses one.



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.

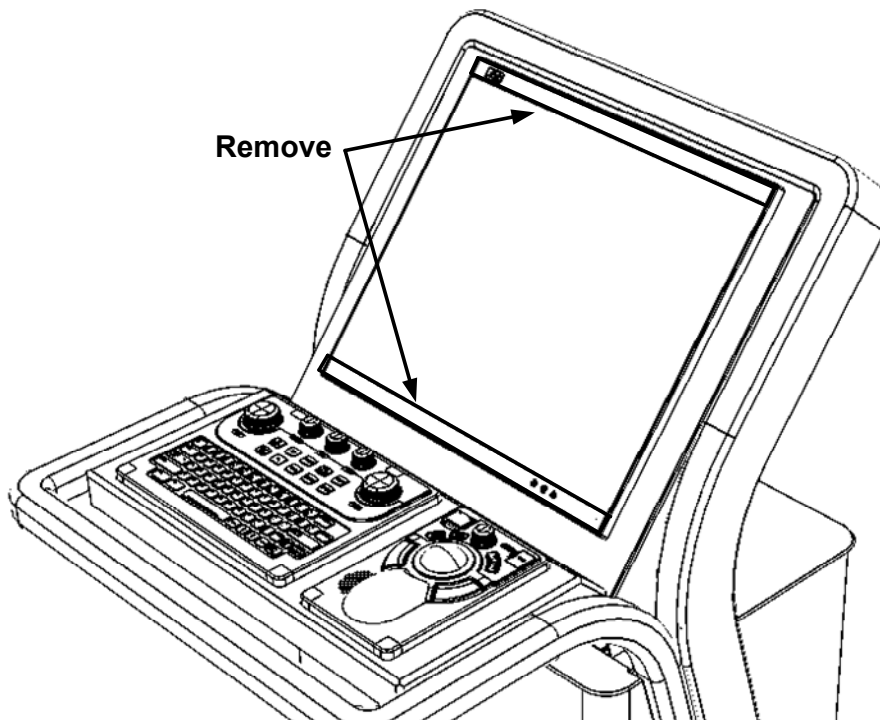
Step 3 Remove the top and bottom screw covers of the monitor.

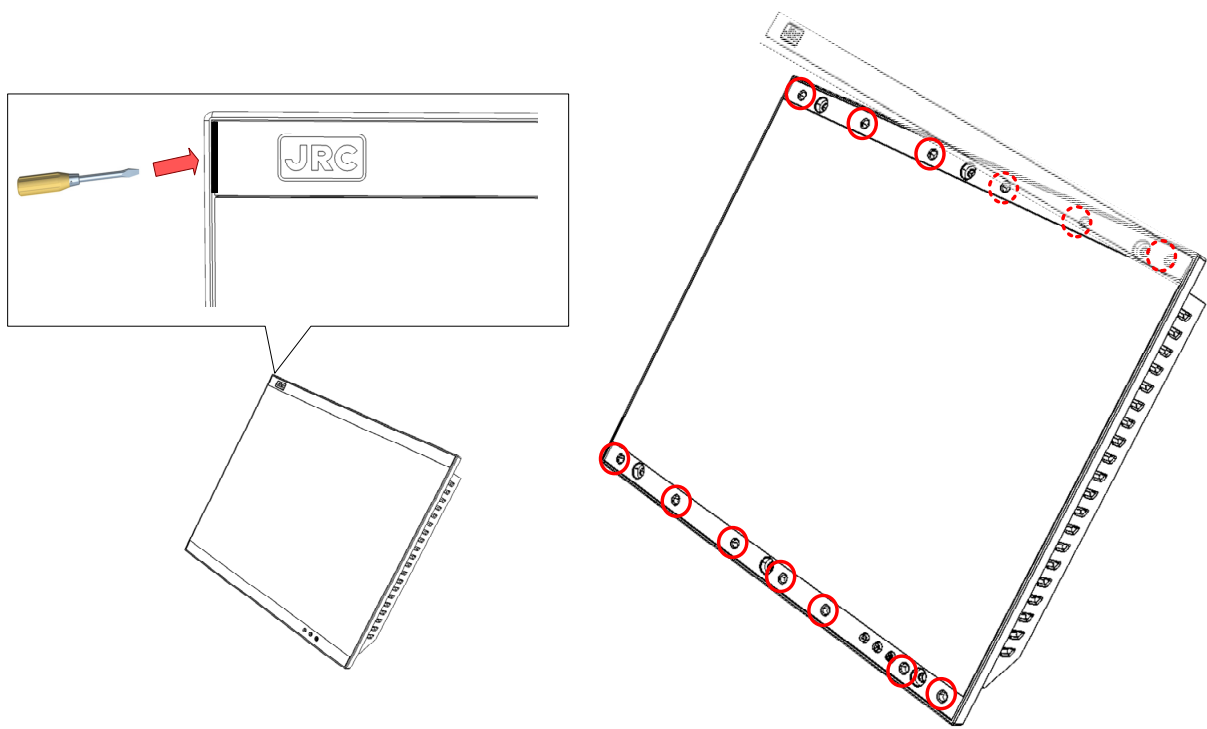
Using a 4 mm width flat head screwdriver, remove the top and bottom screw covers of the monitor.

The top and bottom screw covers are fastened with six stoppers and seven stoppers, respectively. Insert a flat head screwdriver into the driver insertion slots at both edges and remove each cover by raising the cover from the edges little by little. If you try to remove the covers by force, it may damage the monitor or break the screw covers, so be careful.



Do not damage the screw covers while removing them. Hold down each screw cover near the stoppers, slowly apply force in the vertical direction to eliminate flexure as much as possible, and then remove the cover



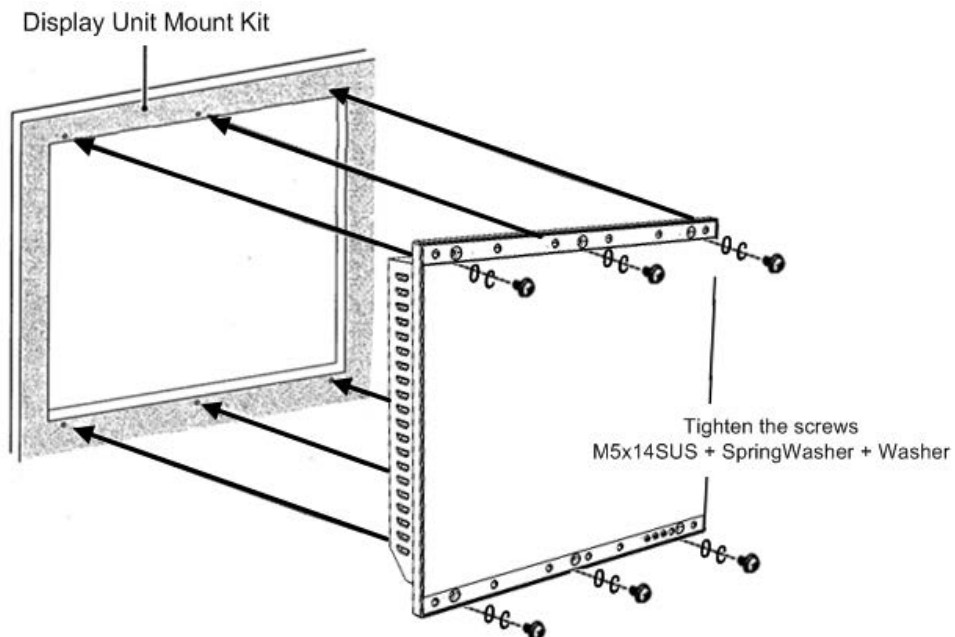


Step 4 Change the monitor.

Remove the screws that fasten the monitor and change the monitor.

19 inch: M5 at 6 locations

After replacing the monitor, 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 5 Check operation.

After monitor 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 power to the display unit and make sure that screen display is normal.
Adjust brightness and make sure that brightness changes.
- (2) Referring to "7.2.2 Checking the Condition of the Screen [Monitor Test]," check the screen display to make sure that there is no problem.


This completes monitor replacement.


4.3.2.2 Replacing the 19 Inch MNU Replacement FAN Kit: 7ZYNA4004


[Required Tools]

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

Table Required Tools

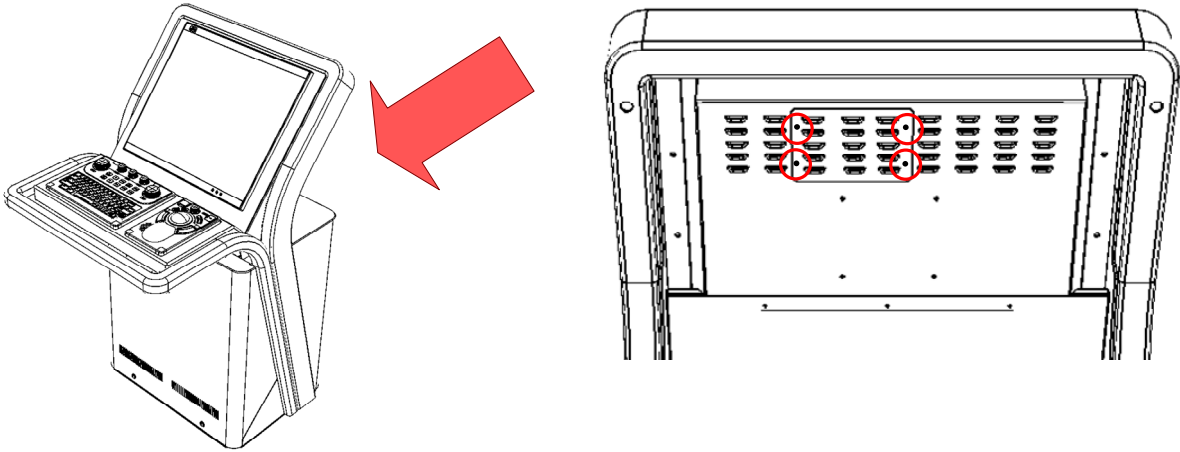
No.	Name	Size	Appearance
1	Phillips screwdriver	Size #1, Size #2	

 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 fan cover on the back of the monitor.

Remove the fan cover on the back of the 19 inch monitor (M3: total of 4 locations).



Step 2 Change the fan.

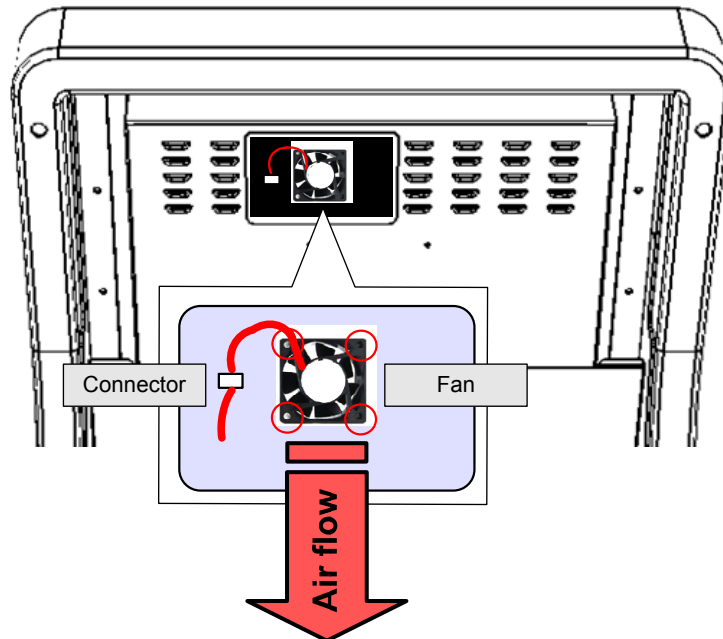
Disconnect the connector of the fan. Remove the screws (M4: 4 locations) that fasten the fan and change the fan. Install the fan so that the air flows to the exhaust direction (coming out of the monitor).



Be careful with the fan mounting direction. Be sure to install the fan so that the air flows out of the monitor.



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



After replacing the fans, 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 **Checking operation**

After monitor 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 power to the display unit and make sure that screen display is normal. Adjust brightness and make sure that brightness changes.
- (2) Check that the fan error "LCD (FAN #n)" does not occur.
- (3) Referring to "7.2.2 Checking the Condition of the Screen [Monitor Test]," check the screen display to make sure that there is no problem.

This completes monitor fan replacement.



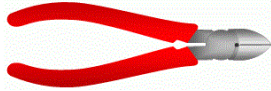

4.3.3 Central Control Unit: CCU NDC-1590

4.3.3.1 Cleaning the Vents of the CCU

[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	Soft dry cloth	—	—

*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.



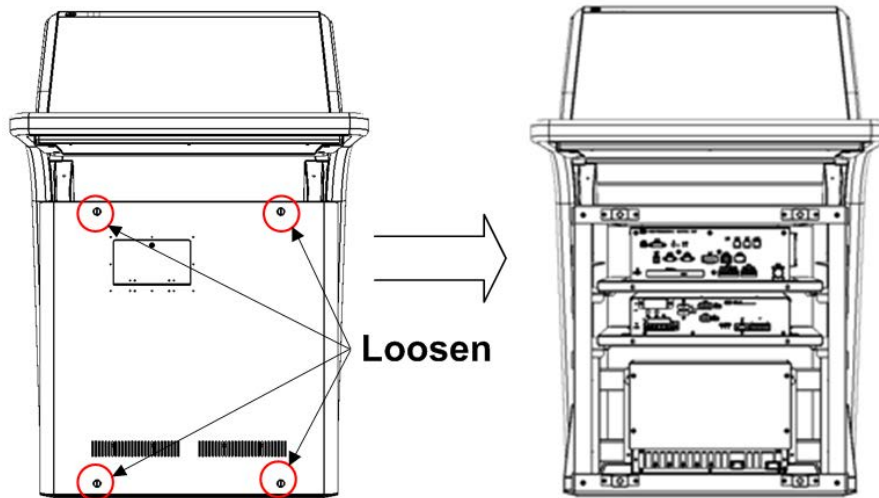
Do not lose the screws as they will be needed again.



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

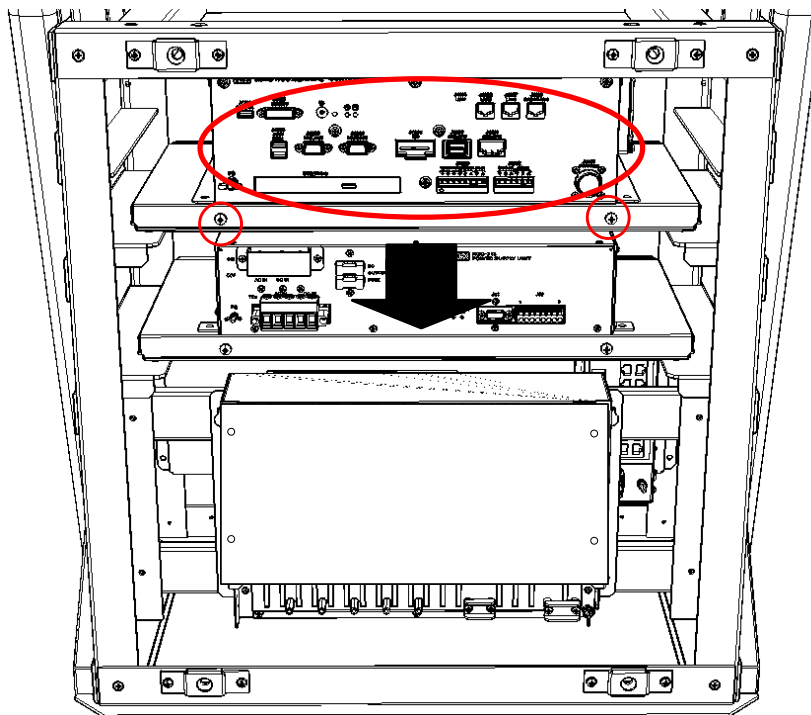
Step 1 Remove the front cover of the display unit mount kit.

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 Remove the CCU from the display unit mount kit.

Remove all the cables being connected to the front of the CCU. Remove the screws (M5: 2 locations) of the mounting plate that fasten the CCU, pull out the CCU together with the mounting plate, and then remove it from the display unit mount kit.



CAUTION

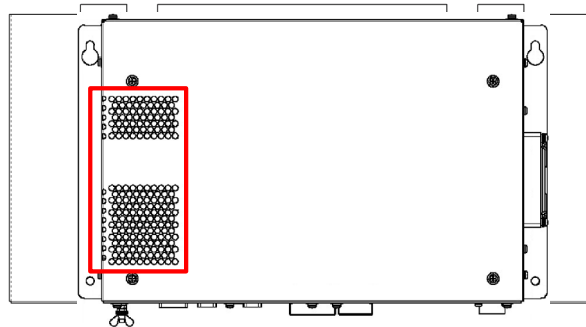


Before conducting Unit replacement work, always be sure that every cable-tie that fastens the cable has been removed.

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

Step 3 **Clean the vents in the upper part of the CCU.**

Clean the vents in the upper part of the CCU with a soft dry cloth. After cleaning the vents, reinstall the CCU 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 4 **Checking operation**

After cleaning 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.






This completes the cleaning of the vents of the CCU.

4.3.3.2 Replacing with the CCU Repair Kit: NZC-1590

[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.



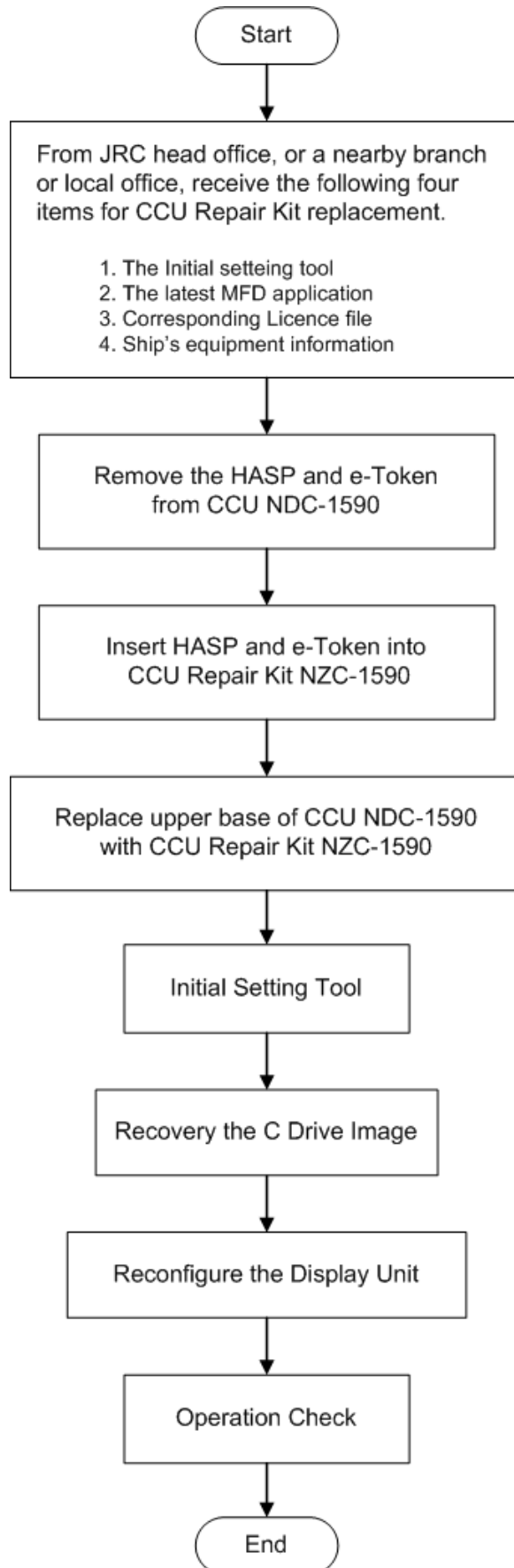
Since “The Initial Setting Tool” is an auto-run application, be sure that connect your USB flash drive before turning on the power.



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

[The flowchart of CCU Repair Kit replacement work]

The flowchart of CCU Repair Kit replacement work is shown below.



Step 1 From nearby JRC sales department, receive the data files for CCU Repair Kit replacement.

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

1. The Initial setting tool
2. The latest MFD application
3. Corresponding Licence file
4. 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 CCU replacement, please contact our head office or a nearby branch or local office beforehand.

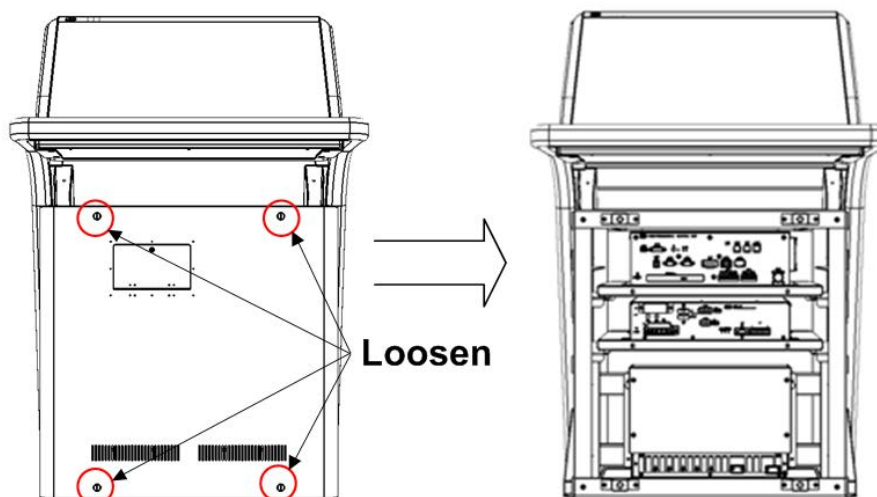


The USB flash drives which are password protected or encrypted are not available in this work.

Step 2 Turn off the Display Unit and remove the front cover of the display unit mount kit.

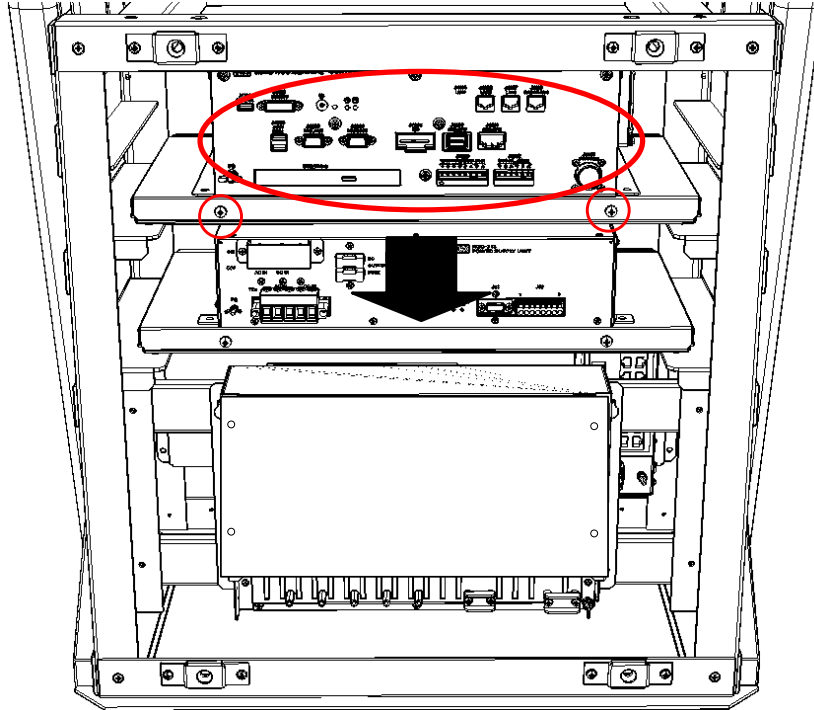
Turn off the Display Unit.

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 3 Remove the CCU from the display unit mount kit.

Remove all the cables being connected to the front of the CCU. Remove the screws (M5: 2 locations) of the mounting plate that fasten the CCU, pull out the CCU together with the mounting plate, and then remove it from the display unit mount kit.



⚠ CAUTION

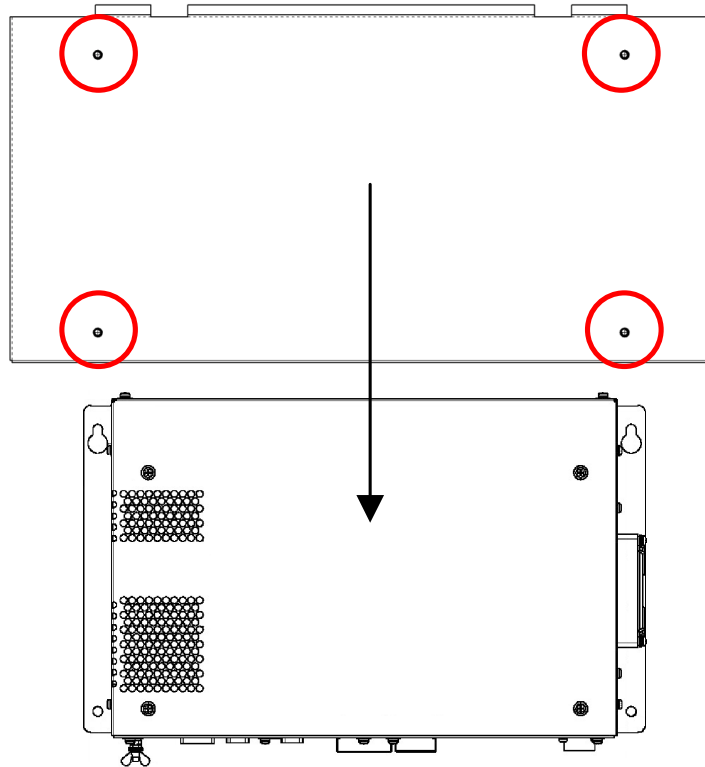


Before conducting Unit replacement work, always be sure that every cable-tie that fastens the cable has been removed.

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

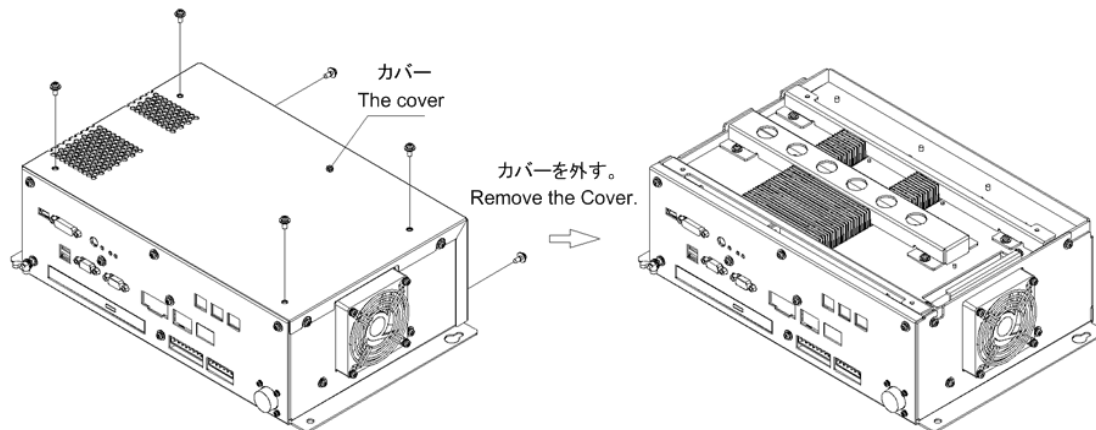
Step 4 Remove the CCU from the mounting plate.

Remove the screws (M4: 4 locations) of the mounting plate and pull out the CCU from the mounting plate.



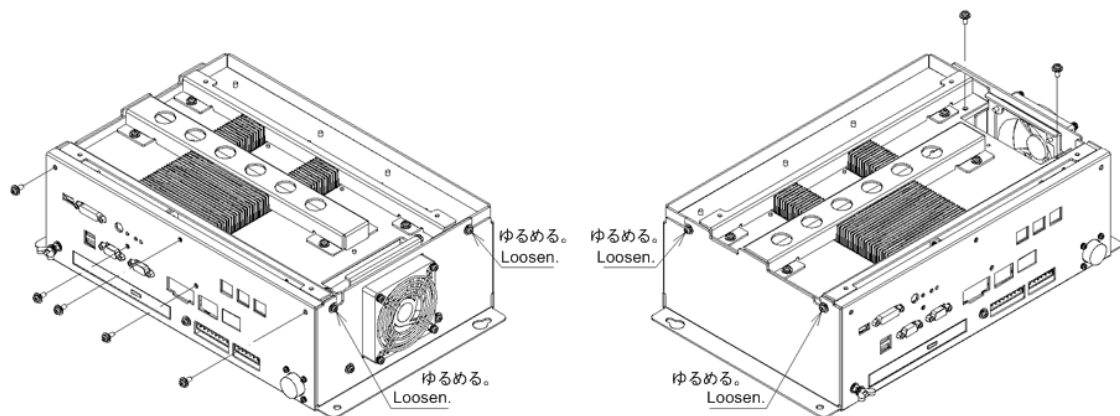
Step 5 Remove the CCU cover.

Remove the screws (M4: 6 locations) that fasten the CCU cover and then take it out.



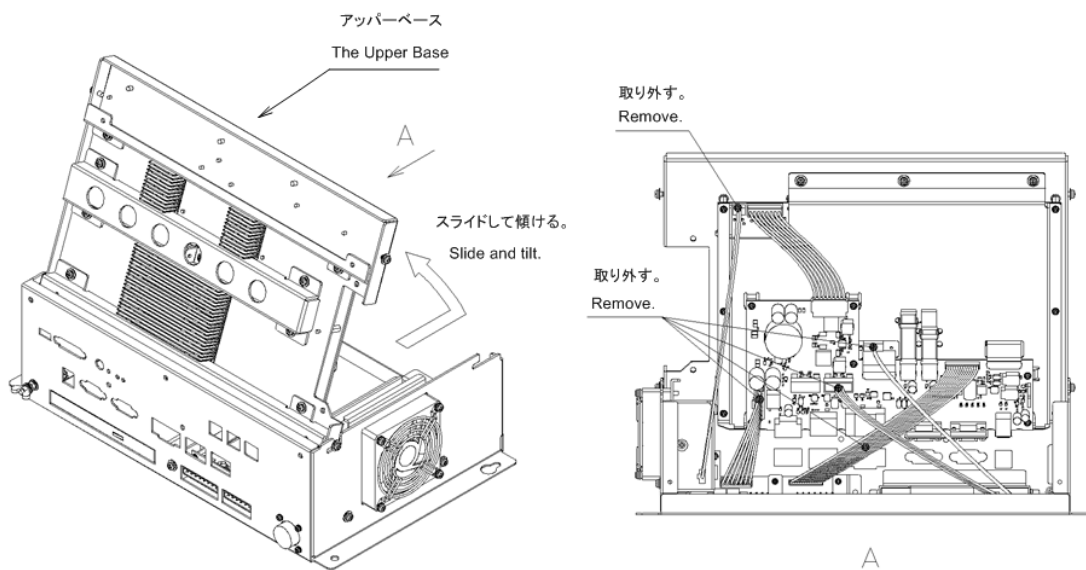
Step 6 Remove the screws that fasten the upper base.

Remove the screws (M4: 7 locations) that fasten the upper base. Loosen the screws (M4: 4 locations) of both ends.



Step 7 Remove the upper base.

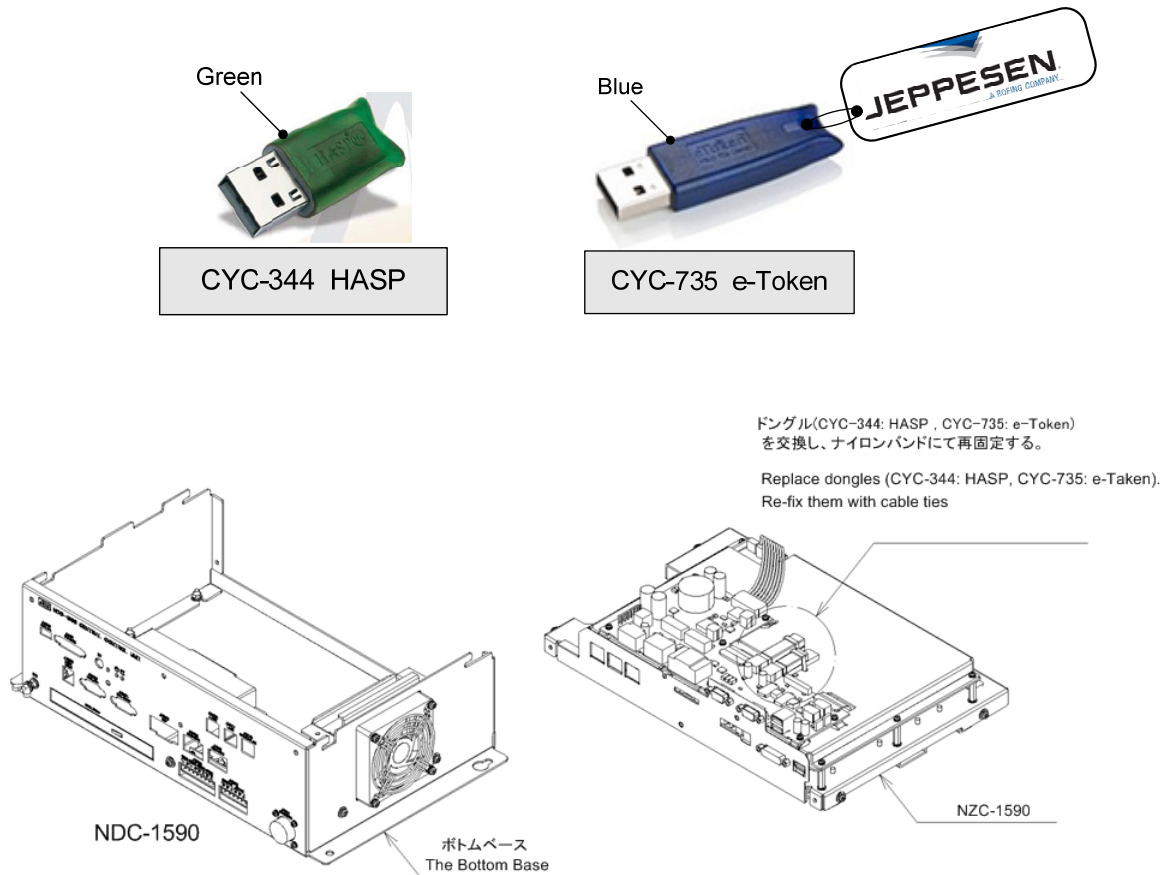
Slide the upper base to tilt and disconnect the cables. Then, remove the upper base.



Step 8 Insert HASP and e-Token.

Remove the HASP and the e-Token being connected to the upper base of the NDC-1590 and insert them into the corresponding connectors on the upper base of the NZC-1590 CCU Repair Kit. Then, fasten them with cable-ties.

The color of the HASP is green. The color of the e-Token is blue with a JEPPESEN company tag which is written the System ID.



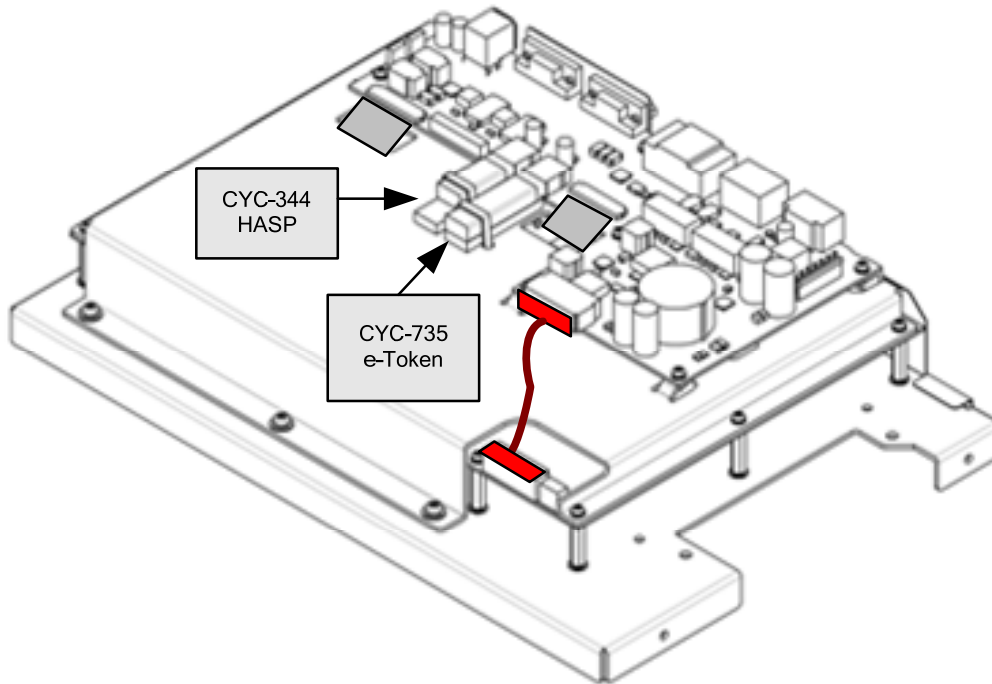
Insert both the HASP and the e-Token securely all the way to the roots. When fastening them, be sure to fasten securely so that there is no looseness.



Be aware not to insert the HASP and the e-Token into wrong connectors.



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



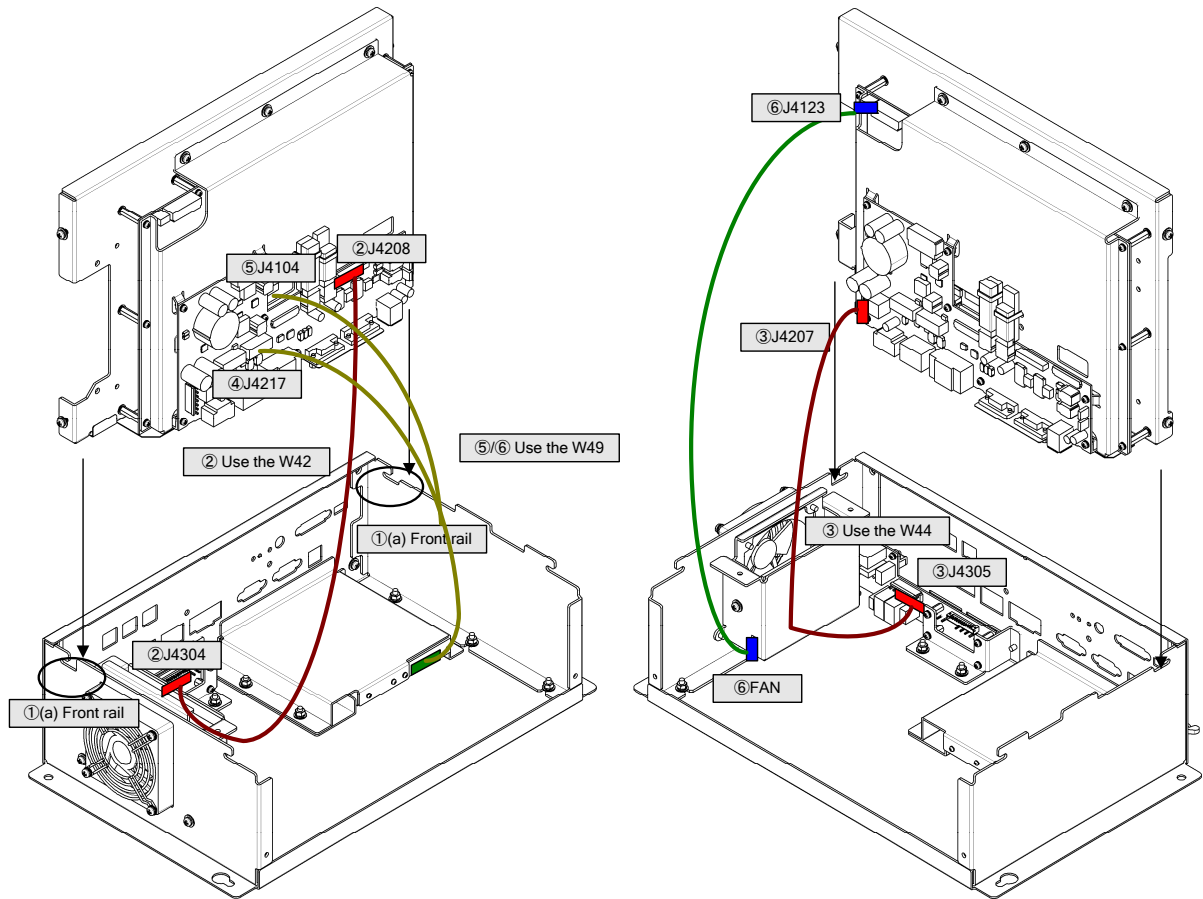
Step 9 Replace with the CCU Repair Kit NZC-1590.

When the insert of the HASP and the e-Token are completed, insert the NZC-1590 into the bottom base by repeating the same procedure in the reverse order. Then, install the cover also in the reverse order.



Be careful not to forget to insert the cable connectors.

No.	From	To	Wire	Appearance
2	CMH-2406 J4208	CQD-2286 J4304	W42	
3	CMH-2406 J4207	CQD-2286 J4305	W44	
4	CMH-2406 J4217	DVD drive	DVD drive power	
5	CDC-1410 J4104		DVD drive SATA	
6	CDC-1410 J4123	FAN	W45	



Step 10 Return the assembly into the display unit mount kit.

Reinstall the NZC-1590 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.

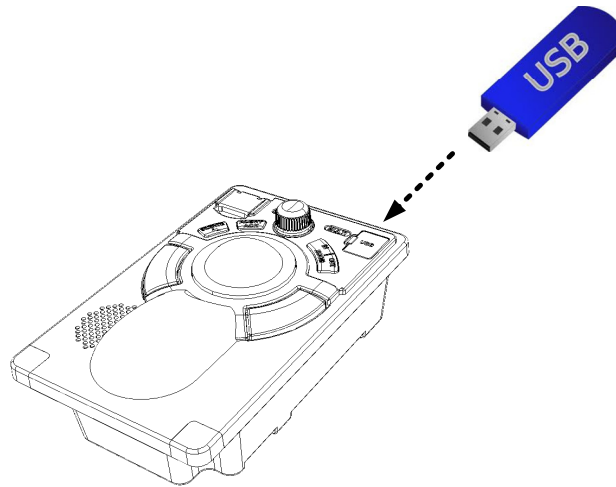
Step 11 Check that Display unit is booting up correctly.

After CCU Repair Kit replacement is completed, 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. And then, turn off it again.

Step 12 Run the Initial setting tool .

Connect your USB flash drive that contains the Initial setting tool and then start up the Display Unit.



The Initial setting tool will launch automatically. Carry out initial setting for the Display unit by referring “4.3.3.3 Initial Setting”.

After initial setting is completed, turn OFF the Display unit and disconnect your USB flash drive.

Step 13 Recover the C Drive Image.

In order to apply the 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 14 Reconfigure the Display unit

Reconfigure the Display Unit. Set it up in accordance with the Licence file which the CCU had. (RADAR / ECDIS / CONNING / AMS / MFD)

- RADAR : Perform step 14-1, 14-2, 14-3, 14-5 and 14-7.
- CHART RADAR : Perform step 14-1, 14-2, 14-3, 14-5 and 14-7.
- ECDIS : Perform step 14-1, 14-2, 14-4, 14-5 and 14-7.
- CONNING : Perform step 14-1, 14-2 and 14-5.
- AMS : Perform step 14-1, 14-2 and 14-6.
- MFD : Perform all corresponding reconfigure steps by referring the Licence installed.
For how to check the Licences installed, refer
 - Instruction Manual 21.1.3.2 Checking the enable/disable statuses of the functions that have been installed

14-1. Update the MFD application. (All Licence)

Update the MFD application to the latest version by referring the following:

- Field Service Manual 5.1 Updating the Software

14-2. Setup Own Task Station, Network, Serial port, Contact output, etc. of the CCU. (All licence)

Installation settings consist of Common setting items and Equipment-specific setting items. Common setting items can be synchronized with the system automatically via SLC.

Equipment-specific setting items cannot be synchronized with the system, therefore they need to setup manually.

14-2-1. Common setting items

Confirm that SLC is already started up and LAN connection is available.

Start the display unit, click [Menu] – [Code Input] button and input password “0009”. When selected [Menu] – [Service] – [Installation], the common setting items are synchronized with the system automatically.

For the details of common setting items, refer to "Installation Manual 4.43 List of Common Setting Items".



In order to synchronize common setting items, make sure that SLC is already started up and LAN connection is available, before starting the display unit.

14-2-2. Equipment-specific setting items

- Settings for Own Task Station

Own Task Station setting is placed on the upper side of [System Configuration] - [Subsystem Installation] dialog.

Set up Own Task Station number. And make sure that Own Task Station number is same as Device Installation settings as below.

Own Task Station	Device Installation
Task Station 4	<input checked="" type="checkbox"/> Task Station 1 No.1 RADAR
No.2 ECDIS	<input checked="" type="checkbox"/> Task Station 2 No.2 RADAR
IP Address(Main):	<input checked="" type="checkbox"/> Task Station 3 No.1 ECDIS
	<input checked="" type="checkbox"/> Task Station 4 No.2 ECDIS



Do not set a duplicated Task Station number and a duplicated IP Address. Otherwise, unintended operation is performed, e.g. sensor data cannot be received.

-
- Settings for Serial port on CCU
Serial port settings on CCU is placed on the upper side of [System Configuration] - [Serial Port] dialog. Select serial sensor connected with CCU.
 - Settings for Contact output on CCU
Contact output settings on CCU is placed on the upper side of [System Configuration] - [Contact] dialog. Select contact output function assigned to CCU.
 - Settings for Data output
[System Configuration] - [Data Output] dialog is Equipment-specific setting item. Select the output data.
 - Settings for Alert
[Setting] - [Alert] dialog is Equipment-specific setting item. When the system assigned watch alarm to CCU and/or SLC, the items need to set up.
 - Settings for AC Power Failure
[Setting] - [AC Power Failure] dialog is Equipment-specific setting item. Set up to same as other display unit settings.
 - Settings for VDR
[Setting] - [VDR] dialog is Equipment-specific setting item. When the systems connected with the JRC – VDR, the items need to set up. Set up to Delay Time that delays the timing of output each task station, e.g. 3 sec.

For more information, refer as follows.

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.4 Subsystem Installation
- Installation Manual 4.6 Setting up a Serial Port
- Installation Manual 4.7 Setting Contacts (Contact Input/Output)
- Installation Manual 4.10 Setting Data Output
- Installation Manual 4.11 Network Setting
- Installation Manual 4.14 Setting Alert
- Installation Manual 4.15 Operation Setting at AC Power Failure (Insufficient AC power supply)
- Installation Manual 4.17 Setting VDR

14-3. Initial setup for RADAR. (RADAR Licence)

Set up the RADAR by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.10 Setting Data Output
- Installation Manual 4.16 Setting Interswitch
- Installation Manual 4.21 Tune Adjustment
- Installation Manual 4.22 Bearing Adjustment
- Installation Manual 4.23 Range Adjustment
- Installation Manual 4.24 Master/Slave Radar Operation Mode
- Installation Manual 4.25 Setting an Antenna Height
- Installation Manual 4.26 Tune Peak Adjustment
- Installation Manual 4.27 Setting a Tune Indicator (tuning indicator level)
- Installation Manual 4.28 Setting Output BP (Radar Antenna Bearing Pulse Output)
- Installation Manual 4.29 Performance Monitor Adjustment
- Installation Manual 4.30 Setting Sector Blank (RADAR Screen Only)
- Installation Manual 4.31 Setting TNI Blank
- Installation Manual 4.32 Setting Input BP Count
- Installation Manual 4.33 Setting Output BP Count
- Installation Manual 4.34 Echo Noise Level Adjustment
- Installation Manual 4.35 TT (Target Tracking) Function Adjustment (RADAR Screen Only)
- Installation Manual 4.36 Adjusting MBS
- Installation Manual 4.39 RADAR Adjustment (RADAR Screen Only)

14-4. Re-install electronic charts. (ECDIS Licence)

Re-install the electronic charts for ECDIS by referring 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
- Additional Manual for Chart Installation 3.2 Importing ARCS Charts
- Additional Manual for Chart Installation 4.3 Importing C-MAP Ed.3

14-5. Reconfigure the CONNING Display. (CONNING Licence)

Set up the Conning Display by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- Conning Display Instruction Manual

14-6. Reconfigure the BAMS. (AMS Licence)

Set up the BAMS by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- BAMS Instruction Manual

14-7. Setup for optional Licence.

To set up TCS optional Licence, refer the followings: (ECDIS)

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.12 Redundancy Setting
- Installation Manual 4.18 Setting Autosail (Automatic Sailing System)

To set up RADAR Overlay optional Licence, refer the followings: (ECDIS)

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.4 Subsystem Installation

To set up Chart optional Licence, refer the followings: (RADAR)

- 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
- Additional Manual for Chart Installation 4.3 Importing C-MAP Ed.3



ARCS charts are not available in CHART RADAR.

Step 15 Check operation.

After reconfigure 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 "7.2 Operational Inspection" in Chapter 7, Troubleshooting.






This completes CCU Repair Kit replacement.

4.3.3.3 Replacing with the CCU: NDC-1590

[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.



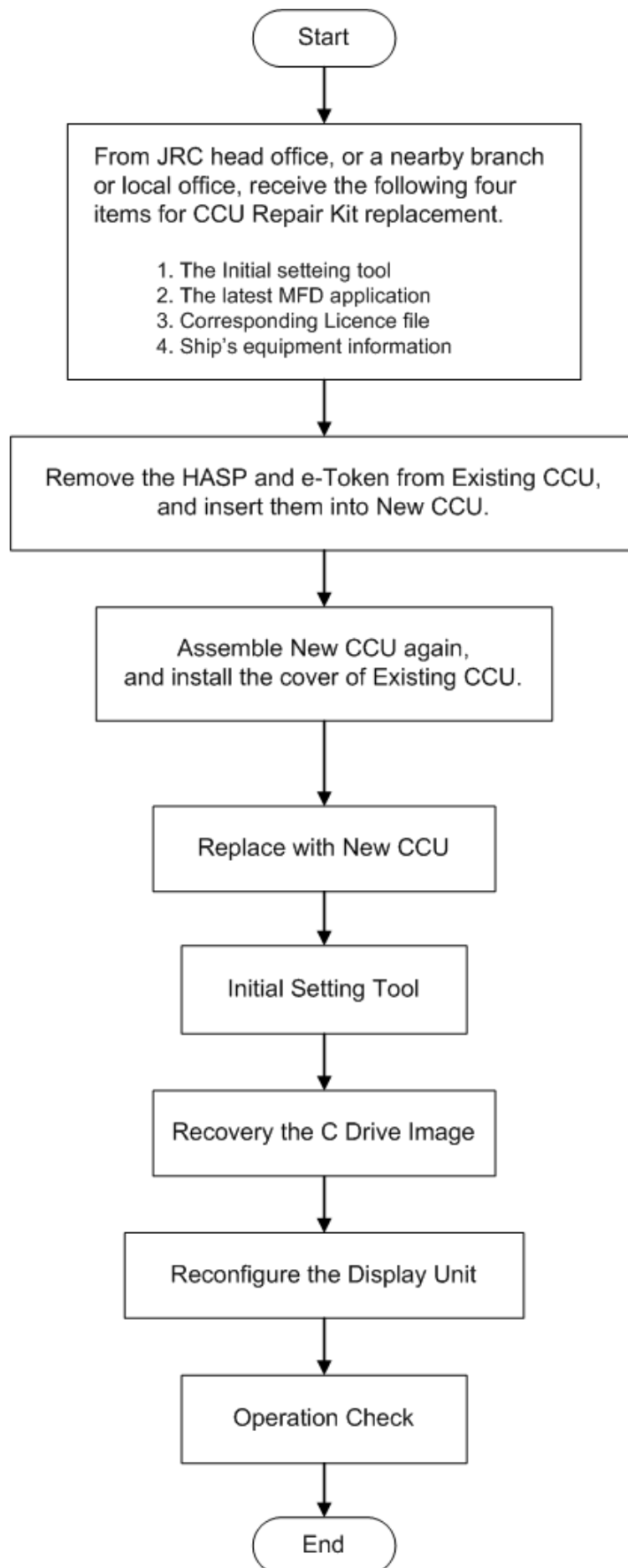
Since “The Initial Setting Tool” is an auto-run application, be sure that connect your USB flash drive before turning on the power.



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

[The flowchart of CCU replacement work]

The flowchart of CCU replacement work is shown below.



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

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

1. The Initial setting tool
2. The latest MFD application
3. Corresponding Licence file
4. 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 CCU replacement, please contact our head office or a nearby branch or local office beforehand.

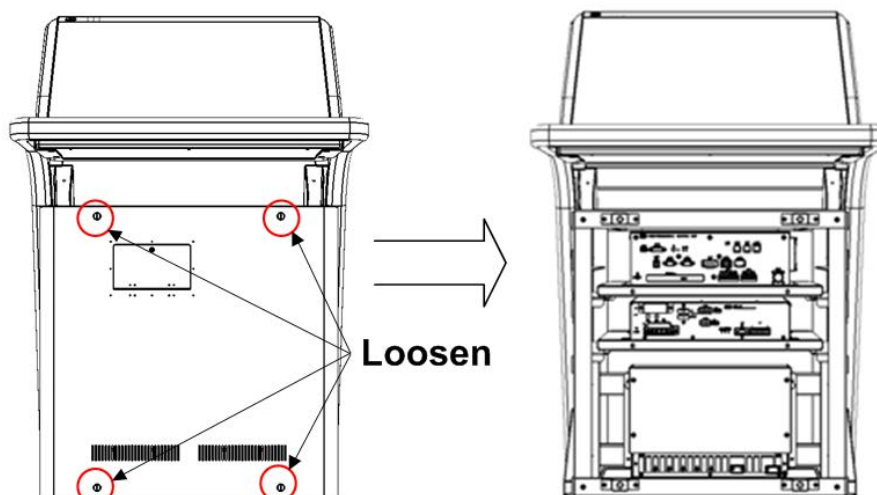


The USB flash drives which are password protected or encrypted are not available in this work.

Step 2 Turn off the Display Unit and remove the front cover of the display unit mount kit.

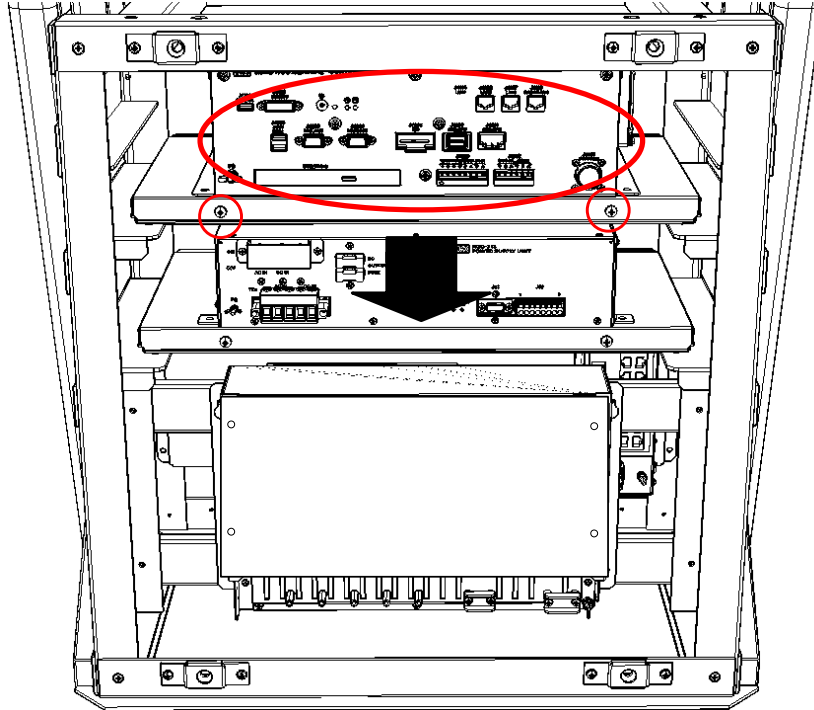
Turn off the Display Unit.

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 3 Remove the CCU from the display unit mount kit.

Remove all the cables being connected to the front of the CCU. Remove the screws (M5: 2 locations) of the mounting plate that fasten the CCU, pull out the CCU together with the mounting plate, and then remove it from the display unit mount kit.



⚠ CAUTION

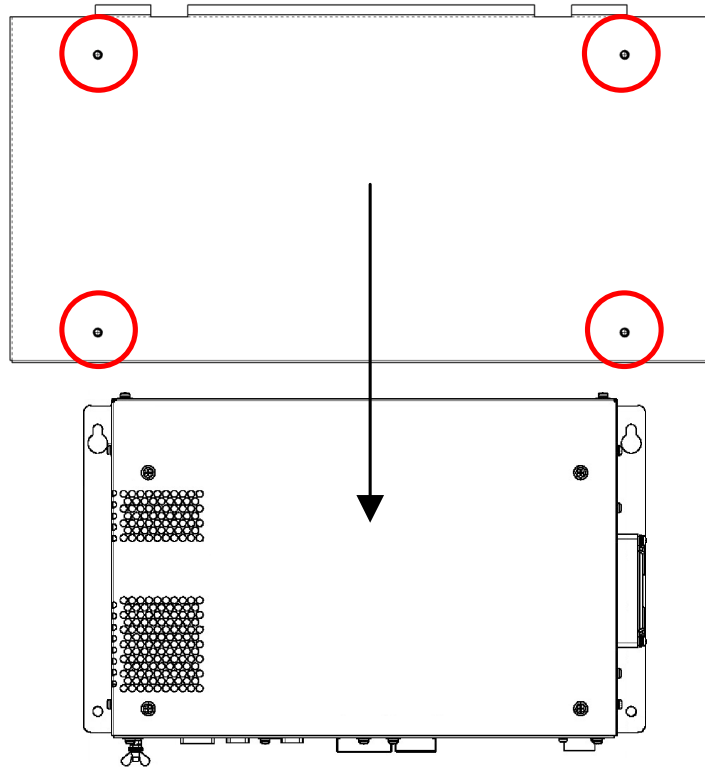


Before conducting Unit replacement work, always be sure that every cable-tie that fastens the cable has been removed.

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

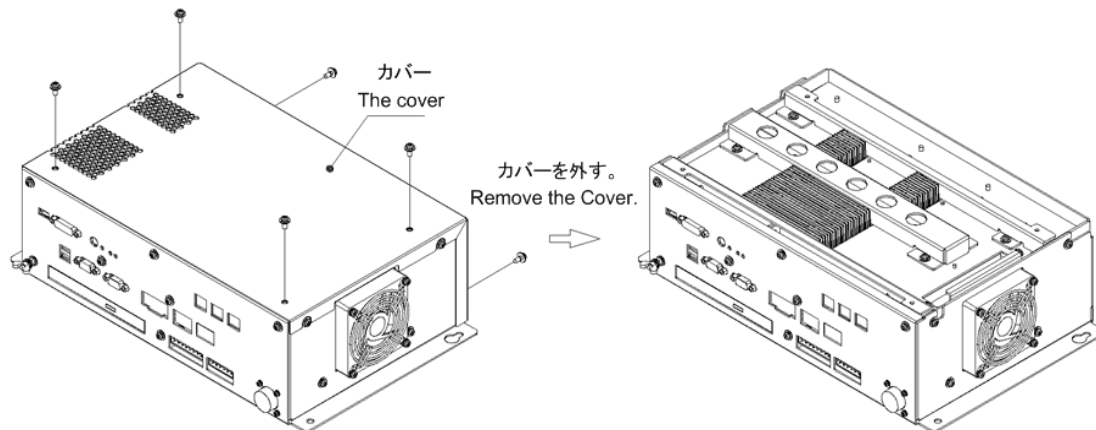
Step 4 Remove the CCU from the mounting plate.

Remove the screws (M4: 4 locations) of the mounting plate and pull out the CCU from the mounting plate.



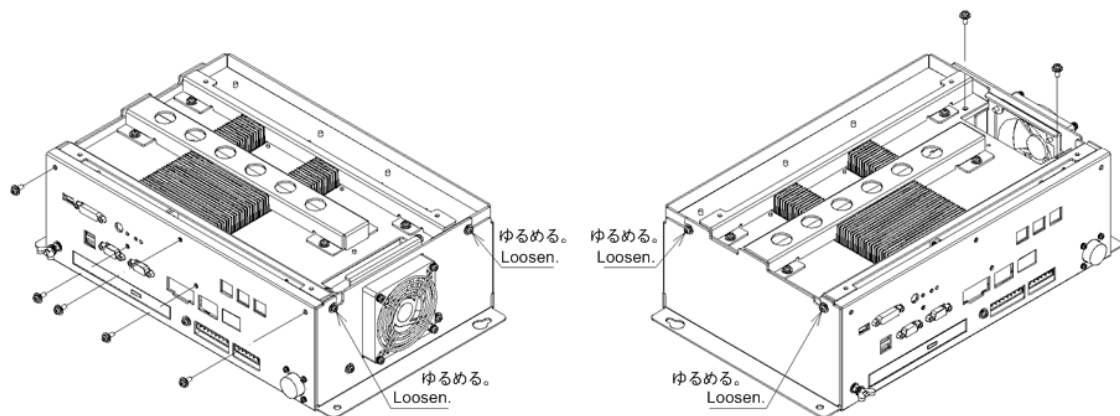
Step 5 Remove the CCU cover.

Remove the screws (M4: 6 locations) that fasten the CCU cover and then take it out.



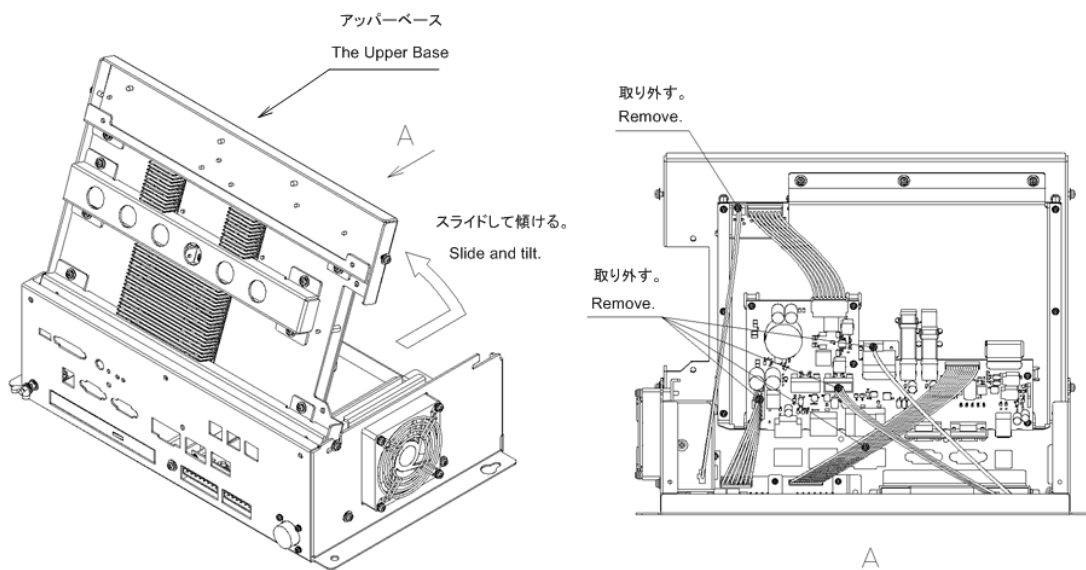
Step 6 Remove the screws that fasten the upper base.

Remove the screws (M4: 7 locations) that fasten the upper base. Loosen the screws (M4: 4 locations) of both ends.



Step 7 Remove the upper base.

Slide the upper base to tilt and disconnect the cables. Then, remove the upper base.



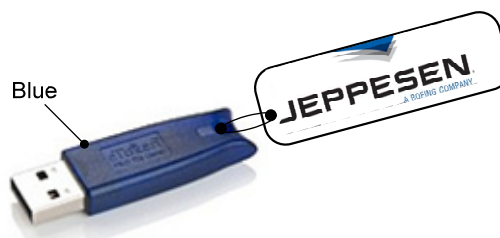
Step 8 Change HASP and e-Token.

Replacement the HASP and the e-Token being connected to the upper base of Existing CCU and insert them into the corresponding connectors on the upper base of New CCU. Then, fasten them with cable-ties.

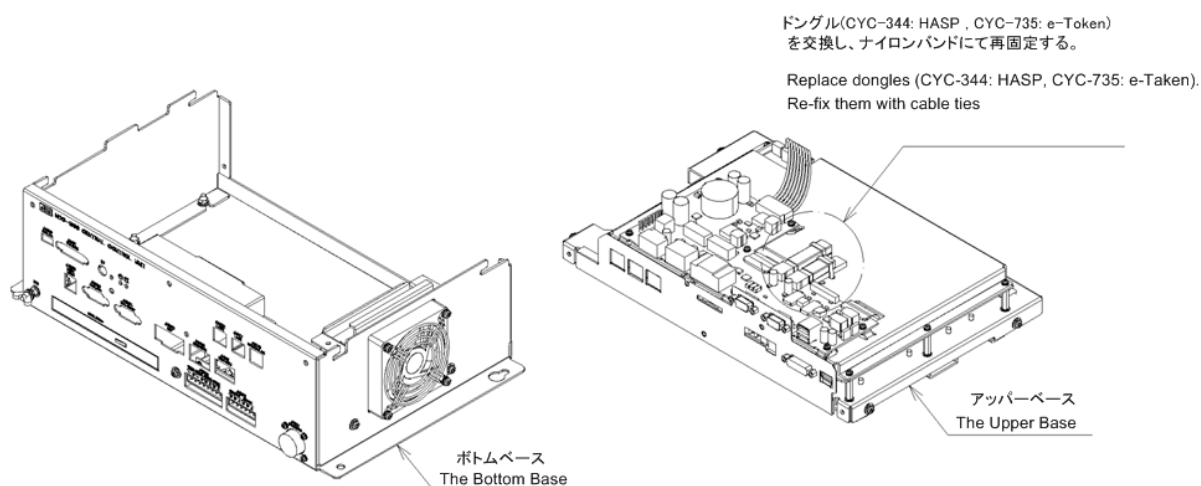
The color of the HASP is green. The color of the e-Token is blue with a JEPPESEN company tag which is written the System ID.



CYC-344 HASP



CYC-735 e-Token



Be careful not mix up Existing one and New one.



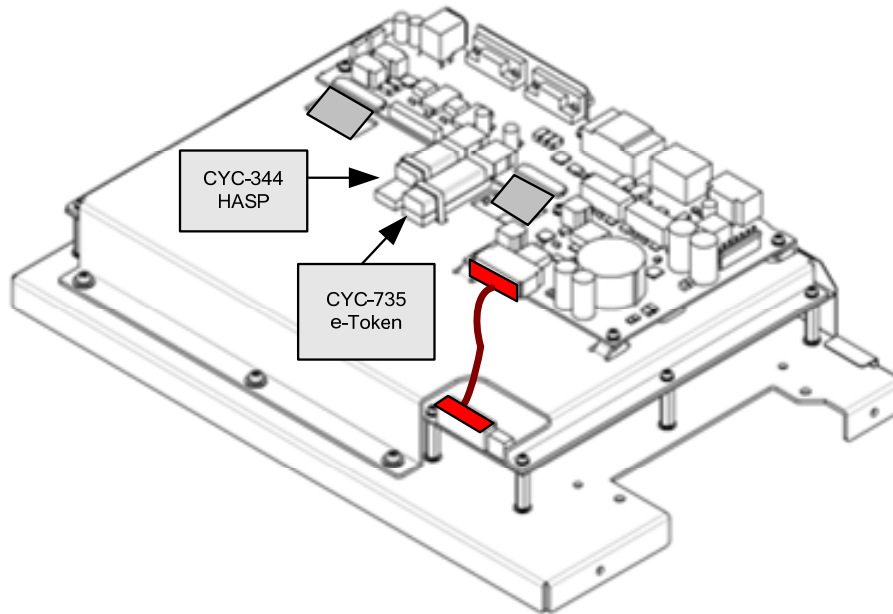
Insert both the HASP and the e-Token securely all the way to the roots. When fastening them, be sure to fasten securely so that there is no looseness.



Be aware not to insert the HASP and the e-Token into wrong connectors.



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



Step 9 Assemble the CCU.

When the replacement of the HASP and the e-Token are completed, assemble the CCU by repeating the same procedure in the reverse order. Then, install the cover also in the reverse order.

The cover of Existing CCU install to New CCU.

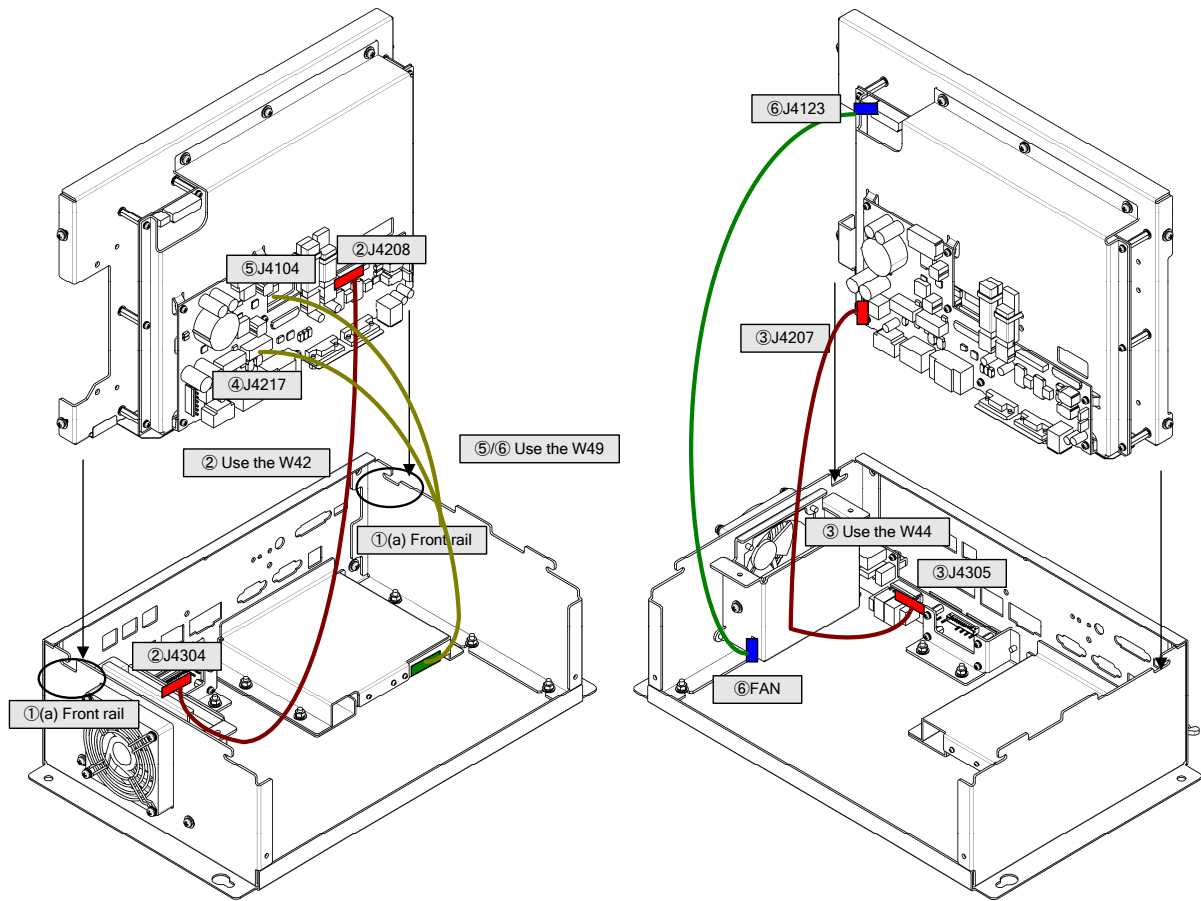


Serial number and model name is used for inspection of ship's class. Also serial number is used for maintenance service in JRC. Therefore, the cover of Existing CCU install to New CCU.



Be careful not to forget to insert the cable connectors.

No.	From	To	Wire	Appearance
2	CMH-2406 J4208	CQD-2286 J4304	W42	
3	CMH-2406 J4207	CQD-2286 J4305	W44	
4	CMH-2406 J4217	DVD drive	DVD drive power	
5	CDC-1410 J4104		DVD drive SATA	
6	CDC-1410 J4123	FAN	W45	



Step 10 Return the assembly into the display unit mount kit.

Reinstall the New CCU 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.

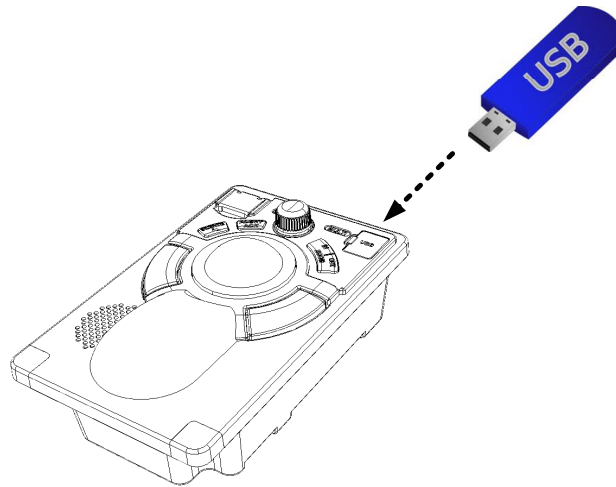
Step 11 Check that Display unit is booting up correctly.

After CCU replacement is completed, 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. And then, turn off it again.

Step 12 Run the Initial setting tool .

Connect your USB flash drive that contains the Initial setting tool and then start up the Display Unit.



The Initial setting tool will launch automatically. Carry out initial setting for the Display unit by referring “4.3.3.3 Initial Setting”.

After initial setting is completed, turn OFF the Display unit and disconnect your USB flash drive.

Step 13 Recover the C Drive Image.

In order to apply the 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 14 Reconfigure the Display unit

Reconfigure the Display Unit. Set it up in accordance with the Licence file which the CCU had. (RADAR / ECDIS / CONNING / AMS / MFD)

- RADAR : Perform step 14-1, 14-2, 14-3, 14-5 and 14-7.
- CHART RADAR : Perform step 14-1, 14-2, 14-3, 14-5 and 14-7.
- ECDIS : Perform step 14-1, 14-2, 14-4, 14-5 and 14-7.
- CONNING : Perform step 14-1, 14-2 and 14-5.
- AMS : Perform step 14-1, 14-2 and 14-6.
- MFD : Perform all corresponding reconfigure steps by referring the Licence installed.
For how to check the Licences installed, refer
 - Instruction Manual 21.1.3.2 Checking the enable/disable statuses of the functions that have been installed

14-1. Update the MFD application. (All Licence)

Update the MFD application to the latest version by referring the following:

- Field Service Manual 5.1 Updating the Software

14-2. Setup Own Task Station, Network, Serial port, Contact output, etc. of the CCU. (All licence)

Installation settings consist of Common setting items and Equipment-specific setting items. Common setting items can be synchronized with the system automatically via SLC.

Equipment-specific setting items cannot be synchronized with the system, therefore they need to setup manually.

14-2-1. Common setting items

Confirm that SLC is already started up and LAN connection is available.

Start the display unit, click [Menu] – [Code Input] button and input password “0009”. When selected [Menu] – [Service] – [Installation], the common setting items are synchronized with the system automatically.

For the details of common setting items, refer to "Installation Manual 4.43 List of Common Setting Items".



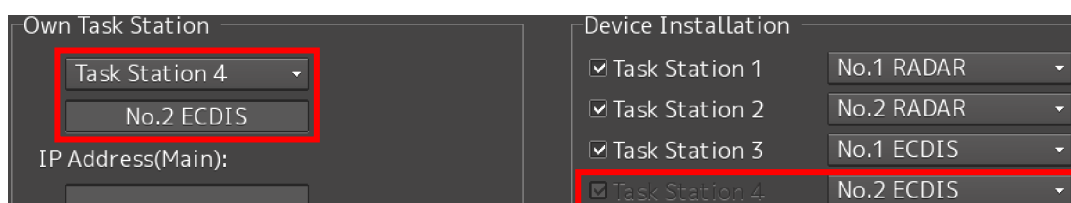
In order to synchronize common setting items, make sure that SLC is already started up and LAN connection is available, before starting the display unit.

14-2-2. Equipment-specific setting items

- Settings for Own Task Station

Own Task Station setting is placed on the upper side of [System Configuration] - [Subsystem Installation] dialog.

Set up Own Task Station number. And make sure that Own Task Station number is same as Device Installation settings as below.



Do not set a duplicated Task Station number and a duplicated IP Address. Otherwise, unintended operation is performed, e.g. sensor data cannot be received.

-
- Settings for Serial port on CCU
Serial port settings on CCU is placed on the upper side of [System Configuration] - [Serial Port] dialog. Select serial sensor connected with CCU.

 - Settings for Contact output on CCU
Contact output settings on CCU is placed on the upper side of [System Configuration] - [Contact] dialog. Select contact output function assigned to CCU.

 - Settings for Data output
[System Configuration] - [Data Output] dialog is Equipment-specific setting item. Select the output data.

 - Settings for Alert
[Setting] - [Alert] dialog is Equipment-specific setting item. When the system assigned watch alarm to CCU and/or SLC, the items need to set up.

 - Settings for AC Power Failure
[Setting] - [AC Power Failure] dialog is Equipment-specific setting item. Set up to same as other display unit settings.

 - Settings for VDR
[Setting] - [VDR] dialog is Equipment-specific setting item. When the systems connected with the JRC – VDR, the items need to set up. Set up to Delay Time that delays the timing of output each task station, e.g. 3 sec.

For more information, refer as follows.

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.4 Subsystem Installation
- Installation Manual 4.6 Setting up a Serial Port
- Installation Manual 4.7 Setting Contacts (Contact Input/Output)
- Installation Manual 4.10 Setting Data Output
- Installation Manual 4.11 Network Setting
- Installation Manual 4.14 Setting Alert
- Installation Manual 4.15 Operation Setting at AC Power Failure (Insufficient AC power supply)
- Installation Manual 4.17 Setting VDR

14-3. Initial setup for RADAR. (RADAR Licence)

Set up the RADAR by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.10 Setting Data Output
- Installation Manual 4.16 Setting Interswitch
- Installation Manual 4.21 Tune Adjustment
- Installation Manual 4.22 Bearing Adjustment
- Installation Manual 4.23 Range Adjustment
- Installation Manual 4.24 Master/Slave Radar Operation Mode
- Installation Manual 4.25 Setting an Antenna Height
- Installation Manual 4.26 Tune Peak Adjustment
- Installation Manual 4.27 Setting a Tune Indicator (tuning indicator level)
- Installation Manual 4.28 Setting Output BP (Radar Antenna Bearing Pulse Output)
- Installation Manual 4.29 Performance Monitor Adjustment
- Installation Manual 4.30 Setting Sector Blank (RADAR Screen Only)
- Installation Manual 4.31 Setting TNI Blank
- Installation Manual 4.32 Setting Input BP Count
- Installation Manual 4.33 Setting Output BP Count
- Installation Manual 4.34 Echo Noise Level Adjustment
- Installation Manual 4.35 TT (Target Tracking) Function Adjustment (RADAR Screen Only)
- Installation Manual 4.36 Adjusting MBS
- Installation Manual 4.39 RADAR Adjustment (RADAR Screen Only)

14-4. Re-install electronic charts. (ECDIS Licence)

Re-install the electronic charts for ECDIS by referring 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
- Additional Manual for Chart Installation 3.2 Importing ARCS Charts
- Additional Manual for Chart Installation 4.3 Importing C-MAP Ed.3

14-5. Reconfigure the CONNING Display. (CONNING Licence)

Set up the Conning Display by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- Conning Display Instruction Manual

14-6. Reconfigure the BAMS. (AMS Licence)

Set up the BAMS by referring the followings:

- Installation information at the time of commissioning, which is described in the installation check list
- BAMS Instruction Manual

14-7. Setup for optional Licence.

To set up TCS optional Licence, refer the followings: (ECDIS)

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.12 Redundancy Setting
- Installation Manual 4.18 Setting Autosail (Automatic Sailing System)

To set up RADAR Overlay optional Licence, refer the followings: (ECDIS)

- Installation information at the time of commissioning, which is described in the installation check list
- Installation Manual 4.4 Subsystem Installation

To set up Chart optional Licence, refer the followings: (RADAR)

- 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
- Additional Manual for Chart Installation 4.3 Importing C-MAP Ed.3



ARCS charts are not available in CHART RADAR.

Step 15 Check operation.

After reconfigure 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 "7.2 Operational Inspection" in Chapter 7, Troubleshooting.

This completes CCU replacement.