KNG MOBILE RADIO INSTALLATION GUIDE

1 INTRODUCTION

This document provides guidelines for the installation of BK Radio's KNG Mobile radios. Failure to adhere to these guidelines may result in diminished performance or physical damage to the radio. Installations should only be performed by BK Technologies authorized dealers or technicians.

2 GENERAL

Plan your installation carefully. Locate the radio and microphone within easy reach, giving the operator a clear view of the display.

When selecting a mounting position for your KNG Mobile, look for a flat surface that will provide adequate space for the radio and cable attachments. For dash mount installation clearance of at least 12" x 7 1/2" is recommended.

Do not locate the radio, microphone or speaker in a position that interferes with safe operation of the vehicle or equipment.

It is recommended to run all necessary cables or wires prior to installation of a radio or remote control head.

RECOMMENDED INSTALLATION ORDER

1. Prepare and route power cable assembly
2. Connect Ignition sense (if used)
3. Install Antenna(s) and route cable
4. Install remote speaker(s) and route speaker wire
5. Route any connections to be made to the radio or remote accessory connector(s)
6. Install remote control head (if used)
7. Install dash mount/radio core

3 REQUIRED EQUIPMENT

- Small flat blade screw driver.
- Wire crimper or pliers
- KAA0630 or KAA0633 KNG Dash Mount Installation Kit

  (KAA0630 has the 8GA power cord and KAA0633 has the 12 GA power cord. KAA0633 may be used for 50 Watts or lower power mobile radio installation)

ADDITIONAL EQUIPMENT

- KAA0638 KNG Remote mount installation kit
- KAA0635, KAA0636 or KAA0637 Remote mount cable assembly

PARTS LISTS

Item	Part Number	Description	
1	1400-31014-900	Bracket, Mounting, KNG-M	
2	2402-31024-801	Knob, Clamping, KNG-M	QTY 4
3	6006-31024-000	Cable Assembly, Power Cord, KNG-M	
4	2100-30937-603	Fuse Holder	
5	5106-30937-803	Maxi Blade Fuse, 30A	**For KAA0630**
6	6006-31026-300	Cable Assembly, Accessory, 25_PIN, KNG-M	
7	2107-30931-502	Terminal, Barrel-Crimp, 8GA	**For KAA0630**
8	2837-10000-023	Self Tapping Screw, #10	QTY 6
9	5106-30937-802	Maxi Blade Fuse, 20A	**For KAA0633**
10	2107-30931-501	Terminal, Barrel-Crimp	**For KAA0633**

Table 1 – KAA0630 or KAA0633 Dash-Mount Install Kit Parts List

Item	Part Number	Description	
1	1400-31030-400	Bracket, Mounting, Remote-Mount, KNG-M	
2	1411-31030-500	Ratchet, Mounting, Remote Head, KNG-M	QTY 2
3	2837-10000-023	Self Tapping Screw, #10	QTY 4
4	2100-30937-601	Fuse Holder, ATC w/14GA Lead	
5	2107-30931-503	Terminal, Barrel-Crimp, 16-14GA	QTY 2
6	5106-30937-704	Fuse, Blade 7 1/2A, 32V, Fast Acting	
7	2123-31032-800	Thumbscrew, Wingnut, Remote Head, KNG-M	QTY 2
9	6006-31034-200	Cable Assy, Power Cord, KNG-M RCH	
10	6006-31026-300	Cable Assembly, Accessory, 25_PIN, KNG-M	

Table 2 – KAA0638 Remote-Mount Install Kit Parts List

Item	Part Number	Description	
1	6006-31034-300	Cable Assy, Data, KNG-M Remote-Head, 8 ft.	KAA0635
1	6006-31034-301	Cable Assy, Data, KNG-M Remote-Head, 17 ft.	KAA0636
1	6006-31034-302	Cable Assy, Data, KNG-M Remote-Head, 25 ft.	KAA0637

Table 3 - KAA0635/636/637 Remote Cable Assembly Kit Parts List

4 HARDWARE MOUNTING

4.1 WIRING

Once the equipment location is chosen, determine the best routing for cables and wires to connect the system. Use a rubber grommet to protect the wires when passing through sheet metal. Avoid any route that subjects the wire to pinching, cutting, or high heat from the engine or other vehicle components. Avoid splicing into old or existing power lines.

The radio must be used with a 12 volt, NEGATIVE GROUND electrical system.

1. Carefully route the A+ wiring assembly from the radio connection to the battery compartment.

2. Using the supplied barrel crimp, attach the fuse holder (Item 4) as close to the battery as possible as shown in figure 1.
    (**NOTE**: Only use 30 Amp rated fuses on the A+ line for dash mount/radio core power cord. Only use 7 1/2 Amp rated fuse on the A+ line for remote head power cords.)

3. Connect the red power lead (with fuse assembly) to the vehicles POSITIVE battery terminal. Using other positive voltage points is not recommended.

4. Connect the black lead to a good ground point on the chassis. Connection to the negative battery terminal is not recommended.
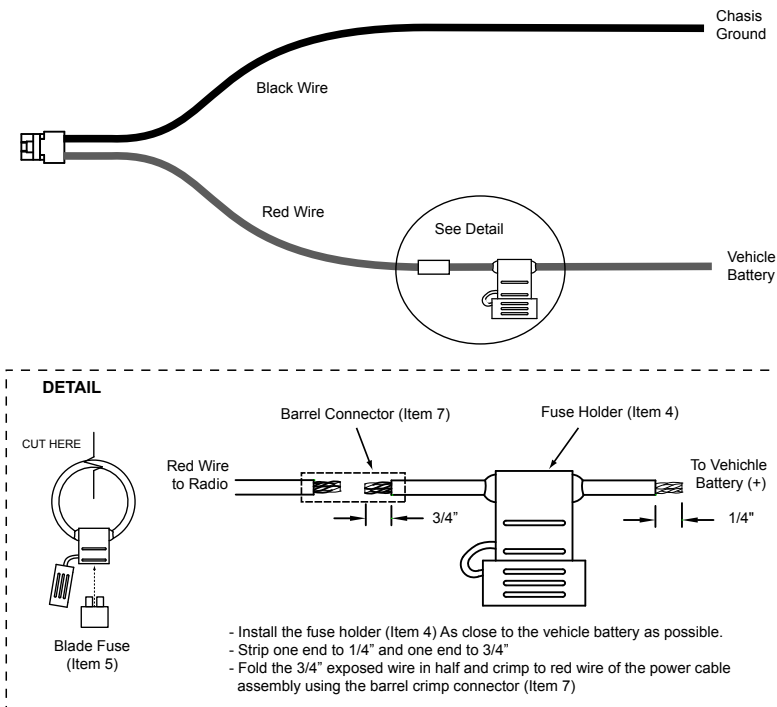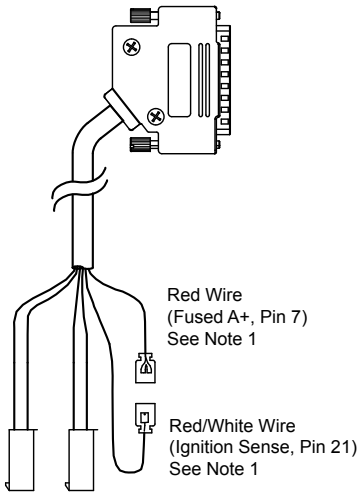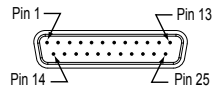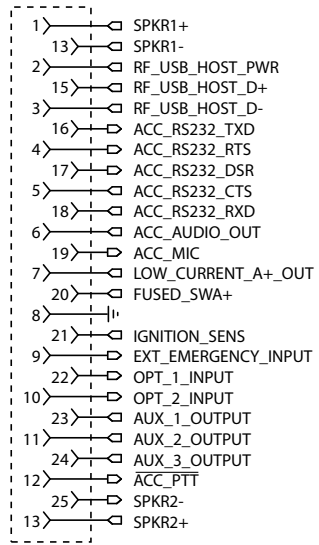

Figure 1 - Power Cable Assembly

5. If vehicle ignition control of radio power up/power down is to be used, connect the red/white ignition sense line from the accessory cable to the vehicle's ignition. Leave the red wire disconnected. (See figure 2) **IMPORTANT: IF IGNITION SENSE WILL NOT BE USED, THE RED WIRE MUST BE CONNECTED TO THE RED/WHITE WIRE OR THE RADIO WILL NOT POWER-UP.**

6. Route and connect any required accessory option controls to the accessory cable.

Red Wire
(Fused A+, Pin 7)
See Note 1

Red/White Wire
(Ignition Sense, Pin 21)
See Note 1

NOTE 1: To enable vehichle ignition control ot radio power up/power down, connect the red/white ignition sense line to the vehichle's ignition. Leave the red wire discontected.

If ignition control is not used connect the red/white wire to the Red wire.
REMOTE CONTROL HEADS DO NOT USE THIS CONNECTION

Pin	Signal
1	SPKR1+
13	SPKR1-
2	RF_USB_HOST_PWR
15	RF_USB_HOST_D+
3	RF_USB_HOST_D-
16	ACC_RS232_TXD
4	ACC_RS232_RTS
17	ACC_RS232_DSR
5	ACC_RS232_CTS
18	ACC_RS232_RXD
6	ACC_AUDIO_OUT
19	ACC_MIC
7	LOW_CURRENT_A+_OUT
20	FUSED_SWA+
8	
21	IGNITION_SENS
9	EXT_EMERGENCY_INPUT
22	OPT_1_INPUT
10	OPT_2_INPUT
23	AUX_1_OUTPUT
11	AUX_2_OUTPUT
24	AUX_3_OUTPUT
12	ACC_PTT
25	SPKR2-
13	SPKR2+

Pin 1 — Pin 13
Pin 14 — Pin 25

Relalys connected to Option outputs 3, 4 or 5 must be powered from fused A+

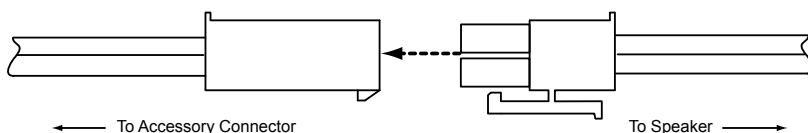*Figure 2 - Accessory Cable and Connections*

7. Install your RF antenna and route the cable to the back of the dash mount/ radio core install location.

8. Install the GPS antenna (if used) and route the cable to the back of the dash mount/radio core install location.

4.2 SPEAKER INSTALLATION

KNG Mobile radios are not equipped with an internal speaker. Installation of at least one KAA0261 external speaker is required. The dash mount/radio core can accommodate two speakers. In addition, each remote control head can also support dual speakers.

Speaker volumes are controlled independently by the volume knob on the attached control head or radio.

1. Select a suitable install location for each speaker.

2. Use the template on page 15 or the speaker mounting bracket as a guide to drill 3 pilot holes.

3. After attaching the mounting bracket, secure the speaker to the bracket with the two side knobs.

4. Once your speakers are installed, route the speaker connection wires to the mounting location for the desired radio or remote head.

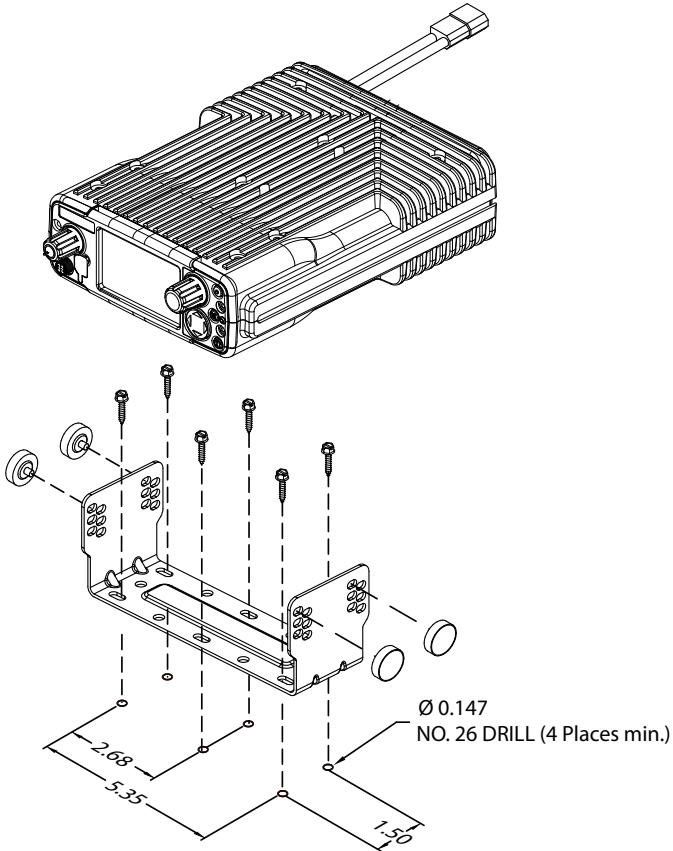5. Connect the speakers to the accessory connector. (See figure 3)

To Accessory Connector   To Speaker

Figure 3 - Speaker Wire Connection

4.3 DASH-MOUNT/RADIO CORE INSTALLATION

Your KNG mobile radio can be configured as a stand alone dash-mount type radio or used in conjunction with up to two KAA0660 remote control heads. When used with a remote head, the main radio core remains operational.
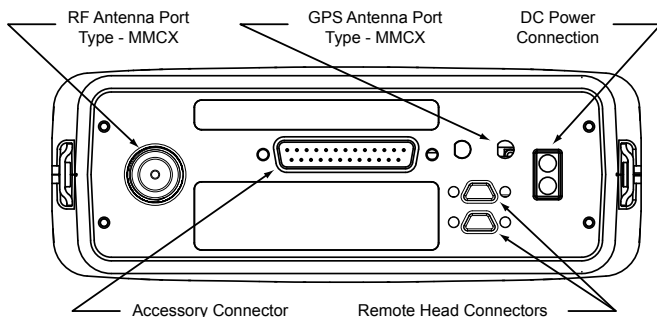
If the main radio core is to be mounted in a hidden or inaccessible location, BK Technologies recommends the installation of a KAA0661 control cover (see page 10).

Ø 0.147
NO. 26 DRILL (4 Places min.)

2.68
5.35
1.50

Figure 4 – Dash/Radio Core Recommended Hole Pattern

1. Drill 1/4" pilot holes through the mounting plate. A minimum of four holes is recommended. A mounting template can be found on page 11 or use the mounting bracket as a template. Make sure the holes are free from the metal flashing.

2. Fasten the mounting bracket to the chassis using the #10 self tapping screws (Item 8).

3. Connect the speakers and any other accessories to the 25-pin accessory cable. (See Figure 2)

4. Attach and secure the accessory connector with a small flat blade screw driver.

5. Attach the RF antenna (and GPS antenna if used) to the radio's antenna port(s). (See figure 5)

6. Connect the power cable assembly to the DC Power input connection.

Figure 5 - Dash Mount/Radio Core Back Panel Connections

7. Position the radio into the bracket at the desired angle.

8. Install and tighten the 4 mounting knobs (Item 2).

4.4 REMOTE-MOUNT CONTROL HEAD INSTALLATION

Installation of a KNG remote control head requires install kit KAA0638 hardware kit and the proper cable kit to provide adequate cable for installation.

Remote Cable Kit Part Numbers

  •   KAA0635 - 8 foot remote cable assembly

  •   KAA0636 - 17 foot remote assembly

  •   KAA0637 - 25 foot remote assembly

Optional Equipment

  •   KAA0261 Speaker Kit

1. Prep the remote head power cable as described in Section 4.1

2. Route the remote cable from the radio core location to the remote head location.

3. Attach the cable to one of the two remote head connectors on the back of the main unit. (See Figure 5).

4. Secure the remote cable with a small flat blade screw driver.

5. Drill 1/4" pilot holes through the mounting plate. A minimum of four holes is recommended. A mounting template can be found on page 13 or use the

mounting bracket as a template. Make sure the holes are free from the metal flashing.

6. Fasten the mounting bracket to the chassis using the #10 self tapping screws (Item 3).

7. Connect the speakers and any other accessories to the 25-pin accessory cable. (See Figure 2)
    NOTE: The volume of a speaker attached to a control head is controlled independently by the control head. If no speaker is attached to the control head the accessory connector is not required for radio operation.

8. Attach and secure the accessory connector with a small flat blade screw driver.

9. Attach an secure the remote power cable with a small flat blade screw driver.

10. Position the control head into the bracket at the desired angle.

11. Install and tighten the 2 mounting knobs (Item 7).

```
  9   8   7   6            1 >———▷ CTRL1_AUDIO_IN-
  •   •   •   •             6 >——▷ CTRL1_AUDIO_IN+
                           2 >——▷ RF_PWRON
  •   •   •   •   •          7 >——▷ CTRL_RS485-
                           3 >———▷ CTRL_RS485+
  5   4   3   2   1          8 >——◁ CTRL_POWER_HOLD
                           4 >———ᶦᴵ
                            9 >——◁ CTRL_AUDIO_OUT+
                           5 >———◁ CTRL_AUDIO_OUT-
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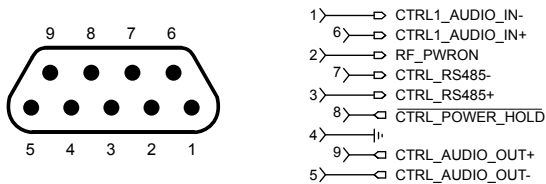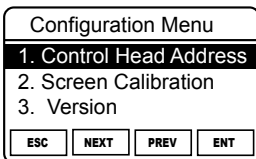
Figure 6 - Remote Head Connections

Control Head Address Assignment

If more than one control head is attached to the KNG, a address of "2" will need to be assigned to one of the control heads. Use the following steps to set the address:

1. Once the installation is complete, hold the Home button 🏠 on the control head while powering up the radio.

```
┌─────────────────────────┐
│   Configuration Menu    │
├─────────────────────────┤
│ 1. Control Head Address │
│ 2. Screen Calibration   │
│ 3.  Version             │
│ ┌────┐┌────┐┌────┐┌───┐ │
│ │ESC ││NEXT││PREV││ENT│ │
│ └────┘└────┘└────┘└───┘ │
└─────────────────────────┘
```

2. At the configuration menu select "Control Head Address".
3. Use the up/down arrow button to select the control head address.
4. Press ENT to set.

The control head will automatically cycle power and be ready for normal operation.

4.5 MICROPHONE MOUNTING

For proper operation of monitor modes, a microphone hanger clip must be used.

Mount the microphone hanger clip securely to the desired location. The KNG mobile microphones have a self grounding hang-up button. No grounding is required for the hang-up clip.

1. Drill 1/4" pilot holes through the mounting plate. A mounting template can be found on page 15 or use the hang-up clip as a template. Make sure the holes are free from the metal flashing.

2. Fasten the mounting bracket to the chassis using self tapping screws.

To connect the microphone to the radio:

1. Align the notch on the microphone connector toward the top of the radio.

2. Gently slide the connector onto the radio's microphone jack.
    DO NOT FORCE. EXCESS PRESSURE COULD DAMAGE THE MICROPHONE.

3. Tighten the connection by screwing the microphone connector sleeve in a clockwise direction.
    FINGER TIGHTEN ONLY

PART OF MICROPHONE

TO RADIO
MIC CONNECTOR

Radio
Pin Location

Microhone
Pin Location

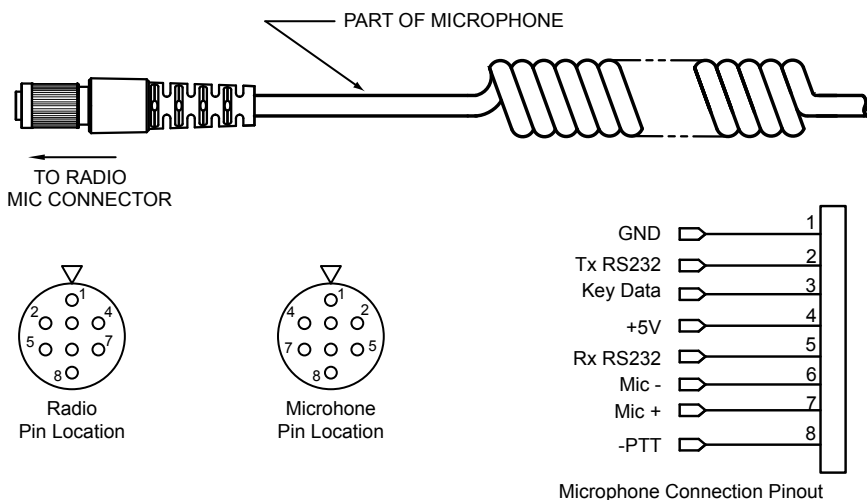|	
GND	1
Tx RS232	2
Key Data	3
+5V	4
Rx RS232	5
Mic -	6
Mic +	7
-PTT	8

Microphone Connection Pinout

Figure 7 - Microphone Connections

4.6 ANTENNA INSTALLATION

Use only 50 ohm antenna in the proper frequency range. Make sure the antenna is capable of handling the radio's output power.
Install the antenna as instructed per the antenna's manufacturer guidelines.
Keep the antenna free from other equipment and hardware. Keep the antenna cable as short as possible and free from being pinched or in the way of other mechanical hardware.

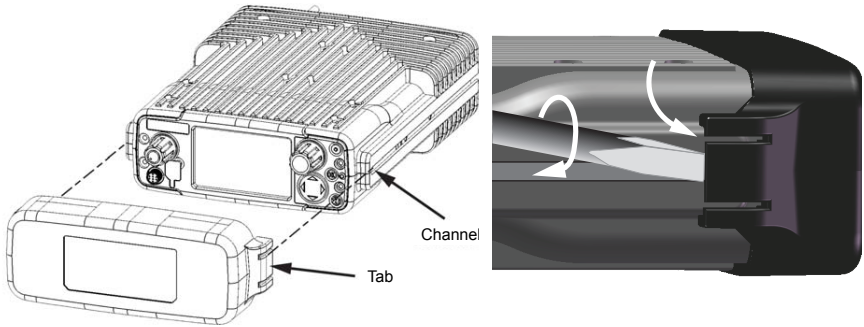## 4.7 KAA0661 COVER INSTALLATION AND REMOVAL

Installation:

1. Line the radio knobs up with the openings inside the cover.

2. Slide the cover over the front of the radio until the tabs click into the side channels of the radio. (See Figure 8.)

Removal:

IMPORTANT: Angling the cover during removal could damage the radio knobs. Release both tabs before removing the cover.

1. Use a flat blade screw diver to pry up the tab while gently pushing toward the front of the radio. (See Figure 8.)
    When the tab pops free do not continue pushing the cover, perform the same action on the other tab.

2. When both tabs are free pull the cover straight off the radio.

Channel

Tab

Figure 8 - KAA0661 Installation and Removal

4.8 INSTALLATION ACCESSORIES

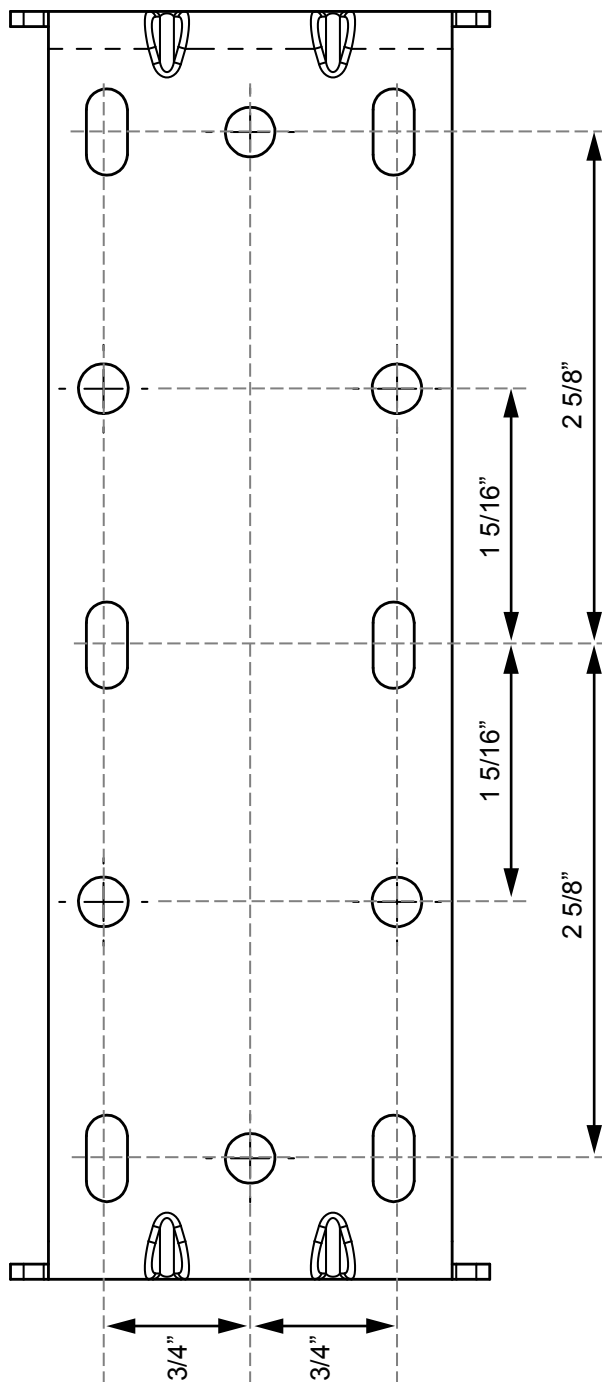| Part Number	Description
KAA0276	KNG Mobile Standard Microphone
KAA0290	KNG Mobile Keypad/Smart Microphone
KAA0621	KNG Mobile Speaker with Mounting Bracket
KAA0630 or KAA0633	KNG Dash Mount/Radio Core Installation Kit
KAA0638	KNG Remote Head Installation Kit (Requires cable assembly)
KAA0636	8 ft. Remote Cable Assembly
KAA0637	17 ft. Remote Cable Assembly
KAA0638	25 ft. Remote Cable Assembly
KAA0661	Display Cover

4.8 MOUNTING TEMPLATES

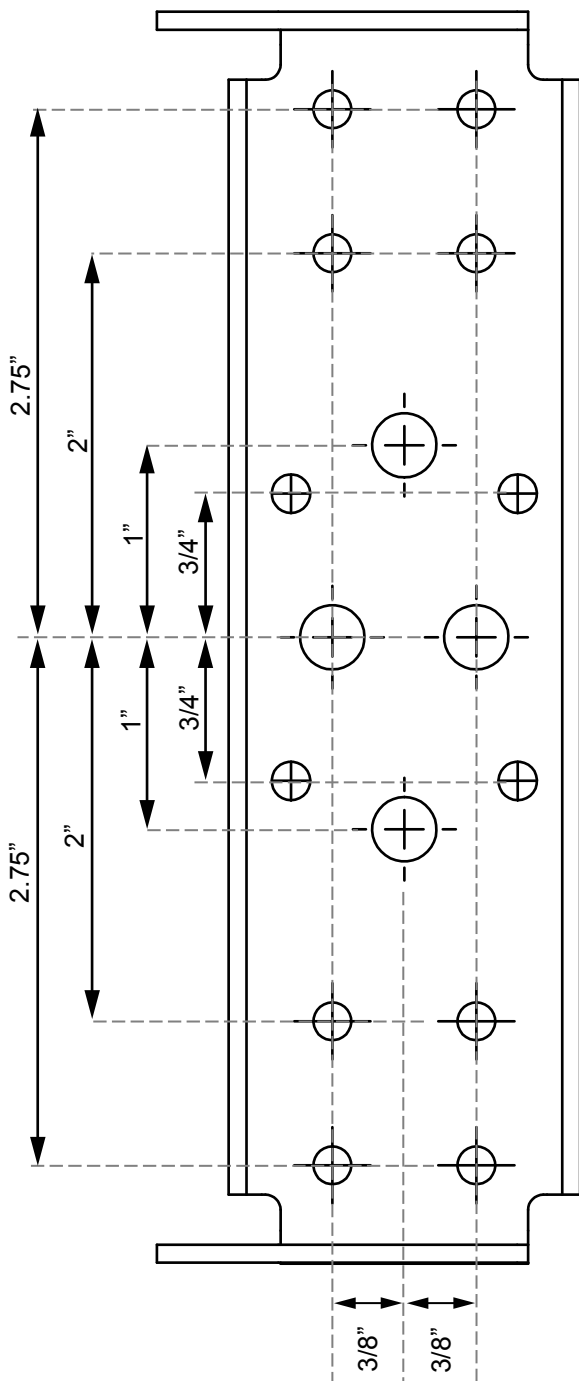*Figure 9 - Dash Mount/Radio Core Mounting Template*

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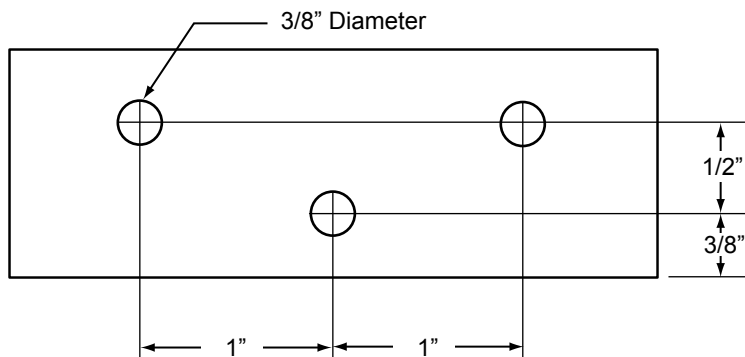*Figure 10 - KAA0638 Remote Mount Mounting Template*

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3/8" Diameter

1/2"

3/8"

1"   1"

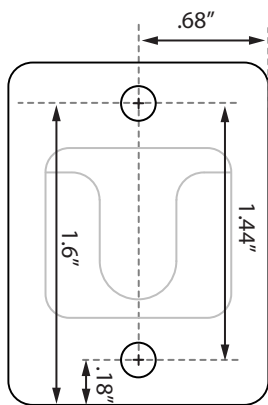*Figure 8 - KAA0261 Speaker Mounting Template*

.68"

1.44"

1.6"

.18"

Figure 11- KNG Microphone Clip Mounting Template