



# Application Note

KRK-13

Dual Control Head

For TK-5720/5820, NX-700(H)/800(H)/900/901

*Version: 1.3*

*Last Update: 16 April 2014*

## 1. SUPPLIED ACCESSORIES

KRK-13 (Dual Control Head) consists of three parts. These are the KUT-KRK-12 (Dual Mobile Head Adapter), the KUT-KRK-13 (Dual Control Head Kit) and the KMC-35 (Standard dynamic mobile microphone).

### KUT-KRK-12

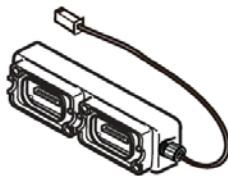
| Item                     | Part Number | Quantity |
|--------------------------|-------------|----------|
| Dual Head Mobile Adapter | -           | 1        |
| Y Cable (DC split cable) | R202-0027   | 1        |
| Instruction Manual       | -           | 1        |

### KUT-KRK-13

| Item                                | Part Number | Quantity |
|-------------------------------------|-------------|----------|
| Rear Panel Assembly with Flat cable | --          | 2        |
| Screw Set                           | N99-2040-XX | 2 Bags   |
| Bracket                             | J29-0698-XX | 2        |
| Dressing Screw                      | N08-0550-XX | 4        |
| Trunk Cable                         | E30-7514-XX | 2        |
| Molding Cover                       | F07-1884-XX | 4        |
| Display Unit Assembly               | --          | 1        |

### KMC-35

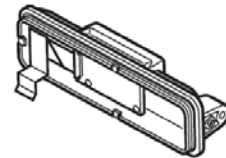
| Item              | Part Number | Quantity |
|-------------------|-------------|----------|
| Mobile Microphone | T91-0639-xx | 1        |
| Mic Holder        | J19-1584-xx | 1        |



Dual Head Mobile Adapter



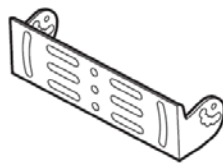
Y Cable (DC split cable)



Rear Panel Assembly with Flat Cable



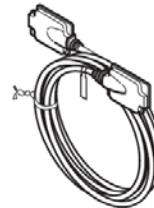
Screw Set



Bracket



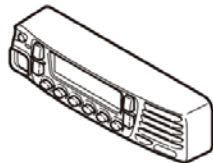
Dressing Screw



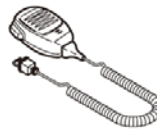
Trunk Cable



Molding Cover



Display Unit Assembly



Mobile Microphone



Mic Holder

## 2. Installing the KRK-13 (Dual Control Head) to the Transceiver

### 2-1. Remove the **Display Unit** from the transceiver

Step 1: Lift the two tabs of the panel on the bottom of transceiver with a flat-head screwdriver ① and remove the panel from the chassis ② as shown in Figure 2-1-1.

*Note: Confirm that the tabs of the speaker hardware fixture and holder are securely fitted in the **Display Unit**.*

Step 2: Remove the flat cable from the connector (CN901) of the **display unit** of the panel ③.

Step 3: Smooth out the flat cable, and fold it as shown in Figure 2-1-2. ④,⑤,⑥.

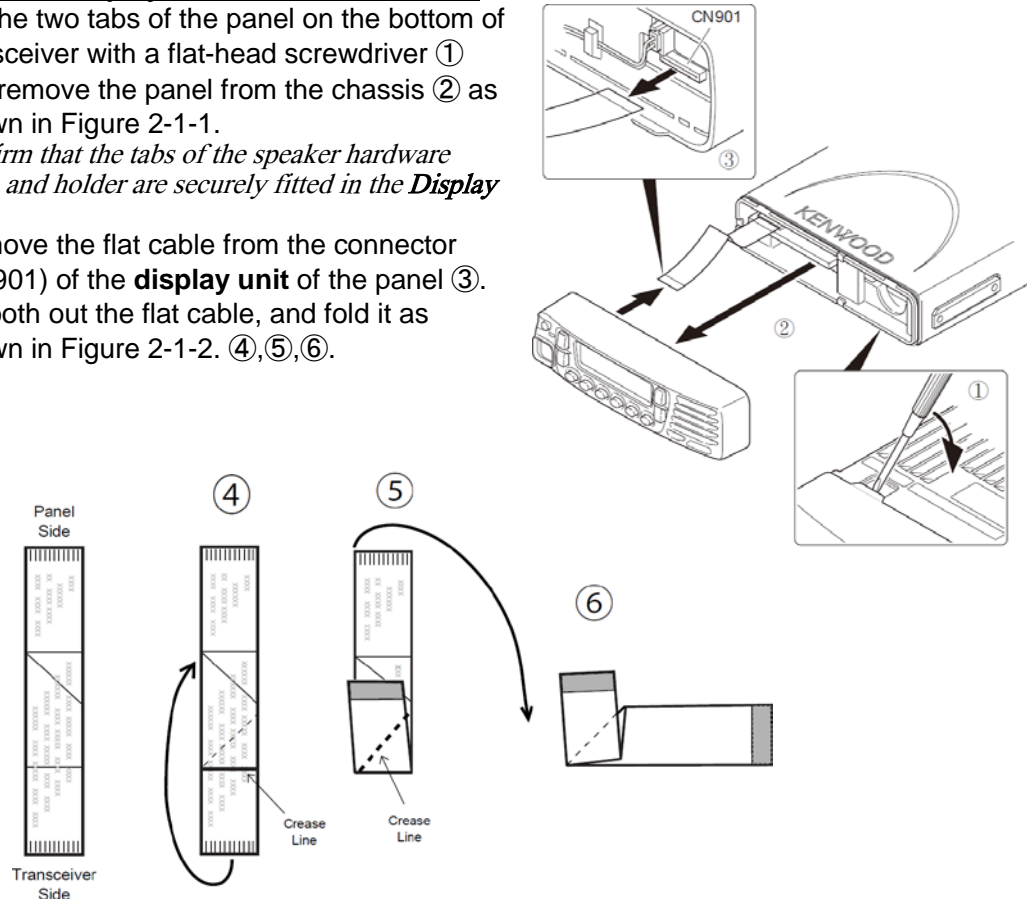


Fig. 2-1-2

### 2-2. Install the **Dual Mobile Head Adapter** onto the transceiver

Step 4: Insert the flat cable that was removed in step 2 above into the connector (J3) of the interface unit of the **Dual Mobile Head Adapter** ⑦.

*Note: The terminal side of the flat cable must face down towards the PCB when inserting the flat cable into the connector.*

Step 5: Fit the **Dual Mobile Head Adapter** with four tabs onto the front of the chassis ⑧ as shown in Figure 2-2.

*Note: When installing the **Dual Mobile Head Adapter** onto the front of the chassis, hold down the flat cable with your fingers to prevent it from being caught.*

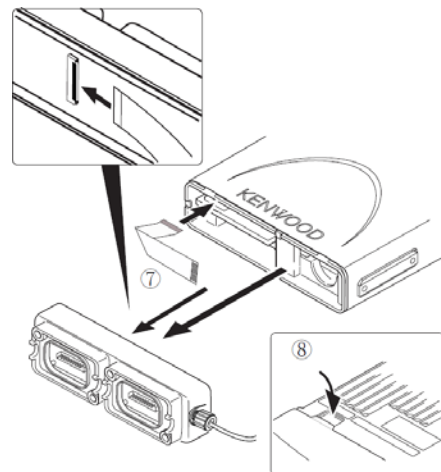


Fig. 2-2

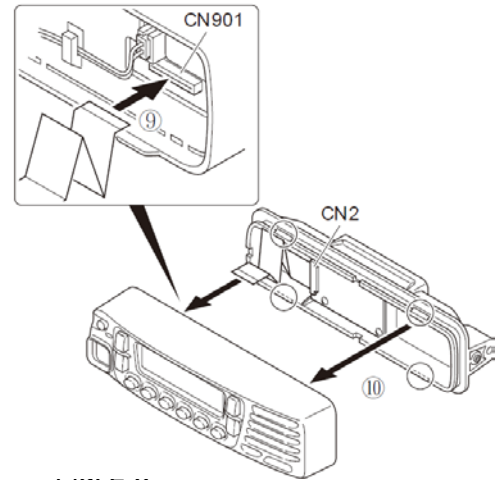
### 2-3. Install the Rear panel onto the Display Unit

Step 6: Insert the flat cable attached to the interface unit of one of the **Rear panels** into the connector (CN901) of the **Display unit** which was removed in Step 2 ⑨. (The flat cable has been pre-inserted in the connector (CN2) of the rear panel at the time of shipping.)

Step 7: Similarly, insert the flat cable attached to the interface unit of the other Rear panel into the connector (CN901) of the Display unit included with the KRK-13.⑨.

*Note: The terminal side of the flat cable must face down towards the PCB when inserting the flat cable into the connector.*

Step 8: Fit the four tabs of the rear panel into each **Display Unit** ⑩.



### 2-4. Connect the Dual Mobile Head Adapter to the Rear panel with the cable

Step 9: Insert one 14-pin connector of the **Trunk cable** (labeled with a sticker) into the connector (J1 Primary) of the interface unit of the **Dual Mobile Head Adapter** ⑪.

*Note: Insert the connector that has a sticker on the Trunk cable into the connector of the Dual Mobile Head Adapter.*

Step10: Secure the cable bush on the **Dual Mobile Head Adapter** and fit the waterproof covering (orange) ⑫ securely over top.

Step11: Install the **Molding cover** ⑬ over the connector on the **Dual Mobile Head Adapter** and secure it with two screws ⑭.

Step12: Insert the other 14-pin connector of the cable into the connector of the interface unit of the **Rear panel** ⑮.

Step13: Secure the cable bush on the **Rear panel** and fit the waterproof covering (orange) ⑯ securely over top.

*Note: A Trunk cable may be connected from the left side or from the right side. However the 14-pin connector must be inserted in the proper direction.*

Step14: Install the **Molding cover** ⑰ over the connector on the **Rear panel** and secure it with two screws ⑱.

Step15: Insert one 14-pin connector of the **Trunk cable** into the connector (J2 secondary) of the interface unit of the **Dual Mobile Head Adapter** ⑲.

*Note: Insert the connector that has a sticker on the Trunk cable into the connector of the Dual Mobile Head Adapter.*

Step16: Secure the cable bush on the **Dual Mobile Head Adapter** and fit the waterproof covering (orange) ⑳ securely over top.

Step17: Install the **Molding cover** ㉑ over the connector on the **Dual Mobile Head Adapter** and secure it with two screws ㉒.

Step18: Insert the other 14-pin connector of the **Trunk cable** into the connector of the interface unit of the **Rear panel** ㉓.

Step19: Secure the cable bush on the **Rear panel** and fit the waterproof covering (orange) ㉔ securely over top.

*Note: A Trunk cable may be connected from the left side or from the right side. However the 14-pin connector must be inserted in the proper direction.*

Step20: Install the **Molding cover** ㉕ over the connector on the **Rear panel** and secure it with two screws ㉖.

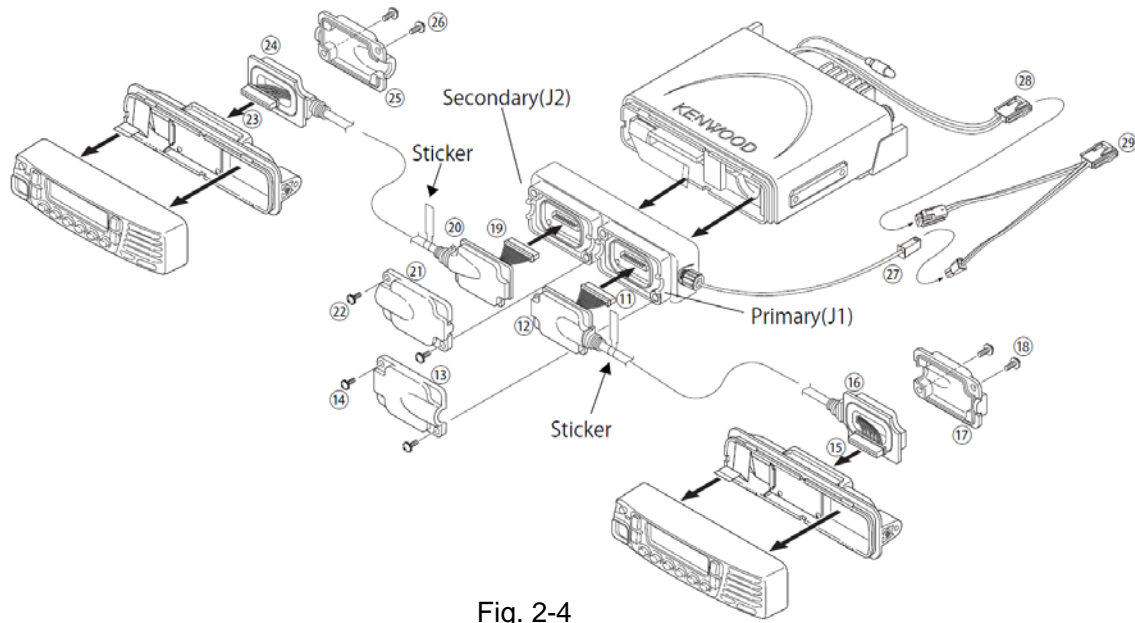


Fig. 2-4

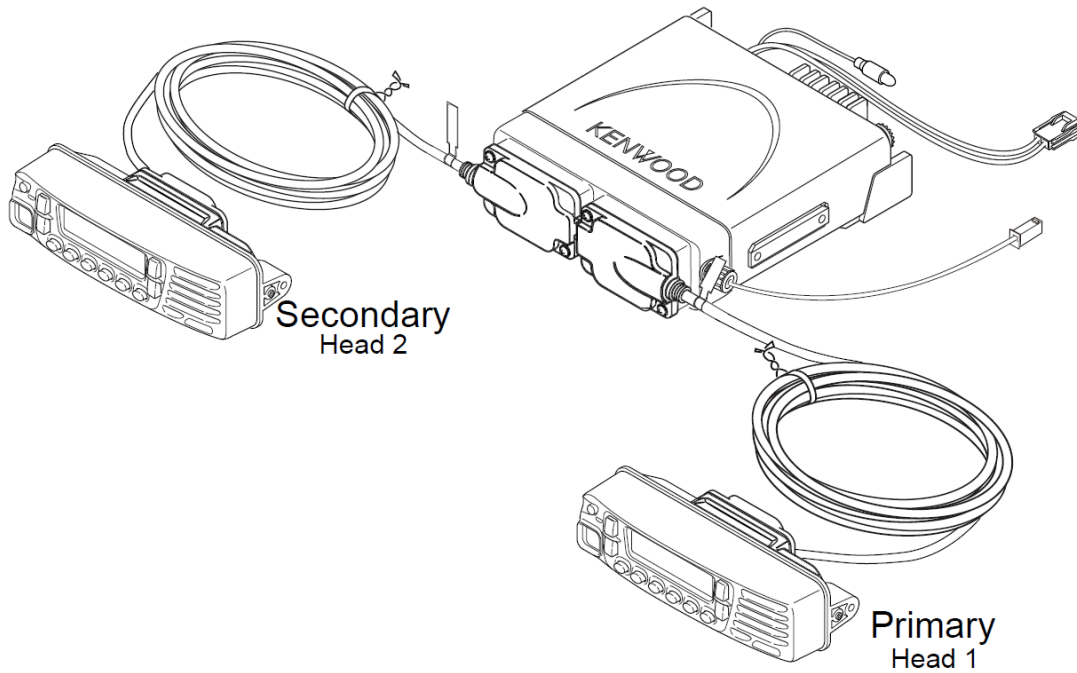
**2-5. Connect the Y cable to the Dual Mobile Head Adapter and the transceiver**

**Step21: Plug the female end of the Y cable to the male end of the Dual Mobile Head Adapter. (21)**

**Step22: Plug the other female connector into the male connector on the back of the transceiver. (22)**

**Step23: Plug the last female end of the Y cable into the male end of the DC power cable.**

### 3. Getting acquainted



#### 3-1. Operations

The basic mobile feature operations are presented in the models user Instruction Manual. **However, when the KRK-13 Dual Head interface is installed, the user must be made aware of and trained on the information presented in 3-2. Important Operational Notes for KRK-13 Dual Head Configured Mobiles**

- NEXEDGE: NX-700 / NX-800 Series , NX-900 / NX-901 INSTRUCTION MANUAL
- P25: TK-5720/TK-5820 INSTRUCTION MANUAL

#### 3-2. Important User Operation Notes for KRK-13 Dual Head Configured Mobiles:

The text of 3-2 follows on the next few pages should be provided to the user along with the mobile Instruction Manual.

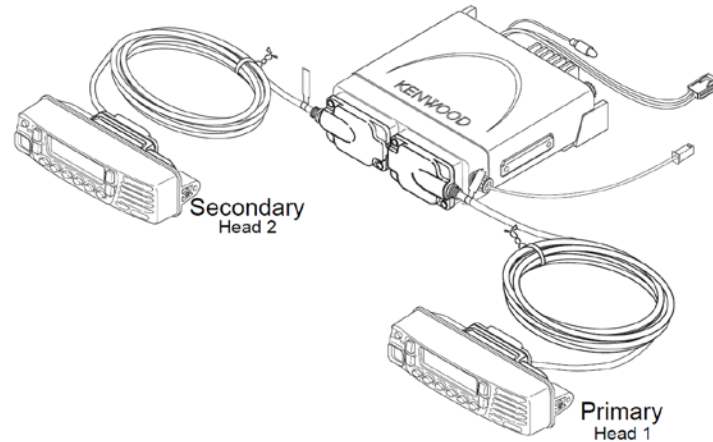
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## Important User Operation Notes For KRK-13 Dual Head Configured Mobiles

- NEXEDGE®: NX-700/NX-800 Series, NX-900/901
- P25: TK-5720/ TK-5820

[This document supplements the mobiles user Instruction Manual]

The NX-x00 and TK-5x20 series mobiles are single control head designs. The KRK-13 Dual Head Interface kit adapts the mobiles existing I/O interfaces to convert it to a dual head configuration without major internal circuit modifications or additions. However in comparison to a Kenwood dual head designed mobile, a KRK-13 Configured mobile is distinctly different in the way certain mobile features and audio behave between Head 1 and Head 2, how Head 1 & Head 2 affect each other under certain conditions and how a few features operate differently in general. **It is important that all operators be advised and trained on this information.**



- 1) Primary Head (1) operates the same as the dash or single head remote mount configuration.
- 2) Operations limited to ONLY Head 1:
  - a. Programming (both data file and firmware)
  - b. Key Loading
  - c. Test Mode
  - d. Clone Mode
  - e. Com port Number 0
- 3) If the KRK-13 D.C. supply line loses power then both heads will become inoperable until power is restored to Head 2 and the RF deck power is cycled off, then on again. If possible the supply source to Head 2 and the RF deck/Head 1 should be the same.
- 4) The Volume level is displayed in the LCD of both Heads, however Head 2 does not emit Volume adjustment tones (escalating / deescalating beeps). Operators should

be made aware that since Head 2 does not have an audible reference for volume adjustment that the LCD indicator should be checked and set to a comfortable low setting prior to radio usage.

Head 2 should not be used with a headset as the operator could inadvertently be subjected to extremely loud audio. Head 2 should not be used as the main primary control head either, the lack of a Volume adjust reference beep makes it more likely the speaker audio could be set to low and calls are missed.

- 5) **The Busy LED should always be set to “Enabled”** (Default: FPU >Optional Features 1 > Common Page 3). If the Busy LED is set to “Disabled”, when the operator on Head 1 adjusts the radios volume up or down, Head 2 will mute its speaker audio (the Busy LED affects Head 2 audio gating). This could result in the operator at Head 2 experiencing interrupted or missed radio calls.
- 6) **Volume Up /Down** functions on Head 2 are fixed to the large Up /Down PF keys on the left-hand side of the LCD (normal factory default position). These keys cannot be reprogrammed to any other function, nor can the Volume Up/Down functions be assigned to any other PF keys on the control head. .

Volume key



- 7) PA Mode:
  - a. Volume:
    - i. While in RX the Audio Level are independent between Head 1 and Head 2 for both Local SP & PA
    - ii. If the radio is not actively receiving a signal, adjusting the audio level will track (same) between Head 1 and Head 2
  - b. While in PA Mode and signal receiving condition on same time, PA audio may be heard very short period from the speaker of Head 2
  - c. If PA Mode is enabled and Busy LED is disabled there will be no receive audio on Head 2. Never disable the Busy LED
  - d. If PA Mode is enabled – No control tones are heard from Head 2
  - e. If PA Mode is enabled and during RECEIVE – Control tones are heard from Head 2
  - f. The user feedback tone for PA disable will have a double beep when heard at Head 2
- 8) If an external speaker is connected to the 3.5MM jack:
  - a. Head 1 speaker audio will mute (normal behavior)
  - b. Head 2 speaker audio will not mute
- 9) During 2-Tone receive operations:
  - a. Head 1 – Volume control is not functional (normal behavior)



- b. Head 2 – Volume control is functional
- 10) During list/menu scroll operations:
  - a. Head 1 – Volume control is not functional (normal behavior)
  - b. Head 2 – Volume control is functional
- 11) Control tones may not be heard from one or either head while the controls on both heads are being operated simultaneously.
- 12) Volume adjustment on Head 1 will mute Head 2 speaker output.
- 13) There is no user feedback or warning if users attempt to transmit from Head 1 and Head 2 simultaneously.
- 14) When users attempt to transmit from Head 1 and Head 2 simultaneously, both microphone modulations will be transmitted over the air.
- 15) Emergency Mode:
  - a. In Silent Emergency Mode:
    - i. Head 1 will not pass receive audio (normal behavior)
    - ii. Head 2 will pass receive audio
  - b. During emergency mode transmit audio from both Head 1 and Head 2 is passed regardless of PTT key state (hot mic).
  - c. While Emergency Mode is active:
    - i. Head 1 volume control does not work (normal behavior)
    - ii. Head 2 volume control works
- 16) Programmable control and supervisory tone levels under Optional Features apply to the audio output level of Head 1 ONLY. Head 2 is not affected.
- 17) Use of the programmable SQUELCH key will output audio to both heads.
- 18) AUX I/O Speaker Mute only affects audio output of Head 1.
- 19) AUX I/O input for External PTT is activating:
  - a. Head 1 Volume is disabled (normal behavior)
  - b. Head 2 Volume is not disabled
- 20) The Fixed Volume PF key function is only available in Head 1
- 21) Only compatible NEXEDGE NX-700/800/900/901 mobiles with firmware version K2.00.00 or higher can be configured with a KRK-13 Dual Head interface.
- 22) Only compatible P25 TK-5720/5820 mobiles with firmware version K1.00.00 or higher can be configured with a KRK-13 Dual Head interface.