

Multi RF Deck / Multi Control Head



The following sections provide a step-by-step instruction on the initial set-up and configuration for the NX-5xxx-series for multiple control heads and multiple RF decks. This includes Single Head, Single Deck.

1. Configurations

Select the appropriate configuration for the application.

# of RF Deck	Single RF Deck		Dual RF Deck		Triple RF Deck	
# of Control Head	Single Head	Dual Head	Single Head	Dual Head	Single Head	Dual Head
Six Remote Mount Configuration Designs						

2. Firmware Update

Firmware shall be updated to V1.62 or later for multi-control head / multi-deck support. The firmware shall be identical in each deck and control head for proper operation. During set-up, the firmware shall be updated in each RF deck individually due to architecture of the radio. This shall be done with a single deck connected to a single control head.

Assemble as follows:

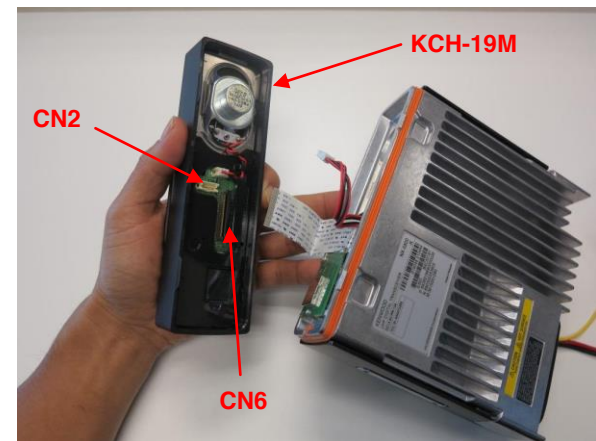
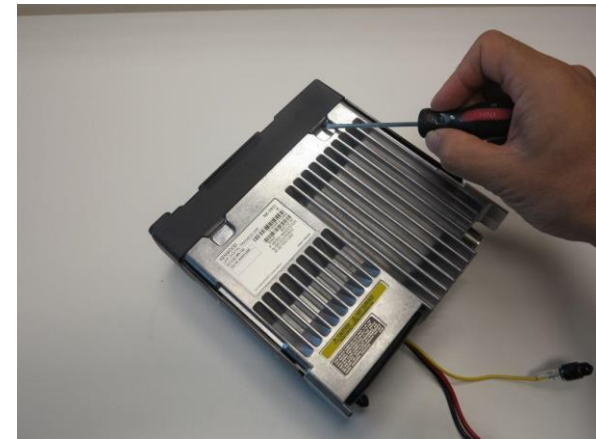
- NX-5000 RF Deck with **KRK-15BM**
- KCH-19M with **KRK-14HM**
(If used, KCH-20RM requires no assembly)

KRK-15BM Assembly Instruction

If the radio has been previously configured for dash mounting using the KCH-19M, remove the KCH-19M from the radio(s).

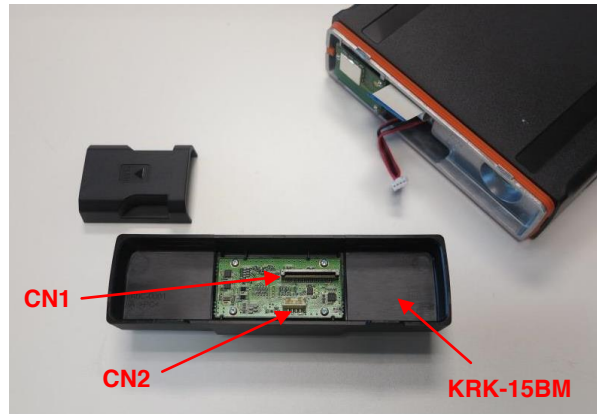
If using the NX-5xxx RF deck only then instruction 1-3 below may be skipped.

- 1) Lift the two tabs of the panel on the bottom of the radio with a flat-head screwdriver and remove the panel from the chassis <Figure 1>.
- 2) Remove the flat cable from the display unit connector (CN6) of the panel.
- 3) Remove the cable from the display unit connector (CN2) of the panel.

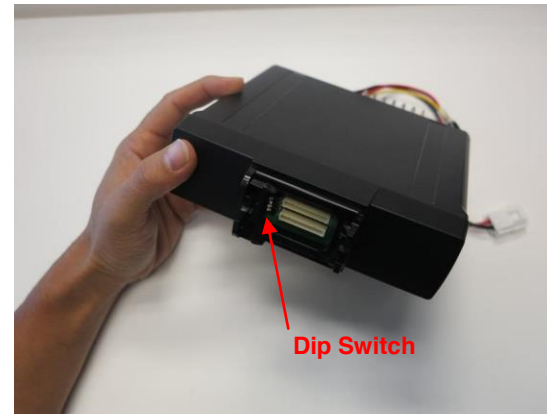


< Figure 2 >

- 4) Insert the cable into the connector (CN2) of the KRK-15BM <Figure 3>.
- 5) Insert the flat cable into the connector (CN1) of the KRK-15BM. **Note:** Exercise care when inserting the flat cable into CN1.
- 6) Fit the KRK-15BM with four tabs onto the front of the chassis. **Note:** Per Figure 4, the dip switch shall be on the left side as shown.



< Figure 3 >



< Figure 4 >

KRK-14HM Assembly Instructions

KRK-14HM is required if the basic head, KCH-19RM is used.
It is not required for the full feature control head, KCH-20RM.

- 1) Insert the cable into the connector (CN2) of KCH-19M.
- 2) Insert the flat cable into the connector (CN6) of KCH-19M.
Note: Exercise care when inserting the flat cable into CN6.
Note: The position of the flat cable needs to be inserted properly so the traces on the cable line up with the connector CN6.

- 3) Fit the four tabs of the KRK-14HM into the KCH-19M. **Note:** Apply limited pressure to lock in position.



< Figure 5 >



< Figure 6 >

CAUTION:

When writing firmware for the initial setup, verify that the DIP switches (1~4) mounted on each interface adapter (KRK-14H, KRK-15B, and KCH-20R) are set to ON.

< DIP Switch >



Update Firmware and Radio Feature

Firmware shall be updated in the following items and as shown in Figure 7 to firmwareV1.62 or later.

- NX-5000 RF Deck with KRK-15BM
- KCH-19M with KRK-14HM
- KCH-20RM

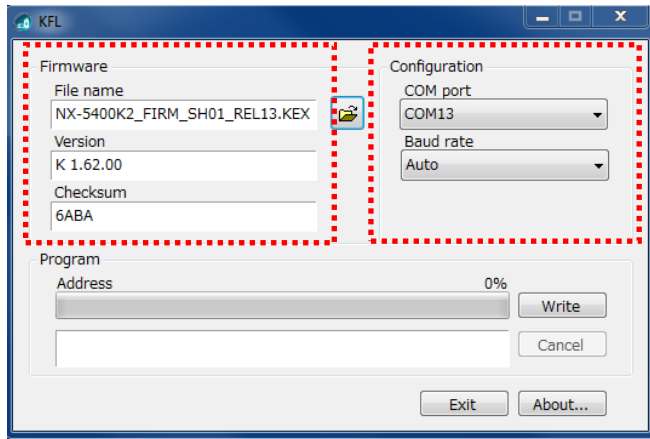
Repeat the following steps for the items noted above:

1. Connect a single RF deck with a single control head using the KCT-71 cable as shown in Figure 8 and then power on the radio.

Note: Connect cable KCT-71 to the top connector of KRK-15BM.

2. Write Firmware

- 1) Start up the KFL and open the Firmware for NX-5000 series (Ver.1.62 or later).
Set the "COM Port.". Set the "Baud Rate" to Auto.



- 2) Connect the radio to the PC with KPG-46UM or KPG-46XM.
- 3) Click the "Write" button of the KFL.

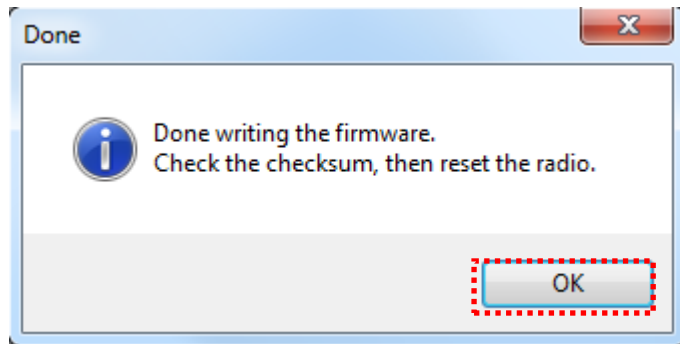


< Figure 7 >



< Figure 8 >

- 4) Click the “OK” button of the following window displayed after writing is finished.



- 5) Confirm the firmware checksum in the LCD display to insure that the appropriate firmware has been written.
(If checksum is incorrect, then repeat from procedure 1).
- 6) Reboot the radio.

3. Authenticate Radio Feature License “KWD-5004MR”*

* This is necessary only for radios with S/No. B5900000 or earlier.

4. Check Firmware Version and Radio Feature License

- 1) Confirm that the radio's data has the correct Firmware Version and Activated Features using the “Transceiver Information” of KPG-D1N.

[Firmware Version] “K 1.62.00” or later

[Activated Features] “KWD-5004MR” (Multi Receive)

- 2) Power off the radio and remove Head from Deck.

<Transceiver Information on KPG-D1 >

3. Write FPU Data

For Single RF Deck Configuration

1. Launch KPG-D1N
2. Create FPU Data file
 - 1) If using an existing data file, open the file.
 - 2) Open Product Information.

The screenshot shows the 'Product Information' dialog box. At the top, there are dropdown menus for 'Model Name' (NX-5800 [Mobile]; K/F), 'Frequency' (450-520 MHz), and 'Zone-channel Format' (Personality). Below these are several feature selection checkboxes, including '4000 Channel/Talkgroup ID', 'microSD', 'Secure Cryptographic Module', 'Multi RF Deck', 'Front Panel Programming', 'Bluetooth Serial Port Profile', and 'DES 4 Keys'. There are also sections for 'P25' and 'NXDN' configurations. At the bottom, the 'Control Head Configuration' section is highlighted with a red dashed border, showing two dropdown menus for 'Control Head 1' and 'Control Head 2', both set to 'KCH-20R (Featured Panel)'. At the very bottom, there are buttons for 'Read Configuration', 'OK', 'Cancel', and 'Help'.

- 3) Select Control Head 1 and Control Head 2.
- 4) Program additional settings.

3. Write FPU Data file
 - 1) Power on the radio.
 - 2) Connect the radio to the PC with the KPG-46 Cable via Control Head 1.
 - 3) Write the FPU Data to the radio by clicking the "Write" button of KPG-D1N.
 - 4) Power off the radio.

For Multi RF Deck Configuration

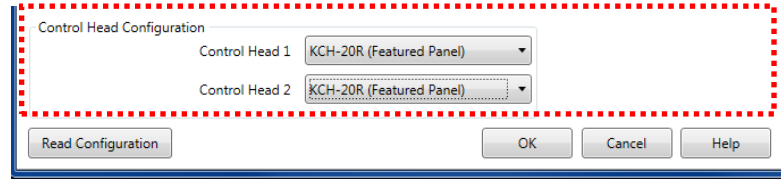
1. Launch KPG-D1N
2. Create FPU Data file for each RF Deck separately

Note: Repeat this procedure for each RF Deck separately.

- 1) If applying existing data file to Multi RF Deck, open the data file.
- 2) Open Product Information and enable the Multi RF Deck Feature Selection.

The screenshot shows the 'Product Information' dialog box. At the top, there are dropdown menus for 'Model Name' (NX-5700 [Mobile]; K/F), 'Frequency' (136-174 MHz), and 'Zone-channel Format' (Channel Table). Below these is the 'Feature Selection' section, which contains several checkboxes. The 'Multi RF Deck' checkbox (KWD-5004MR) is checked and highlighted with a red dashed border. Other features include 4000 Channel/Talkgroup ID (KWD-5000CH), microSD (KWD-5002SD), Secure Cryptographic Module (KWD-5005AE), Front Panel Programming (KWD-5001FP), Bluetooth Serial Port Profile (KWD-5003BT), and DES 4 Keys (KWD-5006DE). Below the 'Feature Selection' section are sections for 'P25' and 'NXDN' configurations, each with multiple checkboxes. At the bottom, there is a 'Control Head Configuration' section with dropdown menus for 'Control Head 1' and 'Control Head 2', both set to 'KCH-20R (Featured Panel)'. At the very bottom are buttons for 'Read Configuration', 'OK', 'Cancel', and 'Help'.

3) Select Control Head 1 and Control Head 2.



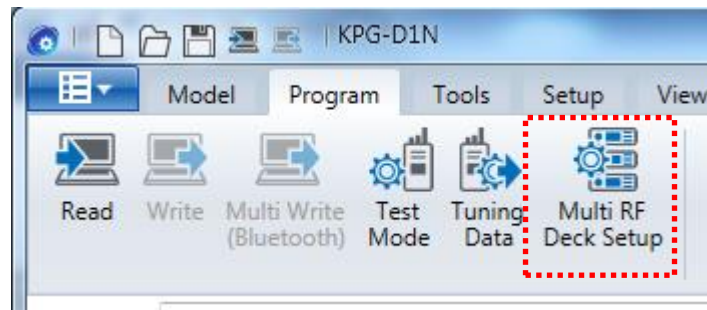
4) Program additional settings.

Note: At least one channel shall be programmed.

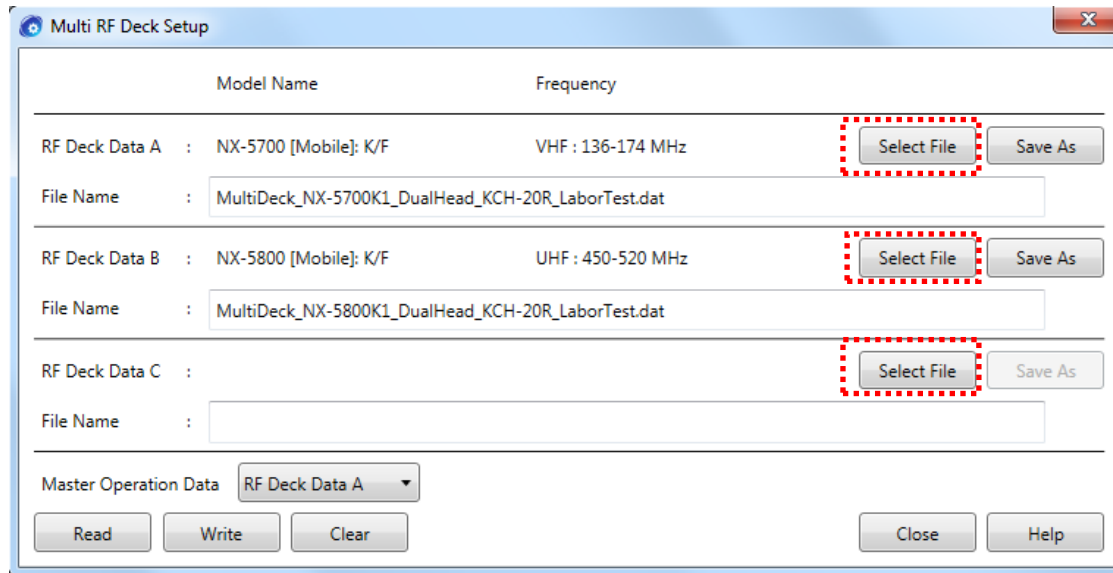
5) Save the data file.

3. Select FPU Data file for Multi RF Deck

1) Program > Multi RF Deck Setup



2) Assign all of the FPU Data saved for each RF Deck to RF Deck Data A/B/C by clicking each Select File button.



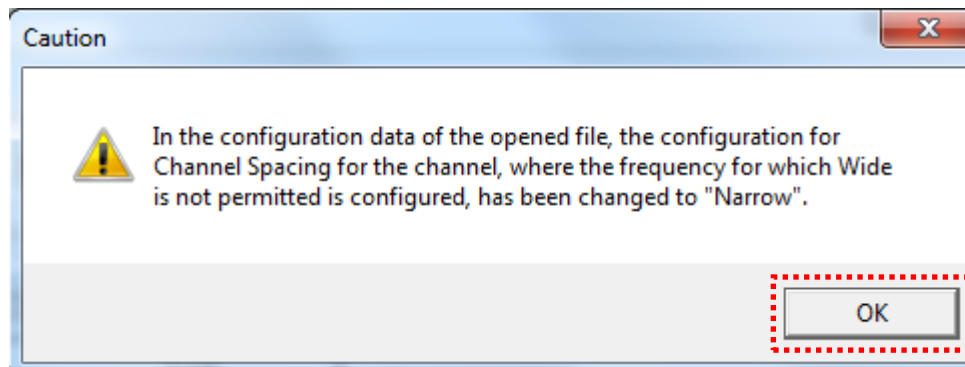
The "Multi RF Deck Setup" dialog box contains a table with three rows for RF Deck Data A, B, and C. Each row has columns for "Model Name", "Frequency", and a "Select File" button (highlighted with a red dashed box). Below the table are "File Name" input fields. At the bottom, there is a "Master Operation Data" dropdown menu set to "RF Deck Data A", and buttons for "Read", "Write", "Clear", "Close", and "Help".

	Model Name	Frequency	
RF Deck Data A	NX-5700 [Mobile]: K/F	VHF : 136-174 MHz	Select File
File Name	MultiDeck_NX-5700K1_DualHead_KCH-20R_LaborTest.dat		
RF Deck Data B	NX-5800 [Mobile]: K/F	UHF : 450-520 MHz	Select File
File Name	MultiDeck_NX-5800K1_DualHead_KCH-20R_LaborTest.dat		
RF Deck Data C			Select File
File Name			

Master Operation Data: RF Deck Data A

Buttons: Read, Write, Clear, Close, Help

Note: If following window is displayed when FPU Data is opened, press OK Button.



The "Caution" dialog box features a yellow warning triangle icon and a text message. The "OK" button at the bottom right is highlighted with a red dashed box.

Caution

In the configuration data of the opened file, the configuration for Channel Spacing for the channel, where the frequency for which Wide is not permitted is configured, has been changed to "Narrow".

OK

3) Select Master Operation Data* from the Deck Data.

*Master Operation Data is the one used for Key Assignments and Emergency Profiles.

	Model Name	Frequency	
RF Deck Data A :	NX-5700 [Mobile]: K/F	VHF : 136-174 MHz	Select File Save As
File Name :	MultiDeck_NX-5700K1_DualHead_KCH-20R_LaborTest.dat		
RF Deck Data B :	NX-5800 [Mobile]: K/F	UHF : 450-520 MHz	Select File Save As
File Name :	MultiDeck_NX-5800K1_DualHead_KCH-20R_LaborTest.dat		
RF Deck Data C :			Select File Save As
File Name :			
Master Operation Data	RF Deck Data A		
Read Write Clear		Close Help	

Note: If editing Deck Data for Master Operation Data, perform the following procedure.

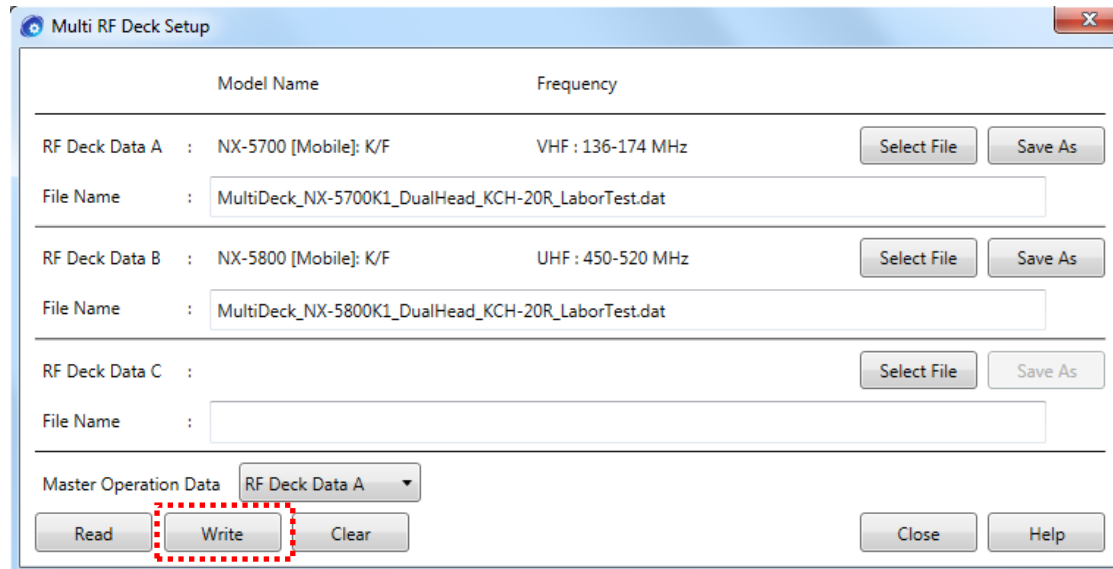
- i. Close the Multi RF Deck Setup Window by clicking Close button.
- ii. Open that Deck Data and edit.
- iii. Save that Deck Data
- iv. Open the Multi RF Deck Setup Window by Program > Multi RF Deck Setup.

4. Write FPU Data file to each RF Deck separately

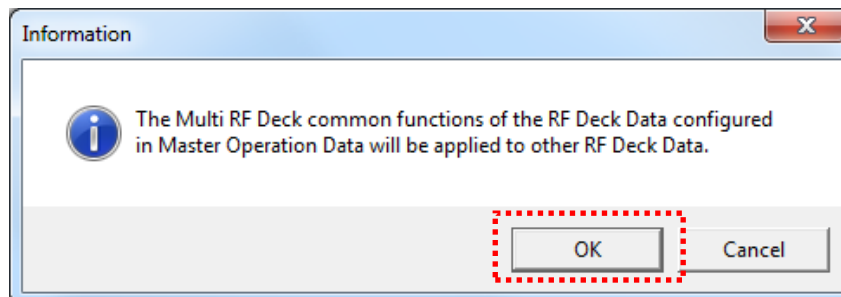
Note: Repeat this procedure for each RF Deck separately.

Note: Don't edit any programming set at [procedure #3](#).

- 1) Connect Control Head 1 with one of the RF Decks using the KCT-71 cable.
- 2) Power on and connect the radio to the PC with the KPG-46U/46X.
- 3) Press "Write" Button.

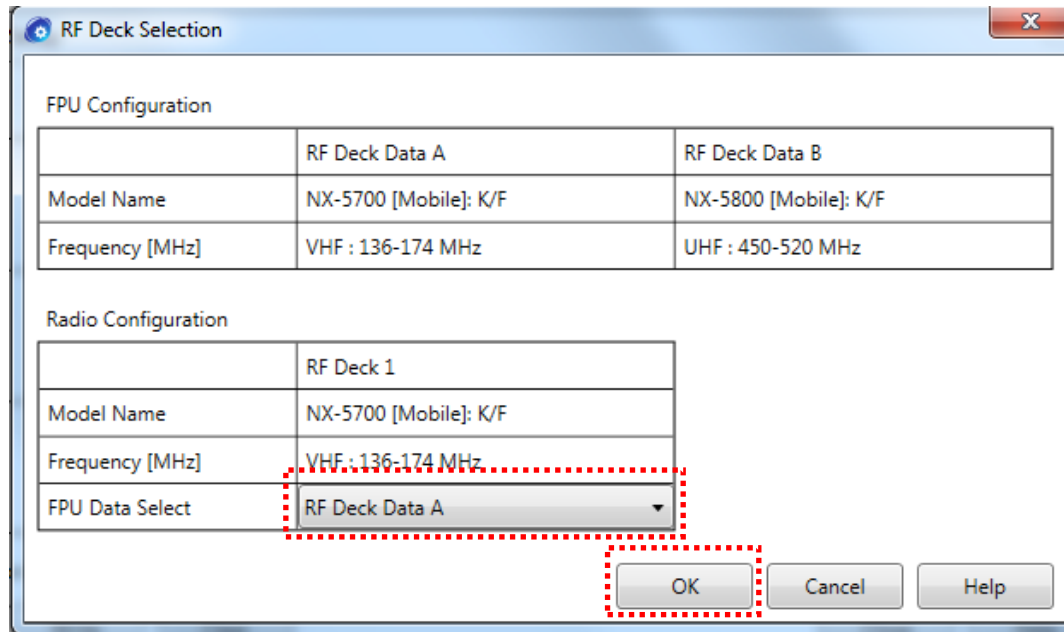


4) Press OK Button.



5) Select the “FPU Data Select” of the RF Deck Selection tab to match the radio connected to the PC.

Press OK.



The dialog box titled "RF Deck Selection" contains two sections: "FPU Configuration" and "Radio Configuration".

FPU Configuration

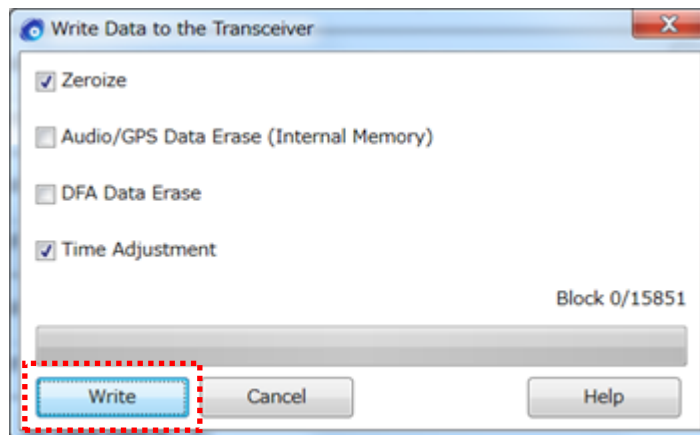
	RF Deck Data A	RF Deck Data B
Model Name	NX-5700 [Mobile]: K/F	NX-5800 [Mobile]: K/F
Frequency [MHz]	VHF : 136-174 MHz	UHF : 450-520 MHz

Radio Configuration

	RF Deck 1
Model Name	NX-5700 [Mobile]: K/F
Frequency [MHz]	VHF : 136-174 MHz
FPU Data Select	RF Deck Data A

At the bottom right are three buttons: "OK", "Cancel", and "Help". The "FPU Data Select" dropdown and the "OK" button are highlighted with red dashed boxes.

6) Press Write Button.



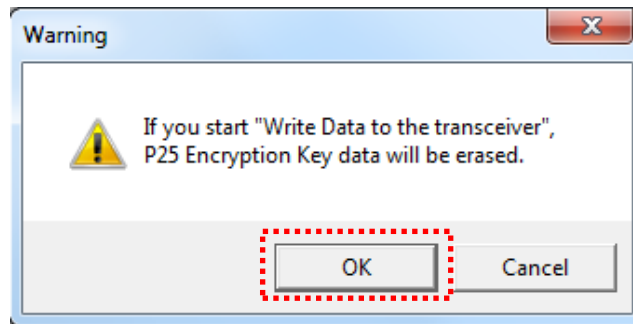
The dialog box titled "Write Data to the Transceiver" contains four checkboxes:

- ☒ Zeroize
- ☐ Audio/GPS Data Erase (Internal Memory)
- ☐ DFA Data Erase
- ☒ Time Adjustment

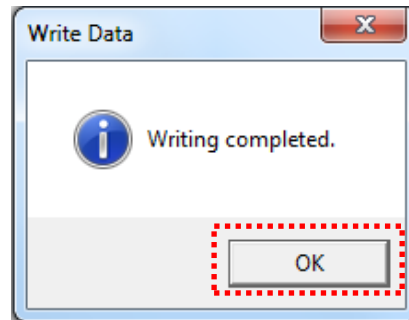
Below the checkboxes is a progress bar and the text "Block 0/15851".

At the bottom are three buttons: "Write", "Cancel", and "Help". The "Write" button is highlighted with a red dashed box.

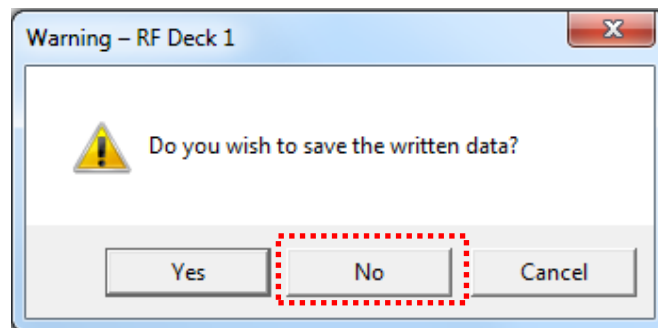
7) Press OK Button .



8) Press "OK" after the Write Data operation has been completed.



9) Press "No" button.

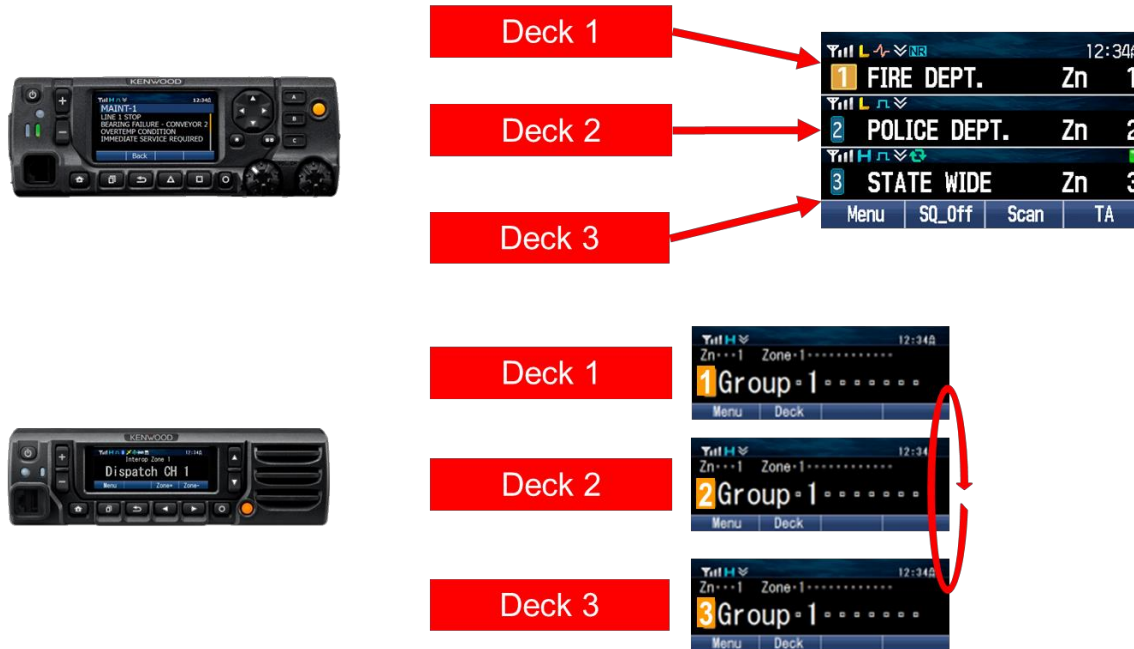


10) Power off; disconnect the single remote configuration after the FPU Data write has been completed.

4. Assemble Remote Configuration

1. Set DIP switches of each RF Deck and Control Heads as shown in the provided diagrams on next page.

[Deck No. reflects how they are displayed on the control head.]

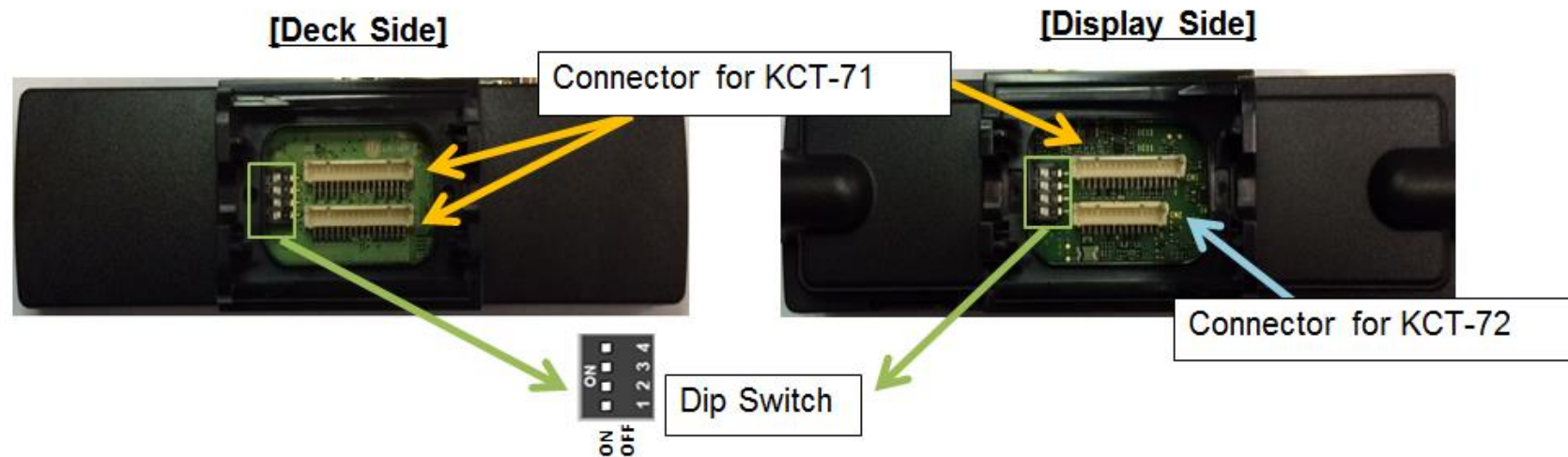


2. Connect all necessary KCT-71 cables between RF Decks and Heads as shown in the provided diagrams on next page.
3. Install accessories such as KAP-2, KCT-72 if they are needed.
(The Service Manual for each model describes the installation and pin position.)

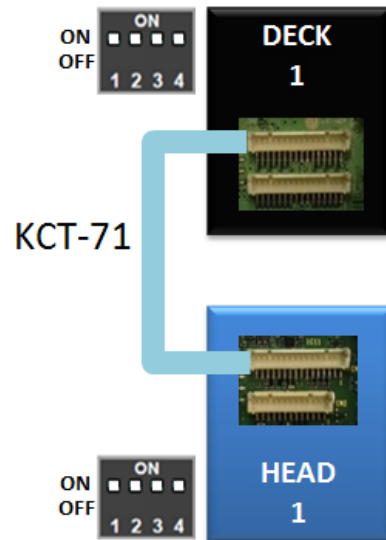
Instruction for Assembling Multi RF Deck/ Display

- Please use these instructions to connect the Multi RF Deck/ Display (KCT-71)
- Dip Switch diagrams are used for reference. If Multi RF Deck/ Display was configured at factory dip switches should not be moved.

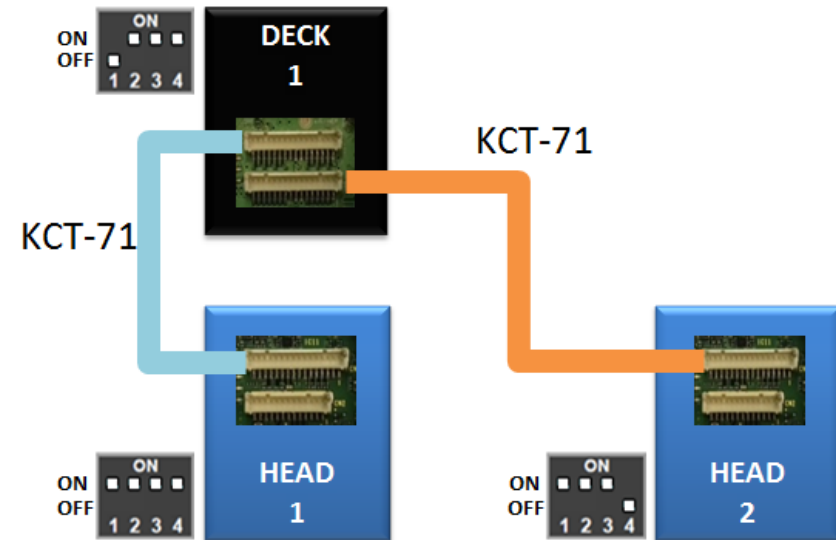
1. How to Assemble Remote Control Mount



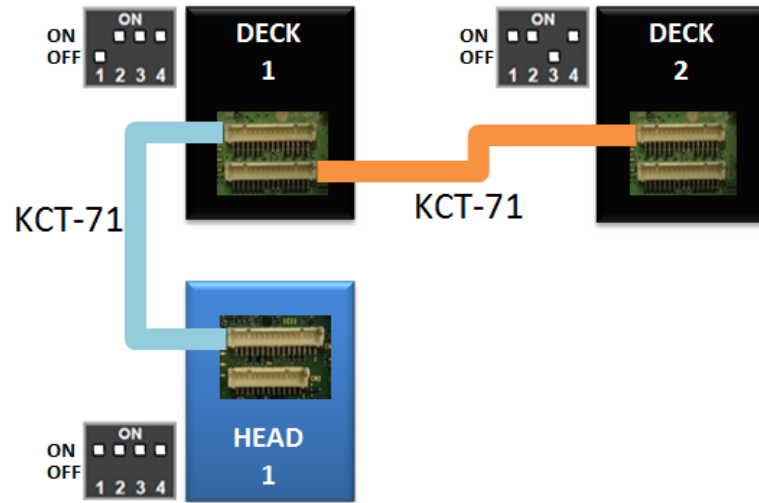
① Single Deck Single Head Remote Mount



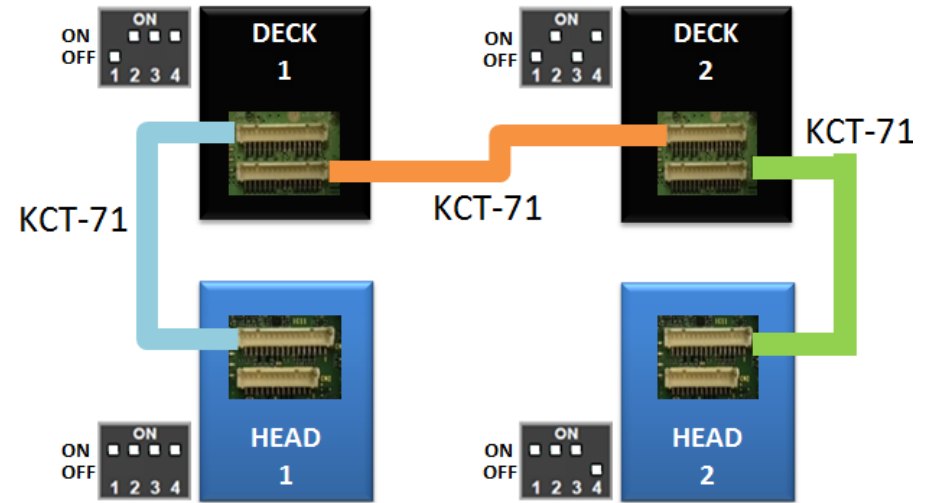
② Single Deck Dual Head Remote Mount



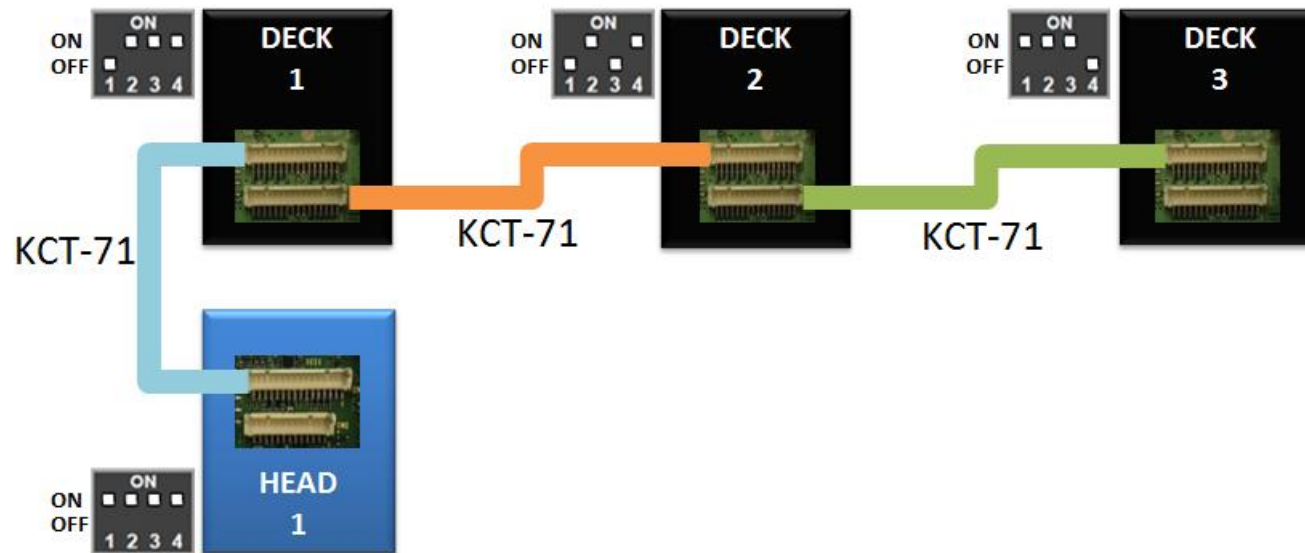
③ Dual Deck Single Head Remote Mount



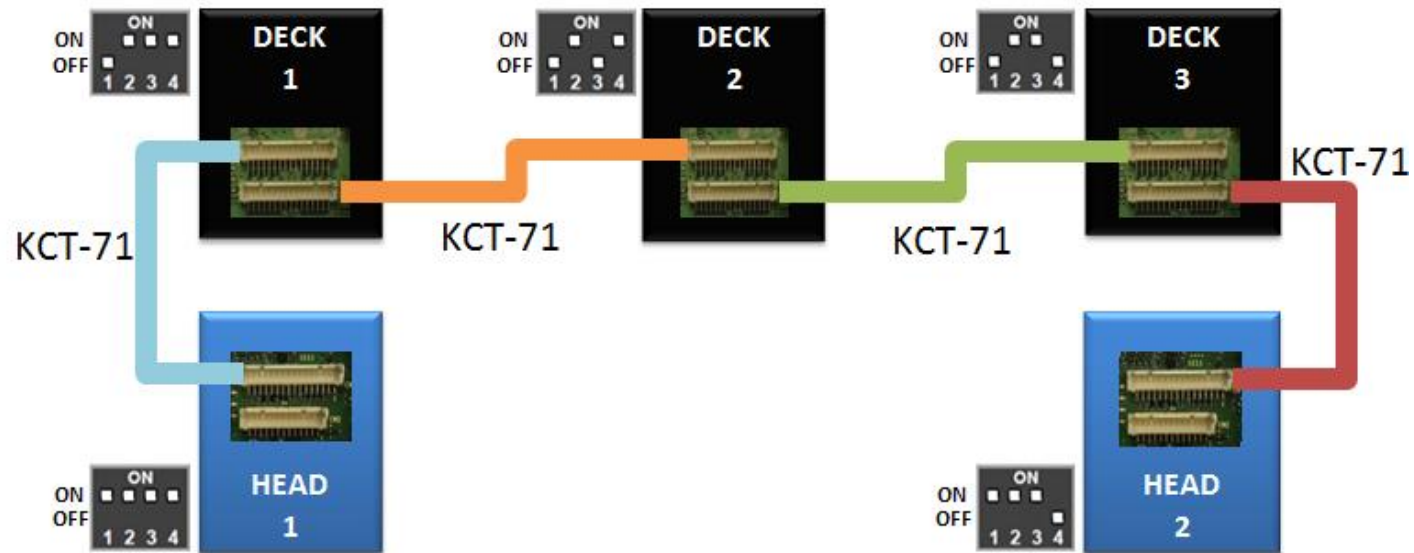
④ Dual Deck Dual Head Remote Mount



⑤ Triple Deck Single Head Remote Mount



⑥ Triple Deck Dual Head Remote Mount



2. Pin position of KCT-72

KCH-20R



Pin No.	Color	Name
1	RED	IGN
2	BLACK	SB
3	LIGHT GREEN	GND
4	LIGHT BLUE	AUX_MIC
5	YELLOW	AUX_ME
6	GRAY	Ai1
7	WHITE	Ai2
8	PURPLE	Ao1
9	PINK	Ao2
10	ORANGE	SP-
11	BROWN	SP+
12	DARK GREEN	GND

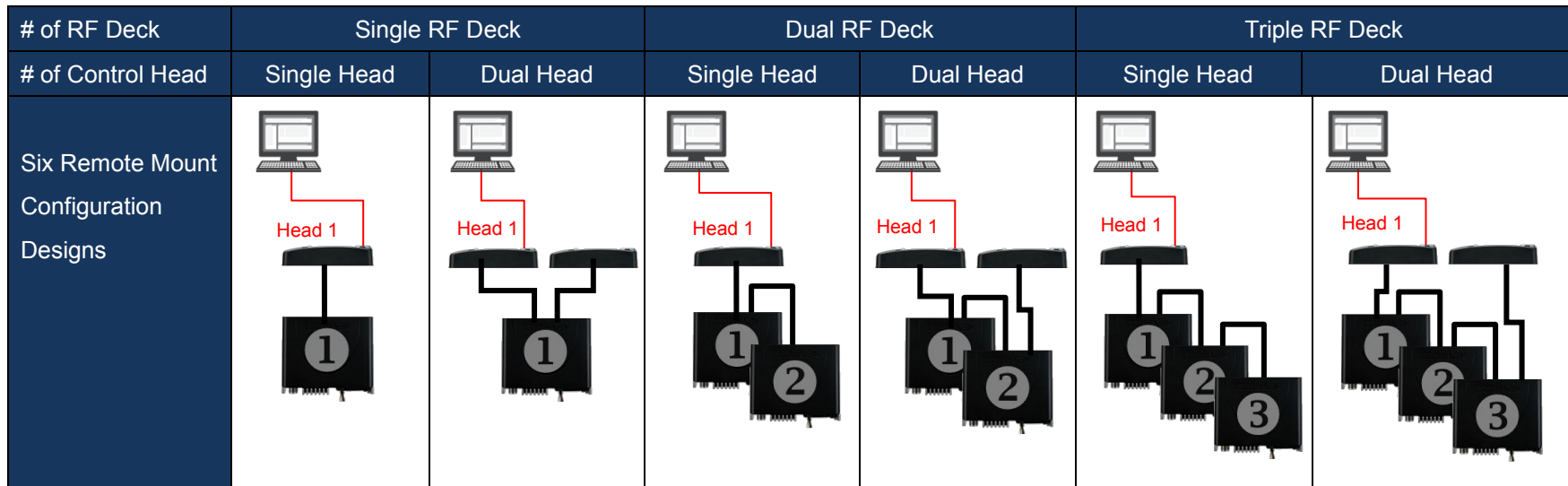
* KES-5 cannot connect to KCH-19 because KCH-19 does not have speaker output port.

3. GPS Antenna (KRA040GM)

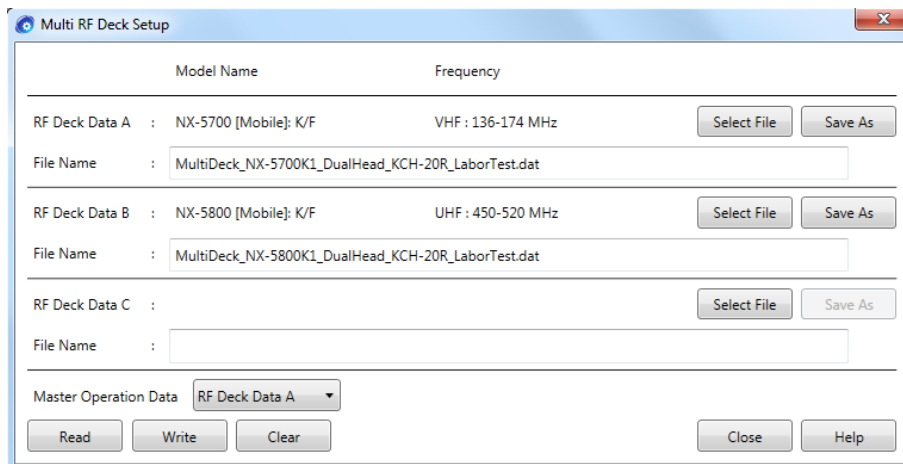
If you use GPS Antenna(KRA-40GM), you can connect KRA-40GM to only Deck 1.
The GPS data is transferred to Deck 2 and Deck 3 from Deck 1.

5. After Initial Setup

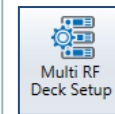
After the initial set-up, as described in the previous sections, has been completed, firmware update and FPU programming may be performed via Control Head #1 without disassembling the configuration noted below.



FPU Programming



FPU Data Read/Write is performed in the Multi RF Deck Setup menu under Program.



If you have another FPU data file that needs to replace the current selected file, specify the replacement data by "Select File."

If you need to modify a current selected file, "Save as" the data, first. Then, open the saved file to make changes.

Select the saved file by "Select File".

Once each deck has a correct data file selected, then "Write" the data through Control Head 1 once.